GOVERNMENT OF INDIA.

India. METEOROLOGICAL DEPARTMENT.

THE

INDIA WEATHER REVIEW

FOR THE YEAR

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BY

JOHN ELIOT, M.A.,
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Corrigenda in the Monthly Weather Reviews and Annual Summary for the year 1893.

Page.	Column.	Part.	Subject.
47	...	January 1893 .	*Read* 1·63 against Leh in the column of "Total rainfall of the month".
75	...	February " .	*For* "0·24" *read* "2·04" against Mergui in the column of "Normal rainfall for period, 1st January to 28th February 1893".
76	...	Ditto " .	*For* "29·787" and "29·989" *read* "29·814" and "30·024", respectively, against Buxar in the columns of "Mean actual pressure" and "Mean pressure reduced to sea-level".
79	...	Ditto " .	*For* "— 9" *read* "+ 9" against Kurrachee in the column of "Wind velocity percentage variation".
80	...	Ditto " .	*For* "28·549" *read* "27·549" against Chitaldroog in the column of "Lowest pressure recorded during month".
82	...	Ditto " .	*For* "29·958", "20th" and "·277" *read* "29·975", "3rd" and "·260", respectively, against Bushire in the columns of "Lowest pressure", "Date" and "Total range of pressure during month".
"	...	Ditto " .	*Omit* "35·8" in column of "Date" of Lowest temperature observed, etc.
"	...	Ditto " .	*For* "85·8" *read* "35·8" against Cuddapah in the column of "Absolute range during month".
83	...	Ditto " .	*For* "?" *read* "3" against Cocanada in the column of "Wind direction from N.W."
"	...	Ditto " .	*For* "2" *read* "1" against Meshed in the column of "Number of rainy days".
102	...	March " .	*For* "0" *read* "— 3·4" against Tenasserim under heading "Daily range" in the table on the bottom of the page.
113	...	Ditto " .	*For* "0·80", "3·83", "0·81", "0·76", "0·96" and "1·51" *read* "0·51", "0·74", "0·37", "0·18", "0·50" and "0·81" in the column of "Normal rainfall of month" against Burma Coast and Bay Islands, Tavoy, Burma Inland, Mandalay, Kindat and Bhamo, respectively.
"	...	Ditto " .	*For* "+ 0·65", "+ 1·46", "— 0·15", "— 0·32", "+ 0·25" and "— 0·51" *read* "+0·99" "+ 4·54", "+ 0·29", "+ 0·26", "+ 0·71" and "+ 0·19" in the column of "Variation from normal" under "Rainfall" against Burma Coast and Bay Islands, Tavoy, Burma Inland, Mandalay, Kindat and Bhamo, respectively.
"	...	Ditto " .	*For* "3·83", "0·76", "0·96" and "1·51" *read* "0·74", "0·18", "0·50" and "0·81" in the column of "Normal rainfall for period 1st to 31st March" against Tavoy, Mandalay, Kindat and Bhamo, respectively.
"	...	Ditto " .	*For* "+1·45", "—0·32", "+0·25" and "—0·51" *read* "+4·54", "+0·26", "+0·71" and "+0·19" in the column of "Variation from normal of period 1st to 31st March" under "Rainfall" against Tavoy, Mandalay, Kindat and Bhamo, respectively.
119	...	Ditto " .	*Insert* "1" and "6", respectively, against Masulipatam in the columns of "Wind direction from NE" and "Mean velocity in miles per hour".
121	...	Ditto " .	*For* "8" *read* "9" against Cocanada in the column of "Mean velocity in miles per hour".
131	1	April " .	*For* "0·13" *read* "·013" in line 2.
"	1	Ditto " .	*For* "—·004" *read* "+·005" in the tabular statement against Assam in the column of "Variation from normal of mean monthly pressure".
"	2	Ditto " .	*For* "—4·1" *read* "—1·1" in the tabular statement against Deccan in the column of "Variation of mean minimum temperature from normal".
138	2	Ditto " .	*For* "S. *Urrato*" *read* "*Erato*" in para. 3rd, line 11, under "Brief summary of the weather in the Arabian Sea, etc."
149	...	Ditto " .	*Omit* "1893" from the heading of column 8 under "Rainfall".

Corrigenda in the Monthly Weather Reviews and Annual Summary for the year 1893—continued.

Page.	Column.	Part.		Subject.
149	...	April	1893 .	*For* "18·91" *read* "8·91" against Port Blair in the column of "Rainfall of month".
"	...	Ditto	" .	*For* "1·60" and "2·85" *read* "1·69" and "292" in the column of "Total rainfall from 1st March to 30th April 1893" against Diamond Island and Kindat, respectively.
"	...	Ditto	" .	*For* "?" *read* "7·94" against Mergui in the column of "Normal rainfall for period 1st March to 30th April 1893".
"	...	Ditto	" .	*For* "?", "+0·26" and "+1·39" *read* "+2·53", "+0·35" and "+1·46" in the column of "Variation from normal of period, 1st March to 30th April" under "Rainfall" against Mergui, Diamond Island and Kindat, respectively.
151	...	Ditto	" .	*Omit* "1893" from the heading of columns 8 and 9 under "Rainfall".
153	...	Ditto	" .	Ditto ditto ditto.
155	...	Ditto	" .	Ditto ditto ditto.
157	...	Ditto	" .	Ditto ditto ditto.
"	...	Ditto	" .	*For* "3" and "?" *read* "1" and "—0·56" against Bushire in the columns of "Number of winds from E" and "Rainfall variation from normal" of the month, respectively.
168	1	May	" .	*For* "—·046" and "—·035" *read* "—·038" and "—·027" in the tabular statement against Assam in the columns of "Barometric variation" and "Anomaly", respectively.
207	...	Ditto	" .	*For* "1‡" *read* "7‡" against Naya Dumka in the column of "Wind velocity in miles per hour."
"	...	Ditto	" .	*Insert* "2" against Rampore Boalia in the column of "Number of winds from N".
211	...	Ditto	" .	*For* "4" and "12" *read* "5" and "13" against Gulburga in the columns of "Number of winds from Calm and NW", respectively.
212	...	Ditto	" .	*For* "93·0" and "49·0" *read* "94·0" and "50·0" against Kuch Fort in the columns of "Highest temperature" and "Absolute range during month", respectively.
213	...	Ditto	" .	*For* "0·21" and "—0·93" *read* "0·07" and "—1·07" against Aden in columns 7 and 9 under "Rainfall", respectively.
246	...	June	" .	*For* "29·555" *read* "29·655" against Comilla in the column of "Mean actual pressure (reduced to 32)".
291	...	July	" .	*For* "+1·64" *read* "+2·64" against Cuddalore in the column of "Rainfall variation from normal" of the month.
354	2	September	" .	*For* "Arakan Sea" *read* "Arabian Sea" in para. 1st, line 4.
385	...	Ditto	" .	*For* "1·45" and "6·17" *read* "1·35" and "6·07" against Zanzibar in the columns of "Monthly rainfall" and "Total rainfall, 1st June to 30th September 1893", respectively.
394	2	October	" .	*For* "east" *read* "west" in para. 2nd, line 13.
515	...	December	" .	*Insert* "4" in the column of "Number of rainy days" against Isphahan.
"	...	Ditto	" .	*For* "?" "0?" and "?" *read* "1·64," "1·64" and "0·69" against Isphahan in the columns of "Rainfall of month," "Total rainfall from 1st October to 31st December 1893" and "Heaviest rainfall during month," respectively.
540	2	Annual Summary 1893.		*For* "Feeble storm" and "Very severe cyclone" *read* "Cyclonic storm of moderate intensity" and "Cyclone" in the column of "Character of storm" against storms No. "1" and "2," respectively, in the tabular statement below the page.
541	...	Ditto	.	*For* "Feeble cyclonic storm" *read* "Cyclonic storm of moderate intensity" in the column of "Character of storm" against storms No. "3," "4" and "5."

Corrigenda in the Monthly Weather Reviews and Annual Summary for the year 1893—concluded.

Page.	Column.	Part.	Subject.
542	...	Annual Summary 1893.	*For* "Cyclonic storm of moderate intensity," "A small cyclone of great intensity" and "Cyclonic storm of considerable intensity" *read* "Cyclonic storm of considerable intensity," "Cyclone" and "Cyclonic storm of moderate intensity" in the column of "Character of storm" against storms No. "7," "8" and "9," respectively.
543	...	Ditto	*For* "Cyclone of small extent and considerable intensity" and "Severe cyclonic storm" *read* "Cyclone" and "Cyclonic storm of considerable intensity" against storms No. "10" and "11," respectively.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

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CALCUTTA, JANUARY, 1893.

INTRODUCTION.

The monthly review of the weather in India for the month of January 1893 is based on observations taken daily at 8 A.M. at 182 stations, and on additional observations recorded at 10 A.M. and 4 P.M. at 90 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 are issued up 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. It may also be noted that arrangements have been made during the past year for obtaining fuller and more satisfactory information than hitherto of the snowfall in the Himalayan and Afghan mountain areas. 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 observations 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 1893.

The month of January may be termed the first month of the north-east monsoon proper. North-east winds prevail over the whole of the Arabian Sea and 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 over Northern and Central India and the Deccan, moderate amount of aqueous vapour in the air, and a large range of humidity caused by the large diurnal variation of temperature (frequently giving rise to heavy mists at night), 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 usually shallow and ill-defined, but extensive. These (primary) depressions, which usually advance eastwards across Northern India, frequently give rise to deep secondary stationary depressions in the Punjab. When a primary depression is not accompanied with a secondary depression, it either gives no rain or light to moderate scattered rain over Northern and Central India. When primary depressions give rise to secondary depressions in the Punjab, the double disturbances usually give 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 most important abnormal features of the month. They usually produce large and marked temperature changes. A warm wave in which temperature is frequently from 5° to 15° above the normal generally immediately precedes each storm, and a dry cool wave follows in its rear.

In the review of the month of December last it was stated that the pressure conditions in certain important features resembled those which prevailed in November and December 1890, and were opposite in character to those which obtained in November and December 1891, and it was hence inferred that the present cold weather would be more severe and stormy than usual, and the precipitation more or less excessive. This anticipation has been fully verified. A series of four cold weather depressions and storms of considerable severity crossed Northern India during the month and gave general moderate rain to the whole of Northern and Central India and unusually heavy snowfall in the Western Himalayas.

The first depression appeared on the North-West Frontier on the 2nd, passed through Rajputana on the 3rd and filled up in the North-Western Provinces on the 4th. It was throughout a shallow depression and gave a moderate burst of rain to the Punjab, North-Western Provinces and the eastern states of Rajputana and Central India.

Although normal anti-cyclonic conditions were re-established in North-Western India on the 4th, weather continued to be slightly disturbed for two days longer, and light showers were received in Central India, the Central Provinces and Berar on the 5th and 6th, and in Bengal on the 7th and 8th. Skies cleared in the disturbed areas on the 8th, and fine dry weather with clear skies obtained over the whole of India on the 9th.

The storm was not accompanied with or followed by large temperature changes. Temperature at the commencement of the month was considerably in defect in North-Western India and also in Burma, and was in excess in North-Eastern and Central India and the Peninsula. These conditions continued until the 8th, when the cool area began to extend eastwards and southwards. On the 10th temperature was below the normal over the whole of India except Madras. A warm wave was crossing the North-West Frontier, which slowly advanced over the Punjab, Sind and Rajputana during the next three days.

The second cold weather disturbance of the month apparently originated in Central Persia and passed through Baluchistan on the 13th and 14th. It entered Upper Sind as a very shallow depression on the morning of the 15th, and drifted eastwards through North and Central Rajputana on the 16th, the North-Western Provinces on the 17th and Bengal on the 18th and passed into Upper Burma and Assam on the 19th, and disappeared during the next 24 hours. There was a slight tendency to the formation of a secondary depression in the Punjab on the 15th, but it did not pass beyond the initial stage. The storm gave light to moderate general rain to Northern India during its passage across from Sind to Burma.

The warm wave in front of this storm was in the Indus Valley on the 14th, West Rajputana on the 15th, Central and East Rajputana on the 16th, Bihar on the 18th and Bengal on the 19th. The cool wave following it crossed the North-West Frontier on the 17th. The crest was in Central Rajputana on the 18th, Central India on the 19th, and Chota Nagpur on the 20th. A cool wave advanced southwards from Sind and Rajputana along the west coast of India during the same period from the 17th to the 22nd, and gave unusually cool dry weather. The mean temperature of Surat was 8.°3 below the normal on the 19th, of Bombay was 6.°4 below it on the 20th, and of Ratnagiri 6.°8 below it on the 21st. Temperature was more or less below the normal on the 20th and 21st over the whole of India except the Deccan and Southern India.

Weather was slightly disturbed in the Orissa and Madras coast districts on the 22nd and 23rd, and light to moderate showers were received. Whilst this slight disturbance was in progress, the third cold weather depression of the month formed in Baluchistan. It was the most severe storm of the month. It crossed the Sind frontier on the 23rd as a moderate primary depression, and advanced along an east-by-south track across Northern India. A shallow secondary depression formed in the North Punjab on the 24th, but filled up during the next 24 hours. The primary depression was in Central Rajputana on the 24th, Bundelkhand and the adjacent districts of the North-Western and Central Provinces on the 25th, South Bengal on the 26th, and passed into Upper Burma on the 27th. It gave a moderate burst of rain to the whole of Northern India from the Punjab to Bengal and Assam, light showers to Upper Burma, and heavy snow in the Western Himalayas and Afghan mountains. This depression was preceded by a feeble warm wave, but was followed by an unusually intense cool wave. The lowest temperatures

in Northern India of the month were registered during the advance of this cold wave. The following table gives data for a few stations:—

STATION.	Lowest reading of the minimum thermometer recorded during the month.	Date.
	°	
Gnatong	− 5·5	27th.
Leh	− 4·8	30th.
Kailang	− 9·8	27th.
Murree	19·2	26th & 27th.
Dera Ismail Khan	33·0	26th.
Roorkee	35·8	27th.
Jeypore	38·2	27th.
Cawnpore	39·0	28th.
Patna	41·8	28th.
Burdwan	45·1	28th.
Calcutta	45·7	28th.
Dacca	46·2	28th.
Rangoon	56·2	29th.
Port Blair	68·7	30th.

The fourth storm of the month originated in Baluchistan on the 26th and 27th. It was a double disturbance consisting of a very shallow primary and of a deep secondary depression. The primary depression advanced through Sind into Central Rajputana on the 28th. It continued to advance eastwards and filled up in Bihar and Chota Nagpur on the 30th. The secondary depression almost certainly formed in North Baluchistan on the 27th and advanced into the Central Punjab on the 28th. It filled up during the next 24 hours. This storm gave a moderate burst of rain to the Punjab, and heavy snow in the hill districts. Skies cleared rapidly on the 28th, and fine clear weather was re-established in Northern India on the 29th and prevailed during the remainder of the month. The cold wave due to this storm chiefly affected North-Western India, and very low night temperatures were registered on the 29th and 30th in Baluchistan, Sind and the Punjab, which were in some cases lower than on the 26th, 27th and 28th after the disappearance of the third disturbance of the month.

Pressure.—The mean pressure of the month of the Indian land area was ·043″ below the normal, a very large deficiency, more especially when contrasted with the mean general excess of ·035″ in the preceding month. The local variations or anomalies were unusually small. There was a slight local deficiency of pressure in Northern India and a slight excess in the Peninsula, the continuation of larger similar features in those areas during the preceding two months. The most important feature of the distribution of pressure was a very considerable deficiency at the hill stations when compared with the plain stations. This was the continuation of a feature which began to be exhibited in October. The following table illustrates this feature for five pairs of stations:—

PAIR OF STATIONS.	VERTICAL PRESSURE ANOMALY.			
	January, 1893.	December, 1892.	November, 1892.	October, 1892.
	″	″	″	″
Leh and Lahore	—·061	—·007	—·018	+·023
Simla and Ludhiana	—·050	—·034	—·024	—·023
Chakrata and Roorkee	—·027	+·005	+·007	—·009
Darjeeling and Dhubri	—·015	—·003	+·005	—·004
Quetta and Jacobabad	—·020	+·001	+·018	+·017

The data indicate that the deficiency of pressure was due to conditions in the higher atmospheric strata over Northern India and in the regions to the north and north-west of India. The diminished pressure accompanied lower temperature than usual, the deficiency in that element being also greater at the hill than at the plain stations.

Temperature.—In consequence of the unusually stormy weather and the abnormally heavy snow in the hill districts, the mean day temperature was very considerably below the normal over the whole of Northern India, and was in moderate excess in Southern India. The deficiency ranged between 4° and 7° in North-Western India, and was greatest at the foot of the hills between Sialkot and Bareilly and at the hill stations in the Western Himalayas. The mean night temperature generally varied by small amounts from the day in the plains. It was almost as largely in defect at the hill stations as the day temperature.

The mean temperature of the month was below the normal over the whole of Northern and Central India, the Deccan and Burma. The deficiency was above 2° over the greater part of Northern India and slightly exceeded 3° in two areas, *viz.*, the East Punjab, represented by Sialkot (—3°·2), Lahore (—3°·0), Ludhiana (—3°·2), and Central India represented by Indore (—3°·3), Neemuch (—3°·2) and Jeypore (—3°·0).

The month was unusually cold at the hill stations in Northern India. The depression of temperature averaged 8°·7 at Murree, 5°·9 at Simla and 4°·1 at Darjeeling.

The mean temperature of the month was in moderate excess in South and Central Madras and Mysore. The excess was slightly greater than 2° in an area including the stations of Salem, Coimbatore and Trichinopoly.

The lowest minimum temperatures of the month in Northern India were generally recorded on the 26th, 27th

and 28th after the third disturbance of the month, but in a few cases, chiefly in Upper India, on the 29th and 30th after the dispersion of the last storm of the month. The lowest minimum temperatures at the level of the plains were in no way remarkable, and lower temperatures have been recorded in previous years, especially in 1876, 1883 and 1886. Lower night temperatures were, however, registered at several hill stations than have been previously recorded, thus showing the unusual severity of the weather in that area.

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

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

The temperature conditions of the month in India were hence determined by the storms of the period. In Burma the conditions were different in character and due to different causes. In that area the night temperature was more largely in defect than the day temperature. These conditions were remarkably persistent during the month It appears to be most probable that the depression of temperature in that area was due to the influx of unusually cool and dry winds from the north and not to an effect transmitted eastwards from Northern India.

Winds.—Winds were stronger and less steady than usual in Burma, and contained a strong easterly component. They were stronger and steadier over the whole of Northern India, more especially in the central districts of the Gangetic plain, including Bihar and the eastern districts of the North-Western Provinces. They were on the average of the month more westerly and less northerly than usual. They were unusually steady and strong in Sind. North-west winds prevailed to an abnormal extent at the West Coast stations as far south at least as Karwar. These winds were chiefly an after-effect of the last three storms of the month. Wind differed little from the normal in direction or strength in the Deccan and Southern India They were on the whole slightly stronger but less steady than usual.

Humidity.—The air contained less aqueous vapour than usual and was slightly drier in North-Eastern India and Burma. The deficiency was very marked in Lower Burma and at Port Blair in the Andamans. The air was unusually damp over the whole of the North-Western Provinces, the Punjab, Rajputana, and the North Deccan, due chiefly to the unusually low temperature of the period. The mean humidity of the month was more than 10 in excess in the Punjab and the greater part of Rajputana and the North-Western Provinces. The air was slightly drier in South India and the West Coast districts. In the latter area as in Burma, it was apparently due to the extension of dry northerly winds further south than usual.

Cloud.—The amount of cloud was in excess over by far the greater part of India. The excess was greatest in the Punjab and adjacent hill districts. It was below the average to a moderate extent in Lower Sind, Kathiawar, South-West Rajputana, and the Bombay or West Coast districts. The mean cloud amount of the month was less than 1, or skies were practically clear throughout the month, in the West Coast districts from Surat to Mangalore. The following table gives comparative data of the aqueous vapour pressure, humidity and amount of cloud in ten meteorological provinces :—

Meteorological Provinces.	Mean variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	"	%	
Burma Coast and Bay Islands	—·058	— 5	+0·5
Assam	—·016	+ 1	+0·9
Bengal and Orissa	—·044	— 4	+0·8
Gangetic Plain and Chota Nagpur	—·005	+ 4	+0·8
Upper Sub-Himalayas	+·031	+14	+1·2
Indus Valley and North-West Rajputana.	+·037	+12	—0·1
East Rajputana, Central India and Guzerat.	+·006	+ 7	+0·2
Deccan	+·025	+ 9	+0·4
West Coast	—·028	— 2	—0·4
South India	—·017	— 1	—0·1

Rainfall.—The rainfall of the month occurred chiefly during the four disturbances of the month, *viz.*, from the 2nd to the 8th, the 15th to the 20th, the 23rd to the 27th, and the 28th and 29th. In all cases it began in Upper India and extended eastwards into Bihar, Bengal or Upper Burma. It was even more general and widely distributed than usual in the cold weather storms, and hence the rainfall of the month was more or less largely in excess over the whole of

India except Burma, South India and the West Coast districts. The rainfall of the month was practically *nil* in the Bombay Coast districts, and small in amount in Madras. The excess was greatest in the Punjab, the North-Western Provinces and Assam. The following table gives comparative rainfall data of the eleven meteorological provinces:—

METEOROLOGICAL PROVINCE.	Mean actual rainfall of January 1893.	Mean normal rainfall for January.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	0·36	0·50	−0·15
Burma Inland	0·47	0·82	−0·35
Assam	2·02	0·82	+1·20
Bengal and Orissa	0·76	0·44	+0·32
Gangetic Plain and Chota Nagpur	1·24	0·67	+0·57
Upper Sub-Himalayas	3·32	1·70	+1·62
Indus Valley and North-West Rajputana.	1·39	0·56	+0·83
East Rajputana, Central India and Guzerat.	0·49	0·33	+0·25
Deccan	1·15	0·33	+0·80
West Coast	0·50	0·23	+0·23
South India	0·35	0·67	−0·30

The snowfall reports show that the precipitation was abnormally heavy in the hill districts. A total fall of about 12 feet was received during the month at Murree and Simla. Further in the interior much larger amounts have fallen. Thus it is stated that on the Rotang Pass in Kulu the total fall of the month was 29½ feet, and in the higher elevations of Kumaun it exceeded 30 feet. The snowfall in the interior of the hill districts is acknowledged by the natives of those districts to have been heavier than has been known for many years. In some cases it is said that no such fall has occurred in January during the past 50 years. A very unusual feature of the snowfall was the low elevation to which it descended. It fell in valleys to below 3,000 feet, and the districts of Hazara and Rawalpindi had a general light fall during the third disturbance of the month.

A similar fall on a smaller scale occurred in January 1883.

Atmospheric Pressure.

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

Casella 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.	Delhi.	Negapatam.
Akyab.	Dinajpur.	Noakhali.
Arrah.	Faridpur.	Nowgong.
Bankura.	Ghazipur.	Perim.
Barisal.	Gorakhpur.	Rajahmundry.
Bassein.	Hoshangabad.	Rampur Boalia.
Bhamo.	Hyderabad (Sind).	Ranchi.
Bhuj.	Jalpiguri.	Rawalpindi.
Bogra.	Madras (Port Office).	Rungpur.
Bushire.	Mandalay.	Sambhar.
Chaibassa.	Mangalore.	Seoni.
Chittagong.	Mergui.	Sialkot.
Chupra.	Midnapore.	Silchar.
Cochin.	Mooltan.	Sirajganj.
Cocos Island.	Motihari	Surat.
Comilla.	Mymensingh.	Toungoo.
Cuddapah.	Naya Dumka.	

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

Amini Divi.	Balasore.	Bhavnagar.
Chakrata.	Kailang.	Malegaon.
Chanda.	Karwar.	Mercara.
Chikalda.	Katmandu.	Pithoragarh.
Coimbatore.	Kotagiri.	Sirsa.
Dehra.	Kurnool.	Wellington.
Gnatong.	Leh.	

At Bombay and Calcutta, large Newman's standards on Fortin's principle, with adjustable scales and tubes of more than 0·5″ 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 Comorta, Mandalay, Kendat, Bhamo, Shortt's Island, Umballa, Veraval, Bhavnagar, Bijapur, Aurangabad, Indur, Beeder, Gulbarga, Raichur, Kamamat, Cherat, Mussoorie, Gnatong, Kodaikanal, Kotagiri, Meshed and Perim, 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 gravity and to sea-level, the highest and lowest pressures and their respective dates 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 observations, 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 2nd class observing stations. The mean daily pressures have been obtained at all stations except Zanzibar (for which crude means are used) by taking the means of the 10 and 16 hours' observations with additive corrections for each month, derived from the observations of the same or a neighbouring station.

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 ·05″ or $\frac{1}{20}$th of an inch. The second chart (Plate II) gives the variation 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 eleven-year period 1878-88, the same period being selected for all stations 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 six years in the case of Chamba to forty-four 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 of the whole of India in January 1893 was very considerably in defect. The mean deficiency determined from the 8 A.M. variations was ·043″. The following gives the average deficiency in each of the eleven meteorological provinces:—

Meteorological Province.	Variation of the mean 8 A.M. pressure of month from normal.	Pressure anomaly.	Variation of mean temperature of month from the normal.
	″	″	°
Burma Coast and Bay Islands	−·043	0	−1·4
Burma Inland	−·019?	+·024?	−2·0
Assam	−·042	+·001	−1·7
Bengal and Orissa	−·040	+·003	−1·9
Gangetic Plain and Chota Nagpur	−·049	−·006	−1·3
Upper Sub-Himalayas	−·046	−·003	−3·0
Indus Valley and North-Western Rajputana.	−·058	−·015	−1·5
East Rajputana, Central India and Guzerat.	−·041	+·002	−2·3
Deccan	−·042	+·001	−1·8
West Coast	−·039	+·004	−0·9
South India	−·039	+·004	+0·6

The preceding data show that the variations were nearly the same in amount over the whole Indian area. There was a very slight local deficiency in Northern India, greatest in the Indus Valley, and a slight excess in the Peninsula. The relative distribution of pressure was hence almost identical with the mean. The mean total range of pressure between Upper India and the south of the Bay averaged ·025″ less than the normal range, and was very approximately ·20″.

The following table gives data for limiting stations in the area represented by the whole of the stations contributing meteorological data:—

Station.	Variation of the mean pressure of month from the normal.
	″
Mergui	−·033
Sibsagar	−·035
Peshawar	−·059
Bushire	−·080
Aden	−·081
Colombo	−·028

The data indicate that the deficiency of pressure increased northwards and westwards, and that it was actually largest at the most westerly stations of Aden and Bushire.

Even more remarkable than the general deficiency of pressure over the whole Indian monsoon area was the very large deficiency at the hill stations, when compared with the neighbouring plain stations. The following table gives data illustrating 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	—·107	Lahore	—·046	—·061
Quetta	—·071	Jacobabad	—·051	—·020
Murree	—·096	Rawalpindi	—·048	—·048
Simla	—·096	Ludhiana	—·046	—·050
Chakrata	—·081	Roorkee	—·054	—·027
Darjeeling	—·073	Dhubri	—·058	—·015
Mount Abu	—·052	Deesa	—·055	+·003
Pachmarhi	—·041	Hoshangabad	—·050	+·009
		Nagpur	—·035	—·006
Wellington	—·002	Coimbatore	—·041	+·039

The preceding data show that there was a considerable deficiency of pressure at all the northern hill stations when compared with the plain stations. The deficiency was greatest at the hill stations in the Punjab Himalayas. It is noteworthy that a deficiency of pressure at the hill stations was shown by the November and December data, although it was small in amount. It has hence been a permanent feature of the pressure distribution of the past three months. This is indicated by the following data :—

PAIR OF STATIONS.	VERTICAL PRESSURE AMOMALY.			
	October, 1892.	November, 1892.	December, 1892.	January, 1893.
	"	"	"	"
Quetta and Jacobabad	+·017	+·018	+·001	—·020
Leh and Lahore	+·023	—·018	—·007	—·061
Murree and Rawalpindi	—·007	—·001	—·004	—·048
Simla and Ludhiana	—·025	—·024	—·034	—·050
Chakrata and Roorkee	—·009	+·007	+·005	—·027
Darjeeling and Dhubri	—·004	+·005	—·003	—·015
Wellington and Coimbatore.	+·034	+·026	+·019	+·039

Deficiency of pressure at the hill stations, relatively to the plains, is almost invariably associated with a stormy cold weather season and heavier rain than usual in the plains and excessive snow on the hills. If, at the same time, pressure is relatively in excess at the same level in Southern India as determined by the observations of Wellington and Coimbatore, experience also shows that the cold weather is as a rule exceptionally severe and stormy.

Hence the only important abnormal features in the pressure conditions of India in the month of January 1893 were :—

(1) A large general deficiency of pressure over the whole Indian land and sea area and probably over a larger area extending to the north and west into Central and Western Asia.

(2) Considerable deficiency of pressure at the elevation of the hill stations in Northern India, greatest in the Western Himalayas and increasing in amount with elevation.

(3) Considerable excess of pressure at the level of the hill stations in Southern India.

(4) Slightly feebler mean gradients than usual during the month for north-east monsoon winds in the lower atmosphere.

Barometric depressions and cold weather storms of the month.

On the morning of the 1st, pressure was above the normal by moderate amounts over the whole of India, and the barometric changes of the preceding 24 hours were everywhere small. Pressure fell very rapidly in Baluchistan and Sind during the next 24 hours dee to the advance of a depression across Baluchistan. The following gives an account of this disturbance.

Cold weather storm of the 2nd to the 5th January.—The Bushire observations and the logs of vessels in the Persian Gulf in the last week of December indicate that weather was fine at that time in Southern Persia and the Persian Gulf, and that no cyclonic disturbance passed through Central Persia immediately antecedent to the appearance of the present storm in Baluchistan. It hence probably formed in Baluchistan. The following gives 8 A.M. data of the 2nd, defining its position :—

STATION.	BAROMETER.			WIND.		Cloud.	Rainfall in past 24 hours.	WEATHER.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.			
	"	"	"		Miles.			
Chaman	25·714	—·209	?	ESE	4	9	*Nil*	...
Quetta	24·648	—·194	—·088	Calm	1	4	*Nil*	Frosty.
Jacobabad	30·074	—·136	—·046	Calm	2	1	*Nil*	...

The great majority of stations in Northern India reported calms. Northerly winds prevailed on the Sind, Bombay and Bengal coasts.

3rd January.—The depression had advanced during the previous 24 hours from Baluchistan to Central Rajputana, where pressure had decreased rapidly. Its position and character at 8 A.M. are indicated by the following data:—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.	Weather.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.			
	"	"	"		Miles.		Inch	
Ajmere	30·025	—·076	—·096	SW	5	9	0·05	...
Sirsa	30·010	—·105	—·090	E	2	10	0·26	...
Bickaneer	29·978	—·130	P	NNW	7	10	...	...
Mount Abu	P	P	P	NW	5	0	...	...

The centre of the depression was hence a little to the east of Bickaneer.

Light to moderate rain had fallen in the eastern districts of the Punjab and in the North-Western Provinces, the northern districts of the Central Provinces and Central India. Practically none had been received in Sind or Rajputana.

4th January.—Pressure during the preceding 24 hours had increased moderately to rapidly in North-Western India. A very shallow area of low pressure (relatively to North-Western and North-Eastern India) stretched from the foot of the hills between Bareilly and Ludhiana and the north-eastern districts of the Central Provinces. This was apparently the continuation of the disturbance which was in Central Rajputana on the previous day. There was a tendency to the formation of a secondary depression at the foot of the hills in Rohilkhand. Skies were densely clouded in the North-Western Provinces, Central India and the Central Provinces, and winds light and very irregular. General rain had fallen in the same districts as on the previous day, and amounts exceeding one inch were recorded at many stations in the eastern districts of the North-Western Provinces.

5th January.—During the 24 hours preceding 8 A.M. of this day, pressure increased rapidly in North-Western India and fell slightly to briskly in North-Eastern India and Burma. These changes modified very largely the distribution of pressure and established for a brief period strongly marked anti-cyclonic conditions in Upper India, where pressure was ·10″ to ·15″ above the normal at 8 A.M. The residual depression of the previous day had completely filled up and skies were rapidly clearing in the North-Western Provinces and Central India. Light showers had been received in the East Punjab, North-Western Provinces, Central India and the Central Provinces.

The following were the chief features of this cold weather storm:—

1st.—It probably formed in Baluchistan.

2nd.—It marched rather rapidly eastwards into the western districts of the North-Western Provinces, filling up as it advanced.

3rd.—There was a slight tendency to the formation of a secondary depression on the 4th, but the depression did not pass beyond the initial stage.

4th.—The disturbance, although apparently feeble, gave a general and moderately heavy burst of rain to the East Punjab, the North-Western Provinces and Central India.

The highest pressures of the month were registered in Upper India on the morning of the 5th, but they were not so high as are frequently recorded in the month of January.

The weather continued slightly disturbed in the Central Provinces, Bihar and North-Eastern India for a short period after the filling up of the previous depression. These districts received local thunderstorms (in some cases accompanied with hail) on the 6th and 7th. Skies cleared in these districts on the 8th, and on the morning of the 9th fine clear weather obtained generally over the whole of India. The barometric changes were large and rapid during the next five days, but weather continued fine. On the 14th pressure, which was considerably below the normal in Northern India, gave way rapidly in North-Western India. This fall preceded the appearance of the second cold weather depression and storm of the month.

Cold weather storm of the 15th to the 18th January.—The Bushire observations establish that a depression crossed Central Persia to the north of that station three days before the appearance of the storm under discussion in Baluchistan. The following table gives 8 A.M. observations at Bushire from the 8th to the 12th:—

Date.	Barometer.		Wind.		Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Direction.	Average hourly velocity during past 24 hours.	
	"	"		Miles.	Inches.
8th	30·088	+·022	SE	3	*Nil.*
9th	·014	—·074	SE	2	*Nil.*
10th	29·934	—·080	SE	3	*Nil.*
11th	·905	—·029	N	16	2·17
12th	·996	+·091	NE	2	*Nil.*

Weather was squally with moderate winds, force 4 and 5, in the Persian Gulf on the 10th and 11th.

The disturbance in Persia on the 10th and 11th was hence most probably of slight intensity.

Pressure was increasing in Baluchistan and Upper India on the 13th, but gave way rapidly on the 14th, and a shallow depression lay over Sind on the morning of the 15th. The following gives data of this depression :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Mount Abu	...	−·058	−·129	W	4	0	*Nil.*
Jacobabad	29·844	−·122	−·230	E	2	2	*Nil.*
Karachi	29·888	−·048	−·182	SW	12	8	0·38
Hyderabad	29·871	−·065	−·186	SSW	5	10	*Nil.*
Quetta	...	−·087	−·173	Calm	4	10	0·39
Chaman	...	−·087	?	SSW	5	10	0·32

The centre at 8 A.M. was probably on the frontier a little to the south-west of Jacobabad. Skies were partially clouded in Sind, but were overcast in the Punjab, where there was a slight tendency to the formation of a subsidiary depression, but it did not develop. Skies were clear over the remainder of India and winds normal on the Bombay and Bengal coasts.

16th January.—During the preceding 24 hours the depression entering Sind at 8 A.M. of the 15th drifted eastwards and was in Central Rajputana at 8 A.M. of the 16th. The following gives 8 A.M. observations taken in the area of depression :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Bickaneer	29·781	−·042	?	SSW	5	4	0·08
Sirsa	29·804	−·052	−·267	SE	2	8	0·14
Montgomery	29·809	−·084	?	N	5	4	0·16
Mooltan	29·836	−·052	−·256	Calm	2	6	0·52

Pressure was at this time very largely in defect over the whole of India by amounts averaging ·15″. Hence the depression was much feebler than is indicated by the variations of pressure in the central area from the normal.

Skies had cleared in Sind and were less clouded in the Punjab. Light to moderate showers had fallen in the Punjab, and heavy snow-storms were in progress at the hill stations.

17th January.—The storm had continued to drift eastwards as a diffused and ill-defined disturbance, and was passing through Bundelkhand and the eastern districts of the North-Western Provinces on the morning of the 17th. The following observations define its position at 8 A.M. of that day :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Sutna	29·888	+·034	−·175	E	3	2	0·06
Allahabad	·888	+·033	−·176	WSW	3	2	0·02
Nowgong	·891	+·028	−·177	SW	1	5	0·05

Calms were recorded at the great majority of stations in Upper India. Cloud had extended eastwards into Bihar, and light to moderate showers had been received over the whole of the North-Western Provinces and Bihar during the previous 24 hours. The data indicate that the disturbance, although giving general rain, was feeble and ill-defined, and the position of the centre is hence somewhat doubtful.

18th January.—The disturbance had been transferred eastwards during the previous 24 hours at the same rate as previously. It formed, at 8 A.M. of the 18th, a trough of low pressure in Bengal between a high pressure area in North-Western India and another high pressure area covering Assam and Burma. The central disturbance, as indicated by the changes of pressure and the variations from the normal, was in Central Bengal in the area defined by the following stations :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Saugor Island	29·869	−·040	−·160	SW	13	3	*Nil.*
Calcutta	·859	−·030	−·179	WNW	3	1	*Nil.*
Jessore	·856	−·030	−·175	Calm	3	7	0·08
Berhampore	·870	−·004	−·176	SE	2	4	0·24
Burdwan	·893	−·011	−·155	N	2	5	0·06

Winds were very light and somewhat irregular in this area, but indicated a feeble cyclonic motion about a centre near Calcutta. Skies had cleared during the previous 24 hours in the Punjab, North-Western Provinces and Bihar, but were overcast in South and Central Bengal.

Light local showers had fallen in Bihar and Bengal, but the rainfall was small in amount. The disturbance was hence feeble and less important than hitherto. It continued to drift eastwards during the day, filling up at the same time. There was a slight residual depression in East Bengal, Upper Burma and Assam on the morning of the 19th, in which areas light showers had fallen during the previous 24 hours. The depression filled up or passed out of the Indian area on the 19th.

The disturbance hence consisted of a shallow primary depression which travelled at a nearly uniform rate across Northern India from Sind to Upper Burma. It was throughout ill-defined and the cyclonic circulation feebly developed in the lower atmosphere, and it is hence not possible to fix the position of the centre exactly. The following gives its approximate position at 8 A.M. of each day from the 15th to the 19th:—

Date.	Position.		Distance passed over in miles.	Average hourly velocity in miles per hour.
	Latitude N.	Longitude E.		
	° ′	° ′		
8 A.M. of the 11th . .	North of Bushire ?			
8 A.M. of the 15th . .	28 0 ?	67 0 ?	...	...
8 A.M. of the 16th . .	28 0	73 0	400 ?	?·17
8 A.M. of the 17th . .	25 30	81 0	510	21·3
8 A.M. of the 18th . .	23 0	88 45	490	20·4
8 A.M. of the 19th . .	Upper Burma		?	...

Its approximate rate of transfer eastwards from Rajputana to Bengal was hence nearly 500 miles per diem.

Although the disturbance was feeble, it gave moderate general rain to the whole of Northern and Central India, including the Punjab, East Rajputana, the North-Western Provinces, Bihar and Bengal. The rainfall occurred chiefly in front of and to the north of the central depression.

Whilst this storm was breaking up on the 19th and 20th, a rapid increase of pressure occurred over Northern India and a slight fall in the Peninsula. On the morning of the 21st pressure was above the normal to a moderate extent in Northern India and below it in the Peninsula. The total range of pressure between Northern India and the south of the Bay was about a tenth of an inch greater than the normal. Winds hence increased considerably in strength in the west and south-west of the Bay, and the adjacent coast districts received showers on the 21st and 22nd from these intensified north-east winds.

A rapid decrease of pressure in Northern India on the 22nd and 23rd accompanied the appearance of the third disturbance of the month. It largely modified the pressure distribution, and fine clear weather set in again in the Madras coast districts.

Cold weather storm of the 22nd to the 26th January.—The Bushire observations of the period show that no cyclonic storm passed through Central Persia during the week preceding the appearance of this storm in Upper India. Weather was slightly disturbed with light rain at that station on the 21st and 22nd, on which dates the depression was probably forming in Baluchistan. Pressure gave way rapidly in North-Western India during the afternoon and night of the 21st, and on the morning of the 22nd a shallow depression covered Upper Sind and Baluchistan, the centre of which was probably 200 or 300 miles west of Jacobabad. The following gives observations in that area for 8 A.M. of the 22nd:—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Chaman . . .	...	—·168	...	SSE	7	10	*Nil*
Quetta . . .	...	—·130	—·053	Calm	2	8	*Nil*
Hyderabad . .	29·590	—·084	—·053	SSE	3	0	*Nil*
Jacobabad . .	·968	—·136	—·070	SE	4	4	*Nil*

Skies, which were clear in Baluchistan and the whole of North-Western India on the 21st, had clouded over in Baluchistan and the South-West Punjab and at the Punjab hill stations. Winds were very light in Northern India. Westerly winds obtained in the Gangetic Plain, and northerly winds at Karachi and Bombay.

23rd January.—Pressure had continued to give way rapidly during the previous day in North-Western India. This depression was at 8 A.M. of the 23rd crossing the Sind Frontier. The following 8 A.M. data fixes its position at that hour:—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Chaman . . .	...	—·095	...	SW	10	10	0·30
Quetta . . .	...	—·154	—·203	Calm	3	10	0·50
Jacobabad . .	29·790	—·178	—·243	SSE	4	6	*Nil*
Hyderabad . .	·810	—·180	—·227	SW	12	10	*Nil*
Karachi . . .	·828	—·179	—·206	WSW	11	1	*Nil*

The centre of the depression at 8 A.M. was a little to the west of Jacobabad. Pressure at the centre was at least a quarter of an inch below the normal. Winds had increased considerably in force in the West Punjab, Sind and West Rajputana and were cyclonic in direction. They were very light and irregular in direction in the Gangetic

Plain. The average wind velocity during the previous 24 hours in the North-Western Provinces was 1·5 miles per hour. Cloud had extended over Rajputana and the North-Western Provinces, and skies were now overcast in the Punjab hills and West Rajputana. Heavy snow was falling in the Punjab and Afghan hills and moderate rain in the North-West and Central Punjab.

24th January.—During the preceding 24 hours the primary depression had advanced eastwards into Central Rajputana, and a secondary depression had formed in the North Punjab.

The following observations indicate the position of the primary depression:—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Mount Abu	...	—·064	—·170	WNW	14	10	*Nil.*
Neemuch	29·781	—·193	—·243	SW	12	0	*Nil.*
Ajmere	·843	—·107	—·209	S	7	9	0·62
Hyderabad	·808	—·002	—·223	NE	13	6	0·01

The centre of this depression was probably a little to the north-west of Neemuch. Pressure at the centre was a quarter of an inch below the normal, and hence the primary depression was of considerable intensity.

The following data show the position and character of the secondary depression in the Punjab:—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inches.
Murree	...	—·182	—·356	SE	3	10	2·10
Rawalpindi	29·729	—·170	—·260	ENE	6	10	1·95
Peshawar	·779	—·174	—·282	S	3	2	0·71
Khushab	·781	—·098	?	Calm	6	0	1·71
Sialkot	·808	—·110	—·211	E	9	9	1·50

The secondary depression hence covered the North and Central Punjab and was of moderate intensity. Winds were as usual irregular in the secondary depression area.

Skies were now overcast in the whole of North-West India. Very strong winds were experienced at Karachi, Hyderabad and Mount Abu. General and moderately heavy rain had fallen during the previous 24 hours in the Punjab and Rajputana.

25th January.—Pressure increased rapidly in the Punjab and Rajputana, and fell briskly in the North-Western Provinces.

The secondary depresssion in the Punjab had filled up during the previous night, and the primary depression had drifted eastwards into the eastern districts of the North-Western Provinces. The following data define its position at 8 A.M.:—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Hazaribagh	29·898	—·098	—·129	S	11	10	0·14
Allahabad	·867	—·073	—·166	E	11	9	0·06
Sutna	·882	—·020	—·153	W	6	6	0·15
Seoni	·896	—·063	—·133	NNW	8	7	1·31

Skies had clouded over in Bihar, and cleared in the Punjab, Sind and Rajputana. A cool and dry wave was now advancing in the rear of the storm. The mean temperature of the previous 24 hours was 6°·8 below the normal in the Punjab and 4°·6 below it in Sind and Rajputana.

26th January.—The barometer had continued to rise in North-Western India, and well marked anti-cyclonic conditions were again established in Upper India. Pressure had given way rapidly in Bengal, to which area the depression was now transferred.

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
Saugor Island	29·819	—·098	—·183	W	12	10	0·56
Dacca	·850	—·092	—·155	ESE	3	10	0·32
Jessore	·843	—·111	—·163	SE	2	9	0·16
Calcutta	·828	—·111	—·183	Calm	1	10	0·50

The centre of the depression was near Calcutta. Skies had cleared in the North-Western Provinces and were rapidly clearing in Bihar. They were now overcast in Bengal and Assam but clear in Burma. Moderate general rain had fallen in Bengal during the previous 24 hours. The greatest depression of temperature in the rear of the storm during the previous 24 hours was in Rajputana and the North-Western Provinces.

The depression filled up very rapidly during the next 24 hours, and passed through Upper Burma on the 27th as a shallow residual depression. It gave moderate cloud

and some light showers in Upper Burma. The skies cleared during the day, and fine clear weather prevailed again in Burma on the 28th.

The storm was hence a double disturbance consisting of a deepish primary depression and of a small and very short-lived secondary stationary depression in the Punjab. The primary depression apparently originated in Baluchistan on the 22nd and 23rd, and drifted in an easterly direction across Northern India into Upper Burma. The following gives data of the storm centre :—

Date.	Position at 8 A.M. of date.		Distance travelled.	Depression a centre.
	Latitude. N.	Longitude. E.		
	°	°	Miles.	"
23rd	28½	67½	...	·25
24th	26½	73¾	380	·25
25th	24¾	82	500	·18
26th	22½	88	360	·19
27th	Upper	Burma	?	?

The storm gave general rain over the whole of Northern India during its eastward march. The rain fell to the east and north of the centre. The cloud area of the storm was even more sharply defined than is usual in cold weather storms. Thus at Allahabad skies began to cloud over at 4 A.M. on the 24th and were overcast at 6A.M. Heavy thunder and frequent lightning began at 7 P.M. and lasted till 5 A.M. on the 25th. The centre of the disturbance passed to the south of Allahabad probably about noon on the 25th. Winds which were easterly up to 1 P.M. shifted to W. N. W. at 2 P.M., and blew strongly from that direction during the evening. Skies cleared shortly after 6 P.M., and were free from cloud during the night.

It may also be noted that this storm was the most severe one of the month and gave on the whole the heaviest snowfall of the winter in the Western Himalayas and Afghan mountain areas. Its passage eastwards was followed by a strongly marked cool wave. The lowest night temperatures of the month were hence generally recorded on the nights of the 25th and 26th in North-Western India and the hill districts, and on the nights of the 27th, 28th and 29th in the Gangetic Plain, Bengal and Burma.

Whilst the previous depression was filling up on the 26th in East Bengal, pressure gave way very rapidly in Baluchistan. This depression appears to have originated in that area, as the Bushire observations show that weather was fine and pressure steady in Persia at this time. This depression formed the chief feature of the meteorology of the next three days.

Depression and cold weather storm of the 27th to the 30th January.—The following gives 8 A.M. data of the 27th for stations in and near the storm area :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inch.
S.S. *Pemba* at Jask	...	...	...	NW	Strong	...	...
Bushire	29·964	+·047	...	N	9	...	0·10
Kelat	...	...	...	SW	...	...	1·07
Quetta	...	—·153	—·202	SSW	3	10	0·56
Chaman	...	—·284	?	SSW	8	10	0·25
Karachi	29·878	—·080	—·156	NE	10	7	*Nil.*
Jacobabad	·956	—·084	—·077	NE	5	10	*Nil.*
Mooltan	30·022	—·043	—·021	Calm	1	10	0·04

The observations show clearly that a deepish depression had formed in Baluchistan, but give very conflicting evidence as to the position of the central depression. So far as can be judged, the disturbance was a double one consisting of a shallow depression to the west and north-west of Karachi and a deep depression in Baluchistan to the west of Chaman and Quetta.

Skies were more or less clouded in Sind and the Punjab, but were clear over nearly the whole of Northern and Central India. Heavy snow-storms had commenced in the Afghan mountain districts.

28th January.—There were two depressions in North-Western India, a shallow and feeble depression in Central Rajputana and a deepish depression in the Punjab. These were most probably the continuation of the two depressions that were in Baluchistan on the previous day. The following gives data of the depression in the Punjab :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
	"	"	"		Miles.		Inh.
Cherat	...	—·212	?	NW	7	10	0·40
Murree	...	—·180	—·274	SE	19	10	0·80
Rawalpindi	29·820	—·222	—·168	NW	1	10	0·62
Sialkot	·769	—·264	—·239	E	1	9	0·28
Lahore	·753	—·289	—·264	S	2	10	0·29
Khushab	·831	—·205	?	Calm	1	10	0·90

The centre of the depression was hence in the Central Punjab a little to the north-west of Lahore. Winds were very light in the Punjab plains, but strong cyclonic winds were blowing at Cherat and Murree. Moderate to heavy rain had fallen over the whole of the Punjab and light

showers in Rajputana and Sind. The depression in Rajputana was almost entirely obscured by the depression in the Punjab. The centre was apparently near Ajmere.

The following give data of the shallow depression :—

STATION.	BAROMETER.			WIND.		CLOUD.	RAINFALL IN PAST 24 HOURS.	WEATHER.
	8 A. M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.			
					Miles.		Inch.	
Ajmere	29·843	—·243	—·174	SW	7	8	*Nil*	
Mount Abu.	26·003	—·055	—·099	NW	16	10	0·13	
Jeypore	29·897	—·173	—·123	E	7	9	*Nil*	Gale of wind.

29th January.—Pressure had increased with unusual rapidity in North-Western India. The rise in the Punjab averaged nearly ·30″. The depression in that area on the 29th had filled up completely, and fine but unusually cool weather with light winds obtained over the whole of North-Western India. Pressure had given way rapidly in Bihar and Chota Nagpur, and a very shallow depression was shown in Chota Nagpur, which may have been the continuation of the feeble depression in Central Rajputana on the previous day. Skies were clear and very lightly clouded in Bihar and Chota Nagpur. A general increase of pressure occurred during the next 24 hours, which obliterated this feeble depression and established ordinary anti-cyclonic conditions for a brief period in Northern India.

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

I.—AFGHAN MOUNTAINS.

1. Hills west of De a Ismail Khan.—Snow fell on the Kaisa, Shirani, Ubhshta, Zunraigur and Takht Suleiman peaks on five occasions during the month, *viz.*, the 6th, 14th, 16th, 21st to 23rd and 24th to 26th. The total snowfall on the higher peaks is stated to have slightly exceeded 12 feet. Snow fell down as low as 5,000 feet. On the night of the 27th very heavy snow fell in the Gomal hills. It was 4 inches deep at Nili Koch, which is only 1,800 feet above the sea. The depth of the snowfall at the Ghwaliri Pass 3,300 feet was about a foot, and at Kaingoram it is stated to have been from 3 to 4 feet deep.

The snowfall of the 27th is regarded by the natives as phenomenal. No such fall has occurred during the past 40 years, and snow fell in localities where it has never fallen previously in the memory of man.

2. Takht Suleiman and Zmarai Ranges.—The following report was received from Sardar Masud, Extra Assistant Commissioner on political duty in the Shirani country :—

"The following table shows the depth of the snowfall on the Takht Suleiman and Zmarai range during December 1892 and January 1893 :—

DATE.	Reported snowfall.	
	Feet.	Inches.
5th December 1892	1	5
31st Ditto	1	9
6th January 1893	2	4
14th Ditto	1	9
16th Ditto	2	...
24th Ditto	2	6
28th Ditto	3	9
TOTAL	15	6

"The fall during December 1892 was nearly equal to that of the previous year. The snowfall was accompanied by a few showers of rain in the first storm of the month. The Takht Suleiman passes and the area of the Zmarai range were covered with snow during the two snowstorms in December.

"The totals nowfall during January 1893 amounted to 12 feet and 4 inches. The fall from 6th to 16th January 1893 was chiefly confined to the hills named above. The depth of the fall which occurred on 24th January was 2 feet 6 inches, whilst that of 28th was very heavy, the hills appearing white as far as the eye could see."

3. Hills to the west of the Bannu District.—The following gives a statement of the snowfall on the higher peaks in independent territory to the west of Bannu :—

DISTRICT.	Name of mountain.	Height above sea-level.	Reported depth of snow.	REMARKS.
			Feet.	
BANNU	Pirghal	11,583	23	Snow fell during six storms in November, December and January. The falls in January were 2 feet on the 15th, 6 feet on the 22nd and 23rd and 6 feet on the 27th.
	Shaidar	10,000	17½	Snow fell on the same dates as on the Pirghal. The heaviest fall was 5 feet on the 22nd and 23rd.
	Gabar	...	9½	The heaviest falls were 3 feet on the 22nd and 23rd, and 3 feet on the 27th.
	Shawal	...	11½	The heaviest falls were 3 feet on the 22nd and 23rd, and 3 feet on the 27th.
	Sheikh Budin	4,000	1	Snow fell on one occasion, *viz.*, the 27th and 28th of January.

The snowfall in December was normal in amount. It was unusually, heavy in January, and the weather was very

cold. The statements as to the amount of snow, given above, are obtained from people coming into Bannu from independent territory, and are hence not very reliable.

The following gives the reported depth of the snow on the chief passes at the end of the month :—

Name of Pass.	Reported depth of snow at end of January.
	Feet.
Makin	9
Zarmak	3
Manvai Rogi	3

4. Hills west of the Kohat District.—The following gives a statement of the snowfall in the hills to the west of Kohat :—

Name of Hill.	Snowfall during the storms of				Depth of snow lying at the end of month.
	3rd and 4th.	16th.	23rd to 25th.	27th and 28th.	
	Feet.	Feet.	Feet.	Feet.	Feet.
Spinghar	3	8	9	9½	29½
Dandighar	...	1¼	1½	1¾	2½
Zawa Mountain	½	2	2	2	4½
Torghar	½	2	2½	2	5
Mastura Hills	½	2	2½	2	5
Samana	...	¼	1	1	1½

The second, third and fourth snowstorms extended down to the valleys. The third and fourth were most widely spread, as the snowfall extended from the Kurram valley to Hangu and Thall and over the whole of Tirah.

The depth of snow lying at the end of month, as given in the preceding table, is according to measurements made in the shady side of the hills.

The snowfall of the month was exceptionally heavy.

5. Kurram District.—The following account of the snowfall in the Kurram district, received from the officer on special duty, gives slightly fuller details of the weather in the Kurram valley than the previous statement :—

"Snow fell on the following dates :—1st, 3rd, 4th, 5th, 12th, 14th, 15th, 22nd, 23rd, 24th and 27th.

"It is impossible to say of what depth the first three falls were. That on the 5th was very light. On the 14th snow fell down to 4,000 feet, and on the 23rd a heavy fall down to 3,000 feet and about 3 feet in depth on the Sufed Koh. On the 24th another fall took place on the Sufed Koh to the depth of about 3 or 4 feet, accompanied by heavy rain in the valley. On the 27th the fall came down to an altitude of 2,000 feet, the fall on the Sufed Koh being about 4 feet. The snowfall in this month has been the heaviest on record in Kurram for many years. There was probably a depth of 12 to 15 feet of snow on the Sufed Koh at the end of the year. The snowfall was unusually late this winter but very severe."

6. Khyber Hills.—Heavy snow fell during a storm from the night of the 21st to the morning of the 24th. Rain fell continually during the period in the Peshawar valley. When the weather cleared, the whole of the Khyber range was seen covered with snow down to 3,000 feet. The fall on the western slopes of Lakka Sar (elevation 6,800 feet) was estimated to be about 4 feet. Rain followed by snow fell on the Khyber range on the 29th, but the fall was light.

Strong westerly winds prevailed in the Khyber Pass during the greater part of the month, although winds were light at Peshawar.

The snowfall of the month is said to have been heaviest on the Sur Ghar, the hill to the north of the Bazar valley and the Lakka Sar, and the snowfall of the winter up to date is very heavy in comparison with that of the past seven years.

II.—KASHMIR AND PUNJAB HIMALAYAN DISTRICTS.

1. Hazara Hills.—Snow fell at Abbottabad (elevation 4,150 feet) on the 16th. Heavy snow fell on the nights of the 22nd, 23rd and 24th. The snow lay about 9 inches thick on the 24th. Another heavy snowstorm occurred on the night of the 27th. On the 28th snow was 2 feet thick all over Abbottabad. The snow was about 4 feet deep on the Susal Pass (leading to Agror). The fall during the month in the higher ranges (*viz.*, the Hazara Galis, Black Mountain and Upper Kagan) has been over 10 feet, and the snow was 12 feet deep on these hills in the beginning of February.

Snow fell at Haripur in the Hazara district at an elevation of only about 1,800 feet (six inches in depth), a very rare occurrence.

The snowfall is the heaviest that has been known for many years.

2. Hills adjacent to Murree.—Snow fell at Murree on the 4th, 5th, 7th, 14th, 16th, 17th, 23rd, 24th, 25th, 28th and 29th. The total measured fall was 12 feet 1 inch. At Kahuta snow was recorded on the 4th, 16th, 17th, 23rd, 24th and 28th, the total fall being 12 feet.

3. Ladakh.—The Superintendent of the observatory at Leh writes :—"According to information received, a very heavy snowfall took place on the Zogi Pass (on the Kashmir frontier) during the last week of January. In the Indus Valley at Leh snow is still lying in shady places at 10,000—11,000 feet. Rocks exposed to the sun up to midday or 14 hours are bare up to 15,000 feet."

4. Hunza.—The following very interesting note on the weather in December and the first week of January in Hunza and the districts to the north has been received from the British Agent, Gilgit :—

"The weather was generally stormy throughout the whole period. As far as can be ascertained from the people, the snowfall has been unusually heavy and the

cold more severe than in recent years. In the preceding winter no snow fell at Hunza. The following gives the chief falls between the 1st December and 15th January:—

3rd December.—Snow fell generally between Hunza and Chalt (elevation 6,000 feet), but the total fall was slight.

20th „ Heavy snow fell during the night. The snowfall was general throughout Hunza, Nagar and Guzhal.

29th „ Very heavy clouds were seen in the direction of Hasper, and it is probable heavy snow fell in that direction.

30th and 31st „—Heavy and general snow fell in the Hunza valley and Guzhal.

3rd January.—Snow fell generally throughout the valley during the night of the 3rd, the amount being about three inches.

11th „ Snow fell generally over the valley.

13th „ Heavy snow fell in the evening over the valley.

15th „ Slight fall of snow occurred at Hunza.

"The Taskurghan dák-wala reported that heavy snow fell on the Killick and Mintakha passes at the end of November. The depth of snow at the latter pass was 3 feet in the end of November and 2 feet when he crossed on the 23rd of December."

5. *Sarikol.*—The following account of the weather in November and December in the district of Sarikol to the north of the Karakoram mountains is from a merchant in that district. It appears from this account that although weather was very cloudy, the snowfall was very slight (only two inches in amount):—

Date.	Depth of snow.	REMARKS.
November.	Inch.	
22	...	The whole day there was cold wind and dense cloud.
23	...	Up to noon the sky was clear, but afterwards became cloudy.
24	...	The cloud remained for 12 hours.
25	...	The cloud remained the whole day, but night was clear.
26	...	Cloudy for 6 hours.
27	...	Eight hours there was cloud.
28	...	Three hours cloudy.
29	...	Cloud lasted seven hours.
30	...	A cloud rose from the west and remained for a while.
December.		
1	1	Snow fell at 4 P.M. on the summits of the surrounding mountains as well as on the plains.
2	...	Cloud remained the whole day.
3	...	Cloud remained the whole day and night.
4	1	At 8 P.M. snow began to fall and lay for a short time.
5	...	Cloudy the whole day.
6	...	Cloud remained day and night.
7	...	Sky clear.
8	...	Cloudy for 12 hours.
9	...	Clear.
10	...	Clouds and cold wind the whole day and night.
11	...	Cloud remained up to evening.
12	...	Afternoon and evening cloudy.
13	...	Cloud remained for an hour only.
14	...	Cloudy up to evening.
15	...	Clear. No wind.
16	...	Ditto.
17	...	Cloudy for an hour only.
18	...	Cloudy for a short time.
19	...	No cloud and wind.
20	...	A little cloud appeared in the morning.
21	...	Cloudy for the whole day and night.

6. *Chamba.*—The Assistant Conservator of Forests has sent a full account of the snowfall in that State.

Snow fell on the 5th, 6th, 7th and 8th, 13th and 14th 22nd and 23rd. The accumulation of snow at Chamba on the 8th at the end of the first storm was small, as it rained and snowed alternately. Heavy snow fell during the night of the 13th and on the 14th, and the snow-line descended to the river level, but retreated after the storm and was about 3,800 feet when the third storm commenced. It began with very heavy rain on the 21st and 22nd, and changed to snow about 11 P.M. of the 22nd. The snow-line again descended to the river level.

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The following gives the fall in different parts of the state:—

—	Date.	Length of snow lasting.	Fall.		Height to which snow-line descended.
			Feet.	Inches.	
		Hours.			
Tisa . . .	5th	12	0	3	3,000
	6th	36	2	6	2,500
	7th	6	0	3	3,000
	8th	4	0	1	3,000
	11th	10	0	3	5,000
	13th	15	1	9	2,500
	14th	11	0	4	3,000
	23 and 24	38	0	10	3,000
		TOTAL.	6	3	
Thanela . . .	2nd	3	0	2	5,500
	4 and 5th	24	1	6	3 000
	6th	24	1	6	2,500
	7th	8	0	3	3,000
	8th	8	0	3	3,000
	11th	18	0	9½	5,000
	12 and 13th	9	2	2	2,500
	16th	11	0	8½	3,000
	22 and 23rd	48	3	5¾	3,000
	24th	24	0	11½	3,000
		TOTAL.	11	7¼	
Bhandal . . .	2nd	...	0	4	5,600
	5th to 7th	...	3	0	
	11th	...	1	0	
	13th	...	3	0	
	16th	...	1	2	
	22 to 24th	...	3	9	
		TOTAL.	12	3	
Dalhousie . .	1st	...	0	4	
	4th	...	1	0	
	5th to 7th	...	4	0	
	10th	...	1	0	
	12 and 13th	...	4	0	
	16th	...	1	0	
	22nd to 24th	...	4	0	
		TOTAL.	15	4	

The weather between the storms was bright and clear, but became slightly cloudy about two days before each fall, which always commences at Chamba with more or less heavy rain.

The following gives data of the depth of snow lying at the end of the month in different parts of the state:—

	Elevation.	Depth of snow.
	Feet.	Feet.
Chamba	...	*Nil*
Tisa, on north aspect	5,000	2
Thamla	7,000	13½
Bhandal, north aspect	5,600	6 to 7
Lower portion of forests near Dalhousie .	...	18 to 20
Forest near Chamba	...	8 to 10
Bakani	...	11

Thirty feet of snow is reported to be lying at the end of the month on the Chawari pass (height 8,000 feet) between Chamba and the plains.

The winter is stated by the inhabitants to be the most severe that they have experienced. Many of the roads are closed, and much damage and loss of life is reported.

7. Kulu.—The following report was received from the Assistant Commissioner, Kulu:—

"Snow fell on the 4th, 5th and again on the 7th down to 5,000 feet. The fall on the 4th and 5th amounted to 2 feet. Snow again fell on the higher ranges on the 13th, 15th and 16th. Weather was fine but cold until the 22nd. Heavy snow began to fall on the 23rd, and continued without intermission until the 25th. The snow fell down to 3,000 feet in the Kulu valley, and was 2 feet in depth at Kulu. Weather was stormy on the night of the 29th with strong winds and light snow.

"The snowfall of the month has been exceptional. The fall on the 23rd and 24th was very heavy, and came down to an unusually low elevation (3,000 feet).

"The snow is stated to have never melted so slowly in January, and the accumulation in the higher valleys at the end of the month was unusually great.

"The following table gives the estimated depth of snow on the chief passes of the Kulu sub-division on the 25th

January with the corresponding data for the past three years :—

Tahsil.	Pass.	Height.	Depth of snow on 25th of January.			
			1893.	1892.	1891.	1890.
		Feet.	Feet.	Feet.	Feet.	Feet.
Kulu	Rotang	13,000	19	3	10	6
	Hamta	14,500	16½	2½	?	8
	Chandar Khani	14,500	17	3½	10	3
	Barsai	?	12	2	5	3
	Bajadhar	?	11	½	4	3½
	Lohri Achri	?	10¾	*Nil*	3	2
	Bhubhi	10,000	9½	...	5	1½
	Pastari	?	7	...	3	½
	Majhang	?	5	...	0	½
Plach	Srikhand	15,000	13	6	36	17
	Chul	?	8	...	4	2
	Maghin	?	7	*Nil*	4	2
	Dundku	?	8	..	7	4
	Takar	?	7	...	...	...
	Ramgarh	?	2	...	...	...
	Nunu	?	4	...	2	...
	Jalori	10,500	6	...	4	1
	Raghopur	?	6	...	5	2
	Nambri	?	7	...	4	1
	Sakiran	?	7	...	5	4
	Supakun	?	8	...	12	5
	Gargarasan	17,000	8	...	12	8
	Basleo	11,000	6	...	4	2
	Plach	?	7	...	7	6
	Tirthan	?	8	...	10	7

8. Simla Hills.—The Deputy Conservator of Forests, Bashahr division, notes :—

The lower limit of the snowfall at the beginning of the month was 8,000 feet. In January snow fell down to the banks of the Sutlej in the Bashahr district, 5,500 feet high. The higher passes are closed, and passes over 8,000 feet are stated to be inaccessible.

The following gives the reported depth of snow on the chief passes in the Bashahr district :—

Name of Pass.	Reported depth of snow.	
	Feet.	Inches.
Rukchnal	7	6
Warkholgang	6	9
Kingarang	8	3
Mukim	13	6
Lippi	8	6
Harang	4	0
Lalanti	7	0

III.—HIMALAYAN DISTRICTS OF THE NORTH-WESTERN PROVINCES.

Kumaun.—The following full report of the snowfall in this hill district has been received from the Commissioner of Kumaun :—

(1) *Malla Danpur.*—The depth of the snowfall during January was nearly 18 feet.

(2) *Patti Malla Johar.*—Snow fell on nearly every day during the month of January. The depth of snow on the lower passes is stated to be from 4 feet to 8 feet. The total fall during the month on the hills above 6,000 feet was about 10 feet. On peaks above 12,000 feet about 16 feet of snow fell. The depth of snow on the higher passes leading into Thibet is stated to be over 30 feet.

(3) *Malla Darma, Byans and Chaundas.*—There were three snowstorms during the month. The depth of snow on the first occasion was 4 feet, on the second 7 feet, and on the third 6 feet.

The snowfall of the winter up to date is stated to be the heaviest that has been experienced during the past fifty years. Snow has fallen as low as Baggeswar in the Sarjoo valley, a very hot place, only 3,000 feet above the sea. In the hills to the north of the district, the ground is buried in snow, and cultivation is at present impossible. On the lower hills the crops have suffered from the unusual moisture and cold. Cattle and sheep are being stall fed as in a Canadian winter, and many animals have died from cold.

Summary of snowfall data.—The snowfall in the Afghan mountains and Western Himalayas during December was not large in amount, and was probably less than usual over the greater part of the area. The snowfall of the month of January was, on the other hand, exceptionally heavy, the heaviest on record over a large part of the area during the past 40 or 50 years. One remarkable feature was the very low height to which the snow descended. In the third storm of the month snow fell in the North Punjab in the Rawalpindi and Hazara districts (at elevations not exceeding 2,000 feet) and lay for some time.

Snow is reported to have fallen at Rawalpindi on one occasion in 1883. There is no record of such a general fall in the plains of the North Punjab as has occurred during the past month.

The snowfall appears to have been excessive in the Afghan mountains as in the Western Himalayas. Thus the depth of the snowfall on the Safed Koh is stated to have been 29½ feet in January. This is probably exaggerated, and the estimate in the report of the officer on special duty in Kurram, *viz.*, 12 to 15 feet, is more probably correct. The reports show that the fall has been very general over the mountain districts to the north-west of the Punjab, and that on the higher elevations of the Suleiman, Safed

Koh and other mountains there was an accumulation of from 12 to 20 feet of snow at the end of the month.

The fall in the Western Himalayas was equally heavy. It probably averaged from 10 to 12 feet at an elevation of 7,000 feet, *e.g.*, Murree and Kahuta. The snowfall appears to have been specially heavy in Kulu, and the passes in that district were blocked with snow to an extent that is without precedent in January.

The snowfall was probably heaviest in Kumaun, where it is estimated as varying from 18 feet at elevations of 12,000 feet up to 30 feet of snow on the highest peaks. This is further confirmed by the large deficiency of temperature at the foot of the Simla and Kumaun hills.

The snow accumulation at the commencement of the cold weather was unusually low, as the snowfall of the preceding winter was exceptionally small. Although the fall during the month was very heavy, the accumulation at the end of the month was probably not excessive.

Summary of Special Storm Reports.

An occasional feature of the cold weather disturbances in the plains of Northern India is the occurrence of thunderstorms and hailstorms. Special reports of the following thunderstorms were received during the month:—

1st.—Thunderstorm at Khandwa at 9 P.M.

6th.—Hailstorm at Khandwa at 3 P.M.

20th.—Hailstorms at Chikalda at 8 P.M. and 6 A.M. of 21st.

Hailstorm at Nagpur at 8-40 A.M. It did considerable damage to the crops in the neighbourhood.

23rd.—Thunderstorm at Pachpadra at 2 P.M.

24th.—Thunderstorm at Lahore at midnight.

Thunderstorm with hail at Jubbulpore at 5 P.M.

Thunderstorm at Neemuch at 4 P.M.

Thunderstorm at Allahabad at 7 P.M.

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

ARABIAN SEA.—Weather was showery with light variable winds in the Persian Gulf on the 1st. Strong easterly winds prevailed in the Gulf of Aden. Over the remainder of the Arabian Sea moderate north-east monsoon winds and fine clear weather obtained. The average force of the winds on the 1st was 3·4. Weather cleared in the Persian Gulf on the 2nd, and winds increased in strength during the next six days in the sea-area and were especially strong in the Gulf of Aden. They averaged in force 4·3 on the 5th and 4·7 on the 7th and 8th. The S.S. *Dalmally* in Lat. 15°6′ N. and Long. 4·1°41′ E. on the 7th had southerly winds force 9, the S.S. *Clan Mackenzie* in Lat. 13° 2′ N. and Long. 43° 16′ E. on the 8th had S.S.E. winds force 8 to 9, and the S.S. *City of Cambridge* in Lat. 12° 17′ N. and Long. 44° 52′ E. on the 9th had easterly winds force 6 to 7. Skies were more or less clouded in the Gulf of Aden. Weather was apparently unsettled in that area. Duststorms and thundershowers were of frequent occurrence at Perim (*e.g.*, on the 12th, 13th and 14th). Weather was squally in the Gulf of Aden on the 10th and in the Persian Gulf on the 11th. The air movement decreased at this time. On the 11th winds averaged in force 3·6 and on the 12th and 13th 3·1, and were of force 4 to 5 in the Gulf of Aden. On the 14th a thunderstorm gave Perim 1·61 inches of rain. No change of importance occurred during the next week, winds ranging in average force between 3·0 and 3·5 and fine clear weather obtaining over the sea area. Winds decreased rapidly in strength on the 22nd and 23rd, and were of average force 1·7 on the 24th and 1·9 on the 25th. They were now light in the Gulf of Aden and light and variable in the sea area between Socotra and Bombay.

They increased in force during the remainder of the month, averaging 2·9 on the 27th and 3·5 on the 31st, and ranging between 2 and 5, except off the Sind coast, where light airs and calms obtained.

Bay of Bengal.—At the commencement of the month fine clear weather with moderate north-east winds obtained in the Bay area. Winds averaged 3·6 in force. They increased in strength during the next four days and were of average strength 3·9 on the 5th. On the 9th they averaged in force 3·3, and on the 11th force 4·0. Weather was occasionally interrupted with squalls at the entrance to the Bay, where winds were also strongest, ranging in force from 4 to 6 at this period. The S. S. *Dictator* in Lat. 7° 4′ N. and Long. 82° 9′ E. on the 15th had heavy rain squalls. Winds decreased considerably during the next four days, more especially in the north of the Bay, and on the 19th their average force was only 2·3. They increased rapidly in strength on the 20th, and were of average force 3·7 on the 22nd, 3·8 on the 23rd and 3·5 on the 24th. Weather was showery and squally off the coast of Orissa and Ganjam on the 22nd. The S.S. *Lena* and *Fultala* experienced moderate squalls. It was also showery at the head of the Bay on the 26th, but weather cleared up in the afternoon and fine clear weather obtained over the Bay area during the remainder of the month. Winds on the 31st ranged in force from 1 off the Madras coast, to 5 and 6 in the south-east and extreme south of the Bay, and averaged in force 2·9.

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 eleven 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 1888, 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 this definition, agree in almost all cases closely with the variations as determined by the use of true daily means based on readings at 16 hours, in addition to those 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 means 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 mean 10 and 16 hours' temperatures of the month in addition to maximum and minimum temperature data. The mean temperature of the month (*i.e.*, the arithmetical mean of the mean temperature of each day of the month) is also shown. The mean temperature of the day is obtained by the use of the formula—

$$\frac{\text{maximum} + 16 \text{ hours} + 2 \text{ minimum}}{4}$$

and by applying a constant correction for each month, obtained from the hourly observations at the same or a neighbouring station except as Mergui, Darjeeling, Katmandu, Pedong, Quetta, Mercara, Wellington, Aden, Mount Abu, and Zanzibar (for all of which crude means are given) and Vizagapatam and Madras. For Vizagapatam the mean of four daily 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 the thermometers will be found fully described in the Indian Meteorologist's Vade-Mecum, or briefly in the annual report on the meteorology of India for the year 1886, page 37. All thermometers in use have been verified by comparison with Kew standard thermometers at Calcutta, and all thermometer readings are corrected to their true readings and are hence strictly comparable.

The variations of the mean temperature of the month given in Table II have been obtained by a comparison of the actual means with normal means calculated in the same manner. They have been derived from all the available trustworthy temperature data for each station, and hence for very varying number of years, ranging from 46 years in the case of Bombay to 10 years in the case of Kailang.

It should be noted that the day or 24 hours' period in Table II terminates at 4 P.M. (and not at 8 A.M.), and hence the monthly means are for monthly periods ending at 4 P.M. of the last day of the month in question.

The mean distribution of temperature in India in each month is exhibited by means of three charts, which show the variations of the mean maximum, mean minimum and mean daily temperature from their normal values for the month. These charts are Nos. 1, 2, and 3 of Plate III. In these charts equal variations of temperature are indicated by lines, the lines being drawn for differences of 2° of variation. A continuous line indicates that the temperature was in excess by the amount indicated by the number given near the line, and a broken line that it was in defect by the amount indicated by the number placed near the line. The line of no variation, separating areas of excess from areas of deficient temperature, consists of a continuous and of a broken line placed parallel and near to each other, the broken line being on the side of deficient temperature, and the continuous line on that of increased temperature.

The mean temperature conditions of January 1893 were mainly determined by the unusually large number of cold weather storms which passed across Northern India and gave more or less cloud and general rain over the whole of Northern and Central India, and also by the abnormally large snowfall in the Afghan mountain area and the Western Himalayas. Cold weather storms in Northern India give diminished day temperature, not only during the cloudy period of their passage, but also during the clear weather that usually prevails for some days after their advance across Northern India. On the other hand the night temperature rises largely above the normal in the cloud area of these storms, but as soon as the skies clear in the rear of the storm, it falls almost as largely below the normal in consequence of the increased radiation.

Hence a rapid succession of cold weather storms, as a rule, in January or February should cause the mean day temperature in the plains of Northern and Central India

to be largely below the normal, and the night temperature to vary slightly from it. These results were strongly exhibited in January 1893.

The mean maximum or day temperature was below the normal over the whole Indian area except the greater part of Madras and Mysore. The deficiency exceeded 2° over the whole of Northern and Central India (except at the coast stations where it was slightly less). It was more than 4° over the whole of the Punjab, Rajputana and Central India, the north-western and central districts of the North-Western Provinces, Berar and the western districts of the Central Provinces and also in the Upper Assam Valley. It exceeded 6° in an area at the foot of the North-Western Himalayas and also at Seoni (—6°·4) and Hoshangabad (—6°·1) in the Central Provinces. The following gives data for the area of greatest deficiency in the day temperature in Upper India :—

Station.	Mean maximum temperature.		
	Actual, January 1893.	Normal, January.	Variation from normal.
	°	°	°
Sialkot	58·9	66·7	—7·8
Ludhiana	60·4	67·6	—7·2
Lahore	60·7	67·3	—6·6
Roorkee	63·3	69·4	—6
Meerut	63·9	70·2	—6·3
Delhi	64·0	71·0	—7·0

The deficiency was even greater at the adjacent hill stations in the Western Himalayas as is shewn by the following data :—

Station.	Mean maximum temperature.		
	Actual, January 1893.	Normal, January.	Variation from normal.
	°	°	°
Leh	26·9	?	?
Murree	39·6	47·8	—8·2
Simla	40·3	46·7	—6·4
Chakrata	44·0	50·1	—6·1
Ranikhet	48·7	54·0	—5·3
Darjeeling	39·3	44·3	—5·0

The mean day temperature was, as already stated, in moderate excess in the greater part of Mysore and Madras, where the rains of the retreating south-west monsoon had partially failed during the preceding two months. The excess was more than 2° in the area represented by the following stations :—

Station.	Maximum temperature.		
	Actual, January 1893.	Normal, January.	Variation from normal.
	°	°	°
Coimbatore	91·2	86·3	+4·9
Trichinopoly	90·0	87·0	+3·0
Salem	90·5	87·9	+2·6
Bangalore	82·1	80·0	+2·1

The mean minimum temperature varied from the normal by amounts less than 1° at the majority of stations. It was in slight excess in Upper India and the North-Western Provinces and over the greater part of the Peninsula. The excess was over 1½° at Salem (+2°·3), Mercara (+1°·6) and Jacobabad (+1°·6). The mean temperature was in defect over the remainder of India, the deficiency being greatest in Burma and Bengal. It exceeded 2° in the area represented by the following stations :—

Station.	Minimum temperature.		
	Actual, January 1893.	Normal, January.	Variation from normal.
	°	°	°
Akyab	56·0	59·4	—3·4
Thyetmyo	50·8	53·6	—2·8
Tounghoo	55·6	57·6	—2·0
Bassein	58·8	60·8	—2·0

It should be noted that the minimum thermometers at Raipur, Sambalpur and Indore were apparently out of order, and their means have hence been registered as very doubtful.

In consequence of the unusually stormy weather and heavy snow in the hills, the night temperature was almost as largely below the normal as the day temperature at the hill stations. The following gives data :—

Station.	Mean minimum temperature.		
	Actual, January 1893.	Normal, January.	Variation from normal.
	°	°	°
Murree	29·2	35·5	—6·3
Simla	30·9	36·3	—5·4
Chakrata	31·4	35·7	—4·3
Ranikhet	35·0	39·5	—4·5
Darjeeling	31·5	34·6	—3·1

Lower minimum temperatures were recorded at several of the hill stations than have been previously registered in January. The following gives the lowest temperatures of the month at the hill stations and the lowest previously

recorded for certain stations for which there are data for at least ten years :—

STATION.	Elevation.	Lowest reading of the minimum thermometer recorded during January 1893.	Date.	Lowest reading of the minimum thermometer recorded in January of previous years.	Year in which recorded.
	Feet.	°		°	
Leh	11,503	−4·8	30th	17·0	1878
Gnatong	?	−5·5	27th	?	?
Murree	6,344	19·2	26th and 27th.	0·7	1878
Simla	7,274	21·4	27th	21·0	1883
Chakrata	7,052	22·6	27th	18·7	1876
Mussoorie	?	24·0	27th	24·0	1888
Ranikhet	6,069	26·0	26th	26·7	1883
Darjeeling	7,421	25·7	27th	21·9	1887
Quetta	5,502	17·3	28th and 29th.	14·0	1878 1879
Srinagar	5,204	6·1	31st	?	?
Mount Abu	3,945	41·1	29th	32·8	1878
Khelat	...	15·0	29th	?	?
Meshed	...	9·0	29th	?	?

It will be seen that abnormally low night temperatures were recorded at Murree, Simla, Mussooree and Ranikhet.

The mean temperature of the month was below the normal over the whole Indian area except the greater part of South and Central Madras and Mysore. The deficiency exceeded 2° in the Punjab, Rajputana, Central India, the western and central districts of the North-Western Provinces, the Assam valley and locally in Central Bengal and Central Burma and Arakan. It exceeded 3° in two areas, one in the East Punjab and the other in Central India and the Central Provinces. The following gives variation data for these two areas :—

METEOROLOGICAL AREA.	STATION.	MEAN TEMPERATURE. Actual, January 1893.	Normal, January.	Variation from normal.
		°	°	°
SOUTH-EAST PUNJAB.	Sialkot	51·0	54·9	−3·9
	Ludhiana	52·4	55·6	−3·2
	Lahore	51·3	54·3	−3·0
CENTRAL INDIA.	Neemuch	59·8	63·0	−3·2
	Indore	61·2	64·5	−3·3
	Hoshangabad	63·0	66·2	−3·2
	Seoni	61·5	65·2	−3·7
	Raipur	64·8	68·1	−3·3

In Southern India the mean temperature of the month was more than 2° in excess in the small area represented by the stations of Coimbatore (+3°·1), Salem (+2°·5) and Trichinopoly (2°·3).

The following table gives mean temperature data of the month, and also variation data for each of the 51 meteorological districts into which India is divided :—

PROVINCE.	DIVISION.	ACTUAL. Mean Maximum.	Mean Minimum.	Mean of day.	Mean Daily Range.	Mean Absolute Range.	VARIATION FROM NORMAL OF Mean Maximum.	Mean Minimum.	Mean Daily Range.
		°	°	°	°	°	°	°	°
BURMA	Tenasserim	85·6	60·6	73·1	25·1	34·9	− 2·2	− 1·2	− 1·0
	Lower Burma	84·6	63·9	74·3	20·7	28·8	− 1·2	− 1·1	− 0·1
	Central do.	84·1	50·8	67·5	33·3	45·4	− 1·1	− 2·8	+ 1·7
	Upper do.	75·0	48·7	61·9	26·3	38·1	?	?	?
	Arakan	79·6	56·0	67·8	23·6	31·5	− 1·7	− 3·4	+ 1·7
BENGAL AND ASSAM	Eastern Bengal	74·8	52·1	63·4	22·7	35·4	− 2·2	− 1·6	− 0·6
	Assam (Surma)	75·0	52·1	63·6	22·9	37·4	− 1·8	0	− 1·8
	Do. (Brahmaputra)	68·3	50·6	59·5	17·7	29·2	− 3·4	− 1·0	− 2·4
	Deltaic Bengal	75·2	53·5	64·4	21·7	36·2	− 2·5	− 1·2	− 1·3
	Central do.	74·5	51·9	63·3	22·6	37·4	− 2·2	− 0·7	− 1·5
	North do.	71·3	49·0	60·2	22·3	35·2	?	?	?
	Orissa	77·7	59·8	68·8	17·9	32·1	− 2·9	− 1·6	− 1·3
	Chota Nagpur	72·8	50·2	61·5	22·6	38·2	− 2·4	− 1·6	− 0·8
	Bihar (South)	72·1	50·7	61·4	21·4	38·3	− 1·6	+ 0·4	− 2·0
	Do. (North)	71·9	48·5	60·2	23·4	36·3	− 1·7	− 0·9	− 0·8
NORTH-WESTERN PROVINCES AND OUDH.	North-Western Provinces (East)	70·8	48·7	59·8	22·1	38·3	− 3·1	+ 0·7	− 3·8
	Oudh (South)	69·1	47·4	58·3	21·7	37·4	− 4·7	+ 1·5	− 6·2
	Do. (North)	69·1	47·2	58·2	21·9	34·8	?	?	?
	North-Western Provinces (Central)	69·0	46·4	57·7	22·7	40·2	?	?	?
	Do. do. (West)	70·9	49·7	60·3	21·2	39·5	− 3·6	+ 0·4	− 4·0
	Do. do. (Submontane)	63·3	44·9	54·1	18·4	34·3	− 5·3	+ 0·2	− 5·5
PUNJAB	Punjab (South)	64·7	45·4	55·1	19·3	36·1	− 6·3	+ 0·2	− 6·5
	Do. (Central)	60·7	41·9	51·3	18·8	35·6	− 6·6	+ 0·7	− 7·3
	Do. (Submontane)	60·4	44·3	52·4	16·1	31·9	− 7·2	+ 0·8	− 8·0
	Do. (Hill Districts)	38·6	29·2	33·9	9·5	33·7	− 8·7	− 5·9	− 2·8
	Do. (North-West)	58·2	40·6	49·5	17·6	34·0	− 6·4	+ 0·6	− 7·0
	Do. (West)	62·9	42·5	52·7	20·5	36·1	− 5·3	+ 1·3	− 6·6

Province.	Division.	Actual.				Variation.			
		Mean Maximum.	Mean Minimum.	Mean of day.	Mean Daily Range.	Mean Absolute Range.	Mean Maximum.	Mean Minimum.	Mean Daily Range.
		°	°	°	°	°	°	°	°
Bombay and Malabar Coast Districts (Madras).	Malabar	86·7	71·2	79·0	15·5	21·7	− 0·1	+ 0·7	− 0·8
	Madras (South Central)	90·9	65·5	78·2	25·4	35·6	− 3·8	+ 1·8	− 5·6
	Coorg	74·4	57·4	65·5	17·2	24·7	− 1·7	+ 1·6	− 3·3
	Mysore	81·7	58·0	69·9	23·7	31·9	+ 2·1	+ 1·5	+ 0·6
	Konkan	83·3	65·9	74·6	17·4	27·7	− 2·3	− 1·4	− 0·9
	Bombay Deccan	84·3	55·6	70·1	28·6	39·7	− 0·4	− 1·3	+ 0·9
	Hyderabad (North)	81·6	57·0	69·3	24·6	37·7	?	?	?
	Khandesh	81·8	50·6	66·2	31·2	44·4	− 2·7	− 0·6	− 2·1
Central Provinces and Berar.	Berar	79·2	55·5	67·4	23·7	38·0	− 5·0	+ 0·4	− 5·4
	Central Provinces (West)	76·7	53·3	65·0	23·4	38·2	− 5·3	+ 0·2	− 5·5
	Do. (Central)	72·8	49·9	61·4	22·8	39·1	− 4·6	− 0·3	− 4·3
	Do. (East)	79·2	52·2	65·8	27·0	38·7	− 2·0	− 3·0	+ 1·0
Bombay (North)	Guzerat	83·6	55·9	69·7	27·7	40·9	− 2·5	− 0·5	− 2·0
	Kathiawar	80·1	53·3	66·7	26·8	42·6	− 4·5	− 1·6	− 2·9
	Sind	73·5	50·3	61·9	23·2	36·2	− 1·9	+ 0·9	− 2·8
Rajputana and Central India.	Central India (East)	73·0	47·1	60·1	26·0	40·8	− 3·4	− 1·2	− 2·2
	Rajputana (East), Central India (West)	71·7	45·7	58·7	26·0	42·3	− 3·8	− 1·9	− 1·9
	Do. (West)	74·5	43·8	59·0	30·7	46·8	?	?	?
Madras	East Coast (North)	80·3	64·0	72·2	16·3	28·2	− 0·9	+ 0·4	− 1·3
	Hyderabad (South)	83·2	60·0	71·6	23·2	34·2	− 1·1	+ 0·6	− 1·7
	Madras (Central)	87·0	61·6	74·3	25·4	36·8	+ 0·2	+ 0·2	0
	East Coast (Central)	84·2	65·2	74·7	19·0	26·5	− 1·3	− 1·5	+ 0·2
	East Coast (South)	85·1	67·8	76·5	17·3	26·6	− 1·1	− 0·3	− 0·8
	Madras (South)	87·9	70·7	79·4	17·3	25·7	− 1·4	+ 0·7	− 2·1

The following gives an account of the important temperature changes due to the passage of the cold weather storms of the month over India. At the commencement of the month temperature was largely below the normal in Burma and moderately below it in North-Western India and in excess elsewhere. The following gives mean temperature variation data of the 24 hours' period ending at 8 A.M. of the 1st:—

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

The unsettled showery weather accompanying the diffused disturbance of the first week of the month produced no considerable change in the mean temperature conditions of the month. Temperature continued to be considerably below the normal in North-Western India and Burma, and above it over the greater part of the Peninsula and North-Eastern India. The following gives temperature variation data of the 24 hours preceding 8 A.M. of the 7th in illustration:—

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

A comparison of the data of the 1st and 7th shows that temperature had decreased in North-Western and Central India, and that the deficiency was in both areas due to unusually low day temperature. Weather cleared on the 8th, and the area of deficient temperature rapidly extended

eastwards across Bengal and Assam, and at the same time temperature increased rapidly on the North-West Frontier, and a warm wave entered Sind and the West Punjab on the 10th. The following gives mean temperature variation data of the 8th, 10th, 12th and 14th :—

Meteorological Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of the			
	8th.	10th.	12th.	14th.
	°	°	°	°
Burma	−1·4	−1·0	−0·4	+1·3
Bengal and Assam	+1·6	−4·5	−4·2	−2·8
N.-W. Provinces and Oudh	−1·5	−3·9	−2·8	−0·6
Punjab	−2·3	−1·7	+0·8	+0·5
Sind and Rajputana	−4·4	−1·9	+1·2	+4·3
Central India and Guzerat	−7·0	−5·1	−1·2	−0·3
Central Provinces and Berar	−3·6	−7·5	−6·4	−3·2
Bombay	−1·6	+0·1	−1·8	−1·2
Madras	+1·4	+1·0	−1·1	−0·8

This table illustrates the slow advance of the cool wave from Rajputana and Central India to the Central Provinces and Bengal between the 8th and 12th, and the appearance of the warm wave on the frontier on the 12th and its easterly slow advance on the 13th and 14th into Central and East Rajputana.

A depression appeared on the 15th on the North-West Frontier, and advanced across Northern India into Bengal on the 18th. The warm wave which crossed the frontier on the 12th and 19th hence advanced eastwards across Northern India in front of this storm, and was followed by a cool wave in its rear.

The following table giving mean temperature changes from the 15th to the 20th illustrates the passage of these two waves :—

Meteorological Province.	Change of mean temperature for the 24 hours ending 8 A.M. of					
	15th.	16th.	17th.	18th.	19th.	20th.
	°	°	°	°	°	°
Punjab	+2·9	−0·4	−1·9	−3·5	−0·5	+0·4
Sind and Rajputana	−0·2	+1·4	−5·6	−2·2	−1·4	+1·4
N.-W. Provinces and Oudh	+2·5	+2·8	−1·8	−3·8	−1·6	−0·9
Central India	+1·4	+1·0	−2·9	−1·2	−3·2	−0·2
Bengal and Assam	+1·2	+0·8	+2·9	−0·4	−0·8	−0·7
Central Provinces and Berar	+1·4	+1·7	+0·4	−1·5	−0·3	+0·8
Burma	−1·9	−0·9	−0·6	+0·9	−0·3	+0·8

The crest of the warm wave was in West Rajputana on the 15th, Central Rajputana on the 16th (Ajmere +8°·7), the eastern districts of the North-Western Provinces on the 17th (Allahabad +7°·0), Bihar on the 18th (Patna +5°·7), and Bengal on the 19th (Saugor Island +4°·0). The amount of the excess due to the wave, hence, diminished with its eastward advance.

The crest of the cool wave in the rear was in Baluchistan on the 17th (Quetta—5°·9), in Rajputana on the 18th (Mount Abu —7°·5), Central India on the 19th, Bihar on the 20th (Hazaribagh—6°·1) and Central and North Bengal on the 21st (Dhubri—4°·7). A peculiar feature of this cool wave was the advance of a subordinate cool wave along the west coast of India due to an advance of dry cool north-west winds. The following variation data for seven stations on that coast from the 17th to the 23rd show the advance of this very clearly :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of the						
	17th.	18th.	19th.	20th.	21st.	22nd.	23rd.
	°	°	°	°	°	°	°
Rajkot	−5·1	−7·1	−7·1	−7·5	−6·6	−8·1	−4·8
Surat	−3·3	−5·9	−8·3	−5·5	−2·0	−3·7	−3·1
Bombay	−2·2	−3·7	−5·5	−6·4	−4·8	−3·8	−1·1
Ratnagiri	−3·3	−4·4	−6·6	−7·6	−6·8	−6·4	−1·8
Karwar	−3·6	−1·9	−2·6	−4·2	−4·7	−5·6	−5·8
Mangalore	−1·7	−0·9	−1·9	−2·8	−2·7	−3·3	−1·6
Cochin	+1·3	+1·2	+1·4	+·21	+2·0	+0·6	−1·5

The advance of this cool wave from Rajkot on the 18th to Surat on the 19th, Bombay on the 20th, Ratnagiri on the 21st and Karwar on the 23rd, is at once seen from these figures.

During the remainder of the month two cold weather storms of considerable intensity advanced across Northern India. The first passed from Sind on the 23rd to Bengal on the 26th and Burma on the 27th, and gave a general burst of rain over the whole of Northern India and heavy snow in the Himalayas and Afghan hills on the 22nd, 23rd and 24th. The second storm appeared in Upper Sind on the 27th and crossed into the western districts of the North-Western Provinces on the 29th and filled up there. It gave moderate to heavy rain to the Punjab and moderate snow in the hills. The temperature changes during this period were hence large and rapid. The following gives the mean actual changes of temperature in Northern and Central India day by day, from the 24th to the 31st :—

Meteorological Province.	Change of mean temperature for the 24 hours ending 8 A.M. of the							
	24th.	25th.	26th.	27th.	28th.	29th.	30th.	31st.
	°	°	°	°	°	°	°	°
Punjab	−1·5	−2·3	−0·3	−0·4	−1·7	−0·2	+2·3	−0·4
Sind and Rajputana.	+0·1	−6·8	+0·7	+1·0	+2·0	−4·9	−0·3	−0·3
North-Western Provinces.	−0·2	−0·6	−3·4	−1·6	+2·0	+2·3	−1·1	−1·5
Central India	+3·6	+3·6	−7·9	+0·6	+5·4	−0·2	−5·6	−0·5
Bengal and Assam	+2·4	+1·3	−0·1	−3·6	−3·6	+2·6	+5·2	−0·8
Central Provinces.	+4·3	+3·8	−3·6	−3·7	+1·9	+5·4	−2·4	−0·6
Burma	−1·5	−0·9	+2·3	+1·0	−2·0	−4·4	+1·3	+1·6

The preceding data of the changes of temperature during each 24 hours' period from 8 A.M. of the 23rd to 8 A.M. of the 31st, show the more important features of the temperature conditions accompanying the two disturbances of the last week. Thus the crest of the warm wave, or area of greatest excess and most rapid increase of temperature in front of the first of these storms, was in Central India on the 24th, Chota Nagpur and the Central Provinces on the 25th, and in East Bengal and Burma on the 26th. The crest of the following cool wave was in Rajputana on the 25th, Central India on the 26th, West Bengal and the Central Provinces on the 27th, and East Bengal and Burma on the 28th. The lowest temperatures of the month in Northern India were generally registered during the advance of this cool wave across Northern India.

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 heading "Wind." 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 daily air movement. The mean direction of the wind at 8 A.M. for each station is given in a separate column. 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 heading "Wind" is 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 and the average monthly values of the last two data computed from the previous wind observations at the stations.

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 excess of 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 directions (determined from the 10 and 16 hours' wind observations, and the corresponding normal mean wind directions.

Winds were normal in strength and slightly less steady in Burma and at Port Blair. They were more easterly than usual. This was very marked at Port Blair, where the mean wind direction was N. 67° E., the normal being N. 39° E.

Winds were stronger than usual in Bengal, especially at the coast stations of False Point and Saugor Island, and the westerly element in the prevailing north-westerly winds of the month was very strongly pronounced.

In Bihar, Chota Nagpur, the North-Western Provinces and the eastern districts of the Punjab, the winds were on the average of the month considerably stronger than usual and on the whole slightly steadier. In these areas, as in Bengal, winds were more westerly than usual. The following gives data for four stations:—

Meteorological Division.	Station.	Mean wind direction.			Mean wind velocity in miles per diem.		
		January, 1893.	Normal, January.	Westerly deflection.	January, 1893.	Normal, January.	Percentage variation.
Chota Nagpur	Hazaribagh	N 66° W	N 62° W	4°	180	118	+ 53
Bihar	Patna	N 88° W	N 83° W	5°	91	48	+ 90
N.-W. Provinces	Allahabad	N 49° W	N 34° W	15°	110	50	+ 120
Punjab East	Lahore	N 60° W	N 25° W	35°	35	45	+ 22

The westerly deflection of the winds hence decreased in amount eastwards. This was probably due to the storms of the month giving a much stronger influx across the North-Western Frontier into India than usual.

Winds were much steadier and stronger in Sind, and contained an abnormal strong easterly element. The following gives data in illustration:—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.	
	January, 1893.	Normal, January.	January, 1893.	Normal, January.
Jacobabad	N 70° E	N 18° W	62	49
Kurrachee	N 38° E	N 23° W	250	237

Winds were slightly stronger and steadier in Rajputana, Central India and the Central Provinces, and the mean wind directions of the month did not differ to an important extent from the normal. Winds were slightly less easterly than usual. The same deflection of the winds was shown more strongly in the Deccan at Poona;

Sholapur, Belgaum and Secunderabad. The following gives data for these stations :—

STATION.	MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.	
	January, 1893.	Normal, January.	Decreased easting.	January, 1893.	Normal, January.
Poona . .	S 28° E	S 61° E	33°	141	137
Sholapur .	S 43° E	S 60° E	17°	174	171
Belgaum .	S 57° E	S 71° E	14°	218	261

Winds were slightly stronger on the Bombay coast. North-west winds prevailed to an unusual extent during the month. The following gives data :—

STATION.	MEAN WIND DIRECTION.			MEAN STEADINESS PER CENT.	
	January, 1893.	Normal, January.	Increased westing.	January, 1893.	Normal, January.
Bombay .	N 10° W	N 6° E	16°	53	63
Ratnagiri .	N 54° W	N 34° W	20	42	30
Karwar . .	N 21° W	N 5° W	16	60	53

The chief effect of the stormy weather on the winds at the hill stations was shown in the velocity. Stormy winds and gales prevailed to an unusual extent. The following gives data for three stations :—

STATION.	MEAN WIND VELOCITY.		
	January, 1893.	Normal, January.	Percentage, variation.
Murree . . .	233	198	+18
Chakrata . . .	177	114	+55
Darjeeling . . .	151	62	+144

Humidity and Cloud.

The hygrometric data for 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 Vade-mecum, which are 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 5 to 20 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 five to twenty-five years of the available cloud data for the same hours.

The air contained less aqueous vapour and was less humid than usual in Burma, Bengal and Orissa. The deficiency in the amount of aqueous vapour was as marked at Port Blair as in Lower Burma. The deficiency in the humidity was greatest at the coast stations of Diamond Island (—8), False Point (—6), Saugor Island and Port Blair (—5). The variations of the mean humidity conditions of the month were small and unimportant in Orissa and Bihar, where the air contained slightly less aqueous vapour than usual, and was somewhat damper in consequence of the diminished temperature.

The air was unusually damp in the North-Western Provinces, the Punjab, Rajputana, Sind, Central India, Berar and the Central Provinces in consequence, partly to increased amount of vapour, but chiefly of the unusually low temperature. The following gives mean variation data for each of these areas :—

DISTRICT.	MEAN AQUEOUS VAPOUR PRESSURE.			MEAN HUMIDITY.		
	January 1893.	Normal, January.	Variation from normal.	January 1893.	Normal, January.	Variation from normal.
	"	"	"	%	%	
North-Western Provinces.	·329	·308	+021	72	63	+ 9
Punjab . .	·283	·258	+025	75	63	+12
Rajputana . .	·285	·266	+019	63	51	+12
Sind . .	·337	·280	+057	61	50	+11
Central India .	·310	·281	+029	64	55	+ 9
Berar . .	·381	·318	+063	60	46	+14
Central Provinces	·355	·329	+026	61	53	+ 8

Hence over nearly the whole of the area including these provinces, the mean humidity of the month was more

than 10 above the normal. The excess was greatest absolutely at Lahore (+17) and Roorkee (+15).

The increased humidity was even more marked at the hill stations in Northern India than at the neighbouring plain stations, and was due solely to the largely decreased temperature, as the amount of aqueous vapour was slightly less than usual in January at the majority of the stations. The following gives data for four stations :—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	January, 1893.	Normal, January.	Variation from normal.	January, 1893.	Normal, January.	Variation from normal.
	"	"	"	%	%	
Murree	·156	·139	+017	83	58	+25
Simla	·144	·151	−007	74	58	+16
Ranikhet	·196	·191	+005	78	62	+16
Darjeeling	·192	·203	−011	89	80	+ 9

The air was slightly less humid in the west coast districts and more especially at Bombay, where the mean humidity of the month was 5 below the normal. It was, on the other hand, damper in the Deccan, Mysore and Madras, but the variations were small and apparently of no significance, except as confirming the prevalence of stronger north-easterly winds across the Madras coast than usual.

The amount of cloud was greater than usual in January over nearly the whole of India. The only areas in which it was less than usual were Sind, the west coast districts from Bombay to Mangalore, Mysore and Madras. The deficiency, although small absolutely, was large relatively to the normal cloud amount of the period in these districts. The following gives data for four representative stations in these areas :—

Station.	Mean amount of cloud.		
	January, 1893.	Normal, January.	Variation from normal.
Bombay	0·7	1·5	−0·8
Bangalore	1·3	2·7	−1·4
Madras	3·3	3·9	−0·6

The mean cloud amount of the month was less than 1 at Karwar (0·3), Ratnagiri (0·6) and Bombay (0·7). Skies were hence most serene and free from cloud during the month in the west coast districts from Surat to Karwar.

The following table shows the increased amount of cloud in the remaining districts of India :—

Meteorological Division.	Mean amount of cloud.		
	January, 1893.	Normal, January.	Variation from normal.
Burma	3·6	2·6	+1·0
Assam	4·4	3·5	+0·9
Bengal	2·7	1·7	+1·0
Orissa	2·3	1·8	+0·5
Chota Nagpur	4·3	2·3	+2·0
Bihar	2·4	2·0	+0·4
N.-W. Provinces	3·8	2·9	+0·9
Punjab	4·8	3·7	+1·1
Rajputana	3·2	2·7	+0·5
Berar	2·4	1·8	+0·6
Central Provinces	2·5	1·8	+0·7

The excess was very uniform in amount over the whole of Northern India, for which it averaged 1·0.

The cloud was even more considerably in excess at the hill stations in Northern India, more especially at Simla (+1·6), Ranikhet (+1·6) and Darjeeling (+1·8).

The general increase in the amount of cloud was due to the unusually disturbed weather of the month, which extended to nearly every part of India, and was on the whole most marked in Northern India and the adjacent mountain districts. A remarkable subsidiary feature of this disturbed weather was decreased cloud amount over an area including Sind, South-West Rajputana, Kathiawar and the Bombay coast districts, where dry north-west winds were unusually prevalent. The following gives data for stations in these areas :—

Meteorological Division.	Station.	Mean amount of cloud.		
		January, 1893.	Normal, January.	Variation from normal.
Sind	Jacobabad	1·9	2·9	−1·0
	Kurrachee	1·7	2·6	−0·9
West Rajputana	Mount Abu	1·5	2·6	−1·1
Bombay	Deesa	1·3	2·3	−1·0
	Bombay	0·7	1·5	−0·8
	Ratnagiri	0·6	0·6	0
	Karwar	0·3	0·9	−0·6

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 officer in the province, and published in the provincial gazette. A weekly statement of the rainfall of every district is telegraphed to the Simla 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 January 1893 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 indicating the rainfall.

Northern India usually receives light to moderate rain in the month of January from cold weather cyclonic storms. The precipitation is usually 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 1893 was unusually disturbed. Four cold weather depressions or disturbances advanced across Northern India. Each gave a general burst of rain to Northern and Central India, and heavy snow in the hill districts. The first disturbance lasted from the 2nd to the 8th and gave, on the whole, the heaviest and most general burst of rain during the month. The Punjab, Rajputana, Central India, Berar, the Central Provinces and West Bengal received general rain during this period. The rainfall was on the whole heaviest and most general in the Central Provinces. The second lasted from the 15th to the 20th. This disturbance gave local showers in the Punjab, North-Western Provinces, Chota Nagpur, and Bengal. The third disturbance from the 23rd to the 27th gave light but fairly general rain to the Punjab, North-Western Provinces, Bihar and Bengal.

The fourth disturbance, on the 27th and 28th, gave a moderately heavy burst of rain to the Punjab and the western districts of the North-Western Provinces. The Madras Coast districts and the Deccan received showers giving light to moderate rain on the 22nd and 23rd in the interval between the second and third disturbances.

The following table gives comparative rainfall data of the month for the 52 meteorological districts or divisions into which India is divided. In the case of Burma, Bengal, the North-Western Provinces, Punjab, Bombay, Rajputana, Central India and Madras, the data are derived from the statements published in the provincial gazettes which were received in time to be utilized in the preparation of the table. The data in the case of the remaining provinces are based on the weekly telegrams received from District Officers in those provinces :—

Provinces.	Division.	Rainy days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	0·4	0	0·19	0	+0·19
	Lower Burma*	0	0	0	0	0
	Central do. *	0	0	0	0	0
	Upper do. *	0·3	0	0·11	0	+0·11
	Arakan . *	0·1	0	0·01	0	+0·01
Bengal and Assam	Eastern Bengal	1·2	1·2	0·36	0·57	—0·21
	Assam (Surma)	3·4	1·5	1·25	0·62	+0·63
	Do. (Brahmaputra)	5·3	2·9	1·80	1·05	+0·75
	Deltaic Bengal	1·5	0·9	0·48	0·46	+0·02
	Central do.	1·6	0·9	0·55	0·42	+0·13
	North do.	2·8	1·2	0·85	0·62	+0·23
	Orissa	2·0	0·7	1·37	0·37	+1·00
	Chota Nagpur	2·3	1·4	0·85	0·64	+0·21
	Bihar (South)	1·9	1·4	0·54	0·62	—0·08
	Do. (North)	2·2	1·3	0·93	0·61	+0·32
North-Western Provinces and Oudh.	North-Western Provinces (East)	3·3	1·3	1·41	0·64	+0·77
	Oudh (South)	3·5	1·4	1·43	0·72	+0·71
	Do. (North)	3·2	1·3	1·29	0·78	+0·51
	North-Western Provinces (Central)	2·9	1·3	1·23	0·58	+0·65
	Do. do. (West)	3·4	1·3	1·09	0·53	+0·56
	Do. do. (Submontane)	5·4	2·2	2·82	1·47	+1·35
Punjab	Punjab (South)	4·3	1·1	1·61	0·56	+1·05
	Do. (Central)	4·5	1·5	1·53	0·72	+0·81
	Do. (Submontane)	6·4	2·4	4·03	1·57	+2·46
	Do. (Hill Districts)	9·9	4·2	6·25	4·14	+2·11
	Do. (North-West)	6·5	2·8	4·08	1·69	+2·39
	Do. (West)	3·0	1·3	1·42	0·61	+0·81

Provinces.	Division.	Rainy days. Actual.	Rainy days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
				Inches.	Inches.	Inches.
Bombay and Malabar coast districts (Madras).	Malabar*	0·1	0·3	0·13	0·19	—0·06
	Madras (South Central)*	0·3	0·3	0·12	0·12	0
	Coorg*	?	?	0	0·04	—0·04
	Mysore*	?	?	0	0·07	—0·07
	Konkan	0	0·2	0	0·12	—0·12
	Bombay Deccan	0	0·2	0	0·07	—0·07
	Hyderabad (North)	...	...	...	...	...
	Khandesh	1·2	0·2	0·48	0·11	+0·37
Central Provinces and Berar.	Berar*	3·7	0	2·03	0·44	+1·59
	Central Provinces (West)*	?	?	2·70	0·48	+2·22
	Do. (Central)*	?	?	2·26	0·57	+1·69
	Do. (East)*	?	?	1·23	0·47	+0·76
Bombay (North)	Guzerat	0	0·2	0	0·06	—0·06
	Kathiawar	0·1	0·2	0·04	0·05	—0·01
	Sind	1·5	?	0·44	0·40	+0·04
Rajputana and Central India.	Central India (East)	2·9	?	1·18	0·64	+0·54
	Rajputana (East), Central India (West)	2·3	?	0·75	0·25	+0·50
	Do. (West)	1·4	?	0·56	0·24	+0·32
Madras	East Coast (North)*	0·9	0·3	0·62	0·19	+0·43
	Do. do. (a)*	1·0	0·3	0·60	0·07	+0·53
	Hyderabad (South)*	?	?	0	0·15	—0·15
	Madras (Central)*	0·3	0·1	0·11	0·05	+0·06
	East Coast (Central)*	0·6	0·6	0·27	0·48	—0·21
	East Coast (South)*	0·5	0·7	0·14	0·48	—0·34
	Madras (South)*	1·3	1·0	0·82	0·62	+0·20

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

The preceding table shows that the average total rainfall of the month exceeded an inch in amount in the Punjab, the North-Western Provinces, Assam, Orissa, Berar, the Central Provinces and Central India East. It was in excess of the normal over Burma, Northern and Central India, and the North Deccan. The chief abnormal feature of the rainfall of the month, in addition to this general excess, was the large excess in two areas, *viz.*, the Punjab, more especially the eastern and northern districts, and the Central Provinces and Berar.

The rainfall of the month in Burma was small in amount and of little importance. It was actually or practically *nil* over the greater part of that area as well as Coorg, Mysore, the Konkan, Bombay Deccan, Guzerat, Kathiawar, and the greater part of Hyderabad.

Bengal obtained more or less general rain during three periods:—

1st.—On the 7th and 8th. This rainfall was restricted to Bihar, Chota Nagpur and North Bengal. The falls were light, not exceeding, as a rule, three or four-tenths of an inch.

2nd.—On the 17th and 18th. South-West and East Bengal, Chota Nagpur, and Bihar received light showers during this period.

3rd.—From the 25th to the 27th. The whole province, with the exception of Orissa and Chittagong, received moderate general rain during this period.

The following table gives comparative rainfall data of the meteorological districts into which the province is divided:—

District.	Rainfall. Actual average rainfall of month.	Rainfall. Variation from normal.	Rainfall. Variation expressed as a percentage.	Number of rainy days. Average actual of month.	Number of rainy days. Variation from normal.	Number of rainy days. Variation expressed as a percentage.
	Inch.	Inch.				
Eastern Bengal	0·36	—0·21	37	1·2	0	0
Deltaic "	0·48	+0·02	+ 4	1·5	+0·6	+ 67
Central "	0·55	+0·13	+ 31	1·6	+0·7	+ 78
North "	0·85	+0·23	+ 37	2·8	+1·6	+133
Orissa	1·37	+1·00	+270	2·0	+1·3	+186
Chota Nagpur	0·85	+0·21	+ 33	2·3	+0·9	+ 64
Bihar (South)	0·54	—0·08	— 13	1·9	+0·5	+ 36
Do. (North)	0·93	+0·32	+ 52	2·2	+0·9	+ 69

The North-Western Provinces received moderate and general rainfall during the first three disturbances of the month. The western districts also obtained moderate rain during the last disturbance of the month. The heaviest rainfalls were experienced during the first disturbance of

the month. The following falls exceeding 2 inches were recorded during that disturbance :—

District.	Station.	Date.	Rainfall in inches.
UNAO	Unao	3rd	2·61
LUCKNOW	Lucknow	4th	2·49
	Malihabad	4th	2·14
ALLAHABAD	Manjhanpur	7th	2·60
	Handia	7th	2·47

The following gives a comparative statement of the rainfall of the province :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, January 1893.	Variation from normal.	Percentage variation.	Average actual, January 1893.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Oudh, South	3·5	+2·1	+150	1·43	+0·71	+ 99
Oudh, North	3·2	+1·9	+146	1·29	+0·51	+ 65
North-Western Provinces, East	3·3	+2·0	+154	1·49	+0·77	+120
North-Western Provinces, Central.	2·9	+1·6	+123	1·23	+0·65	+112
North-Western Provinces, West	3·4	+2·1	+162	1·09	+0·56	+106
North-Western Provinces, Submontane.	5·4	+3·2	+145	2·82	+1·35	... 98

Rain fell more or less generally over the Punjab during each of the four cold weather disturbances of the month.

The rainfall during the first disturbance from the 3rd to the 6th was almost restricted to the northern and eastern districts. It was heavy in the Gurdaspur and Hoshiarpur districts, and also in the hills. The following falls in 24 hours exceeding 3 inches were registered :—

District.	Station.	Date.	Rainfall in inches.
HOSHIARPUR	Dasuya	4th	3·37
	Una	4th	3·25
GURDASPUR	Pathankot	4th	3·45

The second period of rainfall was from the 15th to the 17th. Rain fell in all districts, but the total amounts were considerably smaller than during the previous storm.

The third disturbance gave general and moderately heavy rain on the 24th and 25th. The largest amounts were recorded in the districts of Sialkot, Rawalpindi, Jhelum, Peshawar, Gurdaspur and Kangra. The following gives the most noteworthy falls in 24 hours during this period :—

District.	Station.	Date.	Rainfall in inches.
GURDASPUR	Dalhousie	23rd	4·00
	Ditto	24th	4·44
SIALKOT	Pasrur	24th	2·22
JHELUM	Pind Dadan Khan	24th	2·46
RAWALPINDI	Attock	24th	2·53

The fourth disturbance gave light to moderate rain on the 28th and 29th. As in the previous disturbance the fall was heaviest in the northern and eastern districts and on the hills.

The rainfall of the month was more or less largely in excess over the whole province. The excess was not only absolutely but relatively to the normal greatest in the northern and eastern districts at the foot of the hills. The following table gives comparative data :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, January 1893.	Variation from normal.	Percentage variation.	Average actual, January 1893.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Punjab, South	4·3	+3·2	+290	1·61	+1·05	+190
Punjab, Central	4·5	+3·0	+200	1·53	+0·81	+112
Punjab, Submontane.	6·4	+4·0	+167	4·03	+2·46	+156
Punjab, Hill Districts.	9·9	+5·7	+135	6·25	+2·11	+ 51
Punjab, North-West.	6·5	+3·7	+133	4·08	+2·39	+142
Punjab, West	3·0	+1·7	+131	1·42	+0·81	+133

Baluchistan received much larger amounts of rain than usual in January. There were four periods of rain or snowfall. The first was on the 3rd and 4th, when some light local showers were received; the second from the 12th to the 16th, the third from the 22nd to the 24th, and the fourth from the 27th to the 29th. The precipitation during the second and fourth periods was heavy and general, and rainfalls in 24 hours of an inch or upwards were recorded at many stations. The following gives the most noteworthy rainfalls of the month :—

Date.	Station.	Rainfall during 24 hours preceding 8 A.M. of date.
		Inches.
13th	Killa Abdulla	1·91
15th	Khonai	1·55
27th	Rindli	2·20
	Hirok	1·60
	Khost	1·50
	Sharigh	1·52
	Yorookarez	1·50
28th	Rindli	3·04
	Loralai	2·14
	Bostan	1·50

The heaviest falls were hence experienced during the last storm of the month.

The rainfall was exceptionally heavy over the greater part of the area represented by the rain-gauge stations. The total falls of the month exceeded four and a half inches at the following stations :—

Station.	Total rainfall.
	Inches.
Rindli	8·78
Khanai	6·54
Killa Abdulla	5·27
Kalat	4·94
Sharigh	4·86
Shalabagh	4·61
Loralai	4·56

The normal rainfall of the month in Baluchistan is less than two inches.

In Rajputana, rain was chiefly received during the third disturbance of the month, *i.e.*, on the 23rd, 24th, and 25th. Showers fell in East Rajputana on the 2nd, 3rd and 4th during the first disturbance, and light local showers of little importance on the 27th, 28th and 29th during the last disturbance of the month in the western and central states. The rainfall of the month was generally in moderate excess. The following gives data for the larger states :—

State.	Rainfall.			
	Average actual, January 1893.	Normal, January.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Jodhpur	0·67	0·24	+0·43	+179
Jeypore	1·03	0·32	+0·71	+222
Ulwar	1·67	0·49	+1·08	+220
Bhurtpur	1·00	0·38	+0·62	+163
Dholpur	0·49	?	?	?
Ajmere (Marwara)	1·17	0·20	+0·97	+485
Oodeypore	0·12	0·09	+0·03	+ 33
Serohi	0·26	0·16	+0·10	+ 63

The rainfall of the month in Central India occurred chiefly during the first disturbance of the month, or from the 3rd to the 7th. Light showers were also received on the 17th and 25th. The following gives comparative data for the chief states :—

State.	Rainfall.			
	Average actual, January 1893.	Normal, January.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Gwalior	0·95	0·25	+0·70	+280
Rewah	1·97	0·99	+0·98	+ 99
Bundelkhand	0·69	0·54	+0·15	+ 28
Bhopal	0·81	0·52	+0·29	+ 56
Indore	0·33	0·31	+0·02	+ 6

The rainfall of the month was hence in moderate excess in the eastern states. It was almost *nil* in the western states, more especially in west Indore.

No rain fell over by far the greater part of the Bombay Presidency. Khandesh received light showers daily from the 2nd to the 7th which gave a total average fall of 1·02 inches to the whole district. Light local showers were also received in Sind during the four periods of disturbance of the month. The average actual rainfall was only ·44 inch, or very slightly in excess of the normal (·4 inch).

No rain fell in Coorg during the month. Travancore had light to moderate rain on the 21st, 22nd and 23rd due to thunderstorms, and hence very irregularly distributed. The rainfall of the month ranged from *nil* to 3·64 inches at Neyattinkary.

The Central Provinces obtained daily showers during the period from the 2nd to the 4th or during the first disturbance of the month. This rainfall was heaviest in the central districts, *i.e.*, in Nagpur, Hoshangabad, Seoni and Narsingpur, and falls in 24 hours exceeding one inch were registered during this period at nearly all the rain-gauge stations in those districts. The eastern and south-eastern districts received light showers on the 20th, 21st and 22nd. The following table gives comparative data of the rainfall of the three meteorological districts, based on the rainfall statement published in the Central Provinces Gazette, and hence differs to some extent from the data in the general rainfall table above :—

Division.	Number of rainy days.			Rainfall.		
	Actual, January 1893.	Normal, January	Variation from normal.	Actual, January 1893.	Normal, January	Variation from normal.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Central Provinces (East)	2·5	1·0	+1·5	0·92	0·47	+0·45
Do. (Central)	3·9	1·1	+2·8	2·13	0·53	+1·60
Do. (West)	4·3	0·9	+3·4	2·55	0·56	+1·99

The rainfall of the month was even smaller than usual over the greater part of Madras. Some light local showers were received during the first week, chiefly in the South Coromandel Coast districts. Fairly general rain fell over a large part of the Presidency from the 21st to the 23rd, during the interval between the second and third disturbances of the month in Upper India. This rainfall was general and heavy in the districts of Ganjam and Vizagapatam. It was also fairly general and moderate in amount in the districts of Tinnevelly and Madura. The following gives a comparative complete

statement of the rainfall in each of the 21 collectorates of Madras :—

District.	Rainy days.		Rainfall.		
	Average actual, January 1893.	Normal, January.	Average actual, January 1893.	Normal, January.	Variation from normal.
			Inches.	Inches.	Inches.
Gangam	1·8	0·4	1·51	0·20	+1·31
Vizagapatam	1·1	0·3	0·65	0·16	+0·49
Godavari	0	0·3	0·03	0·16	—0·13
Kistna	0·9	0·3	0·37	0·27	+0·10
Nellore	0·6	0·6	0·27	0·48	—0·21
Madras	1·0	1·0	0·33	0·94	—0·61
Chingleput	0·7	0·7	0·18	0·45	—0·27
North Arcot	0·6	0·5	0·12	0·30	—0·18
South Arcot	0·8	0·7	0·21	0·41	—0·20
Tanjore	0·6	1·3	0·11	0·88	—0·77
Trichinopoly	0·2	0·6	0·03	0·24	—0·21
Madura	1·2	0·8	0·60	0·44	+0·16
Tinnevelly	1·6	1·3	1·09	0·85	+0·24
Malabar	0·2	0·3	0·21	0·24	—0·03
South Canara	0	0·1	0	0·13	—0·13
Salem	0·3	0·3	0·13	0·11	+0·02
Coimbatore	0·3	0·3	0·11	0·13	—0·02
Nilgiris	1·0	0·9	0·35	0·40	—0·05
Cuddapah	0·4	0·2	0·14	0·09	+0·05
Anantapur	0·2	0·1	0·03	0·03	0
Bellary	0	0·1	0	0·05	—0·05
Kurnool	0·5	0·1	0·26	0·03	+0·23

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 182 stations in India during the month of January 1893.

In this table the observing stations are grouped under two sets of divisions. According to the first arrangement, India and Burma are divided into eleven large meteorological areas or provinces. These divisions have been selected in consultation with the Medical Department. The climatic conditions of each area are fairly uniform, and they hence are presumed to form suitable areas for the discussion of the relations between disease and meteorology. The names of these divisions are printed in bold type, and the mean variations of the more important meteorological data, more especially temperature, are given opposite to each in prominent figures.

Each of these larger divisions is sub-divided into smaller meteorological areas or districts, of which there are 51 in all. This sub-division was made in consultation with the Revenue and Financial Departments. In each of these smaller areas the distribution and character of the rainfall are fairly uniform, and the staple crops in each are hence the same. This sub-division will, it is hoped, enable a more exact comparison to be made between crops and rainfall than has been hitherto possible.

The headings of the columns in the great majority of cases explain themselves. The figures in the third column, "Variation from normal," are obtained by taking in each case the difference between the mean actual barometer (reduced for temperature, but not to sea-level or constant gravity) and the normal means obtained from the observations of the eleven years' period 1878—88.

The "Mean daily temperature" is assumed in Table I to be the mean of the maximum and minimum. It is chiefly utilized in order to obtain the mean variation of the temperature of the month from the normal.

In obtaining the figures for the column headed "Number of rainy days," a rainy day is assumed to be one on which a fall of a tenth of an inch or upwards has been recorded. A fall of less than a tenth of an inch is practically of no value for agricultural purposes in India, and it has not been found possible to secure the accurate record of rainfalls of less than a tenth of an inch at a great majority of the rainfall-recording stations.

Table II gives an abstract of the observations recorded at 10 A.M. and 4 P.M. at 90 second class observatories throughout India, Burma, and the adjacent regions. This Table is intended in part to supplement Table I, and hence information given in full in the latter Table, as for example, rainfall, is not included in Table II. This Table is intended to give for the month, so far as is possible, all the information furnished hitherto in the Appendix A, of the Annual Report on the Meteorology of India. The methods of calculating the means have been very fully explained in the Annual Reports, to which the reader is referred for complete information. The data of the mean daily pressure, the figures of which are given in the sixth column, are the means of the 10 and 16 hours' observations, with corrections obtained from a comparison of the 10 and 16 hours' observations of the same or a neighbouring observatory with a series of hourly observations at the same observatory.

The mean temperature in Table II is calculated by the formula mean $= \frac{\text{maximum} + 16 \text{ hours} + 2 \text{ minimum}}{4}$ by applying a constant correction for each month, derived from the hourly observations of the same or of a neighbouring station.

The mean daily vapour tension and humidity are the averages of the values for 10 A.M., 4 P.M., and the minimum readings, and the mean daily cloud is the average of the mean amounts for 10 and 16 hours.

The mean wind directions for each month are the trigonometrical resultants of the winds given under each of the eight cardinal points, and are calculated by means of Lambert's formula, in which an equal weight or value is given to every wind.

It should be noted that in the preceding discussion, in speaking of the maximum, minimum, or mean temperature, the total amount of wind or the rainfall of a given day, as for example, the 5th, the maximum, etc., of the 24 hours preceding 8 A.M. of the 5th is meant. This definition has been adopted to avoid confusion. As the observations are taken at 8 A.M., a part of them refer to 8 A.M. of that day and a part to the previous 24 hours, and therefore including a portion of the previous civil day. It is found most convenient to use the same date to designate and define both classes of observations.

The following geographical terms are frequently employed in the Monthly Weather Review, and indicate approximately the areas detailed opposite each.

LAND DIVISIONS.

North-Western India	Includes the area to the north-west of a line joining Rajkot and Lucknow.
North-Eastern India	Includes Assam, Bengal, Bihar, and the North-Western Provinces (east of Lucknow).
Northern India	Or that part of India north of a line joining Surat and Balasore.
Peninsula	Includes the portion of India south of aline joining Surat and Balasore.
Upper India	Includes the area north of Latitude 28° N., or Upper Sind, the Punjab and the north-western districts of the North-Western Provinces.
Central India	Or the central tract between the Rajputana and Great Indian Peninsula Railways, of which the corners are approximately Jeypore and Mount Abu to the north and Khandwa and Jubbulpore to the south.
Gangetic Plain	Includes the North-Western Provinces, Oudh and Bihar.
Bengal	Includes the area between Bihar, Assam, and the Head of the Bay (and sometimes called Lower Bengal).
Guzerat	Includes Cutch, Kathiawar and Guzerat.
Konkan	Includes the West Coast districts from Goa to 20° north latitude.
Malabar	Includes the West Coast districts from Goa southward.
Central Provinces	Includes the Central Provinces and Berar.
West Deccan	Includes the area between the West Ghâts and the 76th Meridian and extending from Malegaon to Belgaum and Dharwar.
East Deccan	Includes Hyderabad, Kurnool, Bellary and Cuddapah.
Mysore	Includes Coorg and Mysore.
Circars	Includes the Madras Coast districts from Ganjam to Godavari.
Carnatic	Includes the Madras Coast districts from Godavari to Latitude 12° north.
South India	Or area south of Latitude 12° north.
Upper Burma	Or that part of Burma to the north of the latitude of Mandalay.
Central Burma	Or that part of Burma between the latitudes of Prome and Mandalay.
Lower Burma	Or that portion of Burma between the latitude of Prome and the Gulf of Martaban.
Tenasserim	Includes the coast districts from Moulmein southward to Mergui.

COAST DIVISIONS.

Tenasserim Coast	Includes the coast from Tavoy to Moulmein.
Burma Coast	Includes the coast from Moulmein to Diamond Island.
Arakan Coast	Includes the coast from Diamond Island to Chittagong.
Bengal Coast	Includes the coast from Chittagong to Balasore.
Orissa Coast	Includes the coast from Balasore to Gopalpore.
Circars Coast	Includes the coast from Gopalpore to Masulipatam.
Coromandel Coast	Includes the coast from Masulipatam to Negapatam.
South India Coast	Includes the coast from Negapatam to Cape Comorin.
Malabar Coast	Includes the coast from Cape Comorin to Goa.
Bombay Coast	Includes the coast from Goa to Surat.
Sind Coast	Includes the coast from Surat to Karachi.

Table

Abstract of Observations taken at 8 A.M., at 182 Stations

Meteorological Province or District.	Station.	Height of Station 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.
1. Burma Coast and Bay Islands.		...	...	−·043	...	...	...	...	...	...	...	85·4	−1·0	62·4	−1·8	74·4	−1·4	22·1	...	...	...	...	31·1
Bay Islands	Port Blair	61	29·898	?	29·890	30·015	1st	29·823	12th & 13th	·192	78·0	85·2	?	75·0	?	80·1	?	10·2	88·2	26th	68·7	30th	19·5
	Camorta*	?	29·927	?	?	30·020	1st	29·847	15th	·173	79·9	84·5	?	76·0	?	80·3	?	8·5	86·8	26th	69·8	31st	17·0
Tenasserim	Mergui*	96	29·882	?	29·911	30·002	1st	29·784	15th	·218	73·9	86·8	?	51·6	?	69·2	?	35·2	94·6	24th	43·5	21st	51·1
	Tavoy	26	29·972	?	29·929	30·101	2nd	29·875	13th	·226	67·8	87·7	?	61·0	?	74·4	?	26·7	92·7	2 days	54·2	2 days	38·5
	Moulmein	94	29·904	−·046	29·938	30·042	1st	29·798	13th	·244	68·4	87·2	−1·0	65·1	−0·4	76·1	−0·7	22·1	91·0	2 days	59·4	6th	31·6
	Toungoo	181	29·818	−·034	29·950	29·987	4th	29·694	15th	·293	60·5	82·0?	−3·4?	55·6	−1·9	68·9?	−2·7?	26·4?	87·8	27th	53·1	1st	34·7
Lower Burma	Rangoon	41	29·952	−·053	29·931	30·089	4th	29·857	15th	·232	66·8	87·4	−1·0	62·7	−1·1	75·1	−1·1	24·7	91·7	2 days	56·2	29th	35·5
	Bassein	27	29·984	−·036	29·947	30·121	1st	29·885	15th	·236	65·4	84·8	−0·3	58·8	−2·0	71·8	−1·2	26·0	88·2	26th	55·0	1st	33·2
	Diamond Island	41	29·958	−·039	29·935	30·090	1st	29·872	15th & 16th	·218	73·9	81·6?	−2·2?	70·3?	−0·3?	75·9?	−1·3?	11·3?	84·0	14th	66·4	5th	17·6
Arrakan	Akyab	20	29·999	−·050	29·962	30·138	4th	29·895	26th	·243	61·4	79·6	−1·7	56·0	−3·4	67·8	−2·6	23·6	82·2	27th	50·7	30th	31·5
2. Burma Inland		...	...	−·019	...	...	...	...	...	...	...	77·3	−1·1	49·2	−2·8	63·3	−2·0	28·1	...	...	...	...	39·9
Central Burma	Thayetmyo	134	29·887?	−·019	29·969?	30·081?	4th	29·757?	15th	·324	61·1	84·1	−1·1	50·8	−2·8	67·5	−2·0	33·3	90·8	27th	45·4	17th	45·4
Upper Burma	Mandalay	?	29·763	?	?	29·953	4th	29·624	15th	·329	59·4	80·9	?	49·5	?	65·2	?	31·4	87·5	27th	45·1	5th & 24th.	42·4
	Kindat	?	29·662	?	?	29·866	4th	29·457	26th	·409	54·1	71·4	?	49·4	?	60·4	?	22·0	77·8	2 days	44·5	28th	33·3
	Bhamo	?	29·632	?	?	29·837	4th	29·473	26th	·364	52·1	72·7	?	47·1	?	60·0	?	25·6	80·0	19th	41·4	12th	38·6
3. Assam		...	...	−·042	...	...	...	...	...	...	...	70·5	−2·8	51·1	−0·6	60·9	−1·7	19·4	...	...	...	...	31·9
Assam (Surma)	Silchar	104	29·947	−·033	30·009	30·093	4th	29·816	26th	·277	56·4	75·0	−1·8	52·1	0	63·6	−0·9	22·9	80·3	5th	42·9	28th	37·4
Brahmaputra	Sibsagar	333	29·741	−·035	30·052	29·897	4th	29·585	26th	·312	52·0	65·8	−4·1	49·3	−0·3	57·6	−2·2	16·5	71·0	7th	42·4	25th	28·6
	Dhubri	115	29·923	−·058	30·000	30·082	4th	29·774	26th	·308	54·4	70·8	−2·6	51·9	−1·6	61·4	−2·1	18·9	75·8	6th	46·0	2 days	29·8
4. Bengal and Orissa		...	...	−·040	...	...	...	...	...	...	...	74·4	−2·4	53·4	−1·2	64·2	−1·9	21·6	...	...	...	...	35·5
East Bengal	Chittagong	87	29·949	−·041	29·988	30·076	4th	29·823	26th	·253	59·1	75·9	−1·6	53·5	−1·9	64·7	−1·8	22·4	79·2	5th	46·1	28th	33·1
	Lungleh	?	?	?	?	?	...	?	...	?	52·7	58·9	?	?	?	?	?	?	64·8	22nd	?	?	?
	Noakhali†	43	29·991	?	29·983	30·135	4th	29·859	15th	·276	59·7	74·9	?	51·9	?	63·4	?	23·0	78·3	6th & 19th.	43·0	28th	35·3
	Comilla	35	30·001	?	29·985	30·118	4th	29·875	26th	·243	58·6	†75·9	?	51·7	?	63·8†	?	24·2	81·4	6th	44·1	28th	37·3
	Sirajganj	46	29·986	?	29·984	30·107	1st	29·855	26th	·252	55·2	73·4	?	49·8	?	61·6	?	23·6	77·6	17th	40·1	28th	37·5
	Dacca	22	30·010	−·049	29·980	30·120	1st	29·879	26th	·241	57·4	75·4	−2·7	53·7	−1·2	64·6	−2·0	21·7	79·1	2 days	46·2	28th	32·9
	Barisal	13	30·020	−·036	29·979	30·132	4th	29·893	18th	·239	59·3	75·1	?	53·1	?	64·1	?	22·0	82·3	18th	44·6	28th	37·7
	Mymensingh	63	29·971	−·045	29·990	30·094	4th	29·834	26th	·260	55·4	72·7	?	51·0	?	61·8	?	21·7	77·2	6th.	43·1	28th	34·1
Deltaic Bengal	Faridpur	46	30·002	?	29·998	30·121	3rd	29·848	18th	·273	57·1	‡72·6	?	51·9	?	62·6‡	?	20·7	78·5	17th	44·0	28th	34·5
	Jessore	33	30·006	−·044	29·987	30·111	2 days	29·862	26th	·249	57·5	74·4	−3·7	52·0	−1·0	63·2	−2·4	22·4	79·7	18th	43·4	28th	36·3
	Calcutta	21	30·024	−·048	29·992	30·140	2nd	29·860	26th	·280	58·6	74·8	−1·9	54·1	−1·3	64·5	−1·6	20·7	79·7	4 days	45·7	28th	34·0
	Saugor Island	25	30·016	−·044	29·985	30·139	4th	29·849	26th	·290	61·6	74·6	−1·9	58·0	−1·3	66·3	−1·6	16·6	78·7	2nd	48·1	28th	30·6
	Krishnagar	47	29·998	?	29·997	30·118	2nd	29·848	26th	·270	57·0	75·9	?	50·4	?	63·1	?	25·5	81·9	17th	40·5	28th	41·4
	Midnapore	149	29·901	?	30·005	30·016	4th	29·745	26th	·271	60·2	79·0	?	54·8	?	67·0	?	24·2	85·3	17th	45·1	28th	40·2
Central Bengal	Bankura	298	29·718?	?	29·986?	29·833?	4th	29·587?	26th	·246	58·3	76·3	?	54·1	?	65·2	?	22·2	83·1	17th	45·1	28th	38·0
	Raniganj	334	29·714	?	30·019	29·838	3rd	29·563	26th	·275	58·0	75·4	?	53·1	?	64·3	?	22·3	81·7	17th	44·7	28th	37·0
	Burdwan	99	29·954	−·042	30·007	30·083	2nd	29·814	26th	·269	57·5	76·3	−1·9	53·6	−1·0	65·0	−1·5	22·7	82·1	17th	45·1	28th	37·0

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

I.

in India, Burma, etc., in January 1893.

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 January to 31st January 1893.	Normal rainfall for period, 1st January to 31st January.	Variation from normal of period, 1st January to 31st January.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·36	0·50	−0·15	...	...	...	**1. Burma Coast and Bay Islands.**	
2	11	6	4	4	1	...	1	2	7	7	0	77	·737	5·1	2	?	?	0·77	0·81	− 0·04	0·77	0·81	− 0·04	Port Blair .	Bay Islands.
1	5	18	5	...	...	...	...	...	9§	?	?	75	·762	9·4	3	?	?	1·99	2·77	− 0·78	1·99	2·77	− 0·78	Camorta*	
...	13	9	1	1	...	...	...	7	2	2	0	76	·644	4·0	1	?	?	0·33	0·61	− 0·28	0·33	0·61	− 0·28	Mergui .	Tenasserim.
29	...	1	...	...	...	...	...	1	1	?	?	84	·602	0·5	1	?	?	0·47	0·16	+ 0·31	0·47	0·16	+ 0·31	Tavoy.	
2	2	15	8	2	...	1	1	...	2	2	0	84	·585	0·9	0	0·09	−0·09	0	0	0	0	0	0	Moulmein.	
9	17	...	...	...	...	...	...	5	2	2	0	90	·483	1·2	0	0·27	−0·27	0	0·09	− 0·09	0	0·09	− 0·09	Toungoo.	
1	5	8	3	2	3	2	5	2	4	4	0	85	·562	1·3	0	0·27	−0·27	0	0·18	− 0·18	0	0·18	− 0·18	Rangoon .	Lower Burma.
11	1	5	1	...	2	...	...	11	4	3	+33	82	·517	1·7	0	0	0	0	0·07	− 0·07	0	0·07	− 0·07	Bassein.	
...	10	17	...	...	...	...	...	4	10	6	+67	70	·589	3·3	0	0·44	−0·44	0	0·24	− 0·24	0	0·24	− 0·24	Diamond Island.	
...	21	9	...	...	...	...	...	1	3	3	0	86	·472	0·4	0	0·18	−0·18	0	0·11	− 0·11	0	0·11	− 0·11	Akyab .	Arrakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·47	0·82	−0·35	...	...	...	**2. Burma, Inland.**	
...	22	2	...	1	3	1	...	2	3	2	+50	71	·381	0·5	0	0	0	0	0	0	0	0	0	Thayetmyo	Central Burma.
2	15	5	1	...	1	3	...	4	3	?	?	80	·407	2·6	0	?	?	0	0·26	− 0·26	0	0·26	− 0·26	Mandalay .	Upper Burma.
6	3	1	...	...	...	2	9	10	2	?	?	96	·407	9·0	3	?	?	0·29	0·94	− 0·65	0·29	0·94	− 0·65	Kindat.	
2	...	8	...	1	...	6	2	12	?	?	?	91	·358	5·5	3	?	?	1·60	2·09	− 0·49	1·60	2·09	− 0·49	Bhamo.	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·02	0·82	+1·20	...	...	...	**3. Assam.**	
30	...	...	...	...	...	...	...	...	1	2	−50	93	·427	5·4	4	1·91	+2·09	1·78	0·71	+ 1·07	1·78	0·71	+ 1·07	Silchar .	Assam (Surma).
12	1	12	2	1	...	3	...	...	3	2	+50	99	·391	5·4	10	4·09	+5·91	3·74	1·45	+ 2·29	3·74	1·45	+ 2·29	Sibsagar .	Brahmaputra.
4	1	13	5	1	...	6	1	...	4	4	0	91	·386	3·4	1	1·29	−0·29	0·53	0·29	+ 0·24	0·53	0·29	+ 0·24	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·76	0·44	+0·32	...	...	...	**4. Bengal and Orissa.**	
17	5	6	3	...	...	...	...	...	2	4	−50	92	·466	2·2	0	0·82	−0·82	0·06	0·52	− 0·46	0·06	0·52	− 0·46	Chittagong	East Bengal.
?	?	?	?	?	?	?	?	?	?	?	?	80	·321	?	?	?	?	?	?	?	?	?	?	Lungleh .	
1	18	2	3	1	...	...	3	2	3	?	?	88	·455	0·5	1	1·10	−0·10	0·15	0·62	− 0·47	0·15	0·62	− 0·47	Noakhali†	
21	6	...	2	2	...	...	...	...	1	?	?	88	·435	1·7	2	1·53	+0·47	0·53	0·68	− 0·15	0·53	0·68	− 0·15	Comilla.	
...	6	5	3	...	1	9	6	1	1	?	?	92	·403	2·1	3	1·11	+1·89	0·65	0·45	+ 0·20	0·65	0·45	+ 0·20	Sirajganj.	
6	7	6	3	2	1	...	2	4	3	2	+50	86	·408	3·2	2	1·09	+0·91	0·46	0·28	+ 0·18	0·46	0·28	+ 0·18	Dacca.	
28	1	2	...	...	...	...	...	...	2	?	?	87	·444	2·1	0	1·30	−1·30	0·16	0·80	− 0·64	0·16	0·80	− 0·64	Barisal.	
6	1	4	12	3	...	...	2	3	2	?	?	91	·404	2·5	2	0·80	+1·20	0·57	0·38	+ 0·19	0·57	0·38	+ 0·19	Mymensingh.	
17	8	...	...	1	3	...	2	...	2	?	?	89	·423	1·8	1	0·85	+0·15	0·19	0·34	− 0·15	0·19	0·34	− 0·15	Faridpur .	Deltaic Bengal.
21	4	1	...	1	1	...	1	2	2	2	0	88	·419	2·2	2	0·82	+1·18	0·50	0·50	0	0·50	0·50	0	Jessore.	
14	7	2	1	1	...	2	...	4	2	3	−33	85	·424	2·1	2	0·82	+1·18	0·70	0·50	+ 0·20	0·70	0·50	+ 0·20	Calcutta.	
...	7	14	3	...	1	2	2	2	9	6	+50	90	·501	2·4	2	1·00	+1·00	0·88	0·26	+ 0·62	0·88	0·26	+ 0·62	Saugor Island.	
3	3	2	4	2	1	2	7	7	3	?	?	83	·388	2·3	1	0·80	+0·20	0·32	0·30	+ 0·02	0·32	0·30	+ 0·02	Krishnagar.	
4	20	...	1	...	1	1	...	4	8	?	?	72	·386	1·5	2	1·00	+1·00	0·35	0·61	− 0·26	0·35	0·61	− 0·26	Midnapore.	
14	2	...	...	1	...	...	6	8	2	?	?	75	·370	2·5	2	1·10	+0·90	1·17	0·37	+ 0·80	1·17	0·37	+ 0·80	Bankura .	Central Bengal.
10	5	2	...	...	...	...	2	12	1	?	?	72	·351	0·9	1	1·05	−0·05	0·45	0·33	+ 0·12	0·45	0·33	+ 0·12	Raniganj.	
24	3	...	...	...	...	...	...	4	2	2	0	70	·338	2·2	1	0·27	+0·73	0·81	0·14	+ 0·67	0·81	0·14	+ 0·67	Burdwan.	

§ Mean of 26 days.

Table

Abstract of Observations taken at 8 A.M. at 182 Stations

Meteorological Province or District.	Station.	Height of Station 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 Bengal —*contd.*	Naya Dumka	489	29·534	?	30·016	29·658	4th	29·388	26th	·270	55·3	73·5	?	50·3	?	61·9	?	23·2	80·6	17th	41·0	28th	39·6
	Berhampore	67	29·978	—·050	29·997	30·110	4th	29·850	16th	·260	55·6	74·2	−2·5	52·8	−0·4	63·5	−1·5	21·4	80·1	2 days	45·6	28th	34·5
	Rampur Boulia.	70	29·965	?	29·988	30·088	4th	29·823	26th	·265	58·0	72·4†	?	49·7	?	61·1†	?	22·7	78·6	17th	41·1	28th	37·5
	Maldah*	80	29·964	?	30·002	30·102	4th	29·833	16th & 26th.	·269	55·1	73·9	?	?	?	?	?	?	78·5	17th & 19th.	?	...	?
	Bogra	6	29·966	—·027	29·983	30·083	4th	29·836	26th	·247	55·0	74·0	?	49·6	?	61·9	?	24·4	79·3	7th	41·2	28th	38·1
North Bengal	Dinajpur	118	29·920	—·018	30·000	30·058	4th	29·794	18th	·264	54·7	72·4	?	49·0	?	60·7	?	23·4	77·1	6th	40·5	28th	36·6
	Rungpur	123	29·912	?	29·997	30·054	4th	29·760	26th	·294	52·8	71·4	?	48·1	?	59·8	?	23·3	76·3	5th	40·1	28th	36·2
	Jalpaiguri	284	29·751	—·039	30·007	29·902	4th	29·608	26th	·294	54·4	70·1	?	49·9	?	60·0	?	20·2	75·4	4th	42·6	28th	32·8
Orissa	Balasore	56	29·990	—·044	29·995	30·122	4th	29·829	26th	·293	60·5	78·0	?	55·4	?	66·7	?	22·6	85·4	19th	46·4	28th	39·0
	False Point	21	30·025	—·045	29·989	30·145	4th	29·858	26th	·287	63·8	77·1	−1·6	57·6	−1·5	67·4	−1·6	19·5	82·4	2 days.	49·5	12th & 28th.	32·9
	Cuttack	80	29·966	—·034	29·992	30·085	4th	29·807	26th	·278	62·4	80·5	−4·1	58·4	−1·6	69·5	−2·9	22·1	87·1	18th	51·4	28th	35·7
	Short's Island	?	30·031	?	?	30·143	2nd	29·853	26th	·290	69·5	74·9	?	66·0	?	70·5	?	8·9	80·0	18th	59·7	27th	20·3
	Puri	15	30·021	?	29·976	30·144	4th	29·880	26th	·264	65·4	77·8	?	61·5	?	69·7	?	16·3	83·2	31st	50·5	12th	32·7
5. Gangetic Plain and Chota Nagpur.		...	...	—·049	...	...	...	...	...	...	...	71·4	−2·4	49·1	0	60·2	−1·3	22·4	...	...	...	...	37·7
Chota Nagpur	Hazaribagh	2,007	27·962	—·054	30·011	28·094	1st	27·835	26th	·259	55·0	70·2	−2·4	48·7	−1·6	59·4	−2·0	21·5	77·2	1st	40·2	28th	37·0
	Ranchi	2,128	27·837	?	29·985	27·958	1st	27·711	26th	·247	55·7	70·4	?	48·9	?	59·7	?	21·5	77·1	17th	40·5	27th	36·6
	Chaibassa	760	29·256	—·027	30·006	29·379	4th	29·122	26th	·257	56·8	77·9	?	53·1	?	65·5	?	24·8	84·5	19th	43·6	28th	40·9
Bihar, South	Gaya	375	29·657	—·051	30·013	29·788	2nd	29·518	16th	·270	55·0	74·0	−1·6	51·5	+0·2	62·7	−0·7	22·5	81·4	17th	43·0	28th	38·4
	Dehri	351	29·678	?	30·006	29·808	1st	29·531	16th	·277	57·1	73·0	?	52·4	?	62·8	?	20·6	81·1	17th	43·0	28th	38·1
	Patna	183	29·868	—·053	30·014	29·997	3rd	29·721	16th	·276	56·4	71·0	−1·6	50·2	+0·6	60·6	−0·5	20·8	80·0	18th	41·7	28th	38·3
	Arrah	190	29·846	?	30·001	29·979	3rd	29·710	15th	·269	54·0	72·9	?	49·4	?	61·2	?	23·5	80·1	17th	40·5	28th	39·6
	Buxar	239	29·794	?	30·005	29·938	3rd	29·657	15th	·281	55·8	69·4‡	?	50·0	?	59·7‡	?	19·4	80·4	1st	43·4	25th & 28th.	37·0
Bihar, North	Purnea	125	29·912	—·049	30·001	30·056	4th	29·772	26th	·284	49·7	72·1	−2·6	46·7	−1·2	59·5	−1·9	25·4	76·2	4 days.	39·3	28th	36·9
	Bhagalpur	160	29·875	?	29·997	30·011	3rd	29·732	16th	·279	55·4	73·3	?	49·4	?	61·3	?	23·9	79·8	17th	40·5	28th	39·3
	Darbhanga	166	29·880	—·047	30·011	30·024	2 days	29·739	16th	·285	54·5	71·2	−0·8	51·4	−0·6	61·3	−0·7	19·8	75·6	2 days.	45·3	27th	30·3
	Muzaffarpur	178	29·865	?	30·010	30·018	3rd	29·729	15th	·289	52·4	70·9	?	48·5	?	59·7	?	22·4	76·7	1st & 3rd.	41·8	28th	34·9
	Motihari	224	29·791	?	29·989	29·937	3rd	29·648	15th	·289	51·9	71·9	?	45·8	?	58·9	?	26·1	78·2	1st	39·0	28th & 31st	39·2
	Chapra	181	29·857	?	30·004	29·992	3rd	29·709	15th	·283	53·2	71·9	?	49·4	?	60·7	?	22·5	79·3	17th	41·9	10th	37·4
N.-W. Provinces (Eastern Districts).	Benares	267	29·773	—·049	30·016	29·910	2nd	29·631	16th	·279	52·9	71·0?	−3·6?	48·2	+0·3	59·7?	−1·7?	22·8?	79·6	17th	39·4	28th	40·2
	Allahabad	309	29·727	—·056	30·013	29·836	8th	29·573	16th	·263	53·7	72·2	−1·4	48·9	+1·4	60·6	0	23·3	80·0	1st & 17th.	41·4	31st	38·6
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·773	—·049	30·006	29·928	4th	29·616	16th	·312	54·5	69·2	−4·2	48·9	+0·3	59·1	−2·0	20·3	75·5	1st	39·3	28th	36·2
Oudh, South	Lucknow	375	29·649	—·056	30·016	29·784	1st	29·482	15th	·302	51·1	69·1	−4·7	47·4	+1·5	58·3	−1·6	21·7	77·4	17th	40·0	31st	37·4
Oudh, North	Bahraich	403	29·608	?	30·004	29·753	1st & 5th	29·446	15th	·307	51·0	69·1	?	47·2	?	58·2	?	21·9	75·4	1st	40·6	27th	34·8
N.-W. Provinces (Central).	Cawnpore	416	29·617	?	30·024	29·776	1st	29·465	15th & 16th.	·311	52·8	69·9	?	46·8	?	58·4	?	23·1	78·1	16th & 17th.	39·0	28th	39·1
	Mainpuri	516	29·495	?	30·010	29·642	5th	29·347	16th	·295	49·7	68·1	?	45·9	?	57·0	?	22·2	79·3	14th	38·0	31st	41·3
6. Upper—Sub-Himalayas		...	...	—·046	...	...	...	...	...	...	...	61·7	−6·2	43·9	+0·3	52·8	−3·0	17·7	...	...	...	...	34·0
N.-W. Provinces (Sub-montane).	Bareilly	568	29·427	—·055	30·004	29·574	1st	29·264	15th	·310	48·9	64·9	−5·0	45·8	−0·1	55·4	−2·6	19·1	74·2	16th	38·7	30th	35·5
	Dehra Dun	2,233	27·720	—·050	30·040	27·897	5th	27·580	15th	·317	45·8	61·1	−4·0	43·1	−1·5	52·1	−2·8	18·0	67·0	15th & 16th.	34·5	27th	32·5
	Roorkee	887	29·095	—·054	30·019	29·279	5th	28·929	15th	·350	47·0	63·3	−6·1	45·4	+1·2	54·4	−2·5	17·9	69·8	16th	35·8	27th	34·0
	Meerut	738	29·273	—·035	30·036	29·439	5th	29·102	16th	·337	47·7	63·9	−6·3	45·3	+1·1	54·6	−2·6	18·6	73·2	16th	38·0	27th & 31st.	35·2
Punjab (Central).	Delhi	718	29·289	—·047	30·025	29·444	5th	29·108	16th	·336	49·2	64·0	−7·0	47·5	−0·6	55·8	−3·8	16·5	73·6	16th	40·2	27th & 28th.	33·4
	Lahore	702	29·301	—·046	30·034	29·508	5th	29·032	28th	·476	45·1	60·7	−6·6	41·9	+0·7	51·3	−3·0	18·8	69·3	15th	33·7	31st	35·6

* Mean of 30 days.
† " " 27 "
‡ Mean of 23 days.

I—*continued.*

in India, Burma, etc., in January 1893—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 January to 31st January 1893.	Normal rainfall for period, 1st January to 31st January.	Variation from normal of period, 1st January to 31st January.	Station.	Meteorological Province or District.
6	3	2	1	1	...	1	8	9	2	?	?	78	·347	1·5	3	1·28	+ 1·72	0·80	0·58	+ 0·22	0·80	0·58	+ 0·22	Naya Dumka	Central Bengal—*contd.*
6	...	1	3	2	1	5	8	5	2	2	0	91	·406	2·5	2	0·73	+ 1·27	0·84	0·34	+ 0·50	0·84	0·34	+ 0·50	Berhampore.	
8	10	2	...	2	2	2	3	2	3	?	?	81	·395	2·2	1	0·80	+ 0·20	0·30	0·40	— 0·10	0·30	0·40	— 0·10	Rampur Boalia.	
2	...	...	...	2	...	11	...	15	3	?	?	82	·361	2·1	0	0·90	— 0·90	0·15	0·43	— 0·28	0·15	0·43	— 0·28	Malda.*	
6	7	3	1	1	...	2	1	...	2	?	?	86	·376	2·0	1	0·85	+ 0·15	0·26	0·56	— 0·30	0·26	0·56	— 0·30	Bogra.	
...	1	5	4	2	1	3	14	1	2	?	?	86	·372	2·1	3	0·90	+ 2·10	0·73	0·43	+ 0·30	0·73	0·43	+ 0·30	Dinajpur	North Bengal.
9	...	2	9	2	1	1	6	1	1*	?	?	91	·369	1·0	4	0·75	+ 3·25	1·11	0·58	+ 0·53	1·11	0·58	+ 0·53	Rangpur.	
10	5	7	4	2	...	1	1	1	1	?	?	92	·392	5·0	2	1·21	+ 0·79	0·56	0·49	+ 0·07	0·56	0·49	+ 0·07	Jalpaiguri.	
4	11	6	3	...	1	2	1	3	3	?	?	82	·434	0·7	3	0·75	+ 2·25	0·94	0·48	+ 0·46	0·94	0·48	+ 0·46	Balasore	Orissa.
3	13	1	...	1	1	1	5	6	7	6	+ 17	85	·408	2·2	3	0·82	+ 2·18	3·56	0·58	+ 2·98	3·56	0·58	+ 2·98	False Point.	
24	3	...	...	...	...	...	...	4	2	1	+100	75	·429	2·3	2	0·45	+ 1·55	1·89	0·14	+ 1·75	1·89	0·14	+ 1·75	Cuttack.	
...	2	8	2	1	1	4	8	5	9	?	?	73	·526	1·2	2	?	?	0·68	?	?	0·68	?	?	Short's Island.	
7	14	4	1	...	...	1	1	3	8	?	?	81	·510	2·3	2	0·50	+1·50	2·18	0·25	+ 1·93	2·18	0·25	+ 1·93	Puri.	
...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	1·24	0·67	+0·57	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
5	1	...	...	1	6	4	10	4	7	5	+ 40	72	·314	4·0	4	1·27	+ 2·73	1·37	0·65	+ 0·72	1·37	0·65	+ 0·72	Hazaribagh.	Chota Nagpur.
10	...	...	...	2	1	1	12	5	6	?	?	72	·325	2·9	1	1·53	— 0·53	0·71	0·64	+ 0·07	0·71	0·64	+ 0·07	Ranchi.	
9	2	1	1	...	1	6	10	1	1	?	?	83	·388	3·1	2	1·55	+ 0·45	0·53	0·73	— 0·20	0·53	0·73	— 0·20	Chaibassa.	
...	1	...	5	6	11	4	4	...	6	2	+200	80	·351	2·4	2	1·09	+ 0·91	0·46	0·62	— 0·16	0·46	0·62	— 0·16	Gaya	Bihar, South.
...	...	2	2	2	2	20	3	...	2	?	?	82	·385	2·3	4	1·43	+ 2·57	0·98	0·62	+ 0·36	0·98	0·62	+ 0·36	Dehri.	
1	...	1	4	1	1	7	13	3	4	2	+100	78	·361	2·6	2	1·18	+ 0·82	0·83	0·47	+ 0·36	0·83	0·47	+ 0·36	Patna	
...	2	2	1	2	2	3	14	5	2	?	?	84	·358	1·8	2	1·70	+ 0·30	0·60	0·71	— 0·11	0·60	0·71	— 0·11	Arrah.	
...	2	2	3	2	...	6	12	4	4	?	?	83	·378	3·0	3	1·80	+ 1·20	0·66	0·79	— 0·13	0·66	0·79	— 0·13	Buxar.	
19	1	2	...	3	...	5	1	...	2	2	0	90	·326	1·5	3	0·55	+ 2·45	1·06	0·39	+ 0·67	1·06	0·39	+ 0·67	Purnea	Bihar, North.
23	1	...	...	1	...	3	3	...	1	?	?	80	·358	3·0	1	1·30	— 0·30	0·29	0·48	— 0·19	0·29	0·48	— 0·19	Bhagalpur.	
3	2	2	3	2	1	6	9	3	3	2	+ 50	87	·375	2·7	3	1·27	+ 1·73	1·98	0·39	+ 1·59	1·98	0·39	+ 1·59	Darbhanga.	
5	1	2	3	2	...	5	9	4	4	?	?	93	·370	2·4	2	1·53	+ 0·47	2·21	0·79	+ 1·42	2·21	0·79	+ 1·42	Muzaffarpur.	
7	1	2	2	1	...	7	10	1	5	?	?	91	·355	2·3	2	1·41	+ 0·59	0·68	0·65	+ 0·03	0·68	0·65	+ 0·03	Motihari.	
10	...	...	2	1	1	10	6	1	4	?	?	88	·363	2·5	2	1·70	+ 0·30	1·28	0·66	+ 0·62	1·28	0·66	+ 0·62	Chapra.	
14	...	...	5	1	...	5	5	1	3	3	0	90	·369	3·2	4	1·55	+ 2·45	1·19	0·76	+ 0·43	1·19	0·76	+ 0·43	Benares	N.-W. Provinces (Eastern Districts).
11	...	2	3	1	...	4	6	4	4	2	+100	84	·356	3·0	3	2·09	+ 0·91	1·56	0·89	+ 0·67	1·56	0·89	+ 0·67	Allahabad.	
1	1	2	2	2	3	3	15	2	2	2	0	79	·342	2·6	4	1·18	+ 2·82	1·27	0·63	+ 0·64	1·27	0·63	+ 0·64	Gorakhpur	N.-W. Provinces (East Sub-montane).
19	...	...	4	...	...	...	8	...	1	2	— 50	87	·335	2·9	4	1·64	+ 2·36	3·37	1·19	+ 2·18	3·37	1·19	+ 2·18	Lucknow	Oudh, South.
2	2	2	2	2	...	3	7	11	3	?	?	91	·343	2·9	3	?	?	1·58	0·86	+ 0·72	1·58	0·86	+ 0·72	Bahraich	Oudh, North.
7	1	3	3	1	...	2	9	5	4	?	?	86	·349	2·9	3	1·4	+ 1·6	2·52	0·64	+ 1·88	2·52	0·64	+ 1·88	Cawnpore	N.-W. Provinces (Central).
6	4	3	...	1	...	...	1	16	2	?	?	90	·324	4·1	3	?	?	0·91	0·61	+ 0·30	0·91	0·61	+ 0·30	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·32	1·70	+1·62	...	...	...	**6. Upper—Sub-Himalayas.**	
20	2	1	...	3	...	...	1	4	2	3	— 33	88	·311	3·6	3	2·36	+ 0·64	2·24	1·18	+ 1·06	2·24	1·18	+ 1·06	Bareilly	N.-W. Provinces (Sub-montane).
31	...	...	...	...	...	...	...	...	1	2	— 50	87	·274	5·7	8	3·73	+ 4·27	4·11	2·59	+ 1·52	4·11	2·59	+ 1·52	Dehra Dun.	
19	1	...	1	3	...	...	2	5	2	2	0	91	·299	5·2	7	2·73	+ 4·27	1·78	2·09	— 0·31	1·78	2·09	— 0·31	Roorkee.	
13	...	1	3	...	...	...	12	2	2	2	0	86	·287	4·0	6	2·45	+ 3·55	1·56	1·45	+ 0·11	1·56	1·45	+ 0·11	Meerut.	
13	...	...	2	1	1	3	11	...	2	3	— 33	85	·300	4·4	5	1·82	+ 3·18	1·49	1·36	+ 0·13	1·49	1·36	+ 0·13	Delhi	Punjab, Central.
23	...	2	2	1	2	1	...	...	1	2	— 50	92	·276	4·4	5	2·00	+ 3·00	2·01	0·93	+ 1·08	2·01	0·93	+ 1·08	Lahore.	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M., at 182 Stations

Meteorological Province or District.	Station.	Height of Station 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.
Punjab (Sub-montane).	Umballa	962?	29·066	?	30·004	29·257	5th	28·938	15th	·319	47·1	62·4	?	?	?	?	?	?	70·0	15th	?	?	?
	Ludhiana	812	29·183	—·046	30·028	29·377	5th	28·980	28th	·397	47·3	60·4	—7·2	44·3	+0·8	52·4	—3·2	16·1	68·2	17th	36·3	31st	31·9
Punjab, North	Sialkot	830	29·166	—·031	30·037	29·375	5th	28·910	28th	·465	46·0	58·9	—7·8	42·9	0	51·0	—3·9	16·0	68·5	15th	34·8	31st	33·7
	Rawalpindi	1,649	28·308	—·048	30·024	28·514	5th	28·030	24th	·484	41·8	57·4	—5·9	38·8	+0·9	48·1	—2·5	18·6	65·1	13th	30·9	31st	34·2
7. Indus Valley and North-West Rajputana.		...	...	—·058	...	...	...	...	...	...	...	67·0	—4·1	44·7	+0·7	56·0	—1·5	22·5	...	...	...	...	37·3
Punjab, West	Peshawar	1,110	28·911	—·059	30·047	29·122	5th	28·649	24th	·473	42·2	58·4	—5·6	40·1	+1·0	49·3	—2·3	18·3	67·2	13th	32·9	30th & 31st.	34·3
	Khushab	612	29·408	?	30·045	29·610	5th	29·150	24th	·460	44·7	60·9	?	42·1	?	51·5	?	18·8	69·0	11th & 12th.	36·1	31st	32·9
	Montgomery	558	29·460	?	30·035	29·661	5th	29·227	28th	·434	46·2	62·5	?	42·3	?	52·4	?	20·2	70·8	13th	34·3	31st	36·5
	D. I. Khan	573	29·435	—·066	30·033	29·646	5th	29·199	24th	·447	43·4	63·4	—5·8	40·3	—0·2	51·8	—3·0	23·1	72·2	10th	33·0	26th	39·2
	Mooltan	420	29·611	—·055	30·037	29·826	5th	29·383	24th	·443	48·5	64·9	—4·8	45·0?	+2·7?	55·0?	—1·1?	19·9?	73·3	13th	37·6	31st	35·7
	Sirsa	662	29·341	—·055	30·024	29·512	5th	29·136	24th	·376	46·6	65·3	—5·5	43·3	+0·9	54·3	—2·3	22·0	74.5	16th	35·7	29th	38·8
Sind and Cutch.	Jacobabad	186	29·860	—·051	30·027	30·061	5th	29·632	23rd	·429	50·4	70·7	—2·6	44·4	+1·6	57·6	—0·5	26·3	76·9	11th & 13th.	35·5	30th	41·4
	Hyderabad	117	29·933	—·064	30·012	30·109	1st	29·731	24th	·378	54·2	75·2	—1·3	50·7	—0·2	63·0	—0·8	24·5	83·1	24th	45·3	5th	37·8
	Kurrachee	49	30·003	—·058	30·006	30·171	1st	29·769	24th	·402	58·1	74·6	—1·9	55·7	+1·3	65·2	—0·3	18·9	79·0	24th & 28th	49·0	18th	30·0
Rajputana, West	Bickaneer	753	29·256	?	30·017	29·438	5th	29·001	24th	·437	51·3	66·6	—5·4	?	?	?	?	?	77·1	14th	?	?	?
	Pachpadra	380	29·674	?	30·039	29·868	8th	29·437	24th	·431	53·0	74·5	?	*43·8	?	59·0*	?	30·7	83·8	15th	37·0	9th	46·8
8. East Rajputana, Central India and Guzerat.		...	...	—·041	...	...	...	...	...	...	...	74·6	—3·7	50·0	—1·0	62·6	—2·3	25·2	...	...	...	...	41·1
Rajputana, East	Jeypore	1,431	28·571	—·046	30·052	28·724	8th	28·372	24th	·352	50·8	69·5	—4·0	46·5	—1·9	58·0	—3·0	23·0	80·0	16th	38·2	27th	41·8
	Sambhar	1,254	28·729	—·056	30·033	28·902	8th	28·552	24th	·350	47·7	68·0	—4·2	42·8?	—3·4?	55·4?	—3·8?	25·2?	78·3	16th	36·5	9th	41·8
	Ajmere	1,611	28·392	—·043	30·069	28·538	8th	28·193	24th	·345	48·1	69·3	—4·6	44·1	—0·4	56·7	—2·5	25·2	79·4	15th	35·9	9th	43·5
	Deesa	466	29·545	—·055	29·997	29·686	9th	29·381	24th	·305	56·3	80·0	—2·3	49·5	—1·6	64·8	—2·0	30·5	86·2	15th	44·1	10th	42·1
Kathiawar	Rajkot	429	29·600	—·033	30·006	29·703	1st	29·463	24th	·240	59·6	79·7	—4·5	49·4	—1·6	64·5	—3·1	30·3	86·9	28th	42·0	22nd	44·9
	Veraval	?	30·012	?	29·972	30·098	29th	29·905	15th	·193	63·8	80·5	?	57·2	?	68·8	?	23·3	87·6	10th	47·3	7th	40·3
	Bhavnagar	?	30·005	?	29·993	30·102	9th	29·892	24th	·210	59·1	78·3	?	55·9*	?	67·2*	?	22·4	88·4	28th	51·0	30th	37·4
Central India	Nowgong	757	29·271	—·044	30·034	29·430	1st	29·108	16th	·322	54·3	72·4	—2·9	46·8	—0·1	59·6	—1·5	25·6	82·1	16th & 29th.	39·1	30th	43·0
	Indore	1,823	28·165	—·033	30·022	28·288	8th	28·062	16th & 24th	·226	55·9	75·0	—3·6	47·4	—3·0	61·2	—3·3	27·6	81·0	16th	40·5	10th	40·5
	Neemuch	1,630	28·366	—·035	30·041	28·508	1st	28·132	24th	·376	53·5	72·3	—5·0	47·3	—1·3	59·8	—3·2	25·0	79·7	15th & 16th,	41·0	9th	38·7
Guzerat	Surat	36	29·984	—·043	29·964	30·063	9th	29·893	13th & 15th	·170	62·6	83·6	—2·5	55·9	—0·5	69·7	—1·5	27·7	89·1	15th & 28th,	48·2	19th	40·9
N.-W. P., West	Agra	555	29·497	—·027	30·054	29·642	1st	29·337	16th	·305	51.3	68·1	—5·3	48·9	+0·6	58·5	—2·4	19·2	80·1	17th	41·1	27th	39·0
	Jhansi	840	29·174	—·034	30·043	29·350	1st	29·008	15th	·342	55·3	73·6	—1·9	50·5	+0·2	62·1	—0·9	23·1	83·9	16th	43·9	26th	40·0
9. Deccan		..	...	—·042	...	...	...	...	...	...	...	80·2	—3·1	54·7	—0·6	67·5	—1·9	25·5	...	...	...	...	38·7
Bombay, Deccan	Belgaum†	2,524	27·477	—·037	29·947	27·539	1st	27·381	15th	·158	64·7	81·8	—1·1	55·7	—1·7	68·8	—1·4	26·1	85·8	30th & 31st.	51·9	14th & 15th	33·9
	Sholapur	1,590	28·398	—·045	29·970	28·509	1st	28·321	19th	·188	66·7	86·7	—0·3	58·1	+0·4	72·4	+0·1	28·6	92·7	31st	52·1	13th	40·6
	Poona	1,840	28·145	—·042	29·995	28·233	1st	28·077	16th	·156	60·2	84·9	+0·2	52·7	—2·6	68·8	—1·2	32·2	90·0	29th	46·5	12th	43·5
	Bijapur	1,946	28·034	?	?	28·138	1st	27·965	18th	·173	65·3	83·9	?	56·5	?	70·2	?	27·4	89·3	31st	47·6	11th	41·7
Khandeish	Malegaon	1,430	28·573	—·038	30·018	28·687	9th	28·480	16th	·207	58·6	82·2	—2·7	51·5	—0·6	66·8	—1·7	30·7	88·4	25th & 29th.	44·5	31st	43·9
	Ahmednagar	2,152	27·829	?	29·993	27·940	1st	27·747	16th & 18th	·193	59·9	81·3	?	49·6	?	65·5	?	31·7	86·8	31st	41·9	12th & 13th.	44·9
Berar.	Akola	930	?	?	?	?	...	?	...	?	60·0	80·3	—3·9	54·7	+1·5	67·5	—1·2	25·6	87·5	29th	46·7	11th & 12th.	40·8
	Amraoti	1,215	28·779	—·039	29·994	28·893	1st & 9th	28·692	16th‖	·201	61·8	79·4	—4·6	56·3	—0·7	67·9	—2·7	23·1	86·1	25th & 29th.	50·9	28th	35·2

* Mean of 30 days

† Mean of 24 days.

I—*continued.*

in India, Burma, etc., in January 1893—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 January to 31st January 1893.	Normal rainfall for period, 1st January to 31st January.	Variation from normal of period, 1st January to 31st January.	Station.	Meteorological Province or District.
15	...	1	...	5	...	...	...	10	2	?	?	92	·299	5·0	7	?	?	3·89	1·15	+2·74	3·89	1·15	+2·74	Umbaila	Punjab (Sub-montane).
18	3	...	1	2	...	...	4	3	3	1	+200	89	·294	4·9	5	3·00	+2·00	3·09	1·78	+1·31	3·09	1·78	+1·31	Ludhiana.	
25	2	...	4	...	...	...	...	...	1	1	0	88	·276	4·0	9	2·36	+6·64	6·43	1·80	+4·63	6·43	1·80	+4·63	Sialkot	Punjab, North.
22	1	2	1	...	...	1	...	4	1	2	—50	94	·255	5·2	9	4·00	+5·00	6·62	2·68	+3·94	6·62	2·68	+3·94	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·39	0·56	+0·83	...	...	...	**7. Indus Valley and North-West Rajputana.**	
9	...	1	2	...	9	7	3	...	3	2	+50	86	·235	5·3	6	2·73	+3·27	3·17	1·63	+1·54	3·17	1·63	+1·54	Peshawar	Punjab, West.
23	...	6	...	...	...	2	...	...	2	?	?	88	·265	4·0	3	1·3	+1·7	2·98	0·52	+2·46	2·98	0·52	+2·46	Khushab.	
16	1	5	1	3	1	1	2	1	3	?	?	92	·292	4·6	5	0·9	+4·1	1·80	0·24	+1·56	1·80	0·24	+1·56	Montgomery	
23	1	2	...	...	...	2	2	1	1	1	0	81	·235	4·4	3	1·45	+1·55	1·23	0·48	+0·75	1·23	0·48	+0·75	D. I. Khan.	
11	1	11	...	7	...	...	...	1	2	2	0	80	·279	4·4	4	1·27	+2·73	1·49	0·39	+1·10	1·49	0·39	+1·10	Mooltan.	
16	3	...	2	5	1	1	2	1	3	3	0	91	·290	4·2	6	1·36	+4·64	1·42	0·92	+0·50	1·42	0·92	+0·50	Sirsa.	
5	1	11	4	6	1	1	...	2	4	2	+100	73	·272	2·6	1	0·73	+0·27	0·30	0·23	+0·07	0·30	0·23	+0·07	Jacobabad	Sind and Cutch.
...	4	13	4	...	1	3	1	5	6	7	—14	69	·291	3·1	1	0·90	+0·10	0·27	0·46	—0·19	0·27	0·46	—0·19	Hyderabad.	
...	3	24	1	...	...	1	1	1	11	10	+10	76	·389	2·5	3	1·18	+1·82	1·27	0·61	+0·66	1·27	0·61	+0·66	Kurrachee.	
2	4	1	...	2	3	8	2	9	4	3	+33	71	·273	2·5	2	?	?	0·81	0·26	+0·55	0·81	0·26	+0·55	Bickaneer	Rajputana, West.
30	...	...	...	...	...	...	...	1	4	3	+33	63	·261	3·1	1	?	?	0·55	0·37	+0·18	0·55	0·37	+0·18	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·49	0·33	+0·25	...	...	...	**8. East Rajputana, Central India and Guzerat.**	
10	3	5	5	1	1	...	1	5	4	4	0	80	·302	3·7	3	1·60	+1·40	1·07	0·53	+0·54	1·07	0·53	+0·54	Jeypore	Rajputana, East.
15	2	1	2	2	...	1	4	4	5	5	0	80	·277	2·8	3	1·10	+1·90	0·86	0·36	+0·50	0·86	0·36	+0·50	Sambhar.	
17	4	3	...	...	2	3	...	2	3	2	+50	80	·274	2·7	2	1·45	+0·55	1·53	0·33	+1·20	1·53	0·33	+1·20	Ajmere.	
...	10	11	3	2	...	2	2	1	?	9	?	52	·242	1·7	0	0·36	—0·36	0·03	0·06	—0·03	0·03	0·06	—0·03	Deesa.	
9	4	5	7	2	...	...	1	3	6	5	+20	60	·310	0·8	1	0·20	+0·80	0·20	0·03	+0·17	0·20	0·03	+0·17	Rajkot	Kathiawar.
6	13	10	...	...	...	...	1	1	6	?	?	58	·354	2·1	0	?	?	0	?	?	0	?	?	Veraval.	
...	3	4	...	1	2	9	4	8	9	?	?	79	·401	1·1	0	?	?	0	?	?	0	?	?	Bhavnagar.	
5	6	...	4	...	4	4	4	4	2	1	+100	77	·332	3·1	3	1·73	+1·27	0·69	0·77	—0·08	0·69	0·77	—0·08	Nowgong	Central India.
13	2	3	5	4	1	1	2	...	2	2	0	73	·325	2·2	2	0·36	+1·64	0·33	0·16	+0·17	0·33	0·16	+0·17	Indore.	
4	2	16	4	2	...	3	...	...	6	8	—25	62	·250	1·6	1	0·45	+0·55	0·19	0·14	+0·05	0·19	0·14	+0·05	Neemuch.	
...	8	3	...	...	3	...	4	13	?	5	?	71	·412	1·1	0	0·18	—0·18	0	0·07	—0·07	0	0·07	—0·07	Surat	Guzerat.
5	...	1	...	4	...	3	...	18	4	3	+33	83	·314	3·6	3	1·27	+1·73	0·52	0·61	—0·09	0·52	0·61	—0·09	Agra	N.-W. P., West.
13	1	2	...	4	...	2	...	9	2	2	0	71	·315	2·6	4	1·18	+2·82	0·95	0·57	+0·38	0·95	0·57	+0·38	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·15	0·33	+0·80	...	...	...	**9. Deccan.**	
10	...	3	7	4	...	...	...	...	?	11	?	61	·373	0·9	0	0·27	—0·27	0	0·07	—0·07	0	0·07	—0·07	Belgaum*	Bombay, Deccan.
4	...	5	10	8	1	2	...	1	9	7	+29	54	·358	1·5	0	0·36	—0·36	0·07	0·19	—0·12	0·07	0·19	—0·12	Sholapur.	
24	...	...	5	2	...	...	...	...	6	6	0	67	·355	1·3	0	0·36	—0·36	0	0·07	—0·07	0	0·07	—0·07	Poona.	
7	...	3	1	9	3	2	...	6	3	?	?	62	·388	2·0	0	0·20	—0·20	0	0·06	—0·06	0	0·06	—0·06	Bijapur.	
2	2	5	1	...	...	1	12	8	8	4	+100	69	·343	2·2	1	0·27	+0·73	0·15	0·32	—0·17	0·15	0·32	—0·17	Malegaon	Khandeish.
14	4	1	1	2	3	1	2	3	5	?	?	73	·387	1·5	0	?	?	0	0·56	—0·56	0	0·56	—0·56	Ahmednagar	
6	2	5	9	2	2	1	4	...	5*	3	+67	79	·411	2·5	4	0·45	+3·55	2·43	0·51	+1·92	2·43	0·51	+1·92	Akola	Berar.
2	2	10	13	4	...	...	...	...	5	3	—67	69	·385	1·5	6	0·55	+5·45	2·92	0·34	+2·58	2·92	0·34	+2·58	Amraoti.	

* Wind direction of 29 days.

Table

Abstract of Observations taken at 8 A.M., at 182 Stations

Meteorological Province or District.	Station.	Height of Station 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 Provinces, West.	Khandwa	1,044	28·950	—·035	30·006	29·088	9th	28·842	16th	·246	55·9	79·0	−4·2	52·2	+0·3	65·6	−2·0	26·8	86·2	29th	45·1	27th	41·1
	Hoshangabad	1,020	28·991	—·050	30·023	29·114	1st	28·870	16th	·244	56·6	74·0	−6·1	52·0	−0·2	63·0	−3·2	22·0	82·8	25th	43·8	10th	39·0
	Nagpur	1,025	28·981	—·035	30·005	29·084	1st & 9th	28·876	16th	·208	61·3	77·2	−5·7	55·7	+0·4	66·5	−2·7	21·5	82·8	4 days	48·2	12th & 27th	34·6
	Sironcha	401	29·643	?	30·007	29·723	9th	29·553	18th	·170	67·2	86·6	?	58·6	?	71·2	?	25·0	87·2	31st	49·6	12th	37·6
	Chanda	634	29·377	?	29·990	29·487	1st	29·269	16th	·218	60·1	80·4	?	54·7	?	67·6	?	25·7	86·2	30th	45·6	10th	40·6
Central Provinces, Central.	Seoni	2,030	27·943	—·058	30·028	28·049	8th	27·846	25th	·203	57·2	72·5	−6·4	50·4	−0·9	61·5	−3·7	22·1	81·1	1st	41·1	26th	40·0
	Jubbulpore	1,327	28·674	—·037	30·032	28·798	8th	28·547	16th	·251	53·9	73·4	−3·6	49·3	+0·9	61·4	−1·4	24·1	80·4	1st & 17th.	39·9	27th & 28th.	40·5
	Saugor	1,762	28·224	—·047	30·027	28·364	1st	28·088	24th	·276	54·5	72·6	−3·7	50·1	−1·0	61·4	−2·4	22·5	80·3	29th	42·6	26th & 27th,	37·7
Central Provinces, East.	Raipur	960	29·047	—·031	30·016	29·180	1st	28·939	17th	·241	59·2	79·7*	−0·5*	49·6	−5·7?	64·8*	−3·3	30·1	82·5	1st	42·4	11th	40·1
	Sutna	1,040	28·960	—·054	30·022	29·100	1st	28·805	16th	·295	53·8	72·4	−1·9	46·7	−0·5	59·6	−1·2	25·7	81·0	25th	40·2	26th & 27th,	40·8
	Sambalpur	463	29·564	—·022	29·998	29·676	1st	29·449	26th	·227	62·9	78·6	−3·0	54·7	−0·3	66·7	−1·7	23·9	83·5	18th	46·2	27th	37·3
Hyderabad, North.	Aurangabad	?	28·139	?	?	28·256	9th	28·057	16th	·199	64·8	81·8	?	54·4†	?	68·2†	?	27·4	86·6	29th	49·2	12th	37·4
	Indur	?	?	?	?	?	...	?	...	?	64·2	82·8	?	57·0	?	69·9	?	25·8	90·4	31st	46·1	10th	44·3
	Bidar	?	27·823	?	?	27·932	1st	27·751	18th	·181	66·0	80·2	?	59·5	?	69·9	?	20·7	86·4	31st	55·0	11th	31·4
Hyderabad, South.	Gulburga	?	28·482	?	?	28·606	1st	28·396	18th	·210	65·5	84·6	?	58·2	?	71·4	?	26·4	91·1	31st	51·1	12th	40·0
	Raichur	?	28·609	?	?	28·727	1st	28·541	16th	·186	67·9	85·2	?	62·9	?	74·1	?	22·3	90·6	31st	59·8	11th	30·8
	Hyderabad (Deccan).	1,690	28·307	—·054	29·994	28·423	1st	28·230	18th	·193	63·7	82·2	−1·1	58·4	+0·6	70·3	−0·3	23·8	87·9	31st	52·3	12th	35·6
	Kamamet	?	29·656	?	?	29·783	1st	29·578	19th	·205	67·3	84·2	?	61·6	?	72·9	?	22·6	87·5	31st	54·7	12th	32·8
10. West Coast		...	...	—·039	...	...	...	...	...	...	...	85·1	−1·2	68·5	−0·6	76·8	−0·9	16·6	...	...	...	...	24·5
Konkan	Bombay	37	29·972	—·039	29·950	30·040	29th	29·882	15th	·158	69·6	80·6	−1·5	66·5	−1·4	73·6	−1·5	14·1	86·4	10th	61·0	20th & 31st,	25·4
	Ratnagiri	110	29·867	—·033	29·918	29·946	1st	29·795	16th	·151	71·5	84·8?	−2·5	65·7	−0·5	75·3	−1·5	19·1	91·2	11th	60·9	3 days	30·3
	Mormugao	60	29·931	?	29·927	30·011	1st	29·856	15th	·155	69·6	84·2	?	67·6	?	75·9	?	16·6	90·0	10th	64·3	15th & 22nd,	25·7
	Karwar	44	29·937	—·039	29·914	30·013	1st	29·870	15th	·143	66·6	84·6	−1·7	63·6	−2·4	74·1	−2·1	21·0	89·3	1st	60·1	3 days	29·2
Malabar	Mangalore	26	29·950	—·045	29·908	30·032	1st	29·879	12th	·153	73·6	87·0	−0·8	69·6	+0·3	78·3	−0·3	17·4	91·3	10th & 11th	67·5	22nd	23·8
	Calicut	27	29·936	—·051	29·893	30·019	1st	29·871	15th	·148	75·3	87·4	?	70·2	?	78·8	?	17·2	89·3	5th	68·6	4 days	20·7
	Cochin	10	29·956	—·028	29·894	30·040	1st	29·887	15th	·153	75·6	89·1	+0·6	72·4	+1·1	80·8	+0·9	16·7	94·3	11th	68·7	31st	25·6
	Trivandrum	198	29·745	?	29·875	29·825	1st	29·670	12th	·155	74·5	83·3	?	72·5	?	77·9	?	10·8	85·0	2nd	70·0	26th	15·0
11. South India		...	...	—·039	...	...	...	...	...	...	...	84·1	+0·5	64·3	+0·5	74·3	+0·5	19·8	...	...	...	...	29·0
Madras, South.	Pamban	37	29·952		29·917	30·051	1st	29·883	12th	·168	77·6	82·3	?	74·4	?	78·4	?	7·9	84·3	13th & 22nd	70·7	23rd & 24th	13·6
	Tinnevelly	168	29·831	?	29·931	29·945	1st	29·770	15th	·175	75·2	89·6	?	72·1	?	80·9	?	17·5	92·2	27th & 29th.	68·9	27th	23·3
	Madura	447	29·545	—·031	29·936	29·643	1st	29·477	15th	·166	74·7	86·2	−1·4	69·2	+0·7	77·9	−0·4	17·0	90·3	31st	62·2	26th	28·1
Madras, South Central.	Salem	940	29·080	—·038	29·975	29·185	1st	29·021	15th	·164	72·9	90·5	+2·6	65·4	+2·3	78·0	+2·5	25·1	95·9	28th	57·5	30th	38·4
	Coimbatore	1,348	28·637	—·041	29·950	28·731	1st	28·554	12th	·177	71·1	91·2	+4·9	65·5	+1·3	78·4	+3·1	25·7	92·8	19th & 24th.	60·1	31st	32·7
Coorg	Mercara	3,781	26·251	—·038	29·929	26·324	1st	26·190	15th	·134	61·8	74·4	1·7	57·2	+1·6	65·8	−0·1	17·2	78·4	29th	54·7	11th	23·7
Mysore	BangaloreBazar	2,982	27·048	—·043	29·989	27·145	1st	26·984	15th	·161	63·8	81·2	+2·1	58·1	+1·5	69·7	+1·8	23·1	85·2	27th	53·9	17th & 30th.	31·3
	Bangalore Fort	3,019	26·993	—·066	29·960	27·097	1st	26·929	15th	·168	63·8	82·1	+2·1	57·9	+1·5	70·0	+1·8	24·2	85·8	27th	53·4	30th	32·4
	Hassan	3,091	26·927	?	29·959	27·019	1st	26·868	16th	·151	66·2	82·8	?	53·8	?	68·3	?	29·0	86·4	26th	47·4	30th	39·0
Madras, East Coast, South.	Negapatam	31	29·970	—·030	29·931	30·073	1st	29·905	12th	·168	74·7	81·4	−0·4	70·7	−0·1	76·1	−0·3	10·7	85·2	22nd	65·7	19th & 30th,	19·5
	Cuddalore	12	30·002	?	29·943	30·100	1st	29·940	16th	·160	72·4	83·9	?	66·5	?	75·3	?	17·4	86·7	27th	61·3	31st	25·4
	Trichinopoly	255	29·750	—·038	29·943	29·861	1st	29·679	12th	·182	74·4	90·0	+3·0	68·4	+1·5	79·2	+2·3	21·6	94·0	27th & 28th,	60·9	31st	33·1
	Madras	22	30·002	—·044	29·955	30·110	1st	29·938	13th	·172	73·1	85·2	+0·7	65·4	−2·3	75·3	−0·8	19·8	88·0	28th	59·5	17th & 18th	28·5
Madras, East Coast, Central.	Nellore	71	29·947	?	29·953	30·060	1st	29·862	26th	·198	72·1	86·3	?	65·9	?	76·2	?	20·4	90·2	27th & 31st,	61·1	15th	29·1
	Masulipatam	15	30·021	—·038	29·971	30·146	1st	29·937	26th	·209	70·2	82·0	−1·3	64·5	−1·5	73·2	−1·4	17·5	85·0	28th	61·2	12th & 29th,	23·8
Madras, Central	Cuddapah	433	29·582	?	29·966	29·694	1st	29·528	18th	·166	72·6	88·0	+1·1	64·7	+0·5	76·4	+0·8	23·3	93·1	31st	58·3	15th	34·8

* Mean of 22 days. † Mean of 30 days. ‡ Mean of 26 days.

I—*continued.*

in India, Burma, etc., in January 1893—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 January to 31st January 1893.	Normal rainfall for period, 1st January to 31st January 1893.	Variation from normal of period, 1st January to 31st Jan. 1893.	Station.	Meteorological Province or District.
9	5	6	3	1	1	2	3	1	4	3	+ 33	78	·350	2·1	4	0·45	+3·55	2·04	0·28	+ 1·76	2·04	0·28	+ 1·76	Khandwa .	Central Provinces, West.
2	2	12	11	...	3	...	...	1	4	2	+100	75	·355	2·3	2	0·82	+1·18	1·01	0·29	+ 0·72	1·01	0·29	+ 0·72	Hoshangabad.	
11	9	8	1	1	...	1	...	...	4†	3	+ 33	75	·406	2·6	5	0·64	+4·36	3·57	0·43	+ 3·14	3·57	0·43	+ 3·14	Nagpur.	
13	2	1	3	1	3	1	4	3	1	?	?	75	·507	1·7	2	?	?	1·32	?	?	1·32	?	?	Sironcha.	
14	2	4	2	6	1	...	1	1	2†	?	?	80	·423	2·2	2	?	?	1·29	?	?	1·29	?	?	Chanda.	
5	3	9	6	3	...	1	1	3	3	3	0	89	·422	3·5	6	1·18	+4·82	3·84	0·60	+ 3·24	3·84	0·60	+ 3·24	Seoni .	Central Provinces, Central.
16	1	3	...	7	2	1	...	1	2	2	0	82	·348	2·9	3	1·73	+1·27	2·68	0·90	+ 1·78	2·68	0·90	+ 1·78	Jubbulpore.	
13	...	4	5	5	2	...	1	1	3	3	0	75	·324	1·8	4	1·36	+2·64	2·56	0·76	+ 1·80	2·56	0·76	+ 1·80	Saugor.	
4	6	6	3	1	...	3	5	3	3	3	0	84	·428	3·2	3	0·45	+2·55	1·33	0·15	+ 1·18	1·33	0·15	+ 1·18	Raipur .	Central Provinces, East.
8	10	1	1	2	2	...	5	2	5	4	+ 25	77	·324	2·3	4	1·73	+2·27	0·81	1·13	− 0·32	0·81	1·13	− 0·32	Sutna.	
...	15	9	2	2	1	...	...	2	4	?	?	76	·439	2·2	1	?	?	1·13	0·49	+ 0·64	1·13	0·49	+ 0·64	Sambalpur.	
12	2	10	3	2	1	1	...	...	4	?	?	60	·374	1·2	1	?	?	0·72	0·19	+ 0·53	0·72	0·19	+ 0·53	Aurangabad	Hyderabad, North.
1	3	2	4	11	5	1	1	3	7	?	?	79	·481	2·6	2	?	?	0·43	0·05	+ 0·38	0·43	0·05	+ 0·38	Indur.	
...	2	2	7	2	6	11	1	...	7	?	?	75	·481	0·5	1	?	?	0·10	0	+ 0·10	0·10	0	+ 0·10	Bidar.	
16	1	3	3	4	2	1	1	...	6	?	?	64	·408	1·5	0	?	?	0	0·08	− 0·08	0	0·08	− 0·08	Gulburga .	Hyderabad, South.
4	2	2	2	10	7	2	1	1	6	?	?	63	·433	3·5	0	?	?	0	0·04	− 0·04	0	0·04	− 0·04	Raichur.	
16	...	...	2	7	4	...	2	...	4	?	?	77	·461	2·5	1	?	?	0·17	0·07	+ 0·10	0·17	0·07	+ 0·10	Hyderabad (Deccan).	
14	2	...	...	14	1	...	...	...	6	?	?	80	·544	1·1	1	?	?	1·27	?	?	1·27	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·50	0·23	+0·23	...	...	...	**10. West Coast.**	
...	6	14	8	2	1	...	...	...	10	10	0	74	·546	0·7	0	0·27	−0·27	0	0·13	− 0·13	0	0·13	− 0·13	Bombay .	Konkan.
3	...	5	5	13	5	...	...	...	5	10	− 50	66	·504	0·7	0	0·45	−0·45	0	0·37	− 0·37	0	0·37	− 0·37	Ratnagiri.	
1	5	2	13	10	...	...	...	...	9	?	?	84	·608	0·4	0	?	?	0	?	?	0	?	?	Mormugoa.	
2	...	25	4	...	...	...	...	...	2	?	?	83	·543	0·3	0	0·27	−0·27	0	0·14	− 0·14	0	0·14	− 0·14	Karwar.	
...	2	9	19	1	...	...	...	...	3	4	− 25	77	·634	0·2	0	0·10	−0·10	0	0·01	− 0·01	0	0·01	− 0·01	Mangalore.	Malabar.
...	1	8	18	4	...	...	...	...	13	?	?	77	·675	1·0	0	0·38	−0·38	0	0·23	− 0·23	0	0·23	− 0·23	Calicut.	
...	1	25	4	1	...	...	...	...	6	?	?	73	·657	1·6	2	0·82	+1·18	2·78	0·52	+ 2·26	2·78	0·52	+ 2·26	Cochin.	
...	4	16	8	...	...	...	1	2	4	?	?	80	·685	2·5	2	?	?	1·21	?	?	1·21	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·35	0·67	−0·30	...	...	...	**11. South India.**	
...	7	19	5	...	...	...	...	...	9	?	?	77	·758	4·3	3	1·50	+1·50	0·94	1·80	− 0·86	0·94	1·80	− 0·86	Pamban .	Madras, South.
...	14	3	...	...	...	1	...	13	7	?	?	75	·662	5·3	2	2·2	−0·2	2·87	1·20	+ 1·67	2·87	1·20	+ 1·67	Tinnevelly.	
...	15	8	...	1	...	...	...	7	4	5	− 20	76	·658	2·3	0	1·00	−1·00	0·11	0·45	− 0·34	0·11	0·15	− 0·34	Madura.	
6	8	15	2	...	...	...	...	...	7	5	+ 40	69	·564	2·6	0	0·36	−0·36	0·05	0·48	− 0·43	0·05	0·48	− 0·43	Salem .	Madras, South, Central.
...	12	5	11	1	...	...	2	...	5	3	+ 67	81	·621	4·4	0	0·64	−0·64	0	0·24	− 0·24	0	0·24	− 0·24	Coimbatore.	
...	5	3	22	...	...	...	1	...	4	4	0	77	·425	4·5	0	0·30	−0·30	0	0·05	− 0·05	0	0·05	− 0·05	Mercara .	Coorg.
...	..	6	20	5	...	...	...	...	3	4	− 25	82	·486	4·7	0	0·50	−0·50	0	0·19	− 0·19	0	0·19	− 0·19	Bangalore Bazar.	Mysore.
1	...	3	15	11	1	...	...	...	7	?	?	80	·475	2·8	0	?	?	0·03	?	?	0·03	?	?	Bangalore Fort.	
6	1	4	11	8	1	...	...	...	3	?	?	80	·516	2·9	0	?	?	0	?	?	0	?	?	Hassan.	
...	1	5	6	...	...	...	9	10	11	5	+120	80	·689	4·9	0	2·82	−2·82	0·08	2·22	− 2·14	0·08	2·22	− 2·14	Negapatam	Madras, East Coast, South.
...	15	3	2	...	...	...	1	10	4	?	?	86	·690	1·9	1	1·40	−0·40	0·28	0·70	− 0·42	0·28	0·70	− 0·42	Cuddalore.	
13	4	14	...	...	...	...	...	...	3	5	− 40	72	·617	1·5	0	0·91	−0·91	0	2·85	− 2·85	0	2·85	− 2·85	Trichinopoly.	
8	11	7	4	1	...	...	...	...	5	6	− 17	81	·662	2·4	1	1·36	−0·36	0·33	1·60	− 1·27	0·33	1·60	− 1·27	Madras.	
20	1	...	...	1	...	...	3	6	5	?	?	86	·679	4·7	1	0·60	+0·40	0·23	0·47	− 0·24	0·23	0·47	− 0·24	Nellore .	Madras, East Coast, Central.
9	11	8	2	1	...	...	...	...	5	5	0	87	·640	1·9	0	0·27	−0·27	0·10	0·24	− 0·14	0·10	0·24	− 0·14	Masulipatam.	
...	1	4	8	9	5	4	...	...	[?	?	?	72	·579	1·3	1	0·20	+0·80	0·10	0	+ 0·10	0·10	0	+ 0·10	Cuddapah.	Madras Central.

* Mean of 29 days. † Mean of 27 days. ‡ Wind observations for 28 days.

Table

Abstract of Observations taken at 8 A.M. at 182 Stations

Meteorological Province or District.	Station.	Height of Station 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.
Madras, Central —*contd.*	Kurnool	923	29·078	?	29·969	29·204	1st	29·015	18th	·189	69·1	86·3	?	59·6	?	73·0	?	26·7	90·5	30th & 31st,	51·2	15th	39·3
	Bellary	1,475	28·521	—·022	29·973	28·632	1st	28·453	18th	·179	68·3	86·6	— 0·8	60·4	—0·2	73·5	—0·5	26·2	91·9	31st	55·6	12th	36·3
Madras, East Coast, North	Rajahmundry	112	29·916	—·026	29·967	30·040	1st	29·834	26th	·206	69·1	85·3	— 1·4	63·9	+0·6	74·6	—0·4	21·4	89·0	31st	59·9	12th	29·1
	Coconada	26	30·013	—·014	29·974	30·138	1st	29·923	26th	·215	69·4	79·7	+ 0·7	64·0	—1·7	71·8	—0·5	15·7	87·7	27th	59·7	13th & 28th	28·0
	Vizagapatam	31	30·007	—·041	29·977	30·127	1st	29·900	26th	·227	71·6	77·0	— 2·1	68·3?	+2·4?	72·2?	+0·2?	8·7	79·4	27th	62·4	14th	17·0
	Gopalpur	21	30·027	?	29·988	30·144	4th	29·893	26th	·251	63·7	79·0	?	59·7	?	69·4	?	19·3	85·7	27th	54·0	12th	31·7
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Quetta	5,502	24·616	—·050	?	24·842	1st	24·412	27th	·430	31·6	47·6	— 4·0	27·8	—1·4	37·7	—2·7	19·8	61·7	11th	17·3	28th & 29th	44·4
	Kalat	?	?	?	?	?	?	?	?	?	?	56·7	?	23 7	?	40·2	?	33·0	80·0	12th	15 0	29th	65·0
	Chaman	5,488	25·690	?	?	25·923	1st	25·360	27th	·563	39·0	51·0	?	35·4	?	43·2	?	15·6	64·1	11th	29·1	29th & 30th	35·0
Northern India	Shebo	?	?	?	?	?	...	?	...	?	32·4†	49·6†	?	30·2†	?	39·9†	?	19·4	58·1	11th	25·1	2 days	33·0
	Srinagar	5,204	24·879	?	?	25·092	10th	24·537	24th	·555	29·8	38·8	?	27·4	?	33·1	?	11·4	48·5	19th	6·1	31st	42·4
	Cherat	?	25·696	?	?	25·896	5th	25·407	24th	·489	38·9	46·0	?	36·9	?	41·5	?	9·1	62·3	13th	27·6	28th & 29th,	34·7
	Murree	6,344	23·757	—·096	?	23·928	5th	23·469	24th	·459	32·9	39·6	— 8·2	29·2	—6·3	34·4	—7·3	10·4	53·3	13th	19·2	26th & 27th,	34·1
	Simla	7,224	23·023	—·096	?	23·176	5th	22·861	24th	·315	33·6	39·8	— 6·9	30·9	—5·4	35·4	—6·1	8·9	48·7	12th	19·2	29th	29·5
	Chakrata	7,052	23·175	—·081	?	23·329	5th	23·050	27th	·279	36·8	44·0	— 6·1	31·4	—4·3	37·7	—5·2	12·6	52·7	12th	22·6	27th	30·1
	Mussoorie	?	23·476	?	?	23·654	5th	23·329	27th	·325	34·8	42·4	?	33·0	?	37·7	?	9·4	50·2	4 days	24·0	27th	26·2
	Ranikhet	6,069	24·079	—·043	?	24·230	5th	23·969	27th	·261	38·0	48·7	— 5·3	35·0	—4·5	41·9	—4·9	13·7	56·3	10th & 11th,	26·0	26th	30·3
	Gnatong	?	19·086	?	?	19·265	4th	18·865	27th	·400	23·2	30·5	?	7·2	?	18·9	?	23·3	43·3	13th;	—5·5	27th	48·8
	Darjeeling	7,421	22·906	—·073	?	23·101	3rd	22·724	27th	·377	34·4	41·8	— 2·5	31·5	—3·1	36·7	—2·8	10·3	47·1	6th	25·7	27th	21·4
Central India	Mount Abu	3,945	26·072*	—·052	?	26·186	9th	25·940	24th	·246	53·5	61·3	— 5·8	47·3	—3·6	54·3	—4·7	14·0	68·6	13th	41·1	29th	27·5
	Pachmarhi	3,511	26·523	—·041	?	26·625	1st	26·438	24th	·187	57·1	67·2	— 3·4	47·4	+0·2	57·3	—1·6	19·8	73·3	29th	38·3	10th	35·0
South India	Wellington	6,200	24·285	—·002	?	24·369	1st	24·214	12th	·155	54·0	66·7	+ 0·5	45·2	—0·4	56·0	—0·4	21·5	73·3	26th	37·7	30th	35·6
	Kodai Kanal	?	?	?	?	?	...	?	...	?	53·9	62·4	?	47·0	?	54·7	?	15·4	69 0	26th	42·1	6th	26·9
Extra India	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Meshed	?	?	?	?	?	?	?	?	?	29·6	42·1	?	27·3	?	34·7	?	14·8	55·0	14th	9·0	29th	46·0
	Bushire	14	30·056	?	30·028	30·172	1st	29·934	11th	·238	56·4	65·7	?	53·1	?	59·4	?	12·6	75·6	8th	44·8	26th	30·8
Arabia	Baghdad	?	29·775	?	?	29·810	25th	29·671	7th	·139	45·5	72·6	?	39·9	?	56·3	?	32·7	79·9	10th	21 0	27th	48·9
	Aden	94	29·910	?	29·937	29·981	2nd	29·815	14th	·166	75·7	81·0	?	73·8	?	77·3	?	7·2	85·7	28th	67·0	25th	18·7
	Perim	?	29·771	?	?	29·833	28th	29·676	14th	·157	77·4	82·7	?	73·8‡	?	78·3‡	?	8·9	84·7	29th	72·2	14th	12·5
Arabian Sea Islands,	Minicoy	10	29·959	?	29·894	30·046	1st	29·887	12th	·159	78·9	85·7	?	76·5§	?	81·0§	?	9·2	89·1	11th	73·8	5th & 19th.	15·3
Africa	Zanzibar	73	29·859	?	29·859	29·947	3rd	29·799	23rd	·148	80·6	84 5	?	77·7	?	81·1	?	6·8	87·0	1st	73·0	17th	14·0

* Mean of 27 days. † Mean of 22 days. ‡ Mean of 30 days.
§ „ „ 25 „ ‖ „ „ 15 „ ¶ „ „ 29

I —*concluded.*

in India, Burma, etc., in January 1893 —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 January to 31st January 1893.	Normal rainfall for period, 1st January to 31st January.	Variation from normal of period 1st January to 31st January.	Station.	Meteorological Province or District.
31	..	...	...	...	...	...	...	...	?	?	?	69	·505	0·5	1	0·60	+0·40	0·42	0·07	+ 0·35	0·42	0·07	+ 0·35	Kurnool.	MADRAS, CENTRAL—*contd.*
16	...	...	2	8	4	...	...	1	3	3	0	80	·552	0·9	0	0·18	−0·18	0	0·14	− 0·14	0	0·14	− 0·14	Bellary.	
11	16	3	...	...	...	...	...	1	?	?	?	70	·494	1·6	1	0·30	+0·70	0·65	0·21	+ 0·44	0·65	0·21	+ 0·44	Rajahmundry	MADRAS, EAST COAST, NORTH.
1	21	4	1	...	...	...	...	4	8	?	?	74	·527	1·0	0	0·50	− 0·50	0·01	0·14	− 0·13	0·01	0·14	− 0·13	Coconada.	
...	5	3	2	3	2	3	3	10	1	2	− 50	72	·568	1·7	1	0·64	+ 0·36	0·40	0·21	+ 0·19	0·40	0·21	+ 0·19	Vizagapatam.	
...	17	...	...	...	...	1	...	13	10	7	+ 43	83	·491	0·6	2	0·38	+ 1·62	0·99	0·22	+ 0·77	0·99	0·22	+ 0·77	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
28	...	...	...	1	1	1	...	...	3	4	− 50	84	·154	3·1	9	4·36	+ 4·64	3·61	1·96	+ 1·65	3·61	1·96	+ 1·65	Quetta	BALUCHISTAN.
...	...	...	...	...	...	13	...	18	?	?	?	?	?	?	6	?	?	4·94	?	?	4·94	?	?	Kalat.	
...	1	...	10	10	6	4	...	...	7	?	?	78	·189	4·4	8	?	?	2·94	?	?	2·94	?	?	Chaman.	
...*	2	7	5	5	4	3	1	2	10†	?	?	88‡	·165‡	3·9§	8	?	?	3·94	?	?	3·94	?	?	Shebo	NORTHERN INDIA.
13	...	...	2	7	7	...	1	1	4	?	?	92	·155	8·5	7	?	?	3·60	?	?	3·60	?	?	Srinagar.	
7	10	2	1	...	2	2	1	6	6	?	?	75	·176	5·5	8	?	?	6·03	?	?	6·03	?	?	Cherat.	
10	1	1	1	18	...	...	...	...	8	8	0	84	·154	5·6	13	3·18	+ 9·82	9·05	2·62	+ 6·43	9·05	2·62	+ 6·43	Murree.	
4	8	...	...	3	16	...	...	...	?	2	?	76	·141	5·7	9	4·27	+ 4·73	4·59	2·50	+ 2·09	4·59	2·50	+ 2·09	Simla.	
8	...	8	13	1	...	...	1	...	8	?	?	76	·154	3·4	7	?	?	6·15?	3·61	+ 2·54?	6·15?	3·61	+ 2·54	Chakrata.	
...	...	5	14	1	...	1	6	4	?	?	?	88	·180	4·9	12	3·3	+ 8·7	7·37	2·09	+ 5·28	7·37	2·09	+ 5·28	Mussoorie.	
21	1	...	7	1	...	1	...	...	2	2	0	72	·172	4·3	8	3·71	+ 4·29	8·37	2·43	+ 5·94	8·37	2·43	+ 5·94	Ranikhet.	
1	3	2	5	9	1	2	5	3	6	?	?	73	·092	1·5	8	?	?	2·73	?	?	2·73	?	?	Gnatong.	
10	3	...	6	1	3	4	3	1	6	3	+100	90	·182	5·8	1	1·71	− 0·71	0·67	0·31	+ 0·36	0·67	0·31	+ 0·36	Darjeeling.	
10	3	9	...	...	...	3	2	4	5	5	0	48	·196	1·4	2	0·73	+ 1·27	0·37	0·33	+ 0·04	0·37	0·33	+ 0·04	Mount Abu	CENTRAL INDIA.
2	1	...	9	5	4	5	2	3	5	3	+ 67	63	·297	2·6	4	1·55	+ 2·45	2·39	0·52	+ 1·87	2·39	0·52	+ 1·87	Pachmarhi.	
28	...	2	...	1	...	...	...	...	2	2	0	76	·324	1·9	2	1·75	+ 0·25	0·70	1·04	− 0·34	0·70	1·04	− 0·34	Wellington.	SOUTH INDIA.
2	6	7	...	7	1	1	1	6	7	?	?	67	·275	3·4	3	1·00	+ 2·00	1·49	0·55	+ 0·94	1·49	0·55	+ 0·94	Kodai Kanal.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
13	2	4	...	...	7	...	1	4	?	?	?	?	?	5·5	1	?	?	0·44	?	?	0·44	?	?	Meshed	PERSIA.
...	7	11	5	8	...	...	...	...	6	8	− 25	76	·353	?	4	?	?	2·86	3·63	− 0·77	2·86	3·63	− 0·77	Bushire.	
...	15	4	2	2	2	1	1	3	?	?	?	61	·187	?	4	?	?	1·65	?	?	1·65	?	?	Baghdad	ARABIA.
5	...	2	20	1	...	1	1	1	15	13	+ 15	77	·688	7·8	0	?	?	0·02	0·28	− 0·26	0·02	0·28	− 0·26	Aden.	
2	2	...	14	11	1	1	...	...	19	?	?	76	·711	5·5	2	?	?	1·88	?	?	1·88	?	?	Perim.	
3	4	11	8	4	1	...	...	...	7	?	?	79	·777	4·2	6	?	?	10·34	?	?	10·84	?	?	Minicoy.	ARABIAN SEA ISLANDS.
...	10	14	3	...	1	2	...	1	8	?	?	80	·840	5·7	12	?	?	5·77	?	?	5·77	?	?	Zanzibar	AFRICA.

* Shewind observations of 29 days. † Mean of 27 days. ‡ Mean of 22 days. § Mean of 28 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 to 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	...	29·908	29·808	·100	29·853	−·040	29·845	85·2	75·0	10·2	88·2	68·8	19·4	82·1	83·3	79·2	−0·2	70·2	74·6	74·7	73·2
	Mergui	...	·879	·769	·110	·820	−·033	?	86·7	?	?	94·6	?	?	81·4	83·5	?	?	?	71·6	73·4	?
	Rangoon	...	·965	·845	·120	·904	−·048	·882	87·5	62·6	24·9	91·7	56·2	35·5	75·5	85·2	72·7	−1·1	59·9	67·5	69·9	65·8
	Diamond Island	...	·978	·872	·106	·921	−·043	·897	81·7	70·2	11·5	83·8	66·3	17·5	76·7	79·2	74·9	−0·9	64·2	68·2	69·0	67·1
	Cocos Island	111	·930	·840	·090	·881	?	·926	·809	65·5	15·4	82·4	62·1	20·3	78·5	77·2	71·9	?	?	69·9	69·0	?
	Akyab	...	30·020	·913	·107	·961	−·037	·924	79·8	56·4	23·4	82·2	50·7	31·5	70·4	76·2	67·6	−2·6	53·8	63·3	65·5	60·9
Assam.	Silchar	...	29·965	·844	·121	·905	−·028	·964	74·9	52·0	22·9	80·3	42·9	37·4	63·7	72·5	62·1	−1·2	51·3	60·0	62·3	57·8
	Sibsagar	...	·742	·627	·115	·682	−·050	·988	65·7	49·3	16·4	71·0	42·4	28·6	57·1	64·9	56·5	−1·3	49·1	56·0	59·6	54·9
	Dhubri	...	·955	·826	·129	·884	−·041	·958	70·8	52·1	18·7	75·8	46·0	29·8	60·5	69·8	60·1	−2·1	51·3	56·8	60·0	56·0
Bengal and Orissa.	Chittagong	...	·970	·880	·090	·921	−·024	·959	75·9	53·5	22·4	79·4	46·3	33·1	68·6	72·2	64·2	−1·9	?	55·1	54·4	?
	Dacca	...	30·040	·929	·111	·978	−·028	·948	75·5	53·7	21·8	79·4	46·1	33·3	67·3	73·2	64·6	−1·4	51·8	60·2	61·3	57·8
	Calcutta (Alipore)	...	·048	·934	·114	·979	−·037	·947	74·7	54·1	20·6	79·9	45·9	34·0	67·2	73·6	63·4	−1·8	52·7	59·5	60·9	57·7
	Calcutta (Chowringhee).	...	·049	?	?	?	?	?	76·1	54·6	21·5	81·9	47·0	34·9	68·9	?	?	?	53·5	61·9	?	?
	Saugor Island	...	·039	·929	·110	·974	−·032	·944	74·7	58·2	16·5	78·7	48·2	30·5	69·5	72·4	65·5	−1·6	55·4	63·4	63·8	60·9
	Burdwan	...	29·984	·855	·129	·908	−·028	·958	76·6	53·6	23·0	82·3	45·1	37·2	66·5	74·5	64·2	−1·8	51·9	57·1	59·3	56·1
	Berhampore	...	30·003	·890	·113	·935	−·028	·953	74·0	52·8	21·2	80·1	45·6	34·5	64·9	72·5	62·6	−2·1	50·4	59·1	60·9	56·8
	False Point	...	·048	·942	·106	·990	−·039	·953	76·9	57·1	19·8	82·4	48·0	34·4	73·2	74·7	66·1	−2·0	56·8	65·3	65·4	62·5
	Cuttack	...	29·987	·862	·125	·921	−·037	·946	80·4	58·4	22·0	86·4	51·4	35·0	71·7	79·6	68·6	−2·2	57·0	61·9	64·0	61·0
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·986	27·904	·082	27·937	−·043	·944	69·8	48·7	21·1	78·2	40·2	38·0	62·4	67·3	58·1	−2·7	45·6	53·2	54·8	51·2
	Patna	...	29·880	29·775	·105	29·819	−·047	·962	70·8	50·2	20·6	80·0	41·7	38·3	63·9	68·7	59·8	−0·7	48·8	57·1	58·5	54·8
	Darbhanga	...	·913	·792	·121	·844	−·032	·972	71·0	51·4	19·6	75·6	45·3	30·3	53·0	69·7	60·7	−1·4	50·6	57·4	59·4	55·6
	Allahabad	...	·757	·642	·115	·687	−·044	·970	71·6	49·2	22·4	79·7	41·6	38·1	62·4	69·8	59·3	−1·2	47·4	55·9	58·2	53·8
	Ghazipur	220	·849	·733	·116	·780	−·041	·964	71·3	50·5	20·8	79·6	42·5	37·1	62·2	69·3	59·4	0	48·8	56·4	58·5	54·5
	Lucknow	...	·678	·576	·102	·618	−·052	·970	68·8	47·5	21·3	77·4	40·0	37·4	60·2	66·4	58·0	−1·9	45·9	54·4	56·5	52·3
Upper Sub-Himalayas.	Dehra Dun	...	27·743	27·666	·077	27·695	−·049	·980	60·8	43·3	17·5	67·2	34·4	32·8	52·9	57·3	50·7	−3·6	41·8	48·4	50·6	46·9
	Roorkee	...	29·128	29·047	·081	29·077	−·036	·980	63·5	45·4	18·1	70·0	35·8	34·2	53·5	61·1	53·4	−2·5	44·5	51·2	54·2	50·0
	Meerut	...	·302	·217	·085	·251	−·033	·996	63·8	45·4	18·4	73·2	38·0	35·2	54·8	61·8	53·6	−2·5	45·1	50·6	53·1	49·6
	Lahore	...	·332	·262	·070	·285	−·043	1·008	60·8	41·7	19·1	69·5	33·5	36·0	53·5	59·1	49·7	−2·2	41·0	50·4	52·0	47·8
	Ludhiana	...	·205	·135	·071	·158	−·045	986	60·4	44·8	15·6	68·2	37·4	30·8	53·9	58·8	51·3	−2·3	44·2	51·0	53·0	49·4
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·931	28·865	·066	28·886	−·057	1·045	58·5	40·1	18·4	67·4	32·9	34·5	49·3	56·5	47·7	−1·9	38·7	45·6	48·7	44·3
	Mooltan	...	29·625	29·541	·084	29·571	−·056	·987	64·9	44·9	20·0	73·3	37·6	35·7	54·6	63·3	53·4	−0·6	43·2	48·6	53·8	48·5
	Jacobabad	...	·886	·773	·113	·818	−·051	·970	70·7	44·8	25·9	76·8	35·4	41·4	61·3	68·7	56·1	−0·6	43·0	52·3	54·8	50·1
	Kurrachee	...	30·017	·923	·094	·961	−·049	·965	74·8	55·4	19·4	78·9	49·7	29·2	65·5	73·2	64·4	−0·8	51·4	59·5	64·4	58·5
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·601	28·505	·096	28·542	−·037	1·004	68·6	46·5	22·1	79·8	38·1	41·7	60·4	67·2	55·9	−2·8	43·7	52·4	54·8	50·3
	Ajmere	...	·414	·312	·102	·356	−·052	·985	69·1	44·1	25·0	79·4	36·1	43·3	59·3	67·8	55·8	−1·8	43·1	51·5	56·1	50·3
	Deesa	...	29·555	29·443	·112	29·487	−·052	·917	80·0	49·5	30·5	85·9	44·2	41·7	69·9	77·9	64·7	−2·8	42·6	54·6	56·9	51·3
	Nowgong	...	·281	·171	110	·216	−·051	·958	72·1	46·8	25·3	82·6	38·6	44·0	62·0	69·5	58·5	−1·9	45·6	54·7	56·5	52·3
	Agra	...	·514	·428	·086	·459	−·021	·998	68·0	48·9	19·1	79·6	41·2	38·4	59·6	66·6	57·6	−2·4	45·8	53·9	57·1	52·3
Deccan.	Belgaum	...	27·458	27·342	·116	27·395	−·041	·826	81·9	55·8	26·1	86·1	51·8	34·3	73·5	80·6	68·5	−1·4	53·0	59·9	60·8	57·9
	Sholapur	...	28·412	28·274	·138	28·340	−·047	·870	86·8	58·0	28·8	92·7	52·2	40·5	75·6	85·6	71·8	0	52·6	61·7	64·3	59·5
	Poona	...	·151	·020	·131	·084	−·049	·865	84·9	52·6	32·3	90·0	46·5	43·5	73·0	82·6	68·4	−0·6	50·1	59·1	60·9	56·7
	Akola	...	29·073	·937	·136	·997	−·059	·893	80·3	54·7	25·6	87·6	46·7	40·9	69·7	79·1	66·5	−1·4	53·2	60·8	65·2	59·7

II.

at 90 Stations in India, Burma, etc., for January 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.				
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 of the month.	Station.	Meteorological Province.
·677	·762	·746	·728	−·066	78	69	65	71	− 5	4·4	4·6	4·5	+1·2	3	10	22	14	10	3	...	...	...	N 67° E	N 39° E	64	78	166	159	...	Port Blair	Burma Coast and Bay Islands.
?	·648	·690	?	?	?	60	60	?	?	4·2	5·1	4·7	+2·2	...	24	18	3	2	...	...	...	15	N 8° E	N 12° W	74	59	...	47	...	Mergui	
·484	·570	·531	·528	−·039	85	64	44	64	− 2	1·1	2·2	1·7	−0·6	...	8	17	6	7	9	5	7	3	N 66° E	N 22° E	18	35	97	96	...	Rangoon	
·523	·580	·575	·558	−·083	71	63	58	64	− 8	3·2	3·8	3·5	+1·1	...	19	14	3	2	1	...	3	18	N 2° W	N 6° E	63	74	222*	147	...	Diamond Island	
?	·617	·601	?	?	?	63	64	?	?	0·9	0·9	0·9	?	...	14	30	2	...	...	...	...	...	N 33° E	?	77	?	325	?	Nil	Cocos Island	
·384	·492	·489	·455	−·042	84	66	54	68	− 3	0·3	0·3	0·3	−1·2	...	16	15	...	1	2	2	7	19	N 16° W	N 23° W	60	39	73	65	...	Akyab	
·373	·469	·431	·424	−·002	95	79	55	76	+ 2	4·5	5·2	4·9	+1·7	52	...	1	...	1	1	3	3	1	S 61° W	S 29° E	8	27	3	47	...	Silchar	Assam.
·352	·437	·445	·411	−·013	99	94	73	88	+ 2	5·6	5·3	5·5	+0·1	32	1	23	1	1	...	4	...	...	N 48° E	N 61° E	34	51	29	43	...	Sibsagar	
·370	·413	·391	·391	−·034	95	79	54	76	0	3·0	2·7	2·9	+1·0	13	1	19	9	2	2	10	5	1	N 67° E	N 74° E	19	20	86	93	...	Dhubri	
?	·265	·207	?	?	?	38	26	?	?	2·5	3·2	2·9	+1·5	10	7	8	5	4	...	5	8	15	N 27° W	N 24° W	31	48	47	89	...	Chittagong	Bengal and Orissa.
·363	·434	·387	·395	−·041	87	64	47	66	− 3	2·7	3·7	3·2	+1·6	...	8	6	4	5	5	6	13	15	N 58° W	N 53° W	31	32	64	51	...	Dacca	
·384	·413	·370	·389	−·048	91	61	45	66	− 5	1·4	2·4	1·9	+0·4	2	19	8	5	3	1	4	8	12	N 14° W	N 38° W	45	38	51	68	...	Calcutta (Alipore).	
·399	·466	?	?	?	93	65	?	?	?	?	?	?	...	?	?	?	?	?	?		?	?	?	?	?	?	?	?	...	Calcutta (Chowringhee).	
·414	·510	·485	·470	−·058	87	70	60	71	− 5	2·2	2·6	2·4	+0·7	..	19	9	1	2	10	11	...	10	N 24° W	N 1° E	23	19	212	151	...	Saugor Island	
·379	·346	·305	·340	−·054	89	53	35	59	− 4	2·2	2·9	2·6	+0·9	33	10	...	1	...	1	1	8	8	N 44° W	N 32° W	31	46	47*	43	...	Burdwan	
·339	·427	·384	·383	−·012	84	69	49	68	− 2	2·5	2·9	2·7	+0·5	2	14	...	3	4	3	7	15	14	N 61° W	N 41° W	45	50	41	43	...	Berhampore	
·465	·524	·508	·499	−·044	97	64	59	73	− 6	2·4	2·2	2·3	+0·3	...	12	6	12	6	12	4	2	8	N 75° E	N 51° E	16	22	177	147	...	False Point	
·451	·427	·395	·424	−·048	91	55	39	62	− 3	2·0	2·6	2·3	+0·6	16	4	10	10	3	3	8	5	3	N 69° E	N 45° E	11	11	39	33	...	Cuttack	
·273	·298	·280	·284	+·017	77	53	42	57	+ 6	3·7	4·9	4·3	+2·0	...	7	2	...	2	7	3	17	24	N 66° W	N 62° W	58	54	180	118	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·332	·382	·358	·358	−·005	90	64	51	68	+ 1	2·4	2·7	2·6	+0·1	3	...	4	6	...	1	6	37	5	N 88° W	N 83° W	58	45	91	48	...	Patna	
·362	·407	·374	·381	−·017	94	71	52	72	+ 1	1·8	2·5	2·2	+0·7	6	...	2	4	3	1	12	23	11	S 85° W	S 80° W	52	47	76	59	...	Darbhanga	
·310	·366	·336	·337	−·003	86	65	46	66	− 2	3·0	2·6	2·8	+0·8	1	5	4	9	2	2	3	16	20	N 49° W	N 34° W	40	20	110	50	...	Allahabad	
·327	·363	·354	·355	+·025	88	67	50	68	+10	2·7	2·6	2·7	+0·7	13	2	...	5	5	...	12	19	6	S 76° W	S 76° W	39	38	53	37	1·02	Ghazipur	
·295	·354	·329	·326	+·025	88	67	51	69	+ 9	3·1	3·8	3·5	+0·6	42	...	...	5	...	...	...	15	...	W	N 57° W	16	41	30	57	...	Lucknow	
·250	·287	·289	·275	?	89	72	62	74	?	4·3	6·2	5·3	+1·2	3	1	3	4	1	11	25	12	2	S 44° W	S 75° W	56	17	53	43	...	Dehra Dun	Upper Sub-Himalayas.
·288	·348	·333	·323	+·039	94	84	62	80	+15	5·1	5·0	5·1	+1·7	33	...	...	3	5	...	1	6	14	N 60° W	N 72° W	19	16	?	52	...	Roorkee	
·301	·317	·294	·304	+·019	98	74	54	75	+11	3·6	3·4	3·5	+0·3	13	1	2	10	...	...	...	30	6	N 73° W	N 49° W	39	45	47	50	...	Meerut	
·251	·327	·299	·292	+·027	94	79	60	78	+17	4·7	4·5	4·6	+1·3	17	7	1	5	5	5	1	11	10	N 60° W	N 25° W	18	21	35	45	...	Lahore.	
·288	·340	·330	·319	+·038	96	82	66	81	+14	4·7	6·1	5·4	+1·3	21	4	1	1	5	1	...	17	12	N 67° W	N 56° W	35	25	60	30	...	Ludhiana	
·223	·264	·251	·246	+·021	88	75	57	73	+11	4·5	5·0	4·8	+0·1	11	7	3	11	8	6	6	5	5	S 62° E	S 19° E	11	6	87*	60	...	Peshawar	Indus Valley and N.-W. Rajputana.
·261	·267	·292	·273	+·013	86	62	51	66	+ 7	4·6	4·2	4·4	+1·6	4	...	31	...	19	...	2	...	6	N 69° E	N 9° W	52	24	36*	37	...	Mooltan	
·244	·277	·249	·257	+·045	80	52	37	56	+11	2·1	1·7	1·9	−1·0	5	6	20	9	14	1	3	...	4	N 70° E	N 10° W	48	27	65*	49	...	Jacobabad	
·333	·424	·493	·417	+·069	75	65	60	66	+10	1·9	1·5	1·7	−0·9	...	7	45	2	...	...	5	3	...	N 38° E	N 23° W	72	17	250*	237	...	Kurrachee	
·255	·299	·279	·278	+·010	79	58	43	60	+ 9	3·5	4·1	3·8	+0·6	1	7	10	12	3	4	5	6	14	N 6° E	N 15° E	23	21	102	91	...	Jeypore	E. Rajputana, Central India and Guzerat.
·271	·290	·309	·291	+·028	92	58	46	65	+14	2·5	2·7	2·6	+0·3	4	10	10	4	3	9	12	5	5	N 75° W	N 82° E	6	8	76	47	...	Ajmere	
·190	·228	·189	·201	−·060	52	31	20	34	− 4	1·3	1·2	1·3	−1·0	...	12	7	5	4	2	4	7	4	N 1° E	N 3° W	27	39	218	207	...	Deesa	
·298	·335	·291	·308	+·019	91	60	41	64	+ 7	2·9	2·9	2·9	0	...	11	2	7	2	2	6	24	8	N 67° W	N 24° W	42	22	51*	32	...	Nowgong	
·274	·346	·345	·322	+·034	78	67	54	66	+10	3·3	3·2	3·3	+0·9	..	...	7	...	11	...	8	...	36	N 47° W	N 64° W	40	35	94	82	...	Agra	
·370	·350	·289	·336	−·016	83	43	28	51	+ 5	0·9	1·9	1·4	−0·2	...	5	6	16	17	7	8	3	...	S 57° E	S 71° E	45	50	218	261	...	Belgaum	Deccan.
·335	·380	·340	·351	+·009	69	43	28	46	+ 3	1·7	2·6	2·2	+0·2	2	2	6	11	20	10	8	2	1	S 43° E	S 60° E	50	55	224*	171	...	Sholapur	
·335	·333	·269	·312	−·011	83	41	24	49	+ 8	1·2	1·5	1·4	−0·4	19	...	...	12	11	2	5	7	6	S 28° E	S 63° E	16	24	141	157	...	Poona	
·391	·417	·447	·418	+·097	90	58	46	65	+17	2·5	3·1	2·3	+1·0	9	6	17	9	5	3	2	5	6	N 44° E	N 54° E	32	30	106	83	...	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 90 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 to 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—*continued.*	Buldana	2,132	27·858	27·752	·106	27·797	—·046	29·889	77·1	56·2	20·9	85·2	50·6	34·6	69·7	74·4	65·2	—3·2	51·8	58·5	60·0	56·7
	Khandwa	...	28·966	28·838	·128	28·894	—·041	·914	78·8	52·2	26·6	86·2	45·1	41·4	67·6	77·2	64·4	—2·3	49·4	58·3	61·4	56·4
	Hoshangabad	...	29·011	·887	·124	·941	—·051	·946	74·0	52·0	22·0	82·6	45·1	37·5	64·9	73·2	62·1	—3·6	49·3	57·1	60·5	55·7
	Nagpur	...	·001	·872	·129	·929	—·026	·928	77·1	55·8	21·3	82·8	48·4	34·4	67·7	75·4	65·4	—2·8	52·8	59·8	62·2	58·2
	Jubbulpore	...	28·698	·586	·112	·634	—·021	·955	73·1	49·3	23·8	80·2	39·7	40·5	62·8	70·8	59·9	—1·7	48·2	55·6	58·6	54·1
	Saugor	...	·250	·146	·104	·190	—·033	·945	72·6	50·1	22·5	80·3	42·6	37·7	64·4	71·1	60·3	—2·7	47·4	55·3	58·0	53·6
	Raipur	...	29·078	·952	·126	29·007	—·020	·939	79·8	49·5	30·3	82·3	42·4	39·9	67·0	75·2	63·0	—3·8	39·3	61·2	65·3	55·3
	Sutna	...	28·983	·869	·114	28·916	—·051	·949	72·2	46·7	25·5	81·0	40·2	40·8	63·3	71·1	58·4	—1·7	45·3	54·6	56·5	52·1
	Secunderabad	1,787	·220	·106	·114	·160	—·023	·896	83·1	58·5	24·6	91·2	53·1	38·1	72·0	80·6	69·9	—1·0	56·1	62·1	65·3	61·0
	Hyderabad (Deccan).	...	·321	·190	·131	·256	P	·897	82·6	58·4	24·2	88·4	52·5	35·9	73·7	79·6	69·7	P	56·3	63·3	63·5	61·0
West Coast.	Bombay	...	29·984	29·874	·110	29·920	—·032	·898	81·1	66·3	14·8	86·8	61·1	25·7	73·8	77·6	72·4	—0·7	60·9	65·8	68·4	65·0
	Ratnagiri	...	·880	·765	·115	·814	—·040	·862	84·8?	65·7	19·1	91·2?	60·9	30·3	80·0	81·6	74·0?	—1·1	61·1	67·2	70·1	66·2
	Karwar	...	·946	·834	·112	·883	—·035	·857	84·3	63·4?	20·9	89·3	60·1	29·2	76·1	82·1	72·9	—2·4	62·0	67·9	70·9	66·9
	Cochin	...	·958	·837	·121	·889	—·032	·827	89·1	72·3	16·7	94·3	68·6	25·7	82·9	86·4	79·7	+1·1	69·2	72·5	74·8	72·2
South India.	Salem	...	·084	28·924	·160	·010	—·045	·882	90·6	65·4	25·2	95·8	57·7	38·1	80·2	87·8	76·6	+2·4	62·4	67·9	68·7	66·3
	Mercara	...	26·264	26·160	·104	26·212	—·047	·838	74·4	57·2	17·2	79·4	54·7	24·7	68·2	73·9	65·7	+0·4	53·8	60·1	62·2	58·7
	Bangalore (Fort)	...	27·008	·885	·123	·947	—·055	·845	82·2	57·9	24·3	86·3	53·4	32·9	71·8	79·8	69·5	+1·7	56·1	62·1	62·6	60·3
	Hassan	...	26·934	·809	·125	·872	P	·830	82·8	53·8	29·0	86·4	47·4	39·0	73·0	80·2	67·7	?	53·1	65·4	67·0	61·8
	Chitaldroog	2,405	27·585	27·463	·122	27·524	P	·836	84·1	60·7	23·4	88·4	56·0	32·4	75·5	82·1	71·9	P	55·5	62·8	63·1	60·5
	Trichinopoly	...	29·755	29·611	·144	29·689	—·034	·874	90·0	68·2	21·8	94·2	60·9	33·3	81·3	87·8	77·9	+2·4	65·1	70·0	69·9	68·3
	Madras	...	30·011	·911	·100	·957	—·035	·910	85·1	65·3	19·8	87·8	59·3	28·5	80·2	81·1	74·6	—0·9	P	71·8	71·7	70·5
	Bellary	...	28·527	28·388	·139	28·455	—·025	·868	86·9	60·2	26·7	92·5	55·7	36·8	76·9	84·8	72·7	—0·5	58·2?	70·2?	74·5?	67·6?
	Vizagapatam	...	30·022	29·907	·115	·955	—·038	·925	77·0	68·4?	8·6?	79·4	62·4	17·0	75·3	77·3	74·3	—1·4	61·5	67·6	68·9	65·9
Hill Station, Baluchistan.	Quetta	...	24·635	24·559	·076	24·587	—·071	P	47·5	27·8	19·7	61·6	17·1	44·5	40·8	44·7	37·0	—3·2	28·9	36·5	39·0	34·8
Hill Stations, Northern India.	Leh	11,503	19·554	19·481	·073	19·519	—·107	P	26·9	7·1	19·8	37·2	—4·8	42·0	18·1	21·4	15·3	—3·4	6·3	15·8	18·5	13·5
	Srinagar	...	24·913	24·827	·086	24·870	P	P	38·2	27·6	10·6	47·5	9·1	38·4	32·6	36·9	32·6	P	27·0	31·1	33·7	30·6
	Murree	...	23·784	23·755	·029	23·759	—·102	P	39·6	29·3	10·3	53·3	19·3	34·0	35·5	35·7	33·0	—6·4	27·8	32·7	33·4	31·3
	Chamba	3,005	26·994	26·914	·080	26·953	—·051	P	52·6	38·2	14·4	65·6	32·0	33·6	43·5	48·7	43·2	—5·3	36·6	39·8	43·0	39·8
	Kailang	10,087	20·712	20·648	·064	20·679	—·074	P	27·4	8·6	18·8	37·6	—9·8	47·4	18·6	22·0	15·4	—6·8	7·9	16·9	18·7	14·8
	Simla (Ridge)	...	23·052	23·007	·045	23·019	—·091	P	39·8	30·8	9·0	46·8	19·2	27·6	36·5	36·6	34·1	—6·9	28·0	32·2	33·8	31·3
	Simla (Chapslee)				Not	recorded			43·5	31·1	12·4	54·0	21·2	32·8	37·9	?	P	P	28·5	33·5	P	?
	Chakrata	...	·209	·152	·057	·171	—·091	P	43·5	31·3	12·2	52·4	22·6	29·8	39·6	37·9	35·5	—6·0	29·1	35·1	35·2	33·1
	Ranikhet	...	24·102	24·045	·057	24·059	—·051	P	48·3	34·7	13·6	56·3	26·0	30·3	42·8	44·4	40·0	—5·6	33·9	38·9	39·8	37·7
	Katmandu	4,388	25·698	25·600	·098	25·643	—·050	P	59·4	37·4	22·0	63·6	30·2	33·4	46·7	55·3	47·4	—3·2	35·3	43·5	47·9	42·2
	Darjeeling	...	22·936	22·874	·062	22·900	—·057	P	41·8	31·5	10·3	47·1	25·7	21·4	37·2	38·9	36·0	—3·2	31·8	35·6	37·0	35·0
	Pedong	...	25·337	25·233	·104	25·281	—·029	P	53·8	41·3	12·5	58·1	35·0	23·1	49·9	50·3	46·6	—1·4	40·0	46·2	46·0	44·0
	Demagiri	...			Not	recorded		P	72·2	45·5	26·7	79·0	40·5	38·5	65·7	70·4	58·4	—5·2	Not recorded			
	Tura	...			Ditto.				69·6	56·4	13·2	77·1	45·2	31·9	63·3	67·2	62·4	P	P	55·5	57·2	P
Hill Station, Central India.	Mount Abu	...	26·097	26·024	·073	26·061	—·058	P	61·4	47·4	14·0	68·6	41·1	27·5	57·4	58·9	53·7	—4·5	40·6	46·1	47·6	44·7
	Pachmarhi	...	·539	·462	·077	493	—·044	P	66·9	47·5	19·4	73·3	38·3	35·0	60·8	63·9	54·7	—2·3	44·6	52·4	54·2	50·4
	Chikalda	3,642	·404	·317	·087	·356	—·059	P	67·7	52·9	14·8	72·6	47·3	25·3	61·5	65·4	59·7	—2·6	48·8	53·8	55·7	52·8
	Makhla	...			Not re	corded.			72·7	54·3	18·4	77·2	49·1	28·1	61·8	68·4	61·7	—2·6	51·1	56·1	60·1	55·8

II —*continued.*

in India, Burma, etc., for January 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.			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 of the month.		
·337	·355	·341	·344	+·028	73	50	42	55	+11	2·3	2·4	2·4	+0·2	5	7	8	1	8	7	7	5	14	N 57° W	N 76° E	14	21	163	134	1·52	Buldana	Deccan—*continued.*
·324	·377	·349	·350	+·021	81	56	39	59	+9	1·8	1·9	1·9	+0·4	2	6	19	7	5	9	4	5	5	N 59° E	N 25° E	24	23	100	69	...	Khandwa	
·326	·376	·372	·358	+·019	82	61	46	63	+9	2·2	2·3	2·3	+0·5	4	3	20	16	...	5	5	6	3	N 60° E	N 59° E	34	39	93	58	...	Hoshangabad	
·366	·420	·401	·395	+·044	81	62	48	64	+13	2·9	3·0	3·0	+0·8	8	6	18	10	4	7	6	2	...	N 76° E	N 72° E	32	30	101	73	...	Nagpur	
·332	·359	·346	·346	+·017	92	62	47	67	+7	2·6	2·6	2·6	+0·5	7	12	9	2	4	12	3	6	7	N 14° W	N 8° E	11	17	39	50	...	Jubbulpore	
·302	·330	·324	·318	+·045	81	56	44	60	+12	1·8	2·2	2·0	+0·5	...	2	14	13	7	1	10	8	7	N 63° E	N 13° E	14	24	64	66	...	Saugor	
·113	·474	·508	·365	+·012	30	71	59	53	−1	2·8	3·1	3·0	+1·5	2	10	10	9	2	2	6	9	12	N 13° W	N 5° E	29	21	67*	67	...	Raipur	
·292	·326	·282	·300	+·033	89	56	37	61	+10	1·8	2·3	2·1	0	5	11	1	7	8	4	3	12	11	N 48° W	N 16° W	19	27	115*	100	...	Sutna	
·429	·435	·436	·426	+·018	87	56	42	61	+6	2·1	1·4	1·8	+0·2	...	4	9	22	12	5	6	1	3	S 80° E	S 87° E	48	69	115	93	...	Secunderabad	
·436	·458	·387	·427	?	88	56	38	61	?	2·0	1·9	2·0	?	15	4	1	11	16	9	4	2	...	S 45° E	?	42	?	93*	?	...	Hyderabad (Deccan.)	
·469	·535	·578	·527	−·052	71	64	61	65	−5	0·7	0·7	0·7	−0·8	...	9	12	9	1	...	1	7	23	N 10° W	N 6° E	53	63	245	242	...	Bombay	West Coast.
·481	·499	·586	·522	−·033	76	49	54	60	0	0·5	0·7	0·6	0	2	3	1	7	7	...	3	13	26	N 54° W	N 34° W	42	30	208*	216	...	Ratnagiri	
·539	·576	·607	·574	−·021	92	64	55	71	+2	0·3	0·3	0·3	−0·6	2	...	23	...	...	...	...	11	26	N 21° W	N 5° W	60	53	60	?	...	Karwar	
·673	·661	·707	·680	−·006	84	59	56	66	−4	1·1	0·6	0·9	−1·1	...	3	24	3	...	...	2	21	9	N 19° W	S 11° W	42	13	146	?	...	Cochin	
·528	·526	·446	·500	−·067	84	51	34	56	−9	3·4	4·1	3·8	+1·2	3	7	35	11	3	...	...	1	2	N 49° E	S 84° E	76	61	164	115	...	Salem	South India.
·377	·428	·429	·411	−·015	80	63	52	65	+2	4·7	5·3	5·0	+1·9	...	7	5	40	1	...	1	5	3	N 73° E	N 68° E	61	60	99	105	...	Mercara	
·431	·448	·371	·417	+·018	90	59	37	62	+1	1·1	1·4	1·3	−1·4	3	1	11	23	18	3	1	...	2	S 81° E	N 88° E	68	83	171*	92	...	Bangalore (Fort)	
·400	·533	·498	·477	?	96	66	49	70	?	3·2	2·7	3·0	?	3	3	13	19	17	2	2	3	...	S 85° E	?	58	?	80	?	...	Hassan	
·379	·417	·345	·380	?	71	47	32	50	?	1·6	2·1	1·9	?	2	1	14	23	18	...	2	1	1	S 86° E	?	69	?	148*	?	...	Chitaldroog	
·582	·584	·490	·552	−·057	84	55	37	59	−9	3·0	2·9	3·0	−1·2	11	6	44	...	...	...	...	...	1	N 39° E	N 48° E	79	77	79	115	...	Trichinopoly	
?	·667	·652	·696	+·056	?	65	62	81	+7	4·1	2·5	3·3	−0·6	...	14	25	16	4	2	1	...	...	N 54° E	N 48° E	71	76	129	143	...	Madras	
·472?	·660?	·734?	·619?	+·217?	89?	71?	60?	73?	+24	1·5	1·8	1·7	−0·5	31	...	1	9	12	4	2	1	2	S 51° E	S 69° E	31	68	75	80	...	Bellary	
·453	·578	·598	·543	−·038	68	66	64	66	+1	1·4	1·3	1·4	−0·3	...	10	15	9	8	10	3	5	2	N 76° E	S 60° E	27	42	29	42	...	Vizagapatam	Hill Station, Baluchistan.
·159	·174	·182	·172	+·014	98	69	63	77	+11	3·1	4·2	3·7	−0·5	18	4	1	...	3	4	5	13	14	N 78° W	N 83° W	39	27	91*	84	...	Quetta	
·055	·073	·080	·069	−·003	88	73	68	76	+11	7·3	8·5	7·9	+1·4	34	...	2	1	3	7	11	4	...	S 25° W	S 8° E	27	24	2	24	...	Leh	Hill Stations, Northern India.
·143	·160	·161	·155	?	94	87	75	85	?	8·4	8·0	8·2	?	19	6	6	5	9	8	4	3	2	N 73° E	?	14	?	77*	?	...	Srinagar	
·139	·159	·171	·156	+·017	87	79	83	83	+25	6·6	7·6	7·1	+1·2	18	2	1	...	37	4	...	...	...	S 44° E	S 54° E	61	35	233*	198	...	Murree	
·201	·207	·218	·209	−·007	86	73	65	75	+9	6·8	7·4	7·1	+1·1	49	2	...	2	4	2	...	...	3	S 74° E	S 70° E	5	13	55*	64	12·54	Chamba	
·061	·081	·081	·076	−·023	90	76	68	78	+6	7·1	7·7	7·4	+0·7	...	2	1	3	4	5	12	26	6	S 74° W	S 68° W	55	48	12	20	3·79	Kailang	
·126	·140	·167	·144	−·007	76	68	78	74	+16	5·9	8·0	7·0	+1·6	14	13	1	...	3	30	1	...	...	S 6° E	S 31° W	31	19	?	?	...	Simla (Ridge)	
·133	·148	?	?	?	79	69	?	?	?	5·8	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	Simla (Chapslee)	
·141	·162	·181	·161	+·005	81	64	80	76	+14	2·7	4·0	3·4	−1·3	12	...	6	14	4	1	3	20	2	S 77° W	S 66° W	5	9	177*	114	...	Chakrata	
·187	·199	·198	·196	+·005	92	73	70	78	+16	4·5	6·7	5·6	+1·6	24	2	2	14	1	1	11	5	2	S 22° E	S 70° W	8	17	43	43	...	Ranikhet	
·198	·248	·250	·235	−·018	87	77	58	75	+1	4·8	5·6	5·2	+1·8	8	7	...	4	6	3	4	23	7	N 85° W	N 78° W	37	64	18	?	1·56	Katmandu	
·174	·194	·204	·192	−·011	94	87	86	89	+9	7·2	7·8	7·5	+1·8	4	5	6	5	2	3	17	16	3	S 76° W	S 84° W	33	22	151	62	...	Darjeeling	
·235	·272	·264	·257	−·025	89	75	72	79	−4	5·7	7·9	6·8	+0·7	11	...	5	10	10	8	2	2	1	S 53° E	?	25	?	?	?	...	Pedong	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	...	4	...	4	...	...	29	24	N 67° W	N 50° W	71	34	?	?	...	Demagiri	
?	·354	·358	?	?	?	61	54	?	?	2·8	2·5	2·7	−0·1	...	4	...	3	3	18	27	4	3	S 31° W	S 4° W	63	53	?	?	...	Tura	
·179	·191	·211	·192	−·006	54	41	41	45	+4	1·4	1·5	1·5	1·1	2	9	16	2	5	3	7	9	9	N 14° W	N 83° W	26	6	125	113	...	Mount Abu	Hill Stations, Central India.
·262	·302	·314	·295	+·018	80	57	54	63	+9	2·5	2·9	2·7	+0·4	2	3	3	13	4	8	12	8	9	S 32° W	N 68° W	14	13	135*	73	...	Pachmarhi	
·303	·328	·335	·322	+·012	75	61	55	64	+12	2·7	3·7	3·2	+1·2	19	6	...	...	6	17	7	1	6	S 20° W	S 48° W	27	24	134	118	3·26	Chikalda	
?	?	?	?	?	?	?	?	?	?	2·4	3·2	2·8	0	...	4	1	2	9	17	8	9	12	S 42° W	S 80° W	34	29	?	?	...	Makhla	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 90 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 to 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 Stations, South India.	Wellington	...	24·289	24·218	·071	24·254	—·015	?	66·7	45·2	21·5	73·3	37·8	35·5	61·5	62·9	55·0	—0·1	44·4	53·3	55·9	51·2
	Khodai Kanal	...	...	...	Not recorded.			?	62·4	47·0	15·4	69·0	42·1	26·9	56·9	55·8	53·1	?	42·7	50·0	51·5	48·1
Extra India.	Aden	...	29·917	29·809	·108	29·863	—·081	29·890	81·1	73·8	7·3	85·7	67·0	18·7	77·3	79·4	77·0	+1·1	68·9	71·5	70·9	70·4
	Perim	...	·768	·663	·105	·716	?	?	82·3	73·7	8·6	83·9	72·2	11·7	78·8	79·6	77·4	?	70·9	72·9	73·0	72·3
	Minicoy	...	·968	·867	·101	·914	?	·849	85·6	76·5	9·1	89·1	73·8	15·3	81·4	82·8	79·8	?	72·1	75·1	75·6	74·3
	Zanziba	...	·857	·75	·107	·804	?	·804	84·4	77·8	6·6	86·9	73·0	13·9	81·9	84·3	81·1	?	74·3	76·5	76·7	75·8

II—*concluded.*

in India, Burma, etc., for January 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from										Wind Steadiness		Wind Velocity.		Total rainfall of the month.	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.			
·287	·325	·377	·328	+·028	93	61	66	73	+ 5	3·0	4·9	4·0	+0·7	1	...	1	6	33	20	1	...	...	S 34° E	S 14° E	84	62	44	53	...	Wellington	Hill Stations, South India.
·233	·296	·338	·290	?	72	64	77	72	?	3·1	6·6	4·9	?	1	9	17	1	29	...	1	...	4	N 85° E	?	48	?	183	?	...	Khodai Kanal	
·641	·695	·646	·661	+·017	76	74	64	72	0	6·6	2·3	4·5	+0·6	3	...	10	30	13	4	2	...	...	S 81° E	N 84° E	72	70	346	309	...	Aden	Extra India.
·720	·735	·725	·726	?	87	75	72	77	?	4·1	1·7	2·9	?	1	...	...	17	34	5	1	1	3	S 53° E	?	76	?	452	?	...	Perim	
·736	·788	·791	·771	?	81	74	71	76	?	4·4	4·4	4·4	?	...	11	28	15	3	...	...	1	...	N 51° E	?	80	?	169	?	...	Minicoy	
·805	·840	·817	·821	?	84	77	69	77	?	6·1	3·8	4·9	?	...	15	26	7	2	5	3	1	1	N 42° E	N 27° E	57	60	187	195	...	Zanzibar	

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Explanation.

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

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

Reg. No. 415, Wr., I.—May 93—415. Litho., S. I. O., Calcutta.

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.

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Litho. S. I. O., Calcutta.

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

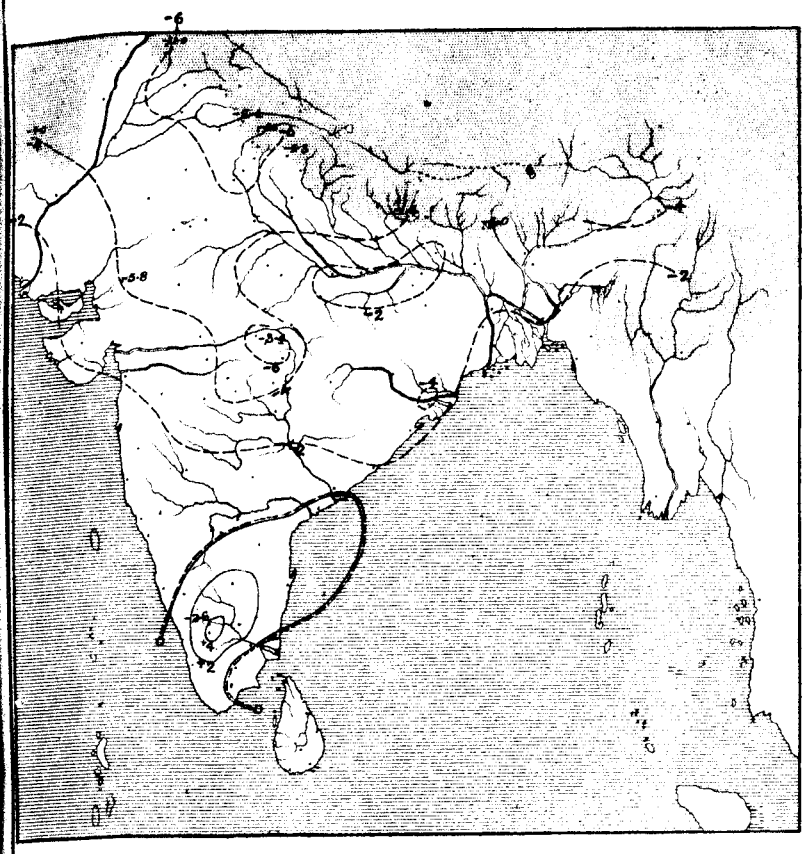
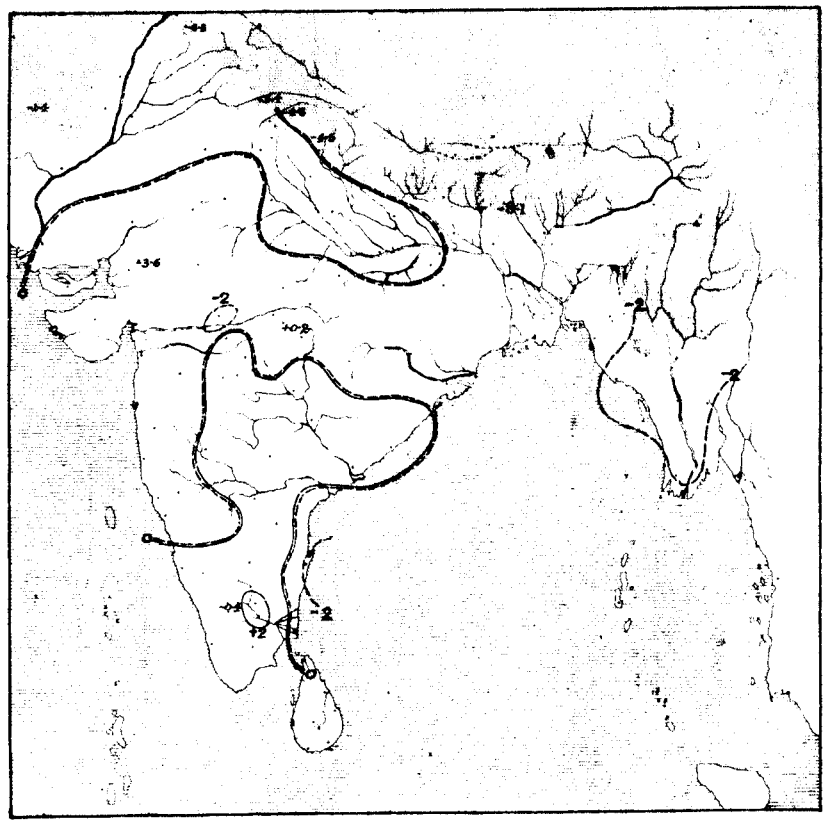


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

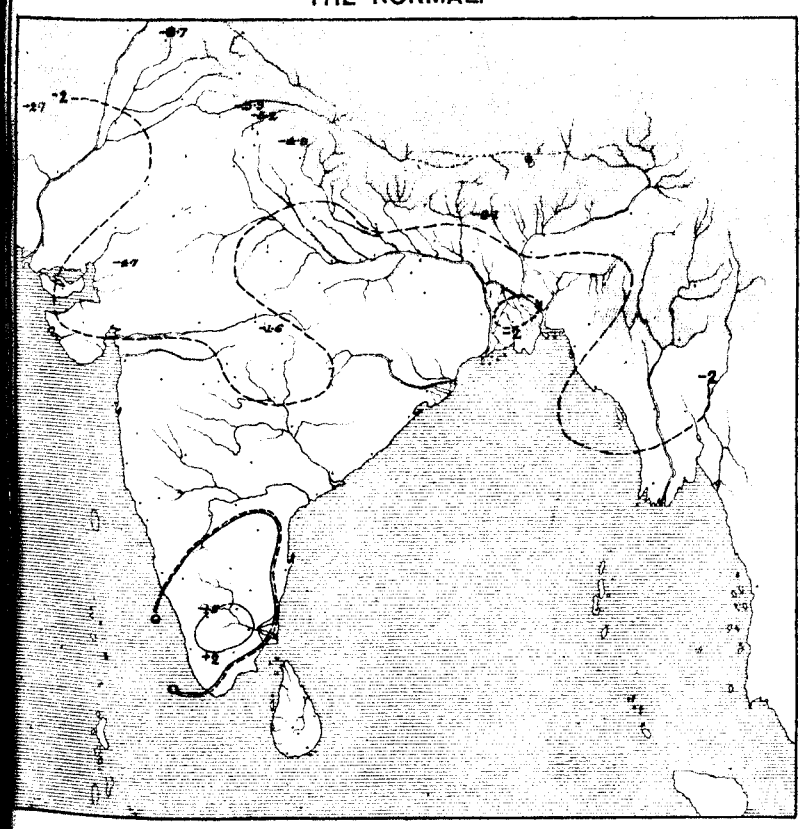
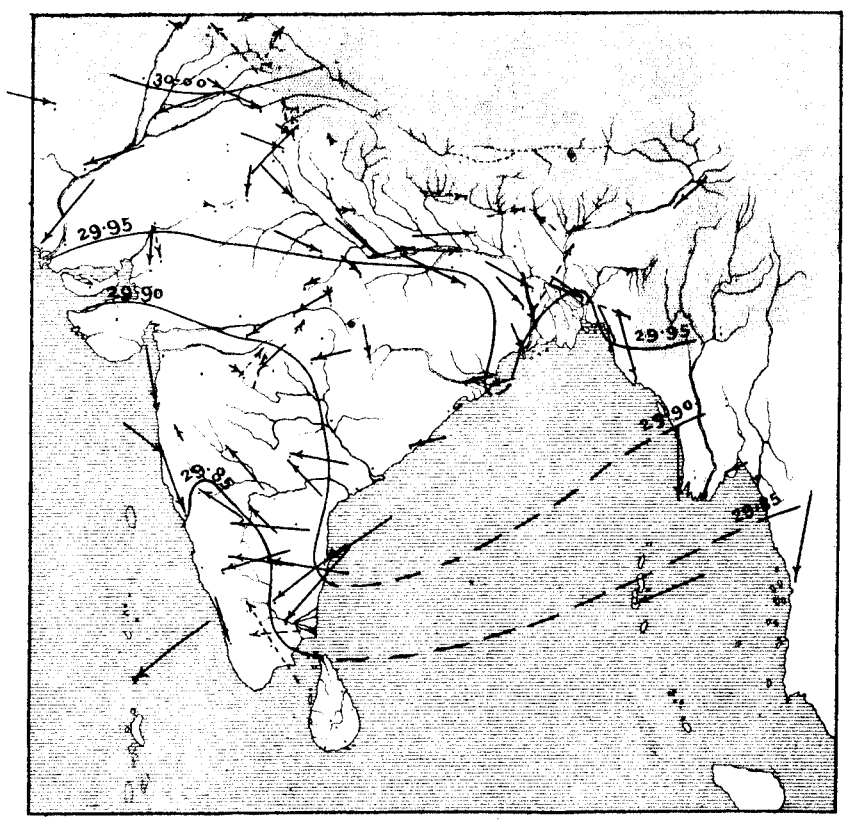


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JANUARY 1893.



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 $\frac{5}{8}$th of an inch being equal to 100 per cent.

Reg. No. 416 Wr. [illegible]

Litho., S. I. O., Calcutta.

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. 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. 415, W. & L.—May 93—415.

Litho., S. I. O., Calcutta.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

Reg No. 415, Wr., I.—May 93—415.

Litho., S. I. O., Calcutta.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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CALCUTTA, FEBRUARY, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of February 1893 is based on observations taken daily at 8 A.M. at 186 stations and on additional observations taken at 10 A.M. and 4 P.M. at 92 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 February 1893.

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. Local southerly winds usually set in on the Bengal Coast. These extend at first to a short distance landwards and seawards and are very unsteady, but gradually increase in intensity and become an important feature of the air movement in India during the hot weather months. The setting in of these winds usually accompanies the appearance of a shallow depression in West Bengal and Chota Nagpur. It is at first very feeble, but gradually develops 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 disturbances shown chiefly by the occurrence of series of thunder-storms at irregular intervals, after the setting in of the hot weather southerly winds on the Bengal Coast.

The month of February 1893, like the preceding month, was unusually disturbed, and was hence characterized by frequent rain, unusually low temperature, and greater humidity and cloud than usual. Four cold-weather storms crossed Northern India, and although they were, as measured by the barometric depression, feeble disturbances, they gave unusually copious rain in the plains and excessive snowfall in the Himalayan mountain area.

Fine clear weather with lower temperature than usual obtained at the beginning of the month. Temperature was considerably below the normal of the period, as a cool wave was crossing Northern India after the storm of the last week of January. Temperature was most deficient on the 1st in Rajputana and the western districts of the North-Western Provinces, on the 2nd in Bihar and the eastern districts of the North-Western Provinces, and on the 3rd in East Bengal.

A depression passed through Central Persia on the 2nd and 3rd and Baluchistan on the 4th. It gave squally weather in the Persian Gulf and North Arabian Sea, and moderate rain in Baluchistan on the 3rd, 4th, and 5th. It passed through Rajputana on the 5th, Central India and Bundelkhand on the 6th, Chota Nagpur and West Bengal on the 7th, and East Bengal and Burma on the 8th. A shallow subsidiary depression formed in the North Punjab on the 6th, but filled up rapidly during the next 24 hours. This storm gave light general rain over the whole of Northern India.

It was followed by a severe cool wave. Temperature was most largely in defect on the 7th in Baluchistan, on the 8th in Rajputana and Central India, on the 9th and 10th in the Central Provinces (where the deficiency averaged 13° on the 10th), and on the 11th in South Bengal (where it was 10° in average amount).

Strongly marked cold-weather conditions prevailed from the 8th to the 11th, when weather became disturbed in Baluchistan. A shallow depression formed in that area on the 11th and 12th. It advanced to Central India on the 13th, and a secondary depression also developed in the North Punjab. The latter filled up even more rapidly than it formed during the afternoon of the 13th. The primary depression filled up in North-Eastern India during the next 48 hours. This storm gave general rain to the whole of Northern India. The Punjab received heavy rain and the adjacent hill districts a very heavy fall of snow.

The storm was followed by a well defined cool wave. Temperature was most largely in defect on the 13th in Sind (12° in defect), on the 14th in Central Rajputana (11° in defect), on the 15th in the eastern districts of the North-Western Provinces (11° in defect) and on the 16th in South Bihar (9° in defect).

Meanwhile a third disturbance had appeared on the North-West Frontier. It passed through Baluchistan on the 15th, Rajputana on the 16th, Bihar and Chota Nagpur on the 17th, and East Bengal and Upper Burma on the 18th. It was throughout a feeble disturbance, and did not give rise to a secondary depression in the Punjab. It gave light and irregularly distributed showers in Northern India.

The cool wave which followed this storm was on the 16th in Sind (where the mean temperature of the previous 24 hours was 11° below thenormal), on the 17th in North-West Rajputana, on the 18th and 19th in Central and East Rajputana, on the 20th and 21st in Central India and the Central Provinces, and on the 22nd in Central Bengal (where the mean temperature of the previous 24 hours was 7° below the normal).

A double disturbance was now approaching the North-West Frontier. It was in Central Persia on the 19th and 20th and Baluchistan on the 21st, and passed into the South Punjab and North Rajputana on the 22nd. It broke up during the next 24 hours, but weather was very unsettled for some days afterwards over the whole of Northern India. Large and irregular barometric changes were shown from the 23rd to the 25th, and general rain was received over the whole of Northern India from the 21st to the 25th. Numerous series of thunder-storms occurred during this period in Bengal. Fine clear weather was at length re-established onthe 27th.

The chief feature of this disturbed period was the general reduction of temperature it caused over the whole of Northern India. The mean temperature of the 25th and 26th was, on the average of all the reporting stations, 10½° below the normal in the area including the Punjab, Sind, Rajputana, Central India, the North-Western Provinces, the Central Provinces, and Berar. On the 26th it was 11° in defect in that area and 9½° in defect in Bengal. The deficiency was slightly less in amount on the 27th and 28th.

Pressure.—The mean pressure of the month of the Indian land area was ·008″ in excess, and hence practically normal. The pressure anomalies were similar in character to those of the preceding month, but slightly more pronounced. Pressure was locally in excess in Northern India and in defect in Burma and the Peninsula. The deficiency was largish in amount in the South Deccan and Mysore, where it slightly exceeded ·03″. The most important feature of the pressure distribution was the large deficiency at the hill stations as compared with the plains. The following gives data for six pairs of stations in February and corresponding data for the month of January:—

Pairs of Stations.	Vertical Pressure Anomaly.	
	February 1893.	January 1893.
	″	″
Leh and Lahore	—·113	—·064
Murree and Rawalpindi	—·073	—·048
Simla and Ludhiana	—·088	—·050
Chakrata and Roorkee	—·073	—·027
Darjeeling and Dhubri	—·020	—·015
Quetta and Jacobabad	—·040	—·020

The data show that the deficiency of pressure at the hill stations was even greater in February than in January, and that the increase was most marked at the Western and Central Himalayan stations.

Temperature.—One of the most noteworthy features of the month was the unusually low temperature. In consequence of the numerous storms and heavy snowfall in the mountain districts in January and February temperature was maintained steadily more or less below the normal over the whole of Northern India during the month. Each storm was followed by a vigorous cold wave, details of which have been given above. The largest and most general reduction of temperature followed the disturbed weather of the last week of the month. The lowest minimum temperatures of the month were generally recorded during the passage of the first or second cold waves of the month, but they were not very remarkable, and lower night temperatures were recorded in Northern India in the corresponding months of 1876, 1883, 1886, and 1891.

The mean day or maximum temperature was slightly above the normal in Lower Burma and Southern India. It was in defect over the remainder of India; the deficiency exceeded 6° over the whole of India to the north of the Satpuras, and was greatest in the North-Western Provinces and the East Punjab, in which it ranged between 10° and 12½°. It was absolutely greatest at Ludhiana (12½°) and Sirsa (12·2°). The minimum or night temperature was in slight to moderate excess in Lower Burma, Madras, Mysore, and the East Deccan, and in defect over the remainder of India. The excess was largest in the South Deccan and Madras coast districts, where it ranged between 2° and 4°. The deficiency slightly exceeded 3° over the greater part of North-Western and Central India and also in South Bengal. The night temperature was as largely in defect as the day temperature at the hill stations.

The mean temperature of the month was in slight excess in Lower Burma, the East Deccan, Madras, and Mysore, which were not influenced by the cold waves accompanying the storms of the month. The excess was more than 2° in the area represented by Salem (+2·6°), Trichinopoly (+2·3°) and Negapatam (+2·1°).

The deficiency increased northwards from the West and Central Deccan, and exceeded 4° to the north of the Satpuras. It ranged between 6° and 8° in the Punjab, Upper Sind, Rajputana, the North-Western Provinces, South Bihar, and Chota Nagpur, and was absolutely greatest at Sirsa (—7·7°) and perhaps Delhi (- 8·4°?). The depression of temperature at the hill stations was even greater than in January. It averaged 10·8° at Quetta, 10·3° at Murree, 8·6° at Simla and Chakrata, and 3·9° at Darjeeling

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

Meteorological Province.	Variation of		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma Coast and Bay Islands	+ 0·7	0	+0·3
Burma Inland	— 0·2	+1·1	+0·5
Assam	— 4·4	—0·7	—2·6
Bengal and Orissa	— 7·3	—2·1	—4·8
Gangetic Plain and Chota Nagpur	— 9·0	—3·0	—6·0
Upper Sub-Himalayas	—10·6	—2·4	—6·5
Indus Valley and North-Western Rajputana	— 9·3	—3·3	—6·3
East Rajputana, Central India, and Guzerat	— 8·2	—3·4	—5·9
Deccan	— 5·6	—2·0	—3·8
West Coast	— 2·0	—0·8	—1·5
Southern India	+ 0·2	+2·7	+1·5

Winds.—Winds were light and irregular in the Punjab. They were stronger, but slightly less steady than usual in the Gangetic plain. They were much stronger on the average of the month at the hill stations. Northerly winds held steadily throughout the month in Bengal. The mean wind direction at all stations in South Bengal was nearly due north, and the opposite of the normal direction for the month, *viz.*, south with more or less westing. Winds were more northerly than usual in the Central Provinces, Berar, Central India, and Rajputana. In the Peninsula, more especially the southerly districts, the easterly winds of the period contained an abnormally strong southerly element.

A noteworthy feature was the very strong winds at Aden and Perim.

Humidity and Cloud.—The air was slightly drier than usual at Port Blair and in Burma. Over the whole of Northern and Central India it was very considerably damper than usual, due almost entirely to the abnormally low temperature of the month, as the variations in the amount of aqueous vapour present in the air were small and irregular. The increase in the humidity percentage ranged between 10 and 25 in Bihar, Chota Nagpur, the North-Western Provinces (except the south-eastern districts), the East Punjab, Rajputana, and Sind. The humidity was in moderate excess in Berar, the Central Provinces, and the Deccan. There was less vapour in the air, and the humidity was slightly above the average in the west coast districts between Bombay and Karwar. The increased humidity in Northern India was even more largely shown at the hill stations than in the plains. Thus at Simla the mean humidity of the month was 31 above the normal and at Murree 25 above it.

The mean amount of cloud for the month was slightly

below the normal of the month in Lower Burma and the Andamans, and also in the west coast districts. It was largely in excess over the whole of Northern and Central India, the excess being greatest in the Gangetic plain and Chota Nagpur (+2·6), Bengal and Orissa (+2·3), and the Punjab (+2·0). The excess was also very large at the northern hill stations and ranged between 1·5 and 3·0.

Skies were most serene during the month in the west coast districts between Bombay and Cochin, where the mean cloud amount was only 0·2. The mean cloud amount was also less than 1 at Akyab and Rangoon, and probably over the greater part of Burma.

The following table gives variations of the mean aqueous vapour pressure, mean humidity, and mean cloud amount from the normal in ten meteorological provinces of India:—

Meteorological Province.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	Inch.		
Burma Coast and Bay Islands	—·031	—3	—0·5
Assam	—·007	+4	+1·6
Bengal and Orissa	—·031	+4	+2·3
Gangetic Plain and Chota Nagpur	+·020	+15	+2·6
Upper Sub-Himalayas	+·006	+16	+2·0
Indus Valley and North-Western Rajputana.	—·004	+12	+0·9
East Rajputana, Central India, and Guzerat.	+·002	+12	+1·3
Deccan	+·014	+7	+0·3
West Coast	—·037	0	—0·8
Southern India	—·031	+5	+0·9

Rainfall.—The rainfall of the month was unusually heavy, and occurred during four periods of disturbance, *viz.*, from the 4th to the 8th, the 12th to the 15th, the 15th to the 18th, and the 22nd to the 26th.

The first three disturbances were cold-weather storms which advanced from the North-West Frontier across Northern India. The rainfall accompanying these storms hence commenced in Upper India and extended eastwards into Bengal and Upper Burma. The fourth disturbance was unusually prolonged. It began as a cold-weather storm, which advanced eastward across Northern India. This was followed by disturbed weather over the greater part of India. Bengal received very heavy thunder-showers on the 25th and 26th, due to this irregular disturbance, and Southern India, more especially Travancore and the Nilgiri hill districts, on the 27th and 28th.

The chief features of the precipitation of the month were—

1st.—Abnormally heavy rain or snow in Baluchistan.

2nd.—Abnormally heavy snow in the Western and Central Himalayas. Amounts ranging from 10 to 20 feet are reported to have fallen over a large portion of that area.

3rd.—Abnormally heavy rain in the East Punjab and western districts of the North-Western Provinces.

4th.—Abnormally heavy rain in Bengal, Bihar, and Chota Nagpur.

5th.—Rainfall generally in moderate excess over the remainder of Northern and Central India and in the Deccan and Southern India.

The following gives comparative rainfall data for the eleven meteorological provinces of India based on the rainfall data of 186 meteorological stations:—

Meteorological Province.	Rainfall.		
	Mean actual, February 1893.	Mean normal, February.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	0·13	0·34	—0·20
Burma Inland	0·10	0·11	—0·01
Assam	1·48	1·23	+0·25
Bengal and Orissa*	3·21	0·92	+2·39
Gangetic Plain and Chota Nagpur	2·14	0·40	+1·73
Upper Sub-Himalayas	3·84	0·98	+2·86
Indus Valley and North-Western Rajputana	1·07	0·39	+0·68
East Rajputana, Central India, and Guzerat*	0·36	0·17	+0·25
Deccan*	0·59	0·14	+0·31
West Coast*	0·40	0·12	+0·18
Southern India*	0·76	0·21	+0·62

* A reference to Table I will show that the means in columns 2 and 3 are for a smaller number of stations than the means in the first column.

Atmospheric Pressure.

The mean pressure of the whole of India was ·008″ above the normal. Relatively to the general condition, pressure was in excess in Northern and Central India and in defect in Burma and the Peninsula south of Lat. 20° N. The

anomalies were generally small in amount, and exceeded ·02″ in the following areas only:—

District.	Station.	Anomaly.
		″
BURMA	Moulmein	—·027
	Diamond Island	—·029
	Akyab	—·023
DECCAN AND CENTRAL MADRAS	Secunderabad	—·035
	Cuddapah	—·042
	Bangalore	—·022
	Belgaum	—·021
NORTH BIHAR AND BENGAL	Gorakhpur	+·023
	Patna	+·025
	Purnea	+·025

and locally at Jhansi (+·025″), Agra (+·033″), and Burdwan (+·025″).

Pressure in the corresponding month of 1891 was ·022″ above the normal, and the anomalies were, as in February 1893, positive in Northern India and negative in Southern India. The barometric conditions in February 1892 were the reverse of those of 1891 and 1893.

The most important feature of the pressure distribution in February 1893 was the very large deficiency at the hill stations in Northern India and the excess in Southern India. The following gives comparative data:—

STATION.	Variation of mean pressure of the month from normal.	Vertical pressure anomaly.
	″	″
Quetta	—·027	—·049
Jacobabad	+·022	
Mount Abu	—·036	—·044
Deesa	+·008	
Leh	—·082	—·113
Lahore	+·031	
Murree	—·052	—·073
Rawalpindi	+·021	
Simla	—·061	—·088
Ludhiana	+·027	
Darjeeling	—·001	—·020
Dhubri	+·019	
Wellington	+·029	+·031
Coimbatore	—·002	

The data show that the vertical pressure anomalies were negative in Northern India, and that they increased with elevation (being greatest for Leh and Lahore), and also that they were much smaller in North-Eastern India than in North-Western India and Baluchistan. The vertical pressure anomaly in Southern India was positive, and the abnormal gradient at the level of 7,000 to 10,000 feet over India was upwards of a tenth of an inch. A comparison of these pressure anomalies with those of February 1891, characterized by similar stormy weather, and those of February 1892, an unusually dry season, is very interesting:—

PAIRS OF STATIONS.	VERTICAL ANOMALY.		
	February 1893.	February 1891.	February 1892.
	″	″	″
Quetta and Jacobabad	—·049	—·032	+·093
Mount Abu and Deesa	—·044	+·004	+·025
Leh and Lahore	—·113	—·070	+·100
Murree and Rawalpindi	—·073	—·063	+·045
Simla and Ludhiana	—·088	—·053	+·042
Darjeeling and Dhubri	—·020	0	+·053
Wellington and Coimbatore	+·031	+·033	+·054

The data, it will be seen, are in conformity with the rule stated in previous reviews, *viz.*, that in unusually disturbed and rainy cold weather seasons the vertical pressure anomalies are negative and in dry seasons they are positive, and that the magnitude of these anomalies bears some relation to the rainfall of the season. The comparison of the vertical pressure anomalies of February 1891 and 1893 shows—

1st.—That the anomalies were greater in 1893 than in 1891.

2nd.—That the anomalies in both years were greatest in the Western Himalayas and decreased in amount eastwards.

The pressure distribution of February 1893 was hence characterized by the following features:—

1st.—The mean pressure of the whole Indian area for the month was practically normal.

2nd.—Pressure was locally in excess in Northern and Central India, the excess being slightly greater in North Bengal and Bihar than elsewhere.

3rd.—Pressure was locally in defect in the Peninsula and Burma. The deficiency was greatest in the Central and South Deccan and in Lower Pegu.

4th.—Pressure was largely in defect at the hill stations in Northern India, more especially when compared with the neighbouring plain stations. The deficiency of pressure in the middle atmospheric strata over Northern India decreased in amount eastwards from the Punjab to Bengal and perhaps Assam.

Barometric depressions and cyclonic storms of the month.

The month of February 1893 was unusually disturbed over Northern India and the adjacent countries to the north-west. The barometric changes were large and frequently very irregular. The cold-weather storms of the month were on the other hand generally very feeble, as measured by the depression of pressure below the normal, and hence it is even more difficult than usual to trace the origin and line of march of these storms during the month

Depression and Cyclonic Storm of the 3rd to 8th February.—Weather was slightly disturbed with frequent showers in Baluchistan at the commencement of the month. This unsettled weather accompanied the formation of a depression in Central Persia. The daily charts for the month of February, published by the English Meteorological office, establish that no storm passed from the Mediterranean or Central Europe eastwards into Northern Asia.

The following gives the barometric changes from the 1st to the 7th at the stations named below :—

Change of pressure in 24 hours preceding 8 A.M. of date

DATE.	Bushire.	Muscat.	Quetta.	Chaman.	Murree.	Srinagar.	Leh.
	"	"	"	"	"	"	"
1st .	+·070	?	−·078	−·092	+·039	+·103	+·088
2nd .	−·056	−·006	+·098	+·153	−·071	−·096	−·191
3rd .	−·204	−·099	+·004	−·011	+·036	−·061	−·005
4th .	+·141	−·061	−·164	−·233	−·026	+·069	+·105
5th .	+·093	+·120	0	+·092	−·086	−·221	−·222
6th .	+·013	+·133	+·104	+·137	−·010	−·032	−·009
7th .	−·043	−·004	+·096	+·068	+·028	+·089	+·102

The preceding data show that a barometric depression advanced across Central Persia and Baluchistan between the 2nd and 4th. It was approximately in the longitude of Bushire on the 2nd, of Muscat on the 3rd, and of Quetta and Chaman on the 4th. The changes of wind at these stations were in accordance with this assumption. Weather was squally and rainy in the Persian Gulf and the north of the Arabian Sea from the 3rd to the 5th and moderated on the 6th. The following gives data :—

DATE.	Ship.	Hour.	Position.	WIND		Weather and sea.
				Direction.	Force.	
3rd	*Simla* .	Noon	Bunder Abbas.	N	...	Heavy rain, thick weather.
		6 P.M.	...	E	...	
	Oriental.	8-50 P.M.	Anchored at Gwadar.	Var.		
		Midnight	...	Var.	4	Heavy rain squalls.
4th	*Oriental* .	8 A.M.	Lat. 25° N. Long. 62° E.	SW	5	Blinding rain.
		4 P.M.	...	SW	5	Squally.
	Purulia .	4 A.M.	...	NW	8	Gale.
		8 A.M	...	NW	7 to 6	Gale moderating.
		Noon	Bahrein	...	6 to 5	Rough sea.
	Simla .	6-30 A.M.	...	Var.	1	Rain squall.
		Noon	Jask.			
		0-3	Left for Muscat.	WNW	...	
		Midnight	...	Variable.	6 to 7	
5th	*Simla* .	8 A.M.	Anchored at Muscat.	NNW	9	Very heavy sea.
		Noon	...	NNW	7	
		4 P.M.	...	NNW	7	High sea.
	Oriental.	8 A.M.	23·57 N. Lat., 59·53 E. Long.	WNW	6 to 7	High sea.
		Noon	...	NWbyW	8 to 9	High sea.
	Purulia .	4 A.M.	At .	WNW	7 to 9	Choppy sea.
		4 P.M.	Left..			
		8 P.M.	...	NNE	6	Heavy sea.

No rain fell at Muscat from the 1st to the 4th. Bushire had a light shower on the 4th. On the other hand, Baluchistan received daily snow or rain. The heaviest falls were received on the morning of the 5th. Quetta registered on that day 1·42 inches, Shalabagh 1·44 inches, and Kelat 0·9 inch.

The depression was passing through Sind on the morning of the 5th. Pressure was below the normal over the whole of India except North Bengal. It was less than an eighth of an inch in defect in Sind. The depression was hence very slight and was very faintly indicated by the isobars. There was also a very shallow low pressure area subsidiary to this primary storm forming at the foot of the Punjab Hills. The Punjab and Rajputana had received light showers during the previous 24 hours.

The primary disturbance advanced during the next 24 hours into Central India and the northern districts of the Central Provinces, whilst the secondary in the North and East Punjab developed slightly. The combination of these disturbances gave a longish trough of low pressure stretching from Khandwa to Ludhiana. It was deepest at Sirsa, where pressure at 8 A.M was ·145″ below the normal of the day. Light to moderate rain showers had fallen during the previous 24 hours in Rajputana, Central India, the Punjab, and the western districts of the North-Western Provinces.

The primary disturbance was transferred on the morning of the 7th to West Bengal, Chota Nagpur, and Bihar. A rapid rise of pressure in North-Western India during the previous 24 hours had filled up the secondary disturbance, and skies had cleared in the Punjab, Sind, Rajputana, and Central India. The North-Western Provinces and Bihar had received light to moderate and fairly general rain during the previous 24 hours.

The primary depression filled up partially during the next 24 hours, and was in East Bengal and Upper Burma at 8 A.M. of the 8th, but was now of practically no importance. A rapid increase of pressure over the whole of Northern India had established strongly marked anti-cyclonic conditions. Skies had cleared in the North-Western Provinces and were rapidly clearing in Bengal. Light to moderate general rain had fallen in Bihar, Chota Nagpur, and Bengal (except some parts of East Bengal) during the previous 24 hours. Skies cleared during the day in North-Eastern India, and on the morning of the 9th fine clear weather with strongly marked anti-cyclonic conditions prevailed over the whole Indian area.

The disturbance hence consisted of a primary depression which advanced along an east-by-south track from Central Persia to Upper Burma, and of a feeble short-lived secondary disturbance in the Punjab. It is not possible to ascertain exactly the position of the centre of the primary disturbance from day to day. The following

gives its approximate position in longitude and its easterly rate of motion :—

DATE.	Position of centre longitude.	Distance travelled over during previous 24 hours in miles.
2nd . . .	52° E	...
3rd . . .	59° E	480
4th . . .	65° E	410
5th . . .	71° E	410
6th . . .	77° E	410
7th . . .	84° E	470
8th . . .	91° E ?	470

Its eastward advance hence averaged about 440 miles per diem or 18 miles per hour. The secondary disturbance lasted for about 48 hours from the morning of the 5th to the 7th, and was apparently most strongly developed over the Kashmir Himalayas, as shown by the pressure data of Srinagar and Leh.

The double disturbance, although feeble, gave general and moderately heavy rain to the whole of Northern India. It was on the whole heaviest in the Punjab and Bengal.

Pressure increased over Northern India on the 9th and gave way briskly to rapidly over the same area during the next 48 hours. The fall exceeded a tenth of an inch in Baluchistan and in the greater part of Northern India. During the next 24 hours these large and irregular movements of the barometer continued, and two depressions were shown on the morning of the 13th; the first covered the Central Provinces and Central India and the second the North Punjab. The following gives an account of this disturbance.

Disturbance of the 12th to the 14th February.—This disturbance did not pass through Central Persia, and apparently originated in Baluchistan on the 11th as is shown by the following data :—

Barometric changes during 24 hours preceding 8 A.M. of date.

STATION.	10th.	11th.	12th.	13th.	14th.
	"	"	"	"	"
Bushire	−·006	−·010	−·041	+·007	+·027
Quetta	−·034	−·018	−·144	+·048	+·050
Chaman . . .	−·001	−·033	−·172	+·116	+·021
Murree	−·018	−·038	−·030	−·204	+·172
Leh	−·045	−·191	+·069	−·200	+·109
Jacobabad . . .	−·052	−·034	−·078	−·047	+·137
Karachi . . .	−·074	−·056	−·090	−·002	+·058

The large fall of the barometer at the Sind and Baluchistan stations on the 12th accompanied moderately heavy and general rain in Baluchistan, where weather had also been showery on the 9th and 10th. It hence appears to be probable that this disturbed rainy weather accompanied the formation of a depression on the 10th and 11th, which began to move eastwards on the 12th. This shallow primary disturbance was in Central India on the 13th, but its presence was obscured by the rapid formation of a deepish secondary depression in the North Punjab.

The following gives 8 A.M. meteorological data for six stations in this secondary depression on the 13th :—

STATION.	BAROMETER.			WIND.		Amount of cloud.	Rainfall in past 24 hours.
	Actual.	Change in past 24 hours.	Variation from normal.	Direction.	Average velocity in miles per hour.		
							Inch.
Cherat .	?	−·225	?	N.	9	10	0·55
Murree .	?	−·204	−·232	S.E.	17	9	0·50
Peshawar .	29·862	−·257	−·187	S.S.W.	4	4	0·21
Rawalpindi	·819	−·239	−·208	Calm	0	10	0·66
D. I. Khan	·874	−·202	−·180	Calm	1	0	0·25
Lahore .	·825	−·212	−·203	W.	2	10	1·39

The observations show that a deepish depression covered the North and Central Punjab. Strong cyclonic winds prevailed at the hill stations of Cherat and Murree. Two of the four plain stations reported calms and the remaining two light winds. These facts show clearly the character of the depression. Skies had clouded over rapidly during the previous 24 hours, and rain had fallen over Bihar, Chota Nagpur, the North-Western Provinces, Rajputana, the Punjab, and Sind. The amounts were generally small except in the Punjab, where falls of one and two inches were recorded at several stations. Heavy snow had fallen on the hills.

Pressure increased very rapidly between 8 A.M. and 4 P.M., at which hour an area of uniform pressure covered the whole of North-Western India. The secondary depression hence filled up even more rapidly than it formed on the afternoon of the 13th. The shallow primary disturbance continued to advance eastwards during the day and was in Orissa, Bengal, and Bihar on the morning of the 14th. If filled up during the next 24 hours.

The disturbance hence originated in Baluchistan on the 10th and 11th during a period of diminishing pressure in the Indian area. It advanced rapidly across Northern India as a very shallow and feeble primary disturbance on the 12th and 13th and filled up in North Eastern India on the 14th and 15th. A secondary disturbance formed very rapidly on the night of the 12th in the North Punjab and filled up even more rapidly on the afternoon of the 13th. The double disturbance gave a moderate burst of rain to the whole of Northern India and heavy snow on the hills.

Disturbance of the 14th to the 18th February.—Whilst the previous primary disturbance was filling up on the 14th in North-Eastern India, another disturbance commenced in Baluchistan. Pressure gave way briskly on the 15th in that area, whilst it was increasing over the

whole of India. The observations at Bushire and Muscat throw no light on the origin of this disturbance. It apparently formed during a period of rainy weather commencing on the 14th in Baluchistan. This shallow depression advanced into Central Rajputana on the 16th, Bihar and Chota Nagpur on the 17th, and East Bengal on the 18th. Its position is clearly shown by the barometric changes and is abnormals, but is very faintly indicated by the isobars in the charts in the India Daily Weather Reports of the period.

This disturbance did not give rise to a secondary depression in the Punjab, and was hence of slight importance. It gave scattered showers in North-Western India on the 16th, the North-Western Provinces, Bihar, and the Central Provinces on the 17th, Bengal on the 18th, and Assam on the 19th and East Bengal on the 20th. It travelled across Northern India at the rate of nearly 500 miles per diem.

Pressure was below the normal to a moderate extent on the 19th over the whole of India. It increased generally during the next 24 hours, after which the barometric movements were very irregular and abnormal for some days and weather very disturbed.

Disturbance of the 21st to the 25th February.—Thisdisturbance appears to have been due to an unusual combination of circumstances. It commenced as a slight depression in Central Persia on the 20th, which almost certainly orginated in that area. The following gives barometric data:—

Station.	Change of pressure in 24 hours preceding 8 A. M. of date.					
	19th.	20th.	21st.	22nd.	23rd.	24th.
	"	"	"	"	"	"
Bushire .	—·080	—·029	+·014	—·077	+·061	+·106
Muscat . .	—·053	—·083	—·011	—·034	—.033	+·185
Chaman .	+·001	—·104	—·094	+·032	—·016	+·143
Quetta . .	+·018	—·056	—·130	+·006	—.010	+·148
Cherat .	—·031	+·077	—·051	—·114	—·008	+·170
Murree . .	—·002	+·019	—·001	—·121	—·034	+·158
Leh . .	+·005	+·037	—·079	—·154	—·049	+·147

The data show that pressure was giving way in Persia and Baluchistan on the 19th and 20th. Weather was fine and skies clear during this period at Bushire and Muscat.

This depression affected Baluchistan on the 20th and 21st, and apparently intensified slightly. Skies clouded over in Baluchistan on the 20th, and light to moderate rain was received on that day and the 21st. The depression advanced into Rajputana and the South Punjab on the 22nd. The following gives 8 A.M. meteorological data of that day for stations in the area of depression.

Station.	Barometer.			Wind.			
	Actual.	Change in past 24 hours	Variation from normal.	Direction	Average velocity in miles per hour.	Amount of cloud.	Rainfall in preceding 24 hours.
							Inch.
Bikaneer . . .	29·824	—·136	?	SSW	5	9	0·04
Sirsa . . .	·844	—·146	—·181	SE	4	10	*Nil*
Montgomery . .	·815	—·174	?	Calm	6	10	0·11
Mooltan . . .	·883	—·089	—·171	NW	1	3	0·05

The cyclonic circulation in the area of depression was fairly well defined although it was feeble. The centre was probably about 60 miles west of Sirsa. Skies were overcast over the whole of Northern and Central India, and moderate rain had fallen in the Punjab, Rajputana, North-Western Provinces, and Central India. A slight depression also lay over the Central Provinces and local thunderstorms had occurred in that area.

Pressure increased during the next 24 hours over the whole of Northern and Central India, and was very uniform on the 23rd in North-Western India and the Peninsula. Steepish gradients obtained over North-Eastern India, as pressure was nearly two tenths of an inch higher in Upper Assam than at the head of the Bay. Rain in moderate amounts had fallen in the Punjab and North-Western Provinces, but the chief feature of the meteorology of the previous 24 hours was the occurrence of a series of thunder-storms over the whole of Bengal and Assam, which gave in many cases very heavy rain. Several districts in Central Bengal received amounts averaging between one and two inches. An important feature of this period of abnormal rain was the prevalence of strong and cool north-east winds over the whole of Bengal. Pressure increased over the whole of India except Assam during the next 24 hours, the rise being large in North-Western India, and exceeding two-tenths of an inch in the Indus Valley. Some showers had been received during the previous day in the Punjab and the North-Western Provinces, and skies continued more or less thickly clouded over the whole of Northern and Central India. Abnormal north-east winds continued in North-Eastern India, and a further series of thunder-storms had given general light to moderate rain to Bengal, Assam, and Upper Burma.

Pressure increased rapidly in Western India and decreased locally in the North-Western Provinces on the 25th. A shallow depression hence covered the northern districts of the North-Western Provinces on the morning of the 25th. Its formation accompanied general rain on the 25th over that area. It filled up during the day, but weather continued slightly unsettled with light to moderate showers in the North-Western Provinces on that day.

The skies cleared over the whole of Northern and Central India on the evening of the 26th, and fine weather prevailed in that area during the remaining two days of the month. Numerous thunder-storms occurred in Southern India during the last three days of the month.

This disturbance was hence in the first place due to the advance of a shallow depression across Central Persia, Baluchistan. and Upper India. When it disappeared, the pressure conditions were very abnormal and a short period of unsettled and irregular pressure changes followed. At the end of the month pressure was more or less considerably above the normal, the excess on the 28th slightly exceeding two-tenths of an inch in the North Punjab. Hence strongly marked cold weather conditions obtained.

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 1893 in the Western Himalayan and Afghan mountain areas received up to date:—

I. THE AFGHAN HIGHLANDS.

(*a*) *Dera Ismail Khan District.*—Snow fell on the 4th, 12th and 15th of this month. The fall on the Ziarat Mountain, which is 7,250 feet high, was about a foot in depth. Snow fell on all the Waziri and Shirani hills to the west of the district. In the interval between the storms, the sun was as a rule unusually hot. The depth of snow at the end of the month on the Ziarat Branj and Shinsar peaks (over 7,000 feet high) was about 3 feet.

(*b*) *Kohat.*—The following gives the snowfall on the mountain ranges to the west of the Kohat district during the month:—

Ranges.	Fall during month.	Depth of snow lying on 28th February.
Spinghar . .	4¾ feet.	30 feet.
Dandighar . .	1¾ "	2 "
Torghar . .	3 "	4 "
Zawa Mountain .	1½ "	4 "
Samana . .	1 1/12 "	1 foot.

Snow fell on twelve days during the month on these hills. The heaviest fall occurred on the 11th and 12th.

The snowfall of the present cold weather, up to date, is said to be very considerably above the average.

(*c*) *Bannu District.*—The Deputy Commissioner has furnished the following information of the snowfall in the mountains to the west of his district:—

Mountains.	Feet.	Snowfall.
Pirghal . . .	11,583	Heavy.
Shoidar . . .	10,000	Heavy.
Gabar Hill . . .	...	4½ feet.
Shawal . . .	...	Heavy.
Sheikh Budin . .	...	9 inches.
Kaya . . .	...	Heavy.

The depth of snow, on the 28th February, in the passes leading from Bannu to Waziristan, was reported to be 3 feet.

(*d*) *Kabul.*—The following summary of the snowfall in and near Kabul has been received from the British Agency—November 1892,—Heavy snow fell on the Paghman mountains and the adjacent valleys to the north of Kabul—December—Snow fell at Kabul on the 21st. January.—Snow fell on the 15th, 22nd, and 27th at Kabul, the total fall being 14 inches. Temperature was very low. February.—The weather was unusually cold throughout the whole month. The natives of Kabul state that such severe cold has not been experienced during the previous 50 years, although the snowfall was by no means large and much less than in the severe winter of 1890-91. Snow fell at Kabul on eight days in February, *viz.*, the 1st, 4th, 6th, 12th, 15th, 21st, 22nd, and 27th. The total fall was 23½ inches. At the end of the month the whole country round Kabul was covered with snow. The road to Ghazni was blocked with snow lying in many parts 4 feet deep.

(*e*) *Hazara District.*—Snow fell at Abbottabad on four days, *viz.*, the 16th, 22nd, 23rd, and 24th. The total fall slightly exceeded one foot.

The snow was lying about 10 feet deep in the Hazara Galis (height 8,000 feet) and from 10 to 12 feet deep on the Black Mountain (8,000 to 9,000 feet). The snow line was at an elevation of 6,000 feet at the end of the month. A total fall of twelve feet of snow is reported to have occurred in the passes of Khagan to the north of the district. The snowfall on the plains of Hazara (elevation 1,500 to 1,800 feet) during the month of February is much greater than has ever been known by the inhabitants.

(*f*) *Gilgit.*—The amount of snow which has fallen on the neighbouring mountains is stated to be a little above the average. The depth of snow on the Shandin Pass leading from Yasin to Chitral was from 5 to 6 feet on the 25th February. This is considered by the natives of

the district to be below the average which is said to be 6 to 9 feet.

II.—THE KASHMIR AND PUNJAB HIMALAYAS.

(*a*) *Murree and adjacent hills.*—The snowfall at Murree during the month was 13 feet 10 inches in amount and on the hills adjacent to Kahuta 6 feet.

(*b*) *Kulu.*—The Assistant Commissioner gives the following information respecting the snowfall in this district from the 26th January to 25th February:—

Snow fell on 14 days during this period at Kulu and Plach. It did not occur below an elevation of 3,080 feet. The fall was heavy on all the passes. The snow melted much faster than in January, and as a rule it melted almost as fast as it fell, so that there was no accumulation during the month. The total fall at Nagar (elevation 5,780 feet) was 6 feet 6½ inches.

The following table gives the reported depth of snow on the higher passes and peaks on the 25th of the month, with corresponding data for the past three years.

Tahsil.	Name of pass.	Height above sea-level in feet.	Reported depth of snow on 25th February.							
			1893.		1892.		1891.		1890.	
			Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Kulu	Rotang	13,000	29	0	6	0	19	0	15	0
	Hamta	14 500	24	6	6	0	16	0	9	0
	Chandar Khani	...	26	0	8	0	15	0	12	6
	Barsai	...	19	6	4	0	9	0	6	0
	Bujadhar	...	19	0	1	6	13	0	...	
	Lori Achri	...	19	0	5	0	10	0	4	0
	Pushtari	...	12	0	4	0	8	0	9	0
	Bhubha	10,000	17	6	5	0	9	0	4	0
	Majang	...	9	0	2	0	6	0	4	0
Plach	Chul	...	24	0	3	0	13	0	5	0
	Sirikand	15,000	33	0	9	0	35	0	...	
	Maghian	...	20	0	3	0	11	0	5	0
	Tikkar	...	20	0	3	0	11	0	...	
	Dundku	...	22	0	4	0	15	0	6	0
	Ramgarh	...	4	0	...		1	0	...	
	Nunu	...	10	0	2	0	7	0	4	0
	Jalori	10,500	20	0	3	0	10	0	4	0
	Raghopur	...	21	0	3	0	11	0	6	0
	Himri	...	22	0	3	0	11	0	4	6
	Sakiran	...	19	0	3	0	12	0	5	0
	Suphakun	...	19	0	6	0	17	0	8	0
	Gargarasan	17,000	24	0	7	0	21	0	8	0
	Bashleo	11,000	22	0	4	0	12	0	6	0
	Plach	...	23	0	5	0	14	0	8	0
	Tirath	...	24	0	5	0	14	0	8	6

The depths, it is stated, are mere approximate averages, as almost all the passes have been closed during the winter

The weather during the period was unusually damp, and the cloud much greater than usual. The winter is the most severe experienced for many years.

(*b*) *Simla District.*—The Deputy Conservator of Forests Bashahr Division, has forwarded the following interesting account of the snowfall in the Simla district: "The average depth of snow on the 2nd of the month on a terrace (elevation 8,500 feet) at the foot of the Raldang mountain was 8 feet. The huts on the mountain at elevations of 10,000 feet were almost covered with snow. Snow was general during the period throughout the Sutlej valley and descended in Kanawar to the banks of the Sutlej (5,000 feet altitude and west of Wangtu to nearly 3,000 feet). The snowfall at the elevation of 8,000 to 9,000 feet was quite 5 feet in depth. Violent gusts of wind occurred during the snow-storms. In the intervals between the storms the cold was intense. The following gives the approximate depth of snow on the 15th February, in the undermentioned passes:—

Name of pass.	Elevation.	Depth of Snow.	
		Feet.	Inches
Enla Pass (to Kashang)	17,000	19	0
Pangi Pass (to Kashang)	15,000	17	0
Kingarong	18,000	21	0
Pass leading from Kashang to Spillo	19,000	25	0
Head of Asrang valley	18,000	21	0
Harang (Baspa valley to Inchbar)	14,000	12	0
Chhitkul Pass (to Kuncharang)	18,000	18	0

The inhabitants of the higher villages state that the winter has been exceedingly cold owing to the biting winds that accompanied the storms and occurred in the intervals between the snowfall, and in fact colder than they have ever experienced. The snowfall was also in their opinion much heavier than usual:—

III.—HIMALAYAN DISTRICTS OF THE NORTH-WESTERN PROVINCES.

Almora District.—The Commissioner has forwarded the following valuable information:—

1st.—Malla Danpur.—Snow fell on five occasions during the month to a depth of nearly 10 feet on the high hills and villages. The depth of snow on the Dhakuri, Chitta Dangu, and Pankua Passes, frequented by the inhabitants of these villages in this sub-division, at the end of the month averaged 10 feet.

2nd.—Malla Darma, Byans, and Chandans.—There were three severe snow-storms during the month, during which a total of 16 feet of snow is said to have fallen

3rd.—Malla Johar.—The sky was clear only on two days during the month, and snow fell on several occasions. The snow accumulation in the villages of Milam was nearly 20 feet deep at the end of the month On the

higher pass, known as Utadhura, it is stated to be 36 feet deep, and on the lower passes 11 feet deep.

The weather was unusually cold and damp during the month and the snowfall heavier than for some years past. It is stated to be heavier in Malla Johar than has been known during the past 50 years.

IV.—THE NEPAUL HIMALAYAS.

Sikkim.—No information has been received from the district officer at Darjeeling. Snow fell on three days at Darjeeling and on five days at Gnatong.

V.—EASTERN HIMALAYAS.

Assam, North Lukhimpore.—The Sub-divisional officer writes. "No snowy range is visible from the plains of this district. In most years traces of snow are visible for two or three days on the Duffla hills, about 8,000 feet high. This year snow was visible during the whole of January and February on these hills, a most unusual occurrence. The hill tribes report that the snowfall has been very heavy on the higher ranges. From these scanty indications, it is almost certain the snowfall on this part of the Himalayan range has been quite exceptionally heavy."

Summary of Special Storm Reports.

Local thunder-storms and hail-storms occasionally occur in the month of February during the periods of general disturbances 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 number of storms reported during the month was unusually small, and of these four only were of sufficient importance to be given below:—

22nd—Thunder-storm at Burdwan 9-50 to 10-15 P.M.

24th—Hail-storm at Lahore at 4 P.M.

26th.—Thunder-storm at Hyderabad (Deccan) 3 to 4 P.M.

28th.—Hail-storm at Hoshangabad at 4 P.M. Velocity of wind between 4-10 and 4-20 P.M., 58 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 weather was fine with normal winds in the Arabian Sea, except the Gulf of Aden, where winds were considerably stronger than usual. It was showery with overcast skies in the Persian Gulf on the 3rd. Winds were very strong on the 4th and 5th in the Persian Gulf. The S. S. *Simla* had N.N.W. winds of force 9 on the 5th. Winds also increased in strength in the Arabian Sea on the 5th and 6th, and averaged 4·3 in force on the 6th. They fell off in strength in the Persian Gulf on the 6th and 7th. Winds were very strong (from the east) in the Gulf of Aden on the 7th and 8th, and the S. S. *Clan Sinclair* and *Hispania* experienced squalls on the 7th in that area.

Winds decreased in strength over the whole sea area from the 8th, when they were of average force 4·3, to the 12th when they averaged 2·7. Weather was disturbed on the 14th in the Persian Gulf, where strong winds and heavy rain were experienced. Winds increased in strength in the Arabian Sea from the 14th until the 17th, when they were of average force. Strong winds set in again over the Gulf of Aden and prevailed until the 22nd, when they fell off for a short period. Winds were of average force 4·0 on the 20th in the Arabian Sea and decreased to force 2·2 on the 22nd. They increased during the remainder of the month and averaged in force 3·8 on the 28th. Fine clear weather prevailed generally during the month over the whole sea area except in the Gulf of Aden and Persian Gulf, where skies were frequently cloudy and weather occasionally disturbed with squalls and rain.

Bay of Bengal.—At the commencement of the month strong winds (force 4 to 6) obtained in the north of the Bay and light to moderate winds in the centre and south. The mean force of the winds in the Bay on the 1st was 2·9. Winds decreased in force on the 3rd and 4th at the head of the Bay. Fine and clear weather prevailed generally until the 7th when weather became slightly unsettled and showers fell in the north of the Bay. Weather cleared there on the 9th and strong northerly winds prevailed on the 9th and 10th. Weather was showery on the 11th off the coast of Ganjam and Circars. It cleared on the 12th and winds increased during the next four days and averaged 3·4 in force on the 16th. They decreased in strength during the next week, and on the 24th averaged only 1·9 in force. They strengthened during the next four days and averaged 3·2 on the 28th. Fine clear weather prevailed generally throughout this period.

Temperature of the Air.

The temperature conditions of the month of February 1893 resembled those of February 1891 in their broader features. Temperature was largely in defect over the whole of India excepting Southern India and Lower Burma, and the deficiency was in both cases most pronounced in the day temperature. The depression of temperature was even greater in February 1893 than in February 1891. In the latter month the deficiency was greatest on the North-West Frontier and was chiefly due to excessive snowfall in Afghanistan and Kashmir. In February 1893 it was greatest at the foot of the Himalayas from the East Punjab to North Bihar and was due to excessive snowfall over the Western and Central Himalayas.

The mean day temperature of the month was in slight excess in South and Central Madras, Mysore, and Lower Pegu, and was below the normal over the remainder of India, the deficiency increasing northwards to the South-East Punjab and North-Western Provinces, over the whole of which area it exceeded 10°. It was absolutely greatest at Ludhiana (—12. 5°) and Sirsa (—12·2°). It exceeded 6° over the whole of India to the north of Lat. 21° N. (excepting Assam and East Bengal, where it was slightly less in amount).

The mean minimum or night temperature of the month was in slight excess in Lower Burma and in slight to moderate excess in Madras, Hyderabad, and Mysore. It was more than 2° in amount over the greater part of that area and was greatest at Salem (+4·1°), Masulipatam (+4·0°), Rajam undry (+3·6°) and Kurnool (+3·5°). It was below the normal over the remainder of India. The deficiency was more than 2° in South Bengal, the Punjab, Rajputana, Central India, the Central Provinces, Chota Nagpur, and Bihar, over the whole of which area the deficiency was very uniform averaging 3°. The following gives data for the area of unusually low night temperatures in South Bengal, which it will be seen coincided with the area in which abnormal northerly winds continued during the latter half of the month :—

Station.	Mean Minimum Temperature.		
	Actual, February 1893.	Normal, February.	Variation from normal.
	°	°	°
Saugor Island	60·0	65·0	−5·0
Calcutta	56·5	59·9	−3·4
Jessore	54·3	56·5	−2·2
Dacca	54·9	57·7	−2·8

The mean temperature of the month was in slight to moderate excess in Lower Burma, Madras, Hyderabad, and Mysore. The excess was more than 2° in the area defined by the following stations :—

Station.	Mean Temperature.		
	Actual, February 1893.	Normal, February.	Variation from normal.
	°	°	°
Salem	81·4	78·8	+2·6
Trichinopoly	81·9	79·6	+2·3
Negapatam	79·9	77·8	+2·1

It was in defect over the remainder of India. The deficiency exceeded 4° to the north of the parallel of 21° N. and 6° to the north of the parallel of 27° N. or in Upper Sind, the Punjab, North-Western Provinces, and in South Bihar and Chota Nagpur. It was greatest at Dera Ismail Khan, Rawalpindi, Ludhiana, Agra and Gaya, at each of which stations it averaged 6·9° for the month.

As is usual in stormy periods of the cold weather months, both the day and night temperatures were largely in defect at the hill stations in Northern India. The following gives comparative data for five representative stations.—

Station.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature
	°	°	°
Quetta	−11·4	−10·2	−10·8
Murree	−9·5	−7·8	−8·6
Simla	−9·3	−7·9	−8·6
Mount Abu	−10·4	−7·4	−8·9
Darjeeling	−3·1	−3·0	−3·1

The deficiency was greatest in the outer stations of the Himalayas and decreased northwards. It averaged 4·4° at Kailang and 3·9° at Leh.

The following gives temperature variation data for each of the 51 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.	Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	91·3	65·1	78·2	26·2	37·4	+ 0·3	+ 0·6	− 0·3
	Lower Burma	88·9	66·7	77·8	22·2	33·4	+ 0·7	− 0·4	+ 1·1
	Central do.	92·1	56·7	74·4	35·4	50·8	− 0·2	+ 1·1	− 1·3
	Upper do.	82·5	52·8	67·7	29·7	45·1	?	?	?
	Arakan	84·2	59·1	71·7	25·1	39·0	− 0·3	− 1·7	+ 1·4
Bengal and Assam	Eastern Bengal	74·9	54·1	64·6	20·8	37·7	− 5·4	− 2·1	− 3·3
	Assam (Surma)	75·4	53·7	64·6	21·7	38·0	− 4·3	− 1·2	− 3·1
	Do. (Brahmaputra)	70·1	53·2	61·6	16·9	32·3	− 4·7	− 0·5	− 4·2
	Deltaic Bengal	74·2	55·9	65·2	18·3	36·1	− 7·6	− 3·5	− 4·1
	Central do.	72·6	53·7	63·1	18·9	36·1	− 9·9	− 1·8	− 8·1
	North do.	71·2	50·0	60·6	21·2	36·3	?	?	?
	Orissa	78·7	64·7	71·7	14·0	29·7	− 6·5	− 0·2	− 6·3
	Chota Nagpur	71·3	51·8	01·5	19·5	37·3	− 8·5	− 4·6	− 3·9
	Bihar (South)	71·3	50·9	61·1	20·4	37·2	− 8·8	− 3·3	− 5·5
	Do. (North)	70·0	49·9	60·0	20·1	33·8	− 7·5	− 2·3	− 5·2
North-Western Provinces and Oudh.	North-Western Provinces (East)	70·0	48·8	59·4	21·2	35·7	− 9·2	− 2·6	− 6·6
	Oudh (South)	68·5	47·8	58·1	20·7	33·4	−10·2	− 2·2	− 8·0
	Do. (North)	67·3	46·9	57·1	20·4	36·3	?	?	?
	North-Western Provinces (Central)	68·2	46·4	57·3	21·8	35·2	?	?	?
	Do. do. (West)	70·5	49·4	60·0	21·1	34·8	− 8·9	− 3·4	− 5·5
	Do. do. (Submontane)	62·9	44·9	53·9	18·0	33·7	−10·3	− 2·6	− 7·7
Punjab	Punjab (South)	63·5	44·9	54·2	18·6	34·4	−12·1	− 3·9	− 8·2
	Do. (Central)	60·9	41·4	51·2	19·5	36·6	− 9·8	− 2·2	− 7·6
	Do. (Submontane)	59·4	44·9	52·2	14·5	29·3	−12·5	− 1·2	−11·3
	Do. (Hill Districts)	36·7	24·2	30·5	12·5	31·7	− 9·4	− 7·9	− 1·5
	Do. (North-West)	57·1	39·4	48·3	17·7	34·7	− 9·6	− 3·0	− 6·6
	Do. (West)	62·5	41·0	51·8	21·5	40·5	− 9·3	− 3·6	− 5·7
Bombay and Malabar Coast Districts (Madras).	Malabar	86·5	72·9	79·8	13·6	20·3	− 1·2	+ 1·2	− 2·4
	Madras (South Central)	93·4	67·8	80·6	25·6	35·1	+ 0·8	+ 3·2	− 2·4
	Coorg	?	59·2	?	?	?	?	+ 2·0	?
	Mysore	86·2	56·6	71·4	29·6	38·9	+ 0·4	+ 5·6	− 5·2
	Konkan	82·6	66·1	74·4	16·5	26·4	− 2·6	− 2·2	− 0·4
	Bombay Deccan	88·9	58·9	74·0	30·0	41·2	− 2·1	− 1·4	− 0·7
	Hyderabad (North)	86·3	60·5	73·5	25·8	41·3	?	?	?
	Khandesh	84·5	52·2	68·3	32·3	49·5	− 5·6	− 1·9	− 3·7
Central Provinces and Berar.	Berar	84·0	56·2	70·2	27·8	49·1	− 6·1	− 2·5	− 3·6
	Central Provinces (West)	80·4	53·9	67·2	26·5	46·9	− 7·3	− 3·5	− 3·8
	Do. (Central)	80·2	54·9	67·6	25·3	46·0	− 7·3	− 3·6	− 3·7
	Do. (East)	78·3	52·8	65·6	25·5	43·6	− 6·4	− 4·0	− 2·4
Bombay (North)	Guzerat	82·4	56·4	69·4	26·0	41·7	− 5·0	− 1·8	− 3·2
	Kattiawar	79·3	54·6	67·0	24·7	47·7	− 7·6	− 3·3	− 4·3
	Sind	70·1	49·8	60·0	20·3	39·2	− 8·7	− 3·2	− 5·5
Rajputana and Central India.	Central India (East)	72·5	47·0	59·8	25·5	44·0	− 7·9	− 3·0	− 4·9
	Rajputana (East) Central India (West)	71·5	47·4	59·5	24·1	39·9	− 8·6	− 3·1	− 5·5
	Rajputana (West)	73·8	45·2	59·5	28·6	45·6	?	?	?
Madras	East Coast (North)	84·3	70·9	77·6	13·4	20·5	− 0·9	+ 3·2	− 4·1
	Hyderabad (South)	90·0	66·7	78·4	23·3	35·2	− 1·7	+ 2·2	− 3·9
	Madras (Central)	93·8	68·7	81·3	25·1	36·8	− 0·3	+ 2·5	− 2·8
	East Coast (Central)	88·6	70·9	79·8	17·7	26·5	− 1·2	+ 4·0	− 5·2
	East Coast (South)	88·0	70·6	79·3	17·4	28·5	+ 1·1	+ 2·3	− 1·2
	Madras (South)	90·2	72·5	81·3	17·7	27·6	+ 1·2	+ 1·0	+ 0·2

The following gives a brief statement of the larger changes of temperature during the month. In consequence of the rapid succession of storms across India, cool and warm waves followed each other rapidly and the fluctuations of temperature were hence unusually great.

Temperature was considerably below the normal at the

commencement of the month. The following gives variation data for the 24 hour period preceding 8 A.M. of the 1st:—

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

Temperature increased to a moderate extent during the next five days and was in slight excess in Madras, Guzerat, and South-West Rajputana on the 5th. A cold weather disturbance crossed Northern India between the 5th and the 7th, and was followed by a cool wave. The following data giving the largest deficiency of temperatures recorded at two stations on each day from the 6th to the 11th show the progress of this wave:—

Date.	Station.	Variation of temperature of 24 hours preceding 8 A.M. of date from normal.
		°
6th	Peshawar	—12·6
,,	Dera Ismail Khan	—10·6
7th	Jacobabad	—11·4
,,	Sialkote	—11·3
8th	Indore	—14·3
,,	Khandwa	—12·3
9th	Indore	—14·9
,,	Jubbulpore	—14·1
10th	Raipur	—15·5 (?)
,,	Seoni	—15·1
11th	Saugor Island	—10·5
,,	Calcutta	—9·8

During this period from the 6th to the 11th temperature was more or less in defect over the whole of India except Lower Burma and South Madras, and the area of greatest deficiency was slowly transferred east-south-eastwards from the North-West Frontier to Bengal. The following gives temperature variation data of the 11th immediately before the second important disturbance of the month gave heavy snow in the hills and a general burst of rain over the whole of Northern India:—

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

The following data show the progress of the cold wave in the rear of the second disturbance of the mouth:—

Date.	Station.	Variation of temperature of 24 hours preceding 8 A.M. of date from normal.
		°
13th	Hyderabad (Sind)	—12·8
,,	Jacobabad	—12·7
14th	Sambhar	—12·2
,,	Sirsa	—11·2
15th	Allahabad	—12·4
,,	Gorakhpur	—10·9
16th	Gaya	— 9·4

The following table gives variation data of the 16th on which day the third cool wave of the month appeared on the North-West Frontier:—

Province or area.	Variation from Normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+0·9	+3·1	+2·0
Bengal and Assam	—6·3	—2·1	—4·2
N.-W. P. and Oudh	—9·0	+0·6	—4·2
Punjab	—10·6	+1·1	—4·8
Rajputana and Sind	—15·4	—1·3	—8·4
Central India and Guzerat	—4·8	+2·6	—1·1
Central Provinces and Berar	—3·5	+0·5	—1·5
Bombay	—0·5	+1·5	+0·5
Madras	+1·8	+3·9	+2·9

The following table gives the largest negative variations of the mean daily temperature from the normal on each day

during the period from the 16th to the 22nd, and shows the progress of the third cool wave of the month across Northern India:—

Date.	Station.	Variation of temperature of 24 hours preceding 8 A.M. of date from normal.
		°
16th	Karachi	—13·1
"	Hyderabad (Sind)	—12·6
17th	Sirsa	—14·0
"	Mooltan	—10·3
18th	Rajkot	—10·3
"	Delhi	—9·8
"	Jhansi	—8·4
19th	Ajmere	—8·8
"	Jeypore	—8·6
"	Lucknow	—8·3
20th	Ajmere	—8·3
"	Neemuch	—7·9
"	Agra	—7·7
21st	Seoni	—9·0
"	Jubbulpore	—8·3
"	Benares	—8·2
22nd	Jessore	—7·8
"	Dacca	—6·4
"	Calcutta	—5·4

Whilst this cold wave was advancing across Northern India, the fourth disturbance of the month marched through Baluchistan on the 21st and Upper India on the 22nd and 23rd. This storm was followed by the fourth cold wave of the month, for which data are given below:—

Date.	Station.	Variation of temperature of 24 hours preceding 8 A.M. of date from normal.
		°
21st	Quetta	—14·0
22nd	Karachi	—10·8
"	Hyderabad (Sind)	—11·9
23rd	Sirsa	—11·7
"	Jeypore	—11·4
"	Sambhar	—10·8

The following gives the temperature variation data of the 22nd, on which day two cold waves were crossing India, one being in North-Eastern and the other in North-Western India on that day:—

Province or Area.	Variation from Normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+0·8	+2·0	+1·4
Bengal and Assam	—6·4	—1·9	—4·2
N.-W. P. and Oudh	—8·2	+1·4	—3·4
Punjab	—8·7	+1·4	—3·7
Sind and Rajputana	—15·5	—1·4	—8·5
Central India and Guzerat	—3·7	+0·5	—1·6
Central Provinces and Berar	—3·4	—0·3	—1·9
Bombay	—2·3	—1·1	—1·7
Madras	+0·8	+4·3	+2·6

The preceding data show that the temperature variations were not large except in the areas in North-Western and North-Eastern India covered by the tracks of the two cold waves.

A remarkable change occurred during the next 48 hours, due to the heavy rain on the 22nd and 23rd under peculiar conditions, over the whole of Bengal. Weather conditions were very disturbed with frequent showers over the whole of Northern India until the 26th, when fine clear weather again set in. In consequence of this disturbance temperature decreased rapidly on the 23rd over the whole of Northern India and continued during the remainder of the month to be very considerably below the normal of the period.

The following gives the variations of the mean daily temperature from the normal day by day from the 23rd to the 28th:—

Meteorological Province.	Variation from normal of mean temperature of 24 hours ending at 8 A.M. of the					
	23rd.	24th.	25th.	26th.	27th.	28th.
	°	°	°	°	°	°
Burma	+0·9	+0·9	+0·9	+1·6	+2·4	+1·7
Bengal and Assam	—7·7	—8·9	—6·4	—9·6	—8·0	—8·8
N.-W. P. and Oudh	—10·2	—7·8	—8·7	—10·7	—10·3	—8·7
Punjab	—8·9	—7·6	—11·3	—9·5	—7·5	—6·1
Sind and Rajputana	—9·2	—6·6	—9·9	—10·9	—10·1	—7·0
Central India and Guzerat	—6·3	—3·1	—12·3	—12·9	—11·5	—6·8
Central Provinces and Berar	—5·2	—3·6	—9·7	—11·7	—11·3	—7·4
Bombay	—2·4	—1·1	—2·0	—4·9	—3·0	—2·3
Madras	+1·5	+2·0	+2·7	+1·2	+0·3	—1·2

The preceding data show that temperature was very largely below the normal from the 23rd to the 28th over the whole of India except Madras and Burma, and that the variations changed slightly from day to day, due chiefly to the distribution of the rainfall during the period.

The chief features of the temperature conditions of the month were hence a succession of four cold waves which occurred between the 6th and 23rd of the month, and a large general reduction of temperature over Northern and Central India from the 23rd to the end of the month due to disturbed showery weather.

The lowest minimum temperatures of the month were generally recorded on the 1st and 2nd in the North-Western Provinces, Bihar, and Bengal, and on the 8th, 9th, and 10th in the Punjab, Rajputana, Central India, and the Central Provinces. They were not very remarkable and lower temperatures were recorded in Northern and Central India in February 1877, 1883, 1886, and 1891.

Winds.

The normal direction of the air movement in the Indian land and sea area in February is almost identical with that of the 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 setting in 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 develops into the 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 very unsteady in the North-Western Provinces and Bihar in February 1893, but were stronger than usual. Although easterly winds prevailed to an unusual extent, in consequence of the numerous storms of the month, the mean wind directions did not differ much from the normal, and ranged between west and north-west.

Cold weather northerly winds continued throughout the whole month in Bengal, and hence in the coast districts of Orissa and South-West Bengal, the mean wind directions were nearly the opposite of the normal directions. Winds were also steadier and stronger than usual. The following gives data for four stations :—

Station.	Direction.		Steadiness.		Velocity.	
	Average direction, February 1893.	Normal, direction, February.	Average percentage, February 1893.	Normal percentage.	Average daily air movement, February 1893.	Normal, daily air movement, February.
					Miles.	Miles.
False Point	N 76° E	S 12° W	36	16	227	185
Saugor Island	N 14° E	S 50° W	41	23	226	189
Calcutta	N 8° E	S 81° W	43	23	53	85
Dacca	N 49° W	S 76° W	36	35	83	63

Winds were on the average of the month more directly from the north than usual in the interior of Bengal.

An important feature of the month was the increased strength of the winds at the hill stations. This is shown by the data of the following three stations where the exposure of the anemometer is satisfactory :—

Station.	Mean Daily Wind Velocity in Miles.			
	Actual, February 1893.	Normal, February.	Variation from normal.	Percentage variation.
Murree	238	196	+42	+21
Chakrata	201	125	+76	+61
Darjeeling	161	121	+40	+33

Winds were more northerly than usual in Rajputana, Central India, Berar and the Central Provinces (more especially the northern districts). They were also stronger and steadier than usual. They were also steadier at the west coast stations where the mean wind directions were approximately normal. In Southern India winds contained an unusually strong southerly element which was directly related to the deficient pressure in the Deccan and Carnatic. The following gives data for three stations :—

Station.	Wind Direction.		
	Mean actual, February 1893.	Mean normal, February.	Increased southing.
Madras	S 53° E	E	37°
Bangalore	S 54° E	S 67° E	13°
Bellary	S 11° E	S 56° E	45°

Winds were slightly stronger than usual at Port Blair. They were unusually strong at Aden and Perim, to such an extent as to show that conditions were very abnormal in that area.

The following gives data for these stations and Minicoy :—

Station.	Mean Daily Wind Velocity in Miles.		
	Actual, February 1893.	Normal, February.	Percentage variation.
Aden	481	332	+45
Perim	415	?	?
Minicoy	150	?	?

Winds were normal in direction and steadiness at these stations.

Humidity and Cloud.

The air contained less aqueous vapour and was slightly drier than usual at Port Blair and in Burma. Thus at Port Blair where the deficiency was greatest the aqueous vapour pressure was ·049″ below the normal, and the mean humidity of the month was 4 in defect. The amount of vapour was considerably below the normal in the Bengal coast districts owing to the delay in the establishment of southerly winds. The following gives data for two stations :—

Station.	Mean Aqueous Vapour Pressure.			Mean Humidity.		
	Actual, February 1893.	Normal, February.	Variation from normal.	Actual, February 1893.	Normal, February.	Variation from normal.
	″	″	″	%	%	
Saugor Island .	·520	·623	—·103	76	76	0
Calcutta . .	·429	·487	—·058	70	68	+2

Over the remainder of Northern India and also in Central India the variations in the mean amount of vapour present in the air were small in amount and very irregular, neighbouring stations in several cases exhibiting variations of opposite signs. In consequence of the very low temperatures of the month the mean humidity of the month was very largely in excess. The excess averaged 15 in Chota Nagpur, Bihar, and the North-Western Provinces, 15 in the Punjab and 13 in Rajputana and Sind. The following tables give data for six stations, at which the increased humidity was mostly marked :—

Meteorological Province.	Station.	Mean Humidity.			Mean Aqueous Vapour Pressure.		
		Actual, February 1893.	Normal, February.	Variation from normal.	Actual February 1893.	Normal, February.	Variation from normal.
		%	%		″	″	″
Chota Nagpur .	Hazaribagh	62	42	+20	·302	·244	+·058
Behar . .	Patna .	69	57	+12	·351	·349	+·002
North-Western Provinces.	Lucknow .	67	51	+16	·319	·292	+·027
Punjab . .	Lahore .	72	57	+15	·270	·277	—·007
Sind . .	Jacobabad .	59	40	+19	·252	·221	+·031
Rajputana .	Ajmere .	62	44	+18	·280	·256	+·024

The increase in Northern India was smallest in the eastern districts of the North-Western Provinces.

The increased humidity, due chiefly to decreased temperature, was even more strikingly shown at the hill stations. The amount of aqueous vapour in the air was on the average of the month slightly less than usual. The following give data for three stations at which these features were most marked :—

Station.	Mean Humidity.			Mean Aqueous Vapour Pressure.		
	Actual, February 1893.	Normal, February.	Variation from normal.	Actual, February 1893.	Normal, February.	Variation from normal.
	%	%			″	″
Simla . .	86	55	+31	·159	·152	+·007
Murree . .	88	63	+25	·156	·151	+·005
Ranikhet . .	78	60	+18	·184	·192	—·008

The air was generally damper and contained more aqueous vapour than usual in the Deccan and Madras, but the variations in the humidity were small compared with those at stations in Northern India. The following data for three stations show the character of the variations in this part of India :—

Station.	Mean Aqueous Vapour Pressure.			Mean Humidity.		
	Actual, February 1893.	Normal, February.	Variation from normal.	Actual, February 1893.	Normal, February.	Variation from normal.
	″	″	″	%	%	
Madras . .	·742	·664	+·078	78	73	+5
Bangalore . .	·445	·394	+·051	58	52	+6
Vizagapatam .	·680	·642	+·038	68	65	+3

In consequence of the abnormally frequent extension of dry northerly winds along the west coast of India in the intervals between the storms of the month, the air was unusually dry in the west coast districts from Bombay to Calicut. The following gives data in illustration for three stations :—

Station.	Mean Aqueous Vapour Pressure.			Mean Humidity.		
	Actual, February 1893.	Normal, February.	Variation from normal.	Actual, February 1893.	Normal, February.	Variation from normal.
	″	″	″	%	%	
Bombay . .	·508	·606	—·098	65	69	—4
Ratnagiri . .	·527	·592	—·065	62	62	0
Karwar . .	·622	·653	—·031	73	73	0

The air was on the other hand damper at Cochin as over the remainder of Southern India. The fact that the increased dryness was confined to the coast districts and did not extend into the Deccan shows that the air current to which it was due was a comparatively shallow one.

The cloud amount was small at the Burma stations and less than usual. It was more or less considerably above the normal of the month over the whole of Northern and Central India. The following gives comparative data for that area :—

Meteorological Division.	Mean Cloud Amount.		
	Actual, February 1893.	Normal, February.	Variation from normal.
Assam	5·0	3·4	+1·6
Bengal and Orissa	4·2	1·9	+2·3
Gangetic Plain and Chota Nagpur.	4·7	2·1	+2·6
Upper Sub-Himalayas	5·6	3·6	+2·0
Indus Valley and North-West Rajputana.	4·2	3·3	+0·9
East Rajputana, Central India and Guzerat.	3·9	2·6	+1·3

The cloud amount was hence most largely in excess in the East Punjab, the North-Western Provinces, Bihar, Chota Nagpur and Bengal. It was also considerably in excess at the hill stations in Northern India by amounts ranging from 0·9 at Leh to 2·5 at Ranikhet, and 3·1 at Katmandu.

It was also in slight excess in the Central Provinces, Deccan and Southern India, but the variations in these areas were small and of little importance. It was on the other hand below the normal of the month in the Bombay coast districts which were, as shown above, also characterized by increased dryness of the air. Skies were remarkably free from cloud in these districts. The following gives cloud data for those districts in which the mean cloud was less than 1·0 :—

Meteorological Division.	Station.	Mean Cloud Amount.		
		Actual, February 1893.	Normal February.	Variation from normal.
West Coast Districts	Bombay	0·6	1·3	−0·7
	Ratnagiri	0·1	0·4	−0·3
	Karwar	0·1	0·6	−0·5
	Cochin	0·4	2·1	−1·7
West Deccan	Poona	0·5	1·6	−1·1
	Belgaum	0·8	1·2	−0·4
Arakan	Akyab	0·2	1·1	−0·9
Lower Pegu	Rangoon	0·6	2·0	−1·4

Skies were hence most free from cloud in the west coast districts and in Arakan and Pegu. They were very heavily clouded in the Himalayan districts where the mean cloud amount ranged between 7 and 8.

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, and along the foot of the hills. Bengal, Lower Burma and Malabar occasionally obtain thunderstorms, but, as a rule, the conditions for these storms do not occur before March.

The rainfall of the month of February was due to a succession of four disturbances or cold weather storms which crossed Northern India. They gave unusually general and widely spread rain. The following gives the chief periods of rainfall :—

1st.—From the 4th to the 8th. The Punjab received light to moderate rain on the 5th, 6th and 7th, the North Western Provinces on the 6th and 7th and Bihar, Chota Nagpur and Bengal on the 7th and 8th.

2nd.—From the 12th to the 15th. This burst was more general and heavier than the previous. The Punjab received fairly general rain on the 12th, 13th and 14th, the North-Western Provinces, Bihar and Bengal on the 13th and 14th, and Assam on the 14th and 15th.

3rd.—From the 15th to the 18th. During this period light rain was received over the whole of Northern India.

4th.—From the 22nd to the 26th. This was by far the heaviest and most general fall during the month. In the Punjab, Rajputana, the North-Western Provinces and Central India daily showers fell from the 22nd to the 25th, in Bengal from the 22nd to the 26th, and in Assam from the 23rd to the 26th. Thunder showers were received in the Deccan and Southern India on the 27th and 28th.

The following table shows that the rainfall of the month was more or less in excess over the whole of India. The chief features were :—

1st.—Excessive precipitation in Baluchistan and the Himalayan mountain area.

2nd.—Unusually frequent and heavy rain in the Pun-

jab and western districts of the North-Western Provinces.

3rd.—Abnormally heavy rain in Bengal, Bihar and Chota Nagpur, and more especially in the central districts of Bengal.

The following table gives comparative rainfall data for the 52 meteorological divisions of India. The means for the provinces of Bengal, Assam, North-Western Provinces, Bombay, Madras and the Native States are based upon the data of the rainfall statements for the month published in the Government Gazettes. As the monthly statements of the Central Provinces and Burma were not received in time to be utilized, the means for these provinces are obtained from the rainfall data telegraphed weekly to Simla by the district officers in these provinces:—

Province.	District.	Rainy Days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0	0·06	— 0·06
	Lower Burma*	?	?	0	0·20	— 0·20
	Central do.*	?	?	0·07	0·15	— 0·08
	Upper do.*	?	?	0	?	?
	Arakan*	?	?	0·05	0·13	— 0·08
Bengal and Assam	Eastern Bengal	4·7	1·7	2·42	1·01	+ 1·41
	Assam (Surma)	5·3	2·7	2·36	1·35	+ 1·01
	Do. (Brahmaputra)	3·7	3·7	1·01	1·32	— 0·31
	Deltaic Bengal	6·4	1·8	4·88	1·17	+ 3·71
	Central do.	6·5	1·4	4·03	0·58	+ 3·45
	North do.	2·8	1·4	1·12	0·51	+ 0·61
	Orissa	4·6	1·5	2·85	0·90	+ 1·95
	Chota Nagpur	7·3	1·3	4·36	0·64	+ 3·72
	Bihar (South)	5·5	1·1	2·36	0·43	+ 1·93
	Do. (North)	4·2	1·1	1·44	0·44	+ 1·00
North-Western Provinces and Oudh.	North-Western Provinces (East)	3·1	0·8	0·83	0·34	+ 0·49
	Oudh (South)	3·4	0·6	0·90	0·23	+ 0.67
	Do. (North)	4·0	0·8	1·55	0·31	+ 1·24
	North-Western Provinces (Central)	2·9	0·6	0·78	0·21	+ 0·57
	Do. do. (West)	3·3	0·8	1·31	0·31	+ 1·00
	Do. do. (Submontane)	5·9	1·8	3·43	1·10	+ 2·33
Punjab	Punjab (South)	5·0	1·1	1·85	0·45	+ 1·40
	Do. (Central)	5·2	1·2	2·35	0·50	+ 1·85
	Do. (Submontane)	6·6	2·4	3·84	1·30	+ 2·54
	Do. (Hill Districts)	1·3	4·5	6·66	3·47	+ 3·19
	Do. (North-West)	5·4	2·7	3·08	1·40	+ 1·68
	Do. (West)	2·4	1·1	0·75	0·43	+ 0·32
Bombay and Malabar Coast Districts (Madras).	Malabar*	0·7	0·2	0·38	0·16	+ 0·22
	Madras (South Central)*	1·4	0·2	0·82	0·13	+ 0·69
	Coorg*	1·1	?	0·57	?	?
	Mysore*	?	?	0·32	0·04	+ 0·28
	Konkan	0	0	0·02	0	+ 0·02
	Bombay Deccan	0	0·1	0	0·03	— 0·03
	Hyderabad (North)	...	...	...	...	...
	Khandesh	0·1	0	0·03	0·03	0
Central Provinces and Berar.	Berar*	?	?	0·51	0·15	+ 0·36
	Central Provinces (West)	?	?	0·80	0·26	+ 0·54
	Do. (Central)	?	?	0·79	0·36	+ 0·43
	Do. (East)	?	?	1·78	0·44	+ 1·34
Bombay (North)	Guzerat	0·8	0	0·19	0·02	+ 0·17
	Kathiawar	1·4	0	0·46	0·09	+ 0·37
	Sind	3·9	?	1·31	0·31	+ 1·00
Rajputana and Central India.	Central India (East)	2·1	?	0·64	0·04	+ 0·60
	Rajputana (East), Central India (West)	2·5	?	0·78	0·26	+ 0·52
	Rajputana (West)	1·0	?	0·29	0·12	+ 0·17
Madras	East Coast (North)*	1·9	0·4	1·12	0·21	+ 0·91
	Do. (do.) (*a*)*	3·0	0·4	0·88	0·19	+ 0·69
	Hyderabad (South)*	?	?	0·25	0·15	+ 0·10
	Madras (Central)*	0·6	0·1	0·24	0·03	+ 0·21
	East Coast (Central)*	0·3	0·2	0·06	0·19	— 0·13
	Do. (South)*	0·4	0·3	0·18	0·28	— 0·10
	Madras (South)*	1·5	0·8	0·78	0·57	+ 0·21

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

The rainfall of the month was actually or practically *nil* in Burma, Arakan, the Konkan, Bombay Deccan, Khandesh and Madras East Coast Central.

British Baluchistan received unusually frequent rain during the month. The periods of precipitation were from the 1st to the 5th, the 10th to the 16th, the 21st and

22nd, and the 27th and 28th. The total rainfall of the month was hence very largely in excess. The following gives data for the stations where the largest amounts were recorded:—

Station.	Rainfall.			Number of rainy days.
	Actual, February 1893.	Normal, February.	Variation from normal.	
	Inches.	Inches.	Inches.	
Quetta	7·51	1·50	+6·01	13
Shalabagh	6·97	?	?	8
Hirok	6·13	?	?	10
Bostan	5·85	?	?	12
Peshin	5·67	1·35	+4·32	13
Kelat	5·11	1·78	+3·33	11

The data suggest that the rainfall in that area was from three to five times its normal amount.

Rajputana received local showers during the first three disturbances of the month. The only period of fairly general rain was from the 21st to the 25th during the last disturbance of the month. This rainfall was heaviest in Bhurtpur and Ulwar, where falls exceeding one inch in 24 hours were registered at several stations. The following gives mean rainfall data of the month for the larger states:—

State.	Rainfall.		
	Actual, February 1893.	Normal, February.	Variation from normal.
	Inches.	Inches.	Inches.
Jodhpore	0·27	0·11	+0·16
Jeypore	0·71	0·32	+0·39
Ajmere	0·57	0·28	+0·29
Kotah	0·62	0·25	+0·37
Ulwar	1·26	0·41	+0·85
Bhurtpur	1·16	0·20	+0·96
Dholpur	0·41	?	?

The excess, although not large in actual amount, was relatively to the normal considerable. Over the greater part of East Rajputana from two to five times the normal fall of the month was received.

The Punjab received fairly general rain during each of the four disturbances of the month. The precipitation was unusually heavy in the hill districts and also in the northern and eastern plain districts. The periods of rainfall were the 5th to 7th, the 12th, 13th and 14th, the 16th and 17th, and the 22nd to the 25th. The following table gives the largest falls in 24 hours, exceeding 3 inches, recorded during the month:—

Date.	Station.	Rainfall in 24 hours preceding 8 A.M. of date.
		Inches.
13th	Dalhousie	4·55
23rd	Murree	3·90
23rd	Dharmsala	3·50

The rainfall was light during the month in the western districts, more especially in Kohat and Bannu, which barely received the normal fall of the month. Over the remainder of the province the rainfall of the month was more or less in excess. The data show that in the north-eastern, eastern and south-eastern districts the excess was very considerable, the whole of that area receiving from two to five times its normal amount. The excess was also very large in the hill districts nearest to the plains. Thus Simla received a total of 8·55 inches, 7·07 inches in excess of its normal. Dharmsala received 12·65 inches or 8·47 inches above the normal, and Murree a total of 16·60 inches or 15·22 inches above the normal. On the other hand, the precipitation of the month was considerably below the normal at the hill forest station of Kilba, which obtained a total of only 5·47 inches or 4·03 inches less than its normal amount of 9·50 inches.

The following table gives comparative rainfall data of the six meteorological divisions of the province:—

Division.	Mean number of rainy days.			Mean rainfall.		
	Actual, February 1893.	Normal, February.	Ratio of actual to normal.	Actual, February 1893.	Normal, February.	Ratio of actual to normal.
				Inches	Inches.	
Punjab (South)	5·0	1·1	4·5	1·85	0·45	4·1
Do. (Central)	5·2	1·2	4·3	2·35	0·50	4·7
Do. (Sub-montane)	6·6	2·4	2·8	3·84	1·30	3·0
Punjab (Hill Districts)	1·3	4·5	0·3	6·66	3·47	1·9
Punjab (North-West)	5·4	2·7	2·0	3·08	1·40	2·2
Punjab (West)	2·4	1·1	2·2	0·75	0·43	1·7

In Central India the only rainfall of importance was received on the 22nd, 23rd, 24th and 25th during the fourth disturbance of the month. It apparently occurred during thunderstorms, and was very irregularly distributed. The total rainfall of the month ranged between *nil* at Ajaigarh in Bundelkhund and 2·49 inches at Sohagpur in

Rewah. The following gives average data for the larger states or divisions:—

Division.	Rainfall.		
	Actual, February 1893.	Normal, February.	Variation from normal.
	Inches.	Inches.	Inches.
Bhopal	0·64	0·24	+ 0·40
Indore	0·23	0·27	— 0·04
Rewah	0·98	0·39	+ 0·59
Bundelkhand	0·47	0·33	+ 0·14

In the North-Western Provinces there were four periods of rainfall in the month, *e.g.*, the 6th to the 8th, the 13th and 14th, the 16th and 17th, and from the 22nd to the 25th. The rainfall during the first three periods was small, and irregularly and partially distributed. During the last period the whole province received a general burst of rain. The submontane districts of Bijnor and Moradabad obtained some heavy downpours during this period. The following give the most noteworthy rainfalls in 24 hours of this period:—

			Inches.
22nd	Naini Tal	Ramnagar	4·19
23rd	Moradabad	Amroha	2·75
"	Bijnor	Nagina	3·01
"	"	Dhampur	2·97
"	Naini Tal	Kashipur	2·79

The rainfall of the month was hence very largely in excess in all districts. The excess was greatest in the western and sub-montane districts and least in the eastern districts. The following gives comparative data for the six meteorological districts of the province:—

Division.	Mean number of rainy days.			Mean rainfall.		
	Actual, February 1893.	Normal, February.	Ratio of actual to normal.	Actual, February 1893.	Normal, February.	Ratio of actual to normal.
				Inches.	Inches.	
Oudh (North)	4·0	0·8	5·0	1·55	0·31	5·0
Do. (South)	3·4	0·6	5·7	0·90	0·23	3·9
North-Western Provinces (East)	3·1	0·8	3·9	0·83	0·34	2·4
North-Western Provinces (Central)	2·9	0·6	4·8	0·78	0·21	3·7
North-Western Provinces (West)	3·3	0·8	4·1	1·31	0·31	4·2
North-Western Provinces (Sub-montane)	5·9	1·8	3·5	3·43	1·10	3·1

Bengal obtained abnormally frequent and heavy rain during the month. The following gives the periods of most general rain:—

1st.—The 7th and 8th.—Rain was general in Bihar and Chota Nagpur on the 7th and in Bengal on the 8th. The northern districts of North Bengal and North Bihar received practically no rain during this period.

2nd.—The 13th to the 15th.—Bihar and Chota Nagpur received moderate to heavy rain on the 13th and 14th and Bengal on the 14th and 15th. The following falls in 24 hours exceeding three inches occurred during this period:—

Date.	Station.	Rainfall during 24 hours preceding 8 A.M. of date.
		Inches.
14th	Barrackpore	3·45
	Serampur	3·45
	Satkhira	3·38

3rd.—The 17th and 18th.—During this period rain fell in Behar and Chota Nagpur, chiefly on the 17th and in Bengal on the 18th. The rainfall was much lighter than in the previous disturbances.

4th.—From the 20th to the 26th.—The 20th, 23rd, 24th and 26th were the days of heaviest and most general rain during this period. The rainfal of the 23rd was especially heavy in South-West Bengal, which received an average of 1·15 inches on that day.

The total rainfall of the month was hence more or less largely in excess over the whole province with the exception of the Chittagong district, where it was slightly below the normal. In South Behar and Chota Nagpur the rainfall was about six times the normal amount, in South-West or Deltaic Bengal about five times, and in North Bengal and North Behar about four times the normal fall of the month. The rainfall of the month was irregularly distributed in East Bengal, but over the whole of that area the rainfall was nearly three times the normal rainfall of the month.

The following table gives comparative data for the meteorological divisions of the province:—

Division.	Mean number of rainy days.			Mean rainfall.		
	Actual, February 1893.	Normal, February.	Ratio of actual to normal.	Actual, February 1893.	Normal, February.	Ratio of actual to normal.
				Inches.	Inches.	
Eastern Bengal	4·7	1·7	2·2	2·42	1·01	2·4
Deltaic do.	6·4	1·8	3·6	4·88	1·17	4·2
Central do.	6·5	1·4	4·7	4·03	0·58	6·9
North do.	2·8	1·4	2·0	1·12	0·51	2·2
Orissa	4·6	1·5	3·1	2·85	0·90	3·2
Chota Nagpur	7·3	1·3	5·6	4·36	0·64	6·8
Behar, South	5·5	1·1	5·0	2·36	0·43	5·5
Do., North	4·2	1·1	3·8	1·44	0·44	3·3

The Sylhet and Cachar districts and the hill districts of Assam obtained rain during the same periods as Bengal, but the falls were lighter and the average total rainfall of the month was about twice the normal. In the Brah-

maputra valley the only period of fairly general rain was during the last disturbance of the month, from the 20th to the 26th, and the rainfall during that period was very light in the western and central districts, including Nowgong, Durrang, Kamrup and Goalpara. The eastern districts received moderate rain from the 14th to the 19th. The rainfall of the month was normal, or in slight excess in the Sibsagar and Lakhimpur districts, and in moderate defect in the central and western districts of the Brahmaputra valley. The following gives comparative data for the two divisions of the provinces :—

Division.	Number of rainy days.			Rainfall.		
	Actual, February 1893.	Normal, February.	Variation from normal.	Actual, February 1893.	Normal, February.	Variation from normal.
				Inches.	Inches.	Inches.
Surma . .	5·3	2·7	+2·6	2·36	1·35	+1·01
Brahmaputra .	3·7	3·7	0	1·01	1·32	—0·31

It is noteworthy that the total rainfall of the month at Cherrapunji was 2·7 inches, and hence almost identical with the mean of the Surma division, thus showing that its geographical and topographical features exercise little or no influence in increasing the rainfall locally during the cold weather months.

No rain fell over nearly the whole of Burma. Some light showers were received in Bhamo, Katha and the Ruby mines.

The eastern and central districts of the Central Provinces had occasional showers between the 17th and 28th, chiefly occurring during thunderstorms. The total amounts received during the month hence varied very largely from station to station, but were generally above the normal. The districts of Bilaspur and Sambalpur received the largest amounts, averaging about ten times the normal fall of the season. Berar and Hyderabad received light to moderate thunder-showers during the last three days of the month.

The month was practically rainless over the whole of the Bombay Presidency, except in Sind, which received light rain during each of the periods of disturbance, and in Guzerat Kathiawar and Cutch, which obtained moderate showers between the 22nd and 25th, or during the last disturbance of the month. Guzerat obtained an average of two-tenths, Kathiawar of half an inch, and Sind of 1·3 inches. The rainfall in these districts was considerably in excess of the normal fall of the month.

The northern districts of Madras received general rain on the 25th and 26th, or during the fourth disturbance of the month. The rainfall was heavy in the Ganjam and Vizagapatam districts and light in Godavari and Kistna. The termination of this disturbance in Northern India was followed by a short period of slightly unsettled weather in Southern India and Travancore and the Madura, Tinnevelly, Malabar, Salem, Coimbatore and Nilgherry districts received moderate to heavy thunder-showers on the 26th, 27th and 28th.

This burst of rain was exceptionally heavy in the Nilgherry hills, where the following large amounts were recorded :—

Date.	Station.	Rainfall of 24 hours preceding 8 A.M. of date.
		Inches.
27th .	Kodanad	3·00
	Coonoor	2·81
	Kotagiri	2·50
28th .	Kotagiri	7·20
	Coonoor	4·35
	Kaity	3·75
	Wellington	3·66
	Kodanad	2·03

In Travancore showers were also generally received on the 19th and 20th, and 24th and 25th. Over the remainder of the Madras Presidency the rainfall of the month was very slight and occurred as light local thunder-showers. The following gives a summary of the rainfall data for the month of the Madras Presidency.:—

Division.	Number of rainy days.			Rainfall.		
	Actual, February 1893.	Normal, February.	Variation from normal.	Actual, February 1893.	Normal, February.	Variation from normal.
				Inches.	Inches.	Inches.
East Coast (North)	1·9	0·4	+1·5	1·12	0·21	+0·91
East Coast (North) (a)	3·0	0·4	+2·6	0·88	0·19	+0·69
Eastern Coast (Central).	0·3	0·2	+0·1	0·06	0·19	—0·13
East Coast (South)	0·4	0·3	+0·1	0·18	0·28	—0·10
Madras (South) .	1·5	0·8	+0·7	0·78	0·57	+0·21
Malabar Coast .	0·7	0·2	+0·5	0·38	0·16	+0·22
Madras (South Central).	1·4	0·2	+1·2	0·82	0·13	+0·69
Madras (Hills) .	2·7	0·5	+2·2	3·99	0·23	+3·76
Madras (Central) .	0·6	0·1	+0·5	0·24	0·03	+0·21

Table

Abstract of Observations taken at 8 A.M. at 186

Meteorological Province or District.	Station.	Elevation of barcistern 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.		...	...	− 019	...	...	...	...	...	...	...	88·7	+ 0·7	65·7	0	77·2	+ 0·3	23·0	...	...	...	...	33·4
Bay Islands	Port Blair	61	29·925	?	29·917	29·984	16th	29·884	8th	·100	77·3	*87·2	?	74·2	?	*80·7	?	13·0	90·0	26th	70·0	8th	20·0
	Camorta	?	29·980	?	?	30·055	16th	29·923	8th	·132	81·6	85·9	?	75·8	?	80·8	?	10·1	87·9	16th & 21st.	69·8	1st	18·1
Tenasserim	Mergui	96	29·897	?	29·926	29·969	16th	29·847	7th	·122	77·0	88·7	?	52·1	?	70·4	?	36·6	92·1	27th	47·3	15th	44·8
	Tavoy	26	29·979	?	29·906	30·046	16th	29·924	8th	·122	71·2	91·5	?	66·1	?	78·8	?	25·4	95·7	25th	60·7	1st	35·0
	Moulmein	94	29·897	−·019	29·930	29·955	16th	29·858	3rd	·097	71·5	92·1	+ 0·9	68·6	+1·4	80·3	+1·2	23·5	96·5	26th	62·9	2nd	33·6
	Tounghoo	181	29·801	−·015	29·931	29·851	16th	29·760	3rd	·091	65·4	90·3	−0·4	60·7	−0·2	75·6	−0·3	29·6	95·7	27th	52·1	5th & 6th.	43·6
Lower Burma	Rangoon	41	29·947	−·024	29·926	29·999	16th	29·906	3rd	·093	68·5	93·7	+1·5	65·0	+0·1	79·4	+0·8	28·7	98·6	26th	57·2	3rd	41·4
	Bassein	27	29·980?	−·002?	29·943	30·047	16th	29·929	3rd	·118	70·6	90·9	+1·6	63·9	+0·2	77·4	+0·9	27·0	94·7	24th	55·0	5th	39·7
	Diamond Island.	41	29·958	−·021	29·934	30·029	16th	29·912	3rd	·117	75·2	82·2	?−1·8	71·1	?−1·0	76·7	?−1·4	11·1	86·1	14th	66·9	6th	19·2
Arrakan	Akyab	20	29·997	−·015	29·960	30·064	16th	29·954	7th	·110	65·6	84·2	−0·3	59·1	−1·7	71·7	−1·0	25·1	88·2	15th	49·2	4th & 5th	39·0
II.—Burma, Inland		...	...	+ ·004	...	...	...	...	...	...	...	84·9	− 0·2	53·8	+ 1·1	69 4	+ 0·5	31·2	...	...	...	...	46·5
Central Burma	Thayetmyo	134	29·860?	+·004?	29·941	29·906	16th	29 809	3rd	·097	67·8	92·1	−0·2	56·7	+1·1	74·4	+0·5	35·4	96·7	3 days	45·9	2 days	50·8
Upper Burma	Mandalay	?	29·731	?	?	29·796	16th	29·649	18th	·147	66·8	90·3	?	54·8	?	72·6	?	35·5	96·5	22nd	46·6	5th	49·9
	Kendat	?	29·608	?	?	29·701	11th	29·497	18th	·204	56·4	78·6	?	51·6	?	65·1	?	27·0	85·3	20th	44·0	3 days	41·3
	Bhamo	?	29·604	?	?	29·694	11th	29·519	18th	·175	58·2	78·7	?	52·0	?	65·4	?	26·7	85·0	2 days	40·9	5th	44·1
III.—Assam		...	...	+ ·015	...	...	...	...	...	...	...	72·0	− 4·4	53·3	− 0·7	62·7	− 2·6	18·7	...	...	...	...	33·9
Assam (Surma)	Silchar	104	29·957	+·021	30·018	30·028	16th	29·905	19th	·123	59·2	75·9	−3·8	53·7	−1·2	64·8	−2·5	22·2	81·4	28th	43·4	3rd	38·0
Brahmaputra	Sibsagar	333	29·721	+·005	30·029	29·823	11th	29·650	19th	·173	55·8	69·2	−3·3	53·1	+0·1	61·1	−1·6	16·1	77·9	28th	43·9	3rd	34·0
	Dhubri	115	29·932	+·019	30·009	30·028	16th	29·846	19th	·182	56·0	71·0	−6·1	53·2	−1·1	62·1	−3·6	17·8	76·8	13th & 28th.	47·1	2nd	29·7
IV.—Bengal and Orissa		...	...	+ ·021	...	...	...	...	...	...	...	74·4	− 7·3	55·8	− 2·1	65·2	− 4·8	18·6	...	...	...	...	34·7
East Bengal	Chittagong	87	29·957	+·010	29·996	30·037	16th	29·899	7th	·138	62·3	79·0	−2·3	57·0	−1·4	68·1	−1·9	22·0	83·7	14th	46·6	3rd	37·1
	Noakhali	43	30·015	?	30·007	30·092	16th	29·948	13th	·144	62·1	76·0	?	54·0	?	65·1	?	22·0	80·6	14th	42·0	2nd	38·6
	Comilla	35	30·014	?	29·998	30·089	16th	29·941	14th	·148	60·0	76·0	?	53·5	?	64·7	?	22·5	81·4	20th	43·1	2nd	38·3
	Sirajganj	46	30·000	?	29·998	30·083	16th	29·932	18th	·151	57·1	71·6	?	50·9	?	61·2	?	20·7	77·7	13th	40·0	2nd	37·7
	Dacca	22	30·026	+·020	29·997	30·109	16th	29·953	7th	·156	59·1	74·6	−8·5	54·9	−2·8	64·5	−5·7	19·1	80·6	20th	46·2	3rd	34·4
	Barisal	13	30·040?	+·050?	29·996	30·104	27th	29·953	18th	·241	61·5	76·0	?	56·0	?	66·0	?	20·0	80·3	19th	46·1	2nd & 3rd	34·2
	Mymensingh	63	29 986	+·012	30·004	30·071	16th	29·912	18th	·159	57·1	71·9	?	52·3	?	62·1	?	19·6	77·8	20th	41·7	2nd	36·1
Deltaic Bengal	Faridpur	46	30·023	?	30·019	30·107	16th	29·947	7th & 18th	·160	59·5	†71·5	?	53·7	?	†63·4	?	17·8	73·5	10 days	43·0	3rd	30·5
	Jessore	33	30·022	+·027	30·002	30·113	16th	29·938	13th	·175	60·1	73·9	−9·5	54·3	−2·2	64·1	−5·9	19·6	78·7	3 days	43·4	3rd	35·3
	Calcutta	21	30·034	+·020	30·002	30·131	16th	29·927	7th	·204	61·4	74·2	−7·6	56·5	−3·4	65·4	−5·5	17·7	80·7	18th	46·7	2nd	34·0
	Saugor Island	25	30·025	+·022	29·994	30·116	10th & 16th	29·915	7th	·201	63·8	75·4	−5·7	60·0	−5·0	67·7	−5·4	15·4	80·7	8th	51·2	3 days	29·9
	Krishnagar	47	30·013	?	30·012	30·100	16th	29·917	13th	·183	60·0	73·7	?	53·3	?	63·5	?	20·4	81·4	7th	41·3	2nd	40·1
	Midnapore	149	29·912	?	30·015	30·007	16th	29·804	17th	·203	62·9	76·6	?	57·6	?	67·1	?	19·0	85·3	7th & 18th	50·2	4 days	35·1
Central Bengal	Bankura*	298	29·731	?	29·995	29·808	10th & 16th	29·626	7th	·182	59·9	73·9	?	56·0	?	64·9	?	17·9	83·1	18th	48·3	10th & 11th.	34·8
	Raniganj	331	29·722	?	30·026	29·809	11th	29·610	7th	·199	58·7	72·2	?	54·5	?	63·4	?	17·7	81·7	13th	46·2	6th	35·5
	Burdwan	99	29·968	+·033	30·020	30·056	10th	29·865	7th	·191	59·4	73·7	−9·7	56·2	−1·9	65·0	−5·8	17·5	81·5	7th & 13th	46·1	2 days	35·4

* Mean of 27 days.
† " " 23 "

I.

Stations in India, Burma, etc., in February 1893.

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 1893.	Normal rainfall for period 1st January to 28th February 1893.	Variation from normal of period 1st January to 28th February.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·30	0·46	—0·15	...	...	...	**I.—Burma Coast and Bay Islands.**	
5	9	5	2	1	...	...	1	5	5	5	0	82	·776	2·6	0	?	?	0	1·17	— 1·17	0·77	1·98	— 2·20	Port Blair	Bay Islands.
1	10	9	8	0	0	0	0	0	4	?	?	72	·784	5·5	1	?	?	0·21	?	?	2·20	?	?	Camorta	
...	10	4	1	...	1	2	...	10	2	2	0	83	·776	4·5	3	?	?	1·67	1·43	+ 0·24	2·00	0·24	— 0·04	Mergui	Tenasserim.
28	...	...	...	...	...	...	...	...	2	?	?	89	·690	0	1	?	?	1·07	0·53	+ 0·54	1·54	0·69	+ 0·85	Tavoy.	
2	...	11	6	4	2	2	...	1	3	2	+50	84	·649	0	0	0·45	—0·45	0	0·15	— 0·15	0	0·15	— 0·15	Moulmein.	
10	15	2	...	1	...	...	...	...	2	2	0	88	·563	0·7	0	0·36	—0·36	0	0·17	— 0·17	0	0·26	— 0·26	Tounghoo.	
...	1	1	...	1	4	9	9	3	3	4	—25	84	·590	0·8	0	0·45	—0·45	0	0·11	— 0·11	0	0·29	— 0·29	Rangoon	Lower Burma.
4	...	1	...	1	...	...	...	22	5	4	+25	85	·646	2·0	0	0·45	—0·45	0	0·32	— 0·32	0	0·39	— 0·39	Bassein.	
...	15	2	1	...	...	...	...	10	12	7	+71	76	·659	2·9	0	0·40	—0·40	0	0·10	— 0·10	0	0·34	— 0·34	Diamond Island.	
...	16	10	...	...	...	...	...	2	4	3	+33	79	·512	0	0	0·36	—0·36	0	0·13	— 0·13	0	0·24	— 0·24	Akyab	Arrakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·10	0·11	—0·01	...	...	...	**II.—Burma, Inland.**	
...	7	...	...	1	1	2	5	12	3	4	—25	52	·428	0	0	0	0	0	0	0	0	0	0	Thayetmyo	Central Burma.
11	6	...	...	4	5	1	...	1	3	?	?	67	·440	0·6	0	?	?	0	0·02	— 0·02	0	0·28	— 0·28	Mandalay	Upper Burma.
13	2	...	...	...	...	1	6	6	2	?	?	95	·439	6·2	0	?	?	0·09	0·13	— 0·04	0·38	1·07	— 0·69	Kendat.	
2	...	9	...	1	...	3	...	13	?	?	?	84	·408	3·6	1	?	?	0·31	0·28	+ 0·03	1·91	2·37	— 0·46	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·48	1·23	+0·25	...	...	...	**III.—Assam.**	
27	...	...	...	...	...	...	...	...	2	3	—33	90	·454	4·4	6	3·91	+2·09	2·26	1·77	+ 0·49	4·04	2·48	+ 1·56	Silchar†	Assam (Surma).
11	1	9	...	3	1	2	1	...	1	2	—50	97	*·433	5·8	6	4·55	+1·45	1·67	1·59	+ 0·08	5·41	3·04	+ 2·37	Sibsagar	Brahmaputra.
9	4	2	5	1	...	7	...	...	4	4	0	87	·391	4·6	2	0·71	+1·29	0·52	0·34	+ 0·18	1·05	0·63	+ 0·42	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·21	0·92	+2·39	...	...	...	**IV.—Bengal and Orissa.**	
9	4	8	2	1	...	...	...	4	2	4	—50	87	·492	3·8	3	1·55	+1·45	1·07	0·97	+ 0·10	1·13	1·49	— 0·36	Chittagong	East Bengal.
3	16	4	2	1	...	...	...	2	4	?	?	84	·469	1·9	4	1·60	+2·40	1·33	0·91	+ 0·42	1·48	1·53	— 0·05	Noakhali.	
8	9	2	3	1	1	3	...	1	2	?	?	84	·410	3·3	8	2·00	+6·00	2·40	0·87	+ 1·53	2·93	1·55	+ 1·38	Comilla.	
...	3	2	3	2	1	3	8	6	1	?	?	90	·426	3·7	8	1·47	+6·53	3·95	1·01	+ 2·94	4·60	1·46	+ 3·14	Sirajganj.	
7	6	4	3	2	1	...	1	4	3	3	0	84	·426	3·8	6	1·91	+4·09	3·38	1·29	+ 2·09	3·84	1·57	+ 2·27	Dacca.	
20	2	3	1	...	...	...	...	2	3	?	?	88	·490	4·7	7	1·75	+5·25	4·26	1·08	+ 3·18	4·42	1·88	+ 2·54	Barisal.	
5	1	3	4	3	...	...	6	6	3	?	?	87	·412	3·8	5	1·30	+3·70	3·30	1·00	+ 2·30	3·87	1·38	+ 2·49	Mymensingh.	
16	7	...	2	...	1	...	1	1	2	?	?	86	·448	4·0	7	2·05	+4·95	5·63	1·41	+ 4·22	5·82	1·75	+ 4·07	Faridpur	Deltaic Bengal.
6	8	2	2	4	1	1	...	4	3	2	+50	85	·451	5·1	7	2·00	+5·00	4·12	1·13	+ 2·95	4·62	1·63	+ 2·99	Jessore.	
12	9	4	1	...	2	...	...	...	3	4	—25	83	·464	4·5	7	1·64	+5·36	4·30	1·18	+ 3·12	5·00	1·68	+ 3·32	Calcutta.	
...	9	11	5	...	1	...	...	2	10	8	+25	80	·528	4·6	7	2·00	+5·00	2·29	1·26	+ 1·03	2·86	1·52	+ 1·34	Saugor Island.	
...	5	3	4	2	...	...	6	8	4	?	?	79	·416	4·4	8	1·55	+6·45	6·51	1·04	+ 5·47	6·83	1·34	+ 5·49	Krishnagar.	
2	18	5	...	1	1	1	...	...	*9	?	?	73	·431	4·3	6	1·40	+4·60	4·35	0·89	+ 3·46	4·70	1·50	+ 3·20	Midnapore.	
10	2	3	...	3	...	...	3	7	2	?	?	77	·407	4·5	6	1·75	+4·25	4·36	0·87	+ 3·49	5·53	1·24	+ 4·29	Bankura	Central Bengal.
8	7	4	2	...	...	1	...	6	2	?	?	77	·384	2·2	9	1·35	+7·65	4·49	1·19	+ 3·30	4·94	1·52	+ 3·42	Raniganj.	
21	3	...	2	...	...	1	...	1	1	2	—50	73	·385	5·6	8	1·64	+6·36	5·51	0·82	+ 4·69	6·32	0·96	+ 5·36	Burdwan.	

* Mean of 27 days.
† Wind directions for 27 days.

Table

Abstract of Observations taken at 8 A.M. at 186 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 Bengal —*contd.*	Naya Dumka	489	29·550	?	30·030	29·647	16th	29·449	7th	·198	57·1	71·3	?	52·3	?	61·8	?	19·0	79·6	13th	44·0	2nd	35·6
	Berhampore	67	29·990	+·024	30·009	30·076	16th	29·904	14th	·172	56·8	72·2	−10·0	54·2	−1·6	63·2	−5·8	18·0	78·6	13th	43·1	2nd	35·5
	Rampur Boalia.*	70	29·983	?	30·007	30·058	16th	29·900	7th	·158	59·2	71·8	?	51·8	?	61·8	?	20·0	78·6	13th	40·7	2nd	37·9
	Malda	80	29·982	?	30·019	30·075	11th	29·890	19th	·185	56·7	72·7	?	?	?	?	?	?	78·6	19th	?	...	?
	Bogra	61	29·977	+·043	29·995	30·045	11th	29·920	19th	·125	57·2	72·8	?	50·9	?	61·9	?	21·9	79·3	13th	41·2	3rd	38·1
North Bengal	Dinajpur	118	25·930	+·021	30·009	30·016	16th	29·842	4th	·174	55·7	71·9	?	50·8	?	61·4	?	21·1	78·6	2 days	41·0	2nd	37·6
	Rangpur	123	29·925	?	30·010	30·010	16th	29·841	4th	·169	55·2	71·5	?	49·5	?	60·5	?	22·0	77·7	19th	40·6	2nd	37·1
	Jalpaiguri	284	29·767	+·042	30·023	29·862	16th	29·662	4th	·200	54·5	70·2	?	49·7	?	60·0	?	20·5	76·4	13th	42·1	2nd	34·3
Orissa	Balasore	56	29·997	+·023	30·001	30·089	10th	29·882	7th	·207	63·5	77·0	?	58·6	?	67·8	?	18·4	84·4	8th & 18th	49·4	11th	35·0
	False Point	21	30·020	+·007	29·983	30·100	10th	29·937	7th	·163	69·4	78·0	−4·7	64·2	−0·2	71·1	−2·5	13·8	82·9	3 days	51·0	12th	31·9
	Cuttack	80	29·956	+·012	29·982	30·049	27th	29·858	7th	·191	68·5	81·9	?−8·3	65·0	−0·1	73·5	?−4·2	16·9	88·1	19th	57·3	11th	30·8
	Shortt's Island	?	30·027	?	?	30·111	10th	29·941	7th	·170	71·0	75·8	?	*68·0	?	71·9*	?	7·8	81·8	20th	62·7	11th	19·1
	Puri	15	30·011	?	29·966	30·093	10th	29·906	14th	·187	70·5	80·9	?	67·5	?	74·2	?	13·4	90·7	25th	59·1	10th	31·6
V.—Gangetic Plain and Chota Nagpur.		...	...	+·026	...	...	...	...	...	...	...	70·1	−8·9	49·7	−2·6	60·0	−5·8	20·4	...	...	...	...	35·5
Chota Nagpur	Hazaribagh	2,007	27·974	+·005	30·023	28·048	16th	27·876	7th	·172	55·1	69·3	−8·5	49·3	−4·6	59·3	−6·6	20·0	80·7	18th	41·1	10th	39·6
	Ranchi	2,128	27·842	?	30·012	27·920	16th	27·754	7th	·166	54·7	68·6	?	49·9	?	59·3	?	18·7	78·0	7th	42·4	10th	35·6
	Chaibassa	760	29·259	+·029	30·005	29·346	11th	29·149	7th	·197	59·8	75·9	?	56·1	?	66·0	?	19·8	83·9	6th	47·2	2nd	36·7
Bihar (South)	Gaya	375	29·672	+·026	30·025	29·762	16th	29·553	7th	·209	55·8	72·5	−9·2	51·2	−4·6	61·9	−6·9	21·3	81·2	19th	43·8	2nd	37·4
	Dehri	351	29·689	?	30·016	29·775	10th	29·600	17th	·175	57·6	72·0	?	52·1	?	62·1	?	19·9	78·3	22nd	45·0	2nd & 11th	33·3
	Patna	183	29·882	+·033	30·028	29·980	16th	29·788	4th	·192	56·7	69·9	−8·3	50·3	?−2·0	60·1	?−5·2	19·6	84·0	13th	40·7	1st & 2nd	43·3
	Arrah	190	29·859	?	30·014	29·961	16th	29·762	17th	·202	54·4	70·7	?	49·8	?	60·3	?	20·9	76·7	27th	42·0	2nd	34·7
	Buxar	239	29·787	?	29·989	29·902	16th	29·704	7th	·198	54·0	70·1†	?	48·7	?	60·8†	?	21·4	77·6	22nd	42·4	2nd	35·2
Bihar (North)	Purnea	125	29·925	+·033	30·013	30·015	11th & 16th	29·819	4th	·196	52·7	71·0	−8·1	49·3	−1·4	60·2	−4·8	21·7	77·2	13th & 19th	41·3	3rd	35·9
	Bhagalpur	160	29·888	?	30·010	29·986	16th	29·792	4th	·194	57·2	71·0	?	51·2	?	61·1	?	19·8	78·3	13th	42·5	2nd	35·8
	Darbhanga	166	29·890	+·034	30·020	30·016	16th	29·782	4th	·234	55·1	69·6	−6·6	52·0	−1·4	60·8	−4·1	13·4	75·0	19th	44·6	2nd & 3rd	30·4
	Muzaffarpur	178	29·878	?	30·022	29·997	16th	29·780	4th	·217	53·5	68·7	?	50·2	?	59·4	?	18·5	74·2	19th	42·2	2nd	32·0
	Motihari	224	29·805	?	30·003	29·913	16th	29·688	4th	·225	53·3	69·8	?	48·0	?	59·0	?	21·8	75·2	3 days	39·0	1st & 2nd	36·2
	Chapra	181	29·872	?	30·019	29·984	16th	29·768	7th	·216	53·9	69·9	?	50·4	?	60·1	?	19·5	75·3	22nd	42·9	1st	32·4
N.-W. P. (Eastern Districts).	Benares	267	29·785	+·027	30·027	29·873	9th	29·667	7th	·206	53·1	70·4	−10·4	48·5	−2·9	59·5	−6·7	21·9	77·6	22nd	40·4	2nd & 9th	37·2
	Allahabad	309	29·741	+·020	30·028	29·844	9th	29·623	7th	·221	53·8	71·7	−8·1	48·2	−2·7	60·0	−5·4	23·5	78·0	22nd	40·4	2nd & 9th	37·6
N.-W. P. (East Submontane).	Gorakhpur	256	29·781	+·031	30·014	29·864	9th	29·683	7th	·181	54·6	67·9	−10·6	49·6	−2·1	58·8	−6·4	18·3	74·5	22nd	42·3	2nd	32·2
Oudh (South)	Lucknow	375	29·662	+·023	30·028	29·752	9th	29·570	13th	·182	52·1	68·5	−10·2	47·8	−2·2	58·1	−6·3	20·7	73·4	4 days	40·0	2nd	33·4
Oudh (North)	Bahraich	403	29·624	?	30·019	29·704	9th	29·540	4th	·164	51·8	67·3	?	46·9	?	57·1	?	20·4	74·4	18th	38·1	2nd	36·3
N.-W. Provinces (Central).	Cawnpore	416	29·644	?	30·051	29·744	9th	29·528	13th	·216	52·6	68·7	?	46·5	?	57·6	?	22·2	74·6	22nd	39·0	2nd	35·6
	Mainpuri	516	29·512	?	30·026	29·625	9th	29·402	22nd	·223	50·6	67·6	?	46·2	?	56·9	?	21·4	73·3	21st & 28th	38·5	1st	34·8
VI.—Upper Sub-Himalayas		...	...	+·023	...	...	...	...	...	...	...	61·0	10·6	43·7	−2·4	52·3	−6·5	17·3	..	...	...	...	32·9
N.-W. Provinces (Submontane).	Bareilly	568	29·441	+·022	30·017	29·525	9th	29·365	13th	·160	49·9	64·3	−10·9	46·5	−2·2	55·4	−6·6	17·8	70·7	21st & 28th	36·7	2nd	34·0
	Dehra Dun	2,233	27·731	+·005	30·051	27·825	28th	27·639	13th	·186	46·1	60·3	−8·6	42·8	−4·0	51·6	−6·3	17·5	68·5	28th	36·0	1st	32·5
	Roorkee	887	29·112	+·020	30·035	29·194	28th	29·008	13th	·186	47·7	63·0	−10·5	45·4	−1·7	54·3	−6·1	17·6	70·8	28th	36·9	1st	33·9
	Meerut	738	29·285	+·030	30·047	29·387	9th	29·161	13th	·226	48·8	63·8	−11·0	45·0	−2·4	54·4	−6·7	18·8	70·2	12th & 21st	36·0	9th	34·2
Punjab (Central)	Delhi	718	29·306	+·023	30·043	29·391	28th	29·177	13th	·214	49·2	63·6	?−12·0	47·0	?−4·7	55·3	?−8·4	16·6	68·6	12th	39·6	9th	29·0
	Lahore	702	29·327	+·025	30·060	29·444	9th	29·097	13th	·347	46·3	60·9	−9·8	41·4	−2·2	51·2	−6·0	19·5	69·8	28th	33·2	3rd & 9th	36·6

* Mean of 27 days.
† " " 25 "

I—*continued.*

in India, Burma, etc., in February 1893—continued.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									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 January to 28th February 1893.	Normal rainfall for period, 1st January to 28th February 1893.	Variation from normal of period 1st January to 28th February 1893.		
5	3	...	4	1	...	...	5	10	2	?	?	79	·373	3·5	7	1·44	+5·56	2·98	0·72	+ 2·26	3·78	1·30	+ 2·48	Naya Dumka.	Central Bengal—*contd.*
5	2	1	4	...	2	6	7	1	2	2	0	91	·418	4·2	6	1·73	+4·27	4·06	1·11	+ 2·95	4·90	1·45	+ 3·45	Berhampore.	
6	5	3	1	3	...	7	1	1	3	?	?	82	·422	3·7	7	1·35	+5·65	4·09	0·79	+ 3·30	4·39	1·19	+ 3·20	Rampur Boalia.*	
...	...	5	...	2	1	10	...	10	4	?	?	72	·338	3·1	6	1·10	+4·90	3·10	0·52	+ 2·58	3·25	0·95	+ 2·30	Malda.	
10	...	4	2	1	...	1	8	2	2	?	?	82	·394	3·9	4	1·35	+2·65	3·03	0·78	+ 2·25	3·31	1·34	+ 1·97	Bogra.	
...	3	2	2	2	1	3	13	2	3	?	?	84	·376	4·3	3	1·25	+1·75	1·13	0·50	+ 0·63	1·86	0·93	+ 0·93	Dinajpur .	North Bengal.
2	...	2	6	1	1	...	15	1	2	?	?	89	·391	1·5	4	1·00	+3·00	1·12	0·39	+ 0·73	2·23	0·97	+ 1·26	Rangpur.	
12	3	4	3	1	1	...	4	...	2	?	?	89	·378	4·9	2	1·05	+0·95	1·01	0·32	+ 0·69	1·57	0·81	+ 0·76	Jalpaiguri.	
1	10	9	1	...	1	1	1	4	4	?	?	84	·500	3·0	7	2·20	+4·80	4·11	1·35	+ 2·76	5·05	1·83	+ 3·22	Balasore .	Orissa.
...	9	4	1	3	1	1	5	4	10	7	+43	86	·629	4·9	3	1·55	+1·45	1·27	0·84	+ 0·43	4·85	1·42	+ 3·43	False Point.	
11	1	8	6	...	...	2	...	...	3	2	+50	73	·521	5·1	3	1·36	+1·64	2·27	0·59	+ 1·68	4·16	0·73	+ 3·43	Cuttack.	
...	3	12	2	2	2	3	4	...	13	?	?	78	·598	4·4	1	?	?	0·55	?	?	1·23	?	?	Shortt's Island	
1	5	10	2	...	1	6	1	2	10	?	?	81	·615	3·4	3	1·20	+1·80	3·09	0·86	+ 2·23	5·27	1·11	+ 4·16	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·14	0·40	+1·73	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
...	2	1	1	1	7	3	5	8	9	7	+ 29	72	·317	5·5	8	1·45	+6·55	3·75	0·53	+ 3·22	5·12	1·18	+ 3·94	Hazaribagh.	Chota Nagpur.
8	3	1	2	1	2	1	3	7	7	?	?	80	·348	4·5	8	1·94	+6·06	5·49	1·10	+ 4·39	6·20	1·74	+ 4·46	Ranchi.	
8	2	7	2	...	2	3	2	2	1	?	?	83	·435	5·3	8	1·35	+6·65	6·01	0·84	+ 5·17	6·54	1·57	+ 4·97	Chaibassa.	
...	...	...	8	4	6	4	6	...	5	3	+67	76*	·341*	4·5	6	0·73	+5·27	2·70	0·31	+ 2·39	3·16	0·93	+ 2·23	Gaya . .	Bihar (South).
...	...	4	2	4	4	8	5	1	3	?	?	74	·354	3·4	3	0·67	+2·33	1·80	0·20	+ 1·60	2·78	0·82	+ 1·96	Dehri.	
1	...	2	3	2	2	5	11	2	5	3	+ 67	77	·361	5·5	3	0·82	+2·18	1·63	0·37	+ 1·26	2·46	0·84	+ 1·62	Patna.	
...	1	2	3	2	2	3	12	3	3	?	?	84	·358	6·7	5	0·85	+4·15	2·50	0·45	+ 2·05	3·10	1·16	+1·94	Arrah.	
...	...	1	9	1	1	2	12	2	5	?	?	75	·353	4·9	7	1·10	+5·90	1·56	0·36	+ 1·20	2·22	1·15	+1·07	Buxar.	
15	1	1	1	...	...	5	5	...	2	2	0	90	·362	3·1	3	1·00	+2·00	1·31	0·57	+ 0·74	2·35	0·96	+1·39	Purnea .	Bihar (North).
21	...	...	1	...	...	4	2	...	1	?	?	77	·360	4·9	8	1·25	+6·75	3·24	0·48	+ 2·76	3·53	0·96	+2·57	Bhagalpur.	
2	1	4	2	3	...	6	9	1	4	4	0	86	·374	3·6	3	1·27	+1·73	0·73	0·50	+ 0·23	2·71	0·89	+1·82	Darbhanga.	
1	...	3	3	2	...	8	9	2	5	?	?	93	·384	3·9	3	1·26	+1·74	1·52	0·41	+ 1·11	3·73	1·20	+2·53	Muzaffarpur.	
5	...	4	4	2	...	5	7	1	6	?	?	89	·365	4·4	5	1·06	+3·94	1·90	0·35	+ 1·55	2·58	1·00	+1·58	Motihari.	
4	...	1	4	3	1	6	8	1	5	?	?	84	·359	4·5	5	0·80	+4·20	1·40	0·33	+ 1·07	2·68	0·99	+1·69	Chapra.	
3	2	3	3	1	...	8	5	...	4	4	0	86	·356	4·8	6	0·82	+5·18	1·21	0·20	+ 1·01	2·40	0·96	+1·44	Benares .	N.-W. P. (Eastern Districts).
2	2	2	4	1	3	5	6	3	6	3	+100	75	·318	4·5	2	0·64	+2·36	0·39	0·12	+ 0·27	1·95	1·01	+0·94	Allahabad.	
...	4	1	3	1	2	2	15	...	2	2	0	77	·338	3·6	5	0·73	+4·27	1·75	0·23	+ 1·52	3·02	0·86	+2·16	Gorakhpur .	N.-W. P. (East Submontane).
20	1	...	2	...	...	...	5	...	1	3	− 66	83	·318	5·1	4	0·55	+3·45	1·22	0·07	+ 1·15	4·59	1·26	+3·33	Lucknow.	Oudh (South).
...	3	2	4	4	1	1	6	7	4	?	?	92	·351	4·8	6	?	?	1·71	0·63	+ 1·08	3·29	1·49	+1·80	Bahraich .	Oudh (North).
5	2	4	2	2	2	3	3	5	4	?	?	84	·342	5·4	4	0·60	+3·40	1·21	0·27	+ 0·94	3·73	0·91	+2·82	Cawnpore .	N.-W. Provinces (Central).
9	...	3	...	...	...	...	2	14	1	?	?	83	·316	6·5	4	?	?	1·86	0·15	+ 1·71	2·77	0·76	+2·01	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·84	0·98	+ 2·86	...	...	...	**VI.—Upper Sub-Himalayas.**	
16	...	...	...	2	...	...	3	7	2	4	− 50	84	·307	5·9	4	1·18	+2·82	2·16	0·36	+ 1·80	4·40	1·54	+2·86	Bareilly .	N.-W. Provinces (Submontane).
26	...	...	...	...	...	...	1	1	1	2	− 50	85	·270	6·1	9	3·00	+6·00	6·05	1·54	+ 4·51	10·19	4·13	+6·06	Dehra Dun.	
19	1	...	...	2	...	...	1	5	2	3	−33	89	·301	6·0	7	2·09	+4·91	3·90	0·93	+ 2·97	5·68	3·02	+2·66	Roorkee.	
7	1	...	...	2	1	1	16	...	2	3	−33	78	·272	6·1	6	1·27	+4·73	2·36	0·59	+ 1·77	3·92	2·04	+1·88	Meerut.	
14	...	...	1	1	...	3	9	...	2	4	−50	80	·284	6·5	5	1·00	+4·00	2·11	0·41	+ 1·70	3·60	1·77	+1·83	Delhi . .	Punjab (Central).
17	...	...	1	1	1	...	5	3	2	2	0	90	·283	4·5	6	2·00	+4·00	3·13	0·90	+ 2·23	5·14	1·83	+ 3·31	Lahore.	

* Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 186 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.
Punjab (Submontane).	Umballa	962?	29·091	?	30·028	29·166	28th	28·966	13th	·200	48·2	61·6	?	?	?	?	?	?	70·0	12th	?	...	?
	Ludhiana	812	29·202	+·027	30·048	29·302	9th	29·003	13th	·299	47·5	59·4	−12·5	44·9	−1·2	52·2	−6·9	14·5	66·7	21st & 28th.	37·4	9th	29·3
Punjab (North)	Sialkot	830	29·188	+·038	30·059	29·291	9th	28·941	13th	·350	46·5	59·2	−10·5	42·5	−2·6	50·9	−6·6	16·7	68·5	28th	35·3	1st	33·2
	Rawalpindi	1,649	28·337	+·021	30·057	28·464	28th	28·115	13th	·349	41·1	54·1	−10·6	37·4	−3·1	45·8	−6·9	16·7	64·6	28th	30·9	3rd	33·7
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·018	...	...	...	...	...	...	...	65·6	−9·3	44·0	−3·3	54·8	−6·3	21·6	...	...	...	...	40·2
Punjab (West)	Peshawar	1,110	28·954	+·023	30·093	29·071	9th	28·740	13th	·331	41·9	58·1	−7·8	38·2	−3·2	48·2	−5·5	19·9	69·2	20th	31·9	3rd	37·3
	Khushab	612	29·444	?	30·082	29·570	9th	29·213	13th	·357	44·8	60·9	?	40·6	?	50·8	?	20·3	71·9	28th	33·1	8th	38·8
	Montgomery	558	29·494	?	30·069	29·632	9th	29·251	22nd	·381	46·8	62·5	?	40·7	?	51·6	?	21·8	75·3	28th	32·3	8th	43·0
	D. I. Khan	573	29·480	+·015	30·078	29·601	9th	29·280	13th	·321	44·4	62·1	−9·8	40·1	−4·0	51·2	−6·9	22·0	71·3	20th	32·0	9th	39·3
	Mooltan	420	29·651	+·027	30·077	29·781	9th	29·455	23rd	·326	48·8	64·5	−8·7	42·7	−3·1	53·6	−5·9	21·8	75·8	28th	35·1	9th	40·7
	Sirsa	662	29·372	+·023	30·056	29·507	9th	29·175	22nd	·332	46·5	63·4	−12·2	42·7	−3·1	53·1	−7·7	20·7	71·5	3 days	31·7	9th	39·8
Sind and Cutch	Jacobabad	186	29·901	+·022	30·061	30·021	9th	29·711	23rd	·310	51·8	67·4	−9·8	44·8	−2·7	56·1	−6·3	22·6	81·9	28th	34·5	7th	47·4
	Hyderabad	117	29·963	+·011	30·042	30·079	9th	29·823	22nd	·256	54·2	71·6	−8·4	50·7	−3·2	61·2	−5·8	20·9	81·1	28th	43·4	8th	37·7
	Kurrachee	49	30·027	+·005	30·030	30·165	9th	29·858	23rd	·307	56·8	71·3	−7·8	53·9	−3·6	62·6	−5·7	17·4	77·5	28th	45·1	8th	32·4
Rajputana (West)	Bickaneer	753	29·281	?	30·050	29·421	9th	29·071	22nd	·350	52·0	66·0	−9·4	?	?	?	?	?	75·1	21st	?	...	?
	Pachpadra	380	29·675	?	30·040	29·817	26th	29·508	22nd	·309	52·0	73·8	?	45·2	?	59·5	?	28·6	80·6	21st	35·0	8th	45·6
VIII.—East Rajputana, Central India and Guzerat.		...	...	+·017	...	...	...	...	...	...	...	74·7	−8·2	50·5	−3·4	62·6	−5·9	24·2	...	...	...	...	41·7
Rajputana (East)	Jeypore	1,431	28·590	+·008	30·070	28·727	9th	28·432	22nd	·295	51·8	68·4	−9·6	46·0	−3·9	57·2	−6·8	22·4	75·0	21st	36·7	9th	38·3
	Sambhar	1,254	28·745	?−·002	30·045	28·872	9th	28·580	22nd	·292	49·4	66·9	−9·6	45·2	−2·7	56·1	−6·2	21·7	73·9	6th	36·5	9th	37·4
	Ajmere	1,611	28·409	+·010	30·082	28·528	9th	28·231	22nd	·297	50·8	67·6	−9·9	47·1	?−0·9	57·4	?−5·4	20·5	73·9	21st	36·9	8th	37·0
	Deesa	466	29·567	+·008	30·018	29·673	25th	29·441	12th	·232	57·7	78·4	−7·0	50·3	−4·2	64·4	−5·6	28·1	85·1	28th	40·1	8th	45·0
Kathiawar	Rajkot	429	29·615	+·013	30·021	29·716	25th	29·502	23rd	·214	59·9	80·0	−7·6	50·7	−3·3	65·4	−5·5	29·3	87·9	4th	33·6	8th	54·3
	Veraval	?	30·031	?	29·991	30·114	7th	29·933	22nd & 23rd	·181	65·2	79·6	?	57·4	?	68·5	?	22·2	87·1	28th	40·3	8th	46·8
	Bhavnagar	?	30·024	?	30·012	30·140	25th	29·918	22nd	·222	60·7	78·4	?	55·8	?	67·1	?	22·6	86·4	22nd	45·0	8th	41·4
Central India	Nowgong	757	29·285	+·017	30·048	29·412	9th	29·150	13th	·262	54·4	72·5	−7·9	47·0	−3·0	59·8	−5·5	25·5	80·6	17th	36·6	9th	44·0
	Indore	1,823	28·175	+·006	30·034	28·279	9th	28·078	13th	·201	55·7	74·6	−7·9	47·7	−3·8	61·2	−5·9	26·9	83·5	22nd	37·5	9th	46·0
	Neemuch	1,630	28·382	+·013	30·058	28·489	9th	28·230	22nd	·259	53·3	72·9	−7·6	48·1	−3·2	60·5	−5·4	24·8	79·7	6th & 22nd.	38·9	9th	40·8
Guzerat	Surat	36	30·000	?+·001	29·980	30·098	25th	29·922	22nd	·176	63·5	84·5	−5·0	56·4	?−1·8	70·4	?−3·4	28·1	92·6	28th	47·7	8th	44·9
	Ahmedabad	?	29·891	?	30·025	30·009	25th	29·766	22nd	·243	62·9	80·3	?	56·4	?	68·4	?	23·9	87·2	28th	48·7	8th	38·5
N.-W. P. (West)	Agra	555	29·516	+·041	30·073	29·642	9th	29·381	22nd	·261	51·3	67·9	−10·6	48·5	−3·1	58·2	−6·9	19·4	74·1	21st	39·1	9th	35·0
	Jhansi	840	29·196	+·033	30·066	29·322	9th	29·059	13th	·263	55·3	73·1	−7·2	50·2	−3·7	61·7	−5·5	22·9	79·4	17th	44·9	8th & 10th.	34·5
IX.—Deccan	...	...	...	0	...	...	...	...	...	...	...	84·2	−5·6	57·5	−2·0	70·9	−3·8	26·6	...	...	...	...	43·4
Bombay (Deccan)	Belgaum	2,524	27·451	−·013	29·933	27·502	25th	27·424	4th	·078	68·0	86·6	−2·0	58·7	−0·7	72·7	−1·4	27·9	90·3	3 days	53·9	1st & 3rd	36·4
	Sholapur	1,590	28·401	−·008	29·965	28·457	25th	28·352	21st	·105	69·3	91·8	−1·9	61·2	−0·4	76·5	−1·2	30·6	97·7	17th & 22nd.	55·6	1st	42·1
	Poona	1,840	28·158	+·002	30·000	28·219	25th	28·109	13th & 21st	·110	62·8	88·2	−2·4	54·1	−3·2	71·2	−2·8	34·1	93·5	19th	46·5	8th & 9th	47·0
	Bijapur	1,994?	28·038	?	?	28·094	25th	27·992	21st	·102	69·5	89·1	?	61·6	?	75·4	?	27·5	93·2	19th	54·1	4th	39·1
Khandesh	Malegaon	1,430	28·583	+·010	30·020	28·669	9th	28·497	22nd	·172	61·5	84·0	−5·6	53·0	−1·9	68·5	−3·8	31·0	91·4	17th	40·3	8th	51·1
	Ahmednagar	2,152	27·842	?	29·995	27·906	25th	27·782	22nd	·124	62·6	84·9	?	51·4	?	68·1	?	33·5	90·8	19th & 22nd.	42·9	8th & 9th	47·9
Berar	Akola	930	29·052	?−·017	29·970	29·161	9th	28·948	22nd	·213	61·5	84·0	−6·2	54·7	−1·8	69·4	−4·0	29·3	93·4	23rd	40·2	9th	53·2
	Amraoti	1,215	28·774	0	29·987	28·856	9th	28·664	22nd	·192	62·6	83·9	−5·9	57·6	−3·1	70·8	−4·5	26·3	91·9	22nd	46·9	8th & 9th	45·0

I—*continued.*

in India, Burma, etc., in February 1893—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 1893.	Normal rainfall for period, 1st January to 28th February 1893.	Variation from normal of period, 1st January to 28th February 1893.	Station.	Meteorological Province or District.
6	...	1	...	3	...	1	...	17	2	?	?	91	·307	5·4	6	?	?	3·51	1·05	+ 2·46	7·40	2·20	+ 5·20	Umballa .	Punjab (Submontane).
13	1	...	...	1	1	...	10	2	2	2	0	87	·289	5·6	9	1·82	+7·18	4·98	0·94	+ 4·04	8·07	2·72	+ 5·35	Ludhiana .	
21	2	...	4	...	...	...	1	...	2	2	0	84	·269	3·4	6	2·45	+3·55	5·76	1·31	+ 4·45	12·19	3·11	+ 9·08	Sialkot .	Punjab (North).
12	...	6	...	1	...	1	6	2	1	2	− 50	91	·237	4·9	8	3·18	+4·82	4·44	1·79	+ 2·65	11·06	4·47	+ 6·59	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·07	0·39	+0·68	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
7	1	...	1	1	7	7	1	3	3	3	0	80	·215	5·1	3	2·00	+1·00	0·71	0·93	− 0·22	3·88	2·56	+ 1·32	Peshawar .	Punjab (West).
22	2	1	...	1	...	...	1	1	2	?	?	81	·246	3·3	2	1·70	+0·30	0·88	0·76	+ 0·12	3·86	1·28	+ 2·58	Khushab .	
17	4	2	1	...	1	...	2	1	2	?	?	82	·268	4·8	5	1·10	+3·90	0·96	0·63	+ 0·33	2·76	0·87	+ 1·89	Montgomery.	
14	1	3	1	...	...	1	3	5	2	2	0	73	·216	3·3	2	0·91	+1·09	0·63	0·32	+ 0·31	1·86	0·80	+ 1·06	D. I. Khan.	
6	2	4	1	6	...	7	2	...	2	2	0	75	·267	4·0	3	1·00	+2·00	1·00	0·36	+ 0·64	2·49	0·75	+ 1·74	Mooltan.	
17	4	...	3	1	...	...	3	...	2	3	− 33	86	·275	5·5	6	0·55	+5·45	1·42	0·21	+ 1·21	2·84	1·13	+ 1·71	Sirsa.	
7	1	5	6	3	...	1	2	3	4	3	+ 33	70	·269	3·6	5	1·00	+4·00	1·54	0·31	+ 1·23	1·84	0·54	+ 1·30	Jacobabad .	Sind and Cutch.
1	11	6	1	...	...	1	...	8	5	7	− 29	74	·304	2·2	4	0·30	+3·70	0·97	0·26	+ 0·71	1·24	0·72	+ 0·52	Hyderabad.	
...	3	24	1	...	...	...	...	...	12	11	− 9	81	·383	3·0	8	0·36	+7·64	2·94	0·22	+ 2·72	4·21	0·83	+ 3·38	Kurrachee.	
1	5	7	1	2	...	3	5	4	4	4	0	68	·260	4·6	2	?	?	0·46	0·21	+ 0·25	1·27	0·45	+ 0·82	Bickaneer .	Rajputana (West).
20	1	4	1	...	...	...	...	2	4	3	+ 33	59	·230	4·6	1	?	?	0·25	0·09	+ 0·16	0·80	0·46	+ 0·34	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·36	0·17	+0·25	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
6	4	3	5	2	1	...	2	5	5	4	+ 25	69	·271	4·9	1	0·60	+0·40	0·66	0·17	+ 0·49	1·73	0·70	+ 1·03	Jeypore .	Rajputana (East).
5	9	9	1	1	2	...	...	1	6	5	+ 20	72	·263	4·1	2	0·55	+1·45	0·54	0·11	+ 0·43	1·40	0·47	+ 0·93	Sambhar.	
10	2	8	1	1	3	1	1	1	4	3	+ 33	74	·275	3·6	3	0·64	+2·36	0·67	0·27	+ 0·40	2·20	0·60	+ 1·60	Ajmere.	
...	11	8	1	...	2	2	3	11	9†	9	0	52	·254	3·5	1	0·27	+0·73	0·19	0·16	+0·03	0·22	0·22	0	Deesa.	
5	1	11	5	2	1	1	...	2	6	6	0	62	·340	1·3	1	0·10	+0·90	0·27	0·09	+ 0·18	0·47	0·12	+ 0·35	Rajkot .	Kathiawar.
3	13	11	...	...	...	...	...	1	8	?	?	57	·369	2·2	0	?	?	0·05	?	?	0·05	?	?	Veraval.	
...	4	...	...	...	1	10	3	10	10	?	?	75	·409	1·6	1	?	?	0·16	?	?	0·16	?	?	Bhavnagar.	
1	4	2	7	...	...	1	9	4	2	2	0	65	·279	4·0	1	0·73	+0·27	0·30	0·25	+ 0·05	0·99	1·02	− 0·03	Nowgong. .	Central India.
10	8	3	1	1	1	2	2	...	3	3	0	61	·277	2·3	0	0·55	−0·55	0·23	0·20	+ 0·03	0·56	0·36	+ 0·20	Indore.	
4	1	17	2	1	1	2	...	...	7	9	− 22	58	·246	1·5	2	0·55	+1·45	0·50	0·23	+ 0·27	0·69	0·37	+ 0·32	Neemuch.	
...	9	3	...	...	...	6	1	9	?	5	?	65	·401	1·2	1	0	+1·00	0·10	0	+ 0·10	0·10	0·07	+0·03	Surat . .	Guzerat.
1	10	7	4	1	...	...	1	3	3	?	?	50	·294	1·9	1	?	?	0·24	?	?	?	?	?	§Ahmedadad.	
2	1	2	..	5	...	4	...	14	5	4	+ 25	77	·294	6·0	2	0·36	+1·64	0·65	0·05	+ 0·60	1·17	0·66	+ 0·51	Agra . .	N.-W. P. (West).
9	1	2	1	1	1	4	1	8	2	3	− 33	62	·277	3·3	3	1·09	+1·91	0·50	0·29	+ 0·21	1·45	0·86	+ 0·59	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·59	0·14	+0·31	...	...	...	**IX.—Deccan.**	
11	5	6	2	1	...	...	...	3	?	10	?	48	·331	0·5	0	0·09	−0·09	0	0	0	0	0·07	− 0·07	Belgaum .	Bombay (Deccan).
6	3	6	2	3	1	...	2	5	7	7	0	45	·329	1·1	0	0·09	−0·09	0	0	0	0·07	0·20	− 0·13	Sholapur.	
17	...	...	2	3	...	...	1	5	8	6	+ 33	52	·306	0·4	0	0	0	0	0	0	0	0·07	− 0·07	Poona.	
1	1	4	2	2	...	1	3	14	4	?	?	43	·315	0·7	0	0·10	−0·10	0	0·01	− 0·01	0	0·07	− 0·07	Bijapur.	
1	5	5	...	...	...	1	9	7	6	5	+ 20	66	·369	1·3	0	0·18	−0·18	0	0·07	− 0·07	0·15	0·39	− 0·24	Malegaon .	Khandesh.
5	7	5	...	1	1	1	1	7	5	?	?	66	·386	0·6	0	?	?	0	0·07	− 0·07	0	0·63	− 0·63	Ahmednagar.	
7	1	3	5	4	1	1	3	3	5	4	+ 25	57	·314	2·0	1	0·18	+0·82	0·68	0·06	+ 0·62	3·11	0·57	+ 2·54	Akola . .	Berar.
1	2	10	10	...	...	2	3	...	6	4	+ 50	51	·297	1·4	1	0·27	+0·73	0·72	0·08	+ 0·64	3·64	0·42	+ 3·22	Amraoti.	

§ Wind directions for 27 days. † Mean of 25 days.

Table

Abstract of Observations taken at 8A.M. at 186 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Provinces (West).	Khandwa	1,044	28·954	+·004	30·008	29·058	9th	28·836	22nd	·222	56·9	81·3	−7·3	51·8	−3·0	66·6	−5·2	29·5	90·7	17th	39·2	10th	51·5
	Hoshangabad	1,020	28·997	−·004	30·028	29·106	9th	28·879	22nd	·227	57·7	77·4	−7·8	52·8	−2·0	65·1	−4·9	24·6	87·8	17th	43·8	10th	44·0
	Nagpur	1,025	28·981	+·011	29·998	29·095	9th	28·852	22nd	·243	64·5	82·5	−6·8	57·2	−2·0	69·9	−4·4	25·3	91·8	17th	46·7	9th	45·1
Central Provinces (Central).	Sironcha	401	29·622	?	29·979	29·684	1st	29·539	19th	·145	72·8	90·3	?	65·9	?	78·1	?	24·4	98·0	3rd	55·1	10th	42·9
	Chanda	634	29·366	?	29·971	29·475	9th	29·265	13th	·210	65·1	86·2	?	58·6	?	72·5	?	27·6	93·7	21st	45·3	10th	48·4
	Seoni	2,030	27·948	−·015	30·025	28·044	9th	27·827	22nd	·217	59·0	76·6	−7·5	51·5	−3·6	64·1	−5·6	25·1	83·6	17th	39·1	10th	44·5
	Jubbulpore	1,327	28·676	+·009	30·030	28·797	9th	28·546	13th	·251	55·3	74·4	−7·5	49·2	−2·4	61·8	−5·0	25·2	85·9	17th	36·9	9th	49·0
	Saugor	1,762	28·231	+·003	30·034	28·337	9th	28·105	13th	·232	54·8	74·7	−5·8	49·5	−4·7	62·1	−5·3	25·2	84·3	17th	39·1	9th	45·2
Central Provinces (East).	Raipur	960	29·042	+·014	30·005	29·115	9th	28·922	22nd	·223	62·1	81·0	−5·9	51·6	?−8·5	66·4	?−7·2	29·4	88·8	17th & 20th	41·4	9th	47·4
	Sutna	1,040	28·971	+·004	30·033	29·089	9th	28·867	13th	·222	54·2	72·0	−7·3	47·4	−3·5	59·7	−5·4	24·6	80·0	17th	37·1	10th	42·9
	Sambalpur	463	29·548	+·006	29·979	29·644	10th	29·440	19th	·204	66·1	81·9	−6·1	59·5	+0·1	70·7	−3·0	22·4	90·0	20th	49·7	4th	40·3
Hyderabad (North).	Aurangabad	?	28·146	?	?	28·210	25th	28·086	22nd	·124	66·0	85·4	?	54·8	?	70·2	?	30·6	92·6	22nd	46·6	9th	46·0
	Indur	?	?	?	?	?	...	?	...	?	71·3	87·6	?	63·1	?	75·4	?	24·5	94·0	17th	53·1	10th	40·9
	Bidar	?	27·820	?	?	27·869	9th	27·770	22nd	·099	69·9	86·0	?	63·7	?	74·8	?	22·3	91·4	19th	54·4	8th	37·0
Hyderabad (South).	Gulburga	?	28·475	?	?	28·535	25th	28·431	13th	·104	71·0	90·7	?	64·2	?	77·5	?	26·5	96·0	19th	57·6	3rd	38·4
	Raichur	?	28·598	?	?	28·646	10th	28·567	14th & 19th.	·079	73·4	91·7	?	68·0	?	79·8	?	23·7	96·5	19th	62·4	15th	34·1
	Secunderabad	1,787	28·192	?	29·959	28·237	9th & 28th	28·141	14th	·096	68·1	89·3	?	64·6	?	76·9	?	24·7	95·8	20th	56·6	10th	39·2
	Hyderabad (Deccan).	1,690	28·300	−·027	29·966	28·352	9th	28·251	14th	·101	69·5	88·2	−1·7	64·8	+2·2	76·6	+0·3	23·4	94·9	19th	57·8	10th	37·1
	Kamamet	369	29·638	?	?	29·692	16th	29·572	19th	·120	73·7	89·3	?	69·8	?	79·6	?	19·5	94·0	25th	62·7	9th	31·3
X.—West Coast		...	...	+·004	...	...	...	...	...	...	...	84·6	−2·0	69·5	−0·8	77·1	−1·5	15·1	...	...	...	...	23·4
Konkan	Bombay	37	29·995	+·010	29·973	30·088	25th	29·948	4th	·140	68·8	79·5	−2·8	65·2	−3·1	72·4	−3·0	14·3	82·4	25th	58·0	8th	24·4
	Ratnagiri	110	29·894	+·017	29·946	29·964	25th	29·850	4th	·114	71·4	83·2	−3·0	65·3	−1·6	74·3	−2·3	17·9	88·9	10th	59·0	8th	29·9
	Mormugoa	60	29·952	?	29·948	30·036	25th	29·916	4th	·120	70·8	83·6	?	68·9	?	76·3	?	14·7	88·0	10th.	65·3	1st & 3rd	22·7
	Karwar	44	29·955	−·006	29·932	29·991	25th	29·909	8th	·082	68·2	84·1	−2·0	65·1	−1·8	74·6	−1·9	19·0	88·3	11th.	59·6	4th	28·7
Malabar	Mangalore	26	29·980	−·003	29·938	30·042	25th	29·927	8th	·115	75·4	86·1	−1·6	71·6	+0·5	78·9	−0·6	14·5	89·3	13th.	68·0	3rd	21·3
	Calicut	27	29·970	−·007	29·927	30·023	25th	29·915	8th	·108	77·0	87·5	?	72·2	?	79·9	?	15·3	90·3	26th	67·6	3rd	22·7
	Cochin	10	29·992	+·012	29·930	30·046	25th	29·945	8th	·101	78·4	88·6	−0·8	74·4	+1·8	81·5	+0·5	14·2	90·3	4 days	70·2	1st	20·1
	Trivandrum	198	29·792	?	29·923	29·843	25th	29·768	8th	·075	75·8	84·3	?	73·5	?	78·9	?	10·8	87·0	25th	70·0	3 days	17·0
XI.—South India		...	...	−·014	...	...	...	...	...	...	...	88·5	+0·2	68·4	+2·7	78·6	+1·5	19·6	...	...	...	...	29·6
Madras (South)	Pamban	37	29·985	?	29·949	30·034	25th	29·955	19th	·079	79·4	85·2	?	74·3	?	79·7	?	10·9	90·3	28th	68·2	8th	22·1
	Tinnevelly	168	29·856	?	29·955	29·904	10th	29·823	8th & 19th.	·081	76·6	92·0	?	73·1	?	82·6	?	18·9	97·3	27th	69·9	3 days	27·4
	Madura	447	29·570	+·002	29·959	29·615	10th	29·531	8th	·084	76·4	93·3	+1·2	70·0	+1·0	81·7	+1·1	23·3	97·5	27th	64·2	8th	33·3
Madras (South Central).	Salem	940	29·099	−·006	29·990	29·158	16th	29·047	8th	·111	75·8	94·3	+1·1	68·4	+4·1	81·4	+2·6	25·9	98·4	21st & 25th	60·9	1st	37·5
	Coimbatore	1,348	28·663	−·002	29·971	28·704	10th	28·610	8th	·094	73·3	92·4	+0·4	67·1	+2·3	79·8	+1·4	25·3	94·3	26th & 27th	61·6	1st	32·7
Coorg	Mercara	3,781	26·282	−·006	29·933	26·318	16th	26·234	8th	·084	66·0	?	?	59·0	+2·0	?	?	?	?	?	55·2	4 days	?
Mysore	Bangalore Bazar,	2,982	27·063	−·014	29·984	27·111	25th	27·007	8th	·104	67·5	85·5	+0·4	61·4	+2·8	73·5	+1·6	24·1	90·2	21st	53·9	1st	36·3
	Bangalore Fort	3,019	27·014	−·031	29·962	27·069	25th	26·947	8th	·122	67·4	86·3	+0·4	61·0	+2·8	73·7	+1·6	25·3	90·3	3 days	52·9	1st	37·4
	Hassan	3,091	26·947	?	29·958	26·989	16th	26·898	8th	·091	69·2	86·7	?	57·4	?	72·0	?	29·3	90·9	25th	47·8	1st	43·1
	Chitaldroog	2,405	27·592	?	29·931	27·675	28th	28·549	8th	·126	74·1	89·1	?	66·1	?	77·6	?	23·0	93·3	25th	58·9	3rd	34·4
Madras (East Coast, South).	Negapatam	31	29·997	+·005	29·957	30·037	10th	29·957	8th	·080	79·0	85·2	+1·0	74·6	+3·2	79·9	+2·1	10·6	89·2	27th	64·7	8th	24·5
	Cuddalore	12	30·017	?	29·958	30·070	16th	29·973	8th	·097	75·7	86·2	?	69·2	?	77·7	?	17·0	90·7	26th	63·3	1st & 8th	27·4
	Trichinopoly	255	29·771	−·002	29·964	29·815	16th	29·732	8th	·083	76·3	93·8	+1·9	70·0	+2·6	81·9	+2·3	23·8	98·6	27th	62·9	1st	35·7
	Madras	22	30·012	−·009	29·965	30·080	16th	29·949	8th	·131	76·3	86·8	+0·3	68·7	+1·1	77·8	+0·7	18·1	89·5	26th	63·0	2nd	26·5

* Mean of 25 days.

I—*continued.*

in India, Burma, etc., in February 1893—continued.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.			Rainfall.												
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st January to 28th February 1893.	Normal rainfall for period from 1st January to 28th February 1893.	Variation from normal of period, 1st January to 28th February 1893.	Station.	Meteorological Province or District.
7	5	8	2	...	...	...	2	4	5	4	+ 25	57	·264	1·5	0	0·18	−0·18	0	0·04	− 0·04	2·04	0·32	+ 1·72	Khandwa .	Central Provinces (West).
4	1	13	6	1	...	...	1	2	4	3	+ 33	59	·290	2·1	1	0·36	+0·64	0·34	0·18	+ 0·16	1·35	0·47	+ 0·88	Hoshangabad	
2	12	9	2	...	...	...	1	2	6	4	+ 50	58	·359	2·1	2	0·91	+1·09	0·63	0·20	+ 0·43	4·20	0·63	+ 3·57	Nagpur.	
9	4	...	...	...	2	2	8	3	2	?	?	71	·586	3·1	2	?	?	2·18	?	?	3·50	?	?	Sironcha .	Central Provinces (Central).
4	7	1	3	5	2	...	2	4	4	?	?	65	·407	1·7	2	?	?	1·43	?	?	2·72	?	?	Chanda.	
2	5	6	8	2	...	2	1	2	3	3	0	77	·389	2·6	1	1·55	−0·55	0·19	0·69	− 0·50	4·03	1·29	+ 2·74	Seoni . .	
15	2	3	1	1	1	1	2	2	2	2	0	72	·316	2·7	1	0·91	+0·09	0·93	0·30	+ 0·63	3·61	1·20	+ 2·41	Jubbulpore.	
6	3	7	7	3	1	...	1	...	3	3	0	61	·260	2·1	2	0·82	+1·18	0·80	0·27	+ 0·53	3·36	1·03	+ 2·33	Saugor.	
9	7	7	3	...	...	...	2	...	4	4	0	72	·408	2·7	2	0·73	+1·27	1·33	0·31	+ 1·02	2·66	0·46	+ 2·20	Raipur .	Central Provinces (East).
3	10	4	3	2	...	...	1	5	1	5	− 80	61	·257	3·5	3	1·18	+1·82	0·70	0·35	+ 0·35	1·51	1·48	+ 0·03	Sutna.	
...	15	6	1	2	2	...	...	2	5	?	?	74	·480	4·0	6	?	?	2·38	0·47	+ 1·91	3·51	0·96	+ 2·55	Sambalpur.	
10	3	8	2	...	1	1	2	1	4	?	?	47	·307	0·7	0	?	?	0	0·03	− 0·03	0·72	0·22	+ 0·50	Aurangabad	Hyderabad (North).
1	4	3	7	6	1	2	1	3	7	?	?	65	·501	1·3	1	?	?	0·24	0·01	+ 0·23	0·67	0·06	+ 0·61	Indur.	
...	6	9	2	1	2	8	...	...	6	?	?	73	·536	0·3	1	?	?	0·61	0·01	+ 0·60	0·71	0·01	+ 0·70	Bidar.	
11	4	7	2	2	2	...	...	...	8	?	?	57	·442	0·9	1	?	?	0·37	0·12	+ 0·25	0·37	0·20	+ 0·17	Gulburga .	Hyderabad (South).
5	2	2	2	5	6	2	1	3	6	?	?	73	·529	1·7	1	?	?	0·33	0	+ 0·33	0·33	0·04	+ 0·29	Raichur.	
4	...	7	6	3	...	1	...	7	6	?	?	73	·529	2·3	0	?	?	0·08	?	?	0·85	?	?	Secunderabad	
11	2	1	3	6	2	...	2	1	5	?	?	73	·536	2·1	1	?	?	0·22	0	+ 0·22	0·39	0·07	+ 0·32	Hyderabad (Deccan).	
3	3	...	1	17	3	...	1	...	9	?	?	81	·686	3·4	1	?	?	1·16	?	?	2·43	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·40	0·12	+0·18	...	...	...	**X.—West Coast.**	
...	9	8	7	2	1	...	...	1	10	11	− 9	70	·508	0·9	1	0	+1·00	0·14	0	+ 0·14	0·14	0·13	+ 0·01	Bombay .	Konkan.
2	6	5	2	11	1	...	...	1	6	12	− 50	65	·497	0·8	0	0	0	0	0	0	0	0·37	− 0·37	Ratnagiri.	
1	13	4	6	4	...	...	...	...	11	?	?	83	·630	0·1	0	?	?	0	?	?	0	?	?	Mormugoa.	
6	...	21	1	...	...	...	...	...	3	?	?	85	·587	0·2	0	0	0	0	0	0	0	0·14	− 0·14	Karwar.	
4	6	7	11	...	...	...	...	...	3	4	− 25	81	·712	0·8	0	0	0	0	0	0	0	0·01	− 0·01	Mangalore .	Malabar.
5	1	6	11	4	...	...	...	1	10	?	?	80	·742	2·0	0	0·13	−0·13	0·11	0·08	+ 0·03	0·11	0·31	− 0·20	Calicut.	
...	...	19	8	1	...	...	...	...	6	?	?	76	·755	1·4	2	1·00	+1·00	1·55	0·62	+ 0·93	4·33	1·14	+ 3·19	Cochin.	
...	4	11	12	...	...	...	...	1	5	?	?	80	·718	1·5	3	?	?	1·43	?	?	2·64	?	?	Trivandrum.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·76	0·21	+0·62	...	...	...	**XI.—South India.**	
3	...	11	11	2	...	...	1	...	6	?	?	79	·798	3·7	0	0·50	−0·50	0	0·13	− 0·13	0·94	1·93	− 0·99	Pamban. .	Madras (South).
...	15	2	...	...	1	1	...	9	6	?	?	76	·703	4·3	3	1·50	+1·50	3·84	0·78	+ 3·06	6·71	1·98	+ 4·73	Tinnevelly	
7	9	7	1	1	...	...	...	3	2	5	− 60	77	·707	2·2	1	0·45	+0·55	0·39	0·27	+ 0·12	0·50	0·72	− 0·22	Madura.	
6	4	14	2	1	1	...	...	...	6	6	0	70	·630	2·1	2	0·09	+1·91	2·78	0·07	+ 2·71	2·83	0·55	+ 2·28	Salem .	Madras (South Central).
...	9	6	10	...	2	...	...	1	2	3	− 33	81	·671	4·1	1	0·30	+0·70	0·51	0·14	+ 0·37	0·51	0·38	+ 0·13	Coimbatore.	
...	9	1	12	...	...	...	...	6	3	4	− 25	73	·463	3·3	1	0·30	+0·70	0·43	0·11	+ 0·32	0·43	0·09	+ 0·34	Mercara .	Coorg.
...	...	...	11	10	3	2	2	...	3	4	− 25	82	·551	3·1	1	0·18	+0·82	0·22	0·14	+ 0·08	0·22	0·33	− 0·11	Bangalore Bazar.	Mysore.
2	...	...	4	14	5	2	1	...	6	?	?	76	·548	1·9	1	?	?	0·36	?	?	0·39	?	?	Bangalore Fort	
4	...	1	5	14	2	1	...	1	3	?	?	77	·548	2·4	0	?	?	0	?	?	?	?	?	Hassan.	
4	1	2	2	4	3	2	9	5	6	?	?	58	·491	0·8	1	?	?	0·52	?	?	0·52	?	?	Chitaldroog.	
...	...	4	11	5	1	...	3	4	10	4	+150	72	·720	4·0	0	0·55	−0·55	0·05	0·65	− 0·60	0·13	2·87	− 2·74	Negapatam.	Madras (East Coast, South).
...	4	...	...	2	1	2	7	12	4	?	?	90	·805	2·9	1	0·40	+0·60	0·14	0·34	− 0·20	0·42	0·44	− 0·02	Cuddalore.	
20	...	7	1	...	...	...	...	...	3	4	− 25	75	·680	2·6	1	0	+1·00	0·26	0	+ 0·26	0·26	2·85	− 2·59	o Trichinopoly.	
1	...	...	3	3	8	8	2	3	6	5	+ 20	80	·737	2·7	0	0·09	−0·99	0·02	0·27	− 0·25	0·95	1·87	− 1·52	Madras.	

o Wind directions for 25 days.

Table

Abstract of Observations taken at 8 A.M. at 186 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.
Madras (East Coast, Central).	Nellore	71	29·938	?	29·943	30·003	16th	29·885	19th	·118	76·0	91·4	?	70·2	?	80·8	?	21·2	96·2	26th	66·6	1st & 10th.	29·6
	Masulipatam	15	30·007	−·023	29·957	30·072	16th	29·945	14th	·127	77·1	85·7	−1·2	71·6	+4·0	78·7	+1·4	14·1	89·0	15th & 20th	65·7	1st & 2nd	23·3
Madras (Central)	Cuddapah	433	29·565	−·034	29·944	29·621	16th	29·511	8th	·110	77·3	94·7	+0·7	70·6	+2·9	82·7	+1·8	24·1	100·2	21st	64·4	1st	35·8
	Kurnool	923	29·070	−·024	29·945	29·128	10th	29·014	22nd	·114	76·5	...	...	66·8	+3·5	...	...	...	...	...	60·8	1st	85·8
	Bellary	1,475	28·514	+·005?	29·948	28·552	10th	28·478	19th	·074	74·5	92·9	−1·3	66·8	+2·1	79·8	+0·4	26·1	97·9	20th & 25th	60·1	1st & 2nd	...
Madras (East Coast, North).	Rajahmundry	112	29·901	−·010	29·953	29·971	16th	29·842	14th	·129	76·3	90·9	−1·9	70·7	+3·6	80·4	+0·9	20·2	94·0	25th	68·0	4 days	37·8
	Cocanada	26	29·999	+·002	29·960	30·062	16th	29·934	14th	·128	74·8	84·7	+1·2	70·0	+0·5	77·4	+0·9	14·7	90·2	20th	66·7	3 days	26·0
	Vizagapatam	31	29·985	−·024	29·955	30·058	16th	29·918	14th	·140	77·4	80·8	−2·0	75·1?	+5·4?	78·0?	+1·7?	5·7	83·9	3 days	72·9	3 days	23·5
	Gopalpur	21	30·008	?	29·969	30·089	10th	29·908	14th	·181	71·4	80·7	?	67·9	?	74·3	?	12·8	83·2	6 days	61·9	5th & 10th	11·0
XII.—Hill Stations.																							21·3
Baluchistan	Quetta	5,502	24·622	−·027	...	24·753	8th	24·487	23rd	·266	27·7	40·8	−11·4	21·2	−10·2	31·0	−10·8	19·6	46·1	27th	11·8	17th & 18th	34·3
	Kalat	?				Not recorded.					?	47·8	?	21·2	?	34·5	?	26·6	68·0	8th	3·0	7th	65·0
	Chaman	5,488	25·702	?	...	25·859	8th	25·528	4th	·331	36·2	46·7	?	32·7	?	39·7	?	14·0	58·1	26th & 27th	27·1	3rd & 7th	31·0
Northern India	Gilgit	?	26·390	?	?	26·700	9th	26·060	23rd	·640	38·5	47·3	?	31·5	?	39·5	?	15·8	57·8	22nd	22·1	3rd & 7th	35·7
	Srinagar	5,204	24·918	?	...	25·110	9th	24·672	13th	·438	23·2	33·5	?	18·2	?	25·9	?	15·3	45·5	25th	4·1	2nd	41·4
	Cherat*	?	25·717	?	...	25·856	28th	25·503	13th	·353	36·3	44·0	?	33·7	?	38·9	?	10·3	54·7	27th	25·6	6th	29·1
	Murree	6,344	23·763	−·052	...	23·898	28th	23·563	13th	·335	30·5	38·1	−9·5	26·4	−7·8	32·3	−8·6	11·7	46·5	20th	19·7	3rd & 7th	26·8
	Simla	7,224	23·018	−·061	...	23·151	28th	22·871	13th	·280	32·1	38·6	−9·3	28·1	−7·9	33·4	−8·6	10·5	47·4	28th	20·5	14th	26·9
	Chakrata	7,052	23·176	−·053	...	23·303	28th	23·072	13th	·231	32·9	40·4	−10·5	28·9	−6·7	34·7	−8·6	11·5	48·2	28th	21·1	14th	27·1
	Mussoorie	?	23·490	?	...	23·588	28th	23·367	7th	·221	33·4	40·3	?	30·8	?	35·6	?	9·5	47·2	28th	24·0	14th	23·2
	Ranikhet	6,069	24·089	−·002?	...	24·202	28th	24·004	7th	·198	36·9	46·1	−9·3	33·7	−7·0	39·9	−8·2	12·4	56·3	28th	29·0	7th	27·3
	Gnatong	?	19·091	?	...	19·183	28th	18·956	3rd	·227	21·9	28·7	?	8·0	?	18·4	?	20·7	41·3	28th	0·1	10th	41·2
	Darjeeling	7,421	22·932	−·001	...	23·123	25th & 27th	22·808	4th	·315	35·2	42·7	−3·1	30·8	−3·0	36·7	−3·1	11·9	48·9	13th	26·6	3rd	22·3
Central India	Mount Abu	3,945	26·080	−·036	...	26·155	9th	25·931	22nd	·224	51·1	59·0	−10·4	45·9	−7·4	52·5	−8·9	13·1	66·6	28th	32·0	8th	34·6
	Pachmarhi	3,511	26·523	−·013	...	26·597	9th	26·416	22nd	·181	58·2	68·9	−6·2	46·9	−3·7	57·9	−5·0	22·0	78·2	17th	34·3	9th & 10th	43·9
South India	Wellington	6,200	24·319	+·025	...	24·371	25th	24·275	8th	·096	58·4	70·7	+3·0	47·6	+1·1	59·2	+0·7	23·1	73·7	15th	38·2	2nd	32·5
	Kodaikanal	?									55·2	?	?	48·6	?	?	?	?	?	?	44·1	4th	?
XIII.—Extra India.																							
Persia	Meshed	?	?	?	?	?	?	?	?	?	26·0	42·0	?	22·0	?	32·0	?	20·0	58·0	26th	4·0	6th	54·0
	Jask	?	30·079	?	?	30·219	7th	29·900	23rd	·319	63·1	72·0	?	59·2	?	65·6	?	12·8	76·6	11th	53·8	6th	22·8
	Bushire	14	30·122	?	30·092	30·235	1st	29·958	20th	·277	54·3	61·3	?	50·4	?	55·9	?	10·9	66·7	21st & 26th	41·8	1st	24·9
Arabia	Muscat		30·076	?	?	30·195	6th	29·926	23rd	·269	68·0	71·2	?	66·6	?	68·9	?	4·6	74·6	4th	63·5	15th	11·1
	Baghdad	?	29·795	?	?	29·904	2nd	29·749	26th	·155	47·9	68·1	?	35·8	?	52·0	?	32·3	72·0	16th	30·0	2nd	42·0
	Aden	94	29·944	?	29·971	30·003	25th	29·895	23rd	·108	76·4	81·9	?	74·3	?	78·2	?	7·6	86·3	24th	70·9	3rd & 9th	15·4
	Perim	?	29·795	?	?	29·865	25th	29·765	23rd	·100	77·0	83·8	?	‡74·6	?	79·2	?	9·2	85·5	26th	73·6	8th & 12th	11·9
Arabian Sea Islands.	Minicoy	10	29·938	?	?	29·988	25th	29·890	4th	·098	79·3	85·9	?	?	?	?	?	?	87·5	27th	?	...	?
Africa	Zanzibar	73	29·923	?	29·923	29·970	24th	29·894	17th	·076	81·6	84·9	?	79·1	?	82·0	?	5·8	88·1	22nd	75·0	7th	13·1

* Mean of 26 days. † Mean of 29 days. ‡ Mean of 21 days.

I—*concluded.*

in India, Burma, etc., in February 1893—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 January to 28th February 1893.	Normal rainfall for period 1st January to 28th February 1893.	Variation from normal of period 1st January to 28th February 1893.	Station.	Meteorological Province or District.
9	1	...	2	13	3	...	...	...	6	?	?	85	·766	4·0	0	0·20	−0·20	0	0·11	− 0·11	0·23	0·58	− 0·35	Nellore	Madras (East Coast, Central).
12	1	1	1	7	6	...	...	...	6	5	+ 20	87	·814	4·6	3	0·27	+2·73	1·00	0·15	+ 0·85	1·10	0·39	+ 0·71	Masulipatam.	
...	...	4	9	8	2	3	2	...	...	?	?	66	·628	1·0	1	0·10	+0·90	0·25	0·06	+0·19	0·35	0·06	+ 0·29	Cuddapah	Madras (Central).
26	...	1	1	...	...	...	...	...	...	?	?	58	·530	1·1	0	0	0	0·04	0	+0·04	0·46	0·07	+ 0·39	Kurnool.	
17	...	...	...	3	2	...	2	4	2	4	−50	75	·636	0·6	0	0·09	−0·09	0·03	0·07	−0·04	0·03	0·21	− 0·18	Bellary.	
13	7	6	1	...	...	...	...	1	?	?	?	75	·697	4·9	2	0·30	+1·70	0·36	0·07	+0·29	1·01	0·07	+ 0·94	Rajahmundry	Madras (East Coast, North).
2	18	2	1	2	...	...	...	?	8	?	?	80	·681	2·3	3	0·40	+2·60	4·02	0	+4·02	4·03	0·14	+ 3·89	Cocanada.	
...	3	2	...	...	1	3	17	2	2	2	0	75	·699	4·4	2	0·18	+1·82	0·52	0·09	+0·43	0·92	0·30	+ 0·62	Vizagapatam.	
...	10	4	1	...	2	5	...	6	14	10	+ 40	85	·654	2·3	3	1·13	+1·87	1·58	0·65	+0·93	2·57	0·87	+ 1·70	Gopalpur.	
																								XII.—Hill Stations.	
22	...	...	...	...	1	3	2	...	3	4	− 25	94	·149	5·3	13	4·09	+8·91	7·53	1·65	+5·88	11·12	3·61	+ 7·51	Quetta.	Baluchistan.
...	...	...	...	...	...	18	...	10	?	?	?	?	?	?	9	?	?	5·11	?	?	10·05	?	?	Kalat.	
2	...	1	4	10	8	1	1	1	6	?	?	82	·177	6·0	9	...	...	2·85	?	?	5·79	?	?	Chaman.	
				Not observed.					?	?	?	?	?	4·4	0	?	?	0	?	?	0·08	?	?	Gilgit	Northern India.
15	...	...	...	6	6	...	...	1	3	?	?	88	·111	9·3	7	...	...	1·95	?	?	5·55	?	?	Srinagar.	
3	8	4	1	1	4	...	1	6	6	?	?	68	·139	5·4	7	...	...	1·85	?	?	7·88	?	?	Cherat*.	
3	2	2	3	16	...	...	1	1	9	8	+ 13	95	·162	4·6	12	3·36	+8·64	5·52	2·59	+2·93	14·57	5·21	+ 9·36	Murree.	
6	3	...	...	3	16	...	...	...	...	2	...	84	·151	5·8	13	4·36	+8·64	8·55	2·27	+6·28	13·14	4·77	+ 8·37	Simla.	
8	...	5	15	...	...	...	...	...	5	?	?	78	·146	3·2	13	?	?	13·35	2·98	+10·37	19·50	6·51	+12·99	Chakrata.	
9	1	...	10	...	...	1	4	3	...	?	?	90	·174	5·3	13	3·50	+9·50	16·09	2·17	+13·92	23·46	4·26	+19·20	Mussoorie.	
23	1	...	3	...	...	1	...	...	2	2	0	76	·167	5·9	9	4·09	−4·91	6·62	1·47	+5·15	14·99	3·90	+11·09	Ranikhet.	
...	4	2	1	2	...	2	8	9	6	?	?	68	·079	3·5	6	?	?	2·63	?	?	4·70	?	?	Gnatong.	
3	2	5	4	8	...	1	2	2	7	5	+ 40	88	·181*	5·9	2	2·29	−0·29	0·73	0·91	−0·18	1·40	1·22	+ 1·8	Darjeeling.	
4	4	7	1	1	...	2	4	5	6	6	0	54	·201	3·5	3	0·36	+2·64	0·78	0·36	+0·42	1·15	0·69	+ 0·46	Mount Abu	Central India.
3	1	3	6	2	6	3	3	1	5	4	+ 25	49	·242	1·9	1	0·82	+0·18	0·66	0·25	+0·41	3·05	0·77	+ 2·28	Pachmarhi.	
25	...	1	...	2	...	...	...	...	2	3	− 33	74	·363	1·4	3	0·50	+2·50	5·62	0·15	+5·47	6·32	1·19	+ 5·13	Wellington	South India.
6	5	8	...	5	1	...	...	3	7	?	?	66	·286	1·5	8	0·50	+7·50	5·28	0·63	+4·65	6·77	1·18	+ 5·59	Kodaikanal.	
																								XIII.—Extra India.	
17	2	...	...	...	6	...	2	1	?	?	?	?	?	3·6	2	?	?	0·87	?	?	1·31	?	?	Meshed	Persia.
1	12	7	3	1	...	...	1	2	?	?	?	72	·420	6·1	4	?	?	1·72	?	?	2·19§	?	?	Jask.	
...	6	6	3	8	...	...	...	5	8	9	− 11	76	·325	?	3	?	?	1·49	3·17	−1·68	4·35	6·80	− 2·45	Bushire.	
...	1	1	2	5	2	5	7	5	4*	?	?	73	·507	3·0	3	?	?	1·53	?	?	?	?	?	Muscat	Arabia.
...	11	6	4	2	1	...	3	1	?	?	?	47	·154	?	1	?	?	0·75	?	?	2·40	?	?	Bagdad.	
...	...	9	17	2	...	...	...	...	20	14	+ 43	74	·676	7·8	0	?	?	0	0·24	−0·24	0·02	0·52	− 0·50	Aden.	
...	...	...	15	9	2	..	...	2	22	?	?	85	·789	5·4	0	?	?	0	?	?	1·88	?	?	Perim.	
3	5	14	3	2	1	...	...	...	6	?	?	78	·778	4·5	5	?	?	2·31	?	?	12·65	?	?	Minicoy	Arabian Sea Islands.
...	5	14	2	2	1	2	1	1	6	?	?	79	·848	4·9	7	?	?	6·14	?	?	11·91	?	?	Zanzibar	Africa.

* 27 days wind observation. † Mean of 26 days. ‡ Mean of 25 days. § Observations not taken for 12 days of January.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 92

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 to 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	...	29·915	29·834	·111	29·885	−·003	29·876	87·3	74·2	13·1	90·0	70·0	20·0	82·1	85·8	79·9	+ 0·2	70·6	75·4	76·8	74·3
	Mergui	...	·912	·782	·130	·842	−·009	·869	88·9	?	?	92·1	?	?	83·0	85·3	?	?	?	75·3	75·9	?
	Rangoon	...	·966	·829	·137	·894	−·019	·871	93·9	65·0	28·9	98·6	57·4	41·2	78·5	91·3	77·1	+ 1·1	63·0	69·6	70·8	67·8
	Diamond Island	...	·984	·872	·112	·923	−·013	·899	82·1	71·1	11·0	86·0	67·3	18·7	78·9	79·7	75·6	− 1·0	67·7	71·2	71·5	70·4
	Cocos Island	111	·939	·845	·094	·888	?	·932	83·5	68·8	14·7	85·8	63·4	22·4	80·2	79·8	74·8	?	65·9	72·6	72·2	70·3
	Akyab	...	30·023	·914	·109	·961	+·007	·924	84·4	59·0	25·4	88·0	49·1	38·9	75·6	79·7	71·1	− 1·2	56·3	66·0	67·7	63·3
Assam.	Silchar	...	29·975	·867	·108	·917	+·030	·976	76·1	53·8	22·3	83·4	43·4	40·0	66·7	73·8	63·9	− 3·0	52·9	61·6	62·1	58·9
	Sibsagar	...	·732	·619	·113	·674	+·004	·977	69·5	53·1	16·4	79·4	43·9	35·5	61·6	67·9	59·8	− 1·3	52·6	59·1	60·8	57·5
	Dhubri	...	·937	·812	·125	·901	+·033	·975	71·3	53·5	17·8	79·4	47·1	32·3	61·7	70·3	60·8	− 3·7	52·1	56·8	59·2	56·0
Bengal and Orissa.	Chittagong	...	·984	·883	·101	·927	+·022	·984	78·7	57·0	21·7	83·7	46·5	37·2	69·7	75·4	67·6	− 2·5	?	60·2	67·7	?
	Dacca	...	30·058	·949	·109	·997	+·044	·967	74·3	54·9	19·4	80·7	46·2	34·5	66·8	71·2	64·2	− 5·7	52·9	60·0	62·1	58·3
	Calcutta (Alipore)	...	·059	·950	·103	·994	+·042	·962	74·2	56·8	17·4	80·7	46·9	33·8	67·3	72·3	64·6	− 5·2	55·4	60·2	61·9	59·2
	Calcutta (Chowringhee).	...	·033	?	?	?	?	?	75·5	57·4	18·1	81·7	47·5	34·2	68·9	?	?	?	56·2	62·0	?	?
	Saugor Island	...	·048	·940	·108	·931	+·033	·951	75·5	60·0	15·5	80·8	51·0	29·8	69·7	73·5	66·7	− 5·4	58·4	64·0	65·9	62·9
	Burdwan	...	·001	·831	·120	·928	+·049	·979	73·8	56·2	17·6	81·7	46·1	35·6	65·5	71·6	64·0	− 6·3	54·6	57·2	60·0	57·2
	Berhampore	...	·022	·912	·110	·954	+·051	·972	72·3	54·2	18·1	78·6	43·1	35·5	63·9	70·6	62·4	− 6·2	52·0	58·6	61·1	57·2
	False Point	...	·049	·946	·103	·995	+·020	·958	78·0	64·2	13·8	83·0	50·8	32·2	74·7	75·0	69·9	− 2·1	63·2	68·5	68·0	66·6
	Cuttack	...	29·983	·856	·127	·920	+·022	·944	81·9	65·0	16·9	88·1	57·3	30·8	74·9	81·5	72·6	− 2·9	62·7	65·7	67·8	65·4
	Hazaribagh	...	27·993	27·911	·088	27·951	+·012	·962	69·7	49·3	20·4	80·7	41·1	39·6	61·3	67·1	58·7	− 6·9	46·2	53·2	55·9	51·8
Gangetic Plain and Chota Nagpur.	Patna	...	29·899	29·800	·099	29·844	+·043	·937	70·1	50·3	19·8	84·0	40·7	43·3	62·9	67·4	59·5	− 5·6	48·8	56·3	57·7	54·2
	Darbhanga	...	·923	·815	·108	·853	+·051	·931	69·9	52·0	17·9	77·3	44·6	32·7	62·1	68·4	60·5	− 4·2	50·8	57·0	58·6	55·5
	Allahabad	...	·774	·633	·111	·710	+·032	·993	71·8	48·5	23·3	79·2	39·8	39·4	61·4	69·9	59·2	− 6·2	45·9	54·0	56·8	52·2
	Ghazipur	220	·831	·759	·111	·793	+·037	·932	71·1	50·8	20·3	78·2	43·2	35·0	61·4	68·6	59·9	− 3·7	48·4	54·8	56·9	53·4
	Lucknow	...	·693	·581	·109	·632	+·023	·935	68·9	43·8?	20·1?	75·9	40·1	35·8	60·6	66·7	58·6	− 6·9	47·1	54·6	55·8	52·5
Upper Sub-Himalayas.	Dehra Dun	...	27·759	27·685	·065	27·711	+·004	·933	60·8	42·7	18·1	69·6	36·1	33·5	52·5	57·2	50·4	− 7·4	41·2	48·2	50·4	46·7
	Roorkee	...	29·138	29·062	·076	29·092	+·021	·996	63·5	45·3	18·2	72·4	36·6	35·8	54·2	61·2	53·2	− 6·9	44·2	50·6	53·7	49·4
	Meerut	...	·316	·233	·083	·269	+·037	30·012	61·2	45·2	19·0	71·4	36·0	35·4	55·6	62·9	53·9	− 7·1	44·8	50·4	53·4	49·5
	Lahore	...	·355	·297	·058	·316	+·031	·011	61·4	41·4	20·0	72·0	33·0	39·0	54·3	59·7	50·4	− 6·2	40·5	49·6	51·3	47·1
	Ludhiana	...	·223	·163	·060	·184	+·025	30·015	59·9	45·1	14·8	69·0	37·4	31·6	53·6	58·0	51·4	− 6·2	44·2	49·6	48·0	48·4
Indus Valley and N.W. Rajputana.	Peshawar	...	28·965	28·901	·061	28·925	+·017	·085	58·4	38·3	20·1	69·2	31·9	37·3	49·6	56·7	47·3	− 5·0	36·7	44·1	47·3	42·7
	Mooltan	...	29·637	29·535	·082	29·616	+·031	·032	64·9	42·8	22·1	75·8	37·6	38·2	55·2	63·7	53·0	− 5·4	40·4	48·2	52·3	47·0
	Jacobabad	...	·923	·824	·102	·835	+·014	·021	67·8	45·0	22·8	82·0	34·4	47·6	59·9	66·0	55·3	− 6·6	42·9	51·4	53·0	49·1
	Kurrachee	...	30·046	·957	·089	·991	+·013	29·993	71·6	53·9	17·7	81·0	45·1	35·9	63·9	70·4	62·6	− 5·6	51·0	53·0	62·3	57·1
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·621	28·523	·095	28·531	+·022	30·024	68·8	46·0	22·8	76·9	36·5	40·4	60·0	66·5	56·8	− 6·3	42·0	50·8	53·6	48·8
	Ajmere	...	·433	·333	·100	·379	+·003	·013	68·0	47·1	20·9	75·4	36·9	38·5	58·7	66·5	57·5	− 4·2	45·3	50·8	54·3	50·2
	Deesa	...	29·580	29·480	·100	·521	+·015	29·955	78·9	50·2	28·7	89·4	40·0	49·4	69·3	76·7	64·1	− 6·3	45·1	54·3	57·0	52·1
	Nowgong	...	·298	·184	·114	29·233	+·004	·974	73·0	46·9	26·1	80·6	36·1	44·5	65·5	71·0	59·3	− 5·6	44·3	52·8	55·8	51·0
	Agra	...	·552	·445	·107	·499	+·055	30·032	67·9	48·5	19·4	74·9	39·3	35·6	59·3	66·6	57·6	− 6·7	44·5	52·3	55·1	50·7
Deccan.	Belgaum	...	27·469	27·350	·119	·406	−·011	29·818	86·6	58·6	28·0	90·5	53·9	36·6	78·1	84·0	71·3	− 1·5	53·8	59·8	63·0	58·9
	Sholapur	...	28·416	28·268	·148	28·337	−·012	·858	92·0	61·2	30·8	97·9	55·4	42·5	79·0	90·6	76·9	− 1·1	53·2	62·0	65·9	60·3
	Poona	...	·168	·039	·129	·103	+·003	·877	88·4	51·1	34·3	93·5	46·5	47·0	75·0	85·0	70·5	− 2·5	49·9	57·7	60·7	56·1
	Akola	...	29·077	·929	·148	·997	−·017	·887	81·2	54·4	29·8	93·8	40·2	53·6	72·7	83·1	68·7	− 4·2	49·8	58·8	62·8	57·2

II.

Stations in India, Burma, etc., for February 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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.	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 of the month.	Station.	Meteorological Province.
·705	·785	·806	·765	− ·049	83	72	65	73	− 4	2·1	2·8	2·5	− 0·3	8	17	22	7	2	...	...	...	...	N. 38° E.	N. 41° E.	71	76	119	115	...	Port Blair	Burma Coast and Bay Islands.
?	·775	·770	?	?	?	68	63	?	?	4·8	4·6	4·7	+ 1·4	...	20	6	2	1	4	1	...	22	N. 15° W.	N. 38° W.	64	56	54	49	...	Mergui	
·556	·609	·481	·548	− ·028	89	63	34	62	− 1	0·5	0·7	0·6	− 1·4	...	4	7	3	6	10	9	12	4	S. 46° W.	S. 46° W.	23	18	88	92	...	Rangoon	
·635	·664	·666	·662	− ·019	83	67	65	72	− 1	2·4	2·8	2·6	+ 0·5	...	21	4	1	1	1	...	2	26	N. 21° W.	N. 25° W.	77	86	272*	168	..	Diamond Island.	
·601	·701	·692	·667	?	85	68	67	73	?	0·7	1·2	1·0	?	...	42	12	1	...	...	...	...	...	N. 11° E.	?	93	?	334	?	...	Cocos Island	
·427	·520	·526	·491	− ·026	84	58	52	64	− 5	0·3	0·1	0·2	− 0·9	...	13	13	1	...	2	1	7	19	N. 18° W.	N. 27° W.	61	45	98	84	...	Akyab	
·399	·486	·407	·430	− ·008	95	74	50	73	+ 3	4·5	5·4	5·0	+ 1·9	41	1	1	4	...	...	5	4	...	S. 34° E.	S. 33° E.	4	25	2	64	..	Silchar	Assam.
·395	·471	·441	·435	− ·013	97	86	65	83	+ 2	5·6	5·4	5·5	0	19	2	26	...	5	...	3	1	...	N. 52° E.	N. 58° E.	43	53	32	51	...	Sibsagar	
·375	·400	·363	·379	0	91	73	50	71	+ 7	4·6	4·3	4·5	+ 2·9	8	2	12	4	2	1	20	5	2	S. 55° W.	S. 22° E.	14	13	90	95	...	Dhubri	
?	·404	·579	?	?	?	55	66	?	?	3·3	3·0	3·2	+ 1·5	3	7	16	2	1	1	2	10	14	N. 16° W.	N. 38° W.	46	30	49	106	...	Chittagong.	Bengal and Orissa.
·378	·433	·440	·417	− ·030	87	66	59	71	+ 7	3·8	4·5	4·2	+ 2·4	...	8	7	5	2	2	7	13	12	N. 49° W.	S. 76° W.	36	35	83	63	...	Dacca	
·429	·436	·423	·429	− ·058	91	65	55	70	+ 2	4·0	4·3	4·2	+ 2·4	2	20	8	6	3	4	1	5	7	N. 8° E.	S. 81° W.	43	23	53	85	...	Calcutta (Alipore).	
·445	·469	?	?	?	93	66	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	Do. (Chowringhee).	
·471	·529	·543	·520	− ·103	88	72	65	76	0	5·2	4·5	4·9	+ 2·9	...	25	9		5	7	2	2	4	N. 14° E.	S. 50° W.	41	23	226	189	...	Saugor Island.	
·413	·365	·369	·382	− ·015	90	58	50	66	+ 10	4·0	4·1	4·1	+ 2·3	24	15	1	6	...	...	2	2	6	N. 2° W.	N. 58° W.	32	43	51*	52	...	Burdwan	
·368	·426	·414	·403	+ ·009	85	72	58	72	+ 8	4·2	4·2	4·2	+ 2·3	3	11	1	7	2	...	4	16	12	N. 49° W.	N. 72° W.	43	44	49	56	...	Berhampore	
·581	·624	·597	·601	− ·024	95	72	68	79	+ 1	5·5	4·6	5·1	+ 2·5	...	9	17	9	2	15	1	2	1	N. 76° E.	S. 12° W.	36	16	227	185	...	False Point	
·547	·521	·507	·524	+ ·004	88	60	47	65	+ 3	4·6	3·5	4·1	+ 2·3	3	4	11	14	3	8	8	3	2	S. 80° E.	S. 16° W.	25	13	68	50	...	Cuttack	
·280	·311	·315	·302	+ ·058	78	58	49	62	+ 20	4·5	4·6	4·6	+ 2·6	1	4	2	3	3	8	3	13	19	N. 73° W.	N. 68° W.	41	60	207	156	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·330	·370	·353	·351	+ ·002	88	65	54	69	+ 12	4·8	4·6	4·7	+ 2·3	2	1	4	11	3	1	4	22	8	N. 76° W.	N. 79° W.	27	47	116	71	...	Patna	
·362	·400	·369	·377	0	92	72	54	73	+ 10	4·0	3·9	4·0	+ 2·5	2	1	3	9	6	2	11	15	7	S. 64° W.	S. 72° W.	25	46	100	88	...	Darbhanga	
·281	·324	·292	·299	− ·026	81	59	42	61	+ 6	4·8	4·5	4·7	+ 2·7	1	7	7	9	1	...	4	13	14	N. 31° W.	N. 66° W.	37	25	132	70	...	Allahabad	
·312	·347	·313	·324	+ ·059	83	64	47	65	+ 25	4·7	4·6	4·7	+ 3·0	5	3	3	6	9	1	10	17	2	S. 55° W.	S. 82° W.	23	58	68	55	1·22	Ghazipur	
·306	·349	·302	·319	+ ·027	88	66	46	67	+ 16	5·6	5·3	5·5	+ 2·6	43	2	...	2	...	...	...	9	...	N. 75° W.	N. 58° W.	12	44	33	78	...	Lucknow	
·237	·286	·285	·270	?	86	73	62	73	?	5·8	6·6	6·2	+ 2·1	3	2	4	1	7	4	11	18	6	S. 70° W.	S. 85° W.	41	19	51	48	...	Dehra Dun.	Upper Sub-Himalayas.
·280	·325	·317	·306	+ ·023	91	77	60	76	+ 16	5·6	5·7	5·7	+ 2·4	27	1	...	3	3	1	3	7	11	S. 74° W.	N. 52° W.	21	23	?	68	...	Roorkee	
·297	·301	·285	·295	+ ·007	97	69	51	72	+ 16	6·5	3·8	5·2	+ 2·4	7	1	1	3	7	2	1	30	4	S. 83° W.	N. 54° W.	45	52	47	93	...	Meerut	
·243	·297	·270	·270	− ·007	92	71	54	72	+ 15	4·7	5·5	5·1	+ 1·6	7	11	1	2	4	1	1	16	13	N. 51° W.	N. 25° W.	46	30	45	57	...	Lahore	
·282	·306	·299	·296	0	93	74	63	77	+ 15	5·4	6·0	5·7	+ 1·7	12	8	1	1	1	4	1	21	7	N. 71° W	N. 48° W.	46	39	53	41	...	Ludhiana	
·201	·224	·213	·213	− ·016	86	65	48	66	+ 9	5·0	5·6	5·3	+ 1·0	8	8	6	11	6	3	4	5	5	N. 55° E.	N. 21° W.	18	9	84*	80	...	Peshawar	Indus Valley and N.-W. Rajputana.
·224	·251	·247	·241	− ·028	80	57	43	60	+ 7	3·6	5·0	4·3	+ 1·6	2	1	13	...	9	...	15	...	16	N. 54° W.	N. 5° E.	14	18	32*	51	..	Mooltan	
·252	·270	·234	·252	+ ·031	84	54	40	59	+ 19	3·8	4·3	4·1	+ 0·7	5	4	13	11	7	2	2	3	9	N. 52° E.	N. 17° E.	32	36	76*	69	...	Jacobabad	
·343	·407	·459	·403	− ·003	81	69	62	71	+ 14	3·3	3·0	3·2	+ 0·2	...	3	48	1	...	...	2	2	...	N. 42° E	N. 80° W.	84	27	292	252	...	Kurrachee	
·222	·261	·254	·246	− ·008	71	50	40	54	+ 11	4·4	4·9	4·7	+ 1·9	1	12	3	9	5	4	3	5	14	N. 10° W.	N. 9° W.	27	38	64	104	...	Jeypore	E. Rajputana, Central India and Guzerat.
·286	·276	·278	·280	+ ·024	87	56	43	62	+ 18	3·0	3·6	3·3	+ 1·0	5	3	9	5	7	9	4	9	5	S. 13° E.	S. 77° W.	7	8	87	63	...	Ajmere	
·236	·228	·209	·224	− ·003	65	33	23	40	+ 11	2·3	3·8	3·1	+ 0·6	...	15	13	3	3	2	5	8	6	N. 4° W.	N. 28° W.	38	36	227	215	...	Deesa	
·263	·284	·250	·266	− ·009	80	51	33	55	+ 8	3·3	4·4	3·9	+ 0·7	...	7	3	14	...	...	1	22	9	N. 41° W.	N. 52° W.	36	33	64	41	...	Nowgong	
·248	·305	·286	·280	+ ·004	71	60	44	58	+ 11	4·9	4·7	4·8	+ 2·4	...	4	6	1	10	1	9	1	26	N. 48° W.	N. 75° W.	32	38	108	97	...	Agra	
·358	·291	·317	·322	− ·011	72	30	27	43	+ 5	0·2	1·3	0·8	− 0·4	...	4	7	8	13	5	4	7	8	N. 55° E.	S. 78° E	14	23	229	241	...	Belgaum	Deccan.
·311	·350	·331	·331	+ ·018	57	35	23	38	+ 4	0·4	1·5	1·0	− 0·6	1	3	13	3	8	5	6	12	5	N. 68° W.	S. 33° E.	4	32	206*	160	...	Sholapur	
·313	·269	·231	·271	− ·018	73	31	19	41	+ 9	0·5	0·5	0·5	− 1·1	7	...	2	7	4	...	5	22	9	N. 86° W.	N. 28° W.	37	21	182	150	...	Poona.	
·314	·318	·308	·313	+ ·032	73	39	27	46	+ 11	1·4	1·8	1·6	+ 0·2	2	10	7	9	2	1	1	10	14	N. 13° W.	N. 1° E.	39	25	130	93	...	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 92

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 to 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—*contd.*	Buldana	2,132	27·880	27·755	·125	27·812	—·003	29·894	81·8	57·3	24·5	89·5	46·7	42·8	70·0	78·9	68·5	−4·9	49·6	55·8	59·1	54·9
	Khandwa	...	28·978	28·837	·141	28·902	+·004	·917	81·8	51·8	30·0	90·6	39·2	51·4	69·1	80·4	66·3	−4·8	46·3	55·9	60·5	54·2
	Hoshangabad	...	29·020	·889	·131	·949	—·002	·948	77·8	52·8	25·0	87·7	43·8	43·9	66·7	77·1	65·0	−5·3	47·3	55·3	60·5	54·4
	Nagpur	...	28·997	·855	·142	·920	+·010	·912	82·2	57·2	25·0	91·8	46·5	45·3	71·6	80·4	69·0	−4·8	51·9	59·7	63·4	58·3
	Jubbulpore	...	·701	·585	·116	·637	+·015	·953	74·7	49·3	25·4	85·9	37·0	48·9	64·5	73·2	61·4	−4·8	47·1	55·0	58·2	53·5
	Saugor	...	·259	·149	·110	·198	+·017	·948	74·7	49·5	25·2	84·2	39·0	45·2	64·4	73·9	61·7	−5·5	44·8	53·0	57·2	51·7
	Raipur	...	29·070	·945	·125	29·002	+·017	·926	80·7	51·7	29·0	88·8	41·4	47·4	70·5	79·0	65·5	−6·3	40·0	61·0	64·4	55·1
	Sutna	...	28·999	·883	·116	28·933	+·003	·967	72·4	47·0	25·4	80·1	37·1	43·0	62·8	71·1	58·9	−5·6	43·9	52·2	55·1	50·4
	Secunderabad	1,737	·216	·098	·118	·152	0	·869	90·5	64·6	25·9	95·8	56·7	39·1	76·4	86·5	77·3	+0·2	61·9	67·4	73·4	67·6
	Hyderabad (Deccan).	...	·327	·194	·133	·255	?	·861	88·2	64·8	23·4	94·1	57·8	36·3	77·9	85·3	75·8	?	60·7	66·8	67·3	64·8
West Coast.	Bombay	...	30·012	29·904	·108	29·949	+·025	·927	80·3	65·2	15·1	85·0	57·9	27·1	73·5	76·7	72·2	−2·9	60·0	65·0	67·6	64·2
	Ratnagiri	...	29·915	·812	·103	·855	+·022	·903	83·4	65·3	18·1	89·2	61·0	28·2	79·4	79·9	73·8	−2·2	60·6	67·0	70·2	65·9
	Karwar	...	·977	·868	·109	·914	+·008	·889	84·3	65·3	19·0	88·3	59·8	28·5	77·5	82·0	74·5	−2·0	64·1	69·3	72·4	68·6
	Cochin	...	30·004	·872	·132	·929	+·012	·867	88·7	74·4	14·3	90·5	70·0	20·5	84·1	86·6	81·3	+0·6	72·3	75·4	77·8	75·1
South India.	Salem	...	29·107	28·932	·175	·024	—·013	·890	94·3	68·4	25·9	98·3	60·9	37·4	82·6	91·5	79·7	+2·4	65·4	70·6	70·8	68·9
	Mercara	...	26·302	26·192	·110	26·247	—·007	·857	76·2	59·0	17·2	79·5	55·0	24·5	71·9	75·4	68·8	+0·3	55·8	62·1	64·6	60·8
	Bangalore (Fort)	...	27·034	·903	·131	·968	—·018	·845	86·2	61·0	25·2	90·5	52·9	37·6	75·9	84·0	73·1	+1·5	58·4	64·8	64·6	62·6
	Hassan	...	26·958	·837	·121	·898	?	·837	86·5	57·3	29·2	90·9	47·8	43·1	76·8	83·7	71·2	?	56·0	68·2	68·9	64·1
	Chitaldroog	...	27·607	27·477	·130	27·537	?	·828	89·2	66·1	23·1	93·3	58·9	34·4	80·2	87·1	77·1	?	58·6	66·0	67·5	64·1
	Trichinopoly	...	29·779	29 615	·164	29·701	—·006	·885	93·9	70·1	23·8	98·4	62·9	35·5	82·8	92·0	80·5	+2·5	66·9	71·8	71 0	69·9
	Madras	...	30·027	·910	·117	·969	+·001	·921	87·0	69·2	17·8	89·8	63·1	26·7	82·9	82·9	77·6	+0·5	?	74·3	74·1	72·7
	Bellary	...	28·530	28·385	·145	28·453	+·010	·851	93·9	66·8	27·1	98·2	60·1	38·1	82·4	90·8	80·3	+0·7	61·7	74·3	78·2	71·4
	Vizagapatam	...	30·019	29·903	·116	29·951	0	·920	80·9	75·2	5·7	83·9	72·7	11·2	79·6	81·4	79·1	+0·2	67·5	72·6	73·9	71·3
Hill Station, Baluchistan.	Quetta	...	24·642	24·591	·051	24·609	—·035	?	41·0	21·2	19·8	50·8	12·0	38·8	35·3	38·6	29·4	−11·0	24·1	34·7	38·1	32·3
Hill Stations, Northern India.	Leh	11,503	19·535	19·467	·068	19·507	—·082	?	29·2	6·9	22·3	41·2	−2·8	44·0	17·5	25·2	18·4	−3·9	6·0	15·5	21·7	14·4
	Srinagar	...	24·937	24·857	·080	24·890	?	?	34·2	18·1	16·1	45·4	0·4	45·0	26·6	32·2	25·6	?	17·5	24·8	28·9	23·7
	Murree	...	23 788	23·766	·022	23·770	—·064	?	38·1	26·4	11·7	46·5	19·7	26·8	33·9	34·0	30·6	−8·9	25·3	32·4	32·4	30·0
	Chamba	3,005	27·002	26·939	·063	26·977	—·007	?	51·7	36·8	14·9	66·1	30·3	35·8	42·6	48·1	42·0	−8·4	35·2	36·7	42·7	38·9
	Kailang	10,087	20·685	20·622	·064	20·660	—·084	?	28·7	8·8	19·9	41·7	−5·5	47·2	19·4	24·4	16·3	−4·4	8·2	16·6	20·4	15·1
	Simla (Ridge)	...	23·047	23·013	·034	23·023	—·060	?	38·7	28·6	10·1	47·3	20·5	26·8	34·7	35·4	32·2	−9·4	27·3	32·2	33·8	31·1
	Simla (Chapslee)	...	Not recorded.						40·2	28·8	11·4	47·9	22·3	25·6	35·8	?	?	?	28·0	33·9	?	?
	Chakrata	...	·210	·161	·049	·178	—·053	?	40·6	29·0	11·6	48·4	21·3	27·1	35·9	36·7	33·3	−9·4	27·6	32·7	34·2	31·5
	Ranikhet	...	24·112	24·070	·042	24·079	—·005?	?	46·4	33·8	12·6	57·3	29·9	27·4	41·0	43·4	38·8	−8·7	32·8	37·1	38·8	36·2
	Katmandu	4,388	25·706	25·616	·090	25·656	+·003	?	61·2	38·6	22·6	71·5	31·0	40·5	49·0	56·2	48·6	−4·2	37·0	45·4	48·1	43·5
	Darjeeling	...	22·949	22·893	·056	22·916	—·018	?	43·0	30·8	12·2	49·8	26·6	23·2	37·6	40·6	36·3	−4·4	31·0	35·9	38·0	35·5
	Pedong	...	25·327	25·240	·087	25·283	+·002	?	54·5	41·3	13·2	60·1	36·2	23·9	50·0	50·3	47·0	−2·5	39·9	46·0	46·1	44·1
	Demagiri	...	Not recorded.					?	76·1	50·5	25·6	81·0	40·5	40·5	67·7	74·2	62·9	−2·1	Not recorded			
	Tura	...	Ditto.					?	69 8	55·5	14·3	77·2	51·2	26·0	62·4	66·8	62·1	?	?	55·2	56·4	?
Hill Stations, Central India.	Mount Abu	...	26·107	26·039	·068	26·064	—·048	?	59·4	45·8	13·6	70·7	32·0	38·7	54·5	57·5	52·1	−8·4	40·1	45·4	47·1	44·2
	Pachmarhi	...	26·546	26·469	·077	·502	—·013	?	69·1	46·9	22·2	78·3	34·1	44·2	62·0	66·2	57·1	−5·1	42·7	50·6	53·0	48·8
	Chikalda	3,642	·411	·326	·085	·363	—·028	?	72·3	53·2	19·1	78·3	41·9	36·4	63·1	69·7	61·9	−5·9	46·6	52·1	55·2	51·3
	Makhla		Not recorded.					?	80·1	55·8	24·3	83·6	49·9	33·7	63·2	77·6	67·0	−2·1	50·0	55·2	59·5	54·9

II—*continued.*

Stations in India, Burma, etc., for February 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	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.	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.			
																									%	%					
·267	·275	·261	·268	−·012	56	38	26	40	+ 6	1·8	1·7	1·8	−0·1	4	5	8	2	6	1	3	7	20	N. 33° W.	N. 5° W.	37	29	180*	147		Buldana.	Deccan—*contd.*
·254	·289	·286	·276	−·040	64	40	20	44	+ 2	1·3	1·5	1·4	+0·1	...	9	21	3	...	1	3	4	15	N. 2° E.	N. 8° W.	55	32	125	88	0·17	Khandwa.	
·265	·300	·327	·297	−·010	65	46	35	49	+ 5	2·0	2·4	2·2	+0·7	5	5	17	10	...	4	5	7	3	N. 39° E.	N. 58° E.	27	18	88	65		Hoshangabad.	
·330	·373	·379	·361	+·039	69	47	36	51	+11	2·3	2·9	2·6	+0·7	1	8	15	12	3	4	7	4	2	N. 58° E.	N. 55° E.	30	17	140	93		Nagpur.	
·304	·322	·306	·311	0	86	53	38	59	+ 1	2·4	2·1	2·3	+0·2	9	9	10	3	5	5	3	6	6	N. 8° E.	N. 13° W.	18	20	41	59		Jubbulpore.	
·244	·267	·268	·260	+·020	68	45	33	48	+10	1·9	2·0	2·0	+0·6	...	9	10	10	11	2	9	4	1	S. 87° E.	N. 6° W.	25	24	75	68		Saugor.	
·103	·419	417	·313	−·034	24	56	42	41	− 4	3·1	3·6	3·4	+2·0	11	8	12	5	...	...	7	9	4	N. 13° W.	N. 40° W.	27	13	119*	93		Raipur.	
·257	·266	·240	·254	+·024	78	46	32	52	+12	3·2	2·3	2·8	+0·8	1	14	8	7	2	1	1	2	20	N. 29° E.	N. 41° W.	36	38	142*	116		Sutna.	
·530	·563	·663	·582?	+·176?	86	62	52	66?	+20?	1·2	1·6	1·4	+0·2	2	...	6	5	14	8	5	4	12	S. 19° E.	S. 71° E.	16	46	140	91		Secunderabad.	
·486	·524	·444	·480	?	78	55	37	56	?	1·3	2·7	2·0	?	9	1	3	7	13	5	3	8	6	S. 21° E.	?	18	?	106*	?		Hyderabad (Deccan).	
·453	·512	·558	·508	−·098	72	62	61	65	− 4	0·6	0·5	0·6	−0·7	...	5	10	7	3	2	1	5	23	N. 14° W.	N. 4° W.	43	60	258	256		Bombay.	West Coast.
·470	·501	·611	·527	−·065	75	50	60	62	0	0·2	0	0·1	−0·3	2	9	...	1	1	1	3	11	28	N. 51° W.	N. 52° W.	73	52	237*	219		Ratnagiri.	
·590	·610	·667	·622	−·031	94	65	61	73	0	0·2	0	0·1	−0·5	1	...	4	1	...	...	1	14	35	N. 53° W.	N. 50° W.	80	61	80	?		Karwar.	
·768	·768	837	·789	+·047	90	65	66	74	+ 3	0·3	0·5	0·4	−1·7	1	...	19	1	...	...	...	22	13	N. 37° W.	N. 89° W.	50	28	147	?		Cochin.	
·591	·590	·479	·553	−·002	85	53	33	57	0	2·3	4·2	3·3	+1·5	16	3	20	8	4	2	1	1	1	N. 61° E.	S. 75° E.	46	53	147	129		Salem.	South India.
·411	·444	·487	·447	+·048	81	58	56	65	+ 7	4·2	5·1	4·7	+2·2	...	9	2	18	2	4	...	7	14	N. 14° E.	N. 59° E.	27	35	64	95		Mercara.	
·461	·487	·387	·445	+·051	86	54	33	58	+ 6	0·8	1·5	1·2	−1·0	1	2	6	13	20	6	6	2	...	S. 54° E.	S. 67° E.	55	66	125*	86		Bangalore (Fort).	
·436	·587	·522	·510	?	92	64	46	67	?	2·9	4·4	3·7	?	...	2	14	10	19	5	2	2	2	S. 77° E.	?	52	?	61*	?		Hassan.	
·405	·467	·431	·434	?	63	45	33	47	?	0·9	2·3	1·6	?	3	3	9	13	12	1	4	4	7	N. 83° E.	?	28	?	129*	?		Chitaldroog.	
·625	·633	·480	·579	−·031	84	56	32	57	−5	3·6	2·9	3·3	+0·5	23	3	27	2	1	...	...	...	...	N. 46° E.	N. 65° E.	55	74	59	101		Trichinopoly.	
?	·734	·726	·742	+·078	?	65	64	78	+ 5	4·1	1·9	3·0	+0·4	...	...	...	19	28	8	1	...	...	S. 53° E.	E.	85	68	135	119		Madras.	
·495	·750	·813	·686?	+·326?	75	68	56	66?	+29?	0·4	2·2	1·3	0	30	3	3	2	4	5	4	1	4	S. 11° E.	S. 56° E.	5	50	46	94		Bellary.	
·568	·721	·752	·680	+·038	64	71	70	68	+ 3	5·0	3·0	4·0	+2·7	...	4	5	6	1	18	9	12	1	S. 28° W.	S. 11° W.	34	43	45*	49		Vizagapatam.	
134	·196	·227	·184	+·020	100	94	96	97	+32	4·6	5·8	5·2	+1·0	7	3	4	3	8	6	5	13	7	S. 66° W.	N. 76° W.	20	30	98	96		Quetta.	Hill Stations, Baluchistan.
·052	·075	·091	·073	−·004	86	76	66	76	+11	7·6	7·6	7·6	+0·9	14	...	...	3	1	17	16	4	1	S. 24° W.	S. 25° E.	55	18	18	33	0·11	Leh.	Hill Stations, Northern India.
·096	·118	·129	·115	?	93	82	71	82	?	8·8	6·7	7·8	?	17	...	...	1	14	10	3	1	10	N. 3° E.	?	27	?	80*	?		Srinagar.	
·128	·171	·170	·156	+·005	90	88	87	88	+25	6·2	7·9	7·1	+1·6	2	1	2	3	44	2	1	...	1	S. 48° E.	S. 39° E.	82	25	238*	196		Murree.	
·190	·193	·220	·201	−·025	86	71	68	75	+12	5·9	7·2	6·6	+1·1	38	2	...	1	3	...	1	1	10	N. 42° W.	N. 21° E.	14	7	50*	86	6·11	Chamba.	
·061	·074	·081	·072	−·033	89	68	61	73	− 4	6·6	6·7	6·7	+0·4	...	...	...	...	1	5	14	27	9	S. 78° W.	S. 69° W.	77	64	21	26	1·86	Kailang.	
·139	·158	·181	·159	+·007	90	80	87	86	+31	6·6	8·8	7·7	+2·4	18	2	...	...	1	34	...	...	1	S.	S. 22° W.	57	28	?	?		Simla (Ridge).	
·146	·177	?	?	?	94	85	?	?	?	6·5	?	?	?	Not recorded.									?	?	?	?	?	?		Simla (Chapslee).	
·135	·155	·174	·154	−·006	85	74	80	79	+17	3·5	2·9	3·2	−1·6	11	...	11	13	3	1	2	15	...	N. 65° E.	S. 54° E.	12	3	201*	125		Chakrata.	
·177	183	·191	·184	−·008	91	72	69	78	+18	6·5	7·2	6·9	+2·5	21	1	1	13	1	1	12	5	17	N. 72° W.	S. 55° W.	21	24	37	52		Ranikhet.	
·209	·265	·248	·241	−·003	87	76	55	73	+ 8	5·8	6·6	6·2	+3·1	1	3	...	12	4	1	2	30	3	S. 89° W.	N. 82° W.	34	67	25	?	2·10	Katmandu.	
·168	·195	·205	·191	−·020	94	86	81	85	+ 6	7·8	8·0	7·9	+2·2	5	3	3	8	2	1	15	16	3	S. 72° W.	S. 83° W.	32	33	161	121		Darjeeling.	
·234	·266	·265	·255	−·026	90	73	73	78	+ 1	6·3	7·0	6·7	+1·6	8	2	3	7	12	12	...	1	2	S. 46° E.	?	37	?	?	?		Pedong.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	...	13	2	...	1	36	4	N. 88° W.	N. 55° W.	45	32	?	?		Demagiri.	
?	·353	·336	?	?	?	62	53	?	?	4·0	3·5	3·8	+1·4	...	6	1	2	4	5	29	6	3	S. 50° W.	S. 12° W.	53	66	?	?		Tura.	
·186	·203	·208	·199	+·023	60	48	44	51	+17	3·5	4·0	3·8	+1·0	...	10	15	4	4	...	7	8	8	N. 4° W.	N. 71° W.	34	24	138	131		Mount Abu.	Hill Stations, C. India.
·234	·244	·256	·244	+·008	71	44	40	52	+10	2·3	2·4	2·4	+0·5	2	4	7	5	6	5	6	13	8	N. 82° W.	N. 49° W.	16	24	156*	92		Pachmarhi.	
·248	·268	·274	·263	−·021	60	47	38	48	+ 7	2·1	2·3	2·2	+0·7	10	8	1	...	5	10	4	4	14	N. 79° W.	N. 83° W.	23	26	180	143	0·37	Chikalda.	
?	?	?	?	?	?	?	?	?	?	2·4	3·1	2·8	−0·1	...	9	...	...	1	10	10	8	18	N. 82° W.	S. 83° W.	48	40	?	?		Makhia.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 92

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 to 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 Stations, S. India.	Wellington	...	24·329	24·255	·074	24·292	+·015	?	70·6	47·6	23·0	73·7	38·2	35·5	64·7	66·6	58·1	+0·2	46·5	56·3	57·2	53·3
	Kodaikanal	...			Not recorded.			?	64·6	48·7	15·9	69·7	44·1	25·6	58·4	58·2	55·0	?	44·4	51·3	52·4	49·4
	Kotagiri	...	...	...	...	...	...	...					Not received.		...	...	...	...	...	...	...	...
Extra India.	Muscat	...	30·092	30·013	·079	30·053	?	?	71·2	66·6	4·6	73·8	63·5	10·3	69·8	70·9	68·8	?	61·7	64·2	65·1	63·6
	Aden	...	29·960	29·841	·119	29·893	—·016	29·919	81·9	74·3	7·6	86·5	70·9	15·6	78·3	80·1	77·7	+0·9	68·9	71·4	70·9	70·4
	Perim	...	·809	·690	·119	·742	?	?	84·1	74·6	9·5	85·5	73·6	11·9	80·4	80·9	78·6	?	72·0	75·1	75·4	74·1
	Minicoy	...	30·020	·910	·110	·960	?	·895	85·8	?	?	87·5	?	?	82·1	82·7	81·5	?	71·9	75·8	76·1	74·6
	Zanzibar	...	29·921	·809	·112	·865	?	·864	85·1	79·1	6·0	88·1	75·0	13·1	82·3	85·3	82·2	?	75·3	76·8	76·8	76·3

II—*concluded.*

Stations in India, Burma, etc., for February 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	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.	NE.	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.			
																									%	%					
·312	·376	·373	·354	+·074	93	62	57	71	+14	2·4	4·7	3·6	+1·1	...	2	4	3	23	20	4	...	...	S. 29° E.	S. 31° E.	69	60	47	62		Wellington.	Hill Stations, S. India.
·253	·311	·336	·300	?	73	63	70	69	?	2·4	5·1	3·8	?	2	3	30	1	15	4	...	...	1	N. 72° E.	?	61	?	177	?		Kodaikanal.	
											Not r	eceive	d.											?		?		?		Kotagiri.	
·485	·530	·544	·520	?	74	72	72	73	?	2·9	3·2	3·1	?	...	1	7	13	2	1	2	10	20	N. 20° W.	?	30	?	?	?		Muscat.	Extra India.
·636	·677	·636	·649	−·007	75	70	62	69	− 3	6·2	1·2	3·7	−0·4	...	1	10	32	8	3	1	...	1	S. 89° E.	N. 81° E.	77	72	481	332		Aden.	
·749	·800	·806	·783	?	88	77	76	80	?	3·6	0·4	2·0	?	...	...	...	14	36	2	...	...	4	S. 56° E.	?	78	?	415	?		Perim.	
?	·808	·813	?	?	?	74	73	?	?	4·4	5·0	4·6	?	2	14	33	5	1	...	...	...	1	N. 37° E.	?	84	?	150	?		Minicoy.	
·829	·850	·810	·830	?	83	77	67	76	?	5·4	2·3	3·9	?	...	13	18	10	6	3	2	1	3	N. 49° E.	N. 25° E.	52	26	64*	162		Zanzibar.	

* Corrected.

G. I. C. P. O.—No. 11 Meteo.—15-6-93.—300.

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.

Reg. No. 199, Wr., I.—April 93.—500. Litho., S. I. O., Calcutta

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.

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

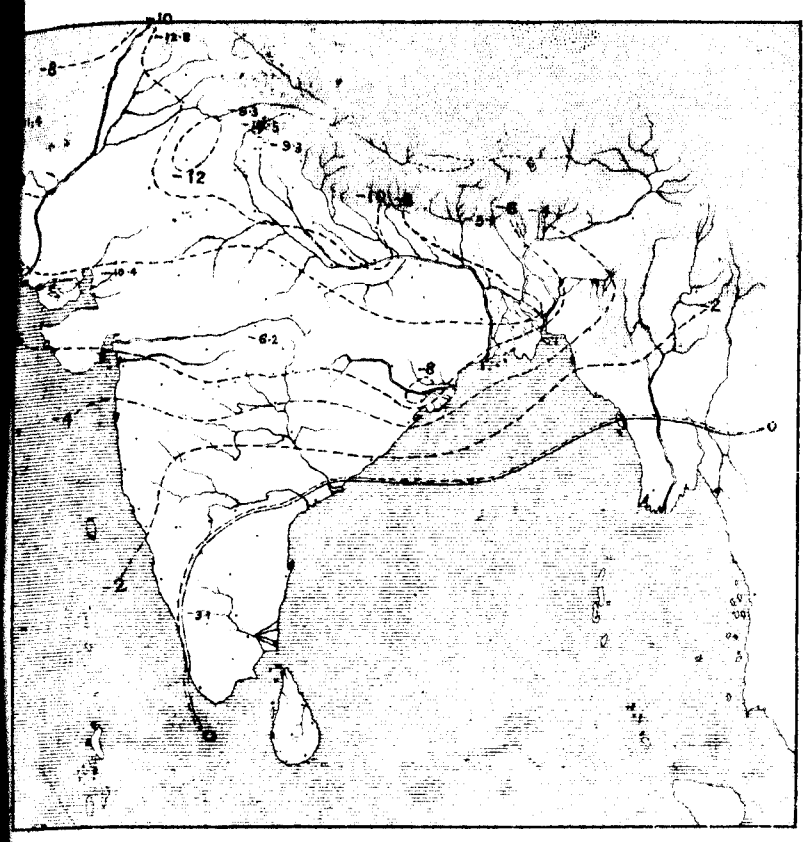
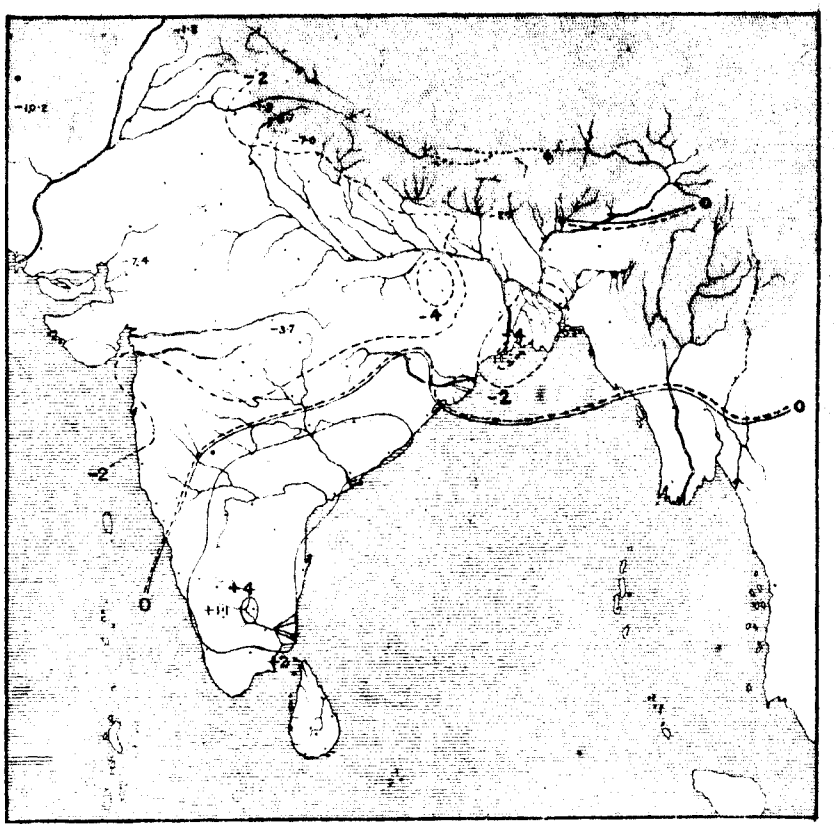


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

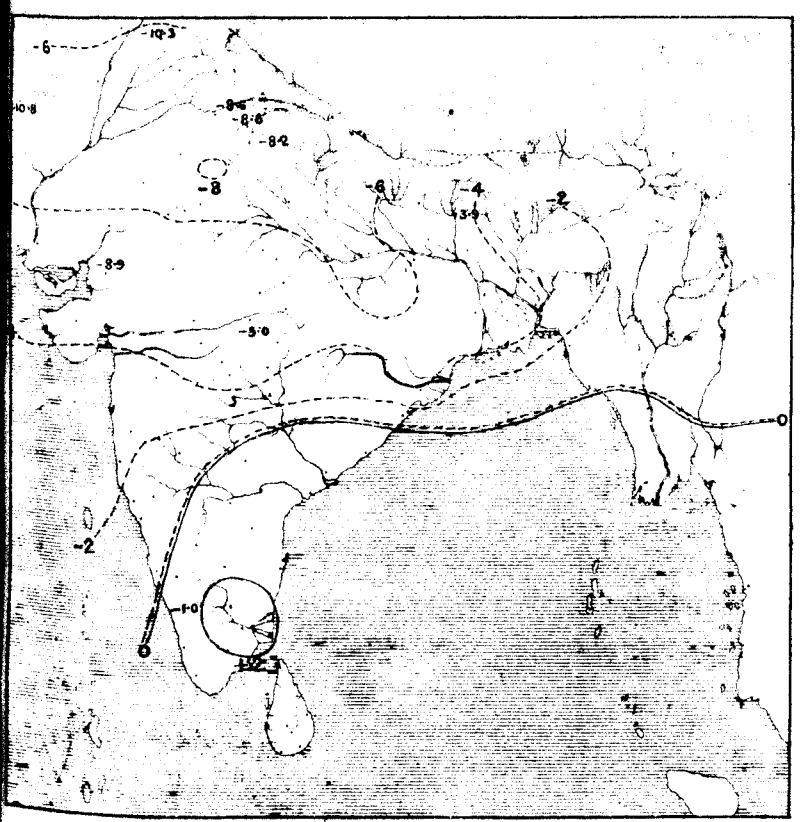
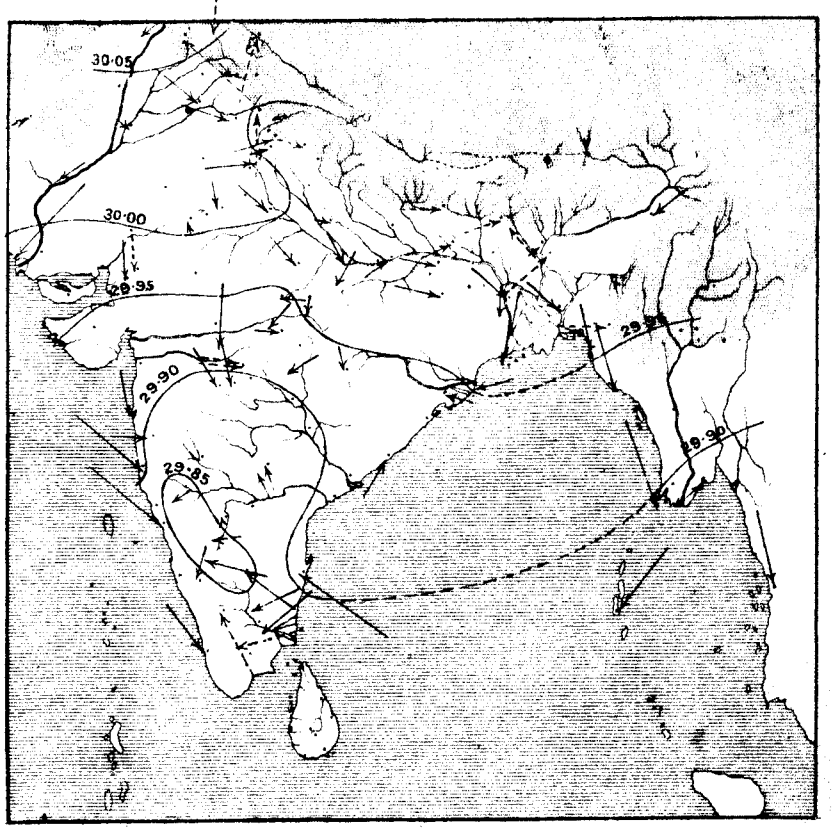


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OFFEBRUARY 1893.



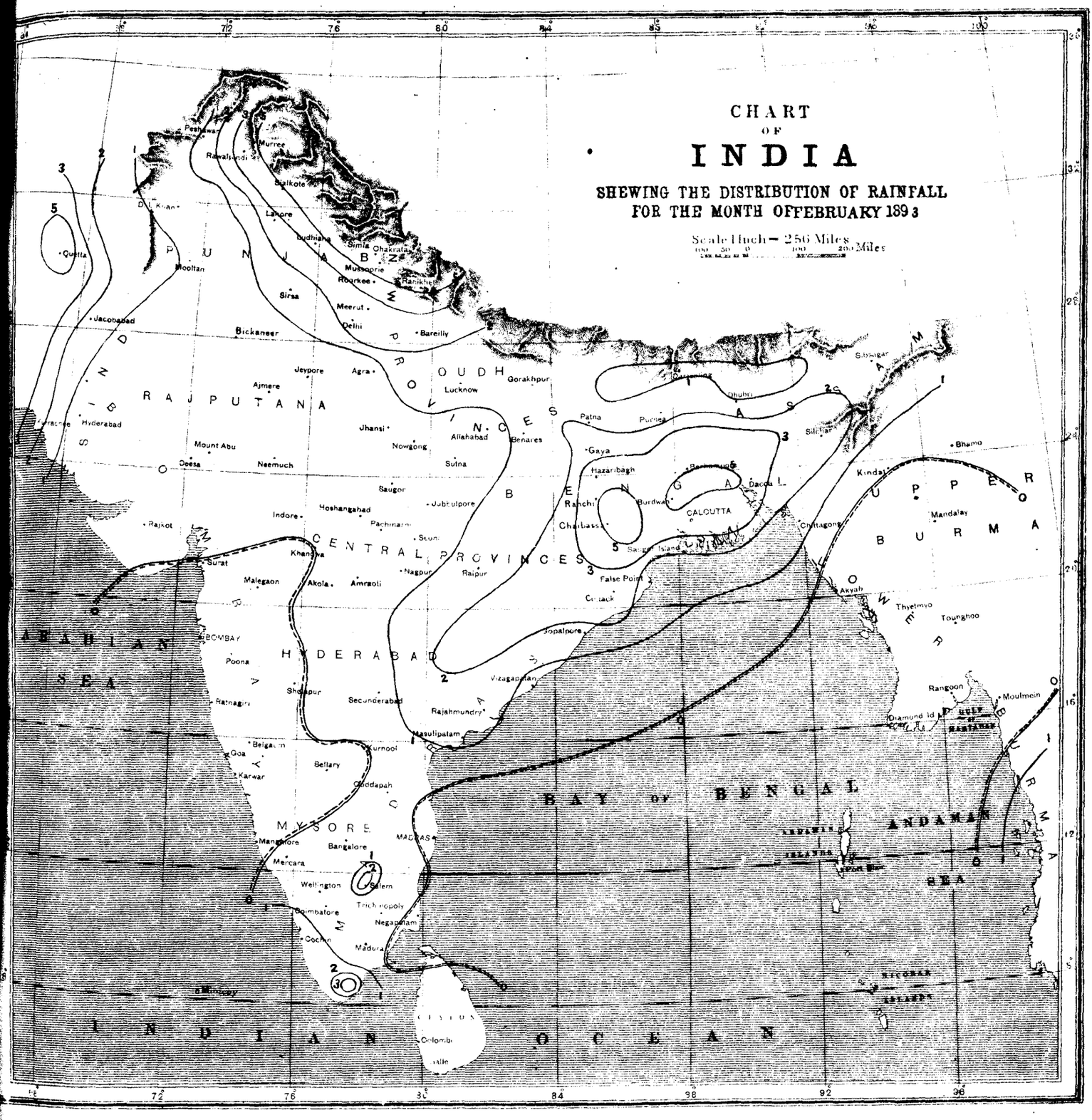
Explanation.

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 $\frac{1}{20}$th of an inch being equal to 100 per cent.

Reg. No. 186 Wr., I.—April 93—500.

Litho., S. I. O., Calcutta



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. 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. 100 Wr., I.—April 93.—500. Litho., S. I. O., Calcutta

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

Reg. No. 199, Wr., I.—April 93.—500.

Litho., S. I. O., Calcutta

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, MARCH, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of March 1893 is based on observations taken daily at 8 A.M. at 189 stations and on additional observations taken at 10 A.M. and 4 P.M. at 89 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 March 1893.

The meteorology of the month of March 1893 was characterized by very large and important variations from the normal. It resembled March 1891 in being unusually cool, damp and rainy. At the end of February 1893 temperature was considerably below the normal except in Lower Burma and South India. The deficiency was most marked in the Central Provinces, in the central and eastern districts of which it exceeded 10°. Fine dry weather obtained over the whole of India from the 1st to the 4th except in Burma and the Central Provinces, where thundershowers occurred daily throughout this period. Temperature hence increased, but was more or less below the normal except in Upper India, South India and Lower Burma on the 4th. A depression entered Sind on the 5th and filled up in Rajputana during the next 24 hours. The weather conditions were very unsettled during the next ten days and thunderstorms and hailstorms were of frequent occurrence. North-Western, Central and South India received fairly general rain on the 6th and 7th, the Central Provinces, the Deccan and Bengal on the 8th and 9th, Rajputana, Central India, Khandesh and Berar on the 10th, the North-Western Provinces, Central India, the Central Provinces and Berar on the 11th, Bengal on the 12th, 13th and 14th, and the Deccan and Southern India on the 14th and 15th. During the whole of this period the changes of pressure were irregular

Temperature was throughout the period largely below the normal, the deficiency varying from day to day with the distribution of the rainfall. The following table gives temperature variation data for the 4th, 8th, 12th and 16th:—

PROVINCE.	MARCH 1893.			
	4th.	8th.	12th.	16th.
	°	°	°	°
Burma	−1·5	−1·5	+2·4	+0·3
Bengal and Assam	−5·0	−2·2	−5·7	−6·9
North-Western Provinces	−5·4	−4·2	−6·5	−3·5
Punjab	−2·6	−7·2	−3·3	+2·5
Sind and Rajputana	+0·5	−2·5	−4·9	+3·4
Central India	−2·4	−3·7	−5·4	−1·9
Central Provinces	−6·2	−7·8	−9·4	−9·5
Bombay	−0·3	−1·7	−1·6	−2·2
Madras	−1·0	−1·7	−0·4	−3·9

The most noteworthy feature of this period was the very low temperature in the Central Provinces and Bengal. The deficiency averaged 8½° in the former area and 5° in the latter area.

The preceding data also show that temperature was in moderate excess in the Punjab and Sind on the 16th. A depression entered Sind on that day and advanced eastwards through Rajputana on the 17th to the foot of the hills in Rohilkhand, where it broke up during the next 48 hours. It gave light to moderate rain to the Punjab on the 17th.

Unsettled weather continued for some days after the disappearance of this depression. Numerous thunderstorms and hailstorms occurred in the Gangetic plain, the Punjab and Bengal on the 19th and thundershowers in Bengal on the 20th, 21st, 22nd and 23rd. Temperature was reduced very largely below the normal during this period, especially on the 24th at the end of this period. The mean temperature of the 24-hour period ending at 8 A.M. on that day was 11° in defect in the North-Western Provinces, 12° in the Central Provinces, 10° in Central India, 9° in Bengal, 8° in the Punjab and Rajputana, and 6° in Bombay.

A depression formed in or entered Sind on the 25th, which advanced eastwards to the foot of the hills between Ludhiana and Roorkee and broke up there on the 27th. It gave some light showers in the Punjab. Weather was disturbed with numerous thunderstorms in Southern India during this period. Fine weather with increasing temperature prevailed during the remainder of the month. Temperature was considerably in defect at the end of the month by amounts varying from 1° in Burma to 7° in the North-Western Provinces.

Pressure.—The mean pressure of the Indian area was ·017″ above the normal. Relatively to the general conditions pressure was in slight to moderate excess in Northern India and the Central Provinces and was in defect in the greater part of the Peninsula and in Lower Burma. The following gives data for the eleven meteorological provinces:—

PROVINCE.	Pressure variation.	Pressure anomaly.
	″	″
Burma Coast and Bay Islands	−·008	−·025
Burma Inland	+·017	0
Assam	+·027	+·010
Bengal and Orissa	+·035	+·018
Gangetic Plain and Chota Nagpur	+·034	+·017
Upper Sub-Himalayas	+·032	+·015
Indus Valley and Western Rajputana	+·016	−·001
East Rajputana, Central India and Guzerat	+·015	−·002
Deccan	+·017	0
West Coast	−·014	−·031
South India	−·002	−·019

Temperature.—In consequence of the numerous disturbances and larger rainfall than usual, temperature was more or less considerably below the normal during the month. The reduction was greatest in the Central Provinces, Berar and Bengal, and to a less extent in Madras, all of which areas received much heavier rain than usual. It was chiefly shown in the day temperature, which was very largely below the normal over the greater part of India. The deficiency was greatest in the area represented by the stations of Sambalpur (−12°·8), Nagpur (−12°·9), Raipur (−11°·8), Seoni (−11°·5) and Amraoti (−11°·9), or in the eastern and central districts of the Central Provinces.

The minimum or night temperature was below the normal over the whole of India, except South and Central Madras, but by much smaller amounts than the day temperature. The deficiency exceeded 2° in Northern and Central India and was slightly above 4° in South Bengal, Chota Nagpur and Bihar.

The mean temperature of the month was in general defect, the only station showing excess being Madras. The deficiency increased from the coast districts to the interior, and exceeded 6° in Hyderabad, Berar, the Central Provinces, West Bengal, Chota Nagpur, South Bihar and the submontane districts of the North-Western Provinces. It was absolutely greatest in the eastern and central districts of the Central Provinces, represented by Nagpur (−8°·4), Seoni (−8°·0), Raipur (−9°·9?) and Sambalpur (−7°·8).

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

Meteorological Province.	Variation from normal of			Average daily range.	Average absolute range during month.
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.		
	°	°	°	°	°
Burma Coast and Bay Islands.	−1·2	−0·5	−0·9	19·2	26·8
Burma Inland.	−3·0	+1·4	−0·8	29·4	43·0
Assam	−3·8	−2·6	−3·2	19·7	32·1
Bengal and Orissa	−6·9	−3·7	−5·3	19·5	36·6
Gangetic Plain and Chota Nagpur.	−7·2	−3·8	−5·6	25·2	43·6
Upper Sub-Himalayas	−8·0	−3·8	−5·9	23·4	42·6
Indus Valley and North-West Rajputana.	−3·4	−2·4	−2·8	27·4	44·7
East Rajputana, Central India and Guzerat.	−5·4	−2·7	−4·0	26·9	46·1
Deccan	−8·5	−3·6	−6·1	25·0	41·3
West Coast	−1·1	−1·4	−1·3	14·0	20·2
South India	−2·9	+0·3	−1·2	18·5	29·1

Winds.—The air movement was feeble and less steady than usual in Bengal, although winds were on the average of the month approximately normal in direction. In the Gangetic Plain winds were more directly from west than usual. Winds were very unsteady and abnormal in direction in Sind, but were slightly stronger than usual. Winds were abnormally unsteady in the Central Provinces, Berar and North Deccan, and were from north-east instead of north-west in the greater part of that area. The mean wind directions at Chikalda and Pachmarhi were south-west instead of north-west. Winds were slightly weaker on the Bombay coast. They were considerably stronger than usual at the hill stations, the increased velocity being very marked at Darjeeling.

Humidity.—The air contained less vapour than usual in Burma and South Bengal. Over nearly the whole of Northern and Central India the vapour amount differed to a very slight extent from the normal. Hence, in consequence of low temperature, the humidity was much greater than usual and was more than 10 in excess at several of the plain stations and at the hill stations generally in Northern India. In Berar, the Central Provinces and the Deccan the amount of vapour was considerably greater than usual, and as temperature was also most largely in defect in that area, the humidity was in excess to a very unusual degree. The excess was 25 at Akola, 29 at Secunderabad, and 22 at Nagpur.

The air contained slightly less vapour and was drier than usual in Sind and the West Coast districts. It was, on the other hand, damper in Madras, chiefly due to decreased temperature.

Cloud.—There was much more cloud than usual in nearly every district. The mean cloud amount of the month was slightly below the normal in the Bombay Coast districts, where skies were most serene, and in Sind. It was normal in the Punjab and Rajputana, in moderate excess in the North-Western Provinces, Chota Nagpur and Assam, and in large excess in Bengal (+1·7), Orissa (+1·6), Chota Nagpur (+1·5), the Central Provinces (+1·4), Berar (+1·9), and the East Deccan (+1·2). It was in moderate excess in Southern India.

The following gives variation data of the mean aqueous vapour pressure, humidity and cloud amount of the month in ten meteorological provinces in India.

Meteorological Province.	Variation from normal of		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"		
Burma Coast and Bay Islands	−·062	−5	+0·5
Assam	−·041	+2	+0·7
Bengal and Orissa	−·065	+2	+1·7
Gangetic Plain and Chota Nagpur	+·006	+9	+0·9
Upper Sub-Himalayas	+·001	+9	+0·4
Indus Valley and North-West Rajputana..	−·038	−1	−0·9
East Rajputana, Central India and Guzerat.	−·013	+6	+0·1
Deccan	+·063	+13	+0·7
West Coast	−·042	−2	−0·7
South India	−·005	+3	+1·5

Rainfall.—The rainfall of the month occurred under peculiar conditions. The two longest periods of rainfall were initiated by cold weather disturbances in Upper India. After these disturbances filled up, unsettled weather conditions continued for some days and numerous series of thunderstorms and hailstorms occurred in Northern and Central India and the Deccan. The first rainy period lasted from the 5th to the 13th, and the Central Provinces, the Deccan and North Madras received abnormally frequent rain. South India received numerous thundershowers on the 14th and 15th at the end of this period. The second period lasted from the 16th to the 23rd, when the rainfall was chiefly determined to the Central Provinces, the North Deccan and West Bengal. Southern India obtained a burst of rain from thunderstorms at the conclusion of this period. The chief feature of the rainfall distribution of the month was the unusually heavy fall over the whole of the Central Provinces, Berar, the Bombay Deccan, Hyderabad and Madras. The rainfall of the month was in moderate excess in Bengal and in defect (33 per cent.) in Assam. It was practically normal in North-Western India.

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

Division.	Rainfall.		
	Mean actual for March 1893.	Mean normal for March.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands*	1·73	0·86	+0·65
Burma Inland*	0·50	0·81	−0·15
Assam	3·75	5·58	−1·83
Bengal and Orissa*	2·29	1·70	+0·54
Gangetic Plain and Chota Nagpur	0·86	0·45	+0·40
Upper Sub-Himalayas	1·09	1·04	+0·06
Indus Valley and North-West Rajputana.	0·32	0·44	−0·12
East Rajputana, Central India and Guzerat.*	0·39	0·11	+0·36
Deccan*	3·52	0·28	+2·67
West Coast*	1·19	0·39	+0·88
South India*	1·96	0·49	+1·56

* A reference to Table I will show that the means in columns 2 and 3 are for a smaller number of stations than the means in the first column.

Atmospheric Pressure.

The mean pressure of the Indian area was ·017 inch above the normal. Relatively to the general condition pressure was in excess in Northern India and the Central Provinces. The excess was larger than ·02 inch in the areas defined by the following stations :—

Area.	Station.	Local pressure anomaly.
		"
Central Provinces, East	Nagpur	+·021
	Raipur	+·026
	Sambalpur	+·021
North Bihar and Bengal	Dhubri	+·025
	Purnea	+·028
	Darbhanga	+·030
	Patna	+·023
Northern Districts, North-Western Provinces.	Gorakhpur	+·025
	Bareilly	+·020

Pressure was locally in defect in Burma and the greater part of the Peninsula and Western India. The deficiency was moderately large in Lower Burma and Southern India. It exceeded ·03 inch in the following area :—

Area.	Station.	Local pressure anomaly.
		"
Malabar and South and Central Madras.	Karwar	−·040
	Mangalore	−·036
	Calicut	−·041
	Coimbatore	−·042
	Cochin	−·031

and probably also in Ceylon and the south and south-east of the Bay.

Pressure was almost as largely in defect at the hill stations relatively to the plain stations in March as it was in the preceding month. The following gives data :—

Hill station.	Pressure variation, March 1893.	Plain station.	Pressure variation, March 1893.	Vertical pressure anomaly.
	"		"	"
Quetta	+·029	Jacobabad	+·036	−·007
Leh	−·031	Lahore	+·032	−·063
Murree	−·029	Rawalpindi	+·032	−·061
Simla	−·030	Ludhiana	+·028	−·058
Chakrata	−·023	Roorkee	+·034	−·057
Darjeeling	−·030	Dhubri	+·042	−·072
Mount Abu	−·006	Deesa	−·008	+·002
Wellington	+·006	Coimbatore	−·025	+·031

The deficiency was hence large at the Himalayan stations, averaging ·06 inch. It was small in the case of Quetta and Mount Abu. There was, on the other hand an excess at Wellington, almost identical in amount with the excess in January and February.

Barometric Depressions and Cyclonic Storms of the Month.

The following gives a statement of the more important depressions and cyclonic storms of the month.

At the commencement of the month strongly marked anti-cyclonic conditions prevailed. Pressure ranged from 29·95″ in South Ceylon to 30·20″ in the North Punjab, and was in excess by amounts varying from ·04″ in the West Coast districts to ·20″ at Mooltan and Peshawar. Pressure was beginning to give way in Northern India. Weather was slightly unsettled with thundershowers in the Central Provinces. No important change occurred until the 4th, when pressure began to decrease rapidly in Upper India in consequence of the formation of a depression on the North-West Frontier.

Depression of the 5th to the 7th March.—The origin of the depression is very doubtful. The following gives the pressure changes at Bushire, Muscat, Karachi and Quetta for the 2nd to the 6th:—

STATION.	CHANGE OF PRESSURE DURING THE 24 HOURS PRECEDING 8 A.M. OF THE				
	2nd.	3rd.	4th.	5th.	6th
	"	"	"	"	"
Bushire	−·001	−·077	+·071	−·060	−·104
Muscat	+·003	+·007	−·071	−·012	−·025
Quetta	−·019	+·029	−·062	−·062	+·026
Karachi	−·022	+·009	−·061	−·080	+·021

The preceding table shows that the pressure changes were small and somewhat irregular. It is possible that the fall at Bushire on the 3rd and at Muscat on the 4th may have been due to the advance of a very feeble depression across the north of the Persian Gulf and the Mekran Coast, and that this disturbance entered Sind on the morning of the 5th. A very shallow depression covered Sind, Kathiawar and Guzerat at 8 A. M. of the 5th, the centre of which was some distance north-west of Deesa. Skies had clouded over in Upper India and were more or less clouded over the whole of Northern and Central India and the Central Provinces. Weather was disturbed with thundershowers in the Central Provinces. No rain had fallen in Sind or Rajputana during the previous 24 hours. The depression filled up partly during the day, and a shallow residual depression covered the same area on the 6th. Showers had fallen during the previous 24 hours in the Central Provinces, East Rajputana, Punjab, Central India and the western districts of the North-Western Provinces. The depression disappeared during the day.

The depression was hence very feeble throughout. It appears on the whole most probable that it formed over Sind, Kathiawar and South-West Rajputana on the 5th and that it filled up in that area during the next 36 hours.

Pressure was largely in excess over the whole of India on the 7th. The following gives mean pressure variation data of that day.—

AREA.	Variation of pressure from the normal of date.	Variation of mean temperature.	Mean cloud amount.
	"	°	
Punjab	+·168	−7·8	0·8
North-Western Provinces	+·135	−6·3	6·9
Bengal	+·106	−4·9	5·2
Assam	+·095	−3·5	0·3
Burma	+·054	0	0·5
Rajputana and Sind	+·103	−2·3	1·0
Central India and Guzerat	+·056	−2·5	7·9
Central Provinces	+·090	−6·0	8·4
Bombay	+·040	−2·4	4·1
Madras	+·067	−1·9	5·5

Pressure was hence considerably in excess in the whole of India. There was a slight deficiency relative to neighbouring districts in Central India. Weather was feebly disturbed with thunderstorms and hailstorms over the greater part of Northern and Central India. The Central Provinces had numerous hailstorms on the 7th and 8th; and Bengal thundershowers on the 8th and 9th, which gave that area moderate but fairly general rain. On the 10th and 11th Central India and Rajputana had light local showers, on the 12th and 13th the Central Provinces and Bengal, and on the 14th and 15th Bengal and the greater part of the Peninsula (more especially the Hyderabad state).

During the whole of this period from the 7th to the 14th the barometric changes from day to day were not large in amount but were very irregular, indicating a feebly disturbed condition of the atmosphere such as usually accompanies the occurrence of series of duststorms and thunderstorms in India. On the 14th pressure was in moderate excess in Northern India and in defect in the Peninsula south of Lat. 18° N. Pressure now began to give way rapidly in North-Western India, and a depression formed, which was the chief feature of the weather of the next five days.

Depression of the 14th to the 19th March.—This depression formed slowly in North-Western India and Baluchistan on the 14th and 15th. The following data giving pressure changes for the 11th to 18th show that it was not due to a disturbance transmitted eastward through Central Persia and Baluchistan:—

STATION.	CHANGE OF PRESSURE DURING THE 24 HOURS PRECEDING 8 A.M. OF THE							
	11th.	12th.	13th.	14th.	15th.	16th.	17th.	18th.
	"	"	"	"	"	"	"	"
Leh	−·024	−·035	+·003	−.003	−·018	−·099	−·104	−·082
Murree	+·004	−·002	−·014	−·050	−·052	+·002	−·072	−·089
Chaman	−·093	+·016	−·049	+·022	−·104	−·127	+·114	−·027
Quetta	−·037	+·009	−·013	−·005	−·064	−·129	+·060	−·031
Muscat	+·024	−·050	+·003	−·017	−·025	−·070	+·012	+·081
Bushire	+·062	−·043	+·045	−·094	+·126	+·003	−·036	−·018

Pressure gave way briskly to rapidly on the 13th and 14th in North-Western India and a depression was in existence on the 15th. The following gives 8 A.M. data for four stations in the area of shallow depression on the 15th:—

STATION.	PRESSURE.			WIND.		Cloud at 8 A. M.	Rainfall in past 24 hours.
	8 A. M. reduced to sea-level and constant gravity Lat 45°.	Change in previous 24 hours.	Variation from normal.	Direction 8 A.M.	Average hourly velocity of past 24 hours.		
	"	"	"		Miles.		Inch.
Bickaneer	29·802	−·124	?	S. W.	5	1	*Nil*
Jacobabad	·816	−·110	−·073	E.	3	0	"
Hyderabad	·836	−·099	−·074	S. W.	6	0	"
Deesa	·891	−·069	−·033	W.	?	0	"

Temperature was in slight excess in this area and was below the normal over the remainder of India, the

deficiency being greatest in the Central Provinces, where it averaged 11°.

16th March.—Pressure had given way rapidly in Baluchistan and Upper Sind, and a deepish depression now lay over that area. The following data show the character and position of the depression at 8 A.M. of the 16th :—

Station.	Pressure.			Wind.		Cloud 8 A.M.	Rainfall in past 24hours.
	8 A.M. reduced to sea-level and constant gravity. Lat. 45°.	Change in previous 24 hours.	Variation from normal.	Direction 8 A.M.	Average hourly velocity in past 24 hours		
	"	"	"		Miles.		Inch.
Chaman	?	−·127	?	N	5	7	*Nil.*
Quetta	?	−·129	−·109	SSE	3	4	0·02
Jacobabad	29·690	−·126	−·200	ESE	5	3	*Nil.*
Hyderabad	·765	−·071	−·142	SW	12	2	*Nil.*
Bickaneer	·756	−·046	?	SSW	5	5	*Nil.*
Mooltan	·786	−·040	−·130	NE	2	10	*Nil.*

The preceding data establish that a moderately deep depression, the centre of which was probably a little to the west of Jacobabad, had formed during the previous 24 hours. Skies were partially clouded in the area of depression and had clouded over in the Punjab and the adjacent hill districts. They were clear over the remainder of Northern and Central India. Winds were cyclonic in direction in the depression area but were feeble to moderate in strength. Temperature had increased very considerably in the area of depression. The following gives data for the preceding 48 hours for four stations :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		Change.
	15th.	16th.	
	°	°	°
Jacobabad	+3·4	+9·1	+5·7
Mooltan	+3·0	+7·7	+4·7
Sirsa	+1·7	+2·5	+0·8
Ajmere	−1·2	+6·6	+7·8

17th March.—The depression had advanced into Central and North-East Rajputana. The following data show its position and character at 8 A.M :—

Station.	Pressure.			Wind.		Cloud 8 A.M.	Rainfall in past 24 hours.	Weather.
	8 A.M reduced to sea-level and constant gravity Lat. 45	Change in past 24 hours	Variation from normal.	Direction 8 A.M.	Average hourly velocity in past 24 hours.			
	"		"		Miles.		Inch.	
Bickanee	29·660	−·096	?	SSW	7	0	0·04	Thunderstorm with hail.
Sirsa	·680	−·130	−·222	E	5	2	0·02	
Montgomery	·712	−·114	?	NE	14	4	*Nil.*	
Mooltan	·769	−·017	−1·49	NW	3	0	*Nil.*	
Jacobabad	·757	+·067	−·131	NE	5	0	*Nil.*	

The centre of the depression was hence near and to the west of Bickaneer. Skies had cleared in Sind and Rajputana, but were more or less clouded in the Punjab and western districts of the North-Western Provinces.

Strong winds prevailed in Rajputana and at the hill stations. Showers had fallen in the hill districts and North Punjab during the previous 24 hours.

The depression filled up during the next 24 hours, but the weather continued unsettled for several days. On the 18th pressure was very uniform over the Gangetic plain, and thunderstorms and hailstorms occurred during the next 24 honrs in the North-Western Provinces, the North Punjab and the hill districts. Very strong winds prevailed in Rajputana and Central India. Pressure increased rapidly in Upper India on the 19th and fell briskly in Bihar and Chota Nagpur and the eastern districts of the North-Western Provinces, and a shallow depression covered that area on the 21st and 22nd.

Thundershowers were confined on the 20th and 21st to Bengal and occurred chiefly in the central and southern districts and in Orissa.

The barometric changes on the 22nd were very irregular, and shallow depressions were shown in North Bengal and Orissa. Pressure increased during the next 48 hours, rapidly in North-Eastern India, and the rainfall due to thunderstorms, decreased in amount, and on the 24th fine clear weather obtained over nearly the whole of India. Pressure was however beginning to give way on the frontier on the 25th, the usual indication of the approach of a depressionto North-West India.

The barometric changes were small in amount from the 20th to the 24th, when pressure began to give way briskly on the North-West Frontier. Pressure was on the 25th above the normal in North-Eastern India and below it in the Peninsula, Western India and Burma. Pressure fell rapidly during the day, and a moderately deep depression was crossing the Sind Frontier on the morning of the 26th. The following gives a brief account of this depression :—

Depression of the 25th to the 27th March.—The Bushire observations indicate that this depression passed through Central Persia. The following gives data :—

Station.	Change of pressure during the 24 hours preceding 8 A.M. of the					
	21st.	22nd.	23rd.	24th.	25th.	26th.
	"	"	"	"	"	"
Bushire	−·070	−·037	−·091	+·104	+·112	+·041
Muscat	+·018	+·008	−·076	−·026	+·010	+·066
Karachi	+·028	−·012	−·020	+·014	0	−·068
Quetta	+·022	+·023	−·003	+·002	−·020	−·095

Light south-east winds prevailed at Bushire on the 21st, 22nd and 23rd, and strong north-west winds (12 to 20 miles per hour) on the 24th and 25th. It is hence almost certain that a depression passed through Central Persia, and that the centre was to the north of Bushire on the morning of the 23rd. This disturbance passed through Baluchistan

on the 25th and was of very slight importance as it gave no rain and only light cloud. It entered Sind on the evening of the 25th. The following data fix its position at 8 A.M. of the 26th :—

Station.	Pressure.			Wind.		Cloud 8 A.M.	Rainfall in past 24 hours.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in previous 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.		
	"	"	"		Miles.		Inch.
Karachi	29·783	—·068	—·095	WSW	13	0	*Nil*
Deesa	·828	—·029	—·042	WSW	5	0	*Nil*
Bickaneer	·738	—·096	?	SSE	6	0	*Nil*
Mooltan	·661	—·164	—·187	NW	3	0	*Nil*
Jacobabad	·646	—·145	—·179	E	6	0	*Nil*
Chaman	...	—·080	?	SSW	12	2	*Nil*
Quetta	...	—·095	—·124	SSE	6	2	*Nil*

The deepest portion of the depression hence stretched from Mooltan to Jacobabad. The wind directions were irregular but indicated that the centre was probably a little to the south-west of Jacobabad. Skies were clear in Sind and Rajputana and lightly clouded in the Punjab. Some light showers had fallen in the northern districts of the Punjab.

27th March.—The depression had advanced eastwards and covered the south-east districts of the Punjab between Lahore and Delhi at 8 A.M. of the 27th. The following data fix its position at that hour:—

Station.	Pressure.			Wind.		Cloud 8 A.M.	Rainfall in past 24 hours.
	8 A.M. reduced to sea-level and constant gravity Lat. 45°.	Change in previous 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.		
	"	"	"		Miles.		Inch.
Ludhiana	29·689	—·061	—·122	SSE	2	9	*Nil.*
Lahore	·722	—·027	—·098	Calm	4	6	*Nil.*
Sirsa	·718	—·037	—·095	NW	13	4	*Nil.*
Delhi	·725	—·084	—·089	Calm	2	7	*Nil.*
Umballa	·733	—·077	?	S	3	0	0·07

Skies were clear over the whole of North-Western India, except in the hills and the submontane districts to the east of the depression. Some light showers had been received in the East Punjab during the previous 24 hours. A considerable fall of temperature had taken place over Upper India. The mean temperature of the previous 24 hours was 8° in defect in the Punjab and 2° in Sind.

A very rapid rise of pressure in North-Western India (averaging ·25" in amount in the North Punjab), which occurred during the next 24 hours, filled up the depression and re-established anti-cyclonic conditions.

The barometer changes were slightly irregular during the remainder of the month, but fine dry weather with clear skies obtained until 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.

(I).—AFGHAN MOUNTAINS.

(1) *Hills west of Dera Ismail Khan.*—No snow fell on these hills during the month, and the snowlying at the commencement of the month dis-appeared rapidly.

(2) *Hills west of the Kohat district.*—The following information has been received from the Deputy Commissioner.

"The only range on which snow fell during the month was the Sufed Koh. Snowstorms occurred on the 6th and 15th on that range, but the total fall was only about nine inches.

"The snow on the higher mountains melted very rapidly during the month. It is stated to have been 9 feet in depth on the Sufed Koh and 7 feet on Torghar at the end of the month.

"The month was much cooler than usual. The snowfall of the past season has been unusually heavy."

(3) *Kabul.*—Rain or snow fell on six occasions during the month of February. The following gives a brief statement of these falls.

February 4th.—Snow fell from 4 P.M. of the 4th to 11-30 A.M. of the 5th. The total fall was 14 inches.

16th. Frequent rainshowers during the day.

25th. Rain and hail during thunderstorm.

26th. Light showers during day.

30th. Thundershowers with hail.

31st. Frequent rain during day.

The weather was unusually cold until the 15th, after which the temperature increased rapidly. Skies were generally cloudy during the month. The snow has disappeared from the whole of the Kabul valley, but there is much snow on the higher elevations. Travellers from Ghazni report that the snow is lying from 4 feet to 6 feet deep in some parts of the road.

(4) *Khyber Range.*—No snow fell on these hills during the month.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Murree.*—Snow fell on three occasions at Murree during the month, *viz.*, on the 6th, 19th and 20th. The total fall amounted to 2 feet 11 inches.

(2) *Kashmir.*—This winter was an exceptionally severe one. The snowfall was certainly not more than the snowfall of 1890-91, but the temperature was on the average much lower than has been experienced for some years.

Snow fell at Muzafferabad on the Jhelum valley road, height above sea level 2,260 feet, in January.

The depth of snowfall in the Banahal Pass and the Pir Punjal was about 9 feet.

The winter was much more protracted than usual. The spring commenced with moderately heavy rain, as is the rule in Kashmir.

The Woolar and Dal lakes were frozen over.

(3) *Kashgar.*—The following report on the snowfall in Kashgar, Chinese Turkistan, during the winter of 1892-93, has been received from the officer on special duty at Kashgar:—

24th November 1892.—A very slight fall from 6 A.M. to noon.			
8th December.—A few flakes in the evening.			
9th	„	A light fall beginning at the early morning and lasting until 8 P.M.	1 inch.
10th	„	A continual fall during the daylight	½ „
15th	„	A few flakes in the morning and evening.	
8th January 1893.—Between 7 P.M. and midnight			½ „
10th	„	From morning till evening slight falls	¾ „
11th	„		
12th	„		
13th	„	From midnight till morning and through the day	1 „
25th	„	From 4 A.M. to night	3 „
		Total amount of snowfall	6¾ „

The winter of 1892-93 has been one of unusual severity and length and the snowfall above the average.

(4) *Sarikol.*—The following information is taken from a weather report made by Jan Mahomed Khan at Tashkarghan:—

January.—Weather was very cloudy from the 4th to 13th. It then cleared and fine bright weather prevailed from the 16th to the 20th. Skies then clouded over, and on the 25th and 26th heavy snow fell on the adjacent mountains and light snow (4 inches in amount) at Tashkarghan. Snow in smaller amounts again fell on the 31st.

February.—Weather was very cloudy during the first half of the month. The following gives the snowfalls during the month (up to the 20th):—

5th.—Snow fell on the adjacent mountains in the afternoon.

13th.—Snow fell during the whole day in the mountains; light snow in afternoon at Tashkarghan.

14th.—Snow fell in the mountains during the whole day; light snow during the night at Tashkarghan.

15th.—Light snow (for three hours) at Tashkarghan.

19th.—Snow at Tashkarghan from 6 P.M. to 9 P.M.—Total fall 1 inch.

Fine clear weather prevailed from the 20th to the 24th.

(5) *Lahaul.*—The following account of the past winter in Lahaul has been received from Revd. A. W. Heyde, Superintendent of the Observatory at Kailang:—

"This winter has not been distinguished by much snow; only 7 feet having fallen from the 3rd of December to 20th of March at Kailang. The largest fall occurred from the 17th to 19th March, when 2 feet fell. Unusual and continuous cold has characterized this winter. In past winters the minimum thermometer showed 2° to 4° below zero generally about the end of January or the beginning of February, and then only for about 2 or 3 days. But this winter there were 28 days in January and February on which the thermometer fell below zero and once (27th January) even to 10° below it. This is curious as there was comparatively little snow and not much wind. Even this morning (the 24th of March) the minimum stood at only 4° above zero.

A great many cattle, sheep and goats have perished in Lahaul this winter from the cold.

Last year at this time all was quite dry, and dust around us. This year snow is still covering all, and lies at present 3 feet deep before our house.

Snow fell on one day in December, twelve days in January, and four in February. The total fall in these three months was 5 feet 2 inches, which is slightly below the normal."

(6) *Chamba.*—No snow fell at Chamba during the month. Snow fell on the 6th, 7th, 18th, 19th and 20th at Thenela (elevation 7,000 feet). The total fall was 15 inches.

Frequent thundershowers with heavy rain occurred during the month in the Chamba valley. Temperature was below the normal of the month.

The snow had melted on the sunny sides of the hills up to a height of 8,000 feet, but was lying at 5,000 to 6,000 feet at the end of the month on cold aspects of the hills.

The following gives the depth of snow lying at the end of the month:—

Sao Valley Forest . .	3 to 5 feet.
Kanala, on cold slopes . .	4 to 8 „
Kanji Pass	12 feet.
Chatri Jot	7 „
Kanjee Forests . . .	7 „
Kani Forest . . .	6 to 7 feet in the higher portions.

Chadbent Forest, 3 to 4 feet at level of stream.

The higher passes were not open at the end of month.

(7) *Kulu.*—The chief periods of snowfall during the month were from the 5th to 7th, the 16th to 21st, and the 26th and 27th.

The fall from the 16th to 21st was very heavy, and snow occurred as low down as 5,200 feet. The snowfall was much heavier than usual in March. The weather between the snowstorms was very warm, and the snow melted unusually fast.

The following table gives the reported depth of snow on the chief passes in Kulu on the 25th of the month and on the same date of the past four years for comparison :—

Name of Pass.	Height.	Depth of Snow on 25th of				
		March 1893.	March 1892.	March 1891.	March 1890.	March 1889.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Rotang	13,000	27	5	13	16	17
Hamta	14,500	25	4	13	10	16
Chandar Khani	?	26	4	14	6	10
Barsai	?	14	3	9	7	6
Bujadhar	?	15½	1	10	10	3
Lori Achri	?	12	1¾	8	6	5
Bhubhu	10,000	12	1	9	3½	6
Pushtari	?	10	2	9	7½	3
Majang	?	6	?	5	2	2
Sirikhand	15,000	40	10	39	16	56
Chul	?	20	1	9½	4	6
Maghian	?	19	1	11	5	6
Tikkar	?	14	1	9	?	?
Dundku	?	15	2	15	6	6
Ramgarh	?	?	...	½	?	?
Nunu	?	6	1	7	2	4
Jalori	10,500	14	1	7	4	4
Raghopur	?	14	1	8	5	5
Himri	?	15	1	8	5	4
Sakiran	?	15	2	13	?	?
Suphakun	?	15	3	23	8	8
Gargarasan	17,000	25	3	28	10	12
Bashleo	11,000	15	1	9	6	6
Plach	?	20	2	11	11	10
Tirath	?	25	3	15	12	13

(8) *Bashahr.*—Snow fell on the neighbouring mountains on the following dates :—

March 20th	10 inches.
" 21st	4 "
" 27th	3 "
" 28th	3 "

The snow line descended as low as 5,750 feet on the 20th and 21st.

According to the reports of natives, the depth of snow on the Rupin and Borenda Passes was nearly 30 feet at the end of the month.

The snowfall in Upper Kanawar has been less than to the west of Kilba.

The snowfall of the past winter is the heaviest that has occurred for many years.

III.—NORTH-WESTERN PROVINCES HIMALAYAS.

(1) *Kumaon.*—The following information has been forwarded by the Commissioner of Kumaon.

Malla Danpur.—Snow fell on four occasions during the month. The depth on the higher mountains was about seven feet. The weather was unusually warm in the intervals between the storms, and cold for a short time after each snowstorm.

Malla Darma Byans and Chandans.—Snow fell on the 7th, 21st and 22nd. The fall is estimated at 7½ feet.

Malla Johar.—There were five periods of snowfall on the Rohumghati and other passes. The total fall of the month on the passes is stated to be about 10 feet, at Milam 5 feet, at Rilkot 3 feet, and at Bagdwar 2½ feet.

The natives of these districts report that the fall during the past winter is greater than has occurred for several years.

IV.—SIKKIM HIMALAYAS.

The following brief statement of the snowfall in Sikkim has been received from the Revd. A. Desgodins :—

On the 11th and 12th of March, heavy fall of snow down to about 9,000 feet.

On the 15th and 16th of March snow fell down to about 8,500 feet.

On the 18th and 19th of March snow fell down to about 8,000 feet.

On the 27th of March, storm at night with light showers of snow down to about 11,000 feet.

V.—ASSAM HIMALAYAS.

(1) *Hills north of the Kamrup District.*—The Deputy Commissioner of Kamrup sends the following information :—

"In my recent visit to Darranga and Subonkhata I questioned the Bhutias and Khampas found in the encampments respecting the snowfall on their hills.

These men had come from distances varying from two days' to thirty days' journey. All stated that the fall of snow this year had been very heavy and was probably double that of the previous year.

In Thibet they informed me that, in consequence of the unusually heavy snowfall, many ponies had died.

The depth of snow on the passes, I understood from them, varied from about one foot near Kamrup to 3 feet, 4 feet and a man's height towards Thibet."

(2) *Hills north of the Darrang District.*—The Deputy Commissioner of Darrang sends the following report on the snowfall in the adjacent hills during the year 1892-93 :—

"No accurate details are obtainable, but all visitors to the plains declare that the snowfall has been heavy beyond the experience of living men. Bhutias have not been able

to bring ponies through the passes in which they say the snow lies neck deep and waist deep. Akas and Dafflas have a similar tale to tell. From the plains snow is visible on many peaks which are usually quite bare, and on the beautiful snowy range, north of the Aka country snow lies visibly lower than in most years."

(3). *Hills north of Lakhimpur.*—The Deputy Commissioner of Lakhimpur reports as follows :—

"Mr. Needham states that the snowfall on the hills inhabited by the tribes who visit Sadiya was unusually late this cold season and the fall was heavier than it has been for years past."

Summary of Special Storm Reports.

One of the more remarkable features of the month was the unusually large number of violent and destructive hailstorms. Some parts of North Bihar, more especially Chapra, were visited by more severe hailstorms than have been experienced for many years. Thunderstorms were also much more frequent than usual and some of these were exceptionally violent.

The following gives a brief summary of the more important storms of which special reports were received from observers during the month :—

2nd.—Very severe thunderstorm with hail and rain at Chikalda.

3rd.—Severe thunderstorm with violent winds at Bijapur from 4-15 P.M. to 4-30 P.M. Severe thunderstorm with hail at Chikalda. Violent thunderstorm with hail at Nagpur (3-40 P.M. to 4-30 P.M.). Much damage was caused to the standing crops in the neighbourhood. Temperature fell from 80° at 3-40 P.M. to 66° at 4-10 P.M.

5th.—Thunderstorm with hail at Hyderabad (Deccan).

Thunderstorm at Saugor with very violent winds (velocity 61 miles per hour) from 4-55 P.M. to 5-20 P. M.

6th.—Thunderstorm at Allahabad during night. Duststorm at Sutna at 5-5 P.M. Hailstorms are reported to have occurred in the neighbourhood of Sutna.

Thunderstorm with hail at Jubbulpore during the night. Total rain 1·04 inches. The greatest wind velocity during the storm was 40 miles per hour.

8th.—Severe thunderstorm with hail and heavy rain at Hyderabad (Deccan) from 6-30 P.M. to 7 P.M. Total rain 1·73 inches.

9th.—Thunderstorms at Khandwa and Ahmedabad (6-30 P.M.).

18th.—Violent thunderstorm at Allahabad from 10-40 P.M. to 11-30 P.M. Velocity of strongest winds was 31 miles per hour.

The following gives barometer and temperature observations taken at the Allahabad observatory during the storm :—

Time.	Barometer (reduced to 32°).	Dry bulb.	Humidity.	Aqueous vapour tension.
	"	°	%	"
9 P.M. . .	29·410	80·5	48	·482
10 " . .	·406	79·0	47	·466
11 " . .	·556	68·9	77	·548
Midnight . .	·429	68·2	75	·515

The barometer increased nearly a sixth of an inch between 10 P.M. and 11 P.M. and hence during the approach and advance of the storm.

Very severe hailstorms are also reported to have occurred in the Agra District. The largest hailstones are stated to have weighed from 8 to 10 ounces.

Severe hailstorm at Simla during night.

19th.—Very violent hailstorm in the Banda District which caused great destruction to the standing crops in the Banda, Karwi, Mau, Girwan, and Badausa parganas.

Thunderstorm at Simla.

Thunderstorm at Chittagong (2-30 P.M. to 3-25 P.M.).

20th.—Thunderstorm with hail at Dehra (3-30 to 4-30 P.M.).

21st.—Thunderstorm with hail at Mymensing from 4-45 P.M. to 5-30 P.M.

26th.—Thunderstorm at Rawalpindi (11-30 A.M. to 0·45 P.M.).

28th.—Thunderstorm with unusually hot winds at Comilla from 8-56 P.M. to 9-30 P.M.

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

Weather is usually fine throughout the whole month in the Bay of Bengal and Arabian Sea. The only changes of importance are in the strength of the winds in response to the barometer movements in the land areas to the north. These changes in March 1893 are fully described in the daily charts and weather reports of the Indian monsoon area which are published separately. The following gives a brief statement of the chief features of the meteorology of the two sea areas during the month :—

Arabian Sea.—Winds varied considerably in force and direction in the north of the Arabian Sea and Persian Gulf. Light to moderate north-east winds obtained steadily in the centre and south of the Arabian Sea, light northerly winds prevailed in the neighbourhood of the Bombay Coast and weather was occasionally squally to the west of Ceylon. Winds were on the whole strongest in the Gulf of Aden. They were moderate to strong in force during the first week of the month and again during the fourth week. Weather was generally fine and clear and sea smooth to slight during the month.

Bay of Bengal.—In consequence of the unusual pressure conditions of the month, north-east winds prevailed with abnormal steadiness during the month. Local south-west winds usually set in at the Head of the Bay in the third or fourth week of February. Northerly winds prevailed during the greater part of the month in South Bengal and the Head of the Bay. South-west winds set in for a brief period from the 16th to the 18th and again from the 21st to the 24th. There was also a tendency to their re-establishment on the 30th and 31st. North-east winds of moderate strength prevailed almost uninterruptedly during the month in the centre and south of the Bay. They were usually strongest to the east of Ceylon. Rain-squalls were of frequent occurrence to the east and south of Ceylon.

Temperature of the air.

The month of March 1893 was as remarkable for low temperature as the corresponding month of the preceding year was for high temperature. This reduction of temperature was in part due to the unusually disturbed weather of the month, and was in part a residual effect of the disturbed weather of the preceding two months. The reduction was shown more largely in the day than in the night temperature.

The mean day or maximum temperature of the month of March 1893 was below the normal at every reporting station except Madras where it was 0°·4 in excess. The deficiency increased in amount from the coast districts to the interior and was greatest in the Central Provinces, over the greater part of which it exceeded 11°. The following gives data for the area in which the deficiency was more than 11°:—

Station.	Mean Maximum Temperature.		Variation.
	Actual, March 1893.	Normal, March.	
	°	°	°
Nagpur	86·1	99·0	−12·9
Sambalpur	84·9	97·7	−12·8
Amraoti	87·1	99·0	−11·9
Raipur	85·1	96·9	−11·8
Seoni	82·5	94·0	−11·5

The deficiency was more than 6° over the whole of the triangular area defined by the stations of Rawalpindi, Bellary and Dacca.

The day temperature was in defect at the hill stations by amounts nearly equal to those at the neighbouring plain stations.

The following gives data for six pairs of stations :—

Hill Station.	Variation of the mean maximum temperature of the month from the normal.	Plain Station.	Variation of the mean maximum temperature of the month from the normal.
	°		°
Quetta	−2·9	Jacobabad	−2·0
Murree	−9·9	Rawalpindi	−6·7
Simla	−8·2	Ludhiana	−9·4
Ranikhet	−7·8	Bareilly	−9·0
Darjeeling	−5·3	Dhubri	−5·5
Pachmarhi	−7·9	Hoshangabad	−8·2

The mean minimum or night temperature of the month was below the normal over the whole of India except Mysore, South Madras and Central Burma. The deficiency exceeded 2° in Bengal, Northern and Central India (except Sind and Kathiawar), Berar, the North Deccan, and the Central Provinces.

It was more than 4° in amount in three areas, for which data are given in the following table :—

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	Station.	Mean Minimum Temperature. Actual, March 1893.	Normal, March.	Variation of mean minimum temperature, March 1893, from normal.
		°	°	°
I.	Saugor Island	70·0	75·1	−5·1
	Calcutta	65·6	69·9	−4·3
II.	Gaya	61·0	66·3	−5·3
	Hazaribagh	59·1	63·9	−4·8
	Benares	57·8	62·5	−4·7
III.	Bareilly	54·4	59·2	−4·8
	Meerut	53·9	58·0	−4·1

The night temperature was in defect to a larger extent at the hill stations than the neighbouring plain stations. The deficiency was greatest at Murree (−6° 3), Simla (−5°·9), Ranikhet (−5°·6) and Darjeeling (−4°·8).

The mean temperature of the month was in defect at all stations except Madras (+1°·0), and perhaps Tounghoo (+0°·5). The deficiency was small in the west coast districts, Burma and South India in which it was less than 2°. It increased from these areas to a large central area including the Central Provinces, West Bengal, Chota Nagpur, South Bihar and the greater part of the North-Western Provinces, over the whole of which area it exceeded 6°. It was absolutely greatest in the area defined by the following stations:—

Station.	Mean Daily Temperature. Actual, March 1893.	Normal, March.	Variation from normal.
	°	°	°
Nagpur	74·9	83·3	−8·4
Seoni	70·9	78·9	−8·0
Raipur	71·6	82·9	−11·3
Sambalpur	74·9	82·7	−7·8

The month of March was hence abnormally cool and was especially noteworthy for the great reduction of the day temperature in the Central Provinces, Berar and Chota Nagpur. The following table gives temperature data for the 51 meteorological divisions of the empire:—

Province.	Division.	Actual Temperature. Mean Maximum.	Mean Minimum.	Mean of day.	Mean Daily Range.	Absolute Range.	Variation. Maximum.	Minimum.	Daily Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	93·0	70·8	81·9	22·2	29·9	− 1·7	+ 1·7	0
	Lower Burma	91·0	71·2	81·1	19·8	27·7	− 1·0	− 0·8	− 0·2
	Central do.	96·7	67·4	82·1	29·3	44·8	− 3·0	+ 1·4	− 4·4
	Upper do.	92·3	62·8	77·6	29·5	42·7	?	?	?
	Arakan	88·0	65·0	76·5	23·0	33·0	− 0·8	− 3·8	+ 3·0
Bengal and Assam	Eastern Bengal	83·0	63·4	73·3	19·6	35·9	− 4·2	− 3·7	− 0·5
	Assam (Surma)	82·1	60·7	71·4	21·4	33·0	− 3·0	− 2·8	− 0·2
	Do. (Brahmaputra)	78·7	59·9	69·3	18·9	31·7	− 4·2	− 2·6	− 1·6
	Deltaic Bengal	84·2	65·5	74·9	18·7	37·3	− 3·4	− 0·9	− 2·5
	Central do.	84·3	62·3	73·3	22·0	40·8	− 9·4	− 3·2	− 6·2
	North do.	81·8	58·5	70·2	23·3	39·5	?	?	?
	Orissa	84·1	70·0	77·1	14·2	28·6	− 7·3	− 3·4	− 3·9
	Chota Nagpur	81·5	60·6	71·1	20·9	38·3	− 8·2	− 6·5	− 1·7
	Bihar (South)	85·1	60·5	72·8	24·6	43·9	− 7·7	− 4·4	− 3·3
	Do. (North)	83·8	58·5	71·1	25·3	41·7	− 5·8	− 2·9	− 2·9
North-Western Provinces and Oudh.	North-Western Provinces (East)	85·2	58·5	71·9	26·8	41·8	− 7·7	− 4·0	− 3·7
	Oudh (South)	84·7	57·6	71·1	26·9	46·3	− 7·1	− 3·1	− 4·0
	Do. (North)	?	?	?	?	?	?	?	?
	North-Western Provinces (Central)	83·7	55·9	69·8	27·9	50·1	?	?	?
	Do. do. (West)	85·4	60·8	73·1	24·6	46·2	− 7·3	− 3·4	− 3·9
	Do. do. (Submontane)	77·2	53·2	65·2	24·0	42·7	− 8·1	− 4·2	− 3·9
Punjab	Punjab (South)	80·4	56·1	68·3	24·3	44·2	− 6·8	− 3·3	− 3·5
	Do. (Central)	78·2	51·1	64·7	27·1	47·1	− 5·7	− 4·0	− 1·7
	Do. (Submontane)	76·3	54·2	65·3	22·1	43·0	− 9·4	− 3·2	− 6·2
	Do. (Hill Districts)	49·4	38·5	44·0	10·9	33·1	− 9·1	− 6·1	− 3·0
	Do. (North-West)	72·4	49·1	60·8	23·2	40·3	− 6·3	− 3·5	− 2·8
	Do. (West)	81·0	53·5	67·3	27·6	45·3	− 3·9	− 3·0	− 0·9

Province.	Division.	Actual Temperature. Mean Maximum.	Mean Minimum.	Mean of day.	Mean Daily Range.	Absolute Range.	Variation. Maximum.	Minimum.	Daily Range.
		°	°	°	°	°	°	°	°
Bombay and Malabar Coast Districts (Madras).	Malabar	88·6	75·8	82·2	12·8	17·3	− 0·5	− 0·5	0
	Madras (South Central)	94·8	70·8	82·8	24·0	36·4	− 2·6	+ 0·8	− 3·4
	Coorg	80·3	62·1	71·2	18·2	26·5	− 4·3	+ 1·3	− 5·6
	Mysore	88·3	64·4	76·4	23·9	32·1	− 2·7	+ 1·1	− 3·8
	Konkan	85·6	71·7	78·7	13·9	23·0	− 1·2	− 2·0	+ 0·8
	Bombay Deccan	92·7	64·6	78·7	28·1	41·1	− 4·2	− 2·0	− 2·2
	Hyderabad (North)	88·5	65·1	76·8	23·4	38·2	?	?	?
	Khandesh	91·5	60·2	75·9	31·4	46·6	− 5·0	− 2·5	− 2·5
Central Provinces and Berar.	Berar	87·8	64·1	76·0	23·8	42·9	− 11·3	− 3·2	− 8·1
	Central Provinces (West)	88·6	62·2	75·4	26·4	45·2	− 9·2	− 3·4	− 5·8
	Do. (Central)	84·5	60·0	72·3	24·5	42·8	− 9·5	− 4·5	− 5·0
	Do. (East)	84·8	61·7	73·3	23·2	40·1	− 10·2	− 2·6	− 7·6
Bombay (North)	Guzerat	94·3	65·6	80·0	28·8	44·4	− 1·9	− 1·2	− 0·7
	Kathiawar	88·9	64·3	76·6	24·6	40·7	− 3·5	− 1·3	− 2·2
	Sind	87·8	62·2	75·0	25·6	40·7	− 2·4	− 1·2	− 1·2
Rajputana and Central India.	Central India (East)	86·2	57·8	72·1	28·4	47·2	− 6·8	− 3·3	− 3·5
	Rajputana (East), Central India (West)	86·4	58·5	72·5	27·9	50·0	− 4·7	− 2·5	− 2·2
	Do. (West)	91·2	57·1	74·2	34·1	56·6	?	?	?
Madras	East Coast (North)	86·3	73·3	79·8	13·0	24·7	− 3·5	− 0·7	− 2·8
	Hyderabad (South)	90·4	69·4	79·9	21·0	35·2	− 9·4	− 2·8	− 6·6
	Madras (Central)	96·5	72·8	84·7	23·8	33·3	− 4·4	− 0·6	− 3·8
	East Coast (Central)	90·8	73·2	82·0	17·7	30·2	− 3·5	+ 1·0	− 4·5
	East Coast (South)	90·5	74·3	82·4	16·1	27·4	− 0·8	+ 1·3	− 2·1
	Madras (South)	91·0	75·0	83·0	16·0	25·1	− 3·0	+ 0·8	− 3·8

The following gives a sketch of the more important temperature features of the month. Temperature was very considerably below the normal in the beginning of the month. The deficiency was greatest in the Central Provinces. The following table gives variation data of the 24 hours preceding 8 A.M. of the 1st:—

Meteorological Province or area.	Variation from normal of Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−0·5	+1·3	+0·4
Bengal and Assam	−8·0	−4·5	−6·3
North-Western Provinces and Oudh	−8·8	−6·2	−7·5
Punjab	−7·1	−4·6	−5·9
Sind and Rajputana	−5·5	−3·7	−4·6
Guzerat and Central India	−5·8	−2·5	−4·2
Central Provinces and Berar	−13·9	−1·5	−7·7
Bombay	−4·3	−0·9	−2·6
Madras	−4·8	+2·2	−1·3

Showers fell in the Central Provinces on the 2nd and 3rd. Weather cleared in other districts on the 2nd, and temperature increased rapidly until the 4th, when a disturbance began to affect North-Western India. It gave general rain over the greater part of Northern and Central India and the North Deccan during the next three days and showery weather until the 12th.

The following gives mean temperature variation data of the 4th, 8th and 12th:—

Meteorological Province or area.	Variation from normal of mean temperature of 24 hours ending at 8 A.M. of the 4th.	8th.	12th.
	°	°	°
Burma	−1·5	−1·5	+2·4
Bengal and Assam	−5·0	−2·2	−5·7
North-Western Provinces and Oudh	−5·4	−4·2	−8·5
Punjab	−2·6	−7·2	−3·3
Sind and Rajputana	+0·5	−2·5	−4·9
Guzerat and Central India	−2·4	−3·7	−5·4
Central Provinces and Berar	−6·2	−7·8	−9·4
Bombay	−0·3	−1·7	−1·6
Madras	−1·0	−1·7	−0·4

Temperature was hence considerably below the normal over the whole Indian area during this period, the deficiency varying from day to day with the rainfall. The chief feature throughout was the excessively low temperature in the Central Provinces. Weather cleared in Northern India on the 13th and became disturbed in the Peninsula to

the south of Lat. 18°N. and Bengal in which areas fairly heavy and general rain due to numerous thundershowers was received. The rainfall reduced temperature considerably in the Peninsula. At the same time temperature was rising rapidly in Upper India in front of another cold weather disturbance. The following gives temperature data of the 16th:—

Meteorological Province or area.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−3·0	+3·5	+0·3
Bengal and Assam	−9·1	−4·7	−6·9
North-Western Provinces and Oudh	−4·9	−2·1	−3·5
Punjab	+1·5	+3·4	+2·5
Sind and Rajputana	+2·1	+4·6	+3·4
Central India and Guzerat	−3·6	−0·1	−1·9
Central Provinces and Berar	−11·6	−7·4	−9·5
Bombay	−2·7	−1·6	−2·2
Madras	−6·2	−1·5	−3·9

The disturbance advanced across Upper India. It gave showers to North-Western India on the 17th and 18th and general moderate rain to the whole of Northern India on the 19th and showers in North-Eastern India on the 20th, 21st, 22nd and 23rd. This cloudy disturbed period was one of continuously low temperature. The following gives variation data for this period:—

Meteorological Province or area.	Variation from normal of mean temperature of 24 hours ending 8 A.M. of the				
	20th.	21st.	22nd.	23rd.	24th.
	°	°	°	°	°
Burma	−1·6	−1·3	−1·0	−1·7	−1·0
Bengal and Assam	−3·1	−2·7	−3·6	−6·8	−9·1
North-Western Provinces and Oudh	−4·5	−6·6	−9·9	−12·0	−11·1
Punjab	−8·0	−11·2	−10·6	−10·4	−8·3
Sind and Rajputana	−8·3	−8·1	−9·7	−9·5	−7·6
Central India and Guzerat	−5·2	−7·2	−10·2	−9·4	−9·7
Central Provinces and Berar	−3·2	−5·6	−7·4	−10·0	−11·6
Bombay	−2·4	−3·7	−4·8	−6·5	−6·0
Madras	−1·5	−1·3	−0·4	−0·1	−1·1

Fine clear weather was re-established over the greater part of India on the 25th, and temperature began to rise. On the 26th another disturbance appeared on the North-West Frontier. It advanced eastwards from Upper Sind on the 27th and 28th to Rohilkhand. The changes of temperature due to this disturbance were comparatively small in amount. Temperature continued to rise, and at the end of the month the variations from the normal were smaller than they had been during the preceding three weeks. A rapid rise was in progress on the 30th and 31st in Upper India in front of a disturbance which crossed the North-West Frontier from Baluchistan on the 31st. The following gives temperature variation data for the 31st, which should be compared with those of the 24th given above:—

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

The following gives a brief summary of the chief temperature features of the month:—

(1) Temperature was below the normal over the whole of India, the deficiency being greater in the day than the night temperature.

(2) The deficiency was largest in the Central Provinces, Bombay and North Berar where it was nearly 8° in amount.

(3) Temperature was very considerably below the normal at the Himalayan hill stations, the deficiency being nearly as large in the night as in the day temperature.

(4) Temperature was below the normal during nearly the whole of the month, the amount of the deficiency varying from day to day with the occurrence and distribution of rainfall. The deficiency was on the whole greatest from the 21st to the 24th.

Winds.

In Burma the mean air movement of the month differed little from the normal either in direction or amount. Winds were more northerly than usual on the Arakan coast and at Diamond Island.

Winds were less steady and feebler than usual in Bengal. This was due to the disturbances of the month which gave abnormal northerly winds. In the intervals between the disturbances the normal southerly local sea winds obtained,

but they were, in consequence of the peculiar temperature conditions of the month, feeble. The mean wind directions of the month in Bengal, Assam, Chota Nagpur and Bihar were practically normal. The following data for five stations show the unsteadiness and weakness of the winds in this area:—

Province.	Station.	Steadiness.		Velocity.	
		Actual percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.
		%	%		
Assam	Sibsagar	60	59	42	66
Bengal	Calcutta	31	49	68	125
	Burdwan	14	43	40	79
Chota Nagpur	Hazaribagh	43	61	185	178
Bihar	Darbhanga	14	27	97	113

In the North-Western Provinces, Rajputana and the Punjab, winds were slightly less steady and feebler than usual; they were also more directly from west, the northerly element being feeble.

Winds were very unsteady and abnormal in direction in Sind. The mean wind directionsw ere mainly determined by the unusually large number of depressions which passed through Sind during the month. The following gives data for two stations in that area:—

Station.	Direction.		Steadiness.	
	Mean.	Normal.	Actual percentage.	Normal percentage.
			%	%
Karachi	N 8° W	S 69° W	27	64
Jacobabad	S 28° E.	N 67° E	13	6

Winds were also slightly stronger than usual in Sind.

Winds were very unsteady in Berar, the Central Provinces and the North Deccan. The mean wind directions over the greater part of the area were north-east instead of north-west. The following gives data for three representative stations:—

Station.	Direction.		Steadiness.	
	Mean.	Normal.	Actual percentage.	Normal percentage.
Akola	N 45° E	N 43° W	10	44
Khandwa	N 19° E	N 46° W	24	48
Nagpur	N 87° E	N 20° W	24	6

In the eastern and northern districts of the Central Provinces and in Baghelkhand the mean winds of the month were practically normal in direction.

Winds were not so strong or steady as usual in the Bombay coast districts, *e.g.*—

Station.	Velocity.		Steadiness.	
	Mean velocity in miles per diem.	Normal.	Actual percentage.	Normal percentage.
			%	%
Bombay	207	274	31	55
Ratnagiri	206	236	82	60

Winds were more easterly and slightly feebler than usual in Madras, but the variations were not important.

Winds were on the average of the month stronger than usual at the hill stations. The most important feature was an abnormal northerly element in the wind directions, most strongly exhibited at the following stations:—

Station.	Direction.		Velocity.	
	Mean.	Normal.	Mean velocity in miles per diem.	Normal.
Chamba	N 41° W	N 1° E	115	118
Chakrata	N 88° W	S 56° W	265	138
Simla	N	S 42° W	?	?
Darjeeling	N 88° W	S 77° W	188	160

Winds were as abnormal at the hill stations of Pachmarhi and Chikalda as at the neighbouring plain stations. The following gives data:—

Station.		Direction.		Steadiness.	
		Mean.	Normal.	Actual percentage.	Normal percentage.
Hill	Pachmarhi	S 36° W	N 57° W	14	36
	Chikalda	S 34° W	N 52° W	16	34
Plain	Hoshangabad	S 75° E	N 55° W	8	15
	Buldana	N 48° E	N 28° W	21	50

The mean wind directions of these stations were hence south-west instead of north-west. Winds were hence deflected at these hill stations to as large an extent as at the neighbouring plain stations. The deflections were however in the opposite directions at the hill and the neighbouring plain stations.

Humidity and Cloud.

The air contained much less vapour and was drier than usual in the Bay Islands, Burma and South Bengal. This was the continuance of a feature which had been prominent during the previous three months. The following gives data for five stations:—

Station.	Aqueous vapour pressure.			Humidity.		
	Actual.	Normal.	Variation.	Actual.	Normal.	Variation.
	"	"	"	%	%	
Port Blair	·847	·869	—·022	74	77	—3
Diamond Island	·706	·776	—·070	72	76	—4
Akyab	·568	·683	—·115	63	72	—9
Saugor Island	·712	·822	—·110	79	79	0
Calcutta	·560	·675	—·115	66	70	—4

The air contained less vapour than usual at the majority of stations in Northern and Central India, but the variations from the normal were generally of little importance. In consequence of the low temperatures the mean humidity of the month was very considerably in excess over the whole of Northern India, the excess being greatest where temperature was most largely below the normal. The excess was 10 or upwards at the following stations in Northern India:—

Station.	Humidity.		
	Actual.	Normal.	Variation.
	%	%	
Roorkee	61	49	+12
Lahore	59	49	+10
Hazaribagh	46	34	+12
Burdwan	64	40	+15

One of the most interesting features of the meteorology of the month was the excessive moisture and humidity in the Central Provinces, Berar and the Deccan. The following gives data for the stations at which this feature was most conspicuous:—

Station.	Variation from normal of	
	Aqueous vapour pressure.	Humidity.
	"	
Sholapur	+·135	+18
Akola	+·145	+25
Buldana	+·065	+18
Nagpur	+·094	+22
Secunderabad	+·105	+29

The mean humidity of the Deccan was 13 above the normal of the month. The air was drier in the West Coast districts, but was generally damper in Mysore and South Madras. The humidity variation in the former area was greatest at Bombay (—3) and in the latter at Bangalore (+7). The increased humidity was as conspicuous at the hill stations as at the plain stations, and was due almost entirely to decreased temperature. The variations at the hill stations were greatest at Chikalda (+20), Leh (+15), Chakrata (+15), Pachmarhi (+15), Wellington (+15), and Ranikhet (+13).

The chief features in this element of observation for the month of March were—

1st.—Decreased humidity and aqueous vapour pressure in Burma and South Bengal.

2nd.—Largely increased humidity in Northern and Central India, due to unusually low temperature.

3rd.—Largely increased humidity and aqueous vapour pressure in the Central Provinces, Berar and the Deccan.

4th.—Moderate local deficiency of aqueous vapour and humidity in the Bombay Coast districts.

5th.—Moderate excess of humidity in Bengal and Southern India.

The cloud conditions of the month were as abnormal as the humidity conditions. The mean amount of cloud of the month was in slight excess in the Andamans, Burma and Arakan, and was more or less largely in excess over the whole of Northern India. The following gives data:—

Meteorological Province or area.	Cloud Amount.		
	Actual average, March 1893.	Normal average, March.	Variation from normal.
Assam	5·0	4·3	+0·7
Bengal	4·6	2·9	+1·7
Orissa	4·4	2·8	+1·6
Chota Nagpur	4·0	2·5	+1·5
Bihar	2·5	2·1	+0·4
North-Western Provinces	3·3	2·5	+0·8
Punjab	3·6	3·7	—0·1

The humidity data show that the excess in the amount of cloud was smaller in the Gangetic Plain than in North-Eastern India, and was large and very uniform over the whole of North-Eastern India and Burma, averaging 1·6 or nearly 60 per cent. of the normal. There was considerably less cloud in Sind and slightly less in Rajputana and Central India.

The cloud amount was, on the other hand, almost as largely in excess in Berar, the Central Provinces, and the East Deccan as in North-Eastern India. The following gives data :—

Meteorological Province.	Cloud Amount.		
	Actual average, March 1893.	Normal average, March.	Variation from normal.
Central Provinces (North of Satpuras)	2·1	1·8	+0·3
Central Provinces (South)	3·7	2·3	+1·4
Berar	3·8	1·9	+1·9
East Deccan	2·8	1·8	+1·0

The cloud amount was in moderate excess in Mysore and Southern and Central Madras. It was in defect in the Bombay Coast districts where skies were more free from cloud than in any other portion of the Indian area. The following gives data :—

Station.	Cloud Amount.		
	Actual average, March 1893.	Normal average, March.	Variation from normal.
Bombay	0·6	1·7	−1·1
Ratnagiri	0·8	0·6	+0·2
Karwar	0·4	1·6	−1·2

The mean amount of cloud was as largely below the normal at Quetta as at the Sind stations. The variations were small at the hill stations in the Western Himalayas, but there was a large excess in the Eastern Himalayas and at the Southern Madras hill stations.

Station.	Cloud Amount.		
	Actual average, March 1893.	Normal average, March.	Variation from normal.
Darjeeling	7·0	5·2	+1·8
Chikalda	3·6	3·2	+0·4
Wellington	4·6	3·0	+1·6

The cloud amount was in slight defect at Pachmarhi and Mount Abu.

The chief features of the cloud data of the month were—

(1) Large excess in Bengal, Assam, Chota Nagpur, Mysore, the Central Provinces, and the North, Deccan.

(2) Moderate excess in all other districts except Sind, Baluchistan, West Rajputana, and the Bombay Coast districts, where the cloud amount was more or less below the average. The deficiency was greatest in 1st, Sind; 2nd, Baluchistan; and 3rd, the Bombay Coast districts, where skies were also most serene.

Rainfall.

The chief periods of rainfall were as follows :—

1st—From the 5th to the 13th. The rainfall of this period was initiated by a shallow cold weather depression, but after its dispersion weather continued feebly unsettled for some days, and the Central Provinces, Berar, the North Deccan, and Bengal received daily showers during this period. The Punjab and western districts of the North-Western Provinces obtained light to moderate showers on the 6th and 7th, and the North-Western Provinces on the 11th.

2nd—From the 14th and 15th, when thundershowers were received in the Peninsula to the south of Latitude 16° N.

3rd—From the 16th to the 23rd. The rainfall during this period occurred under similar circumstances to those of the first period of the month. A depression passed across North-Western India on the 16th and 17th, and weather was slightly unsettled for several days afterwards. The Punjab and Rajputana received light rain on the 17th and 18th, the North-Western Provinces on the 19th, and Bengal from the 19th to the 23rd.

4th—On the 26th and 27th during which the Punjab received light rain from a feeble cold weather disturbance.

The following gives the chief features of the rainfall distribution of the month :—

1st—More frequent rain than usual in Bengal, Bihar, Chota Nagpur, and the North-Western Provinces. The rainfall in these areas was hence in moderate excess.

2nd—The rainfall of the month was on the whole in slight excess in the Punjab, Rajputana, and Guzerat, but the variations were small.

3rd—Unusually frequent and abnormally heavy rain in Central India, the Central Provinces,

Berar, Hyderabad, the North Madras Coast districts, and the Bombay Deccan.

4th—More frequent and unusually abundant and favourable rain in South and Central Madras.

The following table gives comparative rainfall data of the month for the 52 meteorological divisions into which India is divided :—

Province.	Division.	Rainy days. Actual average number of rainy days.	Rainy days. Normal number of rainy days.	Rainfall. Actual average rainfall of month.	Rainfall. Normal rainfall of month.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0	0·23	—0·23
	Lower Burma*	?	?	0·45	0·08	+0·37
	Central do. *	?	?	0·18	0·07	+0·11
	Upper do. *	?	?	0·42	?	?
	Arakan *.	?	?	0	0·31	—0·31
Bengal and Assam	Eastern Bengal	4·9	3·6	3·02	2·84	+0·18
	Assam (Surma)	8·7	8·7	5·19	8·46	—3·27
	Do. (Brahmaputra)	7·0	7·6	2·90	4·13	—1·23
	Deltaic Bengal	5·1	2·6	2·74	1·81	+0·93
	Central do.	3·6	1·6	2·06	0·91	+1·15
	North do.	3·7	2·2	1·57	1·50	+0·07
	Orissa	5·0	1·8	2·65	1·08	+1·57
	Chota Nagpur	4·6	1·6	1·57	0·83	+0·74
	Bihar (South)	1·8	0·9	0·52	0·37	+0·15
	Do. (North)	1·3	0·8	0·44	0·39	+0·05
North-Western Provinces and Oudh.	North-Western Provinces (East)	1·7	0·7	0·60	0·26	+0·34
	Oudh (South)	1·3	0·7	0·45	0·30	+0·15
	Do. (North)	2·0	0·9	0·90	0·43	+0·47
	North-Western Provinces (Central)	1·5	0·7	0·60	0·29	+0·31
	Do. do. (West)	1·5	1·0	0·63	0·36	+0·27
	Do. do. (Submontane)	3·5	1·8	1·39	1·06	+0·33
Punjab	Punjab (South)	1·4	0·8	0·41	0·46	—0·05
	Do. (Central)	2·1	0·9	0·71	0·46	+0·25
	Do. (Submontane)	2·5	1·7	1·28	1·11	+0·17
	Do. (Hill Districts)	7·1	4·4	4·26	3·72	+0·54
	Do. (North-West)	3·5	2·7	1·29	1·72	—0·43
	Do. (West).	1·3	1·2	0·45	0·61	—0·16
Bombay and Malabar Coast Districts (Madras).	Malabar	1·7	0·8	1·22	0·44	+0·78
	Madras (South Central)	2·8	0·9	1·97	0·54	+1·43
	Coorg*	?	?	2·59	0·84	+1·75
	Mysore*	?	?	1·08	0·24	+0·84
	Konkan	0·1	1·5	0·04	0·07	—0·03
	Bombay Deccan	1·7	0·4	0·87	0·18	+0·69
	Hyderabad (North)	...	...	...	...	...
	Khandesh	1·2	0	0·65	0·03	+0·62
Central Provinces and Berar.	Berar*	?	?	3·85	0·30	+3·55
	Central Provinces (West)*	?	?	2·75	0·26	+2·49
	Do. (Central)*	?	?	3·17	0·47	+2·70
	Do. (East)*	?	?	2·28	0·65	+1·63
Bombay (North)	Guzerat	0·1	0	0·03	0	+0·03
	Kathiawar	0	0·1	0·15	0·05	+0·10
	Sind	0	?	0	0·28	—0·28
Rajputana and Central India.	Central India (East)	2·2	?	1·39	0·20	+1·19
	Rajputana (East), Central India (West)	1·3	?	0·47	0·14	+0·33
	Do. (West)	0·4	?	0·13	0·08	+0·05
Madras	East Coast (North)	4·2	0·8	2·57	0·53	+2·04
	Do. (do. (*a*)	10·5	2·0	6·75	1·01	+5·74
	Hyderabad (South)	?	?	4·70	0·48	+4·22
	Madras (Central)	2·4	0·3	1·31	0·14	+1·17
	East Coast (Central)	1·6	0·3	1·30	0·21	+1·09
	Do. (South)	2·5	0·5	2·08	0·38	+1·70
	Madras (South)	6·4	1·5	4·45	1·08	+3·37

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

Baluchistan obtained occasional showers during the first ten days of the month, but the total rainfall was slightly below the normal, more especially in Central Baluchistan as represented by Kalat.

In Kashmir rain fell during three periods, *viz.*, the 5th and 6th, the 16th to the 19th, and the 26th and 27th. The rainfall of the month was slightly larger than usual.

The following gives the periods of rainfall of the month in the Punjab:—

1st—From the 5th to the 7th, when the northern and eastern districts obtained moderate rain and the western and central districts light showers.

2nd—From the 17th to 20th. The central, eastern, and western districts received light to moderate rain. No rain fell over the greater part of the West Punjab.

3rd—The 26th and 27th during which the eastern districts had light local showers.

The rainfall of the month was in slight defect in the western and north-western districts, and in slight to moderate excess in the remainder of the province, but the variations were nowhere large or important. The precipitation in the hill districts was on the whole heavier than usual. It is, however, noteworthy that the fall was in excess only at the hill stations nearest to the plains and was below the normal at the interior stations.

The following gives data in illustration from the Simla Hill districts:—

Station.	Rainfall.		
	Actual, March 1893.	Normal, March.	Variation of Actual from Normal.
	Inches.	Inches.	Inches.
Kasauli	3·68	2·31	+1·37
Simla	3·26	3·14	+0·12
Kotgarh	3·15	4·69	−1·54
Kilba	6·16	10·07	−3·91

Showers were received in Rajputana during the first period of disturbance of the month, more especially on the 10th. The total rainfall of the month was not large in actual amount, but was greater than usual.

Central India obtained frequent showers from the 6th to the 11th. The rainfall was heaviest and most general in the eastern districts of Rewah and Bundelkhand. The following gives data for the larger states:—

States.	Actual rainfall, March 1893.	Normal rainfall, March.	Variation.
	Inches.	Inches.	Inches.
Rewah	1·94	0·35	+1·59
Bundelkhand	1·72	0·19	+1·53
Nagode	1·78	0·27	+1·51
Maihar	1·49	0·26	+1·23
Bhopal	2·17	0·05	+2·12

The periods of general rainfall in the North-Western Provinces were—

1st—From the 5th to 7th. The rainfall on the 6th and 7th was chiefly in the western districts.

2nd—The 11th and 12th.

3rd—The 18th to the 21st. This burst was heaviest and most general in the western districts.

The falls were generally light and hence, although the number of rainy days was nearly double the normal number, the rainfall was in excess, but to a somewhat less extent relatively to the normal.

The following gives a summary of the provincial data:—

Meteorological Division.	Number of Rainy Days.		Rainfall.		
	Actual, March 1893.	Variation from normal.	Average Actual, March 1893.	Variation from normal.	Percentage Variation.
			Inches.	Inches.	
Oudh, North	2·0	+1·1	0·90	+0·47	+109
Do., South	1·3	+0·6	0·45	+0·15	+ 50
N.-W. Provinces, East	1·7	+1·0	0·60	+0·34	+131
Ditto do. Central	1·5	+0·8	0·60	+0·31	+107
Ditto do. West	1·5	+0·5	0·63	+0·27	+ 75
Ditto do. Submontane.	3·5	+1·7	1·39	+0·33	+ 31

The excess was hence greatest relatively to the normal in the eastern districts and least in the submontane districts. The rainfall in the whole province barely averaged eight-tenths of an inch, and was hence small in total amount.

The chief periods of rainfall in Bengal were—

1st—The 6th and 7th in Bihar and the 9th in the whole of Bengal except East Bengal.

2nd—The 11th and 12th in Bihar, the 13th and 14th in Chota Nagpur, Orissa, and South-West Bengal, and the 14th and 15th in North and East Bengal.

3rd—From the 19th to the 24th. The heaviest falls were generally recorded during this period.

The most noteworthy were—

Date.	District.	Station.	Rainfall in preceding 24 hours.
			Inches.
23rd	Noakhali	Fenny	3·65
,,	Dacca	Dacca	2·80

The rainfall was in slight to moderate excess over the whole province and was greatest in Orissa which received

an average of 2·65 inches or 1·57 inches in excess of the normal, and Central Bengal which obtained 2·06 inches or 1·15 inches above its normal amount.

The following gives comparative data for the province :—

Meteorological Division.	Number of rainy days.		Rainfall.		Percentage variation.
	Actual, March 1893.	Variation from normal.	Actual, March 1893.	Variation from normal.	
			Inches.	Inches.	
East Bengal	4·9	+1·3	3·02	+0·18	+ 6
Deltaic Bengal	5·1	+2·5	2·74	+0·93	+ 51
Central do.	3·6	+2·0	2·06	+1·15	+126
North do.	3·7	+1·5	1·57	+0·07	+ 5
Orissa	5·0	+3·2	2·65	+1·57	+145
Chota Nagpur	4·6	+3·0	1·57	+0·74	+ 89
Bihar (South)	1·8	+0·9	0·52	+0·15	+ 41
Do. (North)	1·3	+0·5	0·44	+0·05	+ 13

Assam obtained frequent showers from the 13th to the 24th and again from the 28th to the 30th. The number of rainy days was up to the average, but the total rainfall was in moderate defect in consequence of the lightness of the showers. The following gives comparative data :—

Meteorological Division.	Number of Rainy Days.		Rainfall.		
	Actual, March 1893.	Variation from normal.	Average actual, March 1893.	Variation from normal.	Ratio of actual to normal.
			Inches.	Inches.	
Assam (Surma)	8·7	0	5·19	−3·27	0·6
Do. (Brahmaputra)	7·0	−0·6	2·90	−1·23	0·7

The Central Provinces received almost daily rain from the 1st to the 13th. The rainfall was exceptionally heavy in the Chanda district in which the following large falls in 24 hours were registered :—

Station.	Date.	Amount.
		Inches.
Armori	1st	3·75
Sironcha	5th	3·26
Mul	12th	3·76

The rainfall was very largely in excess in all districts. The districts of Chanda and Wardha in which it was greatest, received upwards of twenty times the normal amount of the month. The following gives comparative data for the 18 districts of the province derived from the provincial rainfall statement of the month :—

District.	Number of rainy days.		Rainfall.		
	Average actual, March 1893.	Variation from normal.	Average actual, March 1893.	Variation from normal.	Ratio of actual to normal.
			Inches.	Inches.	
Sambalpur	3·3	+2·3	1·94	+ 1·26	2·9
Bilaspur	3·3	+2·3	1·21	+ 0·78	2·8
Raipur	5·3	+4·0	2·54	+ 2·07	5·4
Chanda	9·8	+8·7	11·70	+11·13	20·5
Bhandara	7·0	+6·3	3·68	+ 3·13	6·7
Balaghat	4·3	+3·5	2·02	+ 1·73	7·0
Seoni	6·0	+4·5	2·67	+ 2·09	4·6
Mandla	3·0	+1·2	2·38	+ 1·17	2·0
Narsinghpur	2·7	+2·3	1·82	+ 1·58	7·6
Saugor	3·5	+3·1	1·88	+ 1·67	9·0
Damoh	2·0	+1·6	1·47	+ 1·33	10·5
Jubbulpore	3·3	+2·5	1·49	+ 1·17	4·7
Wardha	8·3	+7·7	5·92	+ 5·65	21·9
Nagpur	7·0	+6·2	3·68	+ 3·28	9·2
Chindwara	5·5	+4·6	3·30	+ 2·83	7·0
Hoshangabad	3·2	+2·9	1·22	+ 1·08	8·7
Betul	6·3	+5·4	3·16	+ 2·77	8·1
Nimar	3·5	+3·4	0·50	+ 0·44	8·3

Berar and Hyderabad received daily rain during the same period (from the 1st to the 13th) as the Central Provinces. The rainfall in Berar was as exceptional in amount as in the Central Provinces. It was most excessive in the district of Wun. The town of Wun received a total of 15·23 inches or thirty times the normal fall of the month (0·51 inch). The following table gives comparative rainfall data for the six districts of Berar for the month :—

District.	Number of rainy days.	Rainfall.		
	Average actual, March 1893.	Average actual, March 1893.	Variation from normal.	Ratio of actual to normal.
		Inches.	Inches.	
Amraoti	7·4	4·08	+3·76	12·8
Ellichpur	7·0	3·56	+3·19	9·6
Akola	4·8	2·63	+2·20	6·1
Buldana	3·8	1·72	+1·48	7·2
Wun	9·8	8·87	+8·43	20·2
Basim	7·0	3·02	+2·84	16·8

The average rainfall of the month of the Hyderabad state was 4·98 inches. The normal fall of the month is slightly less than three-tenths of an inch. The rainfall was most excessive in the Hyderabad district which obtained an average total amount of 7·86 inches, the normal fall being only 0·35 inch. The rainfall was hence excessive over the whole of the area including the Central Provinces, Berar, and Hyderabad, Chanda was the centre of most

excessive rainfall in the Central Provinces, Wun in Berar, and the Hyderabad district in the Nizam's dominions.

Practically no rain was received in Sind, Kathiawar, Guzerat, and the west coast districts of Bombay. The Bombay Deccan districts and Khandesh shared in the unusually heavy precipitation of the month in the peninsula.

The districts of Dharwar, Bijapur, and Sholapur had almost daily showers from the 2nd to the 15th and Khandesh, Nasik, Ahmednagar, Poona, and Belgaum, chiefly on the 8th, 9th and 10th. The rainfall was largely in excess in these districts. The following gives comparative data for the Deccan districts and Khandesh:—

District.	Number of Rainy Days.		Rainfall.		
	Actual, March 1893.	Variation from normal.	Actual, March 1893.	Variation from normal.	Ratio of actual to normal.
			Inches.	Inches.	
Nasik	0·6	0	0·24	+0·23	24·0
Khandesh	1·8	?	0·89	?	?
Ahmednagar	1·2	+1·1	1·07	+1·02	21·4
Poona	1·0	+0·8	0·22	+0·15	3·1
Bijapur	4·7	+4·2	2·01	+1·84	11·8
Sholapur	4·8	+4·6	2·65	+2·56	29·4
Dharwar	1·9	+1·4	1·13	+0·89	4·7
Belgaum	1·8	+1·1	1·02	+0·67	2·9
Satara	0·2	—0·2	0·05	—0·11	0·3

The rainfall of the month was exceptionally heavy over the Madras Presidency. The northern districts of Ganjam and Vizagapatam had almost daily rain from the 1st to the 16th, and showers on the 23rd and 24th.

In the districts of Godavari, Kistna, Nellore, Chingleput, and North Arcot thundershowers were received chiefly during two periods, *viz.*, from the 13th to the 16th and the 24th to the 27th. These falls were in some cases exceptionally heavy, as for example—

Date.	District.	Station.	Rainfall in preceding 24 hours.
			Inches.
14th	Nellore	Udayagiri	5·00
15th	North Arcot	Gudiyatam	2·67

The districts of South Arcot, Tanjore, Trichinopoly, Salem, and Coimbatore received very heavy thundershowers on the 6th, 7th, and 8th and the 14th and 15th. Amongst the more noteworthy rainfalls in 24 hours were the following:—

Date.	District.	Station.	Rainfall in preceding 24 hours.
			Inches.
7th	Tanjore	Tiruvalur	3·69
15th	South Arcot	Kalla Kurichi	4·10
,,	Ditto	Thiruvannamalai	3·00
,,	Tanjore	Tiruvalur	4·40
,,	Do.	Tiruturaipundi	3·77
,,	Do.	Vedaranyam	3·60
,,	Madura	Vedasendur	3·00

The southern districts of Madura and Tinnevelly received almost daily rain from the 4th to the 15th, and showers on the 26th and 27th.

In the Deccan districts showers fell chiefly on the 7th and 8th and on the 14th and 15th. The rainfall in that area was abnormally heavy in the Bellary and Kurnool districts.

The following table gives a comparative statement of the rainfall in each of the collectorates of the presidency:—

District.	Number of Rainy Days.		Rainfall.		
	Actual.	Variation from normal.	Actual.	Variation from normal.	Ratio of actual to normal.
			Inches.	Inches.	
Ganjam	5·0	+3·8	2·90	+2·23	4·3
Vizagapatam	6·7	+5·6	3·60	+2·90	5·1
Godavari	2·0	+1·6	1·57	+1·29	5·6
Kistna	3·1	+2·5	2·37	+1·91	5·2
Nellore	1·6	+1·3	1·30	+1·09	6·2
Chingleput	2·0	+1·6	1·38	+1·15	6·0
North Arcot	1·3	+0·9	0·86	+0·56	2·9
South Arcot	2·8	+2·3	2·33	+2·02	7·5
Tanjore	3·6	+3·0	3·41	+2·89	6·6
Trichinopoly	2·8	+2·1	2·44	+1·89	4·4
Madura	5·0	+3·8	3·96	+3·11	4·7
Tinnevelly	8·1	+6·1	5·06	+3·69	3·7
Malabar	2·7	+1·4	1·98	+1·27	2·8
South Canara	0·3	—0·6	0·11	+0·06	2·2
Salem	2·3	+1·4	1·13	+0·56	2·0
Coimbatore	3·3	+2·5	2·90	+2·40	5·8
Cuddapah	0·9	+0·5	0·34	+0·13	1·6
Anantapur	1·7	+1·5	0·76	+0·66	7·6
Bellary	3·4	+3·1	2·13	+2·03	21·3
Kurnool	3·7	+3·4	2·22	+2·10	18·5

The table shows that over by far the greater part of the Presidency the rainfall was more than four times its normal amount. It was relatively to the normal heaviest in the districts of Bellary and Kurnool, upwards of 17 times more than the normal and lightest in Cuddapah and Salem where it was less than twice the normal.

Table

Abstract of Observations taken at 8 A.M. at 189 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1. Burma Coast and Bay Islands.		...	...	—·008	...	...	...	...	...	...	...	90·8	—1·2	71·8	—0·5	81·4	—0·9	19·2	...	...	...	...	26·8
Bay Islands	Port Blair	61	29·888	?	29·880	29·981	9th	29·804	20th	·177	81·1	90·5	?	77·5	?	84·0	?	13·0	92·4	12th & 15th	73·8	20th	18·6
	Camorta	?	29·937	?	?	30·017	6th	29·849	20th	·168	83·0	88·0	?	77·5	?	82·8	?	10·5	89·1	30th	72·1	19th	17·0
Tenasserim	Mergui	96	29·881	?	29·910	29·965	9th	29·777	19th	·188	79·5	89·8	?	?	?	?	?	?	92·3	2nd & 4th	?	...	?
	Tavoy	26	29·958	?	29·915	30·043	8th	29·875	25th	·168	75·4	90·7	?	69·8	?	80·3	?	20·9	93·7	11th	65·2	20th	28·5
	Moulmein	94	29·877	—·009	29·910	29·974	9th	29·769	25th	·205	78·2	92·7	—1·1	72·3	+0·2	82·5	—0·5	20·4	98·4	11th	69·8	25th	28·6
	Toungoo	181	29·762	—·003	29·888	29·855	9th	29·672	26th	·183	76·1	95·5	—2·3	70·3	+3·2	82·9	+0·5	25·2	99·7	31st	67·2	3rd	32·5
Lower Burma	Rangoon	41	29·919	—·015	29·897	30·018	6th	29·824	2 days	·194	75·2	94·4	—2·1	70·4	—0·4	82·4	—1·3	24·0	98·6	11th	66·3	17th	32·3
	Bassein	27	29·942	—·003	29·905	30·041	9th	29·849	20th	·192	75·3	94·3?	+0·2?	69·2	—0·9	81·8?	—0·4?	25·1	100·2	13th	65·0	2 days	35·2
	*Diamond Island	41	29·943	—·004	29·919	30·028	9th	29·850	26th	·178	78·2	84·3	—1·2	73·9	—1·2	79·1	—1·2	10·4	87·6	13th	71·9	2 days	15·7
Arakan	Akyab	20	29·954	—·013	29·917	30·060	9th	29·828	20th	·232	72·3	88·0	—0·8	65·0	—3·8	76·5	—2·3	23·0	91·7	17th	58·7	4th	33·0
2. Burma, Inland		...	...	+·017	...	...	...	...	...	...	...	93·0	—3·0	63·6	+1·4	78·3	—0·8	29·4	...	...	...	...	43·0
Central Burma	Thayetmyo	134	29·818	+·017?	29·896	29·928	6th	29·714	20th	·214	76·5	96·7	—3·0	67·4	+1·4	82·1	—0·8	29·3	102·1	31st	57·3	1st	44·8
	Minbu	?	29·775	?	29·715	29·911	9th	29·647	20th	·264	75·9	98·7	?	68·7	?	83·7	?	30·0	104·6	30th & 31st	61·0	26th	43·5
	Yamethin	?	29·278	?	29·219	29·402	9th	29·162	20th	·240	76·1	96·6	?	67·8	?	82·2	?	28·8	102·5	10th	61·0	26th	41·4
Upper Burma	Mandalay	?	29·692	?	29·638	29·821	9th	29·569	22nd	·252	76·2	94·8	?	61·9	?	78·4	?	32·9	100·5	13th	56·1	26th	44·4
	Kindat	?	29·534	?	29·482	29·696	9th	29·335	22nd	·361	64·7	85·7	?	58·3	?	72·0	?	27·4	92·3	22nd	51·0	4th & 5th,	41·3
	Bhamo	?	29·572	?	29·522	29·716	6th	29·423	22nd	·293	65·4	85·7	?	57·5	?	71·6	?	28·2	91·1	13th	48·4	6th	42·7
3. Assam		...	...	+·027	...	...	...	...	...	...	...	79·8	—3·8	60·1	—2·6	70·0	—3·2	19·7	...	...	...	...	32·1
Assam (Surma)	Silchar	104	29·893	+·031	29·952	30 076	10th	29·727	22nd	·349	66·0	82·1	—3·0	60·7	—2·8	71·4	—2·9	21·4	88·0	12th	55·0	3rd	33·0
Brahmaputra	Sibsagar	333	29·647	+·008	29·949	29·842	9th	29·431	21st	·411	62·6	76·3	—2·9	58·7	—1·4	67·5	—2·2	17·6	82·4	12th	52·2	6th & 25th,	30·2
	Dhubri	115	29·853	+·042	29·927	30·030	9th	29·673	22nd	·357	65·3	81·1	—5·5	61·0†	—3·7	71·0†	—4·6	20·1	86·2	23rd	53·0	5th	33·2
4. Bengal and Orissa		...	...	+·035	...	...	...	...	...	...	...	83·2	—6·9	64·2	—3·7	73·9	—5·3	19·5	...	...	...	...	36·6
East Bengal	Chittagong	87	29·897	+·014	29·934	30·036	9th	29·775	22nd	·261	70·5	84·0	—2·0	64·1	—3·6	74·1	—2·8	19·9	89·2	13th	56·1	2nd	33·1
	Lungleh	?		Not	recorded						61·7	69·5	?	?	?	?	?	?	75·9	12th	?	?	?
	Noakhali	43	29·944	?	29·935	30·070	6th & 9th	29·794	21st	·276	71·8	82·1	?	63·4	?	72·8	?	18·7	85·5	13th & 31st.	51·0	2nd	34·5
	Comilla	35	29·943	?	29·927	30·078	9th	29·797	19th	·281	70·6	84·1	?	63·1	?	73·7	?	21·0	89·4	31st	52·6	2nd	36·8
	Sirajganj	46	29·915	?	29·912	30·090	9th	29·742	19th	·348	67·5	82·1	?	61·2	?	71·6	?	20·9	90·1	30th	52·3	2nd	37·8
	Dacca	22	29·942	+·027	29·912	30·120	9th	29·781	19th	·339	70·3	83·8	—6·4	64·8	—3·8	74·3	—5·1	19·0	92·1	29th	56·3	2nd	35·8
	Barisal	13	29·958	+·037	29·916	30·117	9th	29·799	19th	·318	71·2	84·0	?	65·4	?	74·7	?	18·6	91·8	30th	54·1	2nd	37·7
	Mymensingh	63	29·907	+·026	29·924	30·060	9th	29·750	22nd	·310	67·0	81·1	?	62·1	?	71·6	?	19·0	88·2	30th	52·7	2 days	35·5
Deltaic Bengal	Faridpur	46	29·934	?	29·929	30·107	9th	29·772	19th	·335	68·9	82·7	?	62·8	?	72·8	?	19·9	90·5	30th	52·5	2nd	38·0
	Jessore	33	29·928	+·029	29·909	30·107	9th	29·753	19th	·354	71·2	84·6	—8·3	64·7	—3·8	74·7	—6·1	19·9	96·0	29th	54·5	2nd	41·5
	Calcutta	21	29·946	+·035	29·913	30·127	9th	29·765	19th	·362	71·8	83·7	—7·0	65·6	—4·3	74·7	—5·7	18·1	92·6	29th	57·7	2nd	34·9
	Saugor Island	25	29·943	+·033	29·913	30·114	9th	29·783	19th	·331	74·1	82·3	—5·2	70·0	—5·1	76·2	—5·2	12·3	90·2	30th	61·9	1st	28·3
	Krishnagar	47	29·915	?	29·912	30·109	9th	29·730	19th	·379	71·1	84·6	?	63·5	?	74·1	?	21·1	96·1	29th	54·4	2nd	41·7
	Midnapore	149	29·823	?	29·923	30·012	9th	29·636	19th	·376	72·9	87·0	?	66·2	?	76·6	?	20·8	98·3	29th	59·2	1st	39·1
Central Bengal	Bankura	298	29·639?	?	29·898?	29·817	9th	29·454	20th	·363	70·2	85·9	?	64·7	?	75·3	?	21·2	98·1	29th	58·3	1st	39·8
	Raniganj	334	29·628	?	29·924	29·822	9th	29·401	18th	·421	69·1	85·4	?	63·8	?	74·6	?	21·6	99·7	29th	56·1	1st	43·6
	Burdwan	99	29·871	+·042	29·920	30·067	9th	29·685	2 days	·382	70·8	84·5	—9·4	65·1	—3·5	74·8	—6·5	19·4	96·7	29th	56·6	1st	40·1

* Mean of 26 days.

† Mean of 30 days.

I.

in India, Burma, etc., in March 1893.

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 March 1893.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	1·73	0·86	+0·65	...	...	...	**1. Burma Coast and Bay Islands.**	
5	9	7	3	2	2	...	2	1	4	4	0	81	·862	3·0	1	?	?	0·32	0·47	− 0·15	0·32	0·47	− 0·15	Port Blair .	Bay Islands.
...	7	10	11	1	2	...	...	...	5	?	?	76	·863	5·4	5	?	?	3·75	?	?	3·75	?	?	Camorta.	
...	9	1	2	6	1	1	...	11	2	2	0	79	·801	4·5	6	?	?	5·72	2·48	+ 3·24	5·72	2·48	+ 3·24	Mergui	Tenasserim.
29	...	...	...	...	...	...	1	1	1	?	?	87	·770	0·8	7	?	?	5·28	3·83	+ 1·45	5·28	3·83	+ 1·45	Tavoy	
...	...	6	12	5	4	4	...	...	4	3	+33	77	·748	1·3	2	0·36	+1·64	1·35	0·41	+ 0·94	1·35	0·41	+ 0·94	Moulmein.	
11	2	...	...	13	5	...	...	...	3	3	0	72	·649	2·4	0	0·18	−0·18	0·05	0·04	+ 0·01	0·05	0·04	+ 0·01	Toungoo.	
...	2	1	1	1	5	13	7	1	4	5	−20	81	·710	1·1	2	0·36	+1·64	0·44	0·07	+ 0·37	0·44	0·07	+ 0·37	Rangoon .	Lower Burma.
3	...	1	1	1	...	1	5	19	6	5	+20	83	·729	3·0	1	0	+1·00	0·28	0·03	+ 0·25	0·28	0·03	+ 0·25	Bassein.	
...	12	3	1	1	...	...	...	9	11	8	+38	75	·726	2·8	0	0	0	0·09	0	+ 0·09	0·09	0	+ 0·09	*Diamond Island.	
...	20	10	1	...	...	...	...	...	4	4	0	75	·625	2·7	0	0·82	−0·82	0	0·37	− 0·37	0	0·37	− 0·37	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·50	0·81	−0·15	...	...	...	**2. Burma, Inland.**	
...	6	3	...	...	4	4	...	14	5	5	0	58	·528	2·1	0	0	0	0	0	0	0	0	0	Thayetmyo	Central Burma.
...	8	6	8	5	...	...	...	4	9	?	?	64	·584	0·2	0	?	?	0	?	?	0	?	?	Minbu.	
...	4	3	...	12	10	...	...	2	6	?	?	58	·521	2·7	1	?	?	0·35	?	?	0·35	?	?	Yamathin.	
5	8	4	1	2	4	5	2	...	4	?	?	55	·493	2·3	1	?	?	0·44	0·76	− 0·32	0·44	0·76	− 0·32	Mandalay .	Upper Burma.
15	...	...	...	1	...	2	8	5	3	?	?	89	·518	4·9	2	?	?	1·21	0·96	+ 0·25	1·21	0·96	+ 0·25	Kindat.	
1	2	12	...	2	...	1	...	13	?	?	?	75	·485	3·5	3	?	?	1·00	1·51	− 0·51	1·00	1·51	− 0·51	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·75	5·58	−1·83	...	...	...	**3. Assam.**	
27	...	1	1	1	1	...	...	...	2	3	−33	86	·550	6·0	7	9·82	−2·82	5·53	9·29	− 3·76	5·53	9·29	− 3·76	Silchar .	Assam (Surma).
11	...	9	8	2	...	1	...	...	2	3	−33	94	·535	5·6	10	9·27	+0·73	4·02	4·73	− 0·71	4·02	4·73	− 0·71	Sibsagar .	Brahmaputra.
2	3	10	8	...	...	7	...	1	6	6	0	79	·492	4·0	3	2·29	+0·71	1·71	2·72	− 1·01	1·71	2·72	− 1·01	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·29	1·70	+0·54	...	...	...	**4. Bengal and Orissa.**	
1	7	8	6	3	2	...	1	3	3	6	−50	82	·615	4·5	2	3·45	−1·45	1·93	2·87	− 0·94	1·93	2·87	− 0·94	Chittagong	East Bengal.
								Not	recorded			76	·419	0	2	?	?	3·75	?	?	3·75	?	?	Lungleh.	
...	14	3	4	1	5	3	...	1	5	?	?	84	·662	2·8	3	3·65	−0·65	3·47	3·55	− 0·08	3·47	3·55	− 0·08	Noakhali.	
2	3	1	7	5	10	...	...	3	4	?	?	83	·623	5·1	5	4·41	+0·59	2·72	3·76	− 1·04	2·72	3·76	− 1·04	Comilla.	
...	3	1	3	2	6	7	6	3	2†	?	?	86	·585	5·0	5	2·26	+2·74	4·03	1·28	+ 2·75	4·03	1·28	+ 2·75	Sirajganj.	
4	5	2	1	3	10	3	1	2	5	5	0	83	·620	5·6	6	4·00	+2·00	6·13	3·74	+ 2·39	6·13	3·74	+ 2·39	Dacca.	
25	...	2	...	...	3	1	...	...	3	?	?	87	·676	5·6	5	4·65	+0·35	1·46	2·51	− 1·05	1·46	2·51	− 1·05	Barisal.	
3	2	4	11	7	...	1	...	3	4	?	?	81	·543	4·9	6	5·90	+0·10	2·41	2·19	+ 0·22	2·41	2·19	+ 0·22	Mymensingh.	
12	5	1	1	1	4	5	1	1	3	?	?	88	·625	4·1	7	3·85	+3·15	3·52	2·93	+ 0·59	3·52	2·93	+ 0·59	Faridpur .	Deltaic Bengal.
12	2	3	1	1	5	5	1	1	3	3	0	86	·666	5·0	6	3·64	+2·36	2·28	2·87	− 0·59	2·28	2·87	− 0·59	Jessore.	
17	1	2	1	...	4	4	1	1	3	5	−40	84	·662	4·1	5	2·09	+2·91	1·85	1·40	+ 0·45	1·85	1·40	+ 0·45	Calcutta.	
...	4	5	1	2	6	6	1	6	11	12	− 8	89	·753	5·4	5	2·18	+2·82	3·76	1·55	+ 2·21	3·76	1·55	+ 2·21	Saugor Island.	
2	1	1	5	4	5	3	8	2	4	?	?	76	·582	4·2	4	2·20	+1·80	1·83	1·48	+ 0·35	1·83	1·48	+ 0·35	Krishnagar.	
3	7	1	...	...	12	6	1	1	10	?	?	74	·600	2·6	5	2·20	+2·80	2·00	1·46	+ 0·54	2·00	1·46	+ 0·54	Midnapore.	
12	4	...	...	1	2	1	7	4	2	?	?	70	·521	3·4	3	1·85	+1·15	1·48	1·25	+ 0·23	1·48	1·25	+ 0·23	Bankura .	Central Bengal.
5	3	3	2	1	1	5	3	8	2	?	?	76	·537	0·8	2	1·45	+0·55	0·47	0·65	− 0·18	0·47	0·65	− 0·18	Raniganj.	
22	2	...	...	...	4	1	2	...	2	3	−33	73	·547	4·4	4	1·82	+2·18	3·10	1·37	+ 1·73	3·10	1·37	+ 1·73	Burdwan.	

*Mean of 26 days. † Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 189 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 Bengal —*contd.*	Naya Dumka	489	29·455	?	29·918	29·651	9th	29·272	20th	·379	69·1	83·9	?	61·7	?	72·8	?	22·2	94·6	29th	53·6	1st	41·0
	Berhampore	67	29·892	+·036	29·910	30·093	9th	29·713	20th	·380	66·7	83·9	−9·3	63·2	−2·9	73·5	−6·1	20·7	91·7	2 days	54·7	1st	37·0
	Rampur Boalia.	70	29·885	?	29·906	30·086	9th	29·699	20th	·387	69·4	83·3	?	60·9	?	72·1	?	22·4	95·6	23rd	52·7	5th	42·9
	Malda	80	29·876	?	29·910	30·070	9th	29·666	20th	·404	68·8	84·1	?	59·1	?	71·6	?	25·0	92·0	28th	50·2	1st	41·8
	Bogra	61	29·892	+·057	29·908	30·050	9th	29·732	20th	·318	66·4	83·3	?	60·0	?	71·7	?	23·3	90·2	28th	50·2	5th	40·0
North Bengal	Dinajpur	118	29·836	+·019	29·913	30·025	9th	29·660	22nd	·365	65·6	83·4	?	59·7	?	71·6	?	23·7	91·6	28th	49·9	5th	41·7
	Rangpur	123	29·840	?	29·921	30·028	10th	29·667	20th	·361	66·1	82·1	?	58·1	?	70·1	?	24·0	88·2	28th	48·6	5th	39·6
	Jalpaiguri	284	29·692	+·069	29·941	29·890	9th	29·505	20th	·385	64·5	80·0	?	57·8	?	68·9	?	22·2	85·9	23rd	48·6	24th	37·3
Orissa	Balasore	56	29·907	+·029	29·911	30·093	9th	29·724	20th	·369	72·6	85·4	?	67·0	?	76·2	?	18·4	96·4	29th	54·5	9th	41·9
	False Point	21	29·956	+·030	29·919	30·135	9th	29·773	20th	·362	74·8	82·4	−5·5	68·6	−3·7	75·6	−4·6	13·8	87·9	30th	61·0	1st	26·9
	Cuttack	80	29·892	+·041	29·917	30·077	9th	29·708	20th	·369	74·6	88·2	−9·0	69·9	−3·0	79·1	−6·0	18·3	98·1	2 days	65·3	2 days	32·8
	Shortt's Island	?	29·955	?	?	30·135	9th	29·785	19th	·350	75·8	81·4	?	72·1	?	76·7	?	9·3	86·8	29th & 30th.	65·5	23rd	21·3
	Puri	15	29·952	?	29·901	30·135	9th	29·784	20th	·351	7·55	83·2	?	72·2	?	77·7	?	11·0	86·7	30th	66·6	6th	20·1
5. Gangetic Plain and Chota Nagpur.		...	...	+·034	...	...	...	...	...	...	...	84·0	−7·2	59·0	−3·8	71·4	−5·6	25·2	...	...	...	...	43·6
Chota Nagpur	Hazaribagh	2,007	27·916	+·008	29·909	28·080	9th	27·734	20th	·346	67·8	80·8	−8·2	59·1	−4·8	70·0	−6·5	21·7	91·2	28th	51·3	1st	39·9
	Ranchi	2,128	27·795	?	29·907	27·952	9th	27·619	20th	·333	66·9	78·9	?	58·7	?	68·8	?	20·2	90·0	29th	52·4	1st	37·6
	Chaibassa	760	29·190	+·042	29·918	29·364	9th	28·997	20th	·367	69·2	84·8	?	63·9	?	74·4	?	20·9	94·8	29th	57·4	25th	37·4
Bihar, South	Gaya	375	29·570*	+·027	29·911*	29·765	9th	29·369	20th	·396	68·3	85·8	−8·4	61·0	−5·3	73·4	−6·9	24·8	97·3	28th	53·6	1st	43·7
	Dehri	351	29·582?	?	29·899?	29·764	9th	29·374	20th	·390	68·7	85·3	?	62·0	?	73·7	?	23·3	96·9	28th	54·0	1st	42·9
	Patna	183	29·773	+·040	29·914	29·969	9th	29·569	20th	·400	69·4	84·5	−6·9	60·1	−3·5	72·3	−5·2	24·4	93·6	28th	51·4	1st	42·2
	Arrah	190	29·759	?	29·908	29·946	9th	29·552	20th	·394	67·8	85·2	?	59·4		72·3	?	25·8	96·1	28th	50·3	1st	45·8
	Buxar	239	29·710	?	29·912	29·904	9th	29·504	20th	·400	68·0	84·8		60·1		72·5	?	24·7	96·5	28th	51·4	1st	45·1
Bihar, North	Purnea	125	29·832	+·045	29·916	30·044	9th	29·627	20th	·417	64·7	83·8	−6·8	58·6	−1·9?	71·2	−4·4?	25·2	91·2	2 days	49·3	4th	41·9
	Bhagalpur	160	29·784	?	29·902	29·982	9th	29·569	19th	·413	68·7	84·5	?	60·1	?	72·4	?	24·4	93·7	28th	52·0	4th & 5th.	41·7
	Darbhanga	166	29·793	+·047	29·920	30·002	9th	29·583	20th	·419	66·5	83·1	−4·7	59·7	−3·8	71·4	−4·3	23·4	90·7	28th	51·6	4th	39·1
	Muzaffarpur	178	29·773	?	29·912	29·966	9th	29·565	20th	·401	65·5	83·3	?	57·6	?	70·5	?	25·7	90·7	28th	49·3	1st to 4th	41·4
	Motihari	224	29·709*	?	29·900*	29·894	10th	29·527	20th	·367	64·6	83·3	?	55·6		69·5	?	27·7	90·6	28th	47·9	4th & 23rd	42·7
	Chapra	181	29·769	?	29·910	29·967	9th	29·563	20th	·404	67·2	84·5	?	59·4	?	71·9	?	25·1	94·3	28th	50·7	1st	43·6
N.-W. Provinces (Eastern Districts).	Benares	267	29·686	+·035	29·920	29·886	9th	29·463	20th	·423	66·6	85·7	−8·1	57·6	−4·7	71·8	−6·4	27·9	97·3	28th	49·5	1st	47·8
	Allahabad	309	29·641	+·030	29·916	29·830	9th	29·425	20th	·405	68·2	86·9	−6·8	58·9	−3·4	72·9	−5·1	28·0	97·9	28th	50·4	1st	47·5
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·685	+·042	29·911	29·880	9th	29·491	20th	·389	65·7	83·1	−8·2	58·7	−3·9	71·0	−6·1	24·4	92·4	28th	52·3	3rd & 4th.	40·1
Oudh, South	Lucknow	375	29·555	+·023	29·908	29·721	9th	29·383	20th	·338	64·7	84·5	−7·1	57·6	−3·1	71·1	−5·1	26·9	97·3	28th	51·0	1st	46·3
Oudh, North	Bahraich	403	29·533?	?	29·916?	29·702	9th & 23rd	29·329	20th	·373	64·6?	82·2?	?	53·2?	?	67·7?	?	29·0?	90·4	31st	40·1?	3 days	50·3?
N.-W. Provinces (Central).	Cawnpore	416	29·544	?	29·935	29·708	9th	29·334	18th	·374	67·4	83·5	?	56·3	?	69·8	?	27·2	97·0	28th	49·0	1st	48·0
	Mainpuri	516	29·416?	?	29·913?	29·600	9th	29·227	20th	·373	64·4	83·9	?	55·4	?	69·7	?	28·5	96·8	27th	44·6	3rd	52·2
6. Upper—Sub-Himalayas		...	...	+·032	...	...	...	...	...	...	...	76·5	−8·0	52·9	−3·8	64·6	−5·9	23·4	...	...	...	...	42·6
N.-W. Provinces (Sub-montane).	Bareilly	568	29·356	+·037	29·915	29·552	7th	29·188	20th	·364	61·1	79·0	−9·0	54·4	−4·8	66·8	−6·9	24·6	91·3	31st	46·7	2nd	44·6
	Dehra Dun	2,233	27·686	+·016	29·947	27·884	9th	27·523	19th	·361	58·0	73·4	−5·9	51·2	−4·4	62·3	−5·2	22·2	85·0	31st	44·5	3rd	40·5
	Roorkee	887	29·032	+·034	29·930	29·242	9th	28·857	18th	·385	59·3	77·8	−8·3	53·2	−3·5	65·5	−5·9	24·6	88·3	31st	46·2	3rd	42·1
	Meerut	738	29·193	+·039	29·931	29·392	9th	29·008	18th	·384	61·5	78·4	−9·0	53·9	−4·1	66·2	−6·6	24·5	89·8	31st	46·1	1st & 2nd.	43·7
Punjab, Central.	Delhi	718	29·213	+·026	29·925	29·406	7th	29·014	18th	·392	62·7	77·8?	−11·0	58·6?	−3·9	68·2	−7·5?	19·2	90·3	27th & 31st.	51·1	1st & 3rd.	39·2
	Lahore	702	29·230	+·030	29·936	29·430	7th	29·008	18th	·422	60·5	78·2	−5·7	51·1	−4·0	64·7	−4·9	27·1	90·3	31st	43·2	3rd	47·1

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in March 1893—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 March 1893.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Station.	Meteorological Province or District.
6	1	2	4	1	1	6	3	7	*1	?	?	68	·482	1·7	5	1·28	+ 3·72	1·99	0·70	+ 1·29	1·99	0·70	+ 1·29	Naya Dumka	Central Bengal —*contd.*
3	2	1	6	2	5	4	3	5	3	3	0	88	·578	4·3	2	1·64	+ 0·36	1·35	1·20	+ 0·15	1·35	1·20	+ 0·15	Berhampore.	
9	1	5	...	3	2	8	...	3	3	?	?	78	·558	3·4	6	1·35	+ 4·65	1·64	0·81	+ 0·83	1·64	0·81	+ 0·83	Rampur Boalia.	
2	...	7	...	5	1	15	...	1	3	?	?	74	·511	2·1	2	1·10	+ 0·90	1·41	0·74	+ 0·67	1·41	0·74	+ 0·67	Malda.	
6	...	6	10	4	1	...	2	2	3	?	?	84	·552	2·9	4	3·50	+ 0·50	2·49	0·84	+ 1·65	2·49	0·84	+ 1·65	Bogra.	
...	2	10	4	2	1	2	6	4	4	?	?	76	·486	3·0	1	2·60	− 1·60	0·31	0·90	− 0·59	0·31	0·90	− 0·59	Dinajpur .	North Bengal.
1	3	5	6	2	1	3	9	1	*3	?	?	78	·506	1·2	2	1·60	+ 0·40	0·46	1·30	− 0·84	0·46	1·30	− 0·84	Rangpur.	
3	3	8	7	4	3	1	2	...	4	?	?	78	·475	4·8	4	5·79	− 1·79	2·45	1·83	+ 0·62	2·45	1·83	+ 0·62	Jalpaiguri.	
1	7	4	...	...	5	9	3	2	5	?	?	83	·669	2·1	7	3·85	+ 3·15	2·50	1·38	+ 1·12	2·50	1·38	+ 1·12	Balasore .	Orissa.
...	3	1	1	...	3	7	8	8	10	11	− 9	87	·751	6·3	4	2·00	+ 2·00	1·51	1·38	+ 0·13	1·51	1·38	+ 0·13	False Point.	
19	1	...	1	...	1	5	2	2	2	3	− 33	75	·649	4·2	3	1·64	+ 1·36	3·20	1·14	+ 2·06	3·20	1·14	+ 2·06	Cuttack.	
...	4	2	1	...	2	11	6	5	10	?	?	82	·737	4·0	4	?	?	2·21	?	?	2·21	?	?	Shortt's Island.	
9	6	3	...	1	...	6	5	1	9	?	?	84	·752	3·0	4	0·80	+3·20	1·05	0·52	+ 0·53	1·05	0·52	+ 0·53	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·86	0·45	+0·40	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
1	4	...	1	...	6	7	8	4	8	7	+ 14	55	·363	3·1	6	1·82	+ 4·18	1·77	0·82	+ 0·95	1·77	0·82	+ 0·95	Hazaribagh.	Chota Nagpur.
12	2	...	...	1	...	5	4	7	6	?	?	66	·425	2·7	6	2·32	+ 3·68	2·67	1·09	+ 1·58	2·67	1·09	+ 1·58	Ranchi.	
4	1	...	2	2	1	11	10	...	1	?	?	78	·552	3·6	6	2·20	+ 3·80	2·74	1·21	+ 1·53	2·74	1·21	+ 1·53	Chaibassa.	
...	...	1	5	3	12	3	4	3	5	3	+ 67	69	·477	2·6	2	1·18	+ 0·82	0·59	0·64	− 0·05	0·59	0·64	− 0·05	Gaya .	Bihar, South.
...	...	1	1	3	5	15	3	3	*2	?	?	62	·437	1·7	3	1·14	+ 1·86	1·19	0·70	+ 0·49	1·19	0·70	+ 0·49	Dehri.	
...	...	1	5	7	1	7	7	3	4	3	+ 33	62	·441	2·3	2	0·82	+ 1·18	0·36	0·41	− 0·05	0·36	0·41	− 0·05	Patna	
...	1	3	2	5	5	6	7	2	3	?	?	65	·441	0·9	1	0·95	+ 0·05	0·39	0·34	+ 0·05	0·39	0·34	+ 0·05	Arrah.	
...	...	3	8	1	1	4	13	1	4	?	?	61	·418	2·5	3	0·85	+ 2·15	0·88	0·28	+ 0·60	0·88	0·28	+ 0·60	Buxar.	
15	1	2	6	...	2	3	1	1	3	3	0	85	·516	2·0	0	0·73	− 0·73	0·08	0·49	− 0·41	0·08	0·49	− 0·41	Purnea .	Bihar, North.
23	...	...	4	...	1	1	2	...	1	?	?	69	·481	2·6	0	0·65	− 0·65	0·12	0·33	− 0·21	0·12	0·33	− 0·21	Bhagalpur.	
3	1	5	9	3	1	2	5	2	4	5	− 20	69	·447	2·4	0	0·91	− 0·91	0·19	0·34	− 0·15	0·19	0·34	− 0·15	Darbhanga.	
1	...	3	9	6	...	4	6	2	4	?	?	85	·537	2·1	2	1·05	+ 0·95	0·53	0·42	+ 0·11	0·53	0·42	+ 0·11	Muzaffarpur.	
5	...	4	5	4	...	6	7	...	5	?	?	72	·439	2·2	0	0·82	− 0·8	0·20	0·37	− 0·17	0·20	0·37	− 0·17	Motihari.	
3	...	1	5	3	2	9	7	1	4	?	?	68	·449	3·1	1	0·75	+ 0·25	0·98	0·29	+ 0·69	0·98	0·29	+ 0·69	Chapra.	
13	1	1	5	2	...	5	4	...	4	5	− 20	70	·456	2·4	3	0·64	+ 2·36	0·53	0·17	+ 0·36	0·53	0·17	+ 0·36	Benares	N.-W. Provinces (Eastern Districts).
1	1	4	5	2	1	5	8	4	5	3	+ 67	58	·397	2·4	2	0·73	+ 1·27	1·02	0·20	+ 0·82	1·02	0·20	+ 0·82	Allahabad.	
1	4	3	3	2	3	1	10	4	2	4	− 50	65	·412	1·9	2	0·73	+ 1·27	0·49	0·26	+ 0·23	0·49	0·26	+ 0·23	Gorakhpur	N.-W. Provinces (East Sub-montane).
25	...	...	...	...	...	...	6	...	1	4	− 75	66	·401	3·4	1	1·00	0	0·14	0·23	− 0·09	0·14	0·23	− 0·09	Lucknow .	Oudh, South.
1	3	8	3	4	1	2	3	6	4	?	?	79?	·494?	2·7	3	?	?	2·57	0·47	+ 2·10	2·57	0·47	+ 2·10	Bahraich .	Oudh, North.
...	3	5	4	5	2	4	4	4	4	?	?	63	·414	1·7	2	0·80	+ 1·20	0·45	0·24	+ 0·21	0·45	0·24	+ 0·21	Cawnpore .	N.-W. Provinces (Central).
...	14	5	...	1	...	...	...	11	1	?	?	65	·389	2·7	1	?	?	0·12	0·24	− 0·12	0·12	0·24	− 0·12	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·09	1·04	+0·06	...	...	...	**6. Upper—Sub-Himalayas.**	
17	1	3	...	1	...	...	2	7	3	4	− 25	72	·393	3·7	3	1·82	+ 1·18	0·43	0·99	− 0·56	0·43	0·99	− 0·56	Bareilly .	N.-W. Provinces (Sub-montane).
29	...	1	1	...	...	...	...	...	2†	2	0	67	·326	3·5	4	2·64	+ 1·36	1·78	1·31	+ 0·47	1·78	1·31	+ 0·47	Dehra Dun.	
21	1	1	1	1	1	...	...	5	2	3	− 33	76	·385	3·3	3	1·82	+ 1·18	1·10	0·83	+ 0·27	1·10	0·83	+ 0·27	Roorkee.	
9	...	1	2	2	...	1	12	4	3	3	0	68	·366	3·3	4	1·55	+ 2·45	0·70	1·02	− 0·32	0·70	1·02	− 0·32	Meerut.	
12	1	...	2	1	1	5	7	2	2	4	− 50	64	·360	3·9	5	1·18	+ 3·82	1·42	0·56	+ 0·86	1·42	0·56	+ 0·86	Delhi .	Punjab, Central.
14	3	1	2	5	1	...	2	3	2	3	− 33	72	·382	3·0	2	1·36	+ 0·64	0·64	0·69	−0·05	0·64	0·69	− 0·05	Lahore.	

Mean of 30 days.
" " 28 "

Table

Abstract of Observations taken at 8 A.M. at 189 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Sub-montane).	Umballa	902?	29·020	?	29·930	29·225	9th	28·816	19th	·409	60·2	78·3	?	?	?	?	?	?	89·0	27th & 31st.	?	?	?
	Ludhiana	812	29·110	+·028	29·929	29·319	9th	28·909	19th	·410	60·6	76·3	−9·4	54·2	−3·2	65·3	−6·3	22·1	89·1	27th	46·1	3rd	43·0
Punjab, North.	Sialkot	830	29·105	+·046	29·948	29·317	7th	28·880	27th	·437	59·2	75·2	−6·8	52·2	−3·2	63·7	−5·0	23·0	86·1	31st	45·2	1st	40·9
	Rawalpindi	1,649	28·275	+·032	29·952	28·460	9th	28·071	18th	·389	52·3	70·4	−6·7	47·0	−3·5	58·7	−5·1	23·4	81·6	31st	39·4	1st	42·2
7. Indus Valley and North-West Rajputana.		...	...	+·016	...	...	...	...	...	...	...	83·5	−3·4	55·4	−2·4	69·7	−2·8	27·4	...	...	...	...	44·7
Punjab, West	Peshawar	1,110	28·863	+·018	29·966	29·068	1st	28·652	27th	·416	55·2	71·5	−5·4	48·2	−3·7	59·9	−4·6	23·3	80·6	31st	42·9	3 days	37·7
	Khushab	612	29·334	?	29·946	29·546	1st	29·098	18th	·448	60·8	78·6	?	53·4	?	66·0	?	25·2	88·9	31st	46·1	3rd	42·8
	Montgomery	558	29·384	?	29·934	29·595	1st	29·156	19th	·439	64·4	82·9	?	52·9	?	68·0	?	30·0	95·8	31st	44·8	8th	51·0
	D. I. Khan	573	29·371	+·006	29·945	29·585	1st	29·167	18th	·418	58·9	79·2	−4·9	51·2	−4·3?	65·2	−4·6?	28·0	87·1	3 days	44·8	3 days	42·3
	Mooltan	420	29·530	+·019	29·940	29·751	8th	29·329	19th	·422	63·5	83·4	−2·8	56·3	−1·6	69·9	−2·2	27·1	94·3	31st	49·2	1st & 2nd,	
	Sirsa	662	29·262	+·015	29·920	29·484	9th	29·015	19th	·469	61·6	82·9	−2·5	53·6	−3·7	68·3	−3·1	29·3	96.4	27th	47·2	1st & 3rd,	49·2
Sind and Cutch.	Jacobabad	136	29·770	+·036	29·924	30·009	9th	29·497	26th	·512	69·1	89·0	−2·0	59·2	−0·2	74·1	−1·1	29·8	99·0	31st	51·0	2nd	48·0
	Hyderabad	117	29·842	+·017	29·916	30·035	9th	29·659	26th	·376	69·1	89·8	−3·7	62·8	−1·8	76·3	−2·8	27·0	101·7	31st	56·1	1st	45·6
	Kurrachee	49	29·924	+·005	29·926	30·099	9th	29·744	17th	·355	69·7	84·5	−1·4	64·6	−1·5	74·6	−1·5	19·9	87·5	18th	59·0	3 days	28·5
Rajputana, West	Bickaneer	753	29·169	?	29·909	29·377	1st	28·938	17th	·439	65·8	85·1	−4·7	?	?	?	?	?	99·1	31st	?	?	?
	Pachpadra	380	29·582	?	29·933	29·775	8th	29·371	18th	·404	68·2	91·2	?	57·1	?	74·2	?	34·1	104·0	31st	47·4	2nd	56·6
8. East Rajputana, Central India and Guzerat.		...	...	+·015	...	...	...	...	...	..	...	87·9	−5·4	60·9	−2·7	74·4	−4·0	26·9	...	...	...	...	46·1
Rajputana, East	Jeypore	1,431	28·521	+·025	29·949	28·689	1st	28·334	18th	·355	68·1	84·5	−5·8	58·3	−3·0	71·4	−4·4	26·2	98·6	31st	47·2	2nd	51·4
	Sambhar	1,254	28·675	+·014	29·932	28·908	1st	28·492	18th & 19th	·416	64·1	83·6	−4·8	55·8	−3·6	69·7	−4·2	27·8	96·5	31st	45·9	1st	50·6
	Ajmere	1,611	28·345	+·024	29·962	28·516	1st	28·155	20th	·361	66·9	83·7	−5·9	57·9	−1·7?	70·8	−3·8?	25·8	97·4	31st	49·3	2nd	48·1
	Deesa	466	29·474	−·008	29·908	29·610	1st	29·335	18th	·275	72·3	93·6	−2·2	62·1	−1·8	77·9	−2·0	31·5	102·9	31st	53·1	20th	49·8
Kathiawar	Rajkot	429	29·527	−·005	29·919	29·617	3rd	29·430	17th	·187	72·9	93·2	−3·5	61·4	−1·3	77·3	−2·4	31·8	101·9	31st	53·0	20th & 22nd	48·9
	Veraval	?	29·943	?	29·903	30·019	3rd	29·860	17th	·159	72·6	84·1	?	64·8	?	74·4	?	19·3	94·6	14th	57·8	22nd	36·8
	Bhavnagar	?	29·938	?	29·924	30·029	3rd	29·833	17th	·196	73·1	89·4	?	66·8	?	78·1	?	22·6	95·9	28th	59·5	23rd	36·4
Central India	Nowgong	757	29·190	+·023	29·929	29·352	1st	28·988	18th	·364	66·3	85·7	−8·2	57·4	−3·5	71·6	−5·9	28·3	97·0	28th	50·0	3rd & 4th	47·0
	Indore	1,823	28·123	+·013	29·928	28·250	3rd	27·984	19th	·266	69·2	87·3	−5·5	57·4	−3·4	72·4	−4·5	29·9	98·0	31st	49·5	23rd	48·5
	Neemuch	1,630	28·332	+·032	29·957	28·476	9th	28·121	18th	·355	69·0	85·6	−6·7	58·7	−2·9	72·2	−4·8	26·9	98·8	31st	52·8	3rd & 23rd,	46·0
	Surat	36	29·922	−·015	29·902	30·004	7th	29·801	20th	·203	73·9	94·2	−1·9	64·6	−1·2	79·4	−1·6	29·6	101·2	17th	57·0	22nd	44·2
Guzerat	Ahmedabad	176	29·799	?	29·928	29·914	3rd	29·673	19th	·241	75·0	94·4	?	66·5	?	80·4	?	27·9	103·3	31st	58·7	23rd	44·6
N.-W. P., West	Agra	555	29·416?	+·043?	29·953?	29·616	9th	29·223	18th	·393	65·7	84·2	−7·8	59·5	−3·4	71·9	−5·6	24·7	98·0	31st	48·6	1st	49·4
	Jhansi	840	29·102	+·025	29·941	29·268	1st	28·895	19th	·373	69·5	86·5	6·8	62·0	−3·4	74·3	−5·1	24·5	98·5	31st	55·4	1st	43·1
9. Deccan		..	...	+·017	...	...	...	...	...	...	...	88·7	−8·5	63·6	−3·6	76·2	−6·1	25·0	...	...	...	...	41·3
Bombay, Deccan	Belgaum	2,524	27·418	−·015	29·869	27·485	1st	27·307	20th	·178	73·4	90·0	−4·1	63·3	−0·9	76·7	−2·5	26·7	94·8	3 days	53·9	23rd	40·9
	Sholapur	1,590	28·360	+·010	29·906	28·468	9th	28·244	20th	·224	75·3*	94·0*	−6·4	67·0†	−1·7	+80·5	−4·1	27·0	100·2	31st	60·1	23rd	40·1
	Poona	1,840	28·114	+·001	29·919	28·185	4th	27·993	20th	·192	71·6	94·9	−2·2	61·1	−3·5	78·0	−2·9	33·8	102·5	31st	55·4	23rd & 24th	47·1
	Bijapur	1,946	28·001	?	29·893	28·110	9th	27·895	20th	·215	75·1	91·8	?	66·9	?	79·4	?	24·9	97·7	31st	61·5	4th	36·2
Khandesh	Malegaon	1,430	28·532	+·014	29·934	28·638	9th	28·388	20th	·250	72·6	92·5	−5·0	61·3	−2·5	77·0	−3·8	31·2	99·9	31st	53·0	24th	46·9
	Ahmednagar	2,152	27·807	?	29·915	27·917	9th	27·663	20th	·254	72·5	90·5	?	59·0	?	74·7	?	31·5	97·7	31st	50·4	21st	47·3
Berar.	Akola	930	29·008?	+·013?	29·908?	29·159	9th	28·867	20th	·292	70·2	88·5	−10·6	62·6	−3·4	75·6	−7·0	25·9	98·8	31st	53·6	23rd & 24th,	45·2
	Amraoti	1,215	28·734	+·031	29·926	28·897	9th	28·574	20th	·323	71·1	87·1	−11·9	65·5	−2·9	76·3	−7·4	21·6	98·9	30th & 31st.	58·3	9th	40·6

* Mean of 30 days
† „ „ 29 „

I—*continued.*

in India, Burma, etc., in March 1893—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 March 1893.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Station.	Meteorological Province or District.
3	1	3	2	8	1	1	...	12	3	?	?	79	·411	1·8	2	?	?	0·78	0·73	+0·05	0·78	0·73	+0·05	Umballa .	Punjab (Sub-montane).
13	4	2	2	2	2	...	5	1	3	2	+50	73	·382	3·8	1	2·36	−1·36	1·14	1·04	+0·10	1·14	1·04	+0·10	Ludhiana.	
9	9	1	6	1	...	...	4	1	2	2	0	74	·372	2·6	4	2·64	+1·36	1·73	1·24	+0·49	1·73	1·24	+0·49	Sialkot .	Punjab, North.
18	...	5	...	...	1	...	1	6	2	3	−33	80	·321	4·0	3	3·91	−0·91	1·22	1·95	−0·73	1·22	1·95	−0·73	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·32	0·44	−0·12	...	...	...	**7. Indus Valley and North-West Rajputana.**	
4	2	3	2	2	5	5	3	5	4	4	0	75	·329	3·0	4	3·55	+0·45	2·23	1·84	+0·39	2·23	1·84	+0·39	Peshawar .	Punjab, West.
13	2	6	2	1	...	1	...	6	4	?	?	60	·322	2·5	1	1·60	−0·60	0·25	0·54	−0·29	0·25	0·54	−0·29	Khushab.	
8	2	5	1	5	7	1	1	1	4	?	?	58	·342	2·2	1	1·00	0	0·17	0·41	−0·24	0·17	0·41	−0·24	Montgomery	
14	...	8	2	...	...	1	...	6	2	2	0	68	·338	2·4	3	1·55	+1·45	0·61	0·58	+0·03	0·61	0·58	+0·03	D. I. Khan.	
3	...	3	...	20	...	2	...	3	2	2	0	56	·332	1·7	0	1·18	−1·18	0	0·49	−0·49	0	0·49	−0·49	Mooltan.	
11	5	...	2	6	4	...	2	1	4	4	0	67	·363	3·0	0	0·55	−0·55	0·02	0·36	−0·34	0·02	0·36	−0·34	Sirsa.	
3	1	4	10	6	1	1	2	3	4	4	0	38	·263	1·9	0	0·73	−0·73	0	0·11	−0·11	0	0·11	−0·11	Jacobabad .	Sind and Cutch.
2	7	6	2	...	2	6	1	5	11	8	+38	46	·333	1·1	0	0·50	−0·50	0	0·17	−0·17	0	0·17	−0·17	Hyderabad.	
...	2	15	1	...	...	3	4	6	13	12	+8	76	·570	2·5	0	0·55	−0·55	0	0·18	−0·18	0	0·18	−0·18	Kurrachee.	
1	3	3	4	4	5	7	1	3	5	4	+25	42	·266	2·3	0	?	?	0·04	0·07	−0·03	0·04	0·07	−0·03	Bickaneer .	Rajputana, West.
18	1	2	3	2	2	2	...	1	?	4	?	44	·309	2·7	1	?		0·15	0·07	+0·08	0·15	0·07	+0·08	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·39	0·11	+0·36	...	...	...	**8. East Rajputana, Central India and Guzerat.**	
7	4	7	1	1	...	1	3	7	3	5	−40	51	·349	2·2	2	0·50	+1·50	0·94	0·07	+0·87	0·94	0·07	+0·87	Jeypore .	Rajputana, East.
3	9	4	5	1	1	...	5	3	7	6	+17	55	·318	1·6	1	0·64	+0·36	0·31	0·36	−0·05	0·31	0·36	−0·05	Sambhar.	
12	...	5	...	3	3	3	4	1	5	4	+25	52	·334	1·5	2	0·27	+1·73	0·30	0·01	+0·29	0·30	0·01	+0·29	Ajmere.	
...	8	8	1	...	2	5	5	2	8*	9	−11	40	·317	2·8	1	0·18	+0·82	0·25	0·06	+0·19	0·25	0·06	+0·19	Deesa.	
...	2	7	8	...	...	1	5	8	7	8	−13	62	·507	0·5	0	0	0	0	0	0	0	0	0	Rajkot .	Kathiawar.
10	9	6	...	...	...	...	2	4	7	?	?	60	·489	2·0	0	?	?	0	?	?	0	?	?	Veraval.	
...	1	6	...	...	...	11	7	6	10	?	?	62	·511	1·1	0	?	?	0	?	?	0	?	?	Bhavnagar.	
8	4	1	...	1	3	5	7	2	3	2	+50	60	·377	3·1	3	0·55	+2·45	1·72	0·17	+1·55	1·72	0·17	+1·55	Nowgong .	Central India.
5	7	2	4	3	5	...	5	...	3	4	−25	56	·392	0·8	0	0	0	0·22	0	+0·22	0·22	0	+0·22	Indore.	
2	1	16	2	3	...	5	...	2	8	9	−12	41	·277	1·5	1	0·18	+0·82	0·36	0·01	+0·35	0·36	0·01	+0·35	Neemuch.	
...	2	1	2	5	3	6	5	7	?	6	?	70	·594	1·3	0	0	0	0	0	0	0	0	0	Surat .	Guzerat.
...	5	10	2	3	1	2	2	3	7	?	?	43	·378	2·2	1	?	?	0·22	?	?	0·22	?	?	Ahmedabad.	
2	...	4	...	7	...		...	11	5	5	0	57	·350	3·2	2	0·82	+1·18	0·40	0·24	+0·16	0·40	0·24	+0·16	Agra . .	N.-W. P., West.
12	2	4	1	...	1	6	2	3	1	3	−67	50	·344	2·1	2	1·00	+1·00	0·75	0·33	+0·42	0·75	0·33	+0·42	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·52	0·28	+2·67	...	...	...	**9. Deccan.**	
13	3	2	5	3	1	...	1	3	?	12	?	47	·384	1·5	0	1·00	−1·00	0	0·48	−0·48	0	0·48	−0·48‖	Belgaum .	Bombay, Deccan.
3	...	4	4	11	2	1	1	5	10†	8	+25	58§	·508§	2·9	4	0·36	+3·64	3·38	0·12	+3·26	3·38	0·12	+3·26	Sholapur.	
16	1	...	3	3	...	...	3	5	8	8	0	47	·368	1·3	0	0·36	−0·36	0	0·07	−0·07	0	0·07	−0·07	Poona.	
2	...	3	3	13	2	1	1	6	5	?	?	56	·477	2·4	5	0·03	+4·97	2·23	0·08	+2·15	2·23	0·08	+2·15	Bijapur.	
5	5	4	1	2	...	1	5	8	10	6	+67	65	·517	1·7	2	0	+2·00	0·49	0	+0·49	0·49	0	+0·49	Malegaon .	Khandesh.
8	5	2	2	10	1	...	...	3	5‡	?	?	59	·471	2·5	1	?	?	1·65	0·04	+1·61	1·65	0·04	+1·61	Ahmednagar.	
5	...	2	10	4	...	...	7	3	5	4	+25	64	·458	3·5	5	0·82	+4·18	3·80	0·42	+3·38	3·80	0·42	+3·38	Akola .	Berar.
3	...	4	11	3	1	4	5	...	6	4	+50	58	·416	2·5	8	0·45	+7·55	3·14	0·23	+2·91	3·14	0·23	+2·91	Amraoti.	

* Mean of 18 days. ‡ Mean of 20 days.
† „ „ 29 „ ‖ „ „ 30 „

Table

Abstract of Observations taken at 8 A.M. at 189 Stations

Meteorological Province or District.	Station.	Elevation of barometer 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.
Central Provinces, West.	Khandwa	1,044	28·896	+·014	29·921	29·033	9th	28·755	20th	·278	70·0	91·3	−6·6	61·2	−3·8	76·3	−5·2	30·1	101·2	31st	51·6	24th	49·6
	Hoshangabad	1,020	28·935	+·013	29·940	29·081	9th	28·769	20th	·312	68·7	88·3	−8·2	61·6	−2·6	75·0	−5·4	26·7	99·4	31st	55·8	15th	43·6
	Nagpur	1,025	28·933	+·038	29·935	29·096	8th	28·743	20th	·353	71·1	86·1	−12·9	63·7	−3·9	74·9	−8·4	22·4	98·8	31st	56·3	15th	42·5
Central Provinces, Central.	Chanda	634	29·324	?	29·921	29·483	9th	29·145	20th	·338	70·8	86·5	?	64·0	?	75·3	?	22·5	97·4	31st	57·1	24th	40·3
	Seoni	2,030	27·914?	+·009?	29·951?	28·058	9th	27·736	20th	·322	68·1	82·5	−11·5	59·3	−4·4	70·9	−8·0	23·2	95·2	29th	52·9	15th	42·3
	Jubbulpore	1,327	28·617	+·025	29·937	28·775	9th	28·407	20th	·368	66·9	84·8	−8·6	58·0	−3·3	71·4	−6·0	26·8	96·0	31st	49·9	24th	46·1
	Saugor	1,762	28·178	+·018	29·931	28·324	9th	27·998	20th	·326	67·6	85·9	−6·6	58·8	−5·9?	72·4	−6·3	27·1	96·9	31st	53·3	3rd	43·6
Central Provinces, East.	Raipur	960	28·989	+·043	29·935	29·177	9th	28·780	20th	·397	69·3	85·1	−11·8	58·1	−10·7	71·6	−11·3	27·0	97·9	31st	50·3	9th	47·6
	Sutna	1,040	28·888	+·012	29·916	29·052	9th	28·676	20th	·376	68·6	84·7	−7·3	58·5	−2·5	71·6	−4·9	26·2	94·1	31st	51·3	3rd & 4th	42·8
	Sambalpur	463	29·489	+·038	29·913	29·689	9th	29·288	20th	·401	71·8	84·9	−12·8	64·8	−2·7	74·9	−7·8	20·1	96·0	22nd	58·7	25th	37·3
Hyderabad, North.	Aurangabad	?	28·097	?	?	28·220	9th	27·975	20th	·245	75·3	91·9	?	62·5	?	77·2	?	29·4	100·6	31st	57·0	21st	43·6
	Indur	?	?	?	?	?	...	?	...	?	74·3	87·4	?	66·1	?	76·8	?	21·3	97·0	31st	57·1	8th	39·9
	Bidar	?	27·786	?	?	27·895	9th	27·649	23rd	·246	72·3	86·1	?	66·7	?	76·4	?	19·4	92·3	31st	61·1	11th	31·2
Hyderabad, South.	Gulburga	?	28·441	?	?	28·550	9th	28·321	20th	·229	75·6	91·8	?	67·5	?	79·7	?	24·3	99·1	31st	60·9	23rd	38·2
	Raichur	?	28·571	?	?	28·680	9th	28·441	20th	·239	77·6	92·3	?	71·7	?	82·0	?	20·6	99·1	31st	66·5	8th	32·6
	Secunderabad	1,787	28·171	0	29·925	28·285	7th	28·023	22nd	·262	71·5	88·5	−9·1	66·7	−2·9	77·6	−6·0	21·8	97·2	31st	59·4	6th	37·8
	Hyderabad (Deccan).	1,690	28·270	+·020	29·923	28·387	7th	28·121	21st	·266	72·9	88·0	−9·4	66·8	−2·8	77·4	−6·1	21·2	95·9	31st	58·3	9th & 10th,	37·6
	Kamamet	?	29·606?	?	29·531?	29·728	6th	29·455	20th & 22nd	·273	76·4	89·4	?	71·5	?	80·5	?	17·9	98·4	31st	66·3	14th	32·1
10. West Coast		...	...	−·014	...	...	...	...	...	...	...	87·1	−1·1	73·7	−1·4	80·4	−1·3	14·0	...	...	...	...	20·2
Konkan	Bombay	37	29·931	−·005	29·908	30·009	7th	29·836	25th	·173	75·6	84·0	−1·7	71·7	−1·8	77·9	−1·8	12·3	91·4	15th	66·5	1st	24·9
	Ratnagiri	110	29·848	+·003	29·898	29·923	1st	29·739	20th	·184	76·9	85·8	−1·9	70·4	−2·0	78·1	−2·0	15·4	90·4	17th	65·9	24th	24·5
	Mormugoa	60	29·906	?	29·901	29·995	9th	29·794	20th	·201	77·8	85·9	?	73·4	?	79·6	?	12·5	90·0	28th	70·4	1st	19·6
	Karwar	44	29·905	−·023	29·882	29·985	6th	29·803	24th	·182	73·0	86·6	−1·1	71·1	−2·1	78·8	−1·6	15·5	90·3	19th	67·2	1st	23·1
Malabar	Mangalore	26	29·935	−·019	29·892	30·010	1st	29·837	24th	·173	79·3	88·4	−0·4	75·2	−0·6	81·8	−0·5	13·2	90·3	28th & 29th	71·9	24th	18·4
	Calicut	27	29·927	−·024	29·883	30·006	1st	29·830	23rd	·176	81·2	90·0	?	75·5	?	82·8	?	14·5	91·8	3 days	73·0	7th	18·8
	Cochin	10	29·946	−·014	29·884	30·019	4th	29·847	23rd	·172	81·0	89·9	−0·6	76·3	−0·3	83·2	−0·5	13·6	91·3	3 days	72·7	8th	18·6
	Trivandrum	198	29·739	?	29·869	29·817	4th	29·636	23rd	·181	78·9	85·9	?	76·0	?	81·0	?	9·9	87·5	26th	74·0	1st & 20th	13·5
11. South India		...	...	−·002	...	...	...	...	...	...	...	90·0	−2·9	71·4	+0·3	80·8	−1·2	18·5	...	...	...	...	29·1
Madras, South.	Pamban	37	29·921	?	29·885	30·004	6th	29·800	23rd	·204	80·9	87·5	?	76·5	?	82·0	?	11·0	90·3	24th & 25th	72·2	31st	18·1
	Tinnevelly	168	29·799	?	29·898	29·877	4th & 5th	29·668	23rd	·209	78·9	91·5	?	75·4	?	83·5	?	16·1	98·8	23rd	72·9	8th	25·9
	Madura	447	29·516	−·011	29·903	29·600	9th	29·382	23rd	·218	79·1	93·9	−3·0	73·0	+0·8	83·5	−1·1	20·9	99·0	24th	67·6	15th	31·4
Madras, South, Central.	Salem	940	29·051	−·008	29·933	29·135	4th	28·917	23rd	·218	79·0	95·9	−2·4	71·9	+1·7	83·9	−0·4	24·0	101·4	31st	65·9	19th	35·5
	Coimbatore	1,348	28·605	−·025	29·906	28·694	9th	28·504	23rd	·190	74·9	93·6	−2·7	69·7	−0·1	81·7	−1·4	23·9	98·8	20th	61·6	1st	37·2
Coorg	Mercara	3,781	26·259	−·009?	29·890	26·322	6th & 9th	26·175	24th	·147	68·1	81·2	−3·4	62·1	+1·3	71·7	−1·1	19·1	84·2	25th	57·7	15th	26·5
Mysore	BangaloreBazar	2,982	27·036?	−·011?	29·932?	27·107	3rd	26·931	23rd	·176	71·2	87·6	−2·7	65·2	+1·1	76·4	−0·8	22·4	91·2	3 days	61·0	8th	30·2
	Bangalore Fort	3,019	26·987	−·028	29·910	27·064	3rd	26·874	23rd	·190	71·2	88·1	−2·7	65·0	+1·1	76·6	−0·8	23·1	91·8	31st	61·4	4th & 5th,	30·4
	Hassan	3,091	26·923	?	29·906	26·990	9th	26·826	24th	·164	73·5	89·2	?	62·9	?	76·1	?	26·3	94·5	22nd	58·8	4th	35·7
	Chitaldroog	2,405	27·565	?	29·887	27·699	11th	27·452	20th	·247	77·2	90·5	?	69·2	?	79·9	?	21·3	94·9	31st	62·1	8th	32·8
Madras, East Coast, South.	Negapatam	31	29·943	−·006	29·903	30·027	9th	29·824	23rd	·203	81·5	87·2	−1·5	76·5	+1·3	81·8	−0·1	10·7	94·2	25th	71·2	6th	23·0
	Cuddalore	12	29·959	?	29·900	30·047	3rd	29·828	23rd	·219	80·1	88·6	?	73·5	?	81·1	?	15·1	95·2	23rd	67·2	19th	28·0
	Trichinopoly	255	29·716	−·012	29·907	29·805	3rd	29·590	23rd	·215	80·0	96·0	−1·3	73·6	+1·2	84·8	−0·1	22·4	101·1	23rd & 25th,	67·9	19th	33·2
	Madras	22	29·964	−·005	29·917	30·050	9th	29·830	23rd	·220	81·3	90·0	+0·4	73·7	+1·5	81·9	+1·0	16·3	93·5	29th	68·0	19th	25·5
Madras, East Coast, Central.	Nellore	71	29·900	?	29·905	30·014	9th	29·759	23rd	·255	80·2	93·5	?	73·0	?	83·3	?	20·5	100·3	31st	69·6	31st	30·7
	Masulipatam	15	29·968	−·001	29·918	30·081	9th	29·831	20th	·250	79·9	88·1	−3·5	73·3	+1·0	80·7	−1·3	14·8	97·7	30th	68·1	14th	29·6

I—*continued.*

in India, Burma, etc., in March 1893—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 March 1893.	Normal rainfall for period, 1st to 31st March 1893.	Variation from normal of period, 1st to 31st March 1893.	Station.	Meteorological Province or District.
3	7	8	1	2	3	...	2	5	5	5	0	53	·378	1·1	4	0·18	+3·82	0·62	0·07	+ 0·55	0·62	0·07	+ 0·55	Khandwa	Central Provinces, West.
7	...	10	7	...	1	4	2	...	4	2	+100	57	·394	2·2	3	0·36	+2·64	1·48	0·14	+ 1·34	1·48	0·14	+ 1·34	Hoshangabad.	
2	7	9	5	2	...	1	1	4	5	5	0	63	·461	3·2	7	1·00	+6·00	3·26	0·49	+ 2·77	3·26	0·49	+ 2·77	Nagpur.	
9	5	2	5	5	2	...	...	3	3	?	?	71	·537	3·3	11	?	?	14·75	?	?	14·75	?	?	Chanda	Central Provinces, Central.
5	2	9	5	3	2	4	1	...	2	3	- 33	67	·448	3·1	9	1·73	+7·27	3·34	0·53	+ 2·81	3·34	0·53	+ 2·81	Seoni.	
9	...	3	1	5	10	1	2	...	3	3	0	60	·387	1·5	4	0·82	+3·18	1·94	0·32	+ 1·62	1·94	0·32	+ 1·62	Jubbulpore.	
8	...	7	...	5	3	4	2	2	3	3	0	52	·331	1·8	5	0·64	+4·36	2·00	0·14	+ 1·86	2·00	0·14	+ 1·86	Saugor.	
19	2	2	1	...	2	2	2	1	6	5	+ 20	72	·503	3·8	8	1·00	+7·00	2·19	0·60	+ 1·59	2·19	0·60	+ 1·59	Raipur	Central Provinces, East.
2	9	...	2	...	5	3	8	2	6	6	0	51	·348	1·5	3	0·91	+2·09	3·44	0·25	+ 3·19	3·44	0·25	+ 3·19	Sutna.	
...	6	8	6	1	7	2	...	1	4	?	?	74	·569	3·6	5	?	?	3·22	0·98	+ 2·24	3·22	0·98	+ 2·24	Sambalpur.	
10	...	6	7	5	1	2	...	...	4	?	?	49	·413	2·1	2	?	?	0·66	0·06	+ 0·60	0·66	0·06	+ 0·60	Aurangabad	Hyderabad, North.
1	3	...	8	7	2	3	3	4	8	?	?	74	·624	4·0	8	?	?	5·85	0·27	+ 5·58	5·85	0·27	+ 5·58	Indur.	
...	1	2	6	3	6	9	2	2	8	?	?	83	·652	2·0	11	?	?	4·94	0·34	+ 4·60	4·94	0·34	+ 4·60	Bidar.	
7	2	1	5	12	3	...	1	...	8	?	?	63	·544	2·1	7	?	?	2·83	0·21	+ 2·62	2·83	0·21	+ 2·62	Gulburga	Hyderabad, South.
2	...	...	4	12	10	...	...	3	6	?	?	66	·617	5·3	4	?	?	3·49	0·22	+ 3·27	3·49	0·22	+ 3·27	Raichur.	
4	...	3	4	10	3	4	1	2	6	5	+ 20	75	·570	4·1	8	1·09	+6·91	7·53	0·37	+ 7·16	7·53	0·37	+ 7·16	Secunderabad.	
7	..	...	4	9	4	2	5	...	5	?	?	75	·598	4·3	9	?	?	9·16	0·20	+ 8·96	9·16	0·20	+ 8·96	Hyderabad (Deccan).	
11	1	...	...	13	5	1	...	...	7	?	?	81	·737	3·4	5	?	?	6·05	?	?	6·05	?	?	Kamamet.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·19	0·39	+0·88	..	...	...	**10. West Coast.**	
...	4	10	15	1	1	...	...	...	8	11	− 27	77	·684	1·2	0	0·09	−0·09	0	0	0	0	0	0	Bombay	Konkan.
1	7	3	2	3	3	2	1	9	5	10	− 50	72	·662	0·9	0	0	0	0	0	0	0	0	0	Ratnagiri.	
1	13	1	4	7	2	2	...	1	11	?	?	79	·764	1·9	0	?	?	0	?	?	0	?	?	Mormugoa.	
15	1	13	2	...	...	...	...	...	3	?	?	83	·778	0·8	0	0	0	0	0	0	0	0	0	Karwar.	
11	8	9	3	...	...	...	...	...	3	3	0	79	·798	2·3	0	0·10	−0·10	0	0	0	0	0	0	Mangalore	Malabar.
6	3	5	8	3	1	...	1	4	16	?	?	74	·794	3·2	0	0·63	−0·63	0·13	0·49	− 0·36	0·13	0·49	− 0·36	Calicut.	
...	2	26	1	...	...	..	1	1	6	?	?	78	842	3·4	8	2·45	+5·55	7·44	1·82	+ 5·62	7·44	1·82	+ 5·62	Cochin.	
...	3	9	14	...	...	...	1	4	5	?	?	83	·821	3·6	5	?	?	1·93	?	?	1·93	?	?	Trivandrum.	
...	...	...	...	...	..	...	..	..	...	...	...	...	...	...	...	...	...	1·96	0·49	+1·56	...	...	...	**11. South India.**	
2	...	8	16	2	1	1	...	1	4	?	?	83	·873	4·7	4	1·30	+2·70	3·06	0·79	+ 2·27	3·06	0·79	+ 2·27	Pamban	Madras, South.
...	12	9	1	1	...	...	...	8	5	?	?	79	·783	5·4	7	2·40	+4·60	3·28	1·65	+ 1·63	3·28	1·65	+ 1·63	Tinnevelly.	
6	9	10	2	3	1	...	...	...	3	4	− 25	77	·776	3·8	3	0·36	+2·64	5·12	0·19	+ 4·93	5·12	0·19	+ 4·93	Madura.	
10	3	15	2	1	...	...	...	...	5	6	− 17	67	·671	3·8	1	1·64	−0·64	0·95	0·96	− 0·01	0·95	0·96	− 0·01	Salem	Madras, South, Central.
...	12	3	10	...	4	...	1	1	3	3	0	85	·714	4·7	3	1·18	+1·82	1·84	0·61	+ 1·23	1·84	0·61	+ 1·23	Coimbatore.	
...	2	2	15	..	...	...	5	7	3	3	0	76	·525	4·5	7	2·00	+5·00	1·97	0·91	+ 1·06	1·97	0·91	+ 1·06	Mercara	Coorg.
...	..	...	11	13	3	2	2	...	3	4	− 25	76	·582	4·5	2	0·82	+1·18	1·26	0·52	+ 0·74	1·26	0·52	+ 0·74	Bangalore Bazar.	Mysore.
3	...	...	6	16	4	1	1	...	6	?	?	73	·556	2·1	3	?	?	1·57	?	?	1·57	?	?	Bangalore Fort.	
1	...	4	5	16	3	...	1	1	3	?	?	77	·634	3·1	1	?	?	0·26	?	?	0·26	?	?	Hassan.	
5	...	...	6	10	2	3	3	2	6	?	?	63	·583	1·6	4	?	?	1·99	?	?	1·99	?	?	Chitaldroog	
...	...	9	13	1	2	...	4	2	10	4	+150	73	·786	4·9	4	0·73	+3·27	3·27	0·43	+ 2·84	3·27	0·43	+ 2·84	Negapatam	Madras, East Coast, South.
...	4	1	4	2	...	4	4	12	4	?	?	88	·910	3·0	3	1·50	+1·50	3·34	0·31	+ 3·03	3·34	0·31	+ 3·03	Cuddalore.	
14	4	11	...	...	1	...	1	..	3	4	− 25	73	·748	3·5	2	0·82	+1·18	0·59	0·57	+ 0·02	0·59	0·57	+ 0·02	Trichinopoly.	
6	...	1	11	2	3	7	1	...	6	6	0	74	·796	4·2	1	0·64	+0·36	1·66	0·21	+ 1·45	1·66	0·21	+ 1·45	Madras.	
18	...	...	1	7	4	...	...	1	6	?	?	81	·826	6·2	2	0·40	+1·60	0·78	0·26	+ 0·52	0·78	0·26	+ 0·52	Nellore	Madras, East Coast, Central.
8	1		2	12	6	1	...	...		7	− 14	82	·837	5·1	0	0·27	−0·27	0·07	0·08	− 0·01	0·07	0·08	− 0·01	Masulipatam.	

Table

Abstract of Observations taken at 8 A.M. at 189 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.
Madras, Central —*contd.*	Cuddapah	433	29·526	0	29·902	29·634	9th	29·389	20th	·245	81·0	98·0	−3·2	74·5	−0·4	86·3	−1·8	23·5	103·7	31st	70·6	3rd	33·1
	Kurnool	923	29·031	+·009	29·903	29·137	7th	28·891	21st	·246	77·9	?	?	69·9	−2·6	?	?	?	?	...	65·8	3 days	?
	Bellary	1,475	28·479?	+·024?	29·901?	28·571	9th	28·354	20th	·217	78·6	95·0	− 5·5	71·0	−0·8	83·1	−3·2	24·0	101·0	30th & 31st,	67·5	23rd	33·5
Madras, East Coast, North.	Rajahmundry	112	29·862	+·016	29·913	29·982	9th	29·727	20th	·255	77·8	91·5	− 4·7	72·3	−1·7	81·9	−3·2	19·2	98·5	31st	66·0	14th	32·5
	Cocanada	26	29·959	+·027	29·920	30·090	9th	29·813	21st	·277	78·2	86·9	− 2·7	73·3	−1·6	80·1	−2·2	13·6	96·7	30th	66·7	14th	30·0
	Vizagapatam	31	29·947	+·007	29·916	30·113	9th	29·804	20th	·309	79·9	83·3	− 3·0	77·2	+1·1?	80·3	−1·0?	6·1	89·4	30th	74·9	3 days	14·5
	Gopalpur	21	29·957	?	29·918	30·144	9th	29·775	20th	·369	74·4	83·4	?	70·4	?	76·9	?	13·0	87·7	30th	65·9	3 days	21·8
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Kach	?	23·965†	?	?	24·075	3rd	23·785	26th	·290	46·4†	63·5‡	?	34·2†	?	48·9‡	?	29·3	73·0	29th	21·0	18th	52·0
	Quetta	5,502	24·663	+·029	?	24·804	9th	24·534	19th	·270	47·1	61·6	− 2·9	35·6	−4·4	48·6	−3·7	26·0	75·7	31st	28·8	1st	46·9
	Kalat	?				Not recorded.					?	62·2	?	30·6	?	46·4	?	31·6	79·0	16th	19·0	19th & 20th,	60·0
	Chaman	5,488	25·709	?	?	25·874	10th	25·492	26th	·382	53·5	65·6	?	45·0	?	55·3	?	20·6	77·1	25th & 31st,	36·1	19th & 20th.	41·0
Northern India	Gilgit	?	26·210	?	?	26·610	9th	25·880	19th &27th	·730	52·5	61·5	?	41·4	?	51·5	?	20·1	70·0	17th	34·3	11th	35·7
	Srinagar	5,204	24·912	?	?	25·070	4th	24·693	19th	·377	38·4	53·3	?	33·8	?	43·5	?	19·5	63·4	16th	28·1	1st	35·3
	Cherat	?	25·720	?	?	25·916	9th	25·519	19th	·397	50·8	59·3	?	46·7	?	53·0	?	12·6	69·8	31st	38·1	6th & 20th,	31·7
	Murree	6,344	23·813	−·029	?	23·978	9th	23·608	19th	·370	43·5	53·2	− 5·8	38·1	−6·3	45·7	−6·0	15·1	65·4	31st	29·2	20th	36·2
	Simla	7,224	23·082	−·030	?	23·241	9th	22·890	19th	·351	43·5	49·6	− 8·2	38·8	−5·9	44·2	−7·1	10·8	60·6	31st	28·8	7th	31·8
	Chakrata	7,052	23·230	−·023	?	23·395	9th	23·069	19th	·326	43·7	53·1	− 8·7	38·2	−6·1	45·6	−7·4	14·9	70·3	31st	31·1	7th	39·2
	Mussoorie	?	23·523	?	?	23·709	9th	23·378	19th &22nd	·331	44·1	51·8	?	40·0	?	45·9	?	11·8	66·2	31st	31·0	7th	35·2
	Ranikhet	6,069	24·118	+·016	?	24·258	9th	23·995	21st	·263	47·6	57·6	− 7·8	43·6	−5·6	50·6	−6·7	14·0	70·0	31st	34·5	7th	35·5
	Gnatong	?	19·155	?	?	19·270	6th	19·011	24th	·259	29·4	34·9	?	13·0	?	24·0	?	21·9	43·6	31st	6·3	13th	37·3
	Darjeeling	7,421	22·962	−·005	?	23·089	11th	22·825	24th	·264	44·2	51·5	− 5·3	38·5	−4·8	45·0	−5·1	13·0	56·5	23rd	31·7	15th	24·8
Central India	Mount Abu	3,945	26·083	−·006	?	26·200	3rd	25·933	19th	·267	64·9	73·0	− 6·1	58·4	−3·6	65·7	−4·9	14·6	82·7	31st	52·9	2nd	29·8
	Pachmarhi	3,511	26·513	+·003	?	26·627	9th	26·358	20th	·269	67·2	76·9	− 7·9	56·6	−4·0	66·8	−6·0	20·3	87·7	31st	48·2	15th	39·5
South India	Wellington	6,200	24·304	+·006	?	24·357	4th	24·225	20th	·132	61·3	70·6	− 3·1	52·5	−0·4	61·6	−1·8	18·1	74·2	21st	47·7	4th & 5th,	26·5
	Kodaikanal	?	?	?	?	?	...	?	...	?	57·9	65·7	?	51·3	?	58·5	?	14·4	68·0	29th	48·1	9th	19·9
13. Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Meshed	?	?	?	?	?	...	?	...	?	44·6	62·0	?	40·7	?	51·4	?	21·3	75·0	31st	28·0	5th	47·0
	Jask‡	?	29·994	?	?	30·144	1st	29·838	31st	·306	71·1	78·8	?	66·9	?	72·9	?	11·9	84·8	16th	62·0	2nd & 3rd	22·3
	Bushire	14	30·012	?	29·983	30·118	1st& 16th	29·813	23rd	·305	64·6	72·2	?	59·6	?	65·9	?	12·6	82·6	24th	52·3	1st	30·3
	Muscat	?	29·984	?	?	30·111	10th	29·837	30th	·274	75·0	77·3	?	73·2	?	75·3	?	4·1	83·9	25th	68·6	3rd	15·3
Arabia	Baghdad	?	29·725	?	?	29·765	22nd	29·635	7th	·130	62·4	80·0	?	47·5	?	63·7	?	32·5	84·4	12th, 15th & 19th	44·0	6th &30th	40·4
	Aden*	94	29·901	?	29·928	29·960	11th	29·830	23rd	·130	78·1	84·4	?	75·4	?	80·0	?	9·0	87·7	27th	72·0	15th	15·7
	Perim	?	29·762	?	?	29·813	11th& 14th	29·701	23rd& 24th,	·112	79·0	85·5	?	76·1*	?	80·8*	?	9·4	90·1	22nd	73·7	22nd	16·4
Arabian Sea Islands,	Minicoy	10	29·950	?	29·885	30·034	4th	29·867	23rd & 24th	·167	81·5	87·9	?	?	?	?	?	?	89·7	29th	?	...	?
Africa	Zanzibar	73	29·904	?	29·904	29·971	10th	29·851	25th	·120	80·4	85·2	?	78·0	?	81·6	?	7·2	88·5	7th	72·2	10th	16·3

* Mean of 30 days. ‡ Mean of 28 days.
† " " 29 "

I —*concluded.*

in India, Burma, etc., in March 1893 —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 March 1893.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Station.	Meteorological Province or District.
...	2	4	16	7	2	...	...	..	?	?	?	65	·684	2·2	0	0·20	—0·20	0	0·07	— 0·07	0	0·07	— 0·07	Cuddapah.	MADRAS, CENTRAL—*contd.*
26	...	...	5	...	...	...	...	...	?	?	?	66	·626	3·0	5	0·67	+4·33	3·39	0·30	+ 3·09	3·39	0·30	+ 3·09	Kurnool	
8	...	...	8	10	1	...	2	2	5	5	0	86	·837	1·5	3	0·73	+2·27	1·35	0·21	+ 1·14	1·35	0·21	+ 1·14	Bellary.	
12	5	8	3	...	1	...	1	1	?	?	?	73	·720	4·6	3	0·05	+2·95	3·23	0·29	+ 2·94	3·23	0·29	+ 2·94	Rajahmundry	MADRAS, EAST COAST, NORTH.
...	12	6	3	2	...	...	1	7	8	?	?	77	·739	2·8	3	0·60	+ 2·40	1·97	0·40	+ 1·57	1·97	0·40	+ 1·57	Cocanada.	
...	1	...	...	...	...	3	21	6	2	3	— 33	77	·781	3·8	2	1·09	+ 0·91	1·20	0·40	+ 0·80	1·20	0·40	+ 0·80	Vizagapatam.	
3	9	..	...	...	1	6	2	10	12	12	0	86	·724	1·9	4	1·13	+ 2·87	2·93	0·67	+ 2·26	2·93	0·67	+ 2·26	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
...	...	...	10	...	...	...	13	...	?	?	?	58†	·186†	1·7†	4	?	?	0·95	?	?	0·95	?	?	Kach *	BALUCHISTAN.
23	...	...	1	3	2	1	1	...	6	5	+ 20	92	·314	1·6	4	4·91	— 0·91	0·75	1·95	— 1·20	0·75	1·95	— 1·20	Quetta.	NORTHERN INDIA.
...	...	...	...	...	...	18	...	13	?	?	?	?	?	?	0	?	?	0·11	?	?	0·11	?	?	Kalat.	
1	1	3	4	5	8	6	1	2	10	?	?	55	·225	4·0	2	?	?	0·29	?	?	0·29	?	?	Chaman.	
Not recorded.									?	?	?	?	?	4·0	1	?	?	0·10	?	?	0·10	?	?	Gilgit	
12	3	...	1	6	5	...	1	3	4	?	?	86	·202	5·4	5	?	?	2·19	?	?	2·19	?	?	Srinagar	
4	6	4	3	4	6	...	...	4	8	?	?	51	·186	3·6	5	?	?	3·77	?	?	3·77	?	?	Cherat.	
5	2	4	4	9	...	1	...	6	10	9	+ 11	52	·143	4·4	10	5·36	+ 4·64	4·30	3·61	+ 0·69	4·30	3·61	+ 0·69	Murree.	
4	14	1	...	1	8	3	...	...	?	3	?	52	·142	3·7	7	4·64	+ 2·36	3·26	2·75	+ 0·51	3·26	2·75	+ 0·51	Simla.	
20	...	4	2	1	1	...	1	2	11	?	?	66	·183	1·9	11	4·80	+ 6·20	5·21	2·59	+ 2·62	5·21	2·59	+ 2·62	Chakrata.	
11	...	5	7	...	...	...	5	3	?	?	?	67	·196	2·8	8	?	?	4·31	2·25	+ 2·06	4·31	2·25	+ 2·06	Mussoorie.	
23	...	...	5	1	...	...	2	...	2	3	— 33	68	·227	3·6	6	4·00	+ 2·00	2·92	2·46	+ 0·46	2·92	2·46	+ 0·46	Ranikhet.	
6	2	2	5	7	1	3	3	2	6	?	?	71	·118	3·8	11	?	?	5·37	?	?	5·37	?	?	Gnatong.	
4	1	4	7	4	...	6	3	2	8	7	+ 14	77	·220	6·5	2	4·29	— 2·29	1·33	1·85	— 0·52	1·33	1·85	— 0·52	Darjeeling.	
5	3	6	5	3	...	1	4	4	6	7	— 14	41	·247	2·6	2	0·27	+ 1·73	0·40	0·06	+ 0·34	0·40	0·06	+ 0·34	Mount Abu	CENTRAL INDIA.
...	...	2	10	6	1	6	4	2	7	5	+ 40	44	·281	2·5	4	0·73	+ 3·27	1·29	0·31	+ 0·98	1·29	0·31	+ 0·98	Pachmarhi.	
23	...	2	1	1	...	1	...	...	2‡	3	— 33	74	·402	3·5	12	3·13	+ 8·87	11·32	2·21	+ 9·11	11·32	2·21	+ 9·11	Wellington.‡	SOUTH INDIA.
3	1	13	2	9	1	...	...	2	7	?	?	69	·325	3·6	11	3·30	+ 7·70	9·12	3·02	+ 6·10	9·12	3·02	+ 6·10	Kopaikanal.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
14	3	...	5	...	6	...	3	...	?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	Meshed	PERSIA.
2		2	7	3	...	...	2	9	11	?	?	73	·557	3·1	1	?	?	0·61	?	?	0·61	?	?	Jask.	
...	7	4	2	7	5	1	0	5	8	9	— 11	68	·419	?	3	?	?	1·39	0·72	+ 0·67	1·39	0·72	+ 0·67	Bushire.	
...	1	3	8	2	1	1	5	10	4§	?	?	69	·599	1·6	0	?	?	0	?	?	0	?	?	Muskat.	
...	15	7	1	5	...	...	...	3	?	?	?	47	·269	?	2	?	?	0·75	?	?	0·75	?	?	Baghdad	ARABIA.
4	1	5	19	1	...	...	...	...	16†	15	+ 7	75	·720	6·3	0	?	?	0·07	0·57	— 0·50	0·07	0·57	— 0·50	Aden.	
1	14	5	5	8	4	...	1	3	16	?	?	79	·785	4·5	1	?	?	0·24	?	?	0·24	?	?	Perim.	
3	10	10	4	2	...	...	...	2	6	?	?	78	·841	3·9	5	?	?	1·16	?	?	1·16	?	?	Minicoy	ARABIAN SEA ISLANDS.
...	2	4	2	2	8	1	1	1	7	?	?	82	·855	5·7	9	?	?	8·18	?	?	8·18	?	?	Zanzibar	AFRICA.

* Kach wind observations for 23 days.

† Mean of 29 days.
" " 3 "

‡ Wind observations for 28 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 to 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	...	29·909	29·800	·109	29·844	−·013	29·835	90·7	77·5	13·2	92·5	73·8	18·7	85·5	88·0	82·4	+ 1·1	73·7	81·6	82·4	77·1
	Rangoon	...	·932	·786	·146	·861	−·007	·838	94·5	70·5	24·0	98·6	66·5	32·1	83·5	89·1	79·1	−1·1	67·2	72·3	73·6	71·0
	Diamond Island	...	·962	·845	·117	·893	+·005	·870	84·3	74·0	10·3	87·4	71·9	15·5	81·1	81·7	77·4	−1·2	69·7	73·4	73·6	72·2
	Coco's Island	111	·896	·807	089	·842	?	·886	86·5	?	?	91·2	?	?	83·2	82·8	?	?	70·4	74·1	73·7	73·0
	Akyab	...	·972	·856	·116	·909	+·006	·872	88·6	65·0	23·6	91·9	58·7	33·2	81·8	83·0	75·9	−2·2	61·7	69·6	71·7	67·6
Assam.	Silchar	...	·909	·779	·130	·840	+·035	·897	82·4	60·7	21·7	89·5	55·0	34·5	73·0	79·9	70·6	−2·8	59·4	66·7	67·5	64·5
	Sibsagar	...	·652	·526	·126	·589	0	·887	76·5	58·8	17·7	83·6	52·2	31·4	68·7	73·8	66·0	−1·6	58·2	64·2	65·8	62·7
	Dhubri	...	·871	·730	·141	·798	+·043	·869	81·2	61·0	20·2	86·2	53·0	33·2	71·5	79·9	69·8	−4·8	58·8	63·9	65·7	62·8
Bengal and Orissa.	Chittagong	...	·913	·807	·106	·854	+·024	·890	84·3	64·1	20·2	89·5	56·0	33·5	78·3	80·2	73·7	−3·1	62·4	70·3	70·0	67·6
	Dacca	...	·958	·840	·118	·895	+·039	·865	84·1	64·7	19·4	92·1	56·2	35·9	77·0	81·5	73·6	−4·9	61·9	69·3	69·1	66·7
	Calcutta (Alipore)	...	·963	·843	·120	·896	+·041	·863	84·2	65·6	18·6	92·8	57·5	35·3	78·1	82·7	74·1	−5·3	63·3	69·3	68·4	67·0
	Ditto (Chowringhee).	?	·967	?	?	?	?	?	85·8	66·1	19·7	95·0	57·9	37·1	79·5	?	?	?	64·7	71·3	?	?
	Saugor Island	...	·964	·845	·119	·898	+·040	·867	82·7	69·8	12·9	90·4	61·8	28·6	78·3	80·3	74·6	−5·0	67·2	73·5	73·2	71·3
	Burdwan	...	·892	·766	·126	·820	+·060	·868	85·3	65·1	20·2	96·9	56·6	40·3	76·5	82·9	74·5	−6·5	63·1	66·3	67·6	65·8
	Berhampore	...	·914	·788	·126	·842	+·053	·858	84·4	63·2	21·2	92·7	54·7	38·0	75·3	83·0	73·4	−5·3	60·0	67·0	68·2	65·1
	False Point	...	·976	·860	·116	·917	+·031	·880	82·8	68·6	14·2	88·0	60·8	27·2	79·9	79·8	73·9	−4·1	67·9	74·0	73·7	71·9
	Cuttack	...	·915	·782	·133	·853	+·051	·876	88·8	69·9	18·9	100·5	65·3	35·2	81·2	87·2	77·5	−4·5	67·8	71·0	69·7	69·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·932	27·837	·095	27·880	+·014	·836	81·4	59·1	22·3	91·8	51·3	40·5	74·3	78·9	69·9	−5·6	52·6	59·7	60·8	57·7
	Patna	...	29·785	29·657	·128	29·716	+·039	·855	85·0	60·1	24·9	93·6	51·4	42·2	78·1	83·0	72·5	−4·7	56·0	63·9	64·7	61·5
	Darbhanga	...	·813	·684	·129	·744	+·054	·866	83·5	59·7	23·8	90·7	51·6	39·1	75·2	82·8	71·9	−4·2	57·1	64·2	65·2	62·2
	Allahabad	...	·660	·529	·131	·584	+·030	·856	87·3	56·9	28·4	99·2	50·6	48·6	77·3	86·1	72·9	−5·4	54·1	62·6	63·6	60·1
	Ghazipur	220	·745	·624	·121	·677	+·039	·853	86·3	60·0	26·3	96·8	49·5	47·3	77·1	84·6	73·0	−3·9	56·3	63·6	64·4	61·4
	Lucknow	...	·585	·469	·116	·521	+·028	·858	85·2	57·9	27·3	97·3	53·0	44·3	76·6	83·0	71·8	−4·7	55·5	61·5	64·0	60·3
Upper Sub-Himalayas.	Dehra Dun	...	27·697	27·625	·072	27·653	+·018	·879	74·1	51·2	22·9	85·3	44·7	40·6	65·2	69·5	61·4	−5·8	47·9	55·3	57·1	53·4
	Roorkee	...	29·051	28·955	·096	28·996	+·036	·868	78·2	53·3	24·9	89·8	45·9	43·9	68·2	76·1	65·2	−4·7	51·1	59·4	60·9	59·2
	Meerut	...	·218	29·121	·097	29·162	+·045	·879	79·1	54·0	25·1	93·3	46·1	47·2	70·6	77·7	66·0	−5·5	52·7	59·6	60·4	57·6
	Lahore	...	·248	·168	·080	·202	+·032	·900	78·8	51·1	27·7	90·8	43·2	47·6	70·3	76·8	64·3	−3·5	49·1	60·2	60·6	56·6
	Ludhiana	...	·125	·037	·088	·075	+·019	·874	77·0	54·2	22·8	92·1	46·0	46·1	68·9	75·5	65·0	−3·8	52·6	59·2	60·6	57·5
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·876	28·803	·073	28·834	+·020	·959	71·9	48·5	23·4	80·6	42·9	37·7	63·6	70·2	59·6	−3·6	45·1	54·8	56·4	52·1
	Mooltan	...	29·538	29·442	·096	29·484	+·019	881	84·1	56·3	27·8	94·3	49·2	45·1	70·4	82·9	69·7	−1·3	50·9	59·8	65·6	58·7
	Jacobabad	...	·788	·653	·135	·715	+·029	·860	89·8	59·2	30·6	102·4	47·9	54·5	79·9	88·4	73·9	−1·1	50·1	59·4	62·8	57·4
	Kurrachee	...	·938	·840	·098	·886	+·008	·888	84·7	64·7	20·0	88·0	58·8	29·2	76·6	81·8	74·0	−1·5	60·7	68·4	72·0	67·0
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·541	28·430	·111	28·480	+·031	·894	85·2	58·2	27·0	100·8	47·2	53·6	76·3	83·3	71·1	−3·7	51·2	60·3	62·5	58·0
	Ajmere	...	·359	·249	·110	·300	+·017	·877	84·4	57·9	26·5	98·6	48·3	50·3	75·6	82·6	71·2	−2·0	53·2	60·1	62·8	58·7
	Deesa	...	29·487	29·365	·122	29·420	−·004	·837	94·1	62·1	32·0	103·3	53·3	50·0	83·7	92·2	78·6	−2·2	53·5	62·3	64·4	60·1
	Nowgong	...	·205	·084	121	·137	+·024	·853	86·4	57·4	29·0	100·3	49·8	50·5	76·2	84·4	71·6	−5·6	53·5	61·3	62·9	59·2
	Agra	...	·443	·313	·130	·366	+·049	·886	85·2	59·5	25·8	100·0	48·6	51·4	75·7	83·8	71·5	−3·5	53·2	60·8	62·9	59·0
Deccan.	Belgaum	...	27·428	27·300	·128	27·363	−·021	·755	90·4	63·4	27·0	95·0	53·9	41·1	82·6	86·4	75·4	−1·8	58·2	63·4	66·6	62·7
	Sholapur	...	28·372	28·217	·155	28·292	+·004	·799	94·2	67·0	27·2	101·0	59·9	41·1	83·7	92·3	80·1	−4·1	61·6	67·7	69·3	66·2
	Poona	...	·115	27·972	·143	·050	−·006	·794	95·2	61·1	34·1	102·3	55·2	47·1	83·4	92·3	77·6	−2·2	54·5	62·9	63·8	60·4
	Akola	...	29·030	28·866	·164	·943	+·010	·821	90·0	63·0	27·0	101·8	53·8	48·0	79·6	88·3	76·9	−6·0	58·6	65·5	68·0	64·0

II.

at 89 Stations in India, Burma, etc., for March 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.				
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.	Station.	Meteorological Province.
·784	·878	·878	·847	—·022	83	72	67	74	— 3	3·0	3·7	3·4	+0·5	3	7	23	10	17	2	...	...	...	N 76° E	N 56° E	63	69	95	100	...	Port Blair	Burma Coast and Bay Islands.
·626	·648	·621	·632	—·042	84	57	46	62	— 2	1·0	3·2	2·1	0	...	2	3	2	12	17	16	8	1	S 13° W	S 20° W	53	58	106	114	...	Rangoon	
·679	·722	·724	·706	—·070	82	68	67	72	— 4	2·7	2·8	2·8	+0·6	...	14	4	3	1	1	2	4	22	N 26° W	N 42° W	58	85	208*	185	...	Diamond Island	
?	·725	·713	?	?	?	64	64	?	?	1·3	1·7	1·5	f	...	30	23	3	3	2	...	...	1	N 26° E	?	77	?	281*	?	0·04	Cocos Island	
·510	·564	·631	·568	—·115	82	52	56	63	— 9	2·5	3·1	2·8	+0·7	...	17	13	1	1	2	2	18	8	N 27° W	N 58° W	50	26	101	91	...	Akyab	
·495	·575	·510	·527	—·058	93	72	52	72	0	5·9	6·7	6·3	+1·9	31	3	4	10	3	1	5	4	1	S 89° E	S 60° E	11	22	?	76	...	Silchar	Assam.
·482	·543	·529	·518	—·026	97	78	65	80	+ 1	4·9	4·6	4·8	—1·3	13	...	38	3	3	...	3	1	1	N 50° E	N 57° E	60	59	42	66	...	Sibsagar	
·470	·496	·445	·468	—·038	87	64	44	65	+ 4	3·7	4·2	4·0	+1·6	6	2	12	17	2	3	15	3	2	S 76° E	S 81° E	19	14	155	151	...	Dhubri	
·546	·641	·601	·596	·091	90	66	59	72	— 2	5·2	4·6	4·9	+1·7	2	6	8	6	5	4	12	5	14	N 56° W	S 54° W	16	20	80	139	...	Chittagong	Bengal and Orissa.
·524	·622	·558	·565	—·072	85	67	52	68	+ 1	5·2	5·7	5·5	+2·4	...	4	7	3	4	17	11	10	6	S 38° W	S 23° W	29	54	108	114	...	Dacca	
·557	·608	·514	·560	—·115	88	63	46	66	— 4	3·7	4·1	3·9	+1·5	3	6	4	4	4	1	15	10	5	S 50° W	S 32° W	31	49	68	125	...	Calcutta (Alipore).	
·597	·663	?	?	?	93	66	?	?	?	?	?	?	?	Not recorded.									?	?	?	?	?	?	2·21	Calcutta (Chowringhee).	
·638	·766	·731	·712	—·110	86	79	71	79	0	5·5	5·0	5·3	+1·6	..	9	1	...	4	19	17	4	8	S 44° W	S 33° W	42	60	265	295	...	Saugor Island	
·559	·515	·480	·522	—·011	90	56	44	64	+10	3·8	4·5	4·2	+1·8	35	5	...	2	3	1	7	5	4	S 87° W	S 78° W	14	43	40*	79	...	Burdwan	
·483	·558	·499	·513	+·001	83	65	46	65	+ 8	3·7	4·1	3·9	+1·1	3	5	3	7	1	6	18	12	7	S 70° W	S 76° W	34	44	63	82	...	Berhampore	
·683	·764	·756	·734	—·053	97	74	74	82	0	5·1	4·9	5·0	+1·9	...	2	4	6	6	25	9	2	8	S 2° W	S 38° W	40	58	241	268	...	False Point	
·655	·628	·501	·595	—·067	89	59	41	63	+ 1	3·3	4·1	3·7	+1·2	5	6	8	5	1	4	15	15	3	S 85° W	S 16° W	27	43	58	81	...	Cuttack	
·322	·335	·311	·323	+·034	64	42	34	46	+12	3·6	4·3	4·0	+1·5	1	8	...	2	4	9	5	14	19	N 77° W	N 75° W	43	61	185	178	...	Hazaribagh	Ganoetic Plain and Chota Nagpur.
·403	·409	·371	·394	—·009	76	44	34	51	+ 6	2·8	3·0	2·9	+0·1	...	2	4	11	5	...	6	21	13	N 70° W	N 74° W	29	48	102	84	...	Patna	
·439	·457	·392	·429	—·032	84	53	36	58	+ 4	2·1	2·1	2·1	+0·7	3	1	5	10	8	2	9	15	9	S 70° W	S 70° W	14	27	97	113	...	Darbhanga	
·362	·377	·294	·344	—·026	72	42	25	46	+ 4	2·8	3·3	3·1	+1·1	1	6	11	3	6	3	1	11	20	N 29° W	N 65° W	37	34	112	74	...	Allahabad	
·442	·413	·308	·388	+·060	78	46	30	51	+17	2·4	3·2	2·8	+1·2	11	4	1	7	4	5	6	15	9	S 86° W	S 83° W	24	51	64	69	0·48	Ghazipur	
·413	·350	·347	·370	+·008	85	39	32	52	+ 9	3·3	3·4	3·4	+0·6	40	...	...	...	...	...	...	22	...	W	N 54° W	35	49	37	97	...	Lucknow	
·297	·318	·315	·310	?	78	52	45	58	?	3·1	4·6	3·9	+0·4	1	2	4	2	6	9	14	16	3	S 49° W	N 78° W	44	25	41	55	...	Dehra Dun	Upper Sub-Himalaya.
·351	·394	·337	·361	+·030	86	58	38	61	+12	3·0	4·1	3·6	+1·1	33	...	2	5	2	...	5	2	13	N 51° W	N 58° W	14	23	?	70	...	Roorkee	
·387	·367	·302	·352	—·017	92	50	33	58	+ 8	3·1	2·7	2·9	+0·3	11	...	1	10	4	2	2	23	9	N 88° W	N 51° W	27	44	57	63	...	Meerut	
·328	·393	·318	·346	—·010	87	54	36	59	+10	3·6	3·7	3·2	0	8	13	5	4	4	2	3	11	12	N 32° W	N 10° W	35	33	53	73	...	Lahore.	
·382	·361	·337	·367	+·001	90	55	39	61	+ 7	4·0	4·6	4·3	+0·3	15	15	1	6	2	4	1	15	3	N 40° W	N 47° W	24	33	62	46	...	Ludhiana	
·264	·326	·291	·294	—·036	77	57	41	58	+ 1	3·6	5·2	4·4	—0·5	8	8	14	16	8	1	2	2	3	N 65° E	N 11° E	47	17	102*	90	...	Peshawar	Indus Valley and N.-W. Rajputana.
·304	·376	·403	·361	—·029	67	51	36	51	— 1	1·9	3·0	2·5	0	2	...	14	...	24	...	6	...	16	E	N 11° W	18	21	36*	49	...	Mooltan	
·247	·242	·236	·242	—·071	50	25	18	31	— 7	1·4	1·7	1·6	—1·5	10	2	1	12	10	7	4	6	10	S 28° E	N 67° E	13	26	112*	92	...	Jacobabad	
·491	·594	·658	·581	—·017	78	64	61	68	+ 2	1·7	1·3	1·5	—1·4	...	2	29	2	...	...	11	15	3	N 8° W	S 69° W	27	64	320	286	...	Kurrachee	
·294	·332	·311	·312	—·004	60	38	28	42	+ 4	2·6	3·6	3·1	+0·2	...	5	9	4	5	3	4	13	19	N 45° W	N 24° W	35	31	75	128	...	Jeypore	E. Rajputana, Central India and Guzerat.
·354	·331	·332	·339	+·001	74	39	31	48	+ 8	1·7	3·0	2·4	0	2	4	7	1	5	12	8	20	3	S 61° W	S 61° W	34	28	125	1	...	Ajmere	
·300	·281	·237	·273	—·045	53	25	16	31	+ 1	1·8	2·6	2·2	—0·2	...	5	4	2	1	2	8	8	7	N 71° W	N 88° W	35	35	206	215	...	Deesa	
·365	·349	·291	·335	—·002	76	41	28	48	+ 9	2·8	3·5	3·2	+0·2	2	6	3	4	4	...	5	29	9	N 75° W	N 63° W	50	34	72*	55	...	Nowgong	
·328	·337	·300	·322	—·005	64	40	28	44	+ 6	2·6	3·3	2·9	+0·8	...	2	10	...	9	...	10	1	30	N 43° W	N 70° W	37	39	110	108	...	Agra	
·425	·347	·410	·394	—·014	73	32	33	46	+ 5	1·2	3·2	2·2	+0·1	...	7	5	7	5	9	14	6	9	S 56° W	S 88° W	16	8	251	279	...	Belgaum	Deccan.
·486	·483	·432	·467	+·135	73	43	30	48	+18	2·4	4·5	3·5	+0·9	...	3	4	9	22	8	4	6	6	S 41° E	N 51° E	35	9	235*	185	...	Sholapur	
·352	·323	·243	·306	—·019	64	29	17	37	+ 7	1·6	2·1	1·9	—0·5	9	...	4	9	5	...	7	19	9	N 87° W	N 41° W	24	42	182	199	...	Poona	
·446	·444	·418	·436	+·145	77	47	34	53	+25	3·2	3·3	3·3	+1·7	7	4	4	14	9	2	1	12	9	N 45° E	N 43° W	10	44	128	108	...	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 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 to 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—*continued.*	Buldana	2,132	27·834	27·705	·129	28·765	+·004	29·818	86·8	64·4	22·4	97·4	57·3	40·1	77·3	84·2	75·8	−6·6	56·2	62·2	63·5	60·6
	Khandwa	...	28·907	28·752	·155	·825	+·002	·815	91·8	61·4	30·4	103·3	51·6	51·7	81·4	90·2	76·6	−4·6	54·4	63·4	65·8	61·2
	Hoshangabad	...	·947	·800	·147	·869	+·005	·843	88·7	61·6	27·1	101·5	56·0	45·5	78·6	88·0	75·4	−5·2	55·1	64·1	66·7	61·9
	Nagpur	...	·947	·809	·138	·873	+·050	·853	86·9	63·8	23·1	100·4	56·5	43·9	77·9	85·1	75·8	−7·8	57·8	64·8	66·8	63·1
	Jubbulpore	...	·632	·500	·132	·561	+·027	·841	85·6	58·0	27·6	98·4	49·9	48·5	77·1	84·4	71·9	−5·0	54·8	61·5	63·3	59·9
	Saugor	...	·197	·073	·124	·130	+·025	·834	85·9	58·9	27·0	99·4	53·4	46·0	77·7	81·4	72·4	−5·7	52·6	60·4	62·5	58·5
	Raipur	...	29·022	·882	·140	·947	+·057	·858	85·9	58·1	27·8	100·6	50·3	50·3	76·8	84·8	72·6	−9·4	49·3	65·8	68·0	61·0
	Sutna	...	28·905	·778	·127	·834	+·013	·835	85·3	58·5	26·8	98·1	51·3	46·8	77·7	84·0	71·8	−4·8	52·6	60·8	61·4	58·3
	Secunderabad	...	·187	·065	·122	·123	+·026	·836	88·8	66·6	22·2	98·4	59·4	39·0	78·3	86·3	77·1	−5·8	71·7	68·5	70·3	75·1
	Hyderabad (Deccan).	...	·288	·149	·139	·215	?	·834	88·4	67·0	21·4	98·2	58·3	39·9	80·0	86·7	77·3	?	64·6	69·0	69·9	67·9
West Coast.	Bombay	...	29·940	29·822	·118	29·875	−·001	·852	84·8	71·6	13·2	91·8	66·7	25·1	79·3	81·4	77·6	−1·2	67·4	71·4	72·6	70·5
	Ratnagiri	...	·860	·747	·113	·798	+·007	·845	86·0	70·4	15·6	90·3	65·9	24·4	82·5	83·0	77·6	−2·1	66·3	72·8	74·1	71·0
	Karwar	...	·927	·812	·115	·864	−·006	·839	86·9	71·1	15·8	90·1	67·3	22·8	81·0	84·2	78·5	−1·7	68·3	72·8	74·9	72·0
	Cochin	...	·957	·823	·134	·884	−·014	·822	90·0	76·4	13·6	93·0	72·9	20·1	85·5	88·0	82·9	−0·3	74·3	77·4	78·2	76·6
South India.	Salem	...	·056	28·886	·170	28·976	−·012	·836	96·2	71·8	24·4	101·2	65·7	35·5	85·4	93·4	82·1	+0·4	68·1	72·1	72·6	70·9
	Mercara	...	26·276	26·157	·119	26·217	−·023	·814	81·2	62·0	19·2	84·6	57·5	27·1	73·5	76·8	70·5	−1·0	58·8	64·7	66·0	63·2
	Bangalore (Fort)	...	27·001	·863	·138	·934	−·023	·795	88·4	65·0	23·4	92·3	61·4	30·9	78·5	85·8	76·1	−0·9	61·1	66·7	66·7	64·8
	Hassan	...	26·926	·791	·135	·861	?	·784	89·5	62·8	26·7	94·5	58·8	35·7	79·7	85·2	75·0	?	?	70·4	71·6	?
	Chitaldroog	...	27·564	27·428	·136	27·494	?	·774	90·7	69·2	21·5	96·2	62·1	34·1	82·5	88·3	79·4	?	62·6	68·9	69·6	67·0
	Trichinopoly	...	29·724	29·561	·163	29·648	−·013	·830	96·2	73·6	22·6	101·1	68·7	32·4	85·1	93·2	83·0	−0·2	70·6	74·1	73·4	72·7
	Madras	...	·976	·854	·122	·916	+·008	·868	90·1	73·6	16·5	93·9	67·8	26·1	85·9	85·7	81·1	+0·3	?	76·2	76·3	74·9
	Bellary	...	28·487	28·332	·155	28·407	+·020	·796	95·7	71·0	24·7	101·4	67·3	34·1	85·6	92·3	82·5	−3·3	69·2	80·4	84·6	78·1
Hill Station, Baluchistan.	Vizagapatam	...	29·968	29·846	·122	·900	+·023	·869	83·6	77·2	6·4	89·5	75·0	14·5	82·1	83·8	81·7	−1·6	69·5	75·2	76·2	73·6
	Quetta	...	24·676	24·610	·066	24·636	+·018	?	62·0	35·6	26·4	75·6	28·8	46·8	55·0	59·5	48·2	−2·9	37·8	54·2	59·1	50·3
Hill Stations, Northern India.	Leh	11,503	19·668	19·587	·081	19·633	−·031	?	40·5	17·2	23·3	52·2	9·5	42·7	30·3	36·7	28·4	−4·0	15·9	27·1	30·6	24·5
	Srinagar	...	24·937	24·848	·089	24·886	?	?	53·7	33·8	19·9	63·5	28·1	35·4	43·8	52·3	43·4	?	32·9	40·0	45·0	39·3
	Murree	...	23·840	23·816	·024	23·821	−·028	?	53·2	37·6	15·6	65·4	29·4	36·0	46·9	47·7	44·2	−5·9	33·1	38·9	40·5	37·5
	Chamba	3,005	26·971	26·881	·090	26·937	+·006	?	67·5	46·7	20·8	81·5	41·4	40·1	56·6	64·4	55·3	−5·3	43·3	48·2	53·0	48·2
	Kailang	10,087	20·789	20·748	·041	20·779	−·033	?	37·2	15·3	21·6	46·0	4·8	41·2	29·0	33·1	24·4	−5·2	14·3	24·4	27·3	22·0
	Simla (Ridge)	...	23·104	23·063	·041	23·077	−·032	?	50·2	39·0	11·2	67·4	28·8	38·6	45·6	47·8	44·2	−6·7	34·1	38·0	41·4	37·9
	Simla (Chapslee)	?			Not	recorded			53·2	38·7	14·5	70·3	29·4	40·9	47·4	?	?	?	34·8	39·4	?	?
	Chakrata	...	·255	·197	·058	·219	−·033	?	53·9	38·1	15·8	71·1	31·1	40·0	48·3	49·6	45·1	−6·4	35·0	41·7	43·2	40·0
	Ranikhet	...	24·138	24·082	·056	24·103	+·018	?	58·3	43·6	14·7	71·2	34·5	36·7	52·7	55·5	50·4	−6·3	40·8	45·3	47·5	44·6
	Katmandu	4,388	25·689	25·594	·095	25·642	+·016	?	70·7	43·8	26·9	78·3	36·2	42·1	59·9	65·5	55·7	−5·7	42·3	52·4	54·1	49·6
	Darjeeling	...	22·984	22·911	·073	22·949	+·002	?	51·8	38·5	13·3	58·1	31·7	26·4	47·3	48·8	44·4	−3·9	36·7	43·5	44·5	41·3
	Demagiri	?			Not	recorded			81·9	60·7	21·2	87·4	49·6	37·8	75·0	78·6	70·5	−2·8	N	ot rec	orded	
	Tura	3 9:3			Ditto.				79·5	64·9	14·6	87·4	56·2	31·2	72·1	76·9	71·5	?	?	61·4	62·8	?
Hill Station, Central India.	Mount Abu	...	26·107	26·020	·087	26·058	−·016	?	73·4	58·4	15·0	82·7	51·9	30·8	68·6	71·6	65·5	−4·1	47·9	54·1	56·1	52·7
	Pachmarhi	...	·533	·435	·098	·479	0	?	77·4	56·5	20·9	90·5	48·2	42·3	70·5	74·8	68·4	−5·6	50·0	55·9	57·5	54·5
	Chikalda	3,642	·397	·292	·105	·340	−·013	?	76·6	61·3	15·3	89·2	53·1	36·1	69·9	75·0	70·5	−7·1	53·1	58·6	60·3	57·2
	Makhla	?			Not re	corded.			86·6	66·9	19·7	95·8	60·3	35·5	73·1	76·8	75·2	−3·5	64·3	65·3	67·2	65·6

II —*continued.*

in India, Burma, etc., for March 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from										Wind Steadiness.		Wind Velocity.				
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.	Station.	Meteorological Province.
·385	·378	·333	·356	+·065	61	45	31	46	+18	3·8	4·7	4·3	+2·1	3	6	11	3	17	4	...	3	15	N 48° E	N 28° W	21	50	168*	180	1·78	Buldana	Deccan—*continued.*
·348	·364	·334	·349	+·042	63	36	25	41	+10	1·5	2·3	1·9	+0·2	...	8	14	7	5	7	4	4	13	N 19° E	N 56° W	24	48	120	113	...	Khandwa	
·357	·421	·385	·388	+·067	65	45	31	47	+14	2·4	2·3	2·4	+0·5	10	4	10	11	2	8	6	9	2	S 75° E	N 55° W	8	15	88	61	...	Hoshangabad	
·411	·453	·431	·431	+·094	69	51	40	54	+22	3·2	3·5	3·4	+0·9	3	5	13	12	7	7	6	4	4	N 87° E	N 20° W	24	6	128	108	...	Nagpur	
·397	·354	·323	·358	+·027	81	41	30	51	+13	1·7	2·4	2·1	−0·2	5	8	9	2	3	9	8	11	7	N 78° W	N 69° W	18	22	68	70	...	Jubbulpore	
·323	·315	·296	·311	+·033	65	36	27	42	+11	1·6	2·5	2·1	+0·7	...	4	9	2	7	4	18	13	5	S 64° W	N 53° W	29	33	77	78	...	Saugor	
·241	·490	·468	·400	+·032	49	57	43	49	+12	3·7	4·0	3·9	+1·9	24	5	4	2	1	2	11	9	4	N 89° W	N 79° W	23	20	143*	118	...	Raipur	
·342	·327	·268	·312	+·061	72	36	25	44	+13	1·4	2·4	1·9	−0·1	2	10	2	5	...	6	4	13	20	N 55° W	N 55° W	47	39	147*	137	...	Sutna	
·570	·576	·545	·553	+·105	85	61	45	70	+29	3·2	2·4	2·8	+1·0	1	1	8	11	18	6	7	5	5	S 50° E	S 63° E	34	26	151	123	...	Secunderabad	
·582	·574	·527	·564	?	88	58	43	63	?	2·7	4·3	3·5	?	8	2	3	8	16	9	7	4	2	S 30° E	?	39	?	125	?	...	Hyderabad (Deccan.)	
·618	·668	·686	·658	−·058	80	67	64	70	− 3	0·6	0·5	0·6	−1·1	...	3	6	12	4	2	...	16	19	N 34° W	N 28° W	31	55	207	274	...	Bombay	West Coast.
·601	·679	·726	·666	−·041	80	61	64	68	0	0·9	0·6	0·8	+0·2	...	5	...	...	...	...	6	21	30	N 65° W	N 72° W	82	60	206*	236	...	Ratnagiri	
·657	·697	·741	·698	−·060	86	65	63	72	− 2	0·4	0·4	0·4	−1·2	...	...	...	...	...	...	4	17	41	N 62° W	N 80° W	89	70	82	?	...	Karwar	
·823	·835	·835	·831	−·009	91	68	63	74	− 1	2·0	2·8	2·4	−0·5	1	...	14	1	...	...	1	25	20	N 51° W	N 81° W	60	47	155	?	...	Cochin	South India.
·642	·614	·523	·593	−·044	82	51	34	56	+ 2	3·7	5·3	4·5	+2·2	20	6	26	3	3	1	2	1	...	N 47° E	S 55° E	47	42	130	129	...	Salem	
·463	·511	·523	·499	+·020	83	63	52	68	+ 6	5·6	7·0	6·3	+2·6	...	3	1	23	1	1	1	21	11	N 29° W	N 42° W	16	18	70	78	...	Mercara	
·497	·521	·435	·485	+·029	80	54	36	57	+ 7	1·2	1·5	1·4	−1·2	4	2	8	16	19	6	4	1	2	S 66° E	S 22° E	53	50	146*	86	...	Bangalore(Fort)	
?	·640	·618	?	?	?	64	52	?	?	4·5	6·0	5·3	?	1	2	14	18	19	3	1	2	2	S 84° E	?	61	?	70	?	...	Hassan	
·488	·541	·491	·507	?	69	50	38	52	?	2·1	2·9	2·5	?	5	3	5	14	16	5	3	7	4	S 62° E	?	31	?	137*	?	...	Chitaldroog	
·710	·699	·561	·657	−·014	85	58	37	60	+ 2	4·3	3·5	3·9	+0·7	13	2	35	8	2	1	...	1	...	N 54° E	S 86° E	66	51	74	95	...	Trichinopoly	
?	·773	·781	·785	+·017	?	62	63	74	0	3·7	2·5	3·1	+0·7	...	...	6	30	17	5	4	...	...	S 70° E	S 50° E	74	81	142	152	...	Madras	
·697	·976	1·089	·921?	+·533?	91	79	72	81?	+48?	1·8	3·8	2·8	+0·6	14	2	6	10	14	10	3	1	2	S 54° E	S 26° E	39	20	110	110	...	Bellary	
·616	·792	·817	·742	−·003	65	75	70	70	+ 4	4·3	3·6	4·0	+2·1	...	1	3	8	6	11	16	11	6	S 33° W	S 45° W	37	58	35	68	...	Vizagapatam	Hill Station, Baluchistan.
·227	·428	·515	·390	+·182	95	95	97	96	+40	2·2	3·2	2·7	−1·5	10	2	1	3	9	7	3	12	15	S 81° W	S 65° W	24	36	134*	107	...	Quetta	
·082	·124	·122	·109	+·009	84	73	58	72	+15	5·4	7·1	6·3	−0·1	1	2	5	4	5	18	13	8	6	S 26° W	S 37° W	37	18	47	50	0·45	Leh	Hill Stations, Northern India.
·181	·207	·219	·202	?	92	73	58	74	?	5·1	5·1	5·1	?	19	...	6	2	7	6	5	6	11	S 66° W	?	11	?	72*	?	...	Srinagar	
146	·156	·183	·162	−·030	66	51	57	58	+ 4	4·7	6·5	5·6	−0·4	1	3	3	6	31	4	2	1	11	S 54° E	S 35° E	39	28	242*	210	...	Murree	
·245	·245	·278	·256	−·021	76	54	47	59	+ 5	4·1	7·2	5·7	+0·1	15	8	...	1	2	2	1	2	31	N 41° W	N 1° E	55	19	115*	118	4·66	Chamba	
·081	·096	·104	·094	−·033	87	59	55	67	− 5	5·1	6·3	5·7	−0·6	...	...	...	...	...	...	29	25	8	S 74° W	S 64° W	85	71	22	32	3·12	Kailang	
·149	·153	·198	·167	−·030	64	51	61	58	+ 7	4·5	6·4	5·5	+0·6	12	23	1	2	2	17	3	2	...	N	S 42° W	5	31	?	?	...	Simla (Ridge)	
·160	·162	?	?	?	67	52	?	?	?	4·5	?	4·5	?				Not	recorded					?	?	?	?	?	?	4·07	Simla(Chapslee)	
·174	·200	·220	·198	+·003	76	61	63	67	+15	2·8	4·3	3·6	−0·4	6	...	5	14	5	1	2	25	4	N 88° W	S 56° W	13	8	265*	138	...	Chakrata	
·230	·233	·251	·238	+·007	81	59	58	66	+13	4·4	6·3	5·4	+1·6	17	2	1	11	1	...	18	12	...	S 49° W	S 56° W	26	44	58	71	...	Ranikhet	
·256	·309	·292	·292	−·014	88	61	48	67	+ 6	4·4	6·1	5·3	+1·5	1	1	...	6	6	3	...	38	7	S 87° W	N 74° W	53	66	24	?	1·60	Katmandu	
·199	·246	·251	·229	−·026	85	76	73	77	+ 4	6·8	7·1	7·0	+1·8	2	5	8	6	...	...	19	16	5	N 88° W	S 77° W	34	43	188	160	...	Darjeeling	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	1	...	2	2	...	3	52	1	S 88° W	S 88° W	82	21	?	?	6·47	Dimagiri	
?	·424	·415	?	?	?	55	46	?	?	2·7	2·5	2·6	−0·2	...	5	1	1	3	15	36	...	1	S 32° W	S 13° W	69	69	?	?	2·59	Tura	
216	·258	·278	·251	+·038	45	37	36	39	+ 8	1·8	3·0	2·4	0·2	...	13	16	3	6	1	4	10	9	N 2° W	S 85° W	37	39	157	159	...	Mount Abu	Hill Stations, Central India.
·295	·283	·278	·285	+·037	65	41	36	47	+15	2·1	3·0	2·6	+0·5	3	6	2	11	7	6	10	12	5	S 36° W	N 57° W	14	36	155*	109	...	Pachmarhi	
·314	·356	·356	·342	+·046	60	53	45	53	+20	3·4	3·8	3·6	+1·4	16	6	1	2	7	14	2	6	8	S 34° W	N 52° W	16	34	163	172	4·12	Chikalda	
?	?	?	?	..	?	?	?	?	?	3·6	3·9	3·8	+0·3	...	4	...	...	1	4	20	2	31	N 79° W	N 77° W	61	39	?	?	3·52	Makhla	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 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 to 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 Stations, South India.	Wellington	...	24·314	24·230	·084	24·272	—·002	?	70·6	52·6	18·0	74·2	47·6	26·6	65·8	66·9	60·7	—1·5	51·3	58·3	59·0	56·2
	Kodaikanal				Not recorded.				65·7	51·3	14·4	68·0	48·1	19·9	61·0	59·9	57·1	?	47·1	54·0	54·5	51·9
Extra India.	Muscat	...	30·000	29·919	·081	29·959	?	?	77·4	73·2	4·2	82·2	68·6	13·6	76·0	77·1	75·2	?	64·9	69·2	70·1	68·1
	Aden	...	29·918	·796	·122	·845	—·007	·871	84·7	75·4	9·3	87·8	72·0	15·8	80·1	82·5	79·5	+0·4	69·9	72·9	72·5	71·7
	Perim	...	·772	·657	·115	·703	?	?	·855	76·1	9·4	90·1	73·7	16·4	81·0	81·7	79·8	?	72·7	74·6	74·4	73·9
	Minicoy	...	·970	·861	·109	·906	?	·841	87·9	80·4	7·5	89·7	76·8	12·9	84·5	85·1	83·6	?	74·8	77·7	77·9	76·8
	Zanzibar	...	·909	·798	·111	·854	?	·853	85·3	78·0	7·3	88·5	72·2	16·3	82·2	84·5	81·5	?	74·6	76·8	76·8	76·1

II—*concluded.*

in India, Burma, etc., for March 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.				
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.	Station.	Meteorological Province.
·369	·412	·418	·399	+·065	93	66	64	74	+15	4·7	4·5	4·6	+1·6	1	4	4	4	24	16	4	...	1	S 36° E	S 43° E	56	65	48	62	...	Wellington .	Hill Stations, South India.
·284	·348	·371	·334	?	74	65	73	71	?	2·2	3·1	2·7	?	...	7	21	6	24	1	...	...	3	N 81° E	?	58	?	167	?	...	Kodaikanal.	
·510	·630	·646	·595	?	62	70	70	67	?	1·5	1·2	1·4	?	...	2	10	14	2	...	...	5	29	N 6° W	?	45	?	95	?	...	Muscat .	Extra India.
·658	·716	·668	·679	−·030	75	70	60	68	−4	5·6	0·9	3·3	−0·2	8	1	10	29	7	5	1	...	1	S 87° E	N 83° E	64	73	367	355	...	Aden .	
·761	·772	·756	·763	?	85	73	70	76	?	3·5	0·9	2·2	?	1	7	11	6	19	9	2	...	7	S 79° E	?	34	?	438	?	...	Perim .	
·795	·860	·859	·835	?	77	73	71	73	?	3·8	4·4	4·1	?	2	18	30	8	2	...	...	...	2	N 37° E	?	79	?	144	?	...	Minicoy .	
·816	·852	·819	·829	?	85	77	69	77	?	5·3	3·1	4·2	?	...	2	7	4	11	23	9	4	2	S 9° E	N 39° E	47	12	151	150	...	Zanzibar .	

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Explanation.

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

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

Reg. No 28[illegible] W. I.—June 93—405.

Zinco, S. I. O., Calcutta.

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.

Reg No. 283, W., I.—June 93—400.

Zinco., S. I. O., Calcutta.

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

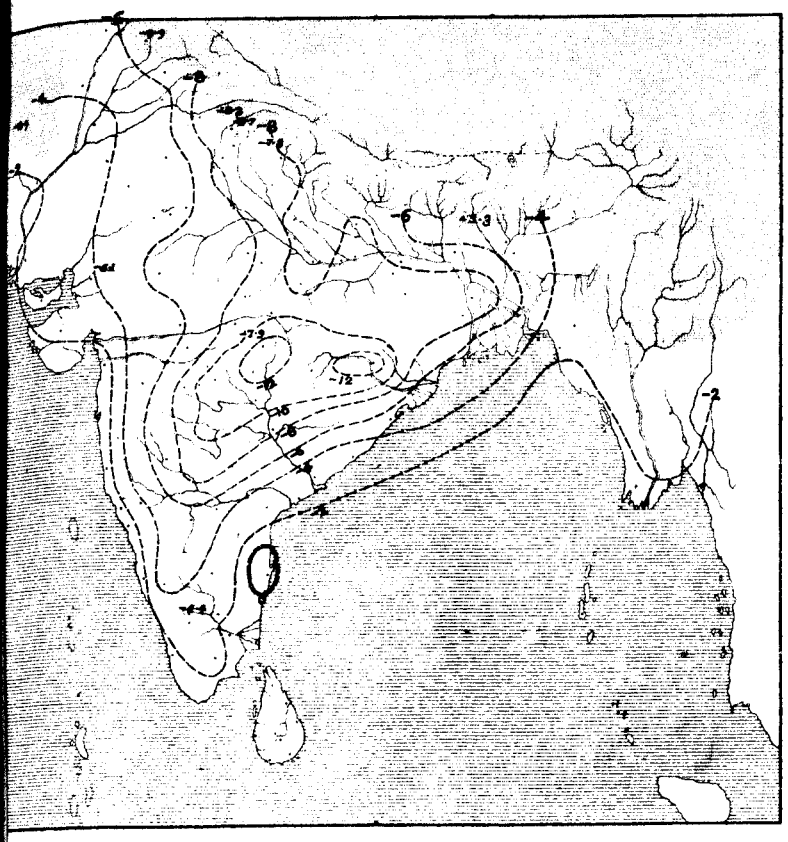
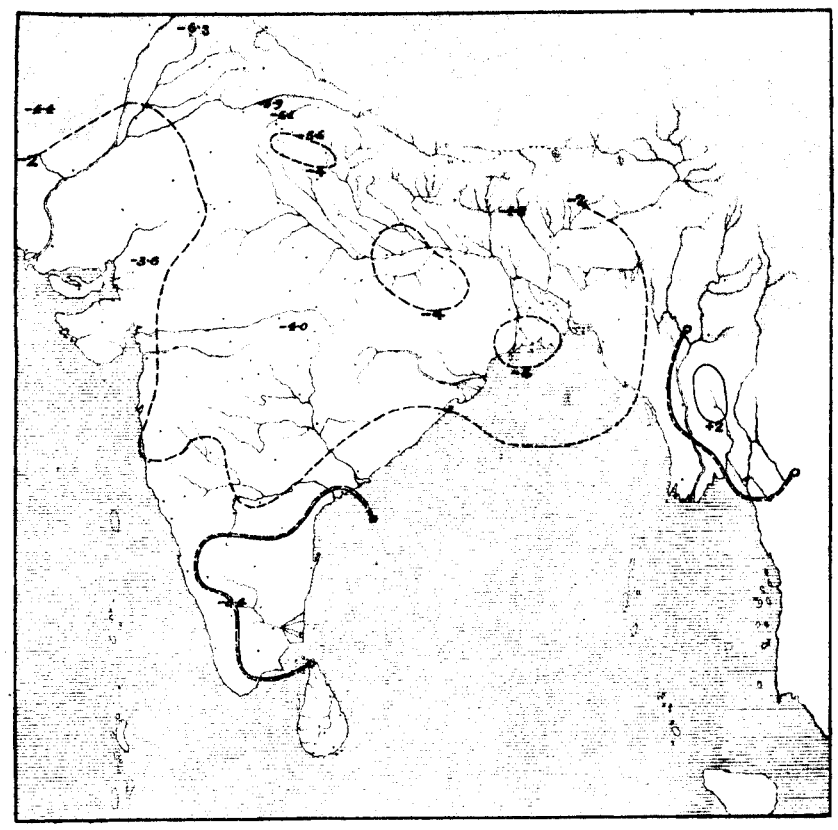


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

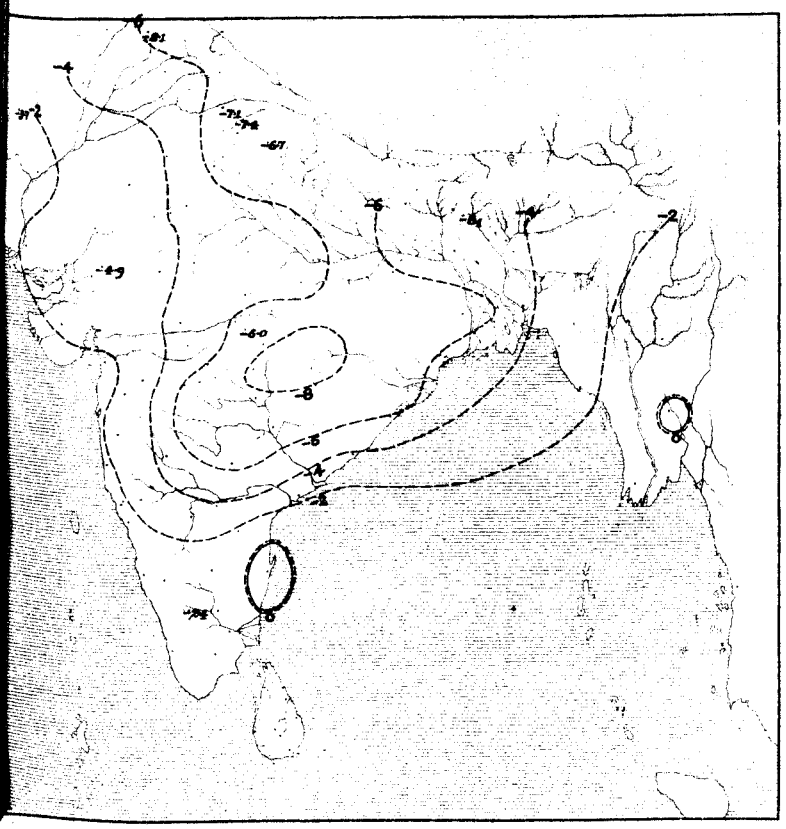
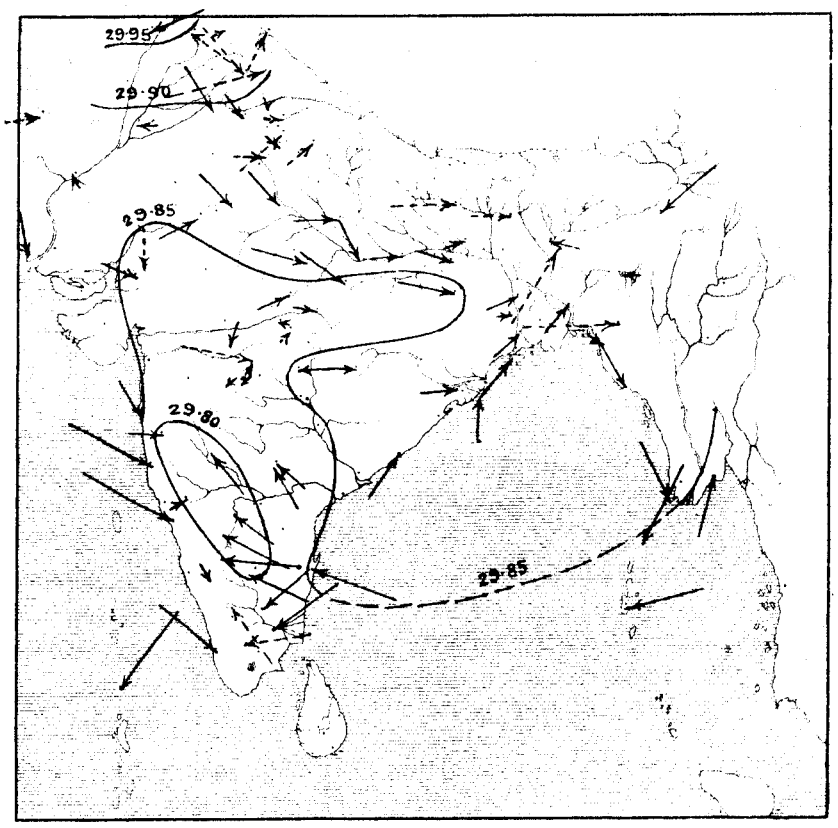


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MARCH 1893.



Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India, 182 in number. 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.

Zinco, S. I. O., Calcutta.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

Reg. No. 199, W9., I.—April 93.—500.—199 R., May 93.—5,500

Litho., S. I. O., Calcutta.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

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CALCUTTA, APRIL, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of April 1893 is based on observations taken daily at 8 A. M. at 195 stations and on additional observations taken at 10 A.M. and 4 P.M. at 88 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 utilised. 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 1893.

April is the second month of the hot weather period or season in Northern India 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 in April 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 of 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 area 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 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 duststorms. 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 southerly winds from the equatorial belt.

Pressure was largely in excess in North-Eastern India at the beginning of the month, and was in slight defect in Upper India. A shallow depression covered Upper Sind and the South-West Punjab on the 1st. It advanced eastwards during the next 24 hours, and filled up at the foot of the Punjab Himalayas. The disturbance gave light showers in the Punjab, North Rajputana, Upper Sind and Baluchistan. Pressure increased rapidly on the 3rd in Upper India, and anticyclonic conditions with clear skies were re-established on the 4th. A shallow area of low pressure covered Bihar and Chota Nagpur on the 4th and 5th, on which days Bengal received light to moderate thundershowers. Temperature was below the normal on the 1st, except in North-Western India, where it was in slight to moderate excess. It was most largely in defect in Bihar and Chota Nagpur, where the deficiency averaged 5°. A cool wave advanced across the North-West frontier on the 2nd, and passed eastwards across Northern India during the next five days. The greatest deficiency of temperature in the cool wave on the 4th was 16·2° at Sialkot, on the 5th 10° at Delhi, and on the 6th 7·5° at Jubbulpore.

A shallow low pressure area formed in Sind and West Rajputana on the 6th and 7th. It advanced eastwards into the eastern districts of Central India on the 8th, and Chota Nagpur on the 9th. This feeble disturbance gave some light showers in Northern India, chiefly in the Punjab and Bengal, on the 9th and 10th. This rainfall in Bengal caused a considerable reduction of temperature in that area, where temperature was 9° below the normal on the 11th. Meanwhile temperature was increasing rapidly in North-Western India, and was largely in excess on the 12th and 13th. The excess ranged between 9° and 10° on the 13th at Mooltan, Jacobabad, Deesa and Dera Ismail Khan, where it was greatest. Pressure gave way rapidly on the 12th in the area defined by these four stations, and on the morning of the 13th a shallow depression lay over that area. This disturbance was transferred slowly eastwards during the next four days. It was in Central Rajputana on the 14th, Baghelkhand on the 15th, Chota Nagpur on the 16th, and West Bengal on the 17th. This disturbance gave practically no rain during its advance across Northern India.

During the progress of the depression the area of excess temperature extended eastwards across Northern India. Temperature on the 15th was generally above the normal to a moderate extent in Northern India and the northern half of the Peninsula. A cool wave crossed the frontier on the 16th, and rapidly advanced on the 17th and 18th over Northern India. Anticyclonic conditions continued for some days, and temperature increased rapidly on the 20th and following days. Pressure gave way rapidly on the 20th and 21st, and a shallow depression covered Sind and West Rajputana on the 20th. Weather was slightly disturbed, and duststorms and thunderstorms occurred in the South-East Punjab, the North-Western Provinces, Central Provinces, Bengal and Orissa on the 22nd and 23rd. This hot weather depression in Upper India intensified slightly on the 24th and 25th, and the hot weather trough of low pressure extended from Upper Sind to the eastern districts of the Central Provinces, and hence slightly further south than usual in consequence of a temporary excess of pressure in Bengal. Bengal and Assam hence received frequent thundershowers.

During this period from the 23rd to the 25th important changes were in progress in the Bay. Strong south-west winds had been blowing for some days in the south and south-east of the Bay. A small storm was generated a little to the north-west of the Andamans on the 25th and 26th, on which day it began to advance north-north-eastwards. Its rate of motion increased rapidly during the day, and it crossed the Burma coast a little to the west of Rangoon, probably about 6 A.M. of the 27th. It broke up during the next 24 hours, and southerly winds prevailed over the whole of the Irrawaddy valley on the 28th and following days. Southern India obtained frequent showers during the last week of the month from a corresponding feeble advance of humid winds from the Arabian Sea. Southerly winds extended northwards up the Bay, and the whole of Bengal received a heavy burst of rain on the 29th and 30th.

Pressure.—The mean pressure of the Indian land area was 0·13″ below the normal. The local anomalies were small in amount. Pressure was locally in excess in North-Eastern India and the West Deccan, Berar and Guzerat, and in defect over the remainder of India. The anomalies as determined from the 8A.M. data exceeded ·02″ at only three stations, *viz.*, Sholapur (+·025″), Dhubri (+·027″) and Mymensingh (+·026″). The variations of pressure at the hill stations were almost identical in amount with those of the neighbouring plain stations. The mean pressure conditions of the month were, hence, approximately normal in character.

Thefollowing gives pressure variation data for ten meteorological provinces :—

METEOROLOGICAL PROVINCE.	Variation from normal of mean monthly pressure.	Mean anomaly.
	″	″
Burma Coast and Bay Islands	—·019	—·006
Assam	—·004	+·009
Bengal and Orissa	—·004	+·009
Gangetic Plain and Chota Nagpur	—·013	0
Upper Sub-Himalayas	—·010	+·003
Indus Valley and North-West Rajputana	—·026	—·013
East Rajputana, Central India and Guzerat.	—·015	—·002
Deccan	—·011	+·002
West Coast	—·012	+·001
South India	—·018	—·005

Temperature.—The temperature conditions differed much less from the normal than in the preceding three months. The chief variations were residual effects of the unusually stormy and rainy weather in these months.

The mean day or maximum temperature was in slight to moderate excess in Sind, the South-West Punjab, Rajputana and Kattywar. The excess was greatest in Sind and the South-West Punjab, over which it averaged 2½°. Over the remainder of India the mean day temperature was in defect. The deficiency ranged from 3° to 5° in the sub-montane districts of Northern India and over the greater part of Bengal, Orissa and Chota Nagpur.

The mean night temperature was in excess in North-Western India and in defect elsewhere, but the variations were small, exceeding 2° at only two or three stations.

The mean temperature of the month was above the normal in the West Punjab, Sind, Rajputana, Kattywar and the greater part of Central India. The excess was more than 2° in amount at Multan (3·1°) and Jacobabad (2·3°).

The mean temperature of the month was in defect over the remainder of India. The deficiency exceeded 2° in the sub-montane districts of the North-Western Provinces and over nearly the whole of Bengal, Bihar, Chota Nagpur and Orissa. It was more than 3° at one station only, *viz.*, Dhubri, where it was 3·1°. The mean temperature of the month was slightly above the normal at Quetta, and below it at the Himalayan stations. The variations were smaller than at the neighbouring plain stations, and were less than 2° in amount except at Simla, where the mean temperature of the month was 2·2° in defect.

The temperature variations of the month were, hence, comparatively small in amount, and indicate that the influence of the heavy snowfall during the previous three months was already feeble and hence not likely to retard the development of hot weather conditions and the establishment of the south-west monsoon to any important extent.

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

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

Winds.—Winds were very unsteady at Port Blair and in Lower Burma and Tenasserim, due to earlier temporary advances of south-west winds in the Bay than usual. Winds were more easterly than usual in West Bengal and Bihar. The winds in the Gangetic Plain and at the hill stations in the Western Himalayas had a stronger northerly element than usual, indicating a larger flow than usual from the area of heaviest snowfall of the preceding three months to the plains of Northern India. The air motion in Rajputana, Central India, the Central Provinces, Berar and the West Coast districts presents no features of importance. Winds were slightly steadier than usual in these areas. In Hyderabad, the Madras Deccan, Mysore and South Madras winds were remarkably unsteady, and the mean wind directions differed irregularly from the normal. Thus at Bangalore the steadiness was 7 per cent., the normal being 52, and at Salem 5 per cent., the normal being 37 per cent.

Humidity.—The air was on the average of the month slightly drier in Burma, Bengal and Assam, but the variations were small and unimportant. It was damper in

North-Western and Central India. The increased humidity was most marked in the western districts of the North-Western Provinces and the East Punjab, where the mean humidity of the month was upwards of 10 in excess. The air was also generally more humid in the Peninsula, but the variations were not large except locally at Secunderabad and Akola.

Cloud.—There was more cloud than usual in Lower Burma and Northern India. The excess was greatest at the coast stations and diminished in the interior. The cloud amount was also in excess in Rajputana, Central India and the greater part of the Peninsula. The only areas in which there was less cloud were (1) Sind and Baluchistan, (2) Southern India and Mysore and (3) the Western Himalayas. In the latter area the deficiency was most marked at Murree, Leh and Kyelang, and was small at Ranikhet and Chakrata. There was a moderate excess at Darjeeling.

The following gives the variations of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces in India for April 1893:—

Meteorological Province.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	"	"	"
Burma Coast and Bay Islands	−·042	0	+0·9
Assam	+·002	+ 3	+0·6
Bengal and Orissa	−·004	+ 1	+0·8
Gangetic Plain and Chota Nagpur	+·057	+ 6	+0·1
Upper Sub-Himalayas	+·082	+10	0
Indus Valley and North-West Rajputana	+·064	+ 2	−0·7
East Rajputana, Central India and Guzerat	+·010	+ 1	−0·3
Deccan	+·020	+ 3	+0·2
West Coast	−·015	− 2	+1·2
South India	−·054	− 2	−0·1

Rainfall.—The rainfall of the month was less than a tenth of an inch in amount over a large portion of India including Cutch, Kattywar, Guzerat, the North Deccan, Berar, Central India, South Rajputana and some parts of Sind, Khandesh, and the eastern districts of the Central Provinces. It was small in amount and less than an inch over the remainder of India, excepting the following areas:—(1st) the North Punjab, (2nd) North-Eastern India, Ganjam and Circars, (3rd) Burma (except the central districts of Upper Burma), and (4th) the South Deccan, Mysore, Malabar and South Madras (except Tinnevelly). The rainfall was moderate in amount in the first and fourth areas. In the second it was due to frequent thundershowers during the month and to a heavy burst of rain on the 29th and 30th, following the breaking up of the cyclonic storm of the last week of the month. The rainfall in this area ranged from an average of two-thirds of an inch in Chota Nagpur and one inch in North Bihar to five inches in East Bengal and twelve inches in the Assam Valley.

Burma obtained a moderately heavy burst of rain from the cyclonic storm which passed into it from the Bay during the last week of the month. The rainfall in the coast districts of Arakan and Lower Burma ranged between 3 and 10 inches.

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

Meteorological Province.	Rainfall.		
	Mean actual for April 1893.	Mean normal for April.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	5·92	2·42	+3·48
Burma Inland	1·25	0·98	+0·48
Assam	9·45	9·58	−0·12
Bengal and Orissa	3·34	2·43	+1·00
Gangetic Plain and Chota Nagpur	1·01	0·38	+0·63
Upper Sub-Himalayas	0·84	0·65	+0·19
Indus Valley and North-West Rajputana.	0·47	0·40	+0·01
East Rajputana, Central India and Guzerat.	0·06	0·05	+0·03
Deccan	0·35	0·40	−0·07
West Coast	1·40	1·04	+0·34
South India	1·13	0·96	+0·25

Atmospheric Pressure.

The mean pressure of the whole of India was ·013″ below the normal. Relatively to this general condition pressure was in slight local excess in North-Eastern India and the sub-montane districts of the Punjab and the North-Western Provinces and in the West Deccan. The local variations were however unusually small and only exceeded ·02″ for three stations, *viz.*, Sholapur and Dhubri, and perhaps Mymensingh, where they were ·025″ in amount. The relative distribution of pressure over the Indian area hence agreed very closely with the normal distribution. Pressure was lowest along a line running through Hazaribagh, Allahabad, Delhi and Montgomery into the Central Punjab.

The mean range of pressure over the Indian area during the month very slightly exceeded a tenth of an inch.

Although the mean pressure distribution of the month was approximately normal in character, the pressure changes from day to day were larger, and occurred even more rapidly than usual. The following gives a brief account of the more important features of the pressure changes throughout the month.

Barometric depressions and cyclonic storm of the month.

At the commencement of the month a shallow depression lay over Upper India. It was apparently a slight development of the normal hot weather depression in Sind. Pressure was normal in amount in this area and more or less in excess over the remainder of India. The depression was in the South-East Punjab on the 2nd. The North Punjab and Baluchistan received light showers on the 31st of March and 1st of April. The barometric changes of the next 48 hours were very irregular, and weather was feebly disturbed with numerous duststorms and thunderstorms in the Punjab and the North-Western Himalayas. A rapid increase of pressure in North-Western India on the 4th established anticyclonic conditions for a brief period in Upper India.

Pressure was lowest on the 4th, 5th and 6th in Chota Nagpur. Bengal and Assam, as usually occurs under these conditions, received numerous light thundershowers during this period. Pressure decreased briskly to rapidly in North-Western India on the 7th, and a shallow depression was shown in West Rajputana and Upper Sind on the 7th. It was transferred to Central India on the 8th and to Chota Nagpur on the 9th. Local thunderstorms giving light showers occurred during this feeble disturbance, chiefly in the Punjab and North-Western Himalayas. The shallow depression remained unchanged in position in Chota Nagpur on the 10th and 11th, during which some thundershowers of little importance were received in Bengal.

Meanwhile temperature was increasing very rapidly in Upper India, and was very largely in excess on the 12th and 13th. Pressure gave way rapidly on the 12th and 13th in North-Western India, and a shallow depression (due to hot weather actions) formed in Upper India. It was transferred slowly eastwards during the next five days, and was in Central Rajputana on the 14th, Baghelkhand and the neighbouring districts on the 15th, Chota Nagpur on the 16th, and West Bengal on the 17th. It was throughout a feeble and ill-defined depression, and was practically a dry disturbance throughout. A few duststorms and thunderstorms occurred in Upper India and Bengal during its existence. The pressure changes were somewhat irregular on the 19th and 20th. Pressure was considerably below the normal, the deficiency being largest in North-Eastern India. Pressure gave way rapidly in Upper India on the 21st, and a depression again formed over Upper Sind and West Rajputana. Pressure was two-tenths of an inch below the normal in this area on the 22nd, and was practically normal in the Bombay coast districts. Strong local sea winds prevailed on the west coast, and weather was slightly disturbed on the 22nd, 23rd and 24th, with thundershowers in Central India, the Central Deccan, North-Eastern India and Burma. No important change occurred until the 24th, when the depression in Upper India intensified and advanced eastwards. It was in North-West Rajputana on the 25th, North-East Rajputana on the 26th, and at the foot of the hills on the 27th and 28th. The disturbance was throughout feeble, and gave local duststorms and thunderstorms in the hills and plain districts of Upper India. More important changes were, however, in progress in the Bay during this period, which culminated in a small cyclonic storm that passed into Lower Burma on the 27th. The following gives a brief statement of this storm.

Cyclonic storm of the 25th to 28th April.—This storm formed in front of a feeble temporary advance of south-west winds in the south-east of the Bay. On the 22nd and 23rd light and variable winds obtained at Nancowry and Port Blair. Weather was showery at the former station. Winds shifted to south-west during the next 24 hours, and the rainfall increased in amount. Pressure gave way slowly on the 23rd, and on the morning of the 24th rain began to fall heavily at Port Blair with east-north-east winds. Winds were light (force 1 and 2) to the north-east and north-west of the Andamans. The ship *Bracadale* in Lat. 10° N. and Long. 86°E. on the morning of the 24th had fresh north-east squalls with heavy rain during the day.

Pressure continued to fall at Port Blair, and a small shallow depression, the centre of which was to the west of that station, covered the adjacent portion of the Bay. Moderate south-south-east winds were now blowing at Port Blair and heavy rain was falling. There was no vessel near the centre, but the Port Blair observations indicate that the disturbance was comparatively feeble. The ship *Ednyfed* in Lat. 16° N. and Long. 90¾° E. at noon of the 25th had squally weather with variable winds and calms in the morning and a hard squall with torrents of rain in the afternoon. The S. S. *Lightning* in the south of the Andaman Sea had very squally weather with frequent rain.

Pressure fell upwards of a tenth of an inch during the next 24 hours in the area of disturbance, and the centre began to advance north-eastwards. The available observations are too few in number to enable the position of the centre to be determined with certainty, but it is probable it was in about Lat. 15° N. and Long. 92° E. Winds were moderate in force at Port Blair, and heavy rain was falling. The S.S. *Arratoon Apcar* passed southwards through the eastern quadrant of the storm area during the day, and was about 150 miles to the east of the

centre at noon. The following extract from her log describes the weather she experienced :—

Hour.	Position. Lat. N.	Position. Long. E	Barometer. Actual.	Barometer. Corrected.	Wind direction.	Weather.
	° ′	° ′	″	″		
4 A.M.	...	...	29·74	...	SE	Fresh increasing breeze and squally with heavy rain and rising irregular sea.
8 A.M.	13 40	94 00	29·74	29·679	SE by E	Strong breeze and continual squalls and rain.
Noon	13 12	94 15	29·76	...	S	Moderate gale and heavy squalls and rain.
4 P.M.	...	...	29·64	...	S	Gale moderating and heavy squalls at intervals ; high irregular sea.
8 P.M.	...	...	29·64	...	SW	Ditto.
Midnight	...	...	29·70	...	SW	Gale moderated to fresh breeze and heavy squalls of wind and rain.

The following observations show that the storm was now affecting the coast stations in Lower Burma :—

Station.	Barometer. 8 A.M. reduced to sea-level and gravity, Lat. 45°.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Hourly velocity in miles.	Cloud.	Rainfall since 8 A.M. of previous day.	Weather.
	″	″	″				Inches.	
Port Blair	29·616	—·105	?	WSW	9	10	2·84	Gloomy.
Tavoy	29·769	—·050	?	Calm	1	3	0·43	Showery.
Rangoon	29·724	—·098	—·1 9	ENE	3	10	1·28	Showery.
Bassein	29 728	—·108	—·111	ENE	3	10	0·84	
Diamond Island	29·704	—·119	—·154	E	14	9	0·10	Sea rough.

April 27th.—The storm advanced with increasing velocity during the afternoon and night of the 26th, and the centre crossed the Pegu coast to the east of Bassein about 6 A.M. or 7 A.M. of the 27th. The following 8 A.M. observations show that the position of the centre was nearly midway between Bassein and Rangoon at that hour :—

Station.	Barometer. 8 A.M. reduced to sea-level and gravity at Lat. 45°.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity in miles.	Cloud.	Rainfall in past 24 hours.	Weather.
	″	″	″				Inches.	
Rangoon	29·548	—·176	—·293	SSW	7	10	4·99	
Thayetmyo	·671	—·084	—·131	S	3	10	0·80	
Bassein	·593	—·135	—·243	NNE	7	10	2·37	
Diamond Island	·597	—·107	—·257	N	21	10	0·93	Sea very rough.
Port Blair	29·669	+·053	?	WSW	12	9	0·49	

Skies had now clouded over in Upper Burma, and weather was showery in Central and Upper Burma. Heavy rain had fallen in the coast districts of Lower Burma. Winds were however generally light, and the cyclonic circulation in the storm area was feeble. Hence the storm broke up rapidly during the day, and on the morning of the 28th it had completely disappeared, and southerly winds had advanced up the Irrawaddy Valley beyond Mandalay Light to moderate rain fell in Burma during the remainder of the month.

The disturbance was hence quickly generated in front of a feeble advance of southerly humid winds up the Bay, and, as might be expected under these conditions, it was a feeble storm. It advanced north-eastwards into Lower Burma, and filled up there very shortly after reaching land. It is however an interesting example of the general tendency to the formation of storms in front of all large advances of south-west humid winds up the Bay.

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

The following gives a full summary of the whole of the information under this head received up to date. This information establishes that no snow fell in the highlands of Afghanistan and Baluchistan, and that the snow melted rapidly during the month, and to such an extent that there was no snow lying at the end of the month, except on the higher peaks of the Safed Koh, Paghman and other high ranges in that area. Some snow appears to have fallen on the higher elevations of the Western Himalayas, but the total amount was small, and hence the accumulation decreased considerably during the month. Hence, although the fall of the previous three months had been excessive, the accumulation at the end of April, although large, was melting fast and was exercising little influence on the meteorology of India—

I.—Afghan and Eastern Persia Mountain Districts.

(1) *Eastern Persia.*—The following account of the snow fall during the past winter in this area has been received from Lieutenant the Hon'ble H. D. Napier, on special duty in Persia :—

"On the 21st November at Birjand (height 4,700 feet)

rain fell for some hours. The Bagheran mountains to the south were covered with snow down to about 10,000 feet.

From there I went to Siestan and saw no more snow until January 29th in about Long. 59° 40′ E. and Lat. 31° 40′ N., when snow was lying on the eastern slopes down to 5,000 feet. There was no snow in the valley (height 4,600 feet).

1st February.—About Lat. 32° N. and elevation 4,600 feet. Snow fell during the night to a depth of 1 inch.

3rd and 4th February.—Snow fell all night and next day, depth 3 inches, but thawed rapidly in the afternoon. People here said no snow had fallen for three years in the valley. At Khur, west of Birjand, and in nearly 33° N. Lat. snow lay for five days up to 8th February at an elevation of 3,620 feet. Snow line on hills about 5,000 feet.

12th February.—North-east of Khur (height 4,800 feet) snow fell all night, but melted fast; ½ inch on the ground in the morning.

14th February.—On the pass leading to Kain (height 6,355 feet) masses of snow, 2 feet deep, in the pass, said to be more than usual.

17th February.—All streams and watercourses in the neighbourhood of Kain very much swollen by melting snow.

28th February.—At Furk, east of Birjand (height 5,700 feet), a snow and hailstorm occurred; fall about ½ inch.

1st March.—The passes east of Birjand blocked with snow. Only one pass in the Dormiyan range open to traffic. Mules turn back when snow reaches a depth of 3 feet at an elevation of about 6,500 feet. This is said to be the normal condition at this time of year.

4th March.—Rain and snow half day and all night, followed by one day's heavy rain. Elevation between 5,000 and 6,000 feet. No more snowfalls occurred during my journey to Meshed.

(2) *Hills to the west of Dera Ismail Khan, Kohat, Bannu and Peshawar.*—No snow fell in these hills during the month.

(3) *Kabul.*—No snow fell at Kabul during the month. Rain fell on the 1st, 2nd, 5th and 6th. The snow on the adjacent hills melted rapidly during the month, and at the end of the month nearly all had disappeared from the Paghman ranges.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Hazara mountains.*—Snow fell in the beginning of April in Kaghan and the adjacent hills, averaging 1½ feet in depth. The depth of snow in the Kaghan and Gulli hills at the end of the month was from 4 to 6 feet. The fall during the past winter is stated by natives to have been exceptionally heavy, and snow was lying in patches down to 6,500 feet at the end of the month.

(2) *Hunza and Nagar.*—The following interesting account of the weather in this district from the 15th January to 15th April has been received from Lieutenant Gordon, Assistant British Agent.

DATE.	Weather.
January 18th . .	Slight fall of snow at Baltet (Hunza); elevation 7,500 feet.
„ 20th . .	Snow fell from 8 P.M. of date to 2 A.M. of the 21st.
„ 21st to 26th	Clear or slight cloud.
„ 27th . .	Snow at Baltet and on neighbouring hills.
„ 28th to Feb. 3rd	Clear or slight cloud.
February 4th . .	Snow at Baltet and on neighbouring hills. Fall at Baltet only half an inch.
„ 5th to 9th .	Very cloudy.
„ 10th .	Snow fell from 3 A.M. to noon. Heavy snow fell on the Mintakha and Killick passes.
„ 13th . .	Slight snow at Baltet.
„ 14th to 22nd	Fine clear weather.
„ 23rd . .	Slight snow at Baltet. Heavy snow on the Mintakha and Killick passes.
„ 23rd to 28th	Fine clear weather.
March 1st to 17th .	Fine clear weather.
„ 18th . .	Heavy snow fell on the Killick and Mintakha passes.
„ 19th to 23rd	Fine clear weather.
„ 25th . .	Slight snow fall at Baltet.
„ 26th to 30th	Fine weather.
„ 31st . .	Heavy clouds and high winds.
April 2nd . .	Slight snow at Baltet.
„ 3rd to 13th .	Fine weather.
„ 14th . .	Light showers of rain.

The snow line on the 15th of April was at an elevation of 11,000 feet. The depth of snow on the Mintakha and Killick passes was reported to be eight feet. The Rhunjerab and Irshad passes were still closed to traffic The natives say that the past winter was the coldest known for many years, and that the snowfall had been slightly greater than usual.

(3) *Lahoul.*—The following account of the snowfall in this district has been received from the Rev. Mr. Heyde, Superintendent of the Kyelang Observatory: "Snow fell on the following occasions:—

Date.	Depth.
1st April . . .	7 inches.
3rd „ . . .	8 „
4th „ . . .	5 „
7th „ . . .	1 inch.
8th „ . . .	6 inches.

Rain fell in the valley on the 21st and 27th, and snow on the hills above 12,000 feet. People from Spiti and Zanskar, with whom I had occasion to speak, all agreed that the past winter had brought not much snow, but that the cold had been exceedingly great and continuous."

(4) *Kulu.*—Snow fell on the 2nd, 3rd, 4th, 8th, 20th and 27th of April in the Kulu Tahsil, and on the 3rd, 4th, 8th, 9th, 18th and 21st in the Plach Tahsil. These falls occurred at elevations above 9,000 feet. Weather was generally warm and fine and the snow melted rapidly. The snow line at the end of the month was between 9,000 and 10,000 feet. Lahulis crossed the Rotang pass in the first week of April. The following table gives the depth of snow on the higher passes at the end of the month and similar data for the corresponding months of the past four years:—

Tahsil.	Name of pass.	Height.	Approximate depth of snow on 25th April 1893.	Depth of snow on 25th April			
				1892.	1891.	1890.	1889.
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Kulu	Rotang	13,000	13	3	10	6	15½
	Hamta	14,500	11	2½	?	8	13
	Chander Khani	?	12	3½	10	3	7
	Barsai	?	6	2	5	3	1½
	Bujadhar	?	6	½	4	3½	1
	Lori Achri	?	5	*Nil*	3	2	3
	Pushtari	?	4	...	3	½	1
	Bhubhu	10,000	5	...	5	1½	2
	Majang	?	2	...	0	½	...
Plach	Chul	?	11	...	4	2	1
	Sirikand	15,000	30	6	36	17	55
	Maghian	?	9	*Nil*	4	2	2
	Tikkar	?	6	...	...	...	...
	Dundku	?	6	...	7	4	2
	Nunu	?	1	...	2	...	...
	Jalori	10,500	6	...	4	1	1
	Raghopur	?	6	...	5	2	1
	Himri	?	7	...	4	1	1
	Sakiran	?	7	...	5	1	?
	Suphakun	?	15	...	12	5	1
	Gargarasan	17,000	25	...	12	8	2
	Bashleo	11,000	15	...	4	2	2
	Plach	?	20	...	7	6	?
	Tirath	?	25	...	10	7	11

(5) *Upper Sutlej Valley.*—The Rev. Mr. Schreve, Moravian missionary, states that snowstorms occurred at very short intervals from the end of December to the middle of March. The last snowfall in the valley (height 9,000 feet) was on the 3rd April. Snowstorms were of occasional occurrence on the adjacent mountains during the month of April. The depth of snow on the Shipki pass (elevation 16,500 feet) is said to be about 9 feet. The past winter is stated by the natives of the district to have been unusually cold, and the snowfall to have been somewhat heavier than usual.

Bushahr.—Frequent light falls of snow occurred during the month above 10,000 feet. The month was characterised by high westerly winds and frequent thunderstorms occurring as a rule in the afternoon. The snowfall during the past winter was much less in Upper Kanawar than in Bushahr proper.

III.—North-Western Provinces Himalayas.

Kumaon.—The Commissioner of Kumaon has sent in the following information about the snowfall in this district:—

(1) *Malla Danpur.*—There were three falls of snow during the month, giving a total depth of six inches.

(2) *Malla Darma, Byans and Chandans.*—Snow fell on three days during the month on these hills. The total fall during the month averaged three feet.

(3) *Malla Johar.*—Snow fell on four occasions to a depth of about two feet on the Utadhura and Ralamdhura passes.

The weather in these hills is reported to have been warm and the amount of cloud greater than usual. The snowfall of the past winter is believed to have been heavier than in previous years.

IV.—Sikkim Himalayas.

Sikkim.—The following brief statement of the snowfall in Sikkim has been received from the Rev. A. Desgodins:—

8th April.—Severe storm and shower of hail here and at Gnatong.

16th April.—Dr. Caddy, of Calcutta, coming back from Gnatong, says that there is on the plateau five feet of snow, and that almost every day there is a storm with snow.

After the 16th to the end of the month there were frequent storms and showers of rain.

The following report has been received from the Medical Officer, Gnatong:—

"The following table gives a statement of the snowfall of the past winter and of the previous two winters for comparison:—

Month.	Number of days on which snow fell in 1892-93.	Total precipitation in		
		1892-93.	1891-92.	1890-91.
October	4	0·80	3·24	11·85
November	3	0·37	1·05	...
December	10	0·86	...	0·22
January	15	2·67	0·64	2·40
February	14	2·63	12·24	0·92
March	17	5·17	3·61	5·66
April	17	10·87	7·26	6·94
May 1st to 15th	6	1·87	2·63	1·66
Total of whole period	...	25·24	30·67	29·65

The available information indicates that the number of days on which snow fell during the past winter is greater than in two previous seasons, but that the total snowfall for this winter is less than in the two preceding it.

"I visited the Jalap and Pembringo passes on the following dates, and the snow was then lying as below noted :—

Date.	Jalap Pass.		Date.	Pembringo Pass.	
	Snow on road.	Snow in drifts.		Snow on road.	Snow in drifts.
Dec. 27th	*Nil*	6in. to 1 foot	Dec. 29th	*Nil*	6 in. to 1 foot.
April 8th	5 to 6 feet	6 to 10 feet	Feb. 16th	2 to 3 feet	4 to 7 feet.
May 4th	*Nil* to 3 ,,	4 to 6 ,,			

"The Jalap pass was blocked this year for seven days (at the end of March and beginning of April), the dâk even not being able to get through into Thibet. Since that time until a few days ago coolie traffic alone was possible, mules being unable to get through.

"The other passes near here have been entirely blocked for some weeks both for mule and coolie traffic. On the 1st April snow was still to be found as low as 9,000 feet. At Gnatong there is still a large amount of snow, it having entirely disappeared only from those parts which are fully exposed to the sun's rays. The lake here during the last week only became free from ice (nearly two months later than last year), and other lakes from which the ice had disappeared on 1st May last year are still (10th May) completely frozen over.

"Travellers report that in Thibet the falls of snow have been more frequent, but in smaller quantities than usual. They also state that the winter cold has been exceptionally severe, and snow much later than usual in falling.

"The natives of this part state that the snow this year descended lower than is generally the case, there having been heavy snow at Sedonchin (height 6,500 feet), and this is some 1,500 feet lower than Jeybuh, below which place it does not usually descend."

Summary of Special Storm Reports.

The following gives a statement of the more important local storms, of which special reports were received from observers. The month was on the whole less disturbed than usual, and none of the storms reported were of exceptional violence. The whole of the storms were of the ordinary hot weather type, *viz.*, thunderstorms with heavy rain or hail in Bengal and the sub-montane districts of the Gangetic Plain and the West Deccan, and duststorms in the driest and hottest parts of the country :—

1st.—Duststorm at Jacobabad 3-45 P.M. to 4-40 P.M. Duststorm at Patna at 7-30 A.M.

2nd.—Slight duststorm at Poona at 4-17 P.M. Violent duststorm at Jacobabad at 7-30 P.M. Duststorm at Cawnpore from 3-45 P.M. to 4-45 P.M. Storm advanced from west and passed to east. Strongest winds blew at rate of 33 miles per hour.

3rd.—Thunderstorm with hail at Simla, 4 P.M. to 6 P.M.

4th.—Severe thunderstorm with hail at Gnatong.

8th.—Violent hailstorm at Dhubri from 8-15 P.M. to 8-30 P.M. Hailstorm at Mymensingh at 5 P.M. Thunderstorm with hail at Ranikhet at 3-45 P.M.

9th.—Hailstorm at Belgaum at 4 P.M., which lasted for 15 minutes. The stones were of the size of betel-nuts.

11th.—Duststorm at Poona at 5-45 P.M.

12th.—Violent thunderstorm and duststorm at Poona from 5-10 P.M. to 6-40 P.M.

14th.—Duststorm at Malegaon at 3-42 P.M. Hailstorm at Poona at 5-10 P.M.

Thunderstorm at Pachpadra from 8-40 P.M. to 8-50 P.M. Heavy rain is said to have fallen in the villages, 16 miles to the north-north-east of Pachpadra, and passing showers to the south-west and south-east within an area of 18 miles.

20th.—Thunderstorm at Ranikhet at 5 P.M.

21st.—Duststorm at Allahabad from north-north-west between 6-10 P.M. and 7-30 P.M. Thunderstorm and hailstorm at Faridpur at 4-30 P.M. Thunderstorm and hailstorm at Mymensingh from 4-48 P.M. to 5-20 P.M. The winds did much damage to houses in the city. Duststorm at Benares from 6-46 P.M. to 7-40 P.M., which advanced from north-west.

25th.—Violent thunderstorm at Poona, 2-25 P.M. to 3-10 P.M. Thunderstorm at Ranikhet, 5 P.M. to 5-45 P.M.

26th—Duststorm from 3-30 P.M. to 4-12 P.M. at Patna. 1·84 inches of rain fell during the storm, of which 0·89 inch fell in ten minutes from 3-40 to 3-50 P.M. Temperature fell from 88°·4 at 3-30 P.M. to 73°·0 at 3-50 P.M.

27th.—Duststorm at Allahabad at 5-20 A.M. Strongest winds 31 miles per hour. Thunderstorm with hail at Ranikhet, 6 P.M. to 6-30 P.M. Temperature fell from 67°·0 at 5-30 P.M. to 49°·0 at 6-30 P.M.

28th.—Thunderstorm at Gorakhpur from 2-20 P.M. to 2-40 P.M. Rainfall 0·70 inch. Temperature fell from 86°·0 to 71°·0 during the storm. Se-

vere thunderstorm at Krishnagar at 10-50 P.M. Nor'-wester at Mymensingh from 2-50 P.M. to 3-20 P.M. Pressure increased from 29·67 at 2-40 P.M. to 29·74 at 2-55 P.M. Rainfall during storm 1·45 inches.

30th.—Severe thunderstorm at Chittagong between 8 A.M. and 9 A.M. Rainfall during storm 3·06 inches. Storm came down from north-west.

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 moderate north-east winds prevailed over the Arabian Sea, and westerly winds force 5 in the Gulf of Oman. The weather was fine and clear over both these areas. During the next 24 hours the air movement decreased in the north of the sea, but increased over the centre and south of it and in the Gulf of Aden, where fresh to strong north-east winds obtained. The wind force for the whole of the Arabian Sea averaged 3·3 on the morning of the 2nd as compared with 2·3 on the previous day.

No change occurred during the next 24 hours except in the west of the Persian Gulf, where the winds shifted to east and south-east, and weather became squally. Skies clouded over in this area during the next 24 hours, and rain commenced to fall in the coast districts as far east as Bushire. Thus the S. S. *Assyria* experienced heavy rain at noon of the 4th at Fao. Westerly winds again set in on the 5th in this area, and the weather became fine and clear. The change however did not last long, as on the morning of the 6th the wind went round to east again and the weather became disturbed during the next 48 hours. Thus the S. S. *Assyria* at anchor at Busreh experienced squally weather with lightning and gusts at times at 6-30 A.M. of the 8th. Westerly winds set in again on the 8th, but the weather continued squally and rainy for three days afterwards.

Weather was rainy with southerly winds to the west of Ceylon on the 7th. Thus the S. S. *Nizam*, in Lat. 7° 34′ N. and Long. 79° 15′ E. at 8 A.M. of the 7th, had heavy rain at 5-30 A.M. Normal southerly winds set in off the Kattywar and Sind Coasts on the 8th, and with slight interruptions continued throughout the remainder of the month. Winds fell off considerably in strength during the next 24 hours, and were blowing with an average force of 1·1 on the morning of the 9th. Weather was again unsettled off the west coast of Ceylon during the next three days. Thus the S. S. *Isleworth* off Colombo on the afternoon of the 10th had heavy rain, and the S. S. *Windsor* proceeding down the west Ceylon coast experienced strong squalls with heavy rain at 8 P.M. The S. S. *Cholleston*, in Lat 6° 26′ N. and Long. 78° 44′ E. had heavy squalls of thunder and lightning at 8 A.M. of the 12th. The mean wind force averaged 2·4 on the 13th, 2·9 on the 16th, and 3·2 on the 20th.

A change commenced during the next 48 hours in the wind system. Normal north-westerly winds set in off the Bombay coast, and south-westerly winds in the south centre and west of the sea. The extension of these south-westerly winds to the west coast of Ceylon was accompanied by very squally weather in the neighbourhood of Colombo on the 22nd. Thus the S. S. *Bancoora* at anchor in the Colombo harbour had squally weather with much rain, and the S. S. *Lord Bangor* near Colombo had fresh westerly winds with terrific rain squalls.

These southerly winds steadily increased and extended during the remainder of the month, more especially over the south and south-east of the sea, and at the end of the month held over nearly the whole of the sea area. The average wind force had increased to 3·3 on the 30th.

Bay of Bengal.—At the commencement of the month light to moderate northerly winds prevailed in the south and centre of the Bay, and southerly winds off the north Madras and Bengal coasts. The weather was fine over the whole of the Bay area. To the south of the Line down to 4½° S. Lat. and between the meridians of 81° and 95° E. the weather was very squally with north-west winds force 3 to 4. Thus the S. *County of Kinross* in Lat. 4° 30′ S. and Long. 95° 14′ E. at 8 A.M. of the 1st experienced heavy squalls and rain in the evening, and the S. *Urrato*, in Lat. 0° 46′ S. and Long. 81° 11′E., had squalls with rain at 8 A.M. of the same day. No change of importance occurred during the next 24 hours except in the extreme south-east of the Bay (between the Nicobars and Malacca), where the weather became squally with heavy rain. Weather improved in this area and in the equatorial belt during the day, and on the morning of the 4th fine clear weather obtained in all parts of the Bay. The weather conditions continued unchanged until the 10th, on which day the winds began to strengthen. The mean wind force for the whole of the Bay area averaged 2·5 on this day and 3·7 on the 11th.

Winds fell off rapidly in strength during the next three days, and on the morning of the 14th the mean force for the whole of the Bay was only 2·2. An important change occurred during the next 48 hours in the south and centre of the Bay, where southerly winds set in and rain commenced to fall. A steady increase in the force of these

winds occurred until the 20th, on the morning of which day the mean force for the whole Bay area was 3·4. As usually happens, a storm was generated in front of this feeble temporary advance of humid southerly winds in the neighbourhood of the Andamans on the 24th and 25th. It advanced north-eastwards and passed into Lower Burma on the 27th. Squally and rainy weather prevailed over the centre and south-east of the Bay during its existence, and off the Arakan and Burma coasts for some days afterwards The S. S. *Arratoon Apcar*, which passed through the eastern quadrant of the storm area on the 26th at a distance of about 150 miles to the east of the centre, experienced a moderate gale and heavy squalls of rain.

Fresh to strong southerly winds prevailed at the end of the month over the whole of the Bay, and the weather was rainy and squally, except off the Madras and Orissa coasts, where fine weather continued to prevail.

Temperature.

The mean day or maximum temperature of the month was above the normal in Rajputana, Guzerat, Sind and the West Punjab. The excess was greater than 2° in the area represented by the following stations :—

Station.	Mean maximum temperature.		
	Actual, April 1893.	Normal, April.	Variation from normal.
	°	°	°
Karrachi	91·4	89·1	+2·3
Hyderabad	104·0	101·5	+2·5
Deesa	104·8	102·3	+2·5
Ajmere	100·2	98·1	+2·1
Mooltan	100·5	97·0	+3·5
Jacobabad	104·5	101·6	+2·9
Quetta	75·4	73·2	+2·2

The mean day temperature was below the normal over the remainder of India. The deficiency was more than 2° in amount in the Central Deccan, Bengal, Assam, Bihar and Chota Nagpur and along the foot of the hills from Rawalpindi to Gorakhpur. It exceeded 3° at the following stations in these two areas :—

Province.	Station.	Mean maximum temperature.		
		Actual, April 1893.	Normal, April.	Variation from normal.
		°	°	°
Central Deccan	Belgaum	93·0	96·7	−3·7
Orissa	False Point	87·3	91·0	−3·7
	Cuttack	98·9	102·3	−3·4
Bengal	Calcutta	92·4	95·6	−3·2
	Jessore	93·5	97·4	−3·9
	Burdwan	96·8	100·6	−3·8
	Berhampore	95·1	100·3	−5·2
Assam	Dhubri	83·7	88·3	−4·6
Bihar	Patna	97·8	101·0	−3·2
North-Western Provinces	Gorakhpur	97·7	101·0	−3·3
	Bareilly	95·9	99·4	−3·5
	Roorkee	94·5	97·9	−3·4
Punjab	Ludhiana	94·3	97·4	−3·1
	Sialkot	91·1	94·8	−3·7
	Rawalpindi	84·8	88·0	−3·2

The deficiency in the day temperature was less at the Himalayan hill stations than at the neighbouring plain stations, and averaged 2° in amount.

The mean night temperature of the month differed less from the normal than the mean day temperature, but the variations were generally similar in character. It was in slight excess in North-Western India and in slight to moderate defect over the remainder of India. The deficiency was more than 2° in amount at the following stations in Southern India :—

Station.	Mean minimum temperature.		
	Actual, April 1893.	Normal, April.	Variation from normal.
	°	°	°
Madras	75·0	77·1	−2·1
Bangalore	67·2	69·3	−2·1
Salem	73·4	75·5	−2·1
Coimbatore	69·8	73·9	−4·1

The mean temperature of the month was in slight to moderate excess in Rajputana, Guzerat, Kattywar, Sind and the West Punjab. The excess was more than 2° in amount at Mooltan (+3°·1) and Jacobabad (+2°·3). Over the remainder of India the mean temperature of the month was below the normal generally by small amounts. The deficiency exceeded 2° in the greater part of Assam, Bengal, Orissa, Bihar and Chota Nagpur and at the foot of the hills from Roorkee to Gorakhpur. It exceeded 2·5° at the following stations :—

Station.	Mean daily temperature.		
	Actual, April 1893.	Normal, April.	Variation from normal.
	°	°	°
Berhampore	84·4	87·3	−2·9
Dhubri	76·5	79·6	−3·1
Roorkee	79·5	82·2	−2·7

The following table gives temperature data for 51 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.	Diurnal Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	95·2	74·7	85·0	20·5	28·7	− 0·4	+ 1·5	− 1·9
	Lower Burma	92·9	75·2	84·1	17·7	25·1	− 1·1	− 1·2	+ 0·1
	Central do.	101·6	73·5	87·6	28·1	39·6	− 2·2	− 1·7	− 0·5
	Upper do.	94·8	69·6	82·2	25·2	42·1	?	?	?
	Arakan	90·4	73·0	81·8	17·4	25·0	− 1·4	− 2·6	+ 1·2
Bengal and Assam	Eastern Bengal	88·6	71·8	80·2	16·8	31·6	− 3·0	− 1·3	− 1·7
	Assam (Surma)	87·3	67·8	77·6	19·5	32·1	− 0·3	− 1·1	+ 0·8
	Do. (Brahmaputra)	82·2	67·5	74·9	14·7	32·5	− 1·8	− 1·3	− 0·5
	Deltaic Bengal	92·9	74·9	84·0	18·0	32·1	− 3·1	− 0·7	− 2·4
	Central do.	95·9	73·2	84·6	22·6	38·1	− 4·5	− 0·6	− 3·9
	North do.	88·0	69·5	78·8	18·6	35·2	?	?	?
	Orissa	90·8	77·2	84·0	13·7	28·3	− 3·6	− 0·6	− 3·0
	Chota Nagpur	96·9	71·2	84·0	25·7	39·7	− 2·3	− 1·8	− 0·5
	Bihar (South)	99·6	72·8	86·3	26·7	41·0	− 3·1	− 1·1	− 2·0
	Do. (North)	95·7	71·1	83·4	24·6	40·0	− 2·6	+ 0·8	− 3·4
North-Western Provinces and Oudh.	North-Western Provinces (East)	100·7	71·3	86·0	29·4	44·4	− 2·2	− 0·9	− 1·3
	Oudh (South)	100·2	70·0	85·1	30·2	47·3	− 2·0	− 1·0	− 1·0
	North-Western Provinces (Central)	100·8	70·3	85·6	30·5	46·7	?	?	?
	Do. do. (West)	103·8	75·7	89·7	28·1	44·8	+ 0·8	+ 1·3	− 0·5
	Do. do. (Sub-montane)	93·6	65·1	79·4	28·5	44·0	− 2·7	− 1·6	− 1·1
Punjab	Punjab (South)	99·0	70·2	84·7	28·9	47·6	− 1·3	− 0·4	− 0·9
	Do. (Central)	95·0	64·3	79·7	30·7	49·6	− 1·4	− 0·2	− 1·2
	Do. (Sub-montane)	94·6	66·1	80·4	28·5	47·5	− 3·1	+ 0·8	− 3·9
	Do. (Hill Districts)	66·3	50·2	58·3	16·1	38·1	− 3·5	+ 0·5	− 4·0
	Do. (North-West)	87·7	63·3	75·5	24·4	48·2	− 2·0	+ 1·4	− 3·4
	Do. (West)	97·0	67·8	82·4	29·2	51·3	+ 2·2	+ 2·0	+ 0·2
Bombay and Malabar Coast Districts (Madras).	Malabar	90·1	77·8	83·9	12·3	18·9	− 0·1	− 0·6	+ 0·5
	Madras (South Central)	99·1	71·6	85·5	27·5	37·6	− 0·6	− 3·1	+ 2·5
	Coorg	90·3	67·1	78·6	23·2	34·6	− 0·5	− 0·6	+ 0·1
	Mysore	93·1	66·4	79·8	26·7	35·9	− 0·7	− 2·1	+ 1·4
	Konkan	89·8	77·9	83·9	11·9	22·6	+ 0·2	+ 0·7	− 0·5
	Bombay Deccan	99·1	70·7	84·9	28·5	36·3	− 2·0	− 0·6	− 1·4
	Hyderabad (North)	99·0	74·6	86·8	24·4	34·3	?	?	?
	Khandesh	101·1	69·1	85·1	32·0	44·6	0	+ 1·6	− 1·6
Central Provinces and Berar.	Berar	102·9	75·5	89·3	27·4	40·0	− 2·7	+ 0·4	− 3·1
	Central Provinces (West)	103·5	73·0	88·3	30·4	43·3	− 1·4	− 1·1	− 0·3
	Do. (Central)	100·6	70·4	85·5	30·1	45·7	− 1·4	− 1·5	+ 0·1
	Do. (East)	101·3	75·1	88·2	26·3	42·1	− 3·4	− 1·1	− 2·3
Bombay (North)	Guzerat	101·0	74·4	87·7	26·7	43·2	− 2·4	+ 2·2	− 4·6
	Kattywar	96·0	72·6	84·3	23·4	41·6	+ 1·3	+ 0·8	+ 0·5
	Sind and Cutch	100·7	72·4	86·6	28·3	49·8	+ 2·4	+ 1·5	+ 0·9
Rajputana and Central India.	Central India (East)	101·7	70·9	86·3	30·8	45·6	− 1·0	− 0·1	− 0·9
	Rajputana (East), Central India (West)	101·1	71·0	86·0	30·1	47·8	+ 1·1	+ 1·3	− 0·2
	Rajputana (West)	106·1	70·3	88·2	35·8	54·7	+ 1·7	?	?
Madras	East Coast (North)	92·1	77·5	84·8	14·6	26·6	− 0·7	− 1·4	+ 0·7
	Hyderabad (South)	99·4	75·2	87·4	24·2	35·1	− 1·9	− 1·1	− 0·8
	Madras (Central)	102·8	76·1	89·5	26·7	36·1	− 1·7	− 2·6	+ 0·9
	East Coast (Central)	97·9	76·6	87·3	21·3	37·4	− 0·3	+ 0·1	− 0·4
	East Coast (South)	94·7	75·5	85·2	19·0	33·4	+ 0·1	− 1·6	+ 1·7
	Madras (South)	99·0	77·2	88·1	21·8	34·8	− 1·7	− 0·6	− 1·1

The highest temperatures of the month were registered in Upper India during the last week. The following gives the most noteworthy :—

Station.	Highest maximum temperature during the month.	Date of occurrence.
	°	
Jacobabad	117·1	25th
Hyderabad	115·2	25th
Pachpadra	115·0	27th
Bhuj	114·0	30th

The maximum at Jacobabad is the highest that has yet been recorded at that station in the month of April, the highest previous to the present year being 115°·5 in April 1880.

Temperature at the commencement of the month was in excess over nearly the whole of North-Western India, and was in defect elsewhere. The excess in North-Western India was greatest at Ajmere (+9°·0) and Jacobabad (+6°·2). The deficiency was most marked in Bihar and Chota Nagpur, where it averaged 5°.

Weather was disturbed during the next three days, and a

cool wave advanced from the frontier on the 3rd and following days, and was preceded by the warm wave which covered Upper India on the 1st. The following variation data show the positions of the two waves from the 3rd to the 6th :—

	Cool wave.		Warm wave.	
	Station.	Variation of mean temperature of preceding 24 hours from the normal.	Station.	Variation of mean temperature of preceding 24 hours from the normal.
		°		°
3rd	Dera Ismail Khan	−6·1	Ajmere	+6·5
	Jacobabad	−5·1	Jhansi	+5·3
4th	Sialkot	−16·2	Sutna	+3·4
	Rawalpindi	−11·5	Nowgong	+3·3
5th	Delhi	−10·0	Darbhanga	+1·0
	Meerut	−8·9		
6th	Meerut	−8·1		
	Jubbulpore	−7·5		

Temperature increased rapidly in Upper India, and on the morning of the 7th was above the normal on the north-west frontier to a slight extent. The following gives temperature variation data for the 24 hours preceding 8 A.M. of the 7th :—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+1·1	−1·0	+0·1
Bengal and Assam	−4·4	+0·3	−2·1
North-Western Provinces	−3·6	−3·9	−3·8
Punjab	−2·0	+2·3	+0·2
Sind and Rajputana	+1·0	−1·6	−0·3
Guzerat and Central India	−1·1	−3·5	−2·3
Central Provinces	−3·4	−7·0	−5·2
Bombay	−0·1	−0·1	−0·1
Madras	−1·0	−2·7	−1·9

The temperature changes during the next four days were somewhat irregular, and made no large change in the temperature conditions, the chief features being slight excess on the north-west frontier, and a slight to large defect elsewhere. Temperature increased rapidly on the 12th and following days, and was very considerably in excess in North-Western India from the 12th to the 15th. The following gives the largest variations on each day during this period :—

Date.	Station.	Mean temperature.		
		Actual, April 1893.	Normal, April.	Variation from normal.
		°	°	°
11th April	Quetta	65·3	57·0	+8·3
	Jacobabad	88·6	82·4	+6·2
12th "	Jacobabad	91·3	82·0	+9·3
	Deesa	94·5	84·7	+9·8
13th "	Dera Ismail Khan	86·5	76·9	+9·6
	Mooltan	89·3	79·9	+9·4
14th "	Mooltan	90·5	80·5	+10·0
	Jacobabad	92·5	82·7	+9·8
15th "	Ajmere	93·0	82·5	+10·5
	Sambhar	92·2	83·8	+8·4

In consequence of the general rise of temperature during this period temperature was more or less above the normal over the greater part of India. The following gives variation data for the 15th :—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+2·1	+0·4	+1·3
Bengal and Assam	−0·1	−0·1	−0·1
North-Western Provinces	+5·5	+2·1	+3·8
Punjab	−0·1	+3·7	+1·8
Sind and Rajputana	+4·1	+9·3	+6·7
Guzerat and Central India	−0·1	+3·0	+1·5
Central Provinces	−0·1	+3·1	+1·5
Bombay	−2·5	+1·2	−0·7
Madras	−0·7	−3·6	−2·2

The weather was slightly disturbed during the next five days. The temperature changes were somewhat irregular, but made no large alteration of conditions except in Upper India, where temperature was reduced to some extent. Temperature was generally in slight excess on the 21st. Temperature again increased in Upper India and decreased in North-Eastern India in consequence of the occurrence of fairly general rainfall in that area.

The following variation data for the 24th show the contrast of conditions between North-Western and North-Eastern and Central India during this period :—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−3·8	−1·3	−2·6
Bengal and Assam	−6·1	−5·1	−5·6
North-Western Provinces	−4·5	+0·1	−2·2
Punjab	+2·9	+3·7	+3·3
Sind and Rajputana	+4·4	+4·2	+4·3
Guzerat and Central India	+0·6	+2·4	+1·5
Central Provinces	−7·2	−4·1	−5·7
Bombay	−2·2	+0·6	−0·8
Madras	−1·8	−2·2	−2·0

No important change occurred in India during the remainder of the month. The rainfall accompanying the cyclonic storm, which passed into Burma on the 27th, produced a very large reduction of temperature in that area. The following data illustrate this effect of the storm:—

Station.	Variation of mean temperature during 24 hours preceding 8 A.M. of			
	23rd.	26th.	27th.	28th.
	°	°	°	°
Rangoon	+1·1	−3·8	−8·9	−9·7
Tounghoo	+4·8	−3·0	−7·4	−11·0
Thayetmyo	+1·4	−2·8	−11·5	−9·4

Hence at the end of the month temperature was in moderate excess in North-Western India and in moderate to large defect in Burma, North-Eastern India, and the Central Provinces. The following give variation data for the 24 hours preceding 8 A.M. of the 30th:—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−7·1	+0·4	−3·4
Bengal and Assam	−5·8	−0·2	−3·0
North-Western Provinces	−4·3	−6·1	−5·2
Punjab	+1·9	−3·0	−0·6
Sind and Rajputana	+3·4	−2·3	+0·6
Guzerat and Central India	+1·3	−2·4	−0·6
Central Provinces	−2·9	−5·9	−4·4
Bombay	−2·6	−0·5	−1·6
Madras	+1·7	−0·5	+0·6

Winds.

Winds were less steady than usual in Burma and the Bay Islands. The percentage wind steadiness was only 27 at Port Blair, the normal being 45. The mean wind direction at that station was S80° E., the normal being N. 84° E. These variations from the normal condition were evidently due to earlier advances of south-west winds in the south and centre of the Bay than usual.

The mean winds of the month were practically normal in direction in Bengal, and were slightly steadier than usual. Winds were much less westerly than usual at the coast stations and in West Bengal.

The decreased westing or increased easting was most strongly shown at the following stations:—

Station.	Direction.		Steadiness.	
	Mean, April 1893.	Normal, April.	Actual percentage.	Normal percentage.
False Point	S 9° W	S 38° W	78	79
Berhampore	S 15° E	S 23° W	47	32
Patna	N 56° E	N 38° W	40	27

In East and Central Bengal winds were slightly more westerly than usual.

In the Gangetic Plain the area of unsteady winds which is usually in Bihar and the eastern districts of the North-Western Provinces covered the western half of the North-Western Provinces, and was hence considerably further west than usual in April. The following gives data illustrating this feature:—

Station.	Steadiness.		Velocity.	
	Actual percentage, April 1893.	Normal percentage, April.	Mean daily air movement, April 1893.	Normal daily air movement April.
			Miles.	Miles.
Darbhanga	37	8	140	138
Allahabad	32	25	144	86
Lucknow	12	44	47	106
Meerut	25	44	55	60
Roorkee	8	10	?	76

Another noteworthy feature in the air motion over the Gangetic Plain was the unusual strength of the northerly element in the prevailing north-westerly winds of the month.

The following gives data for four stations:—

Station.	Direction.		
	Mean, April 1893.	Normal, April.	Mean amount of increased northing.
Allahabad	N 34° W	N 52° W	+18°
Lucknow	N 25° W	N 53° W	+28°
Roorkee	N 53° W	N 73° W	+20°
Ludhiana	N 18° W	N 59° W	+41°

This increased northing was probably in part at least

due to a larger flow of air from the North-Western Himalayas to the adjacent plains than usual caused by the unusually heavy snowfall accumulation of the period. This supposition is confirmed by the fact that the wind directions of the month at the hill stations show a corresponding deflection from the normal, *e.g.*:—

STATION.	DIRECTION.			STEADINESS.	
	Mean, April 1893.	Normal, April.	Increased northing.	Actual percentage	Normal percentage.
Ranikhet . .	N 87° W	S 62° W	+ 31°	70	47
Chakrata . .	W	S 68″ W	+ 22°	58	19
Simla . .	N 5° W	S 69° W	+ 106°	55	38

The increased steadiness of the winds of the month at these stations is also noteworthy.

Winds were very unsteady and abnormal in direction in the West Punjab and Upper Sind. They were much steadier than usual in Rajputana. Winds were slightly more westerly in the Bombay Deccan, Berar and Khandesh, and were normal in intensity and steadiness. They were very unsteady and irregular in the Madras Deccan and Hyderabad. The following gives data for two stations:—

STATION.	DIRECTION.		STEADINESS.	
	Mean, April 1893	Normal, April	Actual percentage.	Normal percentage.
Secunderabad . . .	N 11° W	S 21° W	5	12
Bellary . . .	N 9° W	S 37° W	2	11

Winds were almost as unsteady in South Madras and Mysore as in the East Deccan, *e.g.*:—

STATION.	DIRECTION.		STEADINESS.	
	Mean, April 1893.	Normal, April.	Actual percentage.	Normal percentage.
Bangalore . . .	S 77° E	S 33° W	7	52
Trichinopoly . . .	S 67° W	S 54° E	8	17
Salem	N 40° E	S 7° W	5	37

The mean winds at the West Coast stations did not differ to any important extent from the normal, and were somewhat steadier and probably slightly stronger than usual.

Humidity and Cloud.

The air contained slightly less aqueous vapour than usual in Lower Burma and at Port Blair. This feature had been very persistent in that area since the termination of the previous south-west monsoon rains. The deficiency was slightly less than in the previous four months. As temperature was lower than usual in this area, the humidity was normal. There was also slightly less aqueous vapour in East and South Bengal and Orissa, but the variations were small in amount and humidity was almost identical with the normal.

The air contained more vapour and was damper than usual in West Bengal, Chota Nagpur, Bihar, the North-Western Provinces, Rajputana, and Central India. The increased humidity was most largely shown in the western districts of the North-Western Provinces and in the East Punjab. The following gives data for four stations at which the humidity variations were greatest:—

STATION.	HUMIDITY.			AQUEOUS VAPOUR PRESSURE.		
	Average actual, April 1893.	Normal, April.	Variation from normal.	Average actual, April 1893.	Normal, April.	Variation from normal.
	%	%		″	″	″
Roorkee . .	47	34	+ 13	·437	·319	+ ·118
Lahore . .	48	37	+ 11	·451	·388	+ ·063
Ghazipur . .	43	32	+ 11	·531	·400	+ ·131
Lucknow . .	43	34	+ 9	·458	·406	+ ·052

The air was also damper in the Central Provinces, Berar and the Deccan, but the variations were much smaller than

in Northern India except at Secunderabad, where the humidity was 13 above the normal, and at Akola, where it was 8 in excess.

The amount of cloud was above the normal over the greater part of India. The excess was large at Port Blair and Diamond Island. It was generally in excess in Assam, Bengal, Orissa, Bihar and Chota Nagpur. The excess was largest at the coast stations of False Point (+2·0) and Saugor Island (+1·1) and at Dacca (+2·0) and decreased westwards up the Gangetic Plain. The cloud amount was practically normal in the North-Western Provinces, the Punjab and Rajputana, but was considerably in defect at the Sind stations. The mean cloud amount of the month was less than 1 at two stations only in the Indian area, *viz.*, Karachi (0·4) and Agra (0·8).

It was in slight to moderate excess over the greater part of the Deccan, the west coast districts, Berar, the Central Provinces, but was below the normal in Mysore and South Madras. The deficiency in these areas was greatest at Bangalore and Trichinopoly, for which data are given :—

Station.	Cloud.		
	Actual, April 1893.	Normal, April.	Variation from normal.
Bangalore	2·2	3·4	—1·2
Trichinopoly	3·3	4·5	—1·2

The mean amount of cloud during the month was below the normal to a moderate extent in the Western Himalayas, Baluchistan and at Aden, but was above it at the hill stations in the Eastern Himalayas. The following gives data for four representative stations :—

Station.	Cloud.		
	Actual, April 1893.	Normal, April.	Variation from normal.
Aden	1·3	2·7	—1·4
Leh	5·6	6·3	—0·7
Murree	4·2	5·4	—1·2
Darjeeling	7·5	6·1	+1·4

Rainfall.

The rainfall of the month was actually or practically *nil* over the greater part of South Rajputana, Cutch, Kattywar, Guzerat, Central India, the North Deccan and the south-eastern districts of the North-Western Provinces and the eastern districts of the North-Western Provinces.

Moderate to heavy rain was received in the following areas during the month :—

1st.—Burma, which obtained moderately heavy rain during the last four days of the month from the cyclonic storm of the month.

2nd.—Bengal and Assam. This area received frequent showers during the month, and a heavy burst of rain during the last three days from an advance of humid winds up the Bay.

3rd.—Southern India, including South and Central Madras, Mysore and Malabar, which obtained frequent thundershowers from the 20th to the 27th.

The chief periods of rainfall during the month were as follows :—

1st.—From the 2nd to the 5th in the Punjab, the North-Western Provinces and Bengal.

2nd.—From the 10th to the 14th, a period of feeble general disturbance and of numerous thunder storms. North Madras received moderate rain from the 10th to the 13th, the Bombay Deccan from the 12th to the 14th, Bengal on the 10th and 11th, and the Punjab on the 14th.

3rd.—From the 22nd to the end of the month. This rainfall was in part due to local thunderstorms and in part to a temporary advance of humid winds up the Bay. South and Central Madras obtained light to moderate daily rain during this period. Bengal and Assam received moderately heavy rain from the 22nd to the 24th, and again from the 27th to the 30th. Bihar and Chota Nagpur obtained occasional showers during these two periods. In the Deccan the rainfall chiefly occurred between the 25th to the 27th. Burma obtained general and moderately heavy rain between the 25th and the end of the month.

The following table gives comparative rainfall data of the 52 rainfall divisions of India based in the majority of cases upon the provincial rainfall statements, but in a few divisions upon the weekly district rainfall telegrams received at Simla:—

Province.	Division.	Number of Rainy Days.		Rainfall.		
		Average actual, April 1893.	Average normal, April.	Average actual, April 1893.	Averag normal April.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	8·07	3·24	+ 4·83
	Lower Burma*	?	?	5·95	1·60	+ 4·35
	Central do.*	?	?	1·91	1·19	+ 0·72
	Upper do.*	?	?	0·96	?	?
	Arakan*	?	?	1·15	1·53	− 0·38
Bengal and Assam	Eastern Bengal	5·2	5·4	5·14	4·05	+ 1·09
	Assam (Surma)	12·3	12·7	12·48	11·68	+ 0·80
	Do. (Brahmaputra)	14·4	12·1	11·71	7·88	+ 3·83
	Deltaic Bengal	3·5	3·7	2·56	2·56	0
	Central do.	3·9	2·4	2·66	1·39	+ 1·27
	North do.	10·0	4·9	7·55	3·38	+ 4·17
	Orissa	1·6	2·1	1·10	1·27	− 0·17
	Chota Nagpur	1·8	1·1	0·76	0·48	+ 0·28
	Bihar (South)	0·7	0·6	0·41	0·24	+ 0·17
	Do. (North)	2·4	1·3	1·67	0·80	+ 0·87
North-Western Provinces and Oudh.	North-Western Provinces (East)	0	0·4	0	0·14	− 0·14
	Oudh (South)	0·2	0·3	0·03	0·12	− 0·09
	Do. (North)	1·5	0·4	0·57	0·17	+ 0·40
	North-Western Provinces (Central)	0·1	0·3	0·05	0·10	− 0·05
	Do. do. (West)	0·2	0·4	0·05	0·12	− 0·07
	Do. do. (Sub-montane)	1·7	1·8	0·60	0·41	+ 0·19
Punjab	Punjab (South)	0·6	0·7	0·12	0·30	− 0·18
	Do. (Central)	0·7	0·8	0·21	0·34	− 0·13
	Do. (Sub-montane)	1·5	1·3	0·67	0·61	+ 0·06
	Do. (Hill Districts)	4·6	3·5	1·89	2·51	− 0·62
	Do. (North-West)	3·3	2·2	1·30	1·25	+ 0·05
	Do. (West)	1·8	1·0	0·78	0·49	+ 0·29
Bombay and Malabar Coast Districts (Madras).	Malabar	3·5	3·4	1·80	2·27	− 0·47
	Madras (South Central)	4·1	2·2	2·31	1·49	+ 0·82
	Coorg	3·4	?	1·10	?	?
	Mysore *	?	?	1·58	1·22	+ 0·36
	Konkan	0·6	0·6	0·25	0·29	− 0·04
	Bombay Deccan	2·3	1·8	0·95	0·80	+ 0·15
	Khandesh	0·5	0·3	0·18	0·12	+ 0·06
	Berar	0·3	?	0·10	0·23	− 0·13
Central Provinces and Berar.	Central Provinces (West)*	?	?	0·15	0·21	− 0·06
	Do. (Central)*	?	?	0·13	0·31	− 0·18
	Do. (East)*	?	?	0·30	0·57	− 0·27
Bombay (North)	Guzerat	1·3	0	0·04	0·01	+ 0·03
	Kattywar	0	0·1	0·01	0·08	− 0·07
	Sind	0·6	?	0·27	0·21	+ 0·06
Rajputana and Central India.	Central India (East)	0·2	?	0·06	0·12	− 0·06
	Rajputana (East), Central India (West)	0	?	0·01	0·08	− 0·07
	Do. (West)	0·1	?	0·03	0·06	− 0·03
Madras	East Coast (North)	2·2	1·0	1·84	0·52	+ 1·32
	Do. (do.) (a)	3·0	3·4	1·43	0·89	+ 0·54
	Hyderabad (South)*	?	?	0·10	0·63	− 0·53
	Madras (Central)	1·2	0·9	0·57	0·45	+ 0·12
	East Coast (Central)	0·6	0·4	0·17	0·19	− 0·02
	Do. (South)	1·5	0·9	0·88	0·60	+ 0·28
	Madras (South)	2·3	2·6	1·06	1·96	− 0·90

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

Assam received frequent rain during the month. The chief periods were from the 5th to the 10th, the 16th to the 23rd and the 28th to the 30th. The rainfall of the month was slightly in excess. The following gives data:—

Division.	Number of Rainy Days.		Rainfall.		
	Actual, April 1893.	Variation from normal.	Actual, April 1893.	Variation from normal.	Percentage variation.
			Inches.	Inches.	
Assam (Surma)	12·3	−0·4	12·48	+0·80	+ 7
Do. (Brahmaputra)	14·4	+2·3	11·71	+3·83	+49

The total rainfall of the month at Cherra Punji was 42·07 inches, and the heaviest fall in 24 hours was 8·45 inches registered at that station on the 19th.

In Bengal weather was drier than usual during the first three weeks. Local showers were received on the 5th and again on the 10th and 11th over the greater part of Bengal. No rain fell except in the northern districts of Jalpaiguri, Kuch Bihar and Darjeeling between the 11th and 21st. Weather was unsettled with frequent rain from the 22nd to the 30th. The rainfall was heaviest and most frequent in East and North Bengal. It was sporadic and local in character in Bihar and Chota Nagpur. The 29th and 30th were the days of most general rainfall, and the districts of Chittagong, Backergunge and Noakhali in East Bengal

received an exceptionally heavy downpour on the 30th. The following gives the most noteworthy falls:—

District.	Station.	Amount.
		Inches.
Noakhali	Noakhali	20·67
Backergunge	Daulatkhan	11·95
	Bhola	7·22
Chittagong	Mirsarai	10·63

The following gives a summary of the data in the provincial rainfall statement:—

Division.	Rainfall.			Number of rainy days.	
	Average actual.	Normal.	Percentage variation.	Average actual.	Normal.
	Inches.	Inches			
East Bengal	5·14	4·05	+27	5·2	5·4
Deltaic Bengal	2·56	2·56	0	3·5	3·7
Central "	2·66	1·39	+91	3·9	2·4
North "	7·55	3·38	+123	10·0	4·9
Orissa	1·10	1·27	−13	1·6	2·1
Chota Nagpur	0·76	0·48	+59	1·8	1·1
Bihar (South)	0·41	0·24	+71	0·7	0·6
" (North)	1·67	0·80	+109	2·4	1·3

The rainfall of the month was hence in excess in all districts except Orissa, where it was in slight defect. The excess was large in amount in North Bengal and Central Bengal.

The western and hill districts of the North-Western Provinces received some local showers chiefly on the 9th and 16th and the 27th and 28th. The falls were however small in amount and of little importance. The rainfall of the sub-montane and hill districts averaged nearly six-tenths of an inch. The rainfall of the month was practically *nil* in the remainder of the province.

The rainfall of the month in the south-western and southern districts of the Punjab was small in amount. In the northern and eastern districts light to moderate showers were received on the 3rd and 4th, the 8th and 14th. The total rainfall of April differed little from the normal except in the Simla district, where it was less than half the normal amount, and the Rawalpindi district, where it was in moderate defect. The following gives a summary of the provincial rainfall data:—

Division.	Rainfall.			Number of rainy days.	
	Average actual. April 1893.	Normal, April.	Percentage variation.	Average actual, April 1893.	Normal, April.
	Inches.	Inches.			
Punjab (South)	0·12	0·30	−60	0·6	0·7
" (Central)	0·21	0·34	−38	0·7	0·8
" (Sub-montane)	0·67	0·61	+10	1·5	1·3
" (Hill Districts)	1·89	2·51	−25	4·6	3·5
" (North-West)	1·30	1·25	+4	3·3	2·2
" (West)	0·78	0·49	+59	1·8	1·0

British Baluchistan received moderate rain during two periods, *viz.*, the 1st and 2nd and from the 14th to 18th. The total amounts varied very largely from place to place. Total amounts exceeding two inches were registered at three stations. The rainfall of the month was in slight excess.

A few light local showers of little importance fell in Rajputana, Central India and Berar, but the month was practically rainless in these areas.

The normal rainfall of the month does not exceed three-fourths of an inch in any part of the Central Provinces, and is usually due to hot weather storms. No rain fell over the province during the first three weeks of the month. A hot weather disturbance gave fairly general rain on the 23rd and 24th except in the eastern districts, where dry weather continued. Some local showers occurred in the western districts on the 25th and 26th. No rain fell during the remainder of the month except in the Bilaspur and Jubbulpore districts, which obtained showers on the 29th.

Practically or actually no rain fell in the Raipur, Balaghat, Wardha and Nagpur districts. Saugor, Damoh, Jubbulpore, Chhindwara, Hoshangabad and Nimar, on the other hand, received considerably more than their normal amounts. The excess was most marked in the Hoshangabad district, which obtained 0·36 inch, the normal being 0·02 inch.

The following table giving data for the larger divisions of the province shows that the rainfall of the month was practically normal in the Central Provinces west, and in considerable defect in the eastern and central districts:—

Division.	Number of rainy days.		Rainfall.		
	Actual, April 1893.	Normal, April.	Actual.	Normal.	Variation from normal.
			Inches.	Inches.	Inches.
Central Provinces (East)	0·4	1·0	0·15	0·55	−0·40
Ditto (Central)	0·3	0·7	0·12	0·29	−0·17
Ditto (West)	0·6	0·5	0·15	0·20	−0·05

The Deccan districts of Bombay had occasional rain, chiefly from thunderstorms. The chief periods of local rainfall were from the 12th to the 14th, the 19th and the 25th to the 27th. The rainfall was very irregularly distributed, but was on the average of all the stations in moderate excess. The following gives data:—

District.	Rainy days.		Rainfall.		
	Average actual, April 1893.	Normal, April.	Average actual, April 1893.	Normal, April.	Variation from normal.
			Inches.	Inches.	Inches.
Bijapur	2·0	1·7	0·84	0·78	+0·06
Belgaum	2·8	2·5	1·58	1·23	+0·35
Satara	2·5	1·5	0·94	0·71	+0·23
Sholapur	0·4	0·9	0·17	0·38	−0·21
Poona	1·3	0·8	0·42	0·30	+0·12
Ahmednagar	0·2	0·3	0·08	0·15	−0·07
Nasik	0·5	0·2	0·19	0·10	+0·09
Khandesh	0·7	?	0·22	0·02	+0·20

Little or no rain fell over the remainder of the presidency.

In the Madras Presidency there was almost daily rain from the 20th to the 27th, due apparently to a moderate temporary influx of humid winds from the adjacent seas. The coast districts of Kistna, Nellore and Chingleput did not share in this rainfall. The southern districts received occasional thundershowers during the second week of the month. The following gives a comparative statement of the rainfall in each collectorate:—

District.	Rainy days.		Rainfall.		
	Average actual, April 1893.	Normal, April.	Average actual, April 1893.	Normal, April.	Variation from normal.
			Inches.	Inches.	Inches.
Ganjam	2·4	1·6	1·65	0·77	+0·88
Vizagapatam	3·3	1·5	3·23	0·75	+2·48
Godavari	1·8	0·4	1·20	0·25	+0·95
Kistna	0·7	0·4	0·39	0·21	+0·18
Nellore	0·6	0·4	0·17	0·19	−0·02
Madras	0	0·7	0	0·63	−0·63
Chingleput	0·4	0·5	0·35	0·26	+0·09
North Arcot	2·4	0·7	1·23	0·35	+0·88
South do.	1·0	0·7	0·51	0·42	+0·09
Tanjore	1·4	1·2	0·78	0·91	−0·13
Trichinopoly	2·3	1·5	1·55	1·18	+0·37
Madura	2·8	2·6	1·45	2·25	−0·80
Tinnevelly	1·8	2·6	0·65	1·60	−0·95
Malabar	4·2	4·4	1·97	3·04	−1·07
South Canara	2·3	2·0	1·55	1·16	+0·39
Salem	4·1	2·0	2·28	1·17	+1·11
Coimbatore	4·2	2·5	2·35	1·87	+0·48
Nilgiris	4·8	5·5	2·33	3·58	−1·25
Cuddapah	1·6	0·7	0·70	0·34	+0·36
Annantapur	1·5	0·9	0·99	0·45	+0·54
Bellary	1·1	1·3	0·44	0·54	−0·10
Kurnool	0·5	0·9	0·16	0·48	−0·32

The table shows that the rainfall was unequally distributed, and was on the whole in excess. It was considerably above the average in the Vizagapatam, Godavari, North Arcot and Salem districts, and in moderate defect in the most southerly districts, *viz.*, Tinnevelly, Madura and Malabar.

Table

Abstract of Observations taken at 8 A.M. at 194

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.		...	...	−·019	...	...	...	...	...	...	...	92·5	−0·9	75·4	−0·5	84·1	−0·7	17·3	...	...	...	...	25·5
Bay Islands	Port Blair	61	29·818	?	29·810	29·931	9th	29·625	26th	·306	82·3	90·9	?	78·4	?	84·7	?	12·5	93·7	18th	76·0	27th	17·7
	Camorta	?	29·878	?	?	29·980	9th	29·769	18th	·211	82·5	87·9	?	77·4	?	82·6	?	10·5	89·7	12th & 15th.	74·2	27th	15·5
Tenasserim	Mergui	96	29·818	?	29·846	29·928	7th	29·708	15th	·220	81·0	90·6	?	?	?	?	?	?	94·1	16th	?	?	?
	Tavoy	26	29·895	?	29·852	30·003	6th	29·765	27th	·238	79·3	92·0	?	72·5	?	82·3	?	19·5	95·2	2 days	68·2	4th	27·0
	Moulmein*	94	29·817	−·002	29·848	29·925	9th	29·709	28th	·216	81·8	94·6	+0·3	76·9	+1·3	85·8	+0·8	17·7	98·4	15th	72·8	23rd	25·6
	Toungoo	181	29·689	−·013	29·812	29·821	10th	29·525	27th	·296	82·9	99·1	−1·1	74·9	+1·8	87·0	+0·4	24·2	103·7	3 days	70·2	4th	33·5
Lower Burma	Rangoon	41	29·841	−·028	29·819	29·972	9th	29·570	27th	·402	78·4	97·1	−0·8	74·8	−1·0	86·0	−0·9	22·3	102·1	12th	70·3	4th	31·8
	Bassein	27	29·864	−·016	29·827	29·982	9th	29·630	27th	·352	79·6	95·5	−0·2	74·3	−0·8	84·9	−0·5	21·2	99·7	3 days	70·9	4th	28·8
	Diamond Island.	41	29·853	−·031	29·829	29·977	10th	29·621	27th	·356	81·3	86·2	−2·4	76·6	−1·9	81·4	−2·2	9·6	88·6	4 days	73·9	1st	14·7
Arakan	Akyab	20	29·867	−·021	29·830	30·000	10th	29·678	27th	·322	80·4	90·8	−1·0	72·9	−2·4	81·9	−1·7	17·9	93·6	24th	68·0	5th	25·6
II.—Burma Inland		...	...	?	...	...	...	...	...	...	..	97·2	−2·2	70·5	−1·8	83·9	−2·0	26·6	...	...	...	...	40·9
Central Burma	Thayetmyo	134	29·734	+·011?	29·810	29·878	10th	29·587	28th	·291	82·0	100·8	−2·2	73·6	−1·8	87·2	−2·0	27·2	106·6	2 days	65·0	5th	41·6
	Mimbu	?	29·697	?	29·637	29·854	10th	29·556	28th	·298	82·2	103·3	?	71·9	?	87·6	?	31·4	105·1	2 days	70·1	6 days	39·0
	Yamethin	?	29·201	?	29·142	29·334	10th	29·075	27th	·259	82·2	100·8	?	74·9	?	87·9	?	25·9	108·1	15th	70·0	3 days	38·1
	Fort Stedman.	?	26·965	?	26·906	27·102	10th	26·815	28th	·287	78·0	90·9	?	64·5	?	77·8	?	26·4	98·1	2 days	57·0	13th	41·1
Upper Burma	Mandalay	?	29·590	?	29·536	29·733	10th	29·435	18th	·298	84·7	98·7	?	75·6	?	87·2	?	23·1	105·9	16th	63·2	1st	42·7
	Kendat	?	29·423	?	29·371	29·574	1st	29·219	28th	·355	75·3	93·7	?	68·1	?	80·9	?	25·6	102·8	20th	63·0	1st	39·8
	Bhamo	?	29·469	?	29·419	29·649	10th	29·291	28th	·358	73·6	91·9	?	65·1	?	78·6	?	26·8	99·1	15th	55·4	1st	43·7
III.—Assam		...	...	+·005	...	...	...	...	...	...	...	83·9	−2·3	67·6	−1·0	75·8	−1·7	16·3	...	...	...	...	32·4
Assam (Surma)	Silchar	104	29·778	+·002	29·835	29·931	10th	29·588	28th	·343	73·8	87·3	−0·3	67·8	−1·1	77·6	−0·7	19·5	93·5	15th	61·4	10th	32·1
Brahmaputra	Sibsagar	333	29·553	0	29·849	29·740	10th	29·360	28th	·380	69·3	80·7	−2·0	65·8	−0·5	73·3	−1·3	14·9	90·2	15th	59·3	1st	30·9
	Dhubri	115	29·729	+·014	29·800	29·914	10th	29·511	18th	·403	72·7	83·7	−4·6	69·2	−1·5	76·5	−3·1	14·5	95·5	20th	61·4	2 days	34·1
IV.—Bengal and Orissa		...	...	−·004	...	...	...	...	...	...	...	91·3	−3·2	73·6	−0·8	82·8	−2·0	18·2	...	...	...	...	32·9
East Bengal	Chittagong	87	29·788	−·011	29·823	29·927	10th	29·626	28th	·301	78·4	87·8	−0·6	72·3	−1·2	80·0	−0·9	15·5	92·7	2 days	67·6	23rd	25·1
	Lungleh	?	?	?	?	?	?	?	?	?	67·7	76·5	?	?	?	?	?	?	82·8	16th	?	?	?
	Noakhali	43	29·802	?	29·793	30·001	11th	29·653	30th	·348	77·7	84·4	?	69·7	?	77·1	?	14·7	94·7	15th	63·6	11th	31·1
	Comilla	35	29·819	?	29·803	29·983	10th	29·643	28th	·340	78·5	89·7	?	71·3	?	80·5	?	18·4	95·3	16th	64·4	11th	30·9
	Sirajganj	46	29·782	?	29·778	29·955	11th	29·588	29th	·367	77·5	91·3	?	71·2?	?	81·3?	?	20·1?	100·7	19th	57·8?	23rd	42·9 ?
	Dacca	22	29·814	−·002	29·784	29·985	10th	29·645	2 days	·340	78·8	90·2	−3·0	73·1	−1·3	81·7	−2·2	17·1	96·1	19th	65·7	11th	30·4
	Barisal	13	29·830	+·005	29·788	29·994	10th	29·649	30th	·345	80·1	89·3	?	73·6	?	81·4	?	15·7	94·3	2 days	66·0	11th	28·3
	Mymensingh	59(a)	29·784	+·013	29·795	29·945	11th	29·597	18th	·346	75·9	87·5	?	71·5	?	79·5	?	16·0	96·1	19th	63·9	9th	32·2
Deltaic Bengal	Faridpur	46	29·802	?	29·796	29·978	11th	29·626	28th	·352	78·1	88·5	?	72·0	?	80·3	?	16·5	97·5	19th	65·0	11th	32·5
	Jessore	33	29·788	−·007	29·768	29·960	11th	29·591	29th	·369	80·6	93·5	−3·9	74·1	−0·9	83·8	−2·4	19·4	101·5	19th	67·5	11th & 23rd	34·0
	Calcutta	21	29·793	−·005	29·760	29·958	11th	29·594	29th	·364	80·9	92·4	−3·2	75·1	−0·5	83·8	−1·9	17·3	96·6	19th	69·7	23rd	26·9
	Saugor Island	25	29·795	−·012	29·764	29·956	10th	29·591	29th	·365	82·2	88·7	−2·1	79·0	−0·7	83·9	−1·4	9·7	97·2	23rd	71·0	24th	26·2
	Krishnagar	47	29·762	?	29·758	29·936	11th	29·561	29th	·375	80·5	95·7	?	74·1	?	85·0	?	21·6	103·0	21st	67·4	11th	35·6
	Midnapore	149	29·663	?	29·759	29·823	11th	29·467	29th	·356	81·6	98·6	?	75·2	?	86·9	?	23·4	107·4	18th & 22nd	70·2	24th	37·2
Central Bengal	Bankura	298	29·478	?	29·727	29·645	11th	29·268	28th	·377	81·6	99·3	?	74·8	?	87·1	?	24·5	108·1	20th	69·1	7th	39·0
	Raniganj	334	29·460	?	29·747	29·647	10th	29·243	28th	·404	80·7	100·0	?	74·4	?	87·2	?	25·6	107·0	18th & 20th	68·9	3 days	38·1
	Burdwan	99	29·714	+·002	29·761	29·884	11th	29·497	28th	·387	79·8	96·8	−3·8	74·9	−0·[illegible]	85·9	−2·2	21·9	105·7	18th	70·7	24th	35·0

Mean of 27 days.
(a) From 20th April 1893.

I.

Stations in India, Burma, etc., in April 1893.

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 30th April 1893.	Normal rainfall for period 1st March to 30th April 1893.	Variation from normal of period 1st March to 30th April.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·92	2·42	+ 3·48	...	...	...	**I.—Burma Coast and Bay Islands.**	
12	1	3	2	3	1	2	4	2	4	5	−20	85	·934	5·2	11	?	?	18·91	2·18	+ 6·73	9·23	2·65	+ 6·58	Port Blair	Bay Islands.
5	8	2	2	2	7	2	1	1	4	?	?	82	·910	5·7	9	?	?	6·10	?	?	9·85	?	?	Camorta	
...	7	2	4	9	3	...	...	5	2	2	0	80	·842	5·4	10	?	?	6·72	5·46	+ 1·26	10·47	?	?	Mergui	Tenasserim.
29	...	...	...	...	1	...	...	...	2	?	?	85	·843	2·3	12	?	?	9·79	3·83	+ 5·96	15·07	4·57	+10·50	Tavoy.	
...	...	4	6	8	6	3	...	...	4	3	+33	77	·836	2·0	7	4·00	+3·00	6·66	2·64	+ 4·02	8·01	3·05	+ 4·96	Moulmein.	
5	...	...	1	10	13	1	...	...	3	4	−25	71	·783	2·9	4	2·82	+1·18	2·10	1·89	+ 0·21	2·15	1·93	+ 0·22	Toungoo.	
...	2	1	1	...	4	13	9	...	5	6	−17	82	·805	3·2	4	2·18	+1·82	9·62	1·75	+ 7·87	10·06	1·82	+ 8·24	Rangoon	Lower Burma.
1	...	2	1	1	1	1	2	21	6	5	+20	83	·839	3·9	5	2·09	+2·91	6·35	1·40	+ 4·95	6·63	1·43	+ 5·20	Bassein.	
9	...	1	2	...	1	1	2	14	12	7	+71	77	·822	4·9	5	1·09	+3·81	1·60	1·34	+ 0·26	1·60	1·34	+ 0·26	Diamond Island.	
...	13	8	2	1	5	1	...	...	4	4	0	79	·819	4·1	2	1·00	+1·00	1·35	1·25	+ 0·10	1·35	1·62	− 0·27	Akyab	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·25	0·98	+0·48	...	...	...	**II.—Burma Inland.**	
...	...	2	...	2	23	3	...	...	5	7	−29	61	·657	1·7	2	1·09	+0·91	1·13	0·69	+ 0·44	1·13	0·69	+0·44	Thayetmyo	Central Burma.
...	4	2	...	19	...	1	2	2	9	?	?	58	·630	0·5	1	?	?	0·39	?	?	0·39	?	?	Minbu.	
...	2	2	2	13	9	...	...	2	9	?	?	65	·709	1·6	1	?	?	0·20	?	?	0·55	?	?	Yamethin.	
17	..	1	...	...	1	9	2	...	?	?	?	56	·518	2·4	6	?	?	2·34	?	?	2·99	?	?	Fort Stedman.	
2	...	...	...	2	18	5	...	3	6	?	?	50	·591	2·3	4	?	?	1·69	0·76	+ 0·93	2·13	0·94	+ 1·19	Mandalay	Upper Burma.
15	2	...	1	...	...	1	6	5	2	?	?	74	·650	4·1	4	?	?	1·71	0·96	+ 0·75	2·85	1·46	+ 1·39	Kendat.	
5	5	7	1	1	1	1	...	9	?	?	?	72	·603	3·4	5	?	?	1·30	1·51	− 0·21	2·30	2·32	− 0·02	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·45	9·58	−0·12	...	...	...	**III.—Assam.**	
11	...	5	8	4	1	...	1	...	6	3	+100	85	·706	6·2	12	14·55	−2·55	9·44	15·07	− 5·63	14·97	24·36	− 9·39	Silchar	Assam (Surma).
5	...	16	2	2	...	4	...	1	2	3	−33	93	·668	6·6	17	13·55	+3·45	11·34	8·64	+ 2·70	15·36	13·37	+ 1·99	Sibsagar	Brahmaputra.
2	3	17	6	2	...	...	...	...	8	8	0	85	·687	7·1	15	6·71	+8·29	7·58	5·02	+ 2·56	9·29	7·74	+ 1·55	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·34	2·43	+1·00	...	...	...	**IV.—Bengal and Orissa.**	
1	2	3	4	9	7	1	1	2	5	7	−14	84	·819	3·5	4	4·18	−0·18	4·43	3·56	+ 0·87	6·36	6·43	− 0·07	Chittagong	East Bengal.
					Not recorded.				?	?	?	80	·546	?	2	?	?	4·40	?	?	8·15	?	?	Lungleh.	
1	3	4	1	7	4	7	1	2	6	?	?	75	·793	4·6	4	4·35	−0·35	22·39	4·23	+18·16	25·36	7·78	+18·08	Noakhali.	
1	...	1	7	11	7	2	1	...	6	?	?	81	·786	4·9	7	6·47	+0·53	3·48	5·20	− 1·72	6·20	8·96	− 2·76	Comilla.	
10	...	1	5	6	7	1	...	...	3	?	?	85	·803	5·4	3	4·21	−1·21	2·49	2·78	− 0·29	6·52	4·06	+ 2·46	Sirajganj.	
3	1	...	6	6	10	4	...	...	8	7	+14	83	·817	6·4	5	6·30	−1·30	6·21	5·10	+ 1·11	12·34	8·84	+ 3·50	Dacca.	
18	...	...	...	...	7	5	...	...	5	?	?	84	·871	5·6	6	4·65	+1·35	6·91	3·47	+ 3·44	8·37	5·98	+ 2·39	Barisal.	
1	...	7	13	7	2	...	...	...	6	?	?	85	·763	5·4	8	5·90	+2·10	6·93	4·05	+ 1·88	9·34	6·24	+ 3·10	Mymensingh.	
3	...	...	2	7	15	2	...	1	5	?	?	87	·846	4·3	8	5·70	+2·30	9·18	3·74	+ 5·44	12·70	6·67	+ 6·03	Faridpur	Deltaic Bengal.
7	...	2	...	7	9	3	2	...	4	4	0	86	·898	6·5	5	4·82	+0·18	2·39	3·67	− 1·28	4·67	6·54	− 1·87	Jessore.	
2	...	1	1	2	9	14	1	...	6	7	−14	80	·848	3·7	1	2·73	−1·73	0·17	1·71	− 1·54	2·02	3·11	− 1·09	Calcutta.	
...	...	1	...	2	21	6	...	...	18	17	+ 6	82	·906	6·4	2	2·36	−0·36	1·16	1·25	− 0·09	4·92	2·80	+ 2·12	Saugor Island.	
...	...	...	4	5	14	4	3	...	7	?	?	79	·826	4·5	3	3·35	−0·35	2·89	2·49	+ 0·40	4·72	3·97	+ 0·75	Krishnagar.	
2	...	1	...	6	20	1	...	...	11	?	?	75	·806	1·7	3	2·85	+0·15	1·90	1·50	+ 0·40	3·90	2·96	+ 0·94	Midnapore.	
6	1	...	3	4	9	3	3	1	4	?	?	66	·710	2·8	4	2·80	+1·20	1·59	1·46	+ 0·13	3·07	2·71	+ 0·36	Bankura	Central Bengal.
3	1	3	1	10	5	3	3	1	3	?	?	68	·718	0·2	3	2·15	+0·85	1·36	1·26	+ 0·10	1·83	1·91	− 0·08	Raniganj.	
5	...	1	3	1	9	11	...	...	8	5	+60	78	·792	4·5	4	3·09	+0·91	1·36	1·99	− 0·63	4·46	3·36	+ 1·10	Burdwan.	

Table

Abstract of Observations taken at 8 A.M. at 195 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Bengal —*contd.*	Naya Dumka	489	29·290	?	29·734	29·473	11th	29·092	28th	·381	82·7	97·7	?	73·7	?	85·7	?	24·0	106·2	20th & 21st	67·4	7th	38·8
	Berhampore	67	29·739	—·002	29·755	29·919	11th	29·533	28th	·386	77·5	95·1	−5·2	73·7	−0·6	84·4	−2·9	21·4	105·2	21st	66·7	11th	38·5
	Rampur Boalia.	70	29·735	?	29·755	29·912	11th	29·533	28th	·379	79·2	92·5	?	72·2	?	82·4	?	20·3	102·5	21st	65·7	23rd	36·8
	Malda .	80	29·719	?	29·751	29·915	10th	29·533	18th	·382	79·1	93·6	?	71·3	?	82·5	?	22·3	103·7	20th	65·2	24th	38·5
	Bogra .	61	29·763	+·036?	29·777	29·926	10th	29·583	18th	·343	77·2	91·8	?	70·9	?	81·4	?	20·9	102·3	20th	62·2	10th	40·1
North Bengal .	Dinajpur .	118	29·706	—·004	29·778	29·904	10th	29·505	18th	·399	75·8	90·7	?	71·1	?	80·9	?	19·6	103·1	2 days	63·8	10th	39·3
	Rangpur .	123	29·709	?	29·787	29·902	10th	29·494	18th	·408	74·3	87·7	?	69·0	?	78·4	?	18·7	99·8	21st	62·9	10th	36·9
	Jalpaiguri .	284	29·564	+·029?	29·806	29·755	10th	29·361	18th	·394	74·0	85·7	?	68·3	?	77·0	?	17·4	91·9	2 days	62·6	9th	29·3
Orissa . .	Balasore .	56	29·755	—·012	29·757	29·908	11th	29·552	29th	·356	81·3	93·1	?	74·9	?	84·0	?	18·2	102·5	23rd	66·8	24th	35·7
	False Point .	21	29·814	—·008	29·777	29·950	11th	29·623	30th	·327	82·4	87·3	−3·7	77·2	−0·4	82·3	−2·1	10·1	97·0	22nd	67·0	24th	30·0
	Cuttack .	80	29·730	—·015	29·752	29·862	10th	29·534	28th	·328	82·6	98·9	−3·4	77·1	−0·8	88·0	−2·1	21·8	105·1	21st	70·3	23rd	34·8
	Shortt's Island	?	29·806	?	?	29·955	11th	29·607	29th	·348	82·6	87·7	?	78·1	?	82·9	?	9·6	91·4	23rd	72·6	24th	18·8
	Puri . .	15	29·804	?	29·754	29·936	11th	29·612	30th	·324	81·2	87·1	?	78·5	?	82·9	?	8·6	94·7	22nd	72·6	23rd	22·1
V.—Gangetic Plain and Chota Nagpur.		...	...	**−·013**	...	...	...	...	...	...	...	**98·3**	**−2·5**	**71·3**	**−0·7**	**84·8**	**−1·6**	**26·9**	...	...	...	...	**41·9**
Chota Nagpur .	Hazaribagh	2,007	27·785	—·027	29·715	27·937	11th	27·568	28th	·369	81·4	95·9	−2·3	70·3	−1·8	83·1	−2·1	25·6	102·2	16th	62·8	24th	39·4
	Ranchi .	2,128	27·673	?	29·724	27·817	11th	27·458	28th	·359	79·4	94·6	?	69·6	?	82·1	?	25·0	101·0	17th	61·2	24th	39·
	Chaibassa .	760	29·040	+·007?	29·745	29·193	11th	28·817	28th	·376	81·7	100·2	?	73·6	?	86·9	?	26·6	106·6	20th	66·2	6th	0·4
Bihar (South) .	Gaya . .	375	29·393	—·023	29·721	29·564	11th	29·200	30th	·364	81·4	100·7	−2·9	72·3	−1·7	86·4	−2·3	28·4	107·4	16th	64·9	22nd	42·5
	Dehri . .	351	29·404	?	29·708	29·577	10th	29·149	28th	·428	83·2	100·7	?	73·9?	?	87·3?	?	26·8?	107·2	16th	66·6	1st	40·6
	Patna . .	183	29·597	—·010	29·732	29·735	10th	29·364	28th	·431	82·1	97·8	−3·2	72·8	−0·4	85·3	−1·8	25·0	105·6	22nd	65·7	6th	39·9
	Arrah . .	190	29·581	?	29·723	29·768	10th	29·339	28th	·429	82·3	99·5	?	72·7	?	86·1	?	26·8	106·3	17th	65·1	6th	41·2
	Buxar . .	239	29·530	?	29·724	29·712	10th	29·297	28th	·415	82·6	99·5	?	72·8	?	86·2	?	26·7	106·5	16th	65·8	6th	40·7
Bihar (North) .	Purnea .	125	29·677	+·006	29·756	29·870	10th	29·489	28th	·381	77·3	94·4	−3·0	70·8	+1·4	82·6	−0·8	23·6	105·3	20th	63·3	24th	42·0
	Bhagalpur .	160	29·620	?	29·734	29·806	11th	29·430	28th	·376	80·2	96·5	?	71·8	?	84·2	?	24·7	106·3	21st & 22nd	66·0	10th	40·3
	Darbhanga .	166	29·631	+·001	29·752	29·837	10th	29·430	28th	·407	78·7	94·1	−2·2	71·9	+0·1	83·0	−1·1	22·2	102·8	21st	66·4	1st	36·4
	Muzaffarpur	178	29·606	?	29·738	29·803	10th	29·385	28th	·418	78·4	95·5	?	70·8	?	83·2	?	24·7	103·7	21st	65·3	1st	38·4
	Motihari .	224	29·554	?	29·737	29·755	10th	29·351	28th	·404	79·1	95·6	?	69·1	?	82·4	?	26·5	104·2	21st	62·3	1st	41·9
	Chapra .	181	29·597	?	29·732	29·784	10th	29·384	28th	·400	80·6	98·1	?	72·0	?	85·1	?	26·1	105·3	22nd	64·4	6th	40·9
N.-W. P. (Eastern Districts).	Benares .	267	29·502	—·016	29·725	29·682	10th	29·252	28th	·430	81·1	101·5	−2·1	70·6	−1·6	86·1	−1·5	30·9	108·8	16th	62·7	11th	46·1
	Allahabad .	309	29·455	—·027	29·718	29·645	10th	29·194	28th	·451	83·5	102·9	−1·1	72·1	+0·1	87·5	−0·5	30·8	109·4	15th	63·4	5th & 6th	46·0
N.-W. P. (East Submontane).	Gorakhpur .	256	29·524	+·006	29·740	29·719	10th	29·317	28th	·402	80·2	97·7	−3·3	71·2	−1·1	84·5	−2·2	26·5	104·3	21st	63·3	7th	41·0
Oudh (South) .	Lucknow .	375	29·377	—·030	29·714	29·571	10th	29·129	28th	·442	79·3	100·2	−2·0	70·0	−1·0	85·1	−1·5	30·2	107·3	3 days	60·0	10th	47·3
Oudh (North) .	Bahraich .	403	29·361?	?	29·726?	29·546?	10th	29·160?	28th	·386?	81·3	97·6	?	?	?	?	?	?	105·0	18th	?	?	?
N.-W. Provinces (Central).	Cawnpore .	416	29·355	?	29·729	29·549	10th	29·135	28th	·414	82·8	100·0	?	70·6	?	85·3	?	29·4	106·6	15th	60·5	10th	46·1
	Mainpuri .	516	29·236	?	29·712	29·423	10th	29·018	30th	·405	80·7	101·5	?	69·9	?	85·8	?	31·6	109·2	20th	62·0	3 days	47·2
VI.—Upper Sub-Himalayas		...	...	**−·010**	...	...	...	...	...	...	...	**93·1**	**−2·9**	**65·6**	**−0·6**	**79·4**	**−1·8**	**27·5**	..	...	...	...	**45·6**
N.-W. Provinces (Submontane).	Bareilly .	568	29·192	—·002	29·727	29·372	10th	28·976	30th	·396	78·0	95·9	−3·5	67·1	−1·4	81·5	−2·5	28·8	103·4	15th	58·7	6th & 10th	44·7
	Dehra Dun .	2,233	27·569	—·015	29·763	27·735	3rd	27·361	29th	·374	70·9	87·8	−1·9	62·2	−1·6	75·0	−1·8	25·6	94·0	16th	54·5	4th & 9th	39·5
	Roorkee .	887	28·873	—·007	29·734	29·084	1st	28·654	30th	·380	75·4	94·5	−3·4	64·6	−2·0	79·5	−2·7	29·9	101·7	16th	55·4	10th	46·3
	Meerut .	738	29·025	—·004	29·732	29·201	10th	28·798	27th	·403	77·9	96·3	−2·0	66·6	−1·3	81·5	−1·7	29·7	102·3	14th & 15th	57·0	5th	45·3
Punjab (Central)	Delhi . .	718	29·042	—·015	29·725	29·228	10th	28·796	27th	·432	79·6	96·4	−4·0	72·3	−0·9	84·4	−2·5	24·1	102·2	3 days	61·1	5th	41·1
	Lahore .	702	29·052	—·014	29·729	29·290	4th	28·830	30th	·460	77·3	95·0	−1·4	64·3	−0·2	79·7	−0·8	30·7	103·3	24th & 30th.	53·7	4th	49·6

I—*continued.*

in India, Burma, etc., in April 1893—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 30th April 1893.	Normal rainfall for period 1st March to 30th April 1893.	Variation from normal of period 1st March to 30th April 1893.	Station.	Meteorological Province or District.
3	...	...	5	9	8	2	2	1	2*	?	?	62	·686	1·1	2	2·44	−0·44	1·16	0·99	+ 0·17	3·15	1·69	+ 1·46	Naya Dumka.	Central Bengal—*contd.*
...	1	1	8	2	13	4	1	...	5	5	0	89	·844	4·7	7	2·45	+4·55	3·92	1·41	+ 2·51	5·27	2·61	+ 2·66	Berhampore.	
3	...	3	1	9	6	8	...	...	5	?	?	84	·818	3·7	4	2·56	+1·44	5·04	1·42	+ 3·62	6·68	2·23	+ 4·45	Rampur Boalia.	
1	...	5	...	14	3	7	...	...	4	?	?	80	·799	2·9	5	1·55	+3·45	3·54	0·94	+ 2·60	4·95	1·68	+ 3·27	Malda.	
3	...	4	14	9	...	...	...	...	4	?	?	82	·771	3·1	7	3·50	+3·50	3·89	2·29	+ 1·60	6·38	3·13	+ 3·25	Bogra.	
...	...	12	12	3	2	...	...	1	5	?	?	80	·710	5·3	8	2·60	+5·40	5·06	1·89	+ 3·17	5·37	2·79	+ 2·58	Dinajpur .	North Bengal.
1	...	7	18	1	2	...	1	...	4†	?	?	85	·720	2·0	9	4·40	+4·60	7·15	3·14	+ 4·01	7·61	4·44	+ 3·17	Rangpur.	
3	1	3	15	7	...	...	...	1	5	?	?	80	·676	5·9	9	5·79	+3·21	5·35	4·20	+ 1·15	7·80	6·03	+ 1·77	Jalpaiguri.	
...	3	1	...	...	7	14	5	...	9	?	?	83	·685	2·0	3	3·85	−0·85	2·57	2·54	+ 0·03	5·07	3·92	+ 1·15	Balasore .	Orissa.
...	...	1	1	...	11	16	1	...	15	14	+ 7	81	·895	5·9	2	1·18	+0·82	1·18	0·64	+ 0·54	2·69	2·02	+ 0·67	False Point.	
5	...	...	1	1	7	14	2	...	5	5	0	71	·795	4·3	2	1·00	+1·00	0·59	0·65	− 0·06	3·79	1·79	+ 2·00	Cuttack.	
...	...	...	...	...	6	24	...	...	10	?	?	81	·904	3·0	1	?	?	0·55	?	?	2·76	?	?	Shortt's Island	
2	1	...	...	1	2	21	3	...	14	?	?	84	·899	4·0	0	0·90	−0·90	0·07	0·55	− 0·48	1·12	1·07	+ 0·05	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·01	0·38	+0·63	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
...	...	...	...	3	13	4	6	4	9	8	+ 13	42	·432	1·7	3	0·73	+2·27	0·42	0·31	+ 0·11	2·19	1·13	+ 1·06	Hazaribagh.	Chota Nagpur.
4	1	...	1	5	4	11	2	2	7	?	?	56	·552	0·9	5	1·75	+3·25	0·92	0·64	+ 0·28	3·59	1·73	+ 1·86	Ranchi.	
4	...	2	...	...	5	11	6	2	2	?	?	63	·690	1·7	4	1·55	+2·45	0·80	0·67	+ 0·13	3·54	1·88	+ 1·66	Chaibassa.	
...	...	...	4	1	21	1	3	...	6	4	+50	64	·682	1·4	1	0·27	+0·73	0·68	0·15	+ 0·53	1·27	0·79	+ 0·48	Gaya . .	Bihar (South).
...	1	1	4	4	7	8	3	2	3	?	?	46	·513	1·1	0	0·29	− 0·29	0	0·11	− 0·11	1·19	0·81	+ 0·38	Dehri.	
1	...	4	15	2	2	1	5	...	6	4	+ 50	55	593	1·2	1	0·36	+0·64	1·90	0·18	+ 1·72	2·26	0·59	+ 1·67	Patna.	
...	1	5	7	5	3	2	6	1	4	?	?	56	·597	0·3	0	0·50	−0·50	0·04	0·22	− 0·18	0·43	0·56	−0·13	Arrah.	
...	2	1	12	1	1	...	11	2	6	?	?	49	·542	1·9	0	0·40	−0·40	0·06	0·17	− 0·11	0·94	0·45	+0·49	Buxar.	
1	3	7	14	4	...	...	...	1	5	4	+ 25	77	·719	1·4	4	1·64	+2·36	5·05	1·14	+ 3·91	5·13	1·63	+3·50	Purnea .	Bihar (North).
14	1	3	6	5	1	...	...	...	2	?	?	66	·661	1·8	3	1·35	+1·65	3·78	0·77	+ 3·01	3·90	1·10	+2·80	Bhagalpur.	
...	...	4	14	8	1	1	2	...	6	6	0	67	·651	1·4	3	1·45	+1·55	1·21	0·58	+ 0·63	1·39	0·92	+0·47	Darbhanga.	
1	...	5	13	8	...	...	2	1	5	?	?	72	·693	1·8	2	1·05	+0·95	1·66	0·58	+ 1·08	2·19	1·00	+1·19	Muzaffarpur	
...	...	6	12	7	...	1	3	1	7	?	?	63	·621	2·2	2	1·35	+0·65	2·41	0·78	+ 1·63	2·61	1·15	+1·46	Motihari.	
2	...	2	11	5	...	5	3	2	6	?	?	63	·652	1·4	0	0·65	−0·65	0·09	0·28	− 0·19	1·07	0·57	+0·50	Chapra.	
10	1	1	5	1	2	4	6	...	5	5	0	55	·592	1·2	0	0·27	−0·27	0	0·13	− 0·13	0·53	0·30	+0·23	Benares .	N.-W. P. (Eastern Districts).
1	2	5	5	3	2	1	7	4	6	4	+ 50	39	·448	1·2	0	0·55	−0·55	0·03	0·17	− 0·14	1·05	0·37	+0·68	Allahabad.	
...	5	5	9	1	3	1	5	1	3	4	− 25	56	·577	1·4	2	0·73	+1·27	0·99	0·48	+ 0·51	1·48	0·74	+0·74	Gorakhpur .	N.-W. P. (East Submontane).
20	2	...	4	...	...	...	4	...	2	4	− 50	49	·484	2·0	1	0·27	+0·73	0·17	0·08	+ 0·09	0·31	0·31	0	Lucknow.	Oudh (South).
...	2	4	...	4	2	5	7	6	5	?	?	58	·624	0·9	2	?	?	0·83	0·34	+ 0·49	3·40	0·81	+2·59	Bahraich .	Oudh (North).
1	2	2	5	6	3	3	4	4	5	?	?	49	·547	0·9	0	0·50	−0·50	0·05	0·11	− 0·06	0·50	0·35	+0·15	Cawnpore .	N.-W. Provinces (Central).
14	...	3	2	5	1	...	...	5	1	?	?	44	·465	1·7	0	?	?	0·11	0·12	− 0·01	0·23	0·36	−0·13	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·84	0·65	+ 0·19	...	...	...	**VI.—Upper Sub-Himalayas.**	
11	4	2	1	6	1	...	1	4	2	5	− 60	54	·516	2·0	2	0·45	+1·55	0·89	0·16	+ 0·73	2·32	1·15	+1·17	Bareilly .	N.-W. Provinces (Submontane).
29	...	...	...	...	...	...	...	1	2*	3	− 33	57	·436	3·0	1	1·45	−0·45	0·48	0·65	− 0·17	2·26	2·13	+0·13	Dehra Dun.	
17	1	...	3	4	1	1	...	3	3	3	0	55	·479	2·0	2	1·18	+0·82	0·51	0·46	+ 0·05	1·61	1·29	+0·32	Roorkee.	
5	...	2	8	...	...	1	10	4	2	2	0	48	·448	0·8	1	0·73	+0·27	0·28	0·31	− 0·03	0·98	1·33	−0·35	Meerut.	
7	1	...	1	8	1	4	7	1	3	4	− 25	45	·445	1·1	1	0·64	+0·36	0·32	0·21	+ 0·11	1·74	0·77	+0·9	Delhi . .	Punjab (Central).
7	4	4	3	5	2	...	2	3	2	3	− 33	53	·491	1·9	2	1·45	+0·55	0·49	0·38	+ 0·11	1·13	1·07	+ ·06	Lahore.	

* Mean of 28 days.
† „ „ 29 „

Table

Abstract of observations taken at 8 A.M. at 195 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Submontane).	Umballa	902?	28·870	?	29·740	29·057	4th	28·648	29th	·409	76·8	94·8	?	64·9*	?	80·0*	?	29·9	102·0	16th	52·3	9th	49·7
	Ludhiana	812	28·945	−·013	29·731	29·171	4th	28·717	30th	·454	76·4	94·3	−3·1	67·2	+0·8	80·8	−1·2	27·1	100·5	27th	55·2	4th	45·3
Punjab (North)	Sialkot	830	28·933	0	29·742	29·153	4th	28·694	30th	·459	75·7	91·1	−3·7	66·5	+0·6	78·9	−1·6	24·6	102·7	30th	53·2	4th	49·5
	Rawalpindi	1,649	28·127	−·017	29·737	28·348	4th	27·949	28th	·399	69·2	84·8	−3·2	60·0	+0·6	72·4	−1·3	24·8	94·5	30th	50·0	4th	44·5
VII.—Indus Valley and N.-W. Rajputana.		...	...	−·026	...	...	...	...	...	...	...	98·5	+2·0	69·2	+1·3	84·1	+1·7	29·3	...	...	...	...	50·4
Punjab (West)	Peshawar	1,110	28·707	−·018	29·764	28·979	4th	28·527	27th	·452	73·4	87·1	+0·9	63·3	+3·1	75·2	+2·0	23·8	102·0	30th	51·5	4th	50·5
	Mardan	?	?	?	?	?	...	?	...	?	71·0	93·1	?	60·0	?	76·6	?	33·1	103·0	30th	52·0	8th	51·0
	Khushab	612	29·154	?	29·739	29·432	4th	28·966	30th	·466	78·0	93·5	?	67·7	?	80·6	?	25·8	104·0	25th	57·1	4th	46·9
	Montgomery	558	29·198	?	29·724	29·482	4th	28·987	26th	·495	81·6	99·2	?	67·4	?	83·3	?	31·8	109·9	25th	54·3	4th	55·6
	D. I. Khan	573	29·196	−·038?	29·743	29·499	4th	28·986	26th	·513	78·2	94·7	+0·9	66·5	+1·3	80·6	+1·1	28·2	105·1	30th	55·7	4th	49·4
	Mooltan	420	29·354	−·022	29·746	29·648	4th	29·158	21st	·490	79·8	100·5	+3·5	69·7	+2·7	85·1	+3·1	30·8	112·4	28th	59·2	3rd	53·2
	Sirsa	662	29·076?	?	29·704?	29·340?	4th	28·842?	27th	·498?	79·6	101·6	+1·5	68·0	+0·1	84·9	+0·8	33·6	110·4	27th	56·3	4th	54·1
Sind and Cutch	Jacobabad	186	29·599	−·006	29·746	29·885	4th	29·392	22nd	·493	82·7	104·5	+2·9	70·0	+1·7	87·3	+2·3	34·5	117·1	25th	58·4	3rd	58·7
	Hyderabad	117	29·684	−·022	29·754	29·907	4th	29·481	26th	·426	81·3	104·0	+2·5	73·1	+1·5	88·6	+2·0	30·9	115·2	25th	63·6	4th	51·6
	Kurrachee	49	29·784	−·032	29·785	29·985	4th	29·610	23rd	·375	78·8	91·4	+2·3	73·4	+1·2	82·4	+1·8	18·0	107·7	29th	64·9	4th & 5th.	42·8
	Bhuj†	395	29·394	−·054	29·737	29·582	11th	29·264	27th	·318	84·1	102·7	+1·9	72·9‡	+1·5	88·0‡	+1·7	29·8	114·0	30th	67·9	15th	45·1
Rajputana (West)	Bikaneer	753	29·009	?	29·718	29·244	4th	28·760	27th	·484	82·7	102·1	+1·7	77·8§	−1·5	91·9§	+0·1	24·3	111·9	26th	71·7	23rd	40·2
	Pachpadra	380	29·429	?	29·764	29·667	4th	29·175	27th	·492	82·2	106·1	?	70·3	?	88·2	?	35·8	115·0	27th	60·3	5th & 6th.	54·7
VIII.—East Rajputana, Central India and Guzerat.		...	...	−·015	...	...	...	...	...	...	...	100·5	+0·9	72·5	+1·1	86·5	+0·9	28·0	...	...	...	...	45·4
Rajputana (East)	Jeypore	1,431	28·374	−·018	29·753	28·555	4th	28·117	27th	·438	82·8	101·3	+1·2	70·1	+1·1	85·7	+1·2	31·2	109·6	27th	59·6	5th	50·0
	Sambhar	1,254	28·530	−·022	29·740	28·726	4th	28·284	27th	·442	81·6	99·5	+0·6	70·2	0	84·9	+0·3	29·3	107·0	27th	57·4	5th	49·6
	Ajmere	1,611	28·214	−·011	29·769	28·392	4th	27·997	27th	·395	84·4	100·2	+2·1	73·4	+3·5	86·8	+2·8	26·8	107·9	26th & 27th.	58·7	6th	49·2
	Deesa	466	29·371	−·020	29·793	29·532	4th	29·191	27th	·341	82·5	104·8	+2·5	72·0	+1·5	88·4	+2·0	32·8	111·5	14th	63·0	5th	48·5
Kattywar	Rajkot	429	29·439	−·012	29·822	29·567	1st	29·244	27th	·323	80·2	103·2	+1·3	69·6	+0·8	86·4	+1·1	33·6	110·4	26th	60·9	5th & 6th.	49·5
	Veraval	?	29·866	?	29·826	29·980	1st	29·719	27th	·261	79·1	86·9	?	73·1	?	80·0	?	13·8	101·1	12th	63·3	7th	37·8
	Bhavnagar	?	29·859	?	29·844	29·974	11th	29·687	27th	·287	82·8	98·0	?	75·1	?	86·6	?	22·9	104·4	30th	67·0	7th	37·4
Central India	Nowgong	757	29·022	−·028	29·731	29·207	5th	28·775	28th	·432	83·3	102·9	−0·9	70·7	−0·4	86·8	−0·7	32·2	110·1	28.h	62·0	3 days	48·1
	Indore	1,823	28·029	−·002	29·779	28·157	5th	27·839	27th	·318	82·8	100·1	+0·1	69·5	+0·8	84·8	+0·5	30·6	104·6	27th & 28th	58·5	6th	46·1
	Neemuch	1,630	28·218	+·006	29·790	28·376	5th	28·021	27th	·355	82·2	100·4	+0·2	70·8	+0·6	85·6	+0·4	29·6	106·0	26th & 27th.	60·8	4th & 5th.	45·2
Guzerat	Surat	36	29·840	−·019	29·819	29·945	11th	29·696	27th	·249	80·4	97·6	−2·4?	73·7	+2·2	85·7	−0·1	23·9	107·1	12th	65·0	7th	42·1
	Ahmedabad	176	29·700	?	29·825	29·828	4th	29·532	27th	·296	84·0	104·4	?	75·0	?	89·7	?	29·4	111·3	13th	67·1	4th	44·2
N.-W. P. (West)	Agra	555	29·231	−·015	29·745	29·430	10th	28·980	27th	·450	82·3	102·9	+0·4	74·3	+1·0	88·6	+0·7	28·6	110·0	28th	64·1	5th	45·9
	Jhansi	840	28·932	−·027	29·736	29·119	5th	28·686	27th	·433	86·8	104·6	+1·1	77·0	+1·5	90·8	+1·3	27·6	111·5	28th	67·9	6th	43·6
IX.—Deccan	...	...	...	−·011	...	...	...	...	...	...	...	101·4	−1·7	72·3	−1·1	86·7	−1·4	28·7	...	...	...	...	40·7
Bombay (Deccan)	Belgaum	2,524	27·376	+·001	29·810	27·468	3rd	27·282	27th	·186	76·1	93·0	−3·7	67·2	0	80·1	−1·9	25·8	98·3	19th	63·9	1st & 23rd	34·4
	Sholapur	1,590	28·281	+·012	29·799	28·404	11th	28·167	27th	·237	83·6	103·0	−2·1	73·9	−0·9	88·5	−1·5	29·1	106·7	21st	70·0	2nd	36·7
	Poona	1,840	28·050	+·003	29·823	28·151	10th	27·923	27th	·228	79·5	100·4	−0·3	68·8	−0·9	84·6	−0·6	31·6	104·5	21st	65·4	7th & 9th	39·1
	Bijapur	1,946	27·936	?	29·798	28·051	11th	27·829	27th	·222	81·8	100·0	?	72·7	?	86·4	?	27·3	103·3	21st	68·5	23rd & 29th.	34·8
Khandesh	Malegaon	1,430	28·446	+·004	29·812	28·560	10th	28·287	27th	·273	84·1	102·7	0	72·1	+1·6	87·4	+0·8	30·6	107·8	28th	64·3	7th & 8th	43·5
	Ahmednagar	2,152	27·740	?	29·799	27·846	6th	27·589	27th	·257	82·9	99·4	?	66·1	?	82·8	?	33·3	104·7	28th	59·0	7th	45·7
Berar	Akola	930	28·884	−·020?	29·755	29·019	6th	28·695	27th	·314	82·6	104·3	−1·2	70·5	−3·3	87·4	−2·2	33·8	108·6	28th	61·0	6th	47·6
	Amraoti	1,215	28·604	−·010	29·760	28·745	11th	28·414	27th	·331	84·3	102·9	−2·7	75·5	+0·4	89·3	−1·2	27·4	108·3	28th	68·3	7th	40·0

*Mean of 28 days.
† „ „ 20 „

‡Mean of 18 days.
§ „ „ 12 „

I—*continued.*

in India, Burma, etc., in April 1893—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 30th April 1893.	Normal rainfall for period, 1st March to 30th April 1893.	Variation from normal of period, 1st March to 30th April 1893.	Station.	Meteorological Province or District.
7	1	1	4	8	1	...	...	8	2	?	?	61	·588	1·0	1	?	?	0·24	0·53	− 0·29	1·02	1·26	− 0·24	Umballa .	Punjab (Sub-montane).
8	7	2	4	4	1	...	1	3	4	2	+100	59	·532	3·2	1	1·55	−0·55	1·02	0·84	+ 0·18	2·16	1·88	+ 0·28	Ludhiana .	
10	7	1	5	1	...	...	4	2	3	2	+ 50	55	·475	2·6	3	2·09	+0·91	1·16	0·94	+ 0·22	2·89	2·18	+ 0·71	Sialkot .	Punjab (North).
15	...	6	...	2	...	1	2	4	2	3	− 33	67	·475	2·5	8	3·27	+4·73	2·98	2·02	+ 0·96	4·20	3·97	+ 0·23	Rawalpindi.	
...	...	...	...	...	..	...	...	...	...	..	...	...	...	...	...	...	...	0·47	0·40	+0·01	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
9	3	2	1	...	5	1	3	6	5	4	+ 25	63	·495	3·5	3	3·36	−0·36	0·79	2·01	− 1·22	3·02	3·85	− 0·83	Peshawar .	Punjab (West).
			Not recorded.						?	?	?	?	?	?	3	?	?	1·24	?	?	?	?	?	Mardan	
8	5	8	4	...	1	1	...	3	4	?	?	53	·480	2·5	6	1·30	+4·70	1·89	0·62	+ 1·27	2·14	1·16	+ 0·98	Khushab .	
1	3	5	1	10	4	1	3	2	6	?	?	50	·537	2·1	1	0·70	+0·30	0·25	0·11	+ 0·14	0·42	0·50	− 0·10	Montgomery.	
12	4	3	4	1	...	...	1	5	2	2	0	58	·553	2·0	1	1·64	−0·64	0·48	0·79	− 0·31	1·09	1·37	− 0·28	D. I. Khan.	
8	1	7	...	6	...	5	...	3	2	2	0	56	·567	1·4	1	0·36	+0·64	0·28	0·04	+ 0·24	0·28	0·53	− 0·25	Mooltan.	
11	6	1	2	5	...	1	1	3	7	4	+ 75	50	·508	3·7	0	0·64	−0·64	0·05	0·39	− 0·34	0·07	0·75	− 0·68	Sirsa.	
9	1	3	6	2	2	1	...	6	4	4	0	41	·432	1·7	1	0·27	+0·73	0·39	0·07	+ 0·32	0·39	0·18	+ 0·21	Jacobabad .	Sind and Cutch.
...	2	2	...	...	6	18	1	1	·16	10	+60	51	·536	0·3	1	0	+1·00	0·48	0	+ 0·48	0·48	0·17	+ 0·31	Hyderabad.	
...	1	...	...	...	...	6	8	15	13	14	− 7	82	·819	2·6	0	0·45	−0·45	0·05	0·44	− 0·39	0·05	0·62	− 0·57	Kurrachee.	
...	1	...	...	...	1	5	8	5	15	11	+ 36	53	·622	1·4	0	?	?	0	0·21	− 0·21	0	0·28	− 0·28	Bhuj.‡	
...	2	1	2	3	3	9	3	7	6	5	+ 20	32	·347	1·4	1	?	?	0·13	0·07	+ 0·06	0·17	0·14	+ 0·03	Bickaneer .	Rajputana (West).
8	...	1	2	3	7	6	...	2	7	5	+40	47	·511	2·2	1	?	?	0·11	0·01	+ 0·10	0·26	0·08	+ 0·18	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·06	0·05	+0·03	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
5	4	2	4	...	...	1	7	7	5	6	− 17	40	·457	1·9	1	0·30	+0·70	0·16	0·10	+ 0·06	1·10	0·17	+ 0·93	Jeypore .	Rajputana (East).
6	3	2	...	1	1	1	13	3	8	7	+ 14	42	·451	0·8	0	0·30	−0·30	0	0·07	− 0·07	0·31	0·43	− 0·12	Sambhar.	
1	1	2	...	1	1	4	20	...	8	5	+ 60	34	·405	1·2	0	0·18	−0·18	0	0·10	− 0·10	0·30	0·11	+ 0·19	Ajmere.	
...	4	2	...	...	6	7	6	5	9*	9	0	46	·510	1·5	0	0	0	0	0	0	0·25	0·06	+ 0·19	Deesa.	
...	8	1	...	...	...	4	9	8	10	10	0	65	·675	1·3	0	0·10	−0·10	0	0	0	0	0	0	Rajkot .	Kattywar.
4	10	1	...	...	1	2	3	9	9	?	?	72	·710	5·5	0	?	?	0	?	?	0	?	?	Veraval.	
...	...	...	...	...	2	20	1	7	13	?	?	71	·797	2·8	0	?	?	0	?	?	0	?	?	Bhavnagar.	
5	1	2	2	2	3	3	10	2	3	3	0	35	·397	1·6	0	0	0	0·10	0	+ 0·10	1·82	0·17	+ 1·65	Nowg ng. .	Central India.
2	7	2	1	...	1	3	8	6	5	4	+ 25	47	·522	1·3	2	0	+2·00	0·38	0	+ 0·38	0·60	0	+ 0·60	Indore.	
1	...	5	2	2	...	15	1	4	10	10	0	36	·391	1·8	0	0·09	−0·09	0·02	0·14	− 0·12	0·38	0·15	+ 0·23	Neemuch.	
...	4	...	...	...	3	14	4	5	?	?	?	71	·752	3·3	1	0	+1·00	0·17	0	+ 0·17	0·17	0	+ 0·17	Surat . .	Guzerat.
3	2	5	...	...	4	7	1	6	5	?	?	51	·598	2·1	0	?	?	0	?	?	0·22	?	?	Ahmedabad§.	
3	...	2	..	9	...	8	...	8	5	5	0	36	·396	1·0	0	0·55	−0·55	0	0·11	− 0·11	0·40	0·35	+ 0·05	Agra . .	N.-W. P. (West).
8	3	...	...	3	...	6	3	7	2	4	− 50	31	·400	1·2	0	0·55	−0·55	0·04	0·07	− 0·03	0·79	0·40	+ 0·39	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·35	0·40	−0·07	...	...	...	**IX.—Deccan.**	
5	2	4	1	4	1	4	8	1	?	13	?	60	·524	2·1	4	3·36	+0·64	1·13	1·33	− 0·20	1·13	1·81	− 0·68	Belgaum .	Bombay (Deccan).
3	2	4	3	3	1	3	3	8	10	8	+ 25	44	·499	2·0	0	1·20	−1·20	0·12	0·41	− 0·29	3·50	0·53	+ 2·97	Sholapur.	
10	...	1	...	...	...	1	12	6	9	10	− 10	44	·443	2·0	2	1·09	+0·91	1·19	0·45	+ 0·74	1·19	0·52	+ 0·67	Poona.	
3	...	4	1	...	...	6	8	8	7	?	?	54	·571	2·5	2	1·80	+0·20	0·59	0·76	− 0·17	2·82	0·84	+ 1·98	Bijapur.	
1	1	1	1	...	...	6	14	6	13	8	+ 63	70	·817	2·0	0	0·18	−0·18	0·03	0·07	− 0·04	0·52	0·07	+ 0·45	Malegaon .	Khandesh.
6	10	4	...	4	1	...	1	4	9	?	?	57	·636	1·5	0	?	?	0·07	0·18	− 0·11	1·72	0·22	+ 1·50	Ahmednagar.	
2	...	2	1	1	4	1	12	7	6	5	+ 20	34*	·408*	2·0	0	0·36	−0·36	0	0	0	3·80	0·42	+ 3·38	Akola . .	Berar.
1	4	2	4	1	...	6	10	2	6	4	+ 50	29	·345	1·3	1	0·45	+0·55	0·16	0·02	+ 0·14	3·30	0·25	+ 3·05	Amraoti.	

* Mean of 27 days. § Wind directions for 28 days.
‡ ,, 20 ,,

Table

Abstract of Observations taken at 8A.M. at 195 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 Provinces (West).	Khandwa	1,044	28·787	−·010	29·781	28·925	11th	28·605	27th	·320	82·7	103·6	−0·5	73·1	−0·8	88·4	−0·7	30·5	107·2	13th	63·1	6th	44·1
	Hoshangabad	1,020	28·802	−·028	29·775	28·966	11th	28·612	27th	·354	82·6	103·0	−1·8	71·6	−1·3	87·3	−1·6	31·4	107·5	28th	63·8	7th	43·7
	Nagpur	1,025	28·779	−·018	29·744	28·925	11th	28·570	28th	·355	86·8	103·8	−1·9	74·4	−1·3	89·1	−1·6	29·4	110·3	28th	68·2	6th	42·1
Central Provinces (Central).	Chanda	634	29·182	?	29·760	29·324	11th	28·990	28th	·334	82·8	101·9	?	71·7	?	86·8	?	30·2	106·9	3 days	63·1	7th	43·8
	Seoni	2,030	27·785	?	29·756	27·947	11th	27·583	28th	·364	82·5	99·5	−1·9	70·8	−0·8	85·2	−1·4	28·7	106·2	28th	63·0	7th	43·2
	Jubbulpore	1,327	28·480	−·012	29·753	28·644	11th	28·257	28th	·387	82·2	100·8	−0·9	68·6	−2·0	84·7	−1·5	32·2	108·0	28th	58·8	6th	49·2
	Saugor	1,762	28·053	−·024	29·741	28·211	11th	27·839	28th	·372	83·8	101·7	+0·3	70·6	−1·7	86·2	−0·7	31·1	107·4	28th	60·7	5th	46·7
Central Provinces (East).	Raipur	970	28·840	−·006	29·748	29·002	11th	28·628	28th	·374	85·2	103·1	−1·2	72·8	−3·8	88·0	−2·5	30·3	107·5	29th	59·5	6th	48·0
	Sutna	1,040	28·728	−·031	29·718	28·909	10th	28·519	27th	·390	84·9	100·4	−1·0	71·1	+0·2	85·8	−0·4	29·3	107·7	28th	62·2	6th	45·5
	Sambalpur	463	29·326	−·020	29·734	29·481	10th	29·098	27th	·383	84·5	99·5?	−5·6?	73·0	−2·7	86·3?	−4·2?	26·5?	107·5	20th	65·2	7th	42·3
Hyderabad (North).	Aurangabad	?	28·028	?	?	28·146	10th	27·884	29th	·262	85·2	102·3	?	71·0	?	86·7	?	31·3	106·9	28th	62·8	8th	44·1
	Indur	?	?	?	?	?	...	?	...	...	85·8	100·5	?	74·7	?	87·6	?	25·8	105·2	28th	66·8	7th	38·4
	Bidar	?	27·704	?	?	27·822	10th	27·572	27th	·250	83·2	97·5	?	74·5	?	86·0	?	23·0	100·3	29th	70·2	24th	30·1
Hyderabad (South).	Gulburga	?	28·356	?	?	28·485	10th	28·241	27th	·244	82·8	102·0	?	74·0	?	88·0	?	28·0	104·9	21st	69·2	22nd	35·7
	Raichur	?	28·470	?	?	28·588	1st	28·355	17th & 30th.	·233	84·3	101·7	?	77·1	?	89·4	?	24·6	105·4	21st	71·5	28th	33·9
	Secunderabad	1,787	28·069	−·036	29·789	28·191	10th & 11th.	27·870	30th	·321	80·4	100·2	−1·9	73·8	−1·1	87·0	−1·5	26·4	104·6	21st	68·5	7th	36·1
	Hyderabad (Deccan).	1,690	28·169	−·013	29·787	28·288	10th	28·033	27th	·255	81·7	99·3	−1·9	74·2	−1·1	86·8	−1·5	25·1	102·4	30th	68·7	7th	33·7
	Kamamet	?	29·481	?	29·406	29·630	11th	29·306	29th	·324	81·8	99·5	?	76·2	?	87·9	?	23·3	106·2	30th	69·8	25th	36·4
X.—West Coast		...	...	−·012	...	...	...	...	...	...	...	90·0	+0·2	77·8	+0·2	83·9	+0·2	12·2	...	...	...	...	21·0
Konkan	Bombay	37	29·855	−·014	29·833	29·969	1st	29·741	28th	·228	81·8	89·3	+1·2	77·9	+0·8	83·6	+1·0	11·4	94·6	17th	74·0	1st	20·6
	Ratnagiri	110	29·775	−·001	29·823	29·881	10th	29·641	18th	·240	83·3	90·0	+0·2	77·5	+0·9	83·8	+0·6	12·5	94·9	17th & 19th	67·4	14th	27·5
	Goa*	23	29·885	−·022	29·822	29·980	10th & 11th.	29·762	18th	·218	85·0	90·4	?	77·1	?	83·8	?	13·3	93·0	20th	68·0	2nd	25·0
	Mormugoa	60	29·843	?	29·838	29·948	10th	29·731	18th	·217	84·2	90·4	?	78·7	?	84·5	?	11·7	93·0	19th & 21st	72·4	27th	20·6
Malabar	Karwar	44	29·844	−·021	29·820	29·943	1st	29·751	18th	·212	80·7	89·5	−0·2	78·2	+0·5	83·8	+0·2	11·3	91·3	16th & 21st	71·2	1st	20·1
	Cochin	10	29·899	−·006	29·837	29·989	3rd	29·797	18th	·192	82·3	91·0	−0·2	77·7	−0·7	84·3	−0·5	13·3	93·3	3 days	71·7	23rd	21·6
	Calicut	27	29·873	−·021	29·829	29·972	1st	29·769	18th	·203	83·0	91·0	?	77·0	?	84·1	?	14·0	93·4	21st	73·5	11th & 26th	19·9
	Mangalore	26	29·881	−·002	29·838	29·977	10th	29·774	18th	·203	82·5	90·7	0	78·3	−0·5	84·5	−0·3	12·4	92·3	19th & 20th	72·9	13th	19·4
	Trivandrum	198	29·699	?	29·826	29·794	3rd & 11th.	29·607	17th	·187	81·4	87·6	?	78·0	?	82·8	?	9·6	89·0	4 days	74·5	2nd	14·5
XI.—South India		...	...	−·018	...	...	...	...	...	...	...	95·5	−0·8	74·1	−1·6	84·8	−1·1	21·2	...	...	...	...	33·3
Madras (South)	Pamban	37	29·843	?	29·807	29·966	11th	29·720	18th	·246	83·8	90·2	?	78·7	?	84·5	?	11·5	93·3	22nd & 23rd	72·2	1st & 24th	21·1
	Tinnevelly	168	29·720	?	29·816	29·847	1st	29·598	27th	·249	85·2	99·2	?	78·7	?	89·0	?	20·5	105·0	30th	72·9	5th	32·1
	Madura	447	29·431	−·019	29·812	29·558	1st & 3rd	29·313	18th & 27th	·245	83·2	98·7	−1·7	75·6	−0·6	87·2	−1·2	23·1	104·5	23rd	67·1	25th	37·4
Madras (South Central).	Salem	940	28·971	−·015	29·846	29·093	1st	28·861	18th	·232	81·1	100·1	−1·0	73·4	−2·1	86·9	−1·6	26·7	106·5	22nd	66·9	1st	39·6
	Coimbatore	1,348	28·532	−·028	29·825	28·657	11th	28·408	18th	·249	76·8	98·1	−0·1	69·6	−4·2	83·9	−2·2	28·5	100·3	6th	64·6	24th	35·7
Coorg	Mercara	3,781	26·226	−·003	29·837	26·309	11th	26·144	27th	·165	70·3	84·8†	−0·1†	63·3	−0·6	74·1†	−0·4†	21·5	88·5	20th	59·2	13th	29·3
	Chitaldroog	2,405	27·504	?	29·811	27·604	10th	27·392	28th	·212	79·2	96·1	?	70·9	?	83·5	?	25·2	99·2	16th & 20th	59·4	28th	39·8
Mysore	Bangalore Bazar	2,982	26·977	−·015	29·840	27·083	10th	26·876	28th	·207	75·8	92·6	−0·7	67·2	−2·1	79·9	−1·4	25·4	96·7	21st	61·0	27th	35·7
	Bangalore Fort	3,019	26·928	−·032	29·819	27·031	1st & 10th	26·829	28th	·202	75·5	93·6	−0·7	67·5	−2·1	80·6	−1·4	26·1	97·3	3 days	62·4	27th	34·9
	Hassan	3,091	26·875	?	29·835	26·971	10th	26·779	18th	·192	76·9	93·2	?	64·5	?	78·9	?	28·7	97·6	21st	60·4	2nd	37·2
Madras (East Coast, South).	Negapatam	31	29·860	−·008	29·820	29·987	1st	29·725	27th	·262	84·8	91·7	−0·7	77·3	−1·5	84·5	−1·1	14·4	103·2	28th & 29th	70·7	23rd	32·5
	Cuddalore	12	29·868	?	29·809	30·001	1st	29·724	30th	·277	83·9	92·2	?	74·6	?	83·4	?	17·6	100·3	29th	69·0	17th	31·3
	Trichinopoly	255	29·630	−·019	29·617	29·762	1st & 3rd	29·498	27th	·264	83·4	101·4	+0·4	76·0	−1·3	88·7	−0·5	25·4	105·7	23rd	70·9	23rd	34·8
	Madras	22	29·862	−·018	29·815	29·999	11th	29·703	27th & 28th	·296	83·8	93·5	+0·6	75·0	−2·1	84·3	−0·8	18·5	104·5	30th	70·0	1st & 15th	34·5

* Mean of 29 days.

† Mean of 25 days.

I—*continued.*

in India, Burma, etc., in April 1893—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 30th April 1893.	Normal rainfall for period from 1st March to 30th April 1893.	Variation from normal of period, 1st March to 30th April 1893.	Station.	Meteorological Province or District.
...	4	2	1	...	3	1	11	8	8	6	+ 33	34	·375	1·6	2	0·18	+1·82	0·30	0·06	+ 0·24	0·92	0·13	+ 0·79	Khandwa	Central Provinces (West).
10	1	3	2	1	1	5	7	...	3	3	0	36	·410	1·6	1	0·09	+0·91	0·21	0	+ 0·21	1·69	0·14	+ 1·55	Hoshangabad	
4	7	3	2	2	3	1	1	7	7	5	+ 40	32	·405	1·5	0	0·82	−0·82	0·09	0·32	− 0·23	3·35	0·81	+ 2·54	Nagpur.	
2	2	3	5	6	2	3	2	5	3	?	?	47	·527	1·5	0	?	?	0·01	?	?	14·76	?	?	Chanda	Central Provinces (Central).
3	4	8	2	4	...	3	2	4	4	4	0	39	·432	2·1	1	0·45	+0·55	0·13	0·21	− 0·08	3·47	0·74	+ 2·73	Seoni.	
5	2	...	...	3	7	2	9	2	3	3	0	33	·359	1·5	1	0·27	+0·73	0·35	0·13	+ 0·22	2·29	0·45	+ 1·84	Jubbulpore.	
3	1	5	...	1	...	9	9	2	5	4	+ 25	27	·313	0·9	0	0·09	−0·09	0·05	0	+ 0·05	2·05	0·14	+ 1·91	Saugor.	
10	2	...	...	...	2	10	6	...	5	6	− 17	40	·480	2·6	0	1·00	− 1·00	0	0·48	− 0·48	2·19	1·08	+ 1·11	Raipur	
2	7	1	3	1	7	...	3	6	8	7	+ 14	27	·314	1·0	1	0·27	+0·73	0·10	0·95	− 0·85	3·54	1·20	+ 2·34	Sutna.	Central Provinces (East).
...	1	6	1	4	12	1	3	2	5	?	?	53	·625	1·5	2	?	?	1·55	0·41	+ 1·14	4·77	1·39	+ 3·38	Sambalpur.	
11	1	2	1	2	2	6	2	3	5	?	?	30	·365	1·6	1	?	?	0·10	0·17	−0·07	0·76	0·23	+ 0·53	Aurangabad	Hyderabad (North).
5	4	1	...	2	1	4	4	9	5	?	?	49	·608	2·2	0	?	?	0	0·31	− 0·31	5·85	0·58	+ 5·27	Indur	
...	4	3	1	...	...	11	10	1	8	?	?	51	·580	0·6	1	?	?	0·20	0·83	− 0·63	5·14	1·17	+ 3·97	Bidar.	
12	4	4	...	...	2	2	3	3	9	?	?	46	·519	2·2	2	?	?	0·74	0·71	+ 0·03	3·57	0·92	+ 2·65	Gulburga	Hyderabad (South).
...	3	...	1	1	6	6	10	3	8	?	?	46	·536	4·4	1	?	?	0·44	0·69	−0·25	3·93	0·91	+ 3·02	Raichur.	
4	...	1	4	3	1	6	6	5	6	5	+ 20	56	·590	2·1	1	?	?	0·20	?	?	7·73	?	?	Secunderabad	
10	1	...	1	2	1	2	13	...	5	?	?	52	·565	2·9	0	?	?	0·05	0·72	− 0·67	9·21	0·92	+ 8·29	Hyderabad (Deccan).	
5	...	...	...	11	13	1	...	...	9	?	?	70	·774	1·0	2	?	?	1·19	?	?	7·24	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·40	1·04	+0·34	...	...	...	**X.—West Coast.**	
...	9	3	3	1	6	3	2	3	11	11	0	74	·806	3·0	0	0	0	0·02	0	+ 0·02	0·02	0	+ 0·02	Bombay	Konkan.
1	2	1	...	2	7	10	3	4	5	11	− 55	71	·799	4·7	1	0·09	+0·91	0·51	0·05	+ 0·46	0·51	0·05	+ 0·46	Ratnagiri.	
6	...	2	7	2	5	4	3	...	4	?	?	70	·850	4·7	0	?	?	0·04	0·08	− 0·04	0·04	0·08	− 0·04	Goa. †	
...	1	...	4	4	3	10	4	4	8	?	?	76	·894	4·2	1	?	?	1·19	?	?	1·19	?	?	Mormugoa.	
5	7	9	1	...	...	1	7	...	4	?	?	81	·840	3·5	2	0·36	+1·64	0·95	0·28	+ 0·67	0·95	0·28	+ 0·67	Karwar.	
1	1	21	3	1	1	...	...	2	8	?	?	78	·867	4·0	7	5·55	+1·45	2·76	3·48	− 0·72	10·20	5·30	+ 4·90	Cochin	Malabar.
6	10	5	1	2	1	...	1	4	15	?	?	76	·851	3·5	4	3·13	+0·87	2·65	2·81	− 0·16	2·78	3·30	− 0·52	Calicut.	
12	4	5	6	1	...	1	...	1	2	4	− 50	78	·867	3·7	3	1·00	+2·00	2·78	0·61	+ 2·17	2·78	0·61	+ 2·17	Mangalore.	
...	7	9	7	1	...	...	...	6	8	?	?	77	·836	3·6	2	?	?	1·72	?	?	3·65	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·13	0·96	+0·25	...	...	...	**XI.—South India.**	
3	2	...	8	7	4	1	4	1	4	?	?	80	·925	4·1	4	1·30	+2·70	1·60	4·13	− 2·53	4·66	4·92	− 0·26	Pamban.	Madras (South).
...	5	2	2	...	...	2	7	12	6	?	?	67	·811	4·4	0	3·40	−3·40	0·05	1·92	− 1·87	3·33	3·57	− 0·24	Tinnevelly	
4	10	3	3	4	...	...	...	6	1	4	− 75	70	·810	2·2	3	1·82	+1·18	1·64	1·01	+ 0·63	6·76	1·20	+ 5·56	Madura.	
10	2	5	1	1	2	9	...	...	4	5	− 20	66	·713	3·6	4	2·27	+1·73	2·55	1·44	+ 1·11	3·50	2·40	+ 1·10	Salem	Madras (South Central).
...	3	3	...	...	11	4	9	...	2	3	− 33	84	·785	3·7	4	2·18	+1·82	1·85	1·41	+ 0·44	3·69	2·02	+ 1·67	Coimbatore.	
...	11	...	2	...	...	...	9	8	4	3	+ 33	75	·557	5·0	2	4·70	−2·70	0·54	2·74	− 2·20	2·51	3·65	− 1·14	Mercara	Coorg.
...	1	...	2	2	2	10	9	4	9	?	?	60	·600	2·7	1	?	?	1·31	?	?	3·30	?	?	Chitaldroog.	
...	...	...	1	6	5	13	5	...	9†	4	+125	69	·617	4·0	3	1·18	+1·82	1·90	0·78	+ 1·12	3·16	1·30	+ 1·86	Bangalore Bazar.	Mysore.
2	...	1	2	2	2	9	11	1	6	?	?	66	·583	2·2	3	?	?	2·09	?	?	3·66	?	?	Bangalore Fort	
1	3	1	3	4	1	1	8	8	5	?	?	75	·661	3·4	3	?	?	0·50	?	?	0·76	?	?	Hassan.	
9	...	3	7	1	3	2	4	1	7	5	+40	70	·842	4·0	0	0·55	−0·55	0·06	0·34	− 0·28	3·33	0·77	+ 2·56	Negapatam.	Madras (East Coast, South).
...	...	...	1	1	4	10	7	7	3	?	?	78	·913	4·6	0	0·60	−0·60	0·08	0·88	− 0·80	3·42	1·19	+ 2·23	Cuddalore.	
18	...	1	...	1	...	6	3	1	3	4	− 25	64	·750	3·7	3	1·27	+1·73	1·70	1·40	+ 0·30	2·29	1·97	+ 0·32	Trichinopoly.	
1	...	...	1	2	10	11	5	...	7	8	− 13	72	·839	3·3	0	0·27	−0·27	0	0·21	− 0·21	1·66	0·42	+ 1·24	Madras.	

† Mean of 29 days. ‡ Mean of 15 days.

Table

Abstract of Observations taken at 8 A.M. at 195 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.
Madras (East Coast, Central).	Nellore	71	29·785	?	29·790	29·929	10th & 11th	29·624	28th	·305	84·3	101·2	?	75·8	?	88·6	?	25·4	109·8	30th	71·1	4th	38·7
	Masulipatam	15	29·849	−·027	29·799	29·988	11th	29·661	30th	·327	84·4	94·5	−0·3	77·3	+0·2	85·9	−0·1	17·2	108·2	30th	72·1	1st & 2nd	36·1
Madras (Central)	Cuddapah	433	29·426	−·034?	29·795	29·560	10th	29·292	18th	·268	87·0	104·9	+0·1	78·9	−1·6	91·9	−0·8	26·0	108·3	22nd	74·8	1st	33·5
	Kurnool	923	28·939	−·016	29·796	29·056	11th	28·807	18th	·249	83·5	102·1	−2·8	74·0	−4·5?	88·1	−3·7?	28·1	106·6	21st	65·8	2nd	40·8
	Bellary	1,475	28·405	+·019?	29·805?	28·504	1st & 11th	28·287	28th	·217	84·8	102·2	−1·7	75·5	−1·6	88·9	−1·7	26·7	105·3	19th	71·0	28th	34·3
Madras (East Coast, North).	Rajahmundry	112	29·746	−·024	29·795	29·877	10th	29·575	30th	·302	83·0	98·8	−1·7	76·9	−1·7	87·9	−1·7	21·9	103·1	23rd & 30th	67·0	25th & 26th	36·1
	Cocanada	26	29·839	−·009	29·801	29·973	10th	29·658	30th	·315	82·6	95·3	+0·8	76·9	−2·6	86·1	−0·9	18·4	100·2	21st	70·2	23rd & 26th	30·0
	Vizagapatam	31	29·819	−·026	29·787	29·956	10th	29·609	30th	·347	84·1	87·5	−1·3	81·2	+0·2	84·4	−0·6	6·3	91·4	30th	77·4	25th	14·0
	Gopalpur	21	29·800	?	29·761	29·938	11th	29·605	30th	·333	79·4	86·7	?	75·1	?	80·9	?	11·6	96·2	23rd	69·9	23rd	26·3
XII.—Hill Stations.																							
Baluchistan	Kutch *	?	23·933	?	?	24·074	11th	23·828	27th	·246	59·0	81·9†	?	46·0	?	64·0†	?	35·9	85·0	23rd & 30th	34·0	3rd	51·0
	Quetta	5,502	24·657	+·050	?	24·813	11th	24·554	18th	·259	61·3	75·4	+2·2	47·7	+1·6	61·6	+1·7	29·3	85·2	25th & 30th	35·3	4th & 5th	49·9
	Kelat ‡	?			Not recorded.						68·6	75·7*	?	41·1	?	58·5*	?	34·6	85·0	14th & 25th	29·0	3rd	56·0
	Chaman	5,488	25·673	?	?	25·817	11th	25·563	22nd	·254	71·1	81·7	?	58·2§	?	70·0§	?	23·3	91·5	30th	41·1	3rd	50·4
Northern India	Gilgit	?	25·890*	?	?	26·200	4th	25·600	28th	·600	63·6	78·1	?	56·5	?	67·3	?	21·6	93·2	25th	44·1	4th	49·1
	Srinagar	5,204	24·904	?	?	25·082	4th	24·736	21st	·346	52·9	67·1	?	45·9	?	56·5	?	21·2	78·3	25th	37·1	4th	41·2
	Cherat	?	25·664	?	?	25·831	4th	25·480	27th	·351	65·8	75·9	?	60·9	?	68·4	?	15·0	90·4	24th	46·2	3rd	44·2
	Murree	6,344	23·810	−·013	?	23·940	11th	23·662	27th	·278	57·9	68·0	0	52·1	+0·3	60·1	+0·1	15·9	75·6	13th & 30th	39·2	4th	36·4
	Simla	7,224	23·100	−·002	?	23·229	12th	22·920	29th	·309	58·3	65·7	−5·0	52·6	+0·7	59·2	−2·2	13·1	71·6	16th	42·8	8th	28·8
	Chakrata	7,052	23·238	−·007	?	23·370	2nd	22·996	30th	·374	59·4	68·4	−1·8	50·9§	−0·8§	59·6§	−1·3	17·5	75·8	16th	39·7	8th	36·1
	Mussoorie	?	23·530	?	?	23·668	12th	23·349	29th	·319	59·3	69·9	?	53·3	?	61·6	?	16·6	77·3	17th	44·0	8th	33·3
	Ranikhet	6,069	24·093	+·016	?	24·202	12th	23·959	27th	·243	63·3	72·4	−1·7	56·1	−0·8	64·3	−1·3	16·3	79·5	16th	47·5	8th	32·0
	Gnatong	?	19·215	?	?	19·331	12th	19·088	30th	·243	37·6	43·3	?	23·5	?	33·4	?	19·8	55·6	13th	15·1	10th	40·5
	Darjeeling	7,421	22·961	+·012	?	23·084	3rd	22·817	3 days	·267	52·9	59·7	−1·7	47·9	+1·0	53·8	−0·4	11·8	65·6	20th	41·9	2 days	23·7
Central India	Mount Abu	3,945	26·044	−·005	?	26·196	11th	25·873	27th	·323	77·1	85·3	−0·2	69·9	+1·9	77·6	+0·9	15·4	90·2	3 days	60·9	3rd & 4th	29·3
	Pachmarhi	3,511	26·444	−·007	?	26·588	11th	26·271	28th	·317	80·5	91·7	−0·5	68·5	−0·6	80·1	−0·6	23·2	96·7	28th	58·2	7th	38·5
South India	Wellington	6,200	24·271	+·010	?	24·358	1st	24·195	18th	·163	67·5	75·3	−0·6	54·2	−1·8	64·8	−1·2	21·1	78·7	18th & 21st	49·7	3rd	29·0
	Kodaikanal	?	?	?	?	?	...	?	...	?	62·6	68·8	?	54·4	?	61·6	?	14·4	73·5	30th	45·1	23rd	28·4
	Kotagiri	?	23·869	?	?	23·911	7th	23·771	27th	·140	65·2	74·5	?	57·6	?	66·1	?	16·9	78·9	22nd & 26th	50·2	5th	28·7
XIII.—Extra India.																							
Ceylon	Colombo	40	29·871	−·012	29·837	29·971	10th	29·776	17th	·195	83·4	87·4	?	75·4	?	81·4	?	12·0	89·0	5 days	71·0	24th	18·0
Persia	Meshed	?	?	?	?	?	?	?	?	?	59·2†	69·1	?	50·8†	?	60·4†	?	18·3	84·5	27th & 28th.	35·0	5th & 6th	49·5
	Bushire	14	29·888	?	29·859	30·141	1st	29·682	18th	·459	74·8	84·1	?	67·9	?	76·0	?	16·2	100·5	28th	54·8	2nd	45·7
	Muskat	?	29·859	?	?	30·027	2nd	29·724	23rd	·303	84·0	86·6	?	81·6	?	84·1	?	5·0	95·3	26th & 30th.	72·3	2nd	23·0
	Jask	?	29·854	?	?	30·020	2nd	29·707	23rd	·313	79·7	88·3	?	73·3	?	81·0	?	15·0	98·9	28th	66·2	3rd & 4th	32·7
Arabia	Baghdad	?	29·723	?	?	29·754	9th	29·639	11th	·115	67·2	86·3	?	48·6	?	67·4	?	37·7	89·3	23rd	45·0	11th	44·3
	Aden	94	29·835	?	29·861	29·931	7th	29·722	28th	·208	81·3	88·8	?	77·1	?	83·0	?	11·7	97·8	17th	71·3	9th	26·5
	Perim	?	29·713	?	?	29·840	23rd	29·604	19th	·236	82·2	87·6	?	78·2	?	82·9	?	9·4	92·3	26th	72·2	5th	20·1
Arabian Sea Islands.	Minicoy	10	29·919	?	29·854	30·009	11th	29·830	18th	·179	83·0	89·4	?	?	?	?	?	?	92·4	20th	?	?	?
Africa	Zanzibar	73	29·932	?	29·932	30·021	25th	29·855	18th	·166	78·1	83·4	?	76·1	?	79·8	?	7·3	88·0	2nd	72·0	25th	16·0

* Mean of 28 days. † Mean of 27 days. ‡ Kelat uncorrected readings. § Mean of 29 days.

I—*concluded.*

in India, Burma, etc., in April 1893—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.			Rainfall.											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.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st March to 30th April 1893.	Normal rainfall for period 1st March to 30th April 1893.	Variation from normal of period, 1st March to 30th April 1893.			
2	...	...	1	19	2	...	...	6	7	?	?	72	·842	5·3	0	0·30	−0·30	0	0·11	−0·11	0·78	0·37	+ 0·41	Nellore .	Madras (East Coast, Central).
7	...	...	...	5	12	4	1	1	7	9	− 22	82	·973	4·9	0	0·27	−0·27	0·03	0·08	−0·05	0·10	0·16	− 0·06	Masulipatam.	
...	3	5	6	4	2	2	6	2	?	?	?	50	·643	2·0	2	0·70	+1·30	0·40	0·37	+0·03	0·40	0·44	− 0·04	Cuddapah .	Madras (Central).
30	...	...	...	...	...	...	...	...	?	?	?	53	·612	1·9	0	1·33	−1·33	0·05	0·71	−0·66	3·44	1·01	+ 2·43	Kurnool.	
10	...	...	...	1	3	5	4	7	5	5	0	80?	·958?	2·1	1	1·27	−0·27	0·16	0·44	−0·28	1·51	0·65	+ 0·86	Bellary.	
10	2	4	1	...	...	4	6	3	?	?	?	72	·832	4·6	2	0·70	+1·30	1·71	0·53	+1·18	4·94	0·82	+ 4·12	Rajahmundry	Madras (East Coast, North).
...	2	1	...	1	...	9	5	12	7	?	?	76	·856	3·3	3	0·50	+2·50	1·93	0·01	+1·92	3·90	0·41	+ 3·49	Cocanada.	
...	...	...	...	...	...	6	22	2	2	4	− 50	77	·906	3·5	3	0·36	+2·64	4·61	0·05	+4·56	5·81	0·45	+ 5·36	Vizagapatam.	
2	2	...	...	2	9	15	...	...	18	15	+ 20	88	·873	0·3	2	0·78	+1·22	1·16	0·60	+0·56	4·09	1·27	+ 2·82	Gopalpur.	
																								XII.—Hill Stations.	
...	...	...	2	...	...	...	10	...	?	?	?	56	·283	0·7	7	?	?	2·53	?	?	3·48	?	?	Kutch * .	Baluchistan.
27	...	...	...	1	1	...	...	1	4	4	0	73	·393	1·8	4	3·55	+0·45	1·52	1·20	+0·32	2·27	3·15	− 0·88	Quetta.	
...	...	...	...	...	...	14	...	16	?	?	?	?	?	?	3	?	?	0·89	?	?	1·00	?	?	Kelat. ‡	
8	3	...	1	1	5	5	4	3	10	?	?	70	·299	7·0	1	?	?	0·51	?	?	0·80	?	?	Chaman.	
Not recorded.									?	?	?	?	?	3·9	2	?	?	1·67	?	?	1·77	?	?	Gilgit .	Northern India.
12	3	2	1	5	4	...	1	2	3	?	?	82	·327	4·5	7	?	?	3·09	?	?	5·28	?	?	Srinagar.	
3	5	1	4	4	5	2	...	6	8	?	?	47	·286	4·1	6	?	?	2·48	?	?	6·25	?	?	Cherat.	
5	4	3	3	7	1	...	...	7	10	9	+11	47	·223	3·9	9	6·64	+2·36	4·33	3·79	+0·54	8·63	7·40	+ 1·23	Murree.	
7	18	...	...	1	4	...	...	...	?	3	?	43	·209	2·3	5	4·09	+0·91	0·97	2·05	−1·08	4·23	4·80	− 0·57	Simla.	
11	...	2	6	3	1	...	5	2	11	?	?	51	·256	1·8	5	?	?	1·63	1·66	−0·03	6·84	4·25	+ 2·59	Chakrata.	
8	2	1	7	3	...	...	3	6	?	?	?	58	·296	2·4	3	1·10	+1·90	0·95	1·59	−0·64	5·26	4·35	+ 0·91	Mussoorie.	
19	1	2	...	...	...	...	7	1	4	3	+ 33	57	·330	2·5	5	2·55	+2·45	1·52	1·32	+0·20	4·44	3·78	+ 0·66	Ranikhet.	
4	2	1	5	7	1	2	5	3	5	?	?	80	·180	3·9	21	?	?	12·08	?	?	17·45	?	?	Gnatong.	
5	2	4	4	...	2	8	4	1	9	8	+ 13	89	·355	6·6	12	6·86	+5·14	8·37	4·73	+3·64	9·70	6·58	+ 3·12	Darjeeling.	
3	6	3	1	...	...	...	8	9	7	8	− 13	31	·281	1·3	0	0·09	−0·09	0	0	0	0·40	0·06	+ 0·34	Mount Abu.	Central India.
1	...	3	5	3	...	4	11	3	8	5	+ 60	26	·271	1·5	1	0·45	+0·55	0·14	0·08	+0·06	1·43	0·39	+ 1·04	Pachmarhi.	
17	3	8	2	...	...	...	...	...	3	3	0	49	·332	2·9	8	4·50	+3·50	2·34	2·03	+0·31	13·66	4·24	+ 9·42	Wellington .	South India.
1	2	20	2	...	...	...	...	5	10	?	?	45	·254	3·3	5	5·80	−0·80	2·82	6·14	−3·32	11·94	9·16	+ 2·78	Kodaikanal.	
4	4	2	6	7	2	...	...	5	6	?	?	66	·411	3·3	5	?	?	3·22	?	?	?	?	?	Kotagiri.	
																								XIII.—Extra India.	
...	3	1	2	3	7	9	3	2	8	?	?	76	·872	4·5	11	?	?	20·34	11·28	+9·06	25·48	16·19	+ 9·29	Colombo .	Ceylon.
...	6	...	7	...	13	...	4	...	?	?	?	?	?	5·3	1	?	?	0·32	?	?	0·32	?	?	Meshed .	Persia.
...	2	7	3	6	...	2	...	12	8	?	?	55	·466	?	0	?	?	0·12	0·68	?	1·51	?	?	Bushire.	
...	1	2	3	2	1	...	9	12	4	?	?	55	·616	0	0	?	?	0	?	?	0	?	?	Muskat.	
...	1	...	7	5	...	...	6	11	13	?	?	61	·613	0·7	0	?	?	0	?	?	0·61	?	?	Jask.	
...	17	4	1	2	...	...	...	6	?	?	?	43	·279	?	1	?	?	0·20	?	?	0·95	?	?	Baghdad.	Arabia.
7	...	6	15	...	...	1	..	...	9	15	− 40	75	·800	3·3	0	?	?	0	?	?	0·07	?	?	Aden.	
...	4	...	7	7	7	...	...	5	21	?	?	71	·778	2·6	0	?	?	0·07	?	?	0·31	?	?	Perim.	
2	4	4	2	2	...	..	4	12	9	?	?	77	·865	4·5	5	?	?	2·72	?	?	3·88	?	?	Minicoy .	Arabian Sea Islands.
...	1	...	...	3	18	8	...	...	8	7	+ 14	86	·825	6·4	16	?	?	14·71	?	?	22·89	?	?	Zanzibar .	Africa.

* Kach—Wind observation for 12 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88

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 to 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	...	29·834	29·729	·105	29·775	−·026	29·765	90·8	78·4	12·4	93·8	76·0	17·8	86·2	87·3	82·9	− 0·8	75·4	80·1	80·2	78·6
	Rangoon	...	·838	·697	·141	·772	−·031	·749	96·7	74·8	21·9	101·9	70·3	31·6	85·9	91·8	83·5	− 1·0	72·0	75·6	76·0	74·5
	Diamond Island	...	·865	·755	·110	·802	−·024	·778	86·2	76·7	9·5	89·3	74·1	15·2	83·1	83·7	80·0	− 2·0	73·7	76·7	77·1	75·7
	Cocos Island	111	·748	·677	·071	·706	?	·756	91·0	73·3	17·7	94·6	70·3	24·3	87·4	85·2	80·0	?	71·2	77·9	76·6	75·7
	Akyab	...	·879	·768	·111	·821	−·011	·783	90·9	72·9	18·0	93·6	68·0	25·6	86·9	86·6	81·1	− 1·7	70·3	77·3	77·2	74·9
Assam.	Silchar	...	·783	·649	·134	·717	−·006	·772	87·2	67·8	19·4	93·5	61·4	32·1	78·7	83·7	76·5	− 1·2	66·4	72·7	74·1	71·1
	Sibsagar	...	·558	·434	·124	·494	−·004	·787	80·5	65·8	14·7	90·2	59·3	30·9	74·0	78·9	72·2	− 0·9	65·0	70·2	71·8	69·0
	Dhubri	...	·745	·591	·154	·662	+·004	·732	83·4	69·3	14·1	95·5	61·4	34·1	75·9	82·7	75·4	− 2·8	67·2	71·2	73·8	70·8
Bengal and Orissa.	Chittagong	...	·804	·693	·111	·743	−·005	·777	87·6	72·3	15·3	92·7	67·8	24·9	83·9	84·3	79·4	− 1·1	70·6	76·3	76·8	74·6
	Dacca	...	·825	·692	·133	·758	−·004	·727	90·2	73·0	17·2	96·0	65·8	30·2	83·8	87·7	80·7	− 1·6	70·6	76·2	77·4	74·7
	Calcutta (Alipore)	...	·800	·674	·126	·735	−·015	·702	92·3	75·1	17·2	96·5	69·7	26·8	86·0	90·1	83·2	− 1·6	72·4	77·1	77·0	75·5
	Calcutta (Chowringhee).	?	·807	?	?	?	?	?	94·1	75·2	18·9	98·2	69·8	28·4	87·4	?	84·7	?	73·4	79·0	?	?
	Saugor Island	...	·808	·691	·117	·745	−·011	·714	88·8	78·9	9·9	97·1	70·9	26·2	85·2	86·1	82·4	− 1·0	75·8	79·4	79·7	78·3
	Burdwan	...	·719	·573	·146	·644	−·006	·690	97·0	74·9	22·1	105·9	70·7	35·2	85·7	94·0	84·3	− 2·9	71·4	75·6	74·5	73·9
	Berhampore	...	·744	·600	·144	·670	−·007	·685	95·1	73·7	21·4	105·2	66·7	38·5	85·3	93·2	83·0	− 3·2	69·9	77·0	75·6	74·1
	False Point	...	·822	·699	·123	·759	−·023	·721	87·0	77·2	9·8	88·7	67·0	21·7	85·0	84·3	80·6	− 1·4	75·1	78·7	78·8	77·5
	Cuttack	...	·735	·590	·145	·668	−·028	·689	98·9	77·1	21·8	105·1	70·3	34·8	89·6	95·7	85·6	− 0·9	74·0	77·1	77·1	76·1
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·794	27·695	·099	27·747	−·027	·641	96·1	70·3	25·8	102·2	62·8	39·4	88·1	92·4	82·7	− 1·3	59·8	66·3	66·4	64·2
	Patna	...	29·601	29·460	·141	29·529	−·027	·661	97·8	72·8	25·0	105·6	65·7	39·9	89·6	95·6	84·6	− 2·0	65·8	72·0	71·6	69·8
	Darbhanga	...	·645	·499	·146	·579	−·002	·688	94·2	71·9	22·3	102·8	66·4	36·4	85·7	93·4	82·6	− 1·9	67·3	73·5	73·3	71·4
	Allahabad	...	·465	·328	·137	·392	−·034	·652	102·9	72·1	30·8	109·1	63·2	45·9	93·6	101·5	87·7	+ 0·1	61·8	69·6	69·6	67·0
	Ghazipur	220	·553	·431	·122	·488	−·015	·657	101·6	72·9	28·7	107·9	60·3	47·6	93·0	99·5	87·2	+ 0·2	66·2	73·0	73·5	70·9
	Lucknow	...	·397	·273	·124	·333	−·030	·656	100·5	70·1	30·4	107·3	60·0	47·3	91·9	97·9	86·0	− 1·4	65·3	69·8	70·3	68·5
Upper Sub-Himalayas.	Dehra Dun	...	27·587	27·489	·098	27·526	−·016	·680	88·2	62·2	26·0	93·9	54·3	39·6	79·1	84·7	74·9	− 2·1	56·6	63·9	64·7	61·7
	Roorkee	...	28·891	28·772	·119	28·823	−·012	·659	94·6	64·5	30·1	101·7	55·4	46·3	84·5	92·3	79·5	− 1·7	59·7	68·1	68·6	65·5
	Meerut	...	29·049	·930	·119	·983	−·012	·669	96·6	66·5	30·1	102·3	57·0	45·3	87·9	94·5	81·5	− 0·8	62·8	67·9	68·4	66·3
	Lahore	...	·071	·978	·093	29·020	−·024	·691	95·5	64·3	31·2	107·3	53·9	53·4	86·3	93·9	79·9	+ 0·8	59·4	68·9	70·1	66·1
	Ludhiana	...	28·946	·849	·097	28·891	−·036	·658	94·6	67·2	27·4	103·0	55·2	47·8	85·2	92·5	80·9	+ 0·5	62·2	70·1	72·0	68·1
Indus Valley and N.W. Rajputana.	Peshawar	...	·717	·614	·103	·661	−·030	·746	87·9	63·4	24·5	104·0	51·8	52·2	79·4	85·9	75·6	+ 3·3	57·2	65·4	67·7	63·4
	Mooltan	...	29·366	29·268	·098	29·312	−·022	·693	101·0	69·7	31·3	112·4	59·2	53·2	86·1	99·3	85·3	+ 3·9	62·2	73·6	79·6	71·8
	Jacobabad	...	·613	·483	·130	·543	−·010	·681	105·0	69·8	35·2	117·3	58·6	58·7	93·6	103·3	87·3	+ 2·2	63·7	63·8	70·6	66·0
	Kurrachee	...	·792	·704	·088	·747	−·032	·748	91·5	73·6	17·9	107·7	64·9	42·8	86·5	87·3	80·7	+ 1·5	70·1	77·3	79·0	75·4
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·388	28·276	·112	28·327	−·022	·693	101·4	70·1	31·3	109·5	59·7	49·8	92·4	99·3	85·8	+ 1·2	58·0	69·5	70·5	66·0
	Ajmere	...	·230	·115	·115	·166	−·019	·686	100·4	73·5	26·9	107·9	58·7	49·2	91·3	99·0	87·8	+ 3·9	62·9	67·3	69·6	66·6
	Deesa	...	29·378	29·245	·133	29·307	−·020	·713	105·1	71·9	33·2	111·5	63·1	48·4	92·2	103·6	88·9	+ 1·6	62·4	69·2	69·7	67·1
	Nowgong	...	·025	28·903	·122	28·959	−·037	·645	103·0	70·7	32·3	110·1	61·8	48·3	93·4	100·9	86·7	− 0·6	59.9	68·5	69·4	65·9
	Agra	...	·246	29 118	·128	·173	−·019	·670	103·3	74·2	29·1	110·5	64·1	46·4	93·6	101·5	88·7	+ 2·2	61·1	68·3	69·4	66·2
Deccan.	Belgaum	...	27·377	27·256	·121	27·321	−·003	·701	92·8	67·4	25·4	98·4	64·1	34·3	84·7	87·1	77·5	− 1·8	63·8	67·3	69·6	66·9
	Sholapur	...	28·284	28·129	·155	28·206	+·002	·680	103·0	73·9	29·1	106·7	70·1	36·6	92·0	101·0	87·7	− 1·1	61·7	69·5	70·8	67·3
	Poona	...	·044	27·916	·128	27·986	−·005	·709	100·3	68·8	31·5	104·4	65·3	39·1	90·6	94·8	83·7	− 0·9	61·2	66·4	67·7	65·1
	Akola	...	·905	28·732	·173	28·814	−·024	·662	104·4	70·5	33·9	108·6	61·0	47·6	93·2	103·2	87·9	− 2·4	60·2	68·7	69·8	66·2
	Buldana	2,132	27·734	27·614	·120	27·669	−·014	·664	99·4	75·0	24·4	102·7	68·7	34·0	89·5	97·1	87·4	− 0·6	59·1	64·7	65·0	62·9

II.

Stations in India, Burma, etc., for April 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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.	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 of the month.	Station.	Meteorological Province.
·841	·945	·938	·908	− ·024	87	76	73	79	+ 1	5·2	5·5	5·4	+ 1·3	2	4	11	7	18	4	2	7	5	S. 80° E.	N. 84° E.	27	45	91	113	...	Port Blair	Burma Coast and Bay Islands.
·749	·749	·686	·728	− ·062	87	61	49	65	− 2	2·3	4·1	3·2	− 0·1	...	2	2	2	8	19	12	10	1	S. 19° W.	S. 24° W.	52	60	131	136	...	Rangoon	
·797	·835	·841	·818	− ·040	88	74	73	78	+ 2	4·9	4·7	4·8	+ 1·8	...	12	3	2	3	...	4	5	31	N. 37° W.	N. 58° W.	65	73	290*	168	...	Diamond Island.	
·748	·830	·803	·814	?	94	64	66	76	?	3·0	3·4	3·2	?	...	20	19	6	...	3	6	4	2	N. 20° E.	?	48	?	376	?	2·27	Cocos Island	
·709	·810	·808	·776	− ·040	87	63	64	71	− 2	3·3	3·5	3·4	+ 0·4	...	1	7	2	4	14	10	17	5	S. 51° W.	S. 75° W.	38	40	88	97	...	Akyab	
·637	·729	·718	·695	− ·024	93	75	64	77	+ 1	6·1	6·7	6·4	+ 1·1	21	2	3	18	3	2	1	7	3	N. 85° E.	S. 86° E.	20	21	153*	81	...	Silchar	Assam.
·612	·690	·691	·664	− ·004	96	83	72	84	− 3	6·3	5·7	6·0	− 0·9	9	2	39	2	1	...	7	...	...	N. 43° E	N. 59° E.	59	51	43	67	..	Sibsagar	
·638	·704	·715	·687	+ ·033	88	79	66	78	+ 10	6·2	3·7	5·0	+ 1·7	6	3	31	11	3	3	2	1	...	S 84° E.	N. 74° E.	22	32	204	192	...	Dhubri	
·726	·808	·829	·787	− ·031	91	70	71	77	0	4·6	2·4	3·5	− 0·5	1	1	2	4	6	14	13	11	8	S. 40° W.	S. 12° W.	42	37	125	169	...	Chittagong	Bengal and Orissa.
·722	·805	·812	·780	− ·027	88	69	64	74	+ 1	6·1	5·7	5·9	+ 2·0	...	1	2	2	12	31	9	3	...	S. 6° W.	S. 4° E.	73	60	186	165	...	Dacca	
·767	·813	·757	·779	− ·036	88	65	53	69	− 2	3·0	3·1	3·1	+ 0·4	...	1	1	4	4	28	20	1	...	S. 10° W.	S. 3° W.	73	73	136	175	...	Calcutta (Alipore).	
·807	·883	?	?	?	92	68	?	?	?	?	?	?	?				Not	recorded.					?	?	?	?	?	?	0·22	Do. (Chowringhee).	
·852	·926	·929	·902	− ·037	86	76	74	79	− 1	6·2	5·0	5·6	+ 1·1	...	...	...	..	11	40	8	1	...	S. 1° E.	S. 20° W.	89	76	446	401	...	Saugor Island.	
·728	·751	·596	·694	+ ·041	84	61	38	61	+ 7	2·8	3·9	3·4	+ 1·0	9	1	2	2	8	20	13	5	...	S. 9° W.	S. 40° W.	55	40	187*	114	...	Burdwan	
·685	·817	·650	·718	+ ·088	82	68	44	65	+ 6	2·5	4·3	3·4	+ 0·2	...	3	1	15	6	19	11	5	...	S. 15° E.	S. 23° W.	47	32	110	124	...	Berhampore	
·848	·900	·912	·887	− ·019	91	75	77	81	− 3	5·1	5·1	5·1	+ 2·0	...	...	...	1	8	36	13	1	1	S. 9° W.	S. 38° W.	78	79	369	336	...	False Point	
·803	·770	·692	·755	− ·013	86	55	41	61	− 1	1·3	4·0	2·7	− 0·1	...	2	1	2	5	22	23	3	2	S. 21° W.	S. 17° W.	67	62	125	124	...	Cuttack	
·389	·379	·329	·366	+ ·070	53	29	23	35	+ 7	1·8	4·2	3·0	+ 0·4	3	10	3	4	3	9	4	11	13	N. 64° W.	N. 74° W.	27	49	222	201	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·548	·554	·458	·520	+ ·052	68	41	29	46	+ 5	1·7	1·3	1·5	− 0·5	1	3	14	21	4	1	...	10	6	N. 56° E.	N. 38° W.	40	27	148	108	...	Patna	
·613	·667	·555	·611	+ ·050	78	55	36	56	+ 5	1·4	1·6	1·5	+ 0·4	3	2	6	19	14	2	3	7	4	S. 77° E.	S. 24° E	37	8	140	138	...	Darbhanga	
·421	·408	·300	·376	− ·014	53	26	15	31	− 1	1·5	1·7	1·6	+ 0·2	...	9	7	6	4	4	4	10	16	N. 34° W.	N. 52° W.	32	25	144	86	...	Allahabad	
·561	·548	·484	·531	+ ·131	69	36	25	43	+ 11	0·8	1·2	1·0	+ 0·1	3	...	9	8	11	...	3	15	11	N. 34° W.	N. 82° W.	8	43	82	87	*Nil*	Ghazipur	
·564	·437	·372	·458	+ ·052	78	30	21	43	+ 9	1·6	2·6	2·1	+ 0·1	34	5	1	8	...	...	...	11	1	N. 25° W.	N. 53° W.	12	44	47	106	...	Lucknow	
·393	·407	·368	·389	?	70	41	31	47	?	2·4	3·2	2·8	0	7	8	4	1	2	5	11	18	2	S. 85° W.	N. 79° W.	37	21	36	62	...	Dehra Dun.	Upper Sub-Himalayas.
·453	·470	·388	·437	+ ·118	75	40	26	47	+ 13	1·9	2·5	2·2	+ 0·1	23	4	...	4	8	1	3	4	12	N. 53° W.	N. 73° W.	8	10	?	76	...	Roorkee	
·527	·420	·347	·431	+ ·032	81	32	22	45	+ 7	1·2	1·6	1·4	− 0·6	6	2	3	11	4	...	6	24	4	S. 89° W.	N. 53° W.	25	44	55	60	...	Meerut	
·449	·480	·423	·451	+ ·063	75	40	28	48	+ 11	2·4	2·4	2·4	− 0·2	13	12	3	7	3	2	2	10	8	N. 22° W.	N. 19° W.	25	26	61	80	...	Lahore	
·501	·537	·515	·518	+ ·113	75	45	34	51	+ 7	3·4	3·5	3·5	+ 0·5	12	18	2	4	4	3	...	9	8	N. 18° W.	N. 59° W.	33	27	90	52	...	Ludhiana	
·395	·459	·459	·438	+ ·027	71	49	40	53	− 1	3·2	5·0	4·1	− 0·5	11	6	12	6	6	5	2	5	7	N. 40° E.	N. 9° E.	18	24	125*	104	...	Peshawar	Indus Valley and N.-W. Rajputana.
·466	·673	·756	·632	+ ·178	64	53	40	52	+ 8	1·8	2·3	2·1	+ 0·4	4	...	24	...	8	...	10	...	14	N. 22° E.	N. 26° W.	25	13	39*	59	...	Mooltan	
·353	·376	·309	·346	− ·034	49	26	15	30	− 4	1·4	2·1	1·8	− 0·9	14	2	6	5	8	3	6	2	14	N. 17° W.	S. 84° E.	5	18	104*	94	..	Jacobabad	
·698	·819	·885	·801	+ ·086	83	66	69	73	+ 4	0·5	0·2	0·4	− 1·6	...	...	...	...	...	...	26	32	2	S. 72° W.	S. 62° W.	90	80	318	345	...	Kurrachee	
·336	·440	·388	·388	+ ·071	45	28	22	32	+ 4	1·8	2·8	2·3	+ 0·1	1	4	...	2	2	1	1	18	31	N. 58° W.	N. 43° W.	73	53	111	133	...	Jeypore	E. Rajputana, Central India and Guzerat.
·444	·375	·359	·393	+ ·002	53	25	19	33	− 1	1·2	2·0	1·6	− 0·4	1	6	...	...	...	1	3	40	9	N. 79° W.	S. 71° W.	84	52	199	131	...	Ajmere	
·448	·413	·276	·379	+ ·013	56	28	13	32	+ 4	0·9	1·7	1·3	− 0·5	...	5	1	2	...	3	14	20	9	S. 89° W.	N. 89° W.	63	53	231	225	...	Deesa	
·378	·365	·299	·347	− ·034	50	23	15	30	− 1	1·2	3·4	2·3	0	3	6	1	4	1	3	3	30	9	N. 77° W.	N. 76° W.	57	54	90*	68	...	Nowgong	
·369	·355	·290	·338	− ·001	43	23	15	27	− 1	0·4	1·1	0·8	− 0·6	...	3	7	...	8	...	12	1	29	N. 54° W.	N. 84° W.	40	44	130	114	...	Agra	
·548	·455	·512	·505	− ·014	82	39	41	54	+ 4	2·0	5·1	3·6	+ 1·0	...	9	5	5	2	3	13	15	2	N. 88° W.	S. 88° W.	29	25	335	314	...	Belgaum	Deccan.
·403	·440	·379	·407	+ ·025	47	30	19	32	+ 3	1·9	4·8	3·4	0	5	8	7	5	8	3	6	8	10	N. 27° W.	N. 18° E.	13	14	246*	205	...	Sholapur	
·453	·351	·345	·383	0	64	25	23	37	+ 6	2·3	4·3	3·3	+ 0·8	12	2	4	1	2	1	4	23	11	N. 76° W.	N. 35° W.	48	49	233	232	...	Poona	
·393	·378	·285	·352	+ ·067	52	25	13	30	+ 8	2·2	3·7	3·0	+ 1·3	7	2	...	7	3	...	...	18	23	N. 57° W.	N. 48° W.	50	57	154	131	...	Akola	
·310	·309	·218	·279	− ·035	36	23	13	24	− 2	1·6	2·0	1·8	− 0·7	6	7	4	...	1	...	1	6	35	N. 40° W.	N. 31° W.	72	55	211*	213	0·48	Buldana	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88

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 to 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—*contd.*	Khandwa	...	28·791	28·644	·147	28·713	−·019	29·677	103·7	73·2	30·5	107·2	63·6	43·6	93·1	101·5	88·9	−0·4	58·9	67·3	68·2	64·8
	Hoshangabad	...	·804	·662	·142	·728	−·037	·670	103·2	71·6	31·6	107·7	64·0	43·7	93·1	101·6	88·0	−1·4	59·0	69·4	71·2	66·5
	Nagpur	...	·785	·633	·152	·704	−·019	·646	104·0	74·7	29·3	110·1	68·4	41·7	94·7	101·7	89·6	−0·7	60·5	69·9	71·3	67·2
	Jubbulpore	...	·482	·347	·135	·410	−·021	·647	101·1	68·7	32·4	107·8	58·6	49·2	92·0	98·7	85·3	−0·9	59·8	66·5	68·1	64·8
	Saugor	...	·059	27·935	·124	27·992	−·027	·639	101·7	70·6	31·1	107·2	60·7	46·5	92·8	99·6	86·6	−0·1	57·5	65·8	66·6	63·3
	Raipur	...	·844	28·685	·159	28·760	−·022	·632	103·3	72·8	30·5	107·5	59·5	48·0	93·8	101·3	88·4	−1·5	61·4	70·6	71·1	67·7
	Sutna	...	·736	·604	·132	·665	−·041	·630	100·6	71·1	29·5	107·7	62·2	45·5	93·7	99·1	85·7	−0·4	58·3	66·3	65·8	63·5
	Secunderabad	...	·084	27·969	·115	·026	−·003	·697	100·4	73·8	26·6	106·0	68·5	37·5	89·0	96·8	85·9	−1·9	67·5	73·0	75·8	70·4
	Hyderabad (Deccan).	...	·181	28·063	·118	·119	?	·700	99·5	74·2	25·3	103·8	68·6	35·2	89·8	96·9	86·2	?	65·6	70·8	71·0	69·1
West Coast.	Bombay	...	29·860	29·718	·112	29·802	−·009	·779	89·3	77·9	11·4	94·6	74·1	20·5	85·0	85·7	82·7	+0·1	72·0	76·6	76·7	75·1
	Ratnagiri	...	·783	·678	·105	·729	+·002	·775	90·0	77·5	12·5	95·0	67·2	27·8	86·8	86·8	82·8	+0·4	72·3	77·5	77·8	75·9
	Karwar	...	·862	·755	·107	·807	−·005	·782	89·7	78·5	11·2	91·5	74·1	17·4	85·2	86·7	83·2	+0·5	74·6	77·4	78·1	76·7
	Cochin	...	·909	·793	·116	·849	−·004	·787	91·0	77·6	13·4	93·4	71·6	21·8	86·5	88·5	83·6	−0·7	75·3	78·9	79·3	77·8
South India.	Salem	...	28·971	28·803	·168	28·897	−·026	·747	100·0	73·4	26·6	106·5	67·1	39·4	88·1	97·2	84·8	−1·2	68·8	74·0	72·9	71·9
	Mercara	...	26·238	26·126	·112	26·182	−·020	·752	?	63·3	?	?	59·0	?	76·5	79·2	?	?	60·8	65·9	66·5	64·4
	Bangalore (Fort)	...	·935	·806	·129	·875	−·031	·700	93·6	67·4	26·2	97·4	62·3	35·1	83·4	91·1	79·9	−1·1	61·1	68·1	66·4	65·1
	Hassan	...	·875	·753	·122	·818	?	·716	93·1	64·5	28·6	97·6	60·4	37·2	84·0	87·6	77·4	?	62·6	70·4	70·6	67·9
	Chitaldroog	...	27·506	27·375	·131	27·440	?	·694	96·0	70·9	25·1	99·4	60·3	39·1	86·7	93·4	82·8	?	63·0	69·6	69·0	67·2
	Trichinopoly	...	29·634	29·474	·160	29·564	−·020	·743	101·6	76·0	25·6	105·8	70·9	34·9	89·9	98·1	86·7	−0·3	71·8	75·5	74·6	73·9
	Madras	...	·863	·747	·116	·812	−·011	·763	93·9	75·4	18·5	104·7	70·2	34·5	89·7	87·5	83·2	−1·6	?	78·3	78·8	77·8
	Bellary	...	28·403	28·257	·146	28·329	+·009	·697	102·2	75·5	26·7	105·3	71·2	34·1	92·6	99·6	87·9	−1·5	72·4	84·5?	89·0?	81·9?
	Vizagapatam	...	29·831	29·701	·130	29·763	−·026	·731	87·5	81·2	6·3	91·5	77·4	14·1	86·7	87·4	85·8	−0·5	73·7	79·8	80·8	78·1
Hill Station, Baluchistan.	Quetta	...	24·668	24·592	·076	24·622	+·038	?	76·2	47·7	28·5	86·6	35·4	51·2	69·2	72·7	61·1	+2·2	44·9	61·0	64·4	56·7
Hill Stations, Northern India.	Leh	11,503	19·763	19·678	·085	19·727	+·050	?	57·6	31·5	26·1	66·2	24·5	41·7	47·5	52·0	44·5	+1·7	28·0	37·7	39·7	35·1
	Srinagar	...	24·912	24·814	·098	24·855	?	?	67·8	45·8	22·0	78·3	37·1	41·2	58·5	65·7	56·3	?	44·7	52·2	55·2	50·7
	Murree	...	23·838	23·807	·031	23·815	−·009	?	68·0	52·1	15·9	80·8	39·1	41·7	62·4	64·7	59·2	+0·8	44·1	50·2	52·3	48·9
	Chamba	3,005	26·864	26·777	·087	26·833	−·028	?	81·5	57·5	24·0	90·2	47·3	42·9	70·4	77·5	68·3	−1·2	52·9	58·9	61·3	57·7
	Kailang	10,087	20·826	20·782	·044	20·817	+·009	?	51·7	30·2	21·5	64·9	18·0	46·9	44·6	47·1	39·6	−0·7	28·2	36·7	38·7	34·5
	Simla (Ridge)	...	23·118	23·068	·050	23·085	−·009	?	65·9	52·7	13·2	73·0	42·8	30·2	60·4	63·6	58·7	−1·0	44·6	48·9	51·4	48·3
	Simla (Chapslee)	?			Not recorded.				71·4	52·6	18·8	78·7	42·0	36·7	63·6	?	?	?	44·4	50·9	?	?
	Chakrata	...	·259	·199	·060	·221	−·020	?	68·2	50·8	17·4	75·1	39·6	35·5	63·3	64·3	58·4	−1·3	45·0	50·4	52·7	49·4
	Ranikhet	...	24·113	24·049	·064	24·070	+·007	?	72·5	55·9	16·6	79·3	47·5	31·8	67·0	69·5	63·5	−1·2	50·7	55·7	57·3	54·7
	Katmandu	4,388	25·595	25·510	·085	25·551	−·011	?	81·4	55·1	26·3	88·6	44·8	43·8	73·3	74·6	66·2	−0·2	53·3	61·8	61·4	58·9
	Darjeeling	...	22·979	22·886	·093	22·927	−·011	?	59·7	47·9	11·8	65·6	41·9	23·7	55·4	56·0	53·1	−0·6	46·2	52·1	52·3	50·4
	Demagiri	?			Not recorded.			?	87·5	70·3	17·2	91·5	64·7	26·8	80·8	86·4	79·0	+0·3		Not recorded		
	Tura	3,943			Ditto.			?	84·2	68·8	15·4	90·6	53·3	37·3	76·0	81·9	75·9	?	?	70·0	71·6	?
Hill Stations, Central India.	Mount Abu	...	26·060	25·979	·081	26·015	−·017	?	85·5	69·9	15·6	91·0	60·9	33·1	80·2	84·0	77·3	+1·5	54·7	59·3	62·0	58·7
	Pachmarhi	...	·459	26·354	·105	·402	−·012	?	91·8	68·5	23·3	96·5	58·2	38·3	84·5	89·6	81·1	−0·2	54·9	61·1	61·6	59·2
	Chikalda	3,642	·328	·223	·105	·271	−·016	?	90·9	72·0	18·9	93·8	67·9	25·9	82·7	88·6	82·4	−0·5	57·3	62·9	63·8	61·4
	Makbia	?			Not recorded.			?	98·0	75·8	22·2	99·6	70·6	29·0	86·6	95·7	87·1	+2·3	63·6	67·7	68·6	66·6

II—*continued.*

Stations in India, Burma, etc., for April 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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.	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 of the month.	Station.	Meteorological Province.
·332	·355	·278	·322	−·025	40	23	15	26	−1	1·7	2·4	2·1	+0·2	...	9	2	2	3	1	...	12	31	N. 44° W.	N. 49° W.	68	62	184	140	...	Khandwa.	Deccan—*contd.*
·351	·428	·388	·369	+·047	45	28	19	31	+4	1·6	3·7	2·7	+0·4	12	6	5	3	...	5	8	16	5	N. 82° W.	S. 89° W.	32	32	76	70	...	Hoshangabad.	
·355	·423	·387	·388	+·025	42	26	20	29	+2	1·4	3·1	2·3	−0·7	1	8	4	1	4	7	8	13	14	N. 76° W.	N. 63° W.	38	20	161	127	...	Nagpur.	
·409	·337	·307	·351	+·022	59	22	17	33	+4	1·1	2·7	1·9	−0·3	7	5	4	...	2	8	4	16	14	S. 77° W.	N. 66° W.	42	32	62	81	...	Jubbulpore.	
·316	·303	·245	·288	−·013	41	20	13	25	−1	1·1	2·3	1·7	+0·3	...	5	4	1	...	1	24	12	13	S. 89° W.	N. 73° W.	57	47	108	90	...	Saugor.	
·399	·443	·359	·396	−·014	51	28	18	32	−1	2·0	3·9	3·0	+0·6	15	5	3	1	...	1	14	16	5	S. 89° W.	N. 88° W.	43	35	137*	150	...	Raipur.	
·346	·309	·221	·292	+·043	47	19	12	26	+4	0·6	1·3	1·0	−0·8	1	8	1	1	2	6	2	12	27	N. 57° W.	N 60° W.	59	55	175*	168	—	Sutna.	
·665	·615	·630	·622	+·129	79	45	36	52	+13	1·2	2·8	2·0	−0·1	...	3	9	11	7	2	8	11	9	N. 11° W.	S. 21° E.	5	12	135	132	...	Secunderabad.	
·527	·521	·433	·492	?	62	38	25	42	?	1·3	2·6	2·0	?	9	5	4	9	8	4	1	12	6	N. 19° E.	?	3	?	108*	?	...	Hyderabad (Deccan).	
·708	·804	·798	·770	−·047	74	67	65	69	−6	2·5	2·5	2·5	+0·3	...	7	1	1	2	3	12	14	20	N. 75° W.	N. 52° W.	59	55	269	271	...	Bombay.	West Coast.
·727	·821	·834	·794	0	77	64	66	69	−1	3·2	5·9	4·6	+3·8	1	3	...	...	...	...	21	22	13	S. 87° W.	N. 76° W.	77	67	188*	242	...	Ratnagiri.	
·808	·838	·850	·832	+·005	83	69	67	73	0	3·1	3·1	3·1	+0·8	...	4	...	...	...	...	15	31	10	N. 89° W.	N. 84° W.	82	75	85	?	...	Karwar.	
·851	·875	·879	·868	−·018	90	69	65	75	−2	3·5	3·4	3·5	−0·3	...	2	6	1	1	1	...	24	25	N. 58° W.	N. 82° W.	70	55	181	?	...	Cochin.	
·647	·653	·481	·594	−·142	78	50	28	52	−6	3·8	5·0	4·4	+0·8	11	4	11	6	5	3	10	4	6	N. 40° E.	S. 7° W.	5	37	108	112	...	Salem.	
·508	·517	·508	·511	−·078	87	57	53	66	−7	5·7	6·6	6·2	+0·8	...	9	1	12	...	1	2	22	13	N. 50° W.	N. 70° W.	43	45	123	80	...	Mercara.	South India.
·474	·513	·365	·449	−·087	70	46	25	47	−6	1·6	2·8	2·2	−1·2	2	2	11	14	4	3	10	11	3	S. 77° E.	S. 33° W.	7	52	169*	85	...	Bangalore.	
·550	·591	·558	·566	?	90	51	45	62	?	3·3	5·9	4·6	?	...	2	13	13	9	1	3	11	8	N. 53° E.	?	20	?	124	?	...	Hassan.	
·480	·512	·408	·467	?	64	41	26	44	?	2·4	3·9	3·2	?	...	...	10	17	6	1	8	10	8	N. 77° E.	?	12	?	198*	?	...	Chitaldroog.	
·726	·691	·541	·653	−·071	81	49	31	54	−1	3·1	3·4	3·3	−1·2	21	...	9	5	3	...	11	9	2	S. 67° W.	S. 54° E.	8	17	73	99	...	Trichinopoly.	
?	·813	·871	·880	+·014	?	59	67	78	+4	2·9	3·1	3·0	+0·1	...	...	6	23	26	5	...	...	...	S. 67° E.	S. 40° E.	84	83	162	186	...	Madras.	
·761	1·083?	1·208?	1·017?	?	86	73?	66?	75?	?	2·3	3·3	2·8	−0·4	19	2	5	8	3	5	5	4	9	N. 9° W.	S. 37° W.	2	11	131	126	...	Bellary.	
·727	·939	·972	·879	+·040	68	73	74	72	+5	3·1	3·2	3·2	+0·6	...	...	...	...	...	13	27	20	...	S. 51° W.	S. 48° W.	85	64	48	91	...	Vizagapatam.	
·273	·463	·531	·422	+·166	82	68	70	73	+22	1·9	3·4	2·7	−0·8	17	3	1	3	3	5	4	5	19	S. 54° W.	N. 31° W.	32	36	104*	101	...	Quetta.	Hill Station, Baluchistan.
·126	·147	·144	·139	+·034	71	45	39	52	+9	5·2	6·0	5·6	−0·7	1	6	4	5	3	11	12	10	8	S. 63° W.	S. 54° W.	27	19	60	72	0·07	Leh.	Hill Stations, Northern India.
·286	·323	·323	·310	?	91	66	53	70	?	3·9	5·6	4·8	?	29	3	2	3	3	5	1	6	8	N. 70° W.	?	10	?	71*	?	...	Srinagar.	
·210	·243	·268	·241	+·009	56	46	46	49	0	3·6	4·8	4·2	−1·2	3	3	4	3	20	4	5	5	13	S. 43° W.	S. 40° E.	15	16	249*	216	...	Murree.	
·351	·370	·359	·360	+·047	73	50	40	54	+6	4·2	5·9	5·1	−1·4	17	8	1	1	1	2	2	3	25	N. 41° W.	N. 10° W.	50	17	124*	115	3·00	Chamba.	
·142	·153	·166	·153	−·014	83	53	53	63	+1	4·6	5·6	5·1	−0·9	...	1	1	...	4	4	27	10	13	S. 67° W.	S. 61° W.	62	72	43	51	2·82	Kailang.	
·213	·232	·258	·235	−·009	55	45	44	48	+2	3·8	4·7	4·3	+0·1	11	36	...	2	...	5	1	2	3	N. 5° W.	S. 69° W.	55	38	?	?	...	Simla (Ridge).	
·211	·245	?	?	?	55	43	?	?	?	3·8	?	?	?	Not recorded.									?	?	?	?	?	?	1·32	Simla (Chapslee).
·242	·235	·281	·253	+·049	64	40	47	50	+7	1·8	4·0	2·9	−0·7	3	...	2	7	1	...	6	36	5	W.	S. 68° W.	58	19	268*	143	...	Chakrata.	
·318	·326	·348	·331	+·069	71	47	45	53	+9	2·8	4·5	3·7	+0·5	6	4	1	2	...	1	3	42	1	N. 87° W.	S. 62° W.	70	47	89	84	...	Ranikhet.	
·400	·423	·399	·412	+·055	90	52	48	64	+5	4·6	7·0	5·8	+1·5	...	2	...	9	3	1	2	39	4	N. 89° W.	N. 83° W.	53	62	40	?	1·00	Katmandu.	
·300	·359	·358	·341	+·018	89	82	79	84	+9	6·9	8·1	7·5	+1·4	5	3	7	1	...	1	20	16	4	S. 81° W.	S. 72° W.	49	49	230	202	...	Darjeeling.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	3	...	...	21	5	2	1	26	2	S. 37° W.	S. 36° W.	10	6	?	?	3·03	Demagiri.	
?	·669	·655	?	?	?	75	61	?	?	4·1	4·2	4·2	+0·9	...	6	...	3	3	21	23	1	3	S. 25° W.	S. 5° W.	59	67	?	?	14·66*	Tura.	
·258	·268	·309	·279	+·031	36	26	26	29	+1	1·1	1·4	1·3	−0·9	...	8	4	...	...	...	7	21	20	N. 62° W.	S. 76° W.	70	53	168	187	...	Mount Abu.	
·276	·274	·226	·258	+·008	40	23	16	26	0	1·1	2·4	1·8	−0·3	...	8	3	5	2	1	5	21	15	N. 61° W.	N. 58° W.	50	47	197*	128	...	Pachmarhi.	Hill Stations, C. India.
·304	·348	·308	·320	+·044	39	31	23	31	+5	2·1	4·0	3·1	+0·8	9	19	1	...	...	3	1	4	23	N. 32° W.	N. 40° W.	63	48	213	192	0·02	Chikalda.	
?	?	?	?	?	?	?	?	?	?	3·3	3·1	3·2	−0·3	...	3	2	...	...	...	17	4	34	N. 67° W.	N. 68° W.	70	40	?	?	*Nil.*	Makhla.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88

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 to 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 . .	...	24·278	24·201	·077	24·240	+ ·001	?	75·4	54·2	21·2	78·6	49·8	28·8	71·4	70·0	63·4	−1·5	49·8	57·6	59·1	55·5
Extra India.	Muscat . .	...	29·872	29·783	·089	29·828	?	?	87·0	81·6	5·4	96·9	72·3	24·6	84·7	85·9	84·1	?	68·8	73·0	73·1	71·6
	Aden . . .	...	·844	·719	·125	·773	−·013	29·798	88·8	77·1	11·7	97·7	71·3	26·4	83·5	86·2	82·3	−0·4	71·5	75·8	74·4	74·0
	Perim . . .	...	·725	·597	·128	·652	?	?	87·7	78·3	9·4	89·3	72·2	17·1	84·2	83·6	82·0	?	73·4	75·8	75·7	75·0
	Minicoy . .	...	·933	·827	·106	·873	?	·808	89·3	Imperfect.		92·4	?	?	85·6	86·8	?	?	75·6	78·4	78·7	77·6
	Zanzibar . .	...	·940	·844	·096	·892	?	·892	83·1	76·1	7·0	88·0	72·0	16·0	79·6	81·4	79·2	?	73·4	75·6	75·7	74·5

II—*concluded.*

Stations in India, Burma, etc., for April 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	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.	NE.	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.			
·317	·335	·391	·347	—·045	75	44	54	57	— 6	3·1	4·9	4·0	—0·5	...	12	14	18	15	1	...	...	...	N. 75° E.	S. 49° E.	67	68	78	64	...	Wellington.	Hill Stations, S. India.
·536	·663	·650	·617	?	51	58	54	54	?	0·1	0·6	0·4	?	...	2	6	14	1	3	...	2	32	N. 13° W.	?	43	?	105	?	...	Muscat.	Extra India.
·704	·793	·699	·733	—·048	76	69	57	67	— 3	2·1	0·4	1·3	—1·4	2	...	13	24	6	5	8	1	1	S. 80° E.	N. 81° E.	52	61	405	373	...	Aden.	
·757	·782	·786	·775	?	77	67	68	71	?	0·5	0·9	0·7	?	...	9	...	14	14	13	...	...	10	S. 68° E.	?	30	?	506	?	...	Perim.	
?	·874	·875	?	?	?	71	69	?	?	4·5	4·8	4·7	?	1	13	7	6	1	...	...	7	24	N. 20° W.	?	60	?	208	?	...	Minicoy.	
·791	·833	·814	·812	?	88	82	76	82	?	5·7	5·4	5·6	?	...	1	2	1	16	30	9	...	...	S. 9° E.	S. 12° W.	77	64	186*	155	...	Zanzibar.	

* Corrected.

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METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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CALCUTTA, MAY, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of May 1893 is based on observations taken daily at 8 A.M. at 195 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 89 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 1893.

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 or 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. Pressure 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 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 winds, which usually prevail during the day 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 52 inches at Cherrapunji in the Khasia Hills, and averaging 10 inches for the whole area.

The weather in the months of January, February and March 1893 had been very exceptional. Unusually heavy rain had fallen, more especially in the Central Provinces, Berar and Hyderabad, where the rainfall of the period is usually very small. Excessive snow had fallen in the outer ranges of the Himalayas during the same months. The mean temperature conditions of April were, however, practically normal in North-Western India, thus indicating the probability that the excessive cold weather precipitation was not likely to delay the establishment of the south-west monsoon. The meteorology of the month of May has not only confirmed this inference, but has shown conclusively that high temperature conditions are only one, and by no means the chief factor in determining the strength and period of advance of the monsoon currents.

At the commencement of the month pressure was considerably below the normal over the whole of India, and temperature was more or less in defect except in Upper India and the Madras Coast districts. A hot weather depression was forming in Sind on the 1st. It marched slowly across North and Central Rajputana on the 2nd and 3rd, and filled up on the 4th. High temperatures were registered in Upper Sind during the formation of this depression, the highest being 118° at Jacobabad on the 2nd. Thunderstorms and duststorms occurred in the Punjab and North-Western Provinces on the 2nd and 3rd, and the filling up of the depression was followed by numerous series of thunderstorms in Bengal and Burma on the 4th and 5th. Bengal received general, and in some districts heavy, rain on the 4th from these storms. In Southern India numerous light to moderate showers occurred on the 5th, chiefly during thunderstorms. This general rainfall caused a considerable reduction of temperature in the Gangetic Plain and North-Eastern India and Southern India on the 3rd, 4th and 5th. Meanwhile temperature increased over the whole of North-Western and Central India, and the highest temperatures of the month in Upper Sind were recorded on the 5th and 6th. The highest maximum temperature at Jacobabad during the month was 119° on the 7th (*i.e.*, during the 24 hours preceding 8 A.M. of the 7th).

A depression due to hot weather actions formed on the 5th and 6th in Sind, which advanced eastwards and filled up on the 7th. It gave disturbed weather to the whole of Northern India on the 7th and 8th. The North-Western Provinces had light but fairly general rain on the 7th and 8th, and Bengal and Burma light to heavy general rain on the same days. Southern India obtained light rain from thundershowers on the 8th and 9th. A third hot weather depression appeared or formed in Upper Sind and the South-West Punjab on the 9th, which drifted eastwards and filled up. The barometric changes of the next four days (from the 9th to the 13th) were irregular, and weather was more or less disturbed in Northern India, and series of duststorms and thunderstorms were of daily occurrence in different parts of Northern and Central India. Light to moderate rain was received in the Punjab and the western districts of the North-Western Provinces on the 10th and 11th, and in Central India on the 11th, 12th and 13th. Malabar and Southern India obtained light daily rain from thundershowers during this period. The changes of temperature from the 1st to the 13th were large and irregular, and caused chiefly by the occurrence of duststorms and thunderstorms.

This period of feebly disturbed weather in Northern India terminated on the 14th. Pressure was on that day in slight to moderate excess in India, and in slight defect in Burma, and temperature was more or less below the normal except in Assam and Burma, where it was from 1° (at Rangoon and Bassein) to 6° (at Sibsagar) in excess.

The second period of the month commenced on the 14th. A shallow depression covered Central Burma on that day, and continued unchanged in position until the 16th. Lower and Central Burma obtained light showers during this period. Showery weather also continued in Southern India, but the falls were generally light. The first indications were shown on the 17th of the commencement of a large advance of monsoon winds up the Bay. Weather became squally with south-west winds and much rain in the south of the Bay on the 17th and 18th. Winds

were light and variable in the centre of the Bay. South-west winds and squally rainy weather advanced northwards up the Bay at an average rate of about 200 miles per diem during the next four days. This burst of heavy rain reached Port Blair and Mergui on the 19th, and Lower Burma on the 20th and 21st. Important pressure changes had occurred over India between the 17th and the 21st during this advance. Pressure had given way steadily over the whole Indian area, the fall being much greater in Northern than in Southern India. The range of pressure over the Indian land area had hence increased from ·14″ on the 17th to ·38″ on the 20th. Steep gradients obtained on the 19th and subsequent days in the Peninsula and the southern half of the Bay. Strong south-west winds prevailed in the south and centre of the Bay, and very strong westerly winds blew across the Peninsula. The area of light and variable winds in front of the advancing humid current in the Bay was transferred on the 19th to the north of the Bay, and that area was one of uniform pressure on the 20th and 21st. A cyclonic circulation was initiated on the evening of the 21st off the Orissa coast by the action of the advancing humid currents in the north of the Bay, and the strong westerly winds blowing across the Peninsula. The depression and storm increased steadily in intensity on the 22nd, 23rd and 24th, and moved very slowly northwards. It developed on the evening of the 24th and morning of the 25th into a cyclone, with a calm centre and an inner area of hurricane winds, and weather was exceedingly stormy in the north-west angle of the Bay on the 25th. Its rate of advance increased on the 24th and 25th from two miles to six miles per hour. The calm centre passed over the Pilot vessel *Sarsuti* about 30 miles west of the position of the Eastern Channel Lightship at 11-30 P.M. of the 25th, and at a short distance to the west of the S.S. *Red Cross* lying at anchor in the Hooghly a few miles west of Saugor Island at 4-30 A.M. of the 26th. The storm centre continued to advance northwards until about 4 or 5 P.M., when it was between Calcutta and Burdwan. It then re-curved (its velocity as usual in such cases diminishing considerably) from north to east-north-east during the evening of the 26th, and passed across South Bengal on the 27th. The centre was a little to the north of Calcutta at 8 A.M. of the 27th, and to the north-west of Dacca on the morning of the 28th. The storm broke up in Cachar on the 29th.

The cyclone is the most severe storm that has visited the head of the Bay in the month of May during the past 25 or 30 years. It is chiefly remarkable for the excessive rain it gave to the districts over which it passed. False Point received a total of 40·18 inches during the storm, one of the largest total falls during a cyclonic storm that has occurred for some years in the plains of India. The following rainfall data of the storm for Cachar, Bengal and Orissa show the excessive character of the precipitation :—

Division.	Average actual rainfall in previous 24 hours in inches.									Total of period in inches.
	21st.	22nd	23rd.	24th.	25th.	26th.	27th.	28th.	29th.	
Orissa . . .	0·46	1·10	3·66	4·82	4·19	2·68	0·17	0·29	0·23	17·60
South-West Bengal	0	0·08	0·09	0·25	0·68	2·88	3·11	1·17	0·10	8·36
East Bengal . .	0·14	0·09	0·08	0·11	0·45	1·67	4·03	2·88	1·31	10·76
Assam, Surma .	0·04	0·03	0·02	0·01	0·02	0·11	0·80	2·59	4·38	8·00

Manipur received very heavy rain on the 29th and 30th when the storm was breaking up, which gave rise to excessive floods in that valley.

The advance of the monsoon winds occurred later on the West Coast than in the Bay. Weather was fine with occasional showers in Southern India and Malabar until the 24th. The rainfall then increased in amount in Malabar, and extended northwards. General rain fell as far north as Bombay on the 26th, and continued during the remainder of the month. This burst was by no means so heavy as occasionally occurs during the advance of monsoon winds in the Arabian Sea. Falls in 24 hours exceeding 5 inches were in fact exceptional.

Temperature increased steadily in North-Western India from the 14th to the 24th, whilst the changes described above were in progress in the Bay and Arabian Sea areas.

The highest temperatures of the month in the Punjab were recorded on the 24th and 25th. The mean maximum or day temperature of the Punjab of the 24-hour period, ending at 8 A.M. of the 25th, was 110°·9 (7° above the normal of the day). Monsoon winds advanced from the west coast rapidly into the interior on the 25th and 26th, and fairly general light to moderate rain was received during the remainder of the month in the Central Provinces, Rajputana, Central India, the North-Western Provinces and East Punjab. As the first burst of monsoon rainfall occurred earlier than usual in these districts, the last week of May was an unusually cool period over the whole of India.

The mean temperature on the 31st ranged from 1° in defect in Madras to 7° in defect in the Central Provinces.

Pressure.—The mean pressure of the Indian land area was ·011″ below the normal. Pressure was locally in slight excess in North-Western India, and in local defect in the Peninsula, North-Eastern India and Burma. The deficiency was large in the area chiefly affected by the cyclone of the last week of the month, or in a belt stretching from Ganjam and the adjacent part of the Bay to Upper Assam. It was absolutely greatest at False Point (—·064″), Saugor Island (—·055″), and Calcutta (—·041″).

The deficient pressure over that area was not a quasi-permanent feature due to hot weather actions, but to the low pressure in the cyclone area in the north-west of the Bay during the last week of the month, and was followed in the month of June by well-marked and considerable temporary local increase of pressure.

The following table gives a summary of the pressure variation data of the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	Barometric variation.	Anomaly.
	"	"
Burma Coast and Bay Islands	—·022	—·011
Burma Inland	—·003	+·008
Assam	—·046	—·035
Bengal and Orissa	—·045	—·034
Gangetic Plain and Chota Nagpur	—·001	+·010
Upper Sub-Himalayas	+·015	+·026
Indus Valley and North-Western Rajputana	—·004	+·007
East Rajputana, Central India and Guzerat	+·013	+·024
Deccan	—·004	+·007
West Coast	—·005	+·006
South India	—·020	—·009

Temperature.—The variations of the mean maximum minimum and daily temperature were similar in character over the greater part of India. The mean day or maximum temperature was in slight to moderate excess in Assam and at Peshawar and Quetta. It was in defect over the remainder of India. The deficiency was more than 4° in amount in Burma, West Bengal, Orissa and Chota Nagpur, or in the areas of heaviest rainfall during the month. It was absolutely greatest at Cuttack (—6°·8), Thayetmyo (—6°·4) and Tounghoo (—6°·1).

The mean minimum temperature was below the normal except in Assam, North Bengal and North-Western India. The variations were generally small in amount. Minimum temperatures were in excess by more than 2° in the area represented by the following stations: Lahore, Mooltan, Jacobabad and Sirsa, in which the mean minimum temperature was from 2½° to 4½° above the normal.

The mean temperature of the month was in slight excess in Assam, the Punjab, Sind and Baluchistan. The variations were less than 2° except at Peshawar (+2°·6) and Quetta (+2°·5). Temperature was more or less below the normal over the remainder of India. The deficiency exceeded 2° in a belt of country stretching from the North-Western Provinces Himalayas, through Orissa and South-West Bengal to Burma, and was absolutely greatest in Central Burma where it was 3½°.

The mean temperature of the month was in slight defect at the stations in the outer range of the Himalayas, but was largely in excess at Leh (+4°·5) and Kailang +4°·0).

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	—4·4	—0·6	—2·6
Burma Inland	—6·4	—0·5	—3·5
Assam	+1·8	+1·5	+1·7
Bengal and Orissa	—4·3	—1·0	—2·7
Gangetic Plain and Chota Nagpur	—3·9	—0·6	—2·3
Upper Sub-Himalayas	—3·5	+0·6	—1·5
Indus Valley and North-West Rajputana	—0·7	+1·2	+0·3
East Rajputana, Central India and Guzerat	—2·4	—0·1	—1·3
Deccan	—2·9	—0·9	—2·0
West Coast	—1·7	—0·5	—1·1
South India	—1·2	—0·9	—1·2

The highest temperatures of the month were registered in Upper Sind on the 5th and 6th, and in the Central Punjab on the 24th and 25th. The actual temperatures registered were not remarkable, and the highest temperatures of the year, which are usually recorded in May, were in 1893 from 3° to 5° below those generally registered.

Winds.—The chief features of the mean air movement of the month over India were due to the unusual feebleness of the hot winds in Northern India during the first three weeks of the month, and to the earlier commencement of the first great advance of monsoon winds up the Bay and Arabian Sea in the third week of the month, and to their rapid extension over the whole of India before the end of the month.

Winds were steadier than usual in Burma. They were also unusually steady in Bengal and Bihar, but not quite so strong as usual. The area of most variable winds which usually occupies the central districts of the North-Western Provinces, was transferred to the western districts and the South-East Punjab.

Winds were steadier in Sind, but were not so strong as usual in that area, and also in Rajputana, Central India and the northern districts of the Central Provinces. They were on the whole normal in character on the west coast, but were unusually strong and steady in the Deccan, Berar and the central and southern districts of the Central Provinces. At several of the hill stations in Northern India, more especially Darjeeling, Chakrata and Simla, northerly winds prevailed to an abnormal extent.

Humidity.—There was a marked contrast between the humidity conditions of the coast districts and the interior. There was slightly less aqueous vapour than usual in Burma, Bengal and Orissa, the west coast districts and Southern India, but in consequence of the low tempera-

ture, the air was slightly more humid than usual. In Assam the air contained more vapour than usual, but was slightly drier, as the temperature in that area was abnormally high. Over the whole of the interior, including the North-Western Provinces, the Punjab, Rajputana, Central India, the Central Provinces and the Deccan, the air was abnormally damp, and the relative humidity was more than 10 per cent in excess at a large number of stations. The excess was absolutely greatest at Hazaribagh (+18) and Secunderabad (+16) and was most marked in the meteorological province of the Upper Sub-Himalayas. The mean humidity of the month was as largely in excess at the hill stations in Upper India as at the adjacent plains stations. The excess at these stations was greatest at Chakrata and Ranikhet, where it averaged 14.

Cloud.—Skies were more clouded than usual over the whole of India almost without exception. The excess was greatest in Burma, Bengal and Orissa, or in a portion of the area in which the absolute humidity was below the normal. The excess was moderate in amount in the Peninsula, Central India and Rajputana, and was small in the meteorological province of the Upper Sub-Himalayas, where the absolute humidity was most largely in excess. There was a slight deficiency in the mean cloud amount in the Indus Valley, and a large deficiency in Upper Assam at Sibsagar (—3·4). The variations of the cloud amount and the aqueous vapour pressure (or absolute humidity) were hence opposite in character over a large part of the Indian area.

The following table gives variations of the mean aqueous vapour pressure, mean humidity and mean cloud amount from the normal in 10 meteorological provinces of India:—

Division.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	"		
Burma Coast and Bay Islands	—·006	+ 6	+1·8
Assam	+·031	— 2	—0·6
Bengal and Orissa	—·024	+ 3	+1·9
Gangetic Plain and Chota Nagpur	+·053	+ 9	+1·4
Upper Sub-Himalayas	+·128	+11	+0·4
Indus Valley and North-West Rajputana	+·087	+ 5	—0·1
East Rajputana, Central India and Guzerat	+·076	+ 7	+1·1
Deccan	+·081	+ 9	+0·9
West Coast	—·012	+ 2	+0·6
South India	—·015	+ 1	+0·7

Rainfall.—Thunderstorms were of frequent occurrence in various parts of India from the 1st to the 13th or 14th. Bengal received almost daily rain during the whole of the period, Assam fairly general rain from the 1st to the 8th, the North-Western Provinces from the 4th to the 8th, and the Punjab on the 10th and 11th. This hot weather rainfall was lighter than usual in North Eastern India and more especially in Assam, where abnormally dry weather obtained from the 9th to the 20th. The Deccan and Southern India also obtained light to moderate rain, chiefly from thunderstorms during the same period. The next ten days was a dry period over nearly the whole of India. Burma and Southern India only received light to moderate rain during this period.

A strong advance of monsoon winds commenced in the Bay on the 17th and 18th and advanced steadily northwards. Burma hence received rain in increasing amounts from the 19th and 20th, when this current began to affect that area. A cyclone formed in front of this advance in the north-west of the Bay, which passed by a curved path through Bengal into Cachar. It gave a very heavy downpour of rain to the districts through which the storm passed. This rainfall was exceptionally heavy in Orissa. False Point received 40·18 inches of rain during the storm. The following gives average data for the three districts of Orissa:—

District.	Rainfall.		
	Mean actual for May 1893.	Mean normal for May.	Percentage Variation.
	Inches.	Inches.	
Puri	17·57	2·76	+537
Cuttack	32·08	3·95	+712
Balasore	24·76	4·95	+400

The breaking up of the storm was followed by a feeble advance of humid winds up the Gangetic Plain.

The monsoon current in the Arabian Sea was a little later in advancing northwards than the current in the Bay. It began to give general rain to the West Coast districts on the 24th and 25th, and extended rather rapidly into the interior as far as Berar. The Central Provinces, Central India, East and South Rajputana, the North-Western Provinces, and the East Punjab hence received an early moderate burst of monsoon rainfall during the last four days of the month from this advance.

The total rainfall of the month was therefore more or less considerably in excess over the whole of India, with the exception of the following districts of Madras, Tinnevelley, Trichinopoly, Chingleput, Arcot, and Nellore, and the northern districts of North Bengal and the Assam Valley. The excess was large in amount in the West Coast districts and Burma, and was very great in Orissa and those parts of Bengal directly affected by the storm of the last week of the month. The general

character of the distribution of the rainfall of the month is shown by the following statement :—

Meteorological Province.	Rainfall.		
	Mean actual for May 1893.	Mean normal for May.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	20·84	12·07	+8·77
Burma Inland	7·57	4·65	+2·45
Assam	11·83	14·64	−2·82
Bengal and Orissa	16·18	6·76	+8·94
Gangetic Plain and Chota Nagpur	2·91	1·98	+0·93
Upper Sub-Himalayas	2·00	1·12	+0·88
Indus Valley and North West Rajputana	0·91	0·48	+0·41
East Rajputana, Central India and Guzerat	0·76	0·47	+0·48
Deccan	2·85	1·03	+1·95
West Coast	9·30	5·55	+4·71
South India	2·35	2·75	−0·59

The following table gives data for the dry area in Madras during the month :—

District.	Rainfall.		
	Mean actual for May 1893.	Mean normal for May.	Percentage Variation.
	Inches.	Inches.	
Chingleput	0·72	2·56	−72
South Arcot	1·13	3·30	−66
Nellore	0·71	1·66	−57
North Arcot	1·49	2·94	−49
Tinnevelly	1·03	1·81	−43

Atmospheric Pressure.

Pressure averaged ·011″ in defect over the Indian land area. Relatively to the general condition, pressure was in slight to moderate excess to the west of a line joining Mercara, Amraoti, Raipur and Hazaribagh. The excess was slightly greater than ·020″ in the East Punjab, and over the greater part of the North-Western Provinces, Rajputana and Central India. It was above ·030″ at the stations for which data are given below :—

District.	Station.	Variation of the mean pressure of the month from normal.	Anomaly.
		″	″
Punjab	Sialkot	+·021	+·032
	Ludhiana	+·023	+·034
North-Western Provinces	Gorakhpur	+·024	+·035
Central India	Neemuch	+·022	+·033
	Indore	+·020	+·031
Bombay	Malegaon	+·024	+·035

Pressure was locally in defect over the eastern half of the Peninsula and in North Eastern India, the deficiency being very large in amount in the area affected by the cyclonic storm of the last ten days of the month. The following gives data for stations at which the negative anomalies were more than ·010″ in amount :—

District.	Station.	Variation of the mean pressure of the month from the normal.	Anomaly.
			″
Bengal	False Point	−·075	−·064
	Saugor Island	−·066	−·055
	Calcutta	−·052	−·041
Assam	Sibsagar	−·056	−·045

The large deficiency of pressure in Orissa and South-West Bengal was hence almost entirely an effect of the slow development and advance of the cyclone in the north-west angle of the Bay in the fourth week of the month.

Barometric depressions and Cyclonic storm of the month.

At the commencement of the month pressure was considerably in defect over the whole of India. The deficiency was greatest in a belt stretching from the West Punjab to Ganjam and the Circars, and exceeded two-tenths of an inch in the West Punjab. Pressure increased rapidly but irregularly over the greater part of Northern India during the next 24 hours, and the distribution of pressure was considerably modified. A shallow depression due to hot weather conditions in Upper India now covered North Rajputana and the South Punjab. Weather was disturbed with numerous duststorms in Upper India, and was showery in Burma and South India. Pressure continued to increase generally on the 2nd and 3rd, and the Upper India depression disappeared on the 4th. Numerous thunderstorms occurred in Bengal and Burma on the afternoon and evening of the 3rd. Pressure began to give way in North

Western India on the 4th, and on the morning of the 6th a shallow depression due to hot weather actions had formed in Sind. The pressure changes were very irregular during the next 24 hours, and weather was feebly unsettled over nearly the whole of India, series of thunderstorms occurring in North Eastern and Southern India, and duststorms in North Western and Central India. Bengal received moderate to heavy general rain in the afternoon and evening of the 7th during thunderstorms.

Pressure increased rapidly but very irregularly during the next 24 hours over the whole of North Western and Central India, and was more or less largely above the normal on the morning of the 9th. The pressure excess was nearly a quarter of an inch in amount at Sialkot and Roorkee. These changes accompanied a low pressure area (relative to neighbouring districts) in the South-West Punjab and North-West Rajputana, with very steep gradients to the north and east. Weather was disturbed with numerous duststorms and thunderstorms in the East Punjab and western districts of the North-Western Provinces. A rapid rise of pressure in Rajputana and the South-West Punjab during the next 24 hours filled up the low pressure area in these districts.

Pressure decreased rapidly and very irregularly on the 10th and 11th over India generally, and weather was disturbed with numerous thunderstorms and duststorms on those days in the Punjab. Bengal and Southern India received daily local showers during this period. A quicker fall of pressure occurred on the afternoon of the 11th, which reduced pressure to its normal value over nearly the whole of India. There was a considerable deficiency in Tenasserim and the Andaman Sea. The barometer rose to a moderate extent during the next 24 hours, and the pressure changes of the next three days were smaller and much less irregular than they had been for sometime. The chief feature from the 13th to the 16th was the formation of a shallow depression in Central Burma, which determined light showers to Lower Burma. On the 16th and 17th changes were in progress in the south of the Bay which initiated the first great advance of monsoon winds in the Bay, which was accompanied by the formation of a severe cyclone. The history of this advance and of the cyclone is given below.

Cyclone of the 21st to the 29th May.—This storm was the most severe that has occurred during recent years in the Bay of Bengal in the month of May. It formed in the usual manner in front of an early advance of monsoon winds, which commenced in the south of the Bay on the 16th. Fine weather with light unsteady winds prevailed over the whole Bay area on the 15th. Winds were strengthening at Colombo and at the entrance to the Bay. Pressure fell over the whole Indian area to a moderate extent during the day. Gradients were very slight at this time, the whole range of pressure over the Indian land area being less than ·15″. Winds were normal in direction in Northern India. Weather was showery in South India.

16th May.—Pressure was in slight to moderate excess in North Western India, and in moderate defect in Burma and Southern India. Skies were clear in North Western and Central India, where ordinary hot weather conditions obtained. Temperature was below the normal over the whole of India, with the exception of Assam and a part of Bengal. The mean temperature of the previous 24 hours was 8°·2 above the normal at Sibsagar and 6°·6 at Dhubri. Burma and South India had received light local thundershowers. In the Bay area the conditions were unchanged. Strong south-west winds obtained at the entrance to the Bay, but to the north weather was fine with light airs and calms.

The following data are extracted from the logs of ships:—

	Name of vessel.	8 A.M. position.		Wind.		Weather and sea remarks.
		Lat. N.	Long. E.	Direction.	Force.	
		° ′	° ′			
Entrance to Bay.	SS. *Megna*	6·20	81·59	SW	7	High sea.
	SS. *Lombardy*	5·44	87·29	SW	5 to 6	Squalls and rain.
Centre and North of Bay.	SS. *Kendal*	11·34	88·59	SW	2	Slight head swell.
	SS. *Clitus*	12·39	84·46	Var.	2	Dull, cloudy.
	SS. *Nairung*	19·32	86·05	S	2	Clear.
	SS. *Narbudda*	20·33	88·55	WNW	2	Fine and clear.

Port Blair experienced light west-north-west winds during the day with cloudy skies and light showers.

Pressure was slightly higher in the south than in the north of the Bay. The pressure difference between Saugor Island and Port Blair was slightly less than ·02″. The Bay area was hence characterized by nearly uniform pressure, and winds were light and unsteady. Skies were cloudy in the south and clear in the north, where weather was fine. Weather was, on the other hand, squally with strong south-west winds and much rain in the south of the Bay, and there were feeble indications of the probable early northward extension of these winds.

17th May.—Pressure had increased over nearly the whole of India during the previous 24 hours, and the range of pressure was even smaller than on the previous day. No change of importance had occurred in the meteorological conditions of India. Weather was showery with light winds in Burma, and was now fine and dry in Southern India. The mean temperature of the previous 24 hours was 7° above the normal in Assam. Weather was squally

with moderate to strong winds at the entrance to the Bay. Pressure was very uniform over the north and centre of the Bay, and winds light and unsteady.

The conditions over the Bay are indicated in the following logs of vessels navigating the Bay.

	Name of Vessel.	Position 8 A.M.		Wind 8 A.M.		Weather and sea remarks.
		Lat. N.	Long. E.	Direction.	Force.	
		′	°			
Entrance to Bay.	SS. *Lombardy*	6·09	84·42	SW	4	Hard squalls of wind, heavy rain.
	S. *Volga* .	13·50	84·05	SW	3 to 4	Overcast.
Centre and north of Bay.	SS. *Clitus* .	16·43	86·11	NW	2	Overcast.
	SS. *Colaba*	16·54	90·14	S	2	8 P.M. squally.
	SS. *Ethiopia*	19·26	90·05	SE	2	Fine.

The observations at the coast stations are interesting, as they confirm the inferences respecting the meteorological conditions in the Bay, deduced from the marine data. The following table gives 8 A.M. data for five coast stations :—

Station.	Barometer.			Wind.		Cloud.	Rainfall.	Weather.
	Reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"					
Mergui .	29·765	+ ·017	?	SE	?	10	che 0·74	Distant lightning, drizzling.
Port Blair .	29·714	— ·003	?.	WSW	5	10	0·04	
Diamond Island.	29·696	— ·014	— ·061	ESE	4	9	0·72	Sea slight.
Saugor Island.	29·700	— ·002	+ ·016	SW	14	8	...	Sea slight.
Madras .	29·740	+ ·042	+ ·018	SSW	6	2	...	

18th May.—Pressure had decreased slightly to briskly in Northern India and the north of the Bay, and had risen in the southern half of the Bay and South India. Gradients were hence slightly steeper. Winds were unchanged in direction in Northern India, but were unusually feeble in the Gangetic Plain. Temperature was excessive in Assam, and was considerably below the normal in Burma and Malabar. Elsewhere the variations were small and not important. A feeble advance of monsoon winds commenced on the Malabar Coast. Mangalore and Calicut had each received over two inches of rain. Winds had strengthened considerably at Colombo, and were now blowing strongly from south-west. Heavy rain had begun to fall at Port Blair and Mergui, indicating a northerly advance of humid winds in the south-east of the Bay, similar to that which had occurred along the Malabar Coast.

The following table gives 8 A.M. observations at some coast stations on this day :—

Station.	Barometer.			Wind.		Cloud.	Rainfall.	Weather.
	Reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches	
Mergui .	29·839	+ ·074	?	S	?	10	2·37	Distant lightning.
Port Blair .	29·751	+ ·037	?	WSW	7	10	1·82	
Diamond Island,	29·696	·0	— ·051	SSE	6	8	0·02	Sea slight.
Saugor Island.	29·648	— ·052	— ·033	WSW	14	8	...	
Madras .	29·721	— ·019	+ ·009	SW	10	5	...	
Colombo .	29·842	+ ·010	+ ·025	SW	15	10	0·87	Sea rough.
Galle . .	29·867	+ ·021	?	W	12	0	0·88	

The following summary of observations taken on board vessels in the Bay indicates the character of the weather in that area :—

Name of vessel.	Position.		Wind.		Weather and sea remarks.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
SS. *Kendal* . .	8·10	84·23	SW	5	Squally, moderate head swell.
S. *Lathom* . .	8·08	84·27	SW	6	Squally.
SS. *Colaba* . .	14·57	88·47	SW	4	Squally with rain.
SS. *Ethiopia* . .	16·24	93·21	S	2	Squally and rainy; sea smooth.
S. *Port Glasgow* .	18·07	85·26	WNW	2	Fine.
SS. *Africa* . .	17·09	92·29	NW by N	2	Rain squalls at times.
SS. *Virawa* . .	18·35	87·05*	SW	2	.....
F. L. V. *Canopus* .	Intermediate station.		SE	3	A heavy bank to the S.E.; a light SSE swell but increasing; calm and a light southerly breeze during the day.

* Noon position.

These observations establish that a strong south-west monsoon obtained as far north as Lat. 8° or 9° N., and that the northward extension of these humid winds was giving heavy rain in the south-east of the Bay as far north as Lat. 12°N, and squally weather as far north as Lat. 16° N. Skies were clouded as far north as Lat. 18° or 19° N., but were clear at the head of the Bay.

19th May.—Pressure had continued to fall in Northern India, the eastern half of the Peninsula and the Bay area, and had increased in the western half of the Peninsula. A low pressure area covered Chota Nagpur and the eastern districts of the Central Provinces, and steep gradients favouring strong westerly winds obtained in the Peninsula. Skies were as hitherto clear in North Western and Central

India. Temperature had increased generally and was above the normal, except in the areas of rainfall in Burma and Western India. Light to moderate rain had fallen in Burma, and local thundershowers in Malabar, the South Deccan and South Madras.

The following table gives the 8 A.M. observations of six coast stations in the Bay of Bengal :—

STATION.	BAROMETER.			WIND.		Cloud.	Rainfall.	Weather.
	Reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches	
Mergui .	29·818	—·021	?	SE	?	9	5·15	Distant lightning.
Port Blair .	29·720	—·031	?	WSW	13	10	2·78	Passing squalls
Diamond Island.	29·661	—·035	—·076	S	11	10	0·48	Sea slight.
Saugor Island.	29·612	—·036	—·062	WSW	11	8	...	Do.
Madras .	29·736	+·015	+·033	WSW	8	8	...	
Colombo .	29·859	+·017	+·045	SW	16	10	0·79	Sea rough.

Moderately steep gradients prevailed to the south of Lat. 16° N., but over the north of the Bay pressure was approximately uniform. The chief features indicated by the preceding observations were the heavy rainfall at Mergui and Port Blair, and the increasing force of the winds, more especially at Colombo, Port Blair and Diamond Island.

The following table gives a summary of the observations taken on board ships in the Bay :—

NAME OF VESSEL.	POSITION.		WIND.		Weather and sea.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
SS. *Kendal* .	7·02	83·13	SW	6	Heavy sea.
S. *Lathom* .	11·36	84·54	SW	6	Gloomy.
SS. *Colaba* .	13·02	87·24	NNE	6	6-30 A.M. heavy NW squalls and torrents of rain.
SS. *Virawa* .	16·35	86·10	SW	5	Noon squally with confused sea.
SS. *Maharani* .	21·06	90·19	Var.	2	Fine and clear.

Strong south-west winds continued in the south of the Bay, and had now advanced to the centre of the Bay. Winds were light and variable in the north-west of the Bay. Weather was squally over the south and centre of the Bay, and rain had commenced to fall in the north-east of the Bay off the Arakan coast. There were, however, as yet no indications of the establishment of a cyclonic circulation of winds.

20th May.—Pressure had given way during the previous 24 hours over the whole Indian area. The fall was large in Upper India and the Bay area, and moderate elsewhere. Steep gradients obtained in the southern half of the Bay, and in the Peninsula and North-Western India. Temperature continued to increase in North-Western India, and was more or less above the normal except in Burma and the western half of the Peninsula, in which districts light or moderate rain had fallen during the previous day. Very strong westerly winds were blowing across the Peninsula and down the Gangetic Plain.

The following table gives the 8 A.M observations at nine coast stations of the Bay :—

STATION.	BAROMETER.			WIND.		Cloud.	Rainfall.	Weather.
	Reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches	
Mergui .	29·757	—·061	?	SSE	?	10	2·14	Thunder. Drizzling.
Port Blair .	29·635	—·085	?	WSW	11	10	2·66	Passing squalls
Diamond Island.	29·583	—·078	—·149	S	15	10	0 77	Sea rough.
Akyab .	29·571	—·070	—·153	E	2	9	1·60	
Chittagong	29·588	—·057	—·128	NE	4	10	1·19	Thunderstorm.
Saugor Island.	29·571	—·041	—·098	WSW	10	9	...	Sea smooth.
Gopalpur .	29·550	—·041	?	SSE	9	1	...	Sea slight.
Madras .	29·652	—·084	—·043	W	9	10	...	
Colombo .	29·853	—·006	+·045	SW	13	10	0·07	Sea rough.

These observations indicate that strong southerly winds had advanced northwards to the latitude of Diamond Island, and that the humid current, of which these winds formed a part, was now giving rain to the Arakan coast as far north as Chittagong. Weather was fine with light winds and slight to moderate cloud in the north-west of the Bay.

The following table gives data, showing the character of the weather in the Bay :—

NAME OF VESSEL.	POSITION.		WIND.		Weather and sea.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
SS. *Nubia* .	10·15	83·30	WSW	5	4 A. M. squalls at times.
SS. *Colaba* .	12·39	86·12	W	4	Squally with heavy rain and heavy head sea.
S. *Lathom* .	12·50	85·22	SW	2	Dark gloomy with thunder and lightning.
SS. *Kut Sang* .	15·28	92·40	SSW	4	Heavy squalls of wind and rain with rough sea.
SS. *Wing Sang*.	16·18	91·48	N	2	Cloudy, heavy S.W. swell.
SS. *City of Cambridge*.	17·56	87·02	WSW	3	Overcast.
S. *Port Glasgow*.	19·42	85·26	W	2	Fine.
SS. *Africa* .	Saugor.		S	2	Fine.
F.L.V. *Canopus*	Intermediate station.		W	2	A bank to the SE; an unsettled appearance in the weather. Wind variable and SSE swell.

The weather conditions in the Bay on the 20th were similar to those of the preceding day. South-west winds of force ranging from 4 to 6, prevailed over the whole of the Bay to the south of Lat. 16°, and weather was squally with much rain. To the north of Lat. 16° winds were light and somewhat irregular, and the influence of the advancing monsoon current was chiefly exhibited off the Arakan coast, where weather was becoming squally, but there were no indications as yet of the unsettled squally weather developing into a cyclonic storm.

May 21st,—Pressure had again given way over nearly the whole Indian area, but the barometric changes were everywhere small, and hence the distribution of pressure was practically unchanged. The chief features were, nearly uniform pressure over the north of the Bay or the north of Lat. 16° N., and steep gradients over the southern half of the Bay and in North Western India and the Peninsula. Very strong westerly winds were hence blowing across the Peninsula and down the Gangetic Plain. Winds were very light and unsteady in Bengal, and several stations reported calms at 8 A.M. The temperature conditions were unchanged, the chief feature being excessive temperature in Assam and the Punjab, where the mean temperature of the previous 24 hours was from 4° to 8° above the normal, and much lower temperature than usual in Burma and the Deccan, due to continued rainfall in these areas. The rainfall of the previous 24 hours was moderate to heavy in Burma, and light in the Deccan.

The first indications of the formation of a cyclonic storm were shown on this day. The following table gives observations at nine stations :—

Station.	Barometer.			Wind.		Cloud.	Rainfall.	Weather.
	Reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches	
Mergui .	29·789	+·032	?	SSW	?	10	1·60	Thunder and lightning.
Port Blair .	29·648	+·013	?	WSW	11	10	0·68	Raining
Diamond Island.	29·590	+·007	−·146	SW	24	10	1·84	Sea very rough.
Akyab .	29·543	−·028	−·182	NE	2	10	0·54	...
Chittagong .	29·565	−·023	−·149	NE	3	8	0·02	Thunderstorm.
Saugor Island.	29·530	−·041	?	N	8	8	...	...
Gopalpur .	29·502	−·048	?	S	9	0	...	...
Madras .	29·707	+·055	+·027	W	9	10	0·22	Thunderstorm.
Colombo .	29·806	−·047	0	SW	16	10	0·78	Sea rough.

The observations show that there was now probably a very shallow depression in the north of the Bay, as winds had strengthened rapidly at Diamond Island, and had shifted to north or north-east at the head of the Bay. The rainfall was also smaller than on the previous day, thus indicating the concentration of the precipitation, which usually accompanies the formation of a cyclonic storm in the Bay.

The following statement gives data for the Bay area extracted from the logs of ships :—

Name of Vessel.	8 A.M. Position.		Wind.		Weather and sea.
	Lat. N.	Long. E.	Direction.	Force.	
	°	° ′			
SS. *Sutlej* .	5·58	89·04	SW by S	5 to 6	Heavy rain.
SS. *Kut Sang* .	12·39	94·47	SW	7	4 A.M. squally.
S. *Lathom* .	13·32	85·32	SW	...	10-15 A.M. terrific NW squall.
SS. *Nubia* .	13·54	84·40	SW	5	Hazy.
SS. *Pundua* .	17·37	92·16	SW	2	Squally with rain and moderate sea.
SS. *Palamcotta*	19·23	90·08	ESE	4 to 5	Dark gloomy.
SS. *Wing Sang*	19·54	89·07	NE	3	Overcast, slight sea.
S. *Volga* .	20·10	87·17	NNW	1	Noon dull and cloudy.
SS. *City of Cambridge.*	21·06	87·57	N	1 to 0	4 P.M. cloudy.
F. L. V. *Canopus*	Intermediate Station.		N	3	A sharp south-south-east swell and unsettled and threatening appearance in the weather, and a light variable breeze. Distant thunder to the eastward during the day.
S. *Port Glasgow.*	20·10	86·23	NW	2	Fine.

Weather was hence squally with strong south-west monsoon winds and much rain in the south and centre of the Bay. The increasing disturbance in the advancing monsoon current is shown very fully by the weather ex-

perienced during the day by the ships *Lathom* and *Port Glasgow* :—

Name of Vessel.	Hour.	Position. Lat. N.	Position. Long. E.	Wind. Direction.	Wind. Force.	Weather and sea.
		° ′	°			
Lathom.	4 A.M.	...	...	SW	...	.....
	8 A.M.	13·32	85·32	SW	...	10-15 A.M. Terrific north-west squall.
	Noon	13·38	85·32	NW	...	Terrific gale at north-west. 1 P.M. Wind freshening again from south-west, dark gloomy with much rain and lightning.
	4 P.M.	...	...	SW	7	4 P.M. Similar weather and moderate gale.
	8 P.M.	...	...	SW	7	Ditto.
	Midnight	...	...	SW	8	Fresh gale.
Port Glasgow.	4 A.M.	...	...	NW	2	Light variable winds. Fine.
	8 A.M.	20·10	86·23	NW	2	Fine.
	Noon	20·14	86·33	NNW	2	Fine.
	4 P.M.	...	...	NW	...	Squalls and blowing with gusts of wind and much lightning.
	8 P.M.	...	...	NW	...	Ditto.
	Midnight	...	...	NW	...	Ditto.

The logs of the ships in the north-west of the Bay indicate clearly that the cyclonic disturbance was in the initial stage, and that winds were shifting in a manner indicating the tendency to the establishment of a regular cyclonic circulation, but they were not only light and unsteady, but also very irregular vessels in the same quadrant in several cases having the wind from opposite directions. The depression, however, developed rapidly during the day, and before evening the cyclonic circulation was fully established. The history of the storm proper hence commences from the evening of the 21st.

The following extract from the log of the S.S. *City of Cambridge* shows very clearly the character of the weather and air motion in the Bay from the 17th to the 21st :—

" After passing Galle on the 17th May experienced very unsettled weather with squalls and rain, also much lightning in the east and south-east quarters. On the 19th weather was still very unsettled, blowing a moderate gale from south-west during the early part of the day with rain, thunder and lightning. At 2-30 P.M. of this day wind suddenly shifted to the north-eastward and blew a fresh gale with thick rain until 4 P.M. From this time until we reached the pilot station on the 21st we had variable winds from south-west to north-east with dull weather and heavy S.E. swell. The barometer during the whole of this time was *very* unsettled."

The following gives the chief conditions obtaining in the Indian area immediately antecedent to the formation of the storm:—

(1) A strong advance of south-west humid winds up the Bay was in progress, and had extended over the whole Bay area with the exception of the north-west angle.

(2) The advance had been accompanied by increasing intensity of the squally weather in front of the advance, and by heavy rain.

(3) Pressure was uniform over the north of the Bay during this advance.

(4) Temperature was in moderate defect in Burma and the Deccan, and in moderate excess in Assam, Bengal and Northern India, but there is no evidence of any excess of temperature in the Bay as shown by the Port Blair returns, and the marine data.

(5) Very strong westerly winds were blowing across the Peninsula, and more especially in Berar, the Central Provinces, and North Deccan.

May 22nd.—Pressure had given way over the whole land area except North-Eastern India and Burma, but the changes were generally small in amount. The general character of the pressure distribution was hence unchanged Very strong westerly winds continued to blow across the. Peninsula, but rain had almost ceased in South India. Burma had again received moderate rain, and rain was commencing to fall at the Bengal coast stations. Temperature had increased generally in Northern and Central India, and was considerably above the normal. The North Punjab was the area of greatest excess of temperature.

The following table gives a summary of 8 A.M. observations at seven coast stations round the Bay :—

Station.	Barometer. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Velocity in miles per hour.	Cloud.	Rainfall.	Weather.
		″	″				Inch.	
Port Blair .	29·710	+·062	?	SW	13	7	0·27	Cloudy.
Diamond Island.	29·676	+·086	−·065	SSW	22	9	0·14	Sea rough
Akyab .	·620	+·077	−·108	SE	3	10	*Nil*	...
Saugor Island.	·526	−·004	−·137	ENE	9	9	0·03	e a slight.
False Point .	·509	−·013	−·160	N	8	10	*Nil*	...
Gopalpur .	·512	+·010	?	Calm	8	8	*Nil*	...
Vizagapatam	·489	−·020	−·180	NW	0	10	*Nil*	...

These observations indicate that the cyclonic circulation in the north-west of the Bay was developing. The concentration and increasing intensity of the disturbance are shown more clearly by the marine data, of which the following table gives a summary:—

Name of Vessel.	Position.		Wind.		Weather and sea remarks.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
S. *Lathom*	14·44	85·12	SW	8	Fresh gale.
SS. *Palamcotta*	16·38	93·14	SW by S	6	4 A.M. Squally.
SS. *Nizam*	19·25	86·43	S	4	Hard rain squalls.
SS. *Maharani*	20·32	91·58	SSE	6	4 A.M. Heavy squalls and rain.
SS. *Pundua*	20·57	88·43	NE	4	Overcast and squally with moderate sea.
S. *Volga*	20·18	87·07	NNE	5	Passing showers.

These observations show that a fairly well-developed circulation, the centre of which was in about Lat. 19½° N. and Long. 87½° E., was established off the Orissa coast. Strong south-west winds prevailed over the centre and south of the Bay, and weather was very squally in the centre of the Bay. The development of this storm during the day is very clearly shown by the observations recorded at Shortt's Island and on board the SS. *Bassein*. Mr. Tasker, Light House-keeper, Shortt's Island, at the mouth of the Dumra river, thus describes the weather on the 22nd at that station:—

"From the 18th to the 21st the winds were very light and very variable, working round the compass day after day during the 24 hours. The weather showed signs of changing on the 21st, when the atmosphere was very transparent and distant thunder was heard nearly all the day. At 8-20 A.M. of the 22nd the first squall struck the station from north-north-east attended with rain; after it passed the weather looked bright, but soon after other squalls were experienced and the weather became dirty, especially to the south-east. At 11 A.M. wind shifted to east-north-east and increased in force. Noon to 2 P.M. no squalls; 2 to 3 P.M. occasional squalls. Weather looking very dirty to south-east; 3 to 4 P.M. weather much the same; 4 to 5 P.M. squalls frequent and violent, though lasting only a short time; 5 to 6 P.M. no change; 6 to 7 P.M. fine; 7 to 8 P.M. moderate rain squalls, thunder and lightning to south-east; 8 to 9 P.M. no squalls; 9 to 10 P.M. squally with light driving small rain, lightning continuous to south-east, also very dirty appearance in that direction; 10 P.M. to midnight squalls again increased in force and frequency, though during intervals the weather had favourable appearance, the moon shining through the clouds, but to the south-east the same ugly appearance continued which remained in the same position. In form it was a patch of dense black clouds with an altitude of 15° stretching from ESE to SSE, and heavily charged with electricity."

The following gives extracts from the log of the coasting steamer *Bassein*:—

Hour.	Barometer, actual.	Wind direction.	Weather remarks.
	"		
4 A.M.	...	...	Left Chandbali, weather fine and unsteady breezes.
8 A.M.	29·57	NE	Fresh breeze and showery, moderate swell from south-east.
Noon	29·54	NE	Strong wind; squally.
1 P.M.	29·53	...	A heavy bank came down with the force of a strong gale from north-east with heavy rain.
3-30 P.M.	...	...	Entered Balasore river.
6 P.M.	29·55	...	Squalls coming on with increasing force and greater frequency from north-east.
8 P.M.	29·57	...	Weather improving and squalls taking off.
Midnight.	29·57	...	Occasional squalls.

Captain Beahan, Commander of the F.L.V. *Canopus*, stationed at the Eastern Channel, states that the morning of the 22nd commenced with a fresh easterly breeze, which increased during the day to a fresh gale with passing squalls, and an increasing and more confused sea.

The preceding remarks as well as the special observations at the coast stations indicate that the cyclonic storm, which was initiated during the preceding 24 hours off the Orissa coast, developed rapidly during the day, and that strong cyclonic winds and squally weather prevailed during the afternoon and night of the 22nd in the north-west angle of the Bay.

May 23rd.—Pressure had decreased rapidly in the north-west of the Bay, and a deepish depression or cyclonic storm lay off the Orissa coast at 8 A.M. Pressure had generally increased over the remainder of India, thus bringing the depression in the Bay into greater prominence. Very steep gradients hence obtained in the Bay. Skies were now overcast in Bengal, and were clouding over in the Gangetic Plain. Heavy rain was falling in the Bengal coast districts and Orissa, and a large reduction of temperature had hence taken place in North-Eastern India. Temperature continued to increase in Upper and Central India, and was from 8° to 10° above the normal in North and Central Punjab. Strong cyclonic winds prevailed in the coast districts of the Bay, and easterly winds had advanced across Bihar into the eastern districts of the North-Western Provinces. The following

table gives 8 A.M. observations at the coast stations in the north of the Bay:—

STATION.	BAROMETER.			WIND.		Cloud 8 A.M.	Rainfall in past 24 hours.	Weather.
	8 A.M. reduced to sea level and constant gravity at latitude 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches.	
Diamond Island.	29·733	+·057	—·016	SW	18	7	0·87	Sea rough.
Akyab	29·696	+·076	—·036	SE	5	10	4·18	
Chittagong	29·656	+·050	—·065	SE	5	10	...	
Saugor Island.	29·467	—·059	—·191	ENE	19	10	0·92	Sea rough.
Shortt's Island.	?	—·127	?	ENE	9	10	3·49	Squally.
Balasore	29·475	—·058	?	ENE	9	9	1·67	
False Point	29·346	—·163	—·320	NE	14	10	4·79	
Puri	29·423	—·080	?	NW	16	10	3·90	
Gopalpur	29·511	—·001	?	N	8	7	1·23	
Vizagapatam.	29·527	+·038	—·042	SW	1	10	0·11	

These observations and those taken on board certain vessels indicate that the centre of the depression was a little to the south-east of False Point in about Lat. 19¾° to 20° N. and Long. 87° 25′ E. It was hence advancing very slowly northwards. The pressure at the centre was now nearly half an inch below the normal. The increasing intensity of the storm was indicated by the strength of the easterly winds at Saugor Island, and by the heavy continuous rain in the Orissa coast districts.

The following table gives 8 A.M. observations taken on board ships in the centre and north of the Bay:—

NAME OF VESSEL.	8 A.M. POSITION.		WIND.		Weather and sea remarks.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
S *Halewood*	11·18	83·35	SW	6	Fine and clear.
S. *Lathom*	17·19	85·57	SW	...	Very gusty.
SS. *Katoria*	15·55	94·15	WSW	4	Fine.
SS. *Maharani*	17·58	92·52	S	6	Squally with high sea.
SS. *Nubia*	18·21	87·15	WSW	8	Fierce squalls with heavy rain and very heavy sea.
S. *Port Glasgow*	19·55	86·55	NW	...	Heavy squalls.
SS. *Kistna*	20·00	92·50	ESE	6	Heavy squalls of wind and rain and very heavy south-west swell.
SS. *Clan Mackenzie.*	20·44	88·01	ENE	4	Noon. High sea. Squally with much rain.
SS. *Landaura*	Saugor.		NNE	4 to 5	Heavy squalls and much rain.

These observations show that strong south-west winds continued in the south and centre of the Bay, but that weather was less squally and rainy than on the 21st and 22nd. They also show the increasing intensity of the disturbance off the coast of Orissa.

The continued development of the storm is shown more clearly by the following more detailed extracts from the logs of some of the vessels:—

NAME OF VESSEL.	Hour.	POSITION.		Barometer.	WIND.		Sea	Weather.
		Lat. N.	Long. E.		Direction.	Force.		
		° ′	° ′	"				
S. *Lathom*	4 A.M.	...	...	...	SW	...	...	Very gusty.
	8 A.M.	17·19	85·57	29·605	SW	...	...	Ditto.
	Noon	17·49	85·57	...	WSW	...	Increasing.	Increasing gale, barometer falling.
	2 P.M.	...	...	...	...	...	High cross.	Terrific squalls and rain; strong gale.
	4 P.M.	...	...	...	W	...	...	
	6 P.M.	...	...	...	...	...	...	Terrific gale in squalls and rain squalls of hurricane force; thunder and lightning
	8 P.M.	...	...	...	SW by W	...	...	Same weather.
	Midnight	...	...	...	SW by W	...	...	Terrific squalls and rain.
S. *Port Glasgow.*	4 A.M.	...	...	...	Var.	...	...	Heavy squalls.
	8 A.M.	19·55	86·55	29·279	NW	...	...	
	Noon	20·00	87·00	...	NW	...	...	Terrific squalls; wind of hurricane force.
	4 P.M. to midnight.	...	...	...	SW	...	...	Same weather continued.
SS. *Clan Mackenzie.*	4 A.M.	...	...	...	ENE	4	Moderating.	Clearing.
	8 A.M.	20·44	88·01	29·412	ENE	4	Do.	Ditto.
	Noon	20·55	88·13	...	E	...	High	Squally with much rain.
	P.M.	...	...	...	...	...	Confused.	Hard gale; heavy rain.
	4 P.M.	...	...	...	E	...	...	Steady winds.
	8 P.M.	...	...	...	E	...	High confused	Hard gale; terrific squalls.
	Midnight.	...	...	...	SE by E	...	...	Heavy gale; terrific rain squalls.
SS. *Landaura.*	2 A.M.	...	...	...	ENE	5	...	Frequent hard squalls of wind and rain with lightning.
	4 A.M.	...	...	...	ENE	5	...	Squally and rainy.
	6 A.M.	...	...	...	NE	2 to 5	...	Very squally and overcast.
	8 A.M.	...	...	...	NNE	4 to 5	...	Heavy squalls and much rain.

Name of vessel.	Hour.	Position. Lat., N.	Position. Long., E.	Wind. Barometer.	Wind. Direction.	Wind. Force.	Sea.	Weather.
		° ′	° ′	″				
SS. *Landaura.*	Noon	A little west of Saugor.		...	NE	5	...	Overcast with heavy squalls.
	1 P.M.	...	...	...	E	...	...	Hard squalls.
	4 P.M.	...	...	...	E	5	...	Heavy squalls of wind and rain.
	6 P.M.	...	...	...	E	5	...	Heavy squalls.
	8 P.M.	...	...	...	E	8	...	Overcast with heavy squalls.
	10 P.M.	...	...	...	E	8	...	Hard squalls.
	Midnight.	...	...	...	E	7	...	Overcast with hard squalls of wind and rain.

Mr. Tasker thus describes the weather at Shortt's Island during the day :—

"*23rd.*—The weather during the night continued very squally with much lightning to the south-east. The wind remained steady at east-north-east, excepting during the squalls, when sometimes it shifted to east, at others to north-east.

At daylight the cloud to south-east had during the night extended through east to north-east, and through south to south-south-west, and by 8 A.M. the whole sky had a uniform covering of nimbus.

From 8 to 10 A.M. squalls, were frequent and stronger, wind during the same unsteady, sea moderate.

10 A.M. to noon moderate gale, wind steady from east-north-east, the sun suddenly breaking through the clouds, giving quite a bright appearance, but as suddenly disappearing, the weather looking especially wild to the south-east. Noon to 1 P.M., fresh gale. 1 to 2 P.M. a very violent rain squall from north-east by north :—sea rising; weather looking worse. 2 to 3 P.M., strong gale; squalls continued in quick succession with hard rain; scud, driving fast. 3 to 4 P.M., squalls much the same, but clouds breaking to east-south-east. 4 to 5 P.M., squalls continued but with less rain. 5 to 6 P.M., weather looking much worse; rain during squalls heavier. 6 to 7 P.M., continuous squalls and rain; wind north-east. 7 to 8 P.M., squalls still frequent, but not so violent as during the preceding hour, though weather looking wilder. 8 to 9 P.M., squalls more violent than ever; rain continuous. 9 to 10 P.M., no change. 10 to midnight duration of squalls more marked, *i e.*, a short lull after each, no thunder or lightning at any time since 8 A.M.; barometer pumping more or less."

A noteworthy feature brought out by the observations taken at Shortt's Island and on board the *Bassein* is the slight improvement in the weather on the night of the 22nd and 23rd, showing that the development of the storm occurred more rapidly during the day than the night period. This diurnal periodicity in the development of the storm is probably of importance from a theoretical point of view, and is an interesting feature.

Captain Beahan describes the weather at the Eastern Channel station thus :—

"*23rd.*—Blowing a hard easterly gale, a very confused easterly swell and passing rain squalls. The force of wind between noon and 4 P.M. was fully 10 and during the squalls 11. At P.M. we parted our chain cable (this cable held us during the cyclone of June 1892 at the Ridge station). During the night vivid flashes of lightning to the south-south-west, cross sea more heavy and confused."

Mr. Elson, Pilot on board the S. *Wilhelm Tell* at Diamond Harbour gives the following account of the weather there :—

"*23rd.*—2 A.M. to 4 A.M. spiteful distant lightning to south and south-east; wind east-north-east; 5-30 A.M. got the first rain squall; wind in squall force 5. At 6 A.M. wind was east-north-east. 8 to 9 A.M. thunder and rain; barometer 29·74″ All day rain off and on, sky having a cyclonic appearance; the rain squalls working in from the right of the wind direction, east-north-east. 1 P.M. tide fell to 8 feet only instead of 4 feet 10 inches at low water. 6 P.M. tide rose to 15 feet instead of 12 feet 6 inches."

May 24th.—Pressure had fallen in Northern India and the Bay and risen in the Peninsula, thus increasing the gradients over the land and Bay area. The changes were large only in the north-west of the Bay, where pressure was diminishing rapidly in the storm area. Stormy cyclonic winds were now blowing in Bengal and Orissa, and easterly winds had extended westwards over the North-Western Provinces. Strong westerly winds continued to blow across the Peninsula. Skies were still clear in Upper India, where a moderate increase of temperature had occurred. The mean temperature of the previous 24 hours was from 10° to 12½° above the normal in the North and Central Punjab. Rain had fallen in smaller amounts than for some days previous in Burma. Heavy rain continued to fall in Orissa, and moderate rain was being received in South Bengal. The following table gives a summary of the 8 A.M. observations at coast stations in the storm area :—

Station.	Barometer. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Force.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches.	
Akyab	29·666	—·030	—·070	NE	8	10	11·39	Heavy rain.
Chittagong	29·652	—·004	—·073	SE	6	10	0·05	Overcast with rain.
Saugor Island	29·389	—·078	—·269	ENE	26	10	1·91	Ditto.
Balasore	29·359	—·116	?	ENE	16	10	5·13	
Shortt's Island	29·079*	—·331	?	NE	13	10	...	Squally.
False Point	29·031	—·315	—·635	NNE	37	10	4·57	Gale of wind.
Puri	29·316	—·107	?	NW	28	10	6·76	Continuous rain.
Gopalpur	29·416	—·095	?	WNW	6	7	0·22	Sea rough.
Vizagapatam	29·521	—·006	—·148	WNW	0	10	0·02	

* Not reduced to sea level and for gravity.

The available data indicate that the centre was in about 20¼° N. Lat and Long. 87° 22′ E. at 8 A.M. It had hence moved northwards at a rate not exceeding 2 miles per hour during the previous day. The False Point observations show that the depression was now very deep, and the storm was rapidly developing into a cyclone. The

next table gives a summary of the 8 A.M. observations taken on board ships in the north of the Bay :—

NAME OF VESSEL.	8 A.M. POSITION.		WIND.		Weather and sea remarks.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
SS. *Maharani*	15·33	94·38	SW	5	Fine.
SS. *Fallodon Hall*	18·24	87·09	SW	...	Terrific squalls; torrents of rain; very heavy sea.
S. *Lathom*	18·11	86·49	SWbyW	...	Hard squalls; much rain with thunder and lightning.
SS. *Katoria*	19·18	93·24	SW	6	Thick rain; heavy sea.
SS. *Clan Mackenzie*	20·02	88·38	S	9	Terrific rain squalls and confused sea.
S. *Port Glasgow*	20·00	87·50	SW	12	Terrific squalls.
SS. *Landaura*	Saugor		E	7	Constant rain; heavy squalls.
F.L.V. *Canopus*	E. Channel		ENE to ESE	...	Heavy gale; rain squalls.

The preceding data confirm the inferences of the land data as to the position of the centre and increasing intensity of the storm. Full extracts are given below from the logs of the vessels *Clan Mackenzie*, *Landaura*, *Port Glasgow*, *Fallodon Hall* and *Lathom*, which were nearest to the storm centre during the day :—

NAME OF VESSEL.	Hour.	POSITION.		WIND.		Barometer.	Weather and sea remarks.
		Lat. N.	Long. E.	Direction.	Force.		
		° ′	° ′			Inches.	
S. *Lathom*	4 A.M.	...	...	...	7	...	Weather moderating; sea going down.
	8 A.M.	18·11	86·49	SW by W	...	...	Hard squalls; much rain with thunder and lightning.
	Noon	18·02	86·50	SW by W	9	...	Strong gale; heavy squalls and rain.
	4 P.M.	...	...	SW	9	...	Strong gale with high sea, terrific squalls, thunder and lightning.
	8 P.M.	...	...	SSW	...	...	Same weather.
	9 P.M.	...	...	...	...	...	Dark gloomy; much lightning; hard north-west squalls and confused sea.
	Midnight.	...	...	SW	...	...	Similar weather.
SS. *Fallodon Hall.*	4 A.M.	...	...	SW	...	...	Dark gloomy; sea rising.
	8 A.M.	18·24	87·09	SW	...	29·716	Terrific squalls; torrents of rain; very heavy sea.
	Noon	18·53	87·20	SW	...	...	Same weather.
	4 P.M.	...	...	SW	...	...	Do.
	8 P.M.	...	...	S	...	...	Do.
	Midnight.	...	...	SSE	...	...	Do.
S. *Port Glasgow.*	8 A.M.	20·00	87·50	SW	...	29·180	4 A.M. to noon, winds of hurricane force.
	Noon	20·00	88·00	SW	...	...	Noon to midnight, same weather.
	Midnight.	...	...	SW	...	...	Same weather with heavy squalls.
SS. *Clan Mackenzie.*	4 A.M.	...	...	S	9	...	Heavy rain; terrific squalls; confused sea.
	8 A.M.	20·02	88·38	S	9	29·272	Terrific squalls and confused sea.
	Noon	19·52	88·41	SSW	9	...	Heavy squalls, mountainous sea.
	4 P.M.	...	...	SSW	10	...	Rain squalls with hurricane force.
	8 P.M.	...	...	SSW	...	...	Furious rain squalls and high cross confused sea.
	Midnight.	...	...	SSW	9	...	Confused sea.
SS. *Landaura*	2 A.M.	At Saugor Roads.	...	E	6	...	Very hard squalls; wind and rain increasing in force.
	4 A.M.		...	E	7 to 8	...	Very hard squalls and incessant rain throughout.
	6 A.M.		...	E	7	...	Constant rain; heavy squalls.
	8 A.M.		...	E	8	...	Heavy squalls; constant heavy rain.
	10 A.M.		...	ENE	8	...	Moderate sea; constant heavy squalls.
	Noon	...	...	NE by E	8	...	Hard squalls; constant heavy rain.
	2 P.M.	...	...	NE to ENE	8	...	Heavy squalls; incessant rain.
	4 P.M.	...	...	ENE	7	...	Repeated hard squalls; constant rain.
	6 P.M.	..	...	NE by E	9	...	Heavy squalls; constant rain.
	8 P.M.	...	...	N by E	8	...	Heavy squalls of wind and rain.
	10 P.M.	...	...	ENE	9	...	Hard squalls, wind and rain.
	Midnight.	...	...	ENE	9	...	Frequent hard squalls; incessant heavy rain.

The following observations were taken at the False Point Port Office :—

Hour.	BAROMETER.		WIND.		Weather.
	Actual.	Corrected.	Direction.	Force.	
	″	″			
1-30 A.M.	29·04	29·15	N	...	Wind increased to hurricane force accompanied with blinding sheets of rain and terrific squalls.
4 A.M.	29·00	29·11	N	...	Ditto ditto.
7 A.M.	28·97	29·08	N	...	Wind increased to hurricane force accompanied with blinding sheets of rain and terrific squalls.
8 A.M.	29·00	29·11	N	...	Ditto ditto.
10 A.M.	29·00	29·11	N	...	Ditto ditto.
2 P.M.	28·94	29·05	N	...	Ditto ditto.
4 P.M.	28·90	29·01	N	...	Ditto ditto.
7-15 P.M.	28·95	29·06	NNW	...	Wind eased down slightly, and commenced to blow with renewed force, accompanied with vivid lightning and torrents of rain.
Midnight	28·97	29·08	NNW	...	Ditto ditto.

The weather at Shortt's Island is described as follows by Mr. Tasker:—

"24th.—0 to 2 A.M., no material change in the weather, still blowing a strong gale. During the last four hours of the 23rd the barometer showed almost the same readings, but at 2-25 A.M. the wind shifted two points to the northward (north-north-east) and a glance at the instrument showed a marked charge. (I may here remark that I stationed myself in the room where the barometer hangs throughout this storm, leaving it only for short periods in order to take readings of the instruments in the open, and to attend to other duties, etc.) Squalls at this time did not appear to have increased in force, but the appearance of the weather was exceedingly ugly, and at 2-30 A.M. the squalls increased to terrific violence which continued without perceptible change until 4 A.M. At this hour the wind was blowing a whole gale, rain increasing but not heavy.

"5 A.M., examined the instruments, found all in good order, and took a reading of the anemometer. I had some difficulty in reaching this instrument owing to the force of wind, rain and small particles of sand. The wind was stronger at this hour than at any other time during the night.

"The weather at daylight had a wild appearance. Between 4-30 and 5 A.M. wind backed to north-east. From 6 to 9 A.M. the gale continued at about the same force.

"9 to 10 A.M. weather looked brighter, and the force of wind took off slightly. Rain continuous but light.

"10 A.M. to noon no change; wind still north east; whole gale.

"noon to 1 P.M. no change.

"1 to 4 P.M. squalls terrific, increasing in force, rain heavier, weather had a frightful look. When attempting to reach the anemometer at 4 P.M., the force of wind hurled me back against an iron tank. The squall which then prevailed must have had a force exceeding 90 miles an hour. However, I secured a reading of that instrument and also the cage thermometers.

"4 to 6 P.M. no change.

"6 to 7 P.M. wind north-east blowing in gusts of great force.

"7 to 8 P.M. squalls again most terrific with a few seconds lull between each; at this time observed a single flash of lightning.

"9 to 10 P.M. squalls still blowing with hurricane force; hard rain; no lightning.

"10 P.M. to midnight, no sign of the storm moderating. The barometer still falling gradually and pumping very much, squalls of terrific fury from north-east.

Captain Beahan describes the weather at the Eastern Channel station as follows:—

"*24th.*—Blowing a heavy gale all through the day; rainfall almost continuous; wind varying between ENE and ESE Between 10 A.M. and noon, the wind suddenly fell to the force of 5 and backed into the NE, and blinding rain fell in torrents. After this squall the wind veered again to the east, and commenced to blow with greater force from that quarter up to midnight. The sea was tremendous, sea after sea breaking on board our staunch little ship with great force. We dragged our anchors during the night about ½ mile."

May 25th.—A brisk to rapid increase of pressure had occurred locally in the North-Western Provinces during the previous 24 hours. Pressure had given way over the remainder of India and in the Bay. The fall was very large in the north-west of the Bay and adjacent coast districts, and the depression had hence increased considerably in intensity during the past 24 hours. Winds had increased in strength and were cyclonic in direction over the whole of North-Eastern India. Winds in Western and Upper India were unchanged in character. Duststorms and thunderstoms in the North-Western Provinces had reduced temperature considerably in that area. Temperature was excessive in the Punjab and was more than 12° above the normal at Lahore and Sialkot. Weather was showery on the West Coast. Moderate rain had fallen in Burma, and heavy to excessive rain in the storm area. The largest falls of the previous 24 hours were recorded in Orissa at False Point (14·99 inches), Kendrapara (9·30 inches) and Jajpur (6·10 inches). The following table gives a summary of the 8 A.M. observations at the coast stations in the storm area:—

Station.	Barometer.			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.	Velocity in miles per hour.			
	"	"	"				Inches.	
Akyab	29·648	—·018	—·090	SE	10	10	9·46	
Chittagong	29·627	—·025	—·097	E	6	10	0·57	
Saugor Island	29·252	—.137	—·405	E	35	10	6·08	Sea very rough.
Balasore	29·147	—·212	?	ENE	23	10	5·89	
False Point	28·875	—·156	—·786	WNW	15	10	14·99	Gale of wind.
Shortt's Island	28·524*	—·555	?	ESE	?	10	...	Squally.
Puri	29·253	—·003	?	NW	34	10	4·61	Continuous rain.
Gopalpur	29·366	—·050	?	WSW	9	10	0·11	
Vizagapatam	29·470	—·051	—·200	W	2	10	...	

* Not reduced to sea level and for gravity.

These observations indicate that the centre of the storm was a little to the north-east of False Point, probably in Lat. 20° 35′ or 20° 40′ N. and Long. 87° 25′ E. Pressure at False Point was nearly eight-tenths of an inch below the normal, and it is almost certain from the data that the depression at the centre now exceeded an inch, and that a calm central area was in process of formation.

Observations taken at 8 A.M. on board vessels in the Bay are given below:—

Name of vessel.	8 A.M. position.		Barometer.	Wind.		Weather and sea remarks.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S. *Halewood*	16·20	86·07	29·476	NW	12	Hard westerly gale with squalls of hurricane force and incessant lightning and thunder.
SS. *Lawada*	17·43	86·10	29·387	SW by W	9	Hard squalls; heavy west-south-west sea.
S. *Lathom*	17·48	88·06	...	SW	...	Barometer rising.
SS. *Maraja*	17·56	91·45	29·649	SSW	3	Passing rain squalls.
SS. *Nubia*	19·32	88·10	29·284	SW	8	Moderate sea.
S. *Port Glasgow*	20·27	89·13	29·279	SSW	12	Heavy squalls.
SS. *Cambay*	20·34	90·20	...	SSE	...	Blowing very hard; confused sea.
SS. *Clan Mackenzie.*	20·31	88·27	29·252	SSW	9	Mountainous sea.
SS. *Fallodon Hall.*	20·35	88·32	...	SSE	...	Terrific squalls; much rain; very heavy sea.
F. L. V. *Canopus*	E. Channel		...	SSE	6	

These vessels were in the eastern and southern quadrants of the storm. The observations show that very strong south-west monsoon winds prevailed in the Bay, but that stormy winds were restricted to a comparatively small area in the north-west of the Bay.

The storm area proper was hence almost certainly of small extent covering the north-west angle of the Bay and the adjacent coast districts. In this area winds ranged in force from 9 (strong gale) to hurricane force, and in consequence of the very slow movement of the cyclone, hurricane winds were experienced for at least 10 or 12 hours in the area over which the inner portion of the storm passed. The following extracts from the logs of vessels and other sources show very clearly the character of the weather in the north-west angle of the Bay, and the continued development of the storm :—

NAME OF VESSEL.	Hour.	POSITION.		Barometer.	WIND.		Weather and sea remarks.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	Inches.			
S. *Port Glasgow* .	4 A.M.	...	...	...	SSW	12	Heavy squalls.
	8 A.M.	20·27	89·13	29·279	,,	12	Ditto.
	Noon.	20·32	89·18	...	,,	12	Ditto.
	4 P.M. to mid-night.	...	...	...	,,	12	Ditto.
SS. *Clan Mackenzie.*	4 A.M.	...	...	...	SW	9	High cross sea; continuous squalls of heavy wind and rain.
	8 A.M.	20·31	88·27	29·252	SSW	9	Mountainous sea.
	Noon.	20·46	88·22	...	SS	...	Same weather.
	4 P.M.	...	...	...	S	8	High sea.
	6 P.M.	...	...	...	...	...	Continuous heavy rain squalls; high confused sea.
	8 P.M.	...	...	...	S	9	Continuous heavy rain; heavy sea.
	Mid-night.	...	...	...	SSW	10	Mountainous cross sea; terrific squalls and rain.
SS. *Cambay* .	4 A.M.	...	...	...	SSE	8	Squalls of hurricane force with very heavy rain and thunder; very high confused sea.
	8 A.M.	20·34	90·20	...	SSE	9	Hard and confused sea.
	11 A.M.	...	...	...	...	...	Heavy sea.
	Noon	20·23	89·59	...	SSE	10	High cross sea.
	8 P.M.	...	...	...	SSW	9	Terrific squalls of rain with thunder and lightning.
	Mid-night.	...	...	...	SW	9	Same weather with very high cross sea.
SS. *Fallodon Hall.*	4 A.M.	...	...	..	SSE	...	Terrific squalls; much rain.
	8 A.M.	20·35	88·32	...	SSE	...	
	Noon	20·52	88·46	...	SSE	10	Clearing; very heavy sea.
	4 P.M.	...	...	...	S by E	...	Squally; much rain; very heavy sea.
	8 P.M.	...	...	...	S by W	...	Terrible squalls; much rain and lightning; very heavy and dangerous sea.
SS. *Landaura* .	2-15 A.M.	..	...	...	ENE	9	Hard squalls; much rain.
	6 A.M.	...	...	...	E by N	8	Long and heavy squalls; much rain.
	Noon	a littl	e west	...	E	7	Occasional squalls of wind and rain.
		of Sa	ugor.				
	2 P.M.	...	...	...	E by S to ESE	6	Very heavy squalls; much rain.
	8 P.M.	...	...	...	E	4	Occasional squalls of wind and rain.
	Mid-night.	...	...	...	E by S	7	Hard squalls of wind and rain.

The observations have established that the cyclone increased very considerably in intensity during the day, and that there was a calm centre in the evening, which passed over the Pilot Vessel *Sarsuti* about 11-30 P.M. The centre was about 30 or 40 miles to north-east of False Point at 4 P.M. and about 35 miles east by north of Shortt's Island at 8-30 P.M., and hence probably passed close to the Ridge station at that time. It was about 30 or 40 miles west of the Eastern Channel Light Ship at 11-30 P.M., and its velocity had increased from 2 miles at 8 A.M. to 6 miles per hour during the afternoon and evening of the 25th. Mr. Tasker describes the weather experienced on the 25th at Shortt's Island in the following terms :—

"At 0·30 A.M. of the 25th wind shifted to north-north-east during a short lull. 1 A.M. lightning again appeared, rain exceedingly heavy. 1 to 4 A.M. no change. Between 4·15 and 4·30 A.M. wind alternately lulled and blew in gusts of great force, after which the wind appeared to blow harder than ever, bringing a shift of wind to east. At 4·45 A.M. barometer pumping very much. 5 to 6 A.M. no change. At daylight (being about high water) observed the sea beating halfway across the Island doing considerable damage. On examining the instruments found that the cups of the anemometer had blown away during the night, the dial stopped at 440 miles. The arrow of the wind-vane was carried away. On examining the cage in the shed found the maximum and minimum thermometers hanging by one ring each, and the water bottle of the wet bulb thermometer broken, otherwise the instruments were in good order, though, as may be expected, very dirty. At this time an enormous sea prevailed, beating heavily on the reef. A 8-30 A.M. wind lulled for about 20 minutes, during which time the sun shone fairly bright, though the clouds did not break. At this time the barometer showed the lowest reading during the storm, viz., 28·600, "corrected ·479" (reduced to 32°). During the lull the wind shifted to south-east by east and the bright look overhead disappeared, followed by squalls of terrific violence until 10-30 A.M., when the wind again lulled for about five minutes, and the wind hauled another point (south-east). Squalls again began, though force of wind slightly decreased the barometer rising steadily, but there was no improved appearance in the look of the weather up to noon. At this hour discontinued readings being worn out for the want of sleep.

"At 4 P.M. resumed observations, weather much the same as at noon, wind south-east, continuous squalls with rain (small). 4 to 5 P.M. barometer falling, squalls very violent again. At 5-15 P.M. wind backed to east-south-east, squalls moderating in force. 5-40 P.M. wind east moderating and gusty. 6-10 P.M. wind north-east, increasing.

7 P.M. blowing a whole gale with light driving rain. 8-20 P.M. wind shifted, to north, then to 9 P.M. wind of hurricane force, rain not heavy. After this the storm had the appearance of having lost its energy. 9 to 9·30 P.M. rain very heavy. In fact this is the only really heavy rain that has fallen in such a short space of time on any other occasion during the prevalence of this storm. 10 P.M. moderate gale, gusty. 10·15 P.M. wind shifted to north-north-west, strong breeze, light rain, still overcast. 11 P.M. overcast, strong breeze, light rain. 11·50. P.M. wind shifted to west-north-west, no change in the weather."

The storm centre passed over the Pilot Brig *Sarsuti* at the Sandheads shortly before midnight. She had been at anchor 6 miles from the East Channel Light Vessel, and the anchor parted at 4-30 P.M. ; she set sail and was probably about 25 miles from the Light Vessel at 11 P.M., shortly after which (about 11-30 P.M.) a complete lull occurred. The moon and stars were visible and occasional scuds passed across from west. The first gust came down about 11-53 P.M. from west-south-west, and it blew with hurricane force for four hours afterwards from west.

The following gives the observations taken at the False Point Port Office and the Light House during the day:—

False Point Port Office.

Date.	Hour.	Barometer. Actual (uncorrected).	Barometer. Actual (reduced).	Wind.	Weather.
		"	"		
25th	1-30 A.M.	28·80	28·91	NNW	Terrific squalls ; hurricane force with blinding rain.
,,	2-30 ,,	·78	·89	W	Ditto.
,,	4 ,,	·75	·86	W	Ditto.
,,	8 ,,	·77	·88	W	Ditto.
,,	10 ,,	·75	·86	W	Ditto.
,,	Noon.	·70	·81	SW	Ditto.
,,	4 P.M.	·55	·66	SW	Ditto.
,,	8 ,,	·90	29·01	W	Wind decreasing in force and less rain.
,,	Midnight	29·05	·16	W	Ditto.

False Point Light House.

Date.	Hour.	Barometer. Actual (uncorrected).	Barometer. Actual (reduced).	Wind.	Weather.
		"	"		
25th	1	29·038	28·874	WSW	Wind blowing in severe gale with heavy rain.
,,	2	·014	·850	WSW	Ditto.
,,	4	·000	·836	WSW	Ditto.
,,	7	·024	·860	WNW	Wind blowing with hurricane force.
,,	8	·038	·874	WNW	Ditto.
,,	10	·030	·866	W	Ditto.
,,	Noon	28·960	·796	W	Ditto.
,,	2	·870	·706	SW	Gale blowing with very heavy squalls.
,,	4	·820	·656	SW	Ditto.
,,	5	·890	·726	SW	Ditto.
,,	7	29·076	·912	WSW	Wind heavy, most terrific with blinding rain.
,,	8	·166	29·002	WSW	Weather conditions moderating.
,,	Midnight	·334	·170	WSW	Weather clearing up.

These observations are in complete accordance, and show that pressure was lowest between 4 and 4-30 P.M. at False Point. Taking into consideration the wind directions it is almost certain that the centre at that time was to the north-east of False Point at a distance of not more than 30 or 40 miles; the storm continued to intensify during the day, and hence the fall due to this was greater than the rise due to the slow increase of distance of the storm centre from False Point during the afternoon. The hurricane winds lasted for about 19 hours (from 1 A.M. to 8 P.M.). The rainfall data are very interesting, and show that 17·31 inches fell between 2 A.M. and 8 P.M., *i.e.*, at a rate of nearly an inch an hour for 18 hours.

May 26th.—Pressure had increased in the Punjab and had generally fallen over the remainder of India. The storm crossed the coast of Bengal in the morning, and pressure had given way with great rapidity in South Bengal, and had risen rapidly in Orissa and in the north-west of the Bay.

The following traces the progress of the storm during the day :—

The centre passed over the Pilot Vessel *Sarsuti* about 30 miles west of the Eastern Channel station shortly before midnight of the 25th. It was then advancing at a rate of about 6 miles per hour. It probably crossed the coast of the Midnapore district near Contai about 5 A.M. of the 26th, and hence at a very short distance from the SS. *Red Cross*, which was lying at the cyclone anchorage in the Hooghly to the west of Saugor Island. The following gives the observations taken on the morning of the 26th by Branch Pilot Mr. Ransome :—

Hour.	Barometer.	Corrected.	Remarks.
	"	"	
A.M.			
0-30	29·08	29·13	.....
1	·04 (pumping)	·09	Heavy gusts of wind from E by S.
1-40	28·98	·03	Strong gusts from E by S with heavy rain.
2	·93	28·98	.....
2-20	·88	·93	.....
2-40	·82	·87	Howling blasts with small rain and lightning.
3-10	·72	·77	Ever increasing cyclone. Wind shrieking as if in agony. Unable to state precise moment it went to south. Storm wave and increasing sea. Vessel covered with showers of spray.
3-25	·64	·69	
3-40	·50	·55	
3-45	·43	·48	
3-53	·35	·40	
4	·35	·40	
4-30	·20	·25	
4-40	·15	·20	
5-2	·15	·20	
4-40 to 5-2	...	...	Lull, wind to south.
5-20	...	...	Discovered that ship had driven with 100 fathoms chain on starboard anchor and 75 on port close under bows of *Guide*, S. V. Set the engines ahead full speed and continued using them as required.
6	28·50	28·55	.....
6-40	·70	·75	Wind very strong from SSW.
7-40	·85	·90	Cyclone moderating fast.
8	·90	·95	Wind SW.; hard squalls with rain ; eased and stopped engines.
9	·95 (pumping)	29·00	Blowing half gale from SW.; clearing up ; swinging ebb.
10	29·00	·05	Same weather.
11	·06	·11	Same weather. (Observed a floating light in Eden Channel, Long Sand Light.)

These observations agree closely with those taken by the Observer at Saugor Island, given below:—

Hour.	Barometer. Actual.	Barometer. Reduced.	Wind. Direction.	Wind. Velocity in miles per hour.	Weather.
	"	"			
3 A.M.	28·946	28·777	E	65	Hurricane winds blowing; rainy; wind varying between 8° and 12°, inclined to be more south.
3·15 ,,	·860	·691	ESE	65	Hurricane winds blowing, increasing in force, rainy, wind varying between 8° and 12°, inclined to be more south.
3·30 ,,	·760	·591	E	65	Hurricane winds blowing, increasing in force, rainy, wind varying, barometer unsteady and falling rapidly.
3·45 ,,	·700	·531	ESE	65	Hurricane winds, weather terrible, wind increasing rapidly, barometer unsteady and still falling rapidly.
4 A.M.	·600	·430	SE	70	Hurricane winds, rainy.
4·15 ,,	·532	·362	ESE	90	Hurricane winds, rainy, barometer falling rapidly.
4·30 ,,	·480	·310	SSE	90	Hurricane winds.
4·45 ,,	·464	·294	SSE	90	Same weather.
4·48 ,,	·432	·262	S	105	Same weather.
5·15 ,,	·580	·410	S	100	Hurricane winds, barometer rising.
5·30 ,,	·716	·545	S	100	Weather moderating, barometer rising, raining hard.
5·45 ,,	·776	·605	SW	90	Blowing hard, barometer rising, wind now coming in heavy squalls.
6 ,,	·868	·697	SSW	90	Weather moderating, wind coming in heavy squalls; rainy.
6·15 ,,	·934	·762	SSW	85	Severe gale, wind coming in heavy squalls with rain, wind direction steady.
6·30 ,,	·944	·775	SSW	80	Severe gale, wind steady, wind in heavy squalls with rain.
6·45 ,,	·980	·811	SSW	80	Severe gale, wind steady, sea tremendous.
7 ,,	29·030	·861	SSW	70	Severe gale, wind in heavy squalls, drizzling, heavier rain with squalls.
7·15 ,,	·050	·881	SSW	70	Severe gale, wind steady, drizzling rain.

The first set of observations shows that the SS. *Red Cross* had a lull between 4-40 A.M. and 5-2 A.M., and hence appears to indicate that the calm central area passed over her. The character of the lull is not stated, and the comparison of the observations with those of Saugor Island and of the other vessels at the head of the Bay appears to indicate that the lull was an interval of light to moderate winds, such as frequently occurs between heavy squalls, and not the calm of the central area of the storm.

It is further confirmed by the fact that the Assam river steamer *Mysore*, which was lying in the Suttermookee Creek a few miles to the *east* of Saugor Island, reports a similar lull in her log about 6 A.M. The following is a brief extract from her log:—

	Hour.	Barometer (uncorrected).	Weather.
		"	
26th May .	1 A.M.	29·10	Wind blowing a hurricane.
	3 A.M.	29·00	Wind so strong that it was not possible to stand on deck.
	4 A.M.	28·85	Weather certainly much worse.
	5 A.M.	28·80	Barometer still falling.
	6 A.M.	28·90	A lull. Barometer commenced to rise.
	9 A.M.	28·95	Heavy sea.
	10 A.M.	29·05	Part of after roof blown away in pieces.

The lull experienced by the *Red Cross* was probably similar in character to that noted in the log of the *Mysore*, and hence it is almost certain that the calm central area did not pass over the ships *Red Cross* and *Mysore*, or over the Saugor Island Observatory. Their observations show that the winds were excessively violent, and blew with hurricane force for some hours. The highest velocity registered at Saugor Island by a Beckley's anemograph was an average of 105 miles per hour for a period of three minutes, and of 100 miles per hour for a period of three quarters of an hour.

The following table gives some observations at stations in Orissa and South-West Bengal:—

Station.	Barometer. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Velocity in miles per hour.	Cloud 8 A.M.	Rainfall in past 24 hours.	Remarks.
	"	"	"				Inches	
Balasore .	29·166	+·019	?	NW	22	10	3·57	Continuous rain.
Saugor Island.	28·952	−·300	−·699	SSW	38	10	1·36	Sea tremendous.
Calcutta .	28·995	−·388	−·651	ENE	19	10	6·15	Strong wind.
Burdwan .	29·180	−·279	−·464	NE	19	10	1·90	Severe gale of wind.
Midnapore .	29·035	−·322	?	N	?	10	2·16	Severe gale of wind.

These observations indicate that the centre was a short distance to the north-west of Saugor Island. Special observations taken at Calcutta indicate that the centre was nearest to that station about 1-30 P.M., when it was probably not more than 30 miles to the west. This position was about 60 miles to the north of its position at 5 A.M., and the centre had hence advanced at a rate of about six miles per hour, the same velocity as during the night of the 25th.

The following table gives 4 P.M. observations at the second class stations in South-West Bengal at 4 P.M. on the 26th:—

STATION.	BAROMETER.		WIND.		Cloud at 4 P. M.	Rainfall since 10 A.M.	REMARKS.
	4 P.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Direction.	Average velocity in miles per hour since 10 A.M.			
	"	"				Inch.	
Saugor Island .	29·119	−·050		60	10	·064	...
Calcutta . .	28·991	−·298	SSW	27	10	·059	...
Berhampore .	29·182	−·275	ENE	22	10	·074	...
Burdwan .	28·908	−·457	NE	...	10	2·05	Raining.

The centre was nearly midway between Calcutta and Burdwan at 4 P.M. of the 26th, and hence about 35 miles north-west of Calcutta.

The following 8 A.M. and 4 P.M. data of the weather at the head of the Bay show that weather moderated rapidly:—

NAME OF VESSEL.	Hour.	POSITION.		WIND.		Weather.
		Lat. N.	Long. E.	Direction.	Force.	
		° ′	° ′			
SS. *Clan Mackenzie.*	8 A.M.	20·44	88·23	WSW	5	Fresh wind and less sea.
	8 P.M.	...	...	WSW	...	Wind and sea moderating considerably, but still squally.
SS. *Katoria* .	8 A.M.	Akyab	...	SE	5	Fresh breeze, moderate sea and passing squalls.
	4 P.M.	...	...	S by E	6	Overcast and passing squalls.
SS. *Nubia* .	8 A.M.	20·38	88·08	SW	8	Fresh gale and then moderating.
	2 P.M.	...	...	...	...	Moderate! gale and less sea.
SS. *Camba y* .	8 A.M.	20·16	89·18	SW	...	10 A.M. less wind and sea and weather looking better.
	4-30 P.M.	...	...	SW		Less wind and sea.
S. *Halewood* .	8 A.M.	16·33	87·44	SW	...	Hard gale with heavy squalls and high beam sea.
	4 P.M.	...	...	SW	...	Strong breeze to moderate gale, and hazy weather.

27th May.—Pressure had given way over the whole Indian area, except in the Bay and the adjacent coast districts, where the rise was due to the advance and partial filling up of the storm. The storm was drifting northwards on the previous afternoon at the rate of about 6 miles per hour. A remarkable change occurred in its direction of motion during the night, and it re-curved from north to east-north-east. This large re-curvature accompanied a considerable reduction in its rate of motion, and the central storm area on the morning of the 27th covered that part of Central Bengal defined by the stations of Calcutta, Jessore, Berhampore and Burdwan.

The following table gives 8 A.M. data for those stations:—

STATION.	BAROMETER.			WIND.		Cloud at 8 A.M.	Rainfall in past 24hours.	REMARKS.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours	Variation from normal.	Direction	Velocity in miles per hour.			
	"	"	"				Inches.	
Calcutta .	29·084	+·089	−·555	WSW	24	10	2·17	
Jessore .	29·203	−·072	−·458	ESE	14	10	3·42	
Berhampore	29.271	−·060	−·376	ENE	20	10	3·41	
Burdwan .	29.185	+·005	−·451	N	27	10	9·62	

These observations indicate that the centre was to the north or north-east of Calcutta, and that pressure at the centre was almost certainly not below 29·00″, and was hence about an inch higher at the centre than in the early morning of the 25th.

Winds were very stormy in South Bengal, and heavy rain was falling over the whole of South and Central Bengal.

The Observer at Burdwan describes the storm there in the following terms—"Strong stormy winds set in about 6 P.M. of the 24th. The wind blew with great force from the east on the 25th and the morning of the 26th. At 3-30 P.M. the wind increased further, and blew with great fury for some hours. The rainfall was very heavy, 9·62 inches fell between 8 A.M. of the 26th and the same hour of the 27th. The storm was most severe between 3-30 P.M. and midnight of the 26th, during which hour the lowest reading of the barometer was recorded. Many trees were uprooted. The walls of many pucca and kutcha houses were blown down by the wind."

The storm continued to advance slowly in an east-north-east direction, as is shown by the afternoon observations on this day.

The following table gives 4 P.M. observations at the second class stations in Bengal on the 27th:—

STATION.	BAROMETER		WIND.		Cloud 4 P.M.	Rainfall since 10 A.M.	REMARKS.
	4 P.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Direction.	Average velocity in miles per hour since 10 AM.			
	"	"				Inches	
Calcutta . .	29·236	+·245	W	20	10	1·58	
Dacca . .	29·221	−·105	SE	13	10	0·37	Drizzling.
Dhubri . .	29·361	−·092	NE	17	10	0·12	
Berhampore .	29·260	+·078	NNE	8	10	0·09	
Burdwan . .	29·262	+·354	N	13	10	1·65	Raining.

So far as can be judged from these observations, the centre at 4 P.M. was in the Jessore district in about Lat. 23°15' N. and Long. 88° 50'E.

May 28th.—The only important barometric changes of the previous 24 hours were due to the partial filling up and advance of the storm. A very rapid increase of pressure had occurred in South-West Bengal, and a moderate fall in Cachar and a portion of East Bengal. The following observations indicate the position and character of the storm at 8 A.M.:—

STATION.	BAROMETER.			WIND.		Cloud at 8 A.M	Rainfall in past 24 hours.	REMARKS.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction	Velocity in miles per hour.			
	"	"	"				Inches.	
Chittagong .	29·509	+·053	−·207	SW	16	10	5·48	...
Dacca .	29·378	+·020	−·291	S	18	10	1·43	Gale of wind.
Silchar .	29·472	−·050	−·250	Calm	4	10	1·49	...
Mymensingh	29·364	−·016	?	ENE	18	10	3·41	Dust-storm with rain.
Serajgunj .	29·358	+·037	?	N	12	10	4·09	...
Jessore .	29·419	+·216	−·235	WNW	14	10	1·66	...
Barisal .	29·399	+·105	?	SW	15	10	0·47	...
Berhampore	29·471	+·200	−·171	NNW	8	10	1·29	...
Calcutta .	29·478	+·394	−·154	WNW	15	7	2·28	...

The centre was hence near Dacca, probably a few miles to the west or north-west. It had hence advanced about 120 or 130 miles in an ENE. direction during the previous 24 hours.

The following table gives 4 P.M. observations at five stations in and near the storm area:—

STATION.	BAROMETER.		WIND.		Cloud at 4 P.M.	Rainfall since 10 A.M.	REMARKS.
	4 P.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Direction at 4 P.M.	Average velocity in miles per hour since 10 A.M.			
	"	"				Inches	
Chittagong .	29·463	+·070	SSW	13	10	0·37	...
Dacca . .	29·298	+·077	WSW	11	10	1·85	Gloomy.
Silchar . .	29·434	−·066	ENE	6	10	0·30	...
Berhampore .	29·421	+·168	N	8	8	0·06	...
Calcutta . .	29·439	+·203	NW	9	10	...	...

The centre was therefore passing eastwards to the north of Dacca.

May 29th.—A slight residual depression covered East Bengal on the morning of the 29th. The following observations show its position:

STATION.	BAROMETER.			WIND.		Cloud at 8 A.M.	Rainfall in past 24 hours.	REMARKS.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches.	
Dacca .	29·519	+·141	−·141	W	9	10	2·40	
Silchar .	29·516	+·044	−·198	E	6	10	2·56	
Mymensingh	29·491	+·127	?	W	12	7	0·92	Dust-storm.
Jessore .	29·547	+·128	−·099	WNW	6	4	0·15	
Barisal .	29·558	+·159	?	SW	9	10	0·06	

The centre of the depression was near Silchar. Pressure was less than two-tenths of an inch below the normal in Cachar, and winds had fallen off greatly in strength. The cyclonic circulation was in fact feeble, and rapidly breaking up. The chief feature of the storm at this time was the heavy rainfall which it had given during the previous 24 hours to East Bengal and Cachar.

The depression filled up rapidly during the afternoon and evening, and rain ceased to fall. The storm hence disappeared before the morning of the 30th, and normal pressure conditions were re-established in the north of the Bay and North-Eastern India.

The following are brief extracts from the reports of the storm received from the Collectors of several districts in Bengal through which it passed:—

Puri.—The storm in this district lasted nearly 96 hours, from the morning of the 22nd to that of the 26th. The weather was throughout squally with moderate to heavy rain. The total rainfall during the storm at Puri was 18·19 inches. No serious damage to property has been reported.

Cuttack.—The rainfall was general and very heavy. Winds were very strong, more especially along the coast.

Much damage was done to the mud huts by the high winds and incessant rain, and some lives were lost by their fall. There was no storm wave on the coast as the height of the storm coincided with low water.

Balasore.—The storm gave very heavy rain but little wind to this district. The total rainfall in the district during the storm ranged from 18½ to 23¾ inches. There were considerable floods in the Subernarakha, Burabalang, Salandi and Baitarni rivers due to the heavy rains.

Midnapore.—The storm commenced on Tuesday, the 23rd, and it rained without intermission from that day until Saturday night. The rain was accompanied with high winds. A number of huts were destroyed by the rain or washed away by the floods. The storm was most violent in the Contai sub-division near the sea coast, and at the Sadar station not a tree or house escaped its fury.

Jessore.—There was heavy rain throughout the district on the 25th and 26th with strong winds. There was no loss of life. A few huts were blown down, but the loss of property was insignificant.

Dacca.—The storm commenced in this district on the morning of the 26th. Torrents of rain fell during that day and the 27th. Although the winds were very violent, no damage to property or loss of life is reported.

The preceding description has given a brief history of the cyclone of the last week of the month.

It formed near the head of the Bay in front of an advance of humid south-west winds. The first indication of its generation was shown on the 21st off the Orissa coast. It increased rapidly and steadily in intensity during the next three days, and advanced very slowly northwards. It developed on the 25th into a cyclone with a calm centre and area of hurricane winds. Its velocity of advance increased up to six miles per hour on the 25th. It crossed the coast a few miles to the west of Saugor Island on the early morning of the 26th, and advanced in a northerly direction nearly to Burdwan, where it re-curved rapidly to east north-east, and drifted slowly into Cachar, where it broke up on the 29th. The following table gives, so far as can be judged, the exact position and motion of the storm from the 23rd to the 29th :—

Date.	Hour.	Position of centre.		Distance passed over.	Average hourly velocity.
		Lat. N.	Long. E.		
		° ′	° ′	Miles.	Miles.
23rd.	8 A.M.	19·50	87·25		
24th.	8 „	20·15	87·25	28	1·2
25th.	8 „	20·40	87·25	30	1·2
	4-30 P.M.	20·55	87·25	17	2·0
	8 30 „	21·6	87·30	13	3·3
	11-30 „	21·14	87·30	10	3·3
26th.	4-30 A.M.	21·45	87·40	36	7·2
	1-30 P.M.	22·30	88·0	54	6·0
27th.	8 A.M.	22·50	88·10	27	1·5
	4 P.M.	23·15	88·50	49	6·1
28th.	8 A.M.	24·0	90·0	87	5·4
	4 P.M.	24·5	90·30	31	3·9

The storm was remarkable in many respects. It was on the whole the most severe storm that has occurred in the north of the Bay and Bengal during the month of May in the past 25 years. Its track in Bengal was very abnormal, and it re-curved to a greater amount after passing into Bengal than any similar storm on record. In its steady growth, slow rate of motion, and smallness of the inner storm area, it resembles several storms that have occurred in recent years. It is remarkable for the excessive rainfall it gave to Orissa and outh and East Bengal and to Cachar ; and, according to accounts in the newspapers, to Manipur, when it was breaking up on the 28th and 29th. The following gives a summary of the rainfall due to the storm :—

Division.	Average actual rainfall in previous 24 hours in inches.									Total of period in inches.
	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.	
Orissa . . .	0·46	1·10	3·66	4·82	4·19	2·68	0·17	0·29	0·23	7·60
South-West Bengal.	0	0·08	0·09	0·25	0·68	2·88	3·11	1·17	0·10	8·36
East Bengal . .	0·14	0·09	0·08	0·11	0·45	1·67	4·03	2·88	1·31	10·76
Assam Surma .	0·04	0·03	0·02	0·01	0·02	0·11	0·80	2·59	4·38	8·00

The rainfall was exceptionally heavy in the Orissa coast districts. The following gives data for three stations illustrating the character of the rainfall in tropical storms under favourable circumstances :—

District.	Station.	Rainfall in past 24 hours in inches.				Total of period in inches.
		23rd.	24th.	25th.	26th.	
Puri . .	False Point .	4·79	5·57	14·99	14·83	40·18
Cuttack .	Kendrapara .	5·93	11·35	9·30	8·78	35·36
„	Jajpur . .	5·20	11·17	6·10	4·15	26·62

The storm however did much less damage than might be anticipated from its intensity and the exceptionally prolonged and heavy rainfall, and cyclonic winds that prevailed on the Orissa and Bengal Coast districts during the storm.

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

I. AFGHAN MOUNTAINS.

(1) *Hills bordering the Kohat district.*—The Extra Assistant Commissioner, Thull, writes :—" No snow fell on these mountains between the 15th May and the end of June. The snow has melted from all the mountains, except Sufed Koh, on which it is still lying to a slight depth. The snowfall of the past cold weather was heavier than that of many years past, except the year 1891."

(2) *Kabul.*—Showers of rain fell at Kabul on the 9th, 23rd, 26th, 27th and 28th. No snow fell on the neighbouring mountains during the month. A few scanty patches of snow were lying at the end of the month on the Paghman range.

II. KASHMIR AND PUNJAB HIMALAYAS.

(1) *Sarikol.*—The following gives a summary of a report of the weather in this district from the 15th April to 16th May:—

19th April.—Rained during the day and night. Fall about one inch.

20th to 29th.—Weather generally clear.

30th.—Light rain for one hour.

3rd May.—Rain for one hour.

4th to 16th.—Weather generally clear; westerly winds prevailed during the period.

(2) *Lahoul.*—The Reverend Mr. Heyde describes the weather in May at Kailang in the following terms :—

" Rain and snow fell on the following occasions during the month :—

2nd May.—The snow line descended to about 13,000 feet.

10th May	Ditto	ditto.
11th May	Ditto	ditto.
25th May	Ditto	ditto

29th May.—Six inches of snow fell in the valley at height of 10,000 feet.

" Travellers who have crossed the Shingkun Pass (elevation 16,000 feet) state that the pass is easy, and that there is no large accumulation of snow. People from Spiti and Zangskar report that the past winter did not give much snow, but that the cold had notwithstanding been exceedingly severe and continuous.

" The temperature during the first fortnight of May was from 10° to 25° colder than in the corresponding fortnight of May 1892.

" Temperature increased rapidly from the 15th to the 25th, and fell again during the remainder of the month. The air was unusually damp at the end of the month, exposed snow lay as far down as 13,000 feet on the northern slopes, and to 15,000 feet on the southern slopes. Owing to the unusual cold during the whole winter and spring, the snow has melted very slowly, much more so than usual in May."

(3) *Kulu.*—The Assistant Commissioner reports that snow fell on two days (the 10th and 12th) during the month on the higher elevations above 13,000 feet. The snow melted rapidly during the month, and there was no snow lying below 10,000 feet at the end of the month. The Rotang Pass was crossed by Lahoulis with laden animals in the 3rd week of the month, somewhat earlier than usual. The following table gives the reported depth of snow on the higher passes at the end of the month and corresponding data for the past 4 years for comparison :—

Tahsil.	Name of Pass	Elevation.	Depth of snow at the end of May				
			1893.	1892.	1891.	1890.	1889.
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Kulu	Rotang	13,000	9	1 foot	9	5	10
	Hamta	14,500	7	½ "	12	6	7
	Chandankhani	?	8	*Nil*	8	½ foot	4
	Barsai	?	2	½ foot	5	1 "	*Nil*
	Bujadhar	?	2	?	2	?	?
	Lohri Achri	?	2	?	*Nil*	*Nil*	1 foot.
	Bhubu	10,000	1 foot		*Nil*	*Nil*	1 "
Plach	Srikand	15,000	15	4 feet	32	12	50
	Gargarasan	17,000	4	1 foot	4	2	3
	Plach	?	1 foot	?	2	1 foot	2
	Tirath	?	4	1 foot	2	1 "	4

(4) *Bashahr.*—Snow fell on fourteen days between the 15th April and 15th May on the higher ranges. The falls varied in depth from an inch to a foot between 10,000 and 15,000 feet. The period was characterized by frequent high westerly winds and thunderstorms. During the intervals between the storms abnormally strong easterly winds usually prevailed. The snow melted more slowly than usual, and the Alpine pastures on the northern slopes of the hills were deep under snow at the end of the period.

Summary of snowfall data of the cold weather of 1892-93.—The following summary is taken from a memorandum published in the *Gazette of India* :—

The fall was unusually heavy in Baluchistan in the months of December, January, and February ; it ceased in the beginning of March, and none has fallen during the past three months. The snow fell down to unusually low elevations in January. This heavy precipitation did not extend into East Persia, as information recently received shows that snow fell much less frequently than in Baluchistan, and that it was on the whole slightly below the average in amount, and did not occur below elevations of 4,500 feet.

The snowfall in Afghanistan was probably above the average, but was by no means so heavy as in the winter of 1890-91. The chief feature of the winter was the unusual cold.

In the Western Himalayas the snowfall was unusually heavy during the months of January, February and March in the outer ranges, but the excess appears to have diminished rapidly into the interior. The precipitation was very heavy at Murree, Dharmsala, Dalhousie, and Simla, but was less than usual at Kailang in Lahoul, and at Kilba in the Upper Sutlej Valley. The information received from Hunza, Gilgit, Sarikol, and Kashgar shows that in all these areas the fall was small in amount, and probably even less than usual. The chief feature was the unusually protracted and severe cold during the winter.

The precipitation at Ranikhet,Ch akrata, and Naini Tal was even more largely in excess than at the Punjab hill stations, and the additional data of the northern tahsils of Kumaon indicate that the fall was abnormally heavy over that mountain area. The fall during the months of April and May appears to have been very moderate in amount, and probably less than the average. According to the reports received from the Civil authorities, upwards of sixty feet of snow fell on the higher elevations in Kumaon during the months of January, February and March.

The snowfall in Sikkim was probably below the normal. There were very frequent falls, but they were generally light. The total fall at Gnatong for the past winter was less than in the two previous winters.

In the Assam Himalayas the fall was undoubtedly larger than usual, and it was probably almost as excessive as in Kumaon.

The chief features may hence be summed up as follows :—

(1) Moderate snow in East Persia.
(2) Heavy snow in Baluchistan.
(3) Moderately heavy snow in Afghanistan.
(4) Very heavy snow in the outer ranges in the Western Himalayas, decreasing to normal snowfall on the interior ranges.
(5) (Probably) less snow than usual in Little Thibet.
(6) Very heavy snow in the North-Western Provinces Himalayas.
(7) Snowfall normal or slightly below the average in the Sikkim Himalayas.
(8) (Probably) unusually heavy snow in the Assam Himalayas.
(9) A most important feature is that the snowfall occurred during the normal winter period, and that little or no snow has fallen during the hot weather months of April and May.
(10) The snow accumulation at the end of last season was unusually small, and hence notwithstanding the heavy snowfall in some portions of the Himalayan area, the accumulation at the end of May was probably by no means excessive.

Summary of special storm reports.

The following gives a statement of 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. They occurred almost entirely during two periods of general disturbance, *viz.*, from the 1st to the 13th, and from 22nd to the end of the month.

3rd.—Duststorm at Bankipore at 2-50 P.M. Temperature fell from 92°·2 at 2-50 P.M. to 77°·8 at 3-0 P.M. before any rain had fallen. Strongest wind velocity recorded was 90·6 miles per hour. Several boats were capsized in the river. Duststorms at Mymensingh (from north) at 8-50 A.M., and Benares (from west) at 11-20 A.M. Thunderstorm at Allahabad 9-40 to 10-30 A.M.

5th.—Thunderstorm at Ranikhet 4 P.M. Thunderstorm at Chittagong 4-45 P.M. to 5·20 P.M. Thunderstorm at Pachpudra at 5 P.M.

6th.—Nor'-wester at Burdwan 4 P.M. to 4-30 P.M. Rainfall 0·96 inch in 20 minutes. Severe duststorm at Allahabad at 7-15 A.M. Duststorm at Pachpudra at 2 P.M.

7th.—Duststorm at Sutna from 11-25 P.M. to 11-40 P.M. Duststorm at Cawnpore at 3 A.M. Duststorm followed by severe thunderstorm at Allahabad from 3-50 A.M. to 5-25 A.M. The barometric movements were unusually large. The following gives readings taken during the storm.

Hours.	Barometer reduced to 32°	Temperature.	Wind velocity.
	"	°	
4- 5 A.M	29·450	78·0	6 Miles.
4-30 "	29·490	78·3	22
4-40 "	29·522	77·8	33
4-55 "	29·610	69·0	19
5-10 "	29·588	69·3	13
5-25 "	29·534	72·0	11
8- 0 "	29·446	80·1	11

8th.—Severe duststorm at Jubbulpore from north-west. Winds were very violent and did much damage. Greatest registered velocity 60 miles per hour. Duststorm at Khandwa at 11 P.M. Severe thunderstorm at Puri from 6 P.M. to 7-30 P.M. 2·04 inches of rain fell during the storm. Four natives were killed by lightning. Severe duststorm at Pachpudra 10 P.M. to 11 P.M.

9th.—Nor'-wester at Mymensingh 2-10 P.M. to 3 P.M. Rainfall during storm 1·22 inch.

10th.—Duststorm at Delhi at 0-30 A.M.

11th.—Duststorm at Jubbulpore from 2 P.M. to 3 P.M. Thunderstorm at Pachpudra at 8 P.M. Violent hailstorm at Gulbarga from 1 P.M. to 1-20 P.M. Rainfall 0·81 inch.

12th.—Duststorm at Cawnpore at 3 P.M. Duststorm at Khandwa at 3-15 P.M. Dust and thunderstorm at Nagpur 2 P.M. to 3-30 P.M.

14th.—Duststorm at Allahabad 5-15 P.M. to 6-45 P.M.

15th.—Thunderstorm at Nagpur at 2 P.M. Hailstorm at Mount Abu at 3 P.M. Severe duststorm at Jacobabad at 9-46 P.M.

16th.—Duststorm at Jacobabad 94-6 P.M. to 10-46 P.M.

18th.—Thunderstorm at Poona 7-30 P.M. to 8 P.M.

22nd.—Duststorm at Allahabad from east at 5 P.M. to 5-40 P.M. Duststorm at Patna 5-20 P.M. to 5-30 P.M. It came from east-south-east.

23rd.—Thunderstorm at Allahabad 5-30 P.M. to 5-50 P.M. Duststorm at Ajmere at 4-10 P.M. Thunderstorm at Nagpur at 2-20 P.M. to 3-30 P.M.

24th.—Dust and thunderstorms at Raipur 5-40 P.M. to 6-20 P.M. Strongest winds recorded had velocity of 99 miles per hour as registered by the anemometer. Duststorm from west at Peshawar 5-20 P.M. to 6 P.M.

25th.—Thunderstorm at Ranikhet at 4 A.M. Thunderstorm at Chikalda at 7 P.M. Duststorm at Bankipur at 5-15 P.M. Duststorm at Benares from north at 7 A.M. Violent duststorm at Allahabad at 5-40 A.M.

26th.—Thunderstorm at Poona at 2-20 P.M. Duststorm at Jubbulpore from north at 11 A.M.

29th.—Thunderstorm at Ranikhet at 7-10 P.M. Thunderstorm at Allahabad at 8-15 P.M. Storm came from north-west. Heavy thunderstorm at Partabgarh during the evening. Storm came from north.

31st.—Duststorm at Sirsa at 6-25 P.M. Thunderstorm at Allahabad at 10 A.M.

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

Arabian Sea.—At the beginning of the month normal north-westerly winds (force 4 to 5) prevailed along the Konkan Coast, and south-westerly winds (force 3 to 5) in the south, centre and north of the Arabian Sea. At the entrance to the Gulf of Aden an abnormal south-easterly wind was blowing. Weather was fine and clear over nearly the whole area, except in the neighbourhood of the South Malabar Coast, where it was rainy and squally with light to moderate westerly winds. Thus the SS. *Bancoora* in Lat. 9°·30′ N. and Long. 6°·20′ E., at 8 A.M. on the 1st had variable winds of force 2 with very heavy rain, thunder and lightning, and the SS. *Loodiana* in Lat. 8°·33′ N. and Long. 76°·52′ at the same hour experienced rain squalls. Wind fell off in force, particularly in the south and east of the Arabian Sea, during the next 48 hours, and the mean force for the whole sea area on the morning of the 3rd had decreased to 2·0 as compared with 3·3 on the 1st. Northerly winds had extended southwards right along the Malabar Coast, and weather had improved considerably in that area. During the next 24 hours winds increased in force in the east of the Arabian Sea, and continued steady over the remainder of it. In consequence the average force for the whole of the Arabian Sea had again increased to 3·8 on the morning of the 4th. No change of importance occurred during the next two days, except that winds again fell off rapidly in strength, and on the morning of the 6th were of the average force 2·9. Fresh south-westerly winds again set in on this day in the extreme south of the Peninsula and on the Malabar Coast, and weather became rainy and squally in that area. The SS. *Blackheath* in Lat. 7°·52′ N. and Long. 77°·46′ E. at noon of the 6th experienced west-south-west winds, force 5, a moderate sea and squalls of rain in the evening, and the SS. *Goorkha* in

Lat, 6°·36′ N. and Long. 79°·25 E. at 8 A.M. of the same day had southerly winds with heavy squalls of wind and rain. The conditions remained unchanged until the 8th, after which the winds shifted round to south-east along the Malabar Coast, and the weather began to improve.

A considerable change in the winds was also in progress in the south of the Arabian Sea and in the Gulf of Aden. Abnormal north-easterly winds of force 5 to 6 set in during the next 48 hours in the Gulf of Aden, where light to moderate south-easterly winds prevailed previously, and moderate south-easterly winds in the south-east and the equatorial belt. Weather, however, continued fine except in the equatorial region, and over the area between the Maldives and Ceylon, where it was unsettled with squalls and rain. The SS. *Africander* in Lat. 4°·18′ S. and Long. 51°·14′ E. at 8 A.M. of the 10th experienced squally weather with rain, and the SS. *Windsor* in Lat. 8°·04′ N. and Long. 77°·10′ E. at noon of the same day had squally weather. No important change occurred during the next 24 hours except in the Gulf of Aden, where the wind again went round to south-east, and in the extreme south of the Peninsula, where it became south-westerly. A steady increase in the air motion had occurred during the past two days, and the mean force for the whole of the Arabian Sea had increased to an average of 3·5 on the morning of the 11th, as compared with 2·7 on the morning of the 9th. With the shift of wind to the normal quarter in the extreme south of the Peninsula heavy rain recommenced in that region, and weather became again squally. The conditions remained unaltered until the 15th, when the south-westerly winds began to increase in force and weather became still more rainy and squally in the south-east of the Arabian Sea. The mean force for the whole sea area on the morning of this day had increased to 3·3 as compared with 2·6 on the 12th, 13th and 14th. Very squally weather with heavy rain prevailed in this area during the next 48 hours. Thus the SS. *Nubia* in Lat. 7°·40′ N. and Long. 74°·20′ E. at 8 A.M. of the 17th experienced squally weather with heavy rain, thunder and lightning, and the ship *Halewood* in Lat. 8°·00′ N. and Long. 74°·21′ E. had heavy squalls.

The changes in progress over the land area were not, however, favourable for the continuance of these southerly winds and squally weather, and hence the conditions improved rapidly during the next 24 hours. The ship *Halewood*, not very far from its position on the previous day, experienced clear weather at 6 A.M. of the 18th, and the SS. *Lawada* in Lat. 8°·25′ N. and Long. 76°·58′ E. light north-north-east winds and cloudy weather. The mean air motion had decreased to 2·8 on the morning of this day. No change of importance occurred during the next five days.

Changes were, however, in progress in the Bay, which favoured the continuance of north-westerly winds along the west coast, and a steady increase in the force of the winds occurred until the 25th, on which day the mean wind force for the whole area was 4·2. There were some indications of the advance of south-west winds again on the 23rd, but the conditions did not develop until the 27th, on which day fresh south-west winds extended as far north as Lat. 15°, along the Malabar Coast, and gave very rainy and squally weather. The SS. *Umballa* in Lat. 10°·38′ N. and Long. 75°·47′ E. at 8 A.M. of the 27th had westerly winds (force 5), a heavy sea and hard squalls of wind and rain, and the ship *Golden Fleece* in Lat. 14°·35′ N. and Long. 64°·13′ E. experienced strong west-south-west winds and heavy squalls. The mean force for the whole sea area was, however, 3·8. The south-west monsoon current extended rapidly northwards during the next 24 hours, and had reached Lat. 18° N. on the morning of the 28th. The ship *Golden Fleece* in Lat. 17°·51′ N. and Long. 64°·02′ E. at 8 A.M. of the 28th had fresh west-south-west winds and heavy squalls in the early morning. Fresh to strong south-west monsoon winds continued to prevail over the south-east and centre of the Arabian Sea during the next three days. Weather, on the other hand, was only showery on the Malabar and Ceylon coasts and over the west of the sea area. The average force for the whole of the Arabian Sea was 3·6 on the morning of the 30th. Winds were, however, commencing to fall off in strength, and the weather was tending to improve. The wind force on the morning of the 31st had decreased to 2·9.

Bay of Bengal.—At the commencement of the month moderate to fresh south-westerly winds were blowing over the whole of the Bay area, and the weather was generally fine except in the Andaman Sea and off the Pegu and Arakan coasts, where heavy rain was falling. The S. S. *Maharaja* in Lat. 21°·48′ N. and Long. 91°·51′ E. at 8 A.M. of the 1st experienced terrific squalls of wind and rain in the morning, and the SS. *Palamcotta* in Lat. 13°·55′ N. and Long. 96°·50′ E. at the same hour had a moderate sea and heavy rain. The weather improved off the Arakan coast during the next 24 hours, but continued rainy in the Andaman Sea and on the Pegu coast. Pressure was becoming uniform over the whole of the Bay area, and the air motion was hence becoming irregular, and decreasing rapidly in strength. The mean air movement for the whole of the Bay area averaged only 2·9 on the 2nd and 2·5 on the 3rd, as compared with 3·7 on the 1st. Conditions remained unchanged until the afternoon of 5th, on which day weather moderated in the Andaman Sea and on the Pegu coast, but became unsettled with heavy rain and squalls in the centre and north of the Bay. The SS. *Landaura* in Lat. 16°·45′ N. and Long. 85°·42′ E. at 8 A.M. of the 5th, and proceeding up the Bay, experienced fine weather in the morning, but heavy squalls of wind and rain at 6 P.M. Similar weather was experienced by the SS. *Goalpara* in Lat. 20°·08′ N. and Long. 86°·45′ E. Winds shifted round to north-east in the

north-west angle of the Bay during the next 24 hours, and a centre of a depression was formed on the morning of the 6th. The depression, however, failed to develop, and normal south-westerly winds again set in on the Bengal coast during the next 24 hours, and weather became showery and rainy. A considerable rise in the wind force had occurred in the south and east of the Bay, and weather became unsettled in that region and particularly to the north of the Andaman sea, where showery weather had previously prevailed. The average wind force for the whole sea area had increased to 3·5 on the morning of the 6th and 3·9 on the 7th. An important change occurred in the north-west of the Bay, where winds shifted round to north-east, and a feeble depression was formed on the morning of the 9th. Like the pre us depression it, however, failed to develop, and apparently passed inland as a diffused disturbance. It did not influence the weather in the Bay to any appreciable extent, except in the north-west corner, where it gave rainy and squally weather on the 10th after it had passed inland. Pressure became uniform with variable winds over the greater part of the Bay during the next 24 hours, and the weather cleared up generally. These conditions of fine clear weather continued unchanged until the afternoon of the 15th, on which day south-west monsoon winds set in at the entrance to the Bay, and weather became squally with rain in that area. Thus the SS. *Lombardy* in Lat. 5°·45′ N. and Long. 91°·02′ E. experienced moderate south-west winds with frequent passing squalls of wind and heavy rain. The monsoon current increased steadily in strength during the next three days, and marched slowly northwards up the Bay to the latitude of Port Blair on the 18th. It, however, advanced rapidly up the centre of the Bay during the next 24 hours, and on the morning of the 19th had reached the latitude of 16½° N. Unsettled squally and rainy weather now prevailed over the east, centre and west of the Bay, and fine or cloudy weather in the north and south of it. As is frequently the case, a storm was generated in front of the advancing monsoon current on the 20th and 21st. It steadily developed into a cyclone of great intensity on the 24th and 25th, and crossed the coast about 6 A.M. of the 26th to the west of Saugor Island. A detailed history of this storm is, however, given elsewhere, and need not be repeated.

Very squally weather was experienced in the north and centre of the Bay during the period of the existence of the storm, more especially on the 25th and 26th, when winds of hurricane force and terrific squalls and blinding rain were experienced in the north-west of the Bay. The mean wind force for the whole of the Bay area averaged 6·2 on the 25th, 26th and 27th. Weather moderated considerably during the next three days, and on the morning of the 30th had become actually fine in the south and centre of the Bay. In fact, the only part of the Bay in which rainy or squally weather still prevailed was the area between the Andamans and the Pegu coast. Conditions improved, however, even in this area during the next 48 hours. Winds had fallen off considerably in force, and on the morning of the 31st were blowing with an average force of 3·0. Weather was, however, becoming again unsettled in the neighbourhood of the East Ceylon coast.

Temperature.

The mean maximum or day temperature of the month was below the normal over the whole of Burmah and India with the exception of Assam, the Indus Valley and Baluchistan and the Coromandel Coast stations. The excess in these three areas was greater than 2° at the following stations :—

Station.	Mean maximum temperature.		
	Actual May 1893.	Normal May.	Variation from normal.
	°	°	°
Silchar	90·2	87·9	+2·3
Sibsagar	88·6	86·5	+2·1
Peshawar	100·3	97·2	+3·1
Quetta	86·5	82·5	+4·0
Negapatam	98·2	95·8	+2·4

The deficiency exceeded 2° over by far the greater part of India, and was above 4° in three areas, *viz.*, the greater part of Burma, West Bengal, Chota Nagpur and Orissa, and the submontane districts of the North-Western Provinces. The deficiency was more than 5° in the two areas represented by the following stations for which data ar given :—

Meteorological Province.	Station.	Mean Maximum Temperature.		
		Actual May 1893.	Normal May.	Variation from normal.
		°	°	°
Burma	Thayetmyo	92·9	99·3	−6·4
	Toungoo	90·1	96·2	−6·1
	Rangoon	86·6	92·2	−5·6
	Moulmein	85·1	90·2	−5·1
West Bengal	Cuttack	94·2	101·0	−6·8?
	Gya	98·0	104·1	−6·1
Chota Nagpur and Orissa	Hazaribagh	92·2	98·0	−5·8
	Burdwan	91·1	96·9	−5·8
	Berhampore	90·1	95·5	−5·4
	Jessore	89·1	94·2	−5·1

The abnormal coolness in India generally, and in these two areas more especially, was mainly due to the increased cloud and rainfall of the month.

The variations of the minimum or night temperature were the same in general character as those of the day temperature, but were with few exceptions smaller in amount. The temperature was in slight to moderate excess in North Bengal and in Upper India, and in defect in other districts. The deficiency was more than 2° in amount at only two stations, *viz.*,—Saugor Island (—2°·4) and Hazaribagh (—2° 3.) The excess was generally small in amount in Upper India, Sind, and Rajputana, but was over 2° at the following stations :—

Station.	Mean Minimum Temperature.		
	Actual May 1893.	Normal May.	Variation from normal.
	°	°	°
Lahore	76·5	71·9	+4·6
Mooltan	79·0	75·5	+3·5
Jacobabad	79·6	76·2	+3·4
Sirsa	78.2	75·7	+2·5

The mean temperature was above the normal to a slight extent in Assam, Sind, and the Punjab, and also locally at Madras and Masulipatam. The excess was more than 2° at Peshawar (+2°·6)and Quetta (+2·5). It was in slight to moderate defect over the remainder of India and in Burma. The deficiency was more than 2° in the Central Deccan, and in a belt of country stretching from the North-Western Provinces across West Bengal and Orissa to Burma. The following gives data for the stations in this belt of greatest deficiency of temperature in May at which the mean temperature of the month was more than 3° below the normal.

Province.	Station.	Mean Temperature.		
		Actual May 1893.	Normal, May.	Variation from normal.
		°	°	°
Burma	Toungoo	82·8	86.3	—3·5
	Thayetmyo	84·9	88·4	—3·5
	Rangoon	81·6	84·7	—3·1
Bengal	Burdwan	83·5	87·0	—3·5
	Hazaribagh	82.0	86.1	—4.1
	Gaya	87.8	90.9	—3.1
	Cuttack	86.2	90.2	—4.0
	Sambulpur	89.8	93·5	—3·7

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

(1) Increased temperature both by day and night in Assam and the North-West frontier districts.

(2) Decreased temperature both by day and night over nearly the whole of India and in Burma.

(3) The reduction of temperature was most marked in Lower Burma, West Bengal, Chota Nagpur, South Bihar, Orissa, and Sambulpur, where it exceeded 3°.

(4) The reduction of temperature was almost entirely due to the excessive rainfall of the month, and was greatest in the areas where the rainfall was abnormally large. It was not a residual effect of the heavy snow in the Himalayan area during the previous winter.

The following table gives temperature data for each of the 50 meteorological divisions into which India is divided :—

Province.	Division.	Actual Temperature.					Variation.		
		Mean Maximum.	Mean Minimum.	Mean of day.	Mean Daily Range.	Absolute Range.	Maximum.	Minimum.	Daily Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	86·9	74·9	81·0	12·0	20·6	— 5·6	— 0·6	— 5·0
	Lower Burma	87·0	77·0	82·0	10·0	18·5	— 4·1	— 0·6	— 3·5
	Central do.	93·8	75·2	84·5	18·6	34·2	— 6·4	— 0·5	— 5·9
	Upper do.	92·3	74·1	83·2	18·2	33·4	?	?	?
	Arakan	87·2	76·5	82·0	10·7	21·5	— 3·2	— 0·9	— 2·3
Bengal and Assam	Eastern Bengal	87·6	74·7	81·1	12·9	27·8	— 2·4	— 0·4	— 2·0
	Assam (Surma)	90·2	73·8	82·0	16·4	33·3	+ 2·3	+ 1·7	+ 0·6
	Do. (Brahmaputra)	87·8	73·6	80·7	14·3	34·4	+ 1·5	+ 1·5	0
	Deltaic Bengal	89·3	75·8	82·5	13·5	32·8	— 4·2	— 1·4	— 2·8
	Central do.	90·9	74·8	82·8	16·1	36·4	— 5·6	— 0·5	— 5·1
	North do.	89·4	74·0	81·7	15·3	31·2	?	?	?
	Orissa	89·7	77·8	83·8	11·9	27·8	— 5·1	— 1·4	— 3·7
	Chota Nagpur	92·7	72·4	82·6	20·3	39·5	— 5·8	— 2·3	— 3·5
	Bihar (South)	98·0	76·9	87·5	21·1	45·3	— 4·6	— 0·3	— 4·3
	Do. (North)	94·0	75·2	84·6	18·9	38·0	— 2·3	+ 0·8	— 3·1

Province.	Division.	Actual Temperature. Mean Maximum.	Mean Minimum.	Mean of day.	Mean Daily Range.	Absolute Range.	Variation. Maximum.	Minimum.	Daily Range.
		°	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	North-Western Provinces (East)	100·1	77·0	88·6	23·1	42·1	− 3·7	− 1·0	− 2·7
	Oudh (South)	99·9	75·1	87·5	24·8	44·2	− 4·2	− 1·5	− 2·7
	North-Western Provinces (Central)	101·7	76·1	88·9	25·6	43·7	?	?	?
	Do. do. (West)	104·4	80·2	92·3	24·2	42·1	− 2·6	− 1·1	− 1·5
	Do. do. (Submontane)	96·5	72·7	84·7	23·9	42·1	− 3·4	− 0·8	− 2·6
Punjab	Punjab (South)	102·7	78·2	90·4	24·5	44·8	− 2·6	+ 0·9	− 3·5
	Do. (Central)	100·7	76·5	88·6	24·2	50·1	− 1·9	+ 4·6	− 6·5
	Do. (Submontane)	98·7	75·0	86·9	23·8	44·9	− 5·1	+ 1·4	− 6·5
	Do. (Hill Districts)	73·6	55·8	64·7	17·8	39·6	− 3·5	− 0·8	− 2·7
	Do. (North-West)	98·0	71·8	84·9	26·2	47·8	− 1·0	+ 1·7	− 2·7
	Do. (West)	103·4	76·9	90·1	26·6	48·9	0	+ 1·9	− 1·9
Bombay and Malabar Coast Districts (Madras).	Malabar	86·7	76·7	81·8	10·0	17·8	− 2·2	− 1·3	− 0·9
	Madras (South Central)	93·9	72·4	83·2	21·5	36·1	− 3·2	− 2·1	− 1·1
	Coorg	85·3	66·7	76·0	18·7	28·0	− 1·7	− 0·5	− 1·2
	Mysore	87·5	66·4	77·0	21·1	32·3	− 2·1	− 1·4	− 0·7
	Konkan	88·9	78·8	83·9	10·1	18·3	− 1·4	+ 0·1	− 1·5
	Bombay Deccan	96·3	71·4	84·0	24·8	36·4	− 2·7	− 0·7	− 2·0
	Hyderabad (North)	100·0	76·0	88·0	24·0	33·9	?	?	?
	Khandesh	98·8	72·5	85·6	26·3	39·6	− 3·4	− 0·6	− 2·8
Central Provinces and Berar.	Berar	104·7	79·0	91·9	25·7	37·7	− 2·6	− 0·8	− 1·8
	Central Provinces (West)	104·3	79·6	92·0	24·7	37·2	− 3·2	− 0·6	− 2·6
	Do. (Central)	102·5	76·7	89·6	25·8	39·9	− 2·5	− 1·6	− 0·9
	Do. (East)	102·6	79·4	91·0	23·2	38·9	− 3·8	− 1·5	− 2·3
Bombay (North)	Guzerat	100·8	79·4	90·1	21·4	31·7	− 1·1	+ 1·3	− 2·4
	Kathiawar	96·7	78·5	87·6	18·2	26·6	− 2·5	+ 0·3	− 2·8
	Sind and Kutch	101·2	79·1	90·2	22·1	36·1	− 1·7	+ 1·7	− 3·4
Rajputana and Central India.	Central India (East)	102·6	77·3	90·0	25·3	41·4	− 3·5	− 1·2	− 2·3
	Rajputana (East), Central India (West)	102·0	77·1	89·6	24·9	37·5	− 2·3	+ 0·3	− 2·6
	Do. (West)	104·7	78·1	91·4	26·6	46·1	− 2·4	− 4·0	+ 1·6
Madras	East Coast (North)	92·7	80·6	86·7	12·2	25·1	− 1·1	− 0·2	− 0·9
	Hyderabad (South)	100·6	77·7	89·2	23·0	34·9	− 1·8	− 0·9	− 0·9
	Madras (Central)	100·9	78·9	89·9	22·0	33·7	− 3·1	− 1·4	− 1·7
	East Coast (Central)	102·1	80·3	91·2	21·8	38·9	+ 1·5	− 1·2	+ 2·7
	East Coast (South)	98·7	79·3	89·1	19·4	31·6	+ 0·9	− 0·2	+ 1·1
	Madras (South)	96·1	79·4	87·8	16·6	25·6	− 1·5	+ 0·9	− 2·4

Temperature was below the normal at the commencement of the month over the whole of India and Burma, except Upper India and parts of Madras.

The following data show the variations of the 24 hours preceding 8 A.M. of the 1st.

Meteorological Province.	Variation from normal of. Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−5·8	+1·0	−2·4
Bengal and Assam	−4·6	−1·7	−3·2
North-Western Provinces and Oudh	−2·4	−4·1	−3·3
Punjab	+4·5	−2·9	+0·8
Sind and Rajputana	+4·8	+2·0	+3·4
Central India and Guzerat	+0·5	−2·3	−0·9
Central Provinces and Berar	−1·6	−4·8	−3·2
Bombay	−2·3	−0·4	−1·4
Madras	+2·2	−1·0	+0·6

Temperature increased in North-Western and Central India during the next four days, and fell considerably in North-Eastern India on the 4th and 5th in consequence of the occurrence of fairly heavy and general rain, due to a series of thunderstorms. The following variation data for the 24 hours preceding 8 A.M. of the 5th illustrate these changes :—

Meteorological Province.	Variation from normal of Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−5·4	−2·3	−3·9
Bengal and Assam	−7·3	−2·6	−5·0
North-Western Provinces and Oudh	−4·2	−0·5	−2·4
Punjab	+4·1	+6·3	+5·2
Sind and Rajputana	+1·6	+5·0	+3·3
Central India and Guzerat	−1·4	+2·8	+0·7
Central Provinces and Berar	−1·3	+2·8	+0·8
Bombay	+0·4	+2·0	+1·2
Madras	−1·1	−1·1	−1·1

Fairly general rain fell on the 6th, 7th, and 8th over the greater part of Northern and Central India. Hence temperature decreased generally, and was below the normal over the whole of India except the North-West Frontier districts.

The following table gives variation data for the 24 hours preceding 8 A.M. of the 9th:—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	− 5·2	−0·8	−3·0
Bengal and Assam	− 6·7	−3·6	−5·2
North-Western Provinces and Oudh	−13·0	−6·5	−9·8
Punjab	+ 0·4	+1·7	+1·1
Sind and Rajputana	− 1·0	+1·0	0
Central India and Guzerat	− 6·7	−1·6	−4·2
Central Provinces and Berar	− 5·2	−2·9	−4·1
Bombay	− 1·8	+0·4	−0·7
Madras	− 1·3	−1·6	−1·5

A large reduction of temperature occurred in North-Western India on the 10th and 11th due to thundershowers. This disturbed period terminated in Upper India on the 12th, on which date temperature was more or less considerably below the normal over the whole of India except Orissa and Burma.

The following table gives mean variation data for that day:—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	− 2·3	+0·4	−1·0
Bengal and Assam	− 1·4	+0·7	−0·4
North-Western Provinces and Oudh	− 6·5	−4·4	−5·5
Punjab	−13·5	−4·1	−8·8
Bombay	− 2·4	0	−1·2
Berar and Central Provinces	− 3·7	−3·8	−3·8
Guzerat and Central India	− 2·6	−2·2	−2·4
Sind and Rajputana	− 4·4	−2·7	−3·6
Madras	− 1·1	−2·3	−1·7

This disturbed weather ceased on the 14th in Northern India. Showers continued to fall daily in Southern India. Temperature hence increased steadily and rather rapidly during the next week in Northern India. The chief feature during this period was a large excess of temperature in Assam, where the weather was unusually fine and dry.

The following gives mean temperature variation data of the 14th and 21st, and shows the abnormal change of the temperature:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		Change of mean temperature during period from the 14th to 21st.
	14th.	21st.	
	°		
Burma	+1·3	−3·6	−4·9
Bengal and Orissa	−1·1	+2·2	+3·3
Assam	+5·0	+7·2	+2·2
North-Western Provinces	−2·6	+2·5	+5·1
Punjab	−3·4	+4·0	+7·4
Sind and Rajputana	−2·9	−1·2	+1·7
Central India and Guzerat	−2·5	−1·9	+0·6
Central Provinces and Berar	−4·7	+0·1	+4·8
Bombay	−0·3	−1·7	−1·4
Madras	−3·0	−0·8	+2·2

A temporary advance of monsoon winds commenced in the Bay on the 17th and 18th. The humid current marched steadily up the Bay, and gave Burma general rain from the 19th or 20th to the end of the month. This rainfall reduced temperature largely below the normal in that area during the remainder of the month.

When the humid current advanced to the north of the Bay, a cyclonic storm slowly formed on the 22nd, 23rd and 24th. It passed northwards across the Bengal coast and re-curved to east-north-east, and advanced into East Bengal and Cachar, where it broke up. It was remarkable for the very heavy rainfall it gave to Orissa and Bengal, and hence the temperature in that area was more or less considerably below the normal during the remainder of this month.

A feeble advance of monsoon winds also occurred along the West Coast during the last week of the month, which gave showers not only to the coast districts, but to the greater part of the Peninsula, and temperature was below the normal during the latter part of the month. In North Western India temperature increased steadily until the 24th, when the highest temperatures of the month were recorded in the Punjab and Rajputana. Easterly winds and showery weather set in on the 25th and 26th, and caused a great reduction of temperature.

The following table gives mean temperature variation data of the 24th, 27th, and 31st :—

Meteorological Province.	Variation from normal of mean temperature in 24 hours preceding 8 A.M. of		
	24th.	27th.	31st.
	°	°	°
Burma	−3·2	−2·9	−2·7
Bengal and Orissa	−2·6	−7·7	−1·9
Assam	+5·3	−0·7	−4·6
North-Western Provinces	+4·4	−5·5	−4·0
Punjab	+3·0	−1·0	−4·4
Sind and Rajputana	+1·0	−1·1	−2·0
Guzerat and Central India	−1·0	−2·8	−3·9
Central Provinces	+0·7	−4·2	−6·8
Bombay	−0·7	−2·9	−4·5
Madras	+0·1	−1·0	−1·0

The two following tables give first, the actual temperature data of the 24th recorded on the 25th for six stations at which the day temperature was highest, and, second, the variation data for some of the same stations:—

Station.	Trmperature.		
	Maximum of the 24 hours preceding 8 A.M of 25th.	Minimum of the 24 hours preceding 8 A.M. of 25th.	Mean.
	°	°	°
Sirsa	114·9	89·5	102·2
Khushab	114·1	88·1	101·1
Agra	113·5	85·9	99·7
Montgomery	112·9	85·0	99·0
Sialkot	112·3	89·7	101·0
Lahore	112·3	88·0	100·2

Station.	Variation from normal of		
	Maximum temperature.	Minimum temperature.	Mean.
	°	°	°
Sirsa	+8·8	+13·4	+11·1
Agra	+5·9	+3·9	+4·9
Sialkot	+8·9	+15·4	+12·2
Lahore	+8·8	+15·5	+12·2

A comparison of these figures with similar data for the corresponding period of previous years shows that the temperature in Upper India during the first large advance of monsoon was not so high as usually occurs, and that the area of highest temperature and greatest excess of temperature, which is usually in Sind, was in the Punjab in May 1893. The temperature conditions were in fact much less pronounced in May 1893 than in May 1892, and notwithstanding this the monsoon currents advanced earlier and more strongly at the commencement of the monsoon season in 1893 than in 1892, thus confirming the conclusion that the temperature conditions in Northern or Upper India do not *chiefly* determine the strength or advance of the monsoon currents.

Winds.

Winds were much steadier than usual at Port Blair and in Lower Burma in consequence of the early advance of monsoon winds. They did not differ to any important extent from the normal in direction or force.

Winds were on the average of the month more westerly or less easterly in South and East Bengal, but were on the contrary more easterly in West Bengal and Bihar. They were less steady and feebler than usual, notwithstanding the very strong winds which prevailed during the storm of last week of the month. This was due to the absence of the usual strong local southerly winds during the first three weeks of the month.

The following table gives data for four stations :—

Station.	Steadiness.		Velocity in miles per diem.	
	Actual percentage May 1893.	Normal percentage May.	Mean actual, May 1893.	Normal, May.
Calcutta	43	66	138	172
Dacca	39	60	140	149
Burdwan	24	52	258	131
Berhampore	29	37	114	132

Winds were much steadier and generally stronger than

usual in Bihar and the eastern districts of the North-Western Provinces. Hot westerly winds prevailed during the month to a much less extent than usual, and hence the wind directions at stations in the North-Western Provinces showed a much stronger easterly element than usual. The following table gives data in illustration :—

STATION.	WIND DIRECTION.		STEADINESS.	
	Mean, May 1893.	Normal, May.	Actual percentage, May 1893.	Normal percentage, May.
	°	°		
Patna	N 61 E	N 54 E	43	38
Ghazipur	N 70 E	N 10 W	53	9
Allahabad	N 27 E	N 8 E	52	20

The area of most variable winds in May usually includes the central and western districts of the North-Western Provinces between Lucknow and Roorkee. In the present month it was further west than usual, due to the frequent abnormal easterly winds of the month, more specially in the last week. The following table gives data of the stations defining the area of most variable winds :—

STATION.	STEADINESS.		WIND DIRECTION.	
	Actual percentage May 1893.	Normal percentage May.	Mean, May 1893.	Normal, May.
			°	°
Roorkee	18	6	S 26 W	S 68 W
Meerut	6	24	S 75 E	N 32 W
Ludhiana	13	10	N 20 W	N 57 W
Lahore	2	21	N	N 7 E

Winds were steadier, but not quite so strong as usual in Sind and Rajputana; the mean wind directions of the month were almost identical with the normal at stations in this area.

Winds were also normal in direction in the Central Provinces (south of the Satpuras), Berar and the Deccan generally, but were steadier and on the whole slightly stronger than usual. The following gives mean data for these areas :—

METEOROLOGICAL PROVINCE.	STEADINESS.		VELOCITY IN MILES PER DIEM.	
	Actual percentage May 1893.	Normal percentage May.	Mean actual, May 1893.	Normal, May.
Central Provinces	46	52	164	155
Berar	75	62	265	246
North and West Deccan	73	62	337	338
East Deccan	60	43	218	192

Winds were slightly steadier on the West Coast, but were practically normal in strength and direction.

Winds were of normal strength and generally steadier than usual at the hill stations. The only important feature was the abnormal predominance of northerly winds at Simla, Chakrata and Darjeeling.

Humidity and Cloud.

There was on the average of the month slightly less aqueous vapour present in the air in the Andamans, Burma, Bengal and Orissa. As the mean temperature was considerably below the normal in these areas, the relative humidity was generally in excess. The excess was more than 5 at Rangoon (+9), Diamond Island (+8), Chittagong (+6) and Burdwan (+7). Both the relative and absolute humidity were largely in excess over the North-Western Provinces, Chota Nagpur, the Punjab, Sind, Rajputana, Central India, the Central Provinces and the Deccan, and the relative humidity was more than 10 above the normal at a large number of the observing stations in these areas. The excess was absolutely greatest at Hazaribagh (+18), Roorkee (+15) and Nowgong, Lucknow and Lahore (+13). The excessive humidity was in part due to the frequent showers during the first fortnight of the month, but chiefly to an early temporary advance of south-west humid winds from the adjacent seas over India in the last week of the month. The mean humidity of the month for the hill stations was as largely in excess as at the plains stations. The excess was greatest at Chakrata and Ranikhet, where it averaged 14. There was, on the other hand, slightly less aqueous vapour in the air in Southern India and the West Coast districts. The deficiency was not large or important. The contrast between the hygrometric conditions of both the Bombay and Bengal

coast districts and the whole of the interior was hence very striking. The following table gives mean data for the ten meteorological provinces of the country :—

DIVISION.	MEAN AQUEOUS VAPOUR PRESSURE.			MEAN HUMIDITY.		
	Actual, May 1893.	Normal, May.	Variation from normal.	Actual, May 1893.	Normal, May.	Variation from normal.
	"	"	"	%	%	
Burma Coast and Bay Islands	·892	·898	—·006	84	78	+ 6
Assam	·820	·789	+·031	79	81	— 2
Bengal and Orissa	·856	·880	—·024	78	75	+ 3
Gangetic Plain and Chota Nagpur	·643	·590	+·053	55	46	+ 9
Upper Sub-Himalayas	·587	·459	+·128	49	38	+11
Indus Valley and North-Western Rajputana	·671	·584	+·087	51	46	+ 5
East Rajputana, Central India and Guzerat	·551	·475	+·076	41	34	+ 7
Deccan	·524	·443	+·081	44	35	+ 9
West Coast	·851	·803	—·012	76	74	+ 2
South India	·734	·749	—·015	68	67	+ 1

The amount of cloud was in excess over nearly the whole of India. The increase was most marked on the whole in North-Eastern India, and exceeded 2 at Diamond Island (+2·4), Burdwan (+2·6) and Hazaribagh (+2·2). There was a large local deficiency at Sibsagar (—3·4) which is probably real, as there has been no change of observer at that station, and it is confirmed by the considerable deficiency in the rainfall of the month in the eastern districts of the Assam valley.

The excess was approximately uniform in amount (averaging 1) in the North-Western Provinces, Central India, Rajputana and the West Deccan. There was a slight deficiency at the Indus Valley stations. The mean cloud amount of the month was least in Upper India and Sind, and was less than 1 at Jacobabad and Mooltan (each 0·7)

The cloud amount varied much more irregularly from the normal in the Peninsula than in Northern India, but was generally in excess. It was 0·8 in defect at Bombay, and 3·0 in excess at Ratnagiri, but this is probably due to a change of observers.

There was also more cloud at the hill stations in Upper and Central India, the chief apparent exception Chakrata being almost certainly due to the estimate of the present observer appointed about a year ago differing considerably from the previous observer.

It is noteworthy that there was less cloud at Leh and Kailang. The deficiency was not large, but it probably accounts for the increased temperature at those elevated stations in May.

The following table gives cloud data for the ten meteorological provinces of India :—

DIVISION.	MEAN CLOUD AMOUNT		
	Actual, May 1893.	Normal, May.	Variation from normal.
Burma Coast and Bay Islands	7·7	5·9	+1·8
Assam	5·6	6·2	—0·6
Bengal and Orissa	6·6	4·7	+1·9
Gangetic Plain and Chota Nagpur	3·6	2·2	+1·4
Upper Sub-Himalayas	2·6	2·2	+0·4
Indus Valley and North-Western Rajputana	1·7	1·8	—0·1
East Rajputana, Central India and Guzerat	3·0	1·9	+1·1
Deccan	3·8	2·9	+0·9
West Coast	4·2	3·6	+0·6
South India	5·5	4·8	+0·7

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.—Lower Burma and Tenasserim.

3rd.—Southern India, more especially Malabar.

The rainfall in the first of these areas is due to frequent thundershowers, 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 proper ranges from 2 inches in the western districts to 12 inches at Mymensingh in East Bengal, and 14 inches at Kuch Bihar in North Bengal. In Assam it ranges from 9 inches in the Central Assam valley districts to 57 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 south-west monsoon winds, which usually begin to give rain in Malabar and Tenasserim in the third or fourth week of May. The average rainfall in Malabar in May is 9 inches and in Tenasserim about 14 inches.

The rainfall of the month of May 1893 was above the normal over nearly the whole of India. The rainfall occurred chiefly during two well-defined periods. The first period was from the 1st to the 13th, when two hot weather disturbances gave numerous thunderstorms over the greater part of India. The second period was from the 20th to the end of the month, when the rainfall was due to a temporary advance of monsoon winds which extended over nearly the whole of India during the last four days of the month and gave more or less general rain. A cyclonic storm which formed in the north-west of the Bay gave one of the heaviest bursts of concentrated rainfall which has occurred for many years in India. The following table gives comparative rainfall data for the 51 meteorological divisions of India:—

Provinces.	Division.	Rainy days.		Rainfall.		
		Actual, May 1893.	Normal, May.	Actual, May 1893.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	30·27	19·92	+ 10·35
	Lower Burma*	?	?	16·00	11·47	+ 4·53
	Central do. *	?	?	11·34	7·37	+ 3·97
	Upper do. *	?	?	6·14	?	?
	Arakan *.	?	?	25·16	19·25	+ 5·91
Bengal and Assam	Eastern Bengal	11·9	10·9	17·60	9·36	+ 8·24
	Assam (Surma)	11·1	16·3	19·44	17·82	+ 1·62
	Do. (Brahmaputra)	9·3	15·0	6·22	11·76	— 5·54
	Deltaic Bengal	10·8	8·0	13·94	6·20	+ 7·74
	Central do.	8·7	6·9	11·08	5·02	+ 6·06
	North do.	8·7	10·7	7·65	10·24	— 2·59
	Orissa	10·3	5·7	22·83	3·88	+ 18·95
	Chota Nagpur	7·5	4·2	5·64	2·65	+ 2·99
	Bihar (South)	4·2	2·6	2·56	1·81	+ 0·75
	Do. (North)	5·1	4·1	2·82	3·11	— 0·29
North-Western Provinces and Oudh.	North-Western Provinces (East)	2·0	1·0	1·09	0·48	+ 0·61
	Oudh (South)	3·3	1·1	1·68	0·57	+ 1·11
	Do. (North)	4·5	1·8	2·84	0·95	+ 1·89
	North-Western Provinces (Central)	3·0	0·9	1·38	0·39	+ 0·99
	Do. do. (West)	2·2	1·1	0·86	0·41	+ 0·45
	Do. do. (Submontane)	5·0	2·3	2·64	1·34	+ 1·30
Punjab	Punjab (South)	2·5	1·1	1·09	0·48	+ 0·61
	Do. (Central)	3·3	1·5	1·53	0·66	+ 0·87
	Do. (Submontane)	4·0	1·9	1·86	0·85	+ 1·01
	Do. (Hill Districts)	5·6	5·3	3·38	2·63	+ 0·75
	Do. (North-West)	4·4	2·0	2·24	1·05	+ 1·19
	Do. (West)	3·1	1·1	1·79	0·50	+ 1·29
Bombay and Malabar Coast Districts (Madras).	Malabar	11·7	8·2	11·30	7·17	+ 4·13
	Madras (South Central)	6·0	5·9	3·39	4·03	— 0·64
	Coorg	13·3	?	9·65	?	?
	Mysore*	?	?	5·12	3·44	+ 1·68
	Konkan	4·7	2·4	6·45	1·72	+ 4·73
	Bombay Deccan	5·9	3·5	4·21	1·83	+ 2·38
	Khandesh	5·0	1·7	3·69	1·07	+ 2·62
	Berar	3·6	?	2·18	0·53	+ 1·65
Central Provinces and Berar.	Central Provinces (West)	3·0	0·9	1·89	0·48	+ 1·41
	Do. (Central)	2·9	1·2	1·17	0·56	+ 0·61
	Do. (East)	2·3	1·6	1·25	0·85	+ 0·40
Bombay (North)	Guzerat	0·8	0·5	0·40	0·30	+ 0·10
	Kathiawar	0·6	0·4	0·30	0·24	+ 0·06
	Sind	0·4	?	0·09	0·11	— 0·02
Rajputana and Central India.	Central India (East)	3·3	?	1·85	0·40	+ 1·45
	Rajputana (East), Central India (West)	2·3	?	0·98	0·59	+ 0·39
	Do. (West)	1·8	?	0·80	0·50	+ 0·30
Madras	East Coast (North)	4·5	3·5	2·63	2·33	+ 0·30
	Do. (do. (a)	7·0	5·3	2·88	2·98	— 0·10
	Hyderabad (South)*	?	?	1·85	1·92	— 0·07
	Madras (Central)	4·1	3·0	2·08	1·89	+ 0·19
	East Coast (Central)	1·7	1·8	0·71	1·66	— 0·95
	Do. (South)	3·2	3·4	1·75	3·21	— 1·46
	Madras (South)	3·3	3·4	1·70	2·10	— 0·40

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

The Punjab had showery weather on the 6th and again on the 10th and 11th, and from the 26th to the end of the month. The rainfall was most general in the northern and eastern districts and the hill districts, and was least in the districts of Jhang and Mozuffergarh. The rainfall of the month was above the average to a slight extent in all the divisions. The following gives a summary of the data in the provincial statement:—

Division.	Number of rainy days.			Rainfall.		
	Actual, May 1893.	Normal, May.	Variation.	Actual, May 1893.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Punjab (South)	2·5	1·1	+1·4	1·09	0·48	+0·61
Do. (Central)	3·3	1·5	+1·8	1·53	0·66	+0·87
Do. (Submontane)	4·0	1·9	+2·1	1·86	0·85	+1·01
Do. (Hill Districts)	5·6	5·3	+0·3	3·38	2·63	+0·75
Do. (North-west)	4·4	2·0	+2·4	2·24	1·05	+1·19
Do. (West)	3·1	1·1	+2·0	1·79	0·50	+1·29

In the North-Western Provinces thundershowers occurred between the 4th and 8th. On the 6th and 7th the rainfall distribution was fairly general throughout the province. Rain was also received during the last week of the month. It was very irregularly distributed, and the amounts were generally small. Fairly general rain was received on the 31st in the eastern and central districts. The following table gives a summary of the rainfall data:—

Division.	Number of rainy days.			Rainfall.		
	Actual, May 1893.	Normal, May.	Variation from normal.	Actual, May 1893.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Oudh (North)	4·5	1.8	+2·7	2·84	0·95	+1·89
Do. (South)	3·3	1·1	+2·2	1·68	0·57	+1·11
North-Western Provinces (East)	2·0	1·0	+1·0	1·09	0·48	+0·61
Ditto (Central)	3·0	0·9	+2·1	1·38	0·39	+0·99
Ditto (West)	2·2	1.1	+1·1	0·86	0·41	+0·45
Ditto (Submontane.)	5.0	2·3	+2·7	2·64	1·34	+1·30

Scattered showers were received in Rajputana from the 5th to the 12th during the first disturbed period of the month, and again from the 28th to the 31st. The falls were not heavy, but gave a total for the month in moderate excess of the normal. The following table gives mean data for the larger States:—

State.	Number of rainy days.	Rainfall.		
	Actual, May 1893.	Actual, May 1893.	Normal, May.	Variation from normal.
		Inches.	Inches.	Inches.
Jeypore	2·0	0·78	0·44	+0·34
Ulwar	2·7	1·52	1·09	+0·43
Bhurtpore	1·5	1·72	0·58	+1·14
Dholpur	1·2	1·07	?	?
Kotah	2·8	1·73	0·90	+0·83
Ajmere	2·8	0·97	0·58	+0·39

In Central India the rainfall during the first period of disturbance was very slight. Fairly general rain was received in the eastern districts from the 26th to the end of the month. Bhopal obtained moderately heavy rain on the 30th and 31st. The following table gives rainfall data of the month for the chief States or political divisions:—

State or Political Division.	Number of rainy days.	Rainfall.		
	Actual, May 1893.	Actual, May 1893.	Normal, May.	Variation from normal.
		Inches.	Inches.	Inches.
Gwalior	2·5	1·51	0·44	+1·07
Rewah	2·5	1·44	0·38	+1·06
Bundelkhand	3·3	1·42	0·30	+1·12
Bhopal	4·6	2·84	0·31	+2·53

Bengal obtained daily showers from the 1st to the 13th, when a dry period set in and lasted until the 21st. The rainfall during the remainder of the month was due to the cyclonic storm of the last week, and the monsoon winds which set in over the province with its advance. The rainfall accompanying the storm was excessive, and was heavier than usually occurs in cyclones in India. The storm gave excessive rain to the whole of Orissa from the 23rd to the 26th, more especially near the coast. As the depression advanced northwards the heavy rainfall extended over South-West Bengal. It was heavy and general in the southern half of that division from the 25th to the 27th, and in the northern half as well as the central and eastern districts from the 26th to the 28th or 29th. The peculiar course of the storm through Central Bengal deprived

North Bengal and Bihar of cyclonic rain, and these districts received only moderate rain after the storm had broken up.

The following table gives full data of the rainfall during the month for those stations in Orissa where it was most excessive :—

District.	Station.	Number of Rainy Days.			Rainfall.		
		Actual, May 1893.	Normal, May.	Variation.	Actual, May 1893.	Normal May.	Variation from normal.
					Inches.	Inches.	Inches.
Puri .	False Point .	9·00	4·58	+4·42	44·29	3·84	+40·45
Cuttack .	Kendrapara .	11·00	5·68	+5·32	40·12	3·91	+36·21
"	Jajpur .	11·00	7·16	+3·84	30·86	4·49	+26·37
Balasore .	Chandbali .	12·00	6·41	+5·59	28·13	4·99	+23·14

The preceding data show that the coast districts of Orissa received total falls ranging from 20 to 40 inches in amount.

The rainfall was also exceptionally heavy over the whole of South and East Bengal. The advance of the storm in East Bengal and Cachar gave rise to a very strong indraught of humid winds across the coast of the Sunderbuns, and excessive rain fell in many parts of East Bengal from the 27th to the 29th of May. The following table gives a few examples :—

District.	Station.	Rainfall in past 24 hours.			Total of period.
		27th.	28th.	29th.	
		Inches.	Inches.	Inches.	Inches.
Chittagong Hill Tracts.	Demagiri .	5·47	7·45	13·85	26·77
Noakhali . .	Ranigunge .	10·40	0·85	0·34	11·59
Chittagong .	Chittagong .	2·93	8·03	3·71	14·67
Do. .	Chandpore .	7·50	7·50	1·75	16.75
Backergunge .	Doulatkhan .	9·34	0·36	0	9·70

The rainfall of the month was more or less in excess over the whole of the province, with the exception of the northern districts of North Bengal, for which data are given in the following table :—

Division.	District.	Rainfall.		
		Average actual, May 1893.	Normal, May.	Percentage variation.
		Inches.	Inches.	
North Bengal	Rungpur . .	5·68	11·24	—49
	Kuch Bihar . .	7·22	13·86	—48
	Jalpaiguri . .	5·88	11·96	—51
	Darjeeling . .	3·31	8·58	—61
North Bihar .	Purnea . .	1·49	5·50	—73

The following table gives a summary of the rainfall data of Bengal published in the provincial Gazette :—

Division.	Number of Rainy Days.			Rainfall.			
	Average actual, May 1893.	Normal, May.	Variation	Average, actual May 1893.	Normal May.	Variation from normal.	Percentage variation.
				Inches	Inches	Inches.	
Eastern Bengal .	11·9	10·9	+1.0	17 60	9·36	+ 8·24	+ 88
Deltaic " .	10·8	8·0	+2 8	13·94	6·20	+ 7·74	+125
Central " .	8·7	6·9	+1 8	11·08	5·02	+ 6·06	+121
North " .	8·7	10·7	—2·0	7 65	10·24	— 2·59	— 25
Orissa " .	10 3	5 7	+4·6	22·83	3·88	+18·95	+488
Chota Nagpur .	7·5	4·2	+3·3	5·64	2·65	+ 2·99	+113
Bihar (South) .	4·2	2·6	+1·6	2·56	1·81	+ 0·75	+ 41
Bihar (North) .	5·1	4·1	+1·0	2 82	3·11	— 0·29	— 9

The actual falls of the month ranged between 10 and 44 inches in Orissa, 10 and 20 inches in South-West Bengal, 10 and 35 inches in East Bengal, 5 and 10 inches in North Bengal, and were generally less than 5 inches in Bihar and Chota Nagpur.

The preceding table shows that Deltaic Bengal, East Bengal and Chota Nagpur each received about double their normal, and Orissa six times its usual amount.

The following gives data for the three districts of Orissa :—

District.	Average actual, May 1893.	Normal, May.	Percentage variation.
	Inches.	Inches.	
Puri	17·57	2·76	+537
Cuttack	32·08	3·95	+712
Balasore	24·76	4·95	+400

In Assam daily rain was received from the 1st to the 8th, and again from the 26th to the end of the month. The period from the 9th to the 25th was unusually dry, more especially in the eastern districts of the Assam Valley. The rainfall during the second period was very heavy in Cachar and Sylhet, and the Assam Hills. The following large falls in 24 hours were recorded :—

District.	Station.	Date.	Rainfall in 24 hours preceding 8 A.M. of date.
SYLHET . . .	Karimganj . .	30th	12·49 inches.
CACHAR . . .	Bikrampur . .	29th	13·65 "
	Silchar . .	30th	11·43 "
ASSAM HILLS . .	Cherrapunji .	29th	15·25 "

The total rainfall of the month was in moderate excess in Cachar and Sylhet, due chiefly to the excessive precipitation on the 29th and 30th. It was in moderate to large defect in the Assam Valley. The following gives data for the six districts in that area.—

District.	Number of rainy days.			Rainfall.		
	Actual, May 1893.	Normal, May.	Variation from normal.	Actual, May 1893.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Goalpara . .	11·0	15·6	−4·6	7·04	15·33	−8·29
Kamrup . .	10·0	14·8	−4·8	5·72	11·42	−5·70
Darrang . .	10·7	14·6	−3·9	6·44	10 50	−4·06
Nowgong .	10·5	13·2	−2·7	6·81	9·08	−2·27
Sibsagar . .	11·0	15·0	−4·0	6·53	10·99	−4·46
Lakhimpur .	10·0	15·9	−5·9	4·24	13·75	−9·51

Rainfall was fairly general in Burma in May throughout the whole month, except during the period from the 8th to the 15th, when Upper and Central Burma received little or no rain. The falls during the first half of the month were light, but from about the middle of May from the time when the first great advance of the monsoon current began in the Bay of Bengal, the rainfall became heavier, and continued moderately heavy till the close of the month.

The falls in the various divisions of Burma have varied largely. Thus in Upper Burma most of the recording stations have received between 5 and 8 inches; in Lower and Central Burma the falls had varied usually from 10 to 20 inches; the stations in Tenasserim have had falls of from 23 to 30 inches, whilst the heaviest falls have occurred in the Arakan division where they have ranged from 30 to 45 inches. So far as can be judged in the absence of the true normal data of rainfall for Burma, which have not yet been ascertained, the falls generally along the Burma coast were about 70 per cent. in excess of the normal, while at the inland stations the excess was about 50 per cent.

The following table will show the summary of the rainfall data for Burma, so far as they are at present available:—

Division.	Rainy days.		Rainfall.		
	Actual, May 1893.	Normal, May.	Actual, May 1893.	Normal, May.	Variation from normal.
			Inches.	Inches.	Inches.
Tenasserim . . .	22·1	?	30·47	?	?
Lower Burma . . .	19·1	?	15·63	?	?
Central " . . .	16·6	?	14·39	?	?
Upper " . . .	11·3	?	6·70	?	?
Arakan . . .	18·7	?	36·63	?	?

The Central Provinces obtained light to moderate rain during the last week of the month. The rainfall was irregularly distributed, several stations recording lesst han a tenth of an inch. It was heaviest in the Hoshangabad district at two stations, at which it exceeded 5 inches, *viz.*, Harda 6·56 inches and Hoshangabad 5 72 inches.

The following table gives mean data for the province:—

Provinces.	Number of rainy days.			Rainfall.		
	Actual, May 1893.	Normal, May.	Variation from normal.	Actual May, 1893.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Central Provinces (West).	3·0	0·9	+2·1	1·89	0·48	+1·41
Central Provinces (Central).	2·9	1·2	+1·7	1·17	0·56	+0·61
Central Provinces (East).	2·3	1·6	+0·7	1·25	0·85	+0·40

Berar received some light local showers of no importance during the first half of the month, and general moderate rain from the 25th to the end of the month. The average total rainfall of the month was 2·18 inches, or 1·65 inches in excess of the normal average. The total rainfall varied from ·13 inch at Morsi in the Amraoti district to 5·36 inches at Chikalda and 4·10 inches at Akola.

An earlier advance of monsoon winds than usual gave moderately heavy rain to the Bombay coast districts from the 26th to the end of the month. The following gives the heaviest rainfall in 24 hours for each day, and illustrates the northward progress of the humid wave:—

Date.	District.	Station.	Rainfall in 24 hours preceding 8A.M. of date.
26th . .	North Kanara .	Ankola . .	3·26 Inches.
27th . .	Ditto .	Karwar . .	4·87 "
28th . .	Ratnagiri .	Guhagar . .	5·40 "
" . .	Ditto .	Chiplun . .	5·07 "
29th . .	Ditto .	Guhagar . .	7·70 "
" . .	Ditto .	Sangameshvar .	6·45 "
30th . .	Kolaba . .	Matheran . .	1·88 "
31st . .	Thana . .	Shahapur . .	2·94 "
" . .	Kolaba . .	Roha . . .	2·85 "

The rainfall accompanying this advance was hence much lighter than usually occurs at the first burst of the monsoon rains on the West Coast.

The Deccan districts, including Ahmednagar and Khandesh, received frequent showers between the 10th and 19th, and moderate general rain from the 24th to the end of the month. The 11th and 12th, 18th and 19th were the days of most general rainfall during the first period. The burst of rain during the last week of the month was very heavy in the Poona, Nasick and Ahmednagar districts.

Guzerat received a few light showers on the 31st. The month was practically rainless in Kathiawar and Sind.

The following table gives a summary of the rainfall data of the month published in the Bombay provincial statement. It shows that there was a large excess in the coast districts and the Deccan, due to the unusually early and moderate to heavy monsoon rainfall of the last week of the month :—

Division.	Number of rainy days.			Rainfall.		
	Actual, May 1893.	Normal, May.	Variation from normal.	Actual, May 1893.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Konkan . .	4·7	2·4	+2·3	6·45	1·72	+4·73
Bombay Deccan .	5·9	3·5	+2·4	4·21	1·83	+2·38
Khandesh .	5·0	1·7	+3·3	3·69	1·07	+2·62
Guzerat . .	0·8	0·5	+0·3	0·40	0·30	+0·10
Kathiwar . .	0·6	0·4	+0·2	0·30	0·24	+0·06
Sind . .	0·4	?	?	0·09	0·11	−0·02

Mysore received very little rain from the 1st to the 4th, but it then became fairly general and rather heavy up till the 18th. Little rain again fell up to the 24th, but from that date till the close of May showers were frequent. The actual falls in the various districts of Mysore varied from about 3 to 4 inches in Chitaldroog, Simoga, Kolar and Bangalore to about 6 to 7 inches in Hassan, and the falls were in considerable excess of the normal.

The following statement shows the actual average figures in Mysore compared with the normal values :—

Division.	Rainy days.		Rainfall.		
	Actual, May 1893.	Normal, May.	Actual, May 1893.	Normal, May.	Variation from normal.
			Inches.	Inches.	Inches.
Mysore	8·0	5·2	4·74	3·25	+1·49

The following statement gives the chief periods of rainfall in the Madras Presidency :—

1st. From the 4th to the 16th. The rainfall in this period occurred chiefly in the northern coast districts and in the southern districts, including Salem, Trichinopoly, Tanjore, Malabar and the Deccan districts. The Tanjore and Trichinopoly districts received moderately heavy general rain on the 12th and 13th, and the Salem district from the 12th to the 16th.

2nd. From the 23rd to the end of the month. The Ganjam and Vizagapatam districts obtained moderate rain from the 23rd to the 26th, and the Malabar and South Canara districts heavy rain from the 24th to the end of the month.

The rainfall in the Malabar Coast districts was however by no means so heavy as frequently occurs at the commencement of the monsoon.

The following gives rainfall data of each of the 22 Collectorates in the Presidency :—

District.	Rainy days.		Rainfall.			Percentage variation.
	Average actual, May 1893.	Normal, May.	Average actual, May 1893.	Normal, May.	Variation from normal.	
			Inches.	Inches.	Inches.	
Ganjam . .	6·2	4·1	3·87	2·57	+1·30	+51
Vizagapatam .	6·0	4·3	3·27	2·79	+0·48	+17
Godavari . .	2·9	2·8	1·69	2·00	−0·31	−16
Kistna . .	2·1	2·6	1·19	1·73	−0·54	−31
Nellore . .	1·7	1·8	0·71	1·66	−0·95	−57
Madras . .	1·0	1·1	0·24	2·21	−1·97	−89
Chingleput .	1·9	2·1	0·72	2·56	−1·84	−72
North Arcot .	3·6	3·4	1·49	2·94	−1·45	−49
South Arcot .	2·2	3·4	1·13	3·30	−2·17	−66
Tanjore . .	3·5	3·5	2·55	3·34	−0·79	−24
Trichinopoly .	5·0	4·6	2·92	4·02	−1·10	−27
Madura . .	3·9	3·8	2·33	2·33	0	0
Tinnevelly .	2·6	2·9	1·03	1·81	−0·78	−43
Malabar . .	11·4	9·0	10·02	8·39	+1·63	+19
South Canara .	12·1	7·1	13·15	5·40	+7·75	+144
Salem . .	7·3	6·2	4·48	4·31	+0·17	+4
Coimbatore .	4·4	5·5	2·16	3·69	−1·53	−41
Nilgiris . .	11·1	9·8	6·22	6·31	−0·09	−1
Cuddapah .	4·2	2·8	2·08	1·92	+0·16	+8
Anantapur .	4·5	3·2	2·41	2·39	+0·02	+1
Bellary . .	4·3	3·5	2·77	1·94	+0·83	+43
Kurnool . .	3·5	2·2	1·13	1·19	−0·06	−5

The preceding table shows that the rainfall of the month was normal or in moderate excess over the greater part of the Presidency. There was a considerable deficiency in the following districts, Nellore, Chingleput, North and South Arcot, Tinnevelly and Coimbatore, in which the deficiency ranged from 40 to over 70 per cent.

Table

Abstract of Observations taken at 8 A.M. at 196 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1. Burma Coast and Bay Islands.		..	...	−·022	...	...	...	...	...	...	...	86·8	−4·4	76·3	−0·6	81·7	−2·6	10·6	...	...	...	...	
Bay Islands	Port Blair	61	29·775	?	29·767	29·905	6th	29·644	22nd	·261	81·5	86·2	?	78·1	?	82·2	?	8·1	89·9	5th	74·7	19th	15·2
Tenasserim	Mergui	96	29·788	?	29·816	29·868	5th	29·698	22nd	·170	78·7	86·4	?	?	?	?	?	?	91·8	6th	?	...	?
	Tavoy	26	29·863	?	29·820	29 964	5th	29·779	12th	·185	78·4	85·5	?	74·2	?	79·9	?	11·3	91·2	12th	72·2	2 days	19·0
	Moulmein	94	29·756	−·011	29·788	29·857	5th	29·620	20th	·237	78·4	85·1	−5·1	75·2	−0·3	80·2	−2·7	9·9	90·5	2 days	72·3	29th	18·2
	Toungoo	181	29·635	−·006	29·760	29·751	5th	29·499	20th	·252	76·8	90·1	−6·1	75·4	−0·8	82·8	−3·5	14·7	97·7	2 days	73·2	7 days	24·5
Lower Burma	Rangoon	41	29·791	−·022	29·769	29·912	5th	29·640	20th	·272	78·7	86·6	−5·6	76·5	−0·6	81·6	−3·1	10·1	93·7	14th	73·9	2 days	19·8
	Bassein	27	29·794	−·023	29·757	29·915	5th	29·634	20th	·281	79·6	87·9	−4·1	76·2	−0·6	82·1	−2·4	11·7	93·2	14th	73·3	8th	19·9
	Diamond Island	41	29·780	−·0 9	29·756	29·902	2 days	29·607	20th	·295	82·5	86·4	−2·5	78·2	−0·5	82·4	−1·5	8·2	90·1	3rd	74·4	30th	15·7
Arakan	Akyab	20	29·763	−·042	29·726	29·900	9th	29·580	21st	·320	81·4	87·2	−3·2	76·5	−0·9	82·0	−2·1	10·7	92·2	2 days	70·7	8th	21·5
2. Burma, Inland		...	...	−·003	...	...	...	...	...	...	...	91·8	−6·4	73·8	−0·5	82·8	−3·5	18·0	...	...	...	...	32·7
Central Burma	Thayetmyo	134	29·668	−·003	29·743	29·790	5th	29·520	20th	·270	81·7	92·9	−6·4	76·8	−0·5	84·9	−3·5	16·1	103·1	15th	72·0	7th	31·1
	Minbu	?	29·631	?	?	29·743	9th	29·509	2 days	·234	81·0	95·6	?	69·8	?	82·7	?	25·8	106·6	15th	69·1	7 days	37·5
	Yamethin	?	29·150	?	?	29·254	5th	29·042	20th	·212	79·5	92·9	?	79·1?	?	86·0?	?	13·8	103·1	10th	69·0	22nd	34·1
	Fort Stedman†	?	26·903	?	26·844	26·998	9th	26·805	20th	·193	75·1	84·1	?	68·5	?	76·3	?	15·6	91·2	15th	65·0	2 days	26·2
Upper Burma	Mandalay	?	29·547	?	?	29·663	5th	29·430	27th	·233	83·4	92·8	?	76·7	?	84·8	?	16·1	100·1	17th	72·1	7th	28·0
	Kindat	?	29·343	?	?	29·513	9th	29·181	29th	·332	79·0	91·2	?	73·4	?	82·3	?	17·8	103·8	18th	66·5	10th	37·3
	Bhamo	?	29·397	?	?	29·544	9th	29·287	29th	·257	79·4	92·9	?	72·2	?	82·6	?	20·7	100·6	17th	65·8	3 days	34·8
3. Assam		...	...	−·038	...	...	...	...	...	...	...	88·6	+1·8	73·6	+1·5	81·1	+1·7	15·0	...	...	...	...	34·0
Assam (Surma)	Silchar	104	29·659	−·049	29·715	29·816	10th	29·416	28th	·400	79·5	90·2	+2·3	73·8	+1·7	82·0	+2·0	16·4	101·6	22nd	68·3	2 days	33·3
Brahmaputra	Sibsagar	333	29·457	−·032	29·746	29·611	8th	29·300	29th	·311	77·9	88·6	+2·1	72·8	+1·4	80·7	+1·8	15·8	98·6	22nd	61·8	4th	36·8
	Dhubri	115	29·638	−·032	29·708	29·820	9th	29·381	27th	·439	78·4	87·0	+0·9	74·3	+1·5	80·7	+1·2	12·7	98·8	19th	66·9	5th	31·9
4. Bengal and Orissa		...	...	−·045	...	...	...	...	...	...	...	88·9	−4·3	75·4	−1·0	82·4	−2·7	14·0	...	...	...	...	31·7
East Bengal	Chittagong	87	29·676	−·044	29·709	29·833	9th	29·421	27th	·412	79·5	85·9	−2·0	74·2	−0·8	80·1	−1·4	11·7	91·2	2 days	67·1	1st	24·1
	Lungleh	?	?	?	?	?	?	?	?	?	69·4	74·7	?	?	?	?	?	?	78·9	3 days	?	...	?
	Noakhali	43	29·699	?	29·689	29·852	3rd	29·429	28th	·423	81·0	86·7	?	74·6	?	80·7	?	12·1	92·5	21st	64·4	8th	28·1
	Comilla	35	29·708	?	29·691	29·879	9th	29·389	28th	·490	79·8	88·0	?	74·5	?	81·2	?	13·5	95·3	22nd	66·8	8th	28·5
	Sirajganj	46	29·678	?	29·674	29·864	9th	29·326	27th	·538	79·7	88·2	?	74·1	?	81·2	?	14·1	97·6	22nd	66·3	8th	31·3
	Dacca	22	29·697	−·050	29·666	29·895	9th	29·209	28th	·686	80·2	88·2	−2·7	75·6	0	81·9	−1·4	12·6	96·1	22nd	68·2	8th	27·9
	Barisal	13	29·710	−·042	29·668	29·897	9th	29·337	27th	·560	81·7	88·6	?	74·9	?	81·3	?	13·7	95·3	17th	68·9	8th	26·4
	Mymensingh	59	29·681	−·048	29·693	29·859	9th	29·354	28th	·505	80·0	87·4	?	75·0	?	81·3	?	12·4	96·2	22nd	67·6	4th	28·6
Deltaic Bengal	Faridpur	46	29·696	?	29·690	29·893	9th	29·306	27th	·587	79·8	87·1	?	75·0	?	81·1	?	12·1	95·5	22nd	65·9	8th	29·6
	Jessore	33	29·675	−·047	29·654	29·878	9th	29·225	27th	·653	81·1	89·1	−5·1	75·8	−0·5	82·4	−2·8	13·3	96·5	4 days	67·0	8th	29·5
	Calcutta	21	29·667	−·052	29·633	29·894	9th	29·029	26th	·865	81·2	89·2	−4·2	75·5	−1·3	82·4	−2·8	13·7	97·1	21st	66·2	7th	30·9
	Saugor Island	25	29·656	−·066	29·625	29·873	9th	28·983	26th	·890	82·4	88·2	−3·3	77·9	−2·4	83·1	−2·9	10·3	93·2	2 days	59·4	26th	33·8
	Krishnagar	47	29·651	?	29·647	29·865	9th	29·164	27th	·701	80·5*	89·3*	?	75·0*	?	82·1*	?	14·3	99·2	22nd	61·7	8th	37·5
	Midnapore	149	29·548	?	29·643	29·765	9th	28·938	26th	·827	81·8	92·8	?	75·7	?	84·3	?	17·1	103·4	20th & 21st	68·2	13th	35·2
Central Bengal	Bankura	298	29·380	?	29·629	29·595	9th	28·978	26th	·617	80·8	92·1	?	74·9	?	83·5	?	17·2	105·1	20th	65·7	7th	39·4
	Raniganj	334	29·370	?	29·653	29·593	9th	28·994	26th	·599	80·4	93·7	?	74·1	?	83·9	?	19·6	106·2	20th	64·0	7th	42·2
	Burdwan	99	29·608	−·028	29·651	29·834	10th	29·135	26th	·699	80·8	91·1	−5·8	75·9	−1·1	83·5	−3·5	15·2	100·1	20th	67·2	7th	32·9

* Mean of 27 days. † Mean of 30 days.

I.

in India, Burma, etc., in May 1893.

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 31st May 1893.	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.
...	...	..	...	...	...	...	...	.	...	...	..	...	...	...	...	...	...	20·84	12·07	+8·77	...	...	...	...	**1. Burma Coast and Bay Islands.**	
7	...	...	...	...	1	9	11	3	6	7	−14	88	·949	7·7	18	?	?	12·53	15·74	− 3·21	21·76	18·39	+ 3·37	2·78	Port Blair .	Bay Islands.
...	3	2	5	10	5	2	1	3	1	2	−50	90	·882	8·4	23	?	?	24·08	16·86	+ 7·22	34·55	24·80	+ 9·75	5·15	Mergui .	Tenasserim.
23	...	1	...	...	1	3	1	2	2	?	?	90	·876	5·7	22	?	?	33·44	16·77	+16·67	48·51	21·34	+27·17	3·81	Tavoy	
...	1	4	7	10	3	4	2	...	3	3	0	90	·870	6·6	22	15·45	+6·55	27·29	15·88	+11·41	35·30	18·93	+16·37	3·59	Moulmein.	
10	...	...	2	11	7	...	...	1	3	4	−25	88	·913	7·4	14	9·36	+4·64	7·90	6·15	+ 1·75	10·05	8·08	+ 1·97	1·66	Toungoo.	
...	2	2	1	3	10	10	2	1	4	5	−20	93	·920	7·8	18	12·27	+5·73	16·58	9·56	+ 7·02	26·64	11·38	+15·26	3·74	Rangoon .	Lower Burma.
7	...	...	1	5	6	5	5	2	4	4	0	91	·920	7·1	17	11·18	+5·82	13·59	7·92	+ 5·67	20·22	9·35	+10·87	2·04	Bassein.	
2	...	...	...	2	6	12	4	5	12	7	+71	79	·875	7·5	14	10·18	+3·82	8·47	8·76	− 0·29	10·16	10·10	+ 0·06	1·84	Diamond Island.	
...	4	13	3	7	4	...	...	...	4	4	0	87	·927	7·6	17	10·09	+6·91	43·65	10·99	+32·66	45·00	12·61	+32·39	11·39	Akyab .	Arakan.
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·57	4·65	+2·45	...	...	...	...	**2. Burma, Inland.**	
..	...	...	2	6	21	2	...	...	6	7	−14	79	·843	6·7	14	6·64	+7·36	11·80	3·64	+ 8·16	12·93	4·33	+ 8·60	3·12	Thayetmyo	Central Burma.
1	...	1	2	22	3	...	...	2	11	?	?	79	·837	3·2	12	?	?	7·00	?	?	7·39	?	?	1·34	Minbu.	
...	...	1	1	15	14	...	...	...	10	?	?	81	·820	0·6	15	?	?	9·64	?	?	10·19	?	?	1·70	Yamethin.	
21	...	...	...	...	...	3	3	3	?	?	?	79	·690	8·5	16	?	?	7·96	?	?	10·95	?	?	1·26	Fort Stedman.‡	
2	...	1	2	8	12	5	1	...	6	?	?	75	·843	6·1	10	?	?	7·79	5·36	+ 2·43	9·92	6·30	+ 3·62	2·21	Mandalay .	Upper Burma.
11	2	...	4	4	2	1	3	4	2	?	?	85	·890	6·5	13	?	?	5·56	5·08	+ 0·48	8·48	6·54	+ 1·94	1·10	Kindat.	
10	3	2	...	...	1	...	3	12	?	?	?	78	·787	6·0	10	?	?	3·25	4·51	− 1·26	5·55	6·83	− 1·28	0·75	Bhamo.	
...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	11·83	14·64	−2·82	...	...	...	...	**3. Assam.**	
19	...	2	6	2	1	1	...	...	7	3	+133	85	·856	7·5	11	17·27	−6·27	20·29	18·05	+ 2·24	35·26	42·41	− 7·15	11·43	Silchar .	Assam (Surma).
9	...	10	3	2	1	6	...	...	2	3	− 33	89	·859	5·4	12	16·91	−4·91	7·09	12·08	− 4·99	22·45	25·45	− 3·00	1·78	Sibsagar .	Brahmaputra.
5	7	12	5	1	...	1	...	...		7	0	84	·827	5·5	10	15·13	−5·13	8·10	13·80	− 5·70	17·39	21·54	− 4·15	2·51	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·18	6·76	+8·94	...	...	...	...	**4. Bengal and Orissa.**	
...	1	10	4	7	3	3	...	3	5	6	−17	88	·892	7·3	15	10·91	+4·09	21·44	10·63	+10·81	27·80	17·06	+ 9·74	5·48	Chittagong	East Bengal.
			Not recorded.						?	?	?	89	·640	?	13	?	?	36·62	?	?	44·77	?	?	9·30	Lungleh.	
...	1	5	7	7	2	4	1	4	6	?	?	81	·854	4·2	13	10·00	+3·00	15·33	9·82	+ 5·51	41·19	17·60	+23·59	5·02	Noakhali.	
...	...	1	9	1	10	8	1	1	5	?	?	89	·910	5·8	16	11·47	+4·53	22·15	10·35	+11·80	28·35	19·31	+ 9·04	5·30	Comilla.	
10	1	5	6	2	2	3	1	1	4	?	?	85	·882	6·2	10	9·95	+0·05	17·27	7·27	+10·00	23·79	11·33	+12·46	4·09	Sirajganj.	
5	2	5	5	3	5	2	2	2	6	6	0	85	·872	6·7	11	10·55	+0·45	13·40	8·38	+ 5·02	25·75	17·22	+ 8·53	2·72	Dacca.	
17	...	...	2	5	3	4	...	...	4	?	?	83	·908	7·7	12	10·00	+2·00	19·54	8·06	+11·48	27·91	14·04	+13·87	5·57	Barisal.	
1	1	7	12	5	...	1	2	2	5	?	?	84	·862	5·2	11	13·05	−2·05	12·48	11·12	+ 1·36	21·82	17·36	+ 4·46	3·41	Mymensingh.	
11	...	...	7	4	3	2	4	...	4	?	?	87	·896	5·0	10	10·70	−0·70	17·52	8·90	+ 8·62	30·22	15·57	+14·65	6·45	Faridpur .	Deltaic Bengal.
5	1	2	5	5	4	5	2	2	6	5	+20	87	·922	6·0	14	9·18	+4·82	16·21	7·36	+ 8·85	20·88	13·90	+ 6·98	3·50	Jessore.	
3	1	2	4	1	5	11	3	1	6	7	−14	82	·879	5·5	11	7·82	+3·18	17·11	5·97	+11·14	19·13	9·08	+10·05	6·15	Calcutta.	
...	1	3	3	2	6	11	4	1	17	15	+13	85	·941	7·4	15	7·09	+7·91	20·84	4·39	+16·45	23·16	7·19	+15·97	6·08	Saugor Island.	
1	2	1	7	4	5	5	4	2	7	?	?	81*	·807*	5·9	8	7·55	+0·45	11·27	5·83	+ 5·44	15·99	9·80	+ 6·19	3·93	Krishnagar.	
4	3	4	1	2	13	2	1	1	10†	?	?	79	·860	4·8	10	7·05	+2·95	10·44	5·13	+ 5·31	14·34	8·09	+ 6·25	3·03	Midnapore.	
9	1	3	5	4	2	3	3	1	4	?	?	79	·830	5·5	11	8·45	+2·55	14·26	3·87	+10·39	17·33	6·58	+10·75	3·31	Bankura .	Central Bengal.
4	2	7	2	6	2	3	...	5	4	?	?	80	·834	2·5	9	5·50	+3·50	11·06	3·13	+ 7·93	12·89	5·04	+ 7·85	2·75	Raniganj.	
2	1	2	5	3	7	6	3	2	9	5	+80	78	·823	6·2	10	7·18	+2·82	21·84	5·76	+16·08	26·30	9·12	+17·18	9·62	Burdwan.	

*Mean of 27 days. † Mean of 25 days. ‡ Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 196 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 Bengal—*contd.*	Naya Dumka	489	29·209	?	29·653	29·415	9th	28·892	27th	·523	81·4	91·9	?	75·5	?	83·7	?	16·4	105·2	20th	65·9	8th	39·3
	Berhampore	67	29·647	—·027	29·662	29·859	9th	29·257	27th	·602	79·4	90·1	- 5·4	76·1	+0·2	83·1	—2·6	14·0	100·7	2 days	66·7	8th	34·0
	Rampur Boalia	70	29·643	?	29·662	29·843	9th	29·264	27th	·579	80·6	88·9	?	74·0	?	81·5	?	14·9	98·6	18th & 19th.	63·7	8th	34·9
	Malda	80	29·643	?	29·674	29·845	9th	29·334	27th	·511	81·4	90·4	?	74·5	?	82·5	?	15·9	100·6	19th & 20th.	65·5	8th	35·1
	Bogra	61	29·653	—·022	29·666	29·822	9th	29·321	27th	·501	80·1	88·9	?	73·6	?	81·3	?	15·3	98·7	22nd	65·2	8th	33·5
North Bengal	Dinajpur	118	29·620	—·030	29·691	29·805	9th	29·332	27th	·473	79·6	89·7	?	75·1	?	82·4	?	14·6	99·1	22nd	67·8	2 days	31·3
	Rangpur	123	29·623	?	29·701	29·795	9th	29·347	27th	·448	79·8	88·8	?	73·7	?	81·3	?	15·1	97·3	19th & 21st.	66·7	5th	30·6
	Jalpaiguri	284	29·486	?	29·724	29·654	9th	29·230	27th	·424	79·5	89·6	?	73·3	?	81·5	?	16·3	97·9	3 days	66·1	5th	31·8
Orissa	Balasore	56	29·624	—·050	29·627	29·857	9th	29·147	25th	·710	82·4	89·6	?	75·9	?	82·8	?	13·7	97·5	8th	66·8	8th	30·7
	False Point	21	29·653	—·075	29·616	29·879	9th	28·913	25th	·966	83·0	87·9	—3·4	77·3*	—1·8	82·7*	—2·6	10·6	94·5	22nd	69·6	12th	24·9
	Cuttack	80	29·597	—·053	29·619	29·810	9th	29·155	25th	·655	83·6	94·2	—6·8	78·3	—1·1	86·2	—4·0	15·9	102·7	1st	71·8	2 days	30·9
	Shortt's Island	?	29·630	?	?	29·878	10th	28·524	25th	1·354	83·1*	88·5‡	?	78·9‡	?	83·7‡	?	9·6	95·2	29th	70·4	8th	24·8
	Puri	15	29·674	?	29·629	29·864	10th	29·298	25th	·566	82·5	88·2	?	78·5	?	83·4	?	9·7	93·7	21st	61·6	25th	32·1
5. Gangetic Plain and Chota Nagpur.		...	...	—·001	...	...	...	...	...	...	...	97·1	—3·9	75·7	—0·6	86·5	—2·3	21·4	...	...	...	...	41·3
Chota Nagpur	Hazaribagh	2,007	27·713	—·011	29·643	27·884	9th	27·508	26th	·376	80·1	92·2	—5·8	71·7	—2·3	82·0	—4·1	20·5	101·7	20th & 22nd.	63·3	9th	38·4
	Ranchi	2,128	27·592	?	29·640	27·760	9th	27·353	26th	·407	78·7	90·9	?	70·4	?	80·7	?	20·5	102·0	20th & 21st.	61·4	9th	40·6
	Daltonganj	730?	28·962	?	29·633	29·149	9th	28·760	28th	·389	87·6	101·7	?	78·1	?	90·0	?	23·6	109·3	20th & 22nd.	71·0	1st	38·3
	Chaibassa	760	28·940*	?	29·645*	29·155	9th	28·609	26th	·546	80·7	95·0	?	75·2	?	85·1	?	19·8	106·8	20th & 21st.	67·3	9th	39·5
Bihar, South	Gaya	375	29·315	—·008	29·641	29·525	9th	29·162	27th	·363	83·6	98·0	—6·1	77·5	—0·1	87·8	—3·1	20·5	109·1	22nd	62·7	8th	46·4
	Dehri	351	29·334	?	29·635	29·538	9th	29·172	28th	·366	85·6	99·5	?	76·8	?	88·2	?	22·7	109·4	22nd	62·0	8th	47·4
	Patna	163	29·527	—·003	29·660	29·738	9th	29·348	27th	·390	85·6	96·4	—3·1	76·7	—0·5	86·6	—1·8	19·7	108·5	20th	64·3	5th	44·2
	Arrah	190	29·512	?	29·652	29·725	9th	29·345	27th	·380	84·5	97·3	?	76·8	?	87·1	?	20·5	107·9	21st & 22nd.	66·0	5th	41·9
	Buxar	239	29·466	?	29·657	29·677	9th	29·301	28th	·376	84·3	98·7	?	77·1	?	87·9	?	21·6	109·0	22nd	62·4	5th	46·6
Bihar, North	Purnea	125	29·593	—·021	29·672	29·798	9th	28·957	27th	·841	81·1	92·2	- 2·4	75·5	+2·1	83·8	- 0·2	16·7	101·3	3 days	67·2	6th	34·1
	Bhagalpur	160	29·555	?	29·667	29·759	9th	29·313	27th	·446	82·5	92·2	?	75·4	?	83·8	?	16·8	103·8	19th	66·5	8th	37·3
	Darbhanga	166	29·557	—·009	29·676	29·761	9th	29·360	27th	·401	82·3	93·3	—2·1	75·3	—0·5	84·3	—1·3	18·0	103·5	20th	67·7	5th	35·8
	Muzaffarpur	178	29·544	?	29·674	29·768	9th	29·358	27th	·410	82·3	94·6	?	74·9	?	84·8	?	19·7	104·7	20th & 22nd.	65·7	5th	39·0
	Motihari	224	29·492	?	29·672	29·705	9th	29·313	27th	·392	82·1	94·9	?	73·2	?	84·1	?	21·7	105·2	20th & 22nd.	65·8	5th & 10th.	39·4
	Chapra	181	29·532	?	29·665	29·758	9th	29·357	27th	·401	84·2	96·8	?	76·6	?	86·8	?	20·2	107·2	3 days	64·6	5th	42·6
N.-W. Provinces (Eastern Districts).	Benares	267	29·431	+·010	29·653	29·646	9th	29·256	28th	·390	84·5	100·6	—3·9	77·4	—1·2	89·0	—2·6	23·2	109·8	21st & 22nd.	68·6	4th	41·2
	Allahabad	309	29·381	+·002	29·642	29·599	9th	29·201	28th	·398	87·4	103·2	- 3·0	78·2	—0·4	90·8	—1·7	25·0	111·4	22nd	68·3	7th	43·1
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·468	+·024	29·682	29·693	9th	29·290	27th	·403	83·2	96·5	—4·1	75·4	—1·3	86·0	—2·7	21·1	108·3	22nd	66·2	5th & 9th.	42·1
Oudh, South	Lucknow	375	29·319	+·004	29·653	29·546	9th	29·119	28th	·427	82·6	99·9	—4·2	75·1	—1·5	87·5	—2·9	24·8	111·3	25th	67·1	6th & 9th.	44·2
Oudh, North	Bahraich	403	29·318?	?	29·682?	29·471	5th & 10th	29·151	27th	·320	83·0	98·5	?	75·1†	?	88·7†	?	23·4	109·6	22nd	70·5	30th	39·1
N.-W. Provinces (Central).	Cawnpore	416	29·286	?	29·656	29·501	9th	29·104	28th	·397	86·4	100·6	?	76·0	?	88·3	?	24·6	109·1	25th	65·5	13th	43·
	Mainpuri	516	29·170	?	29·638	29·386	9th	28·990	28th	·396	85·4	102·7	?	76·1	?	89·4	?	26·6	111·7	25th	68·0	3 days	43·7
6. Upper—Sub-Himalayas		...	...	+·015	...	...	...	...	...	...	...	97·8	—3·4	74·0	+0·6	85·9	—1·4	23·8	...	...	...	...	43·9
N.-W. Provinces (Sub-montane).	Bareilly	568	29·127	+·016	29·655	29·366	9th	28·953	28th	·413	83·0	97·9	- 4·5	74·6	—0·6	86·3	—2·6	23·3	109·4	25th	65·7	13th	43·7
	Dehra Dun	2,233	27·509	+·001	29·676	27·737	9th	27·340	28th	·397	76·2	90·6	—2·8	68·9	—1·0	79·8	—1·9	21·7	100·0	25th	63·0	6th & 12th.	37·0
	Roorkee	887	28·807	+·015	29·655	29·068	9th	28·620	28th	·448	81·4	97·9	—4·1	72·8	—1·1	85·4	—2·6	25·1	108·7	24th & 25th.	65·2	12th	43·5
	Meerut	738	28·955	+·022	29·650	29·185	9th	28·787	28th	·398	84·4	99·3	—2·5	74·4	—0·5	86·9	—1·5	24·9	110·3	25th	66·0	1st	44·3
Punjab, Central.	Delhi	718	28·968	+·017	29·640	29·193	9th	28·789	27th	·404	85·5	99·8	—4·6	78·1	—0·8	89·0	—2·7	21·7	110·1	25th	69·6	4 days	40·5
	Lahore	702	28·962	+·019	29·625	29·178	10th	28·785	1st	·393	84·8	100·7	—1·9	76·5	+4·6	88·6	+1·4	24·2	112·3	25th	62·2	1st	50·1

* Mean of 30 days. † Mean of 16 days. ‡ Mean of 29 days.

I—*continued.*

in India, Burma, etc., in May 1893—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 31st May 1893.	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.
...	2	3	11	7	5	1	...	2	1‡	?	?	73	·774	3·6	8	5·22	+ 2·78	8·76	3·48	+ 5·28	11·91	5·17	+ 6·74	2·36	Naya Dumka	Central Bengal—*contd.*
1	2	3	9	3	6	5	2	...	5	5	0	88	·882	6·3	8	8·64	−0·64	7·62	5·85	+ 1·77	12·89	8·46	+ 4·43	3·41	Berhampore.	
2		6	3	9	1	8	...	...	6	?	?	83	·864	4·8	7	7·90	− 0·90	8·00	5·44	+ 2·56	14·69	7·67	+ 7·02	2·56	Rampur Boalia.	
...	...	11	1	11	1	7	...	...	4	?	?	79	·851	4·4	9	5·65	+ 3·35	8·96	4·13	+ 4·83	13·91	5·81	+ 8·10	2·45	Malda.	
...	2	5	9	9	3	...	3	...	4	?	?	82	·845	2·9	10	9·30	+ 0·70	13·47	8·66	+ 4·81	19·85	11·79	+ 8·06	4·50	Bogra.	
...	...	8	14	5	3	...	1	...	4	?	?	81	·820	4·2	9	7·60	+ 1·40	8·83	7·20	+1·63	14·20	9·99	+ 4·21	3·90	Dinajpur .	North Bengal.
5	1	5	14	3	3	..	...	...	3	?	?	84	·861	1·7	8	10·40	− 2·40	5·57	10·22	− 4·65	13·18	14·66	− 1·48	1·35	Rangpur.	
6	3	6	9	6	1	...	...	...	4	?	?	78	·782	5·8	5	12·00	− 7·00	5·68	12·03	− 6·35	13·48	18·06	− 4·58	3·45	Jalpaiguri.	
2	...	3	3	1	6	13	1	2	8	?	?	86	·952	3·4	13	8·50	+ 4·50	25·71	4·94	+20·77	30·78	8·86	+21·92	5·89	Balasore .	Orissa.
...	3	2	1	2	4	8	9	2	13	13	0	82	·931	7·3	9	5·20	+ 3·80	44·29	4·68	+39·61	46·99	6·70	+40·29	14·99	False Point.	
10	...	1	2	1	3	7	4	3	4	5	− 20	73	·842	5·2	12	6·09	+ 5·91	19·02	4·11	+14·91	22·81	5·90	+16·91	5·62	Cuttack.	
...	1	3	3	1	4	13	3	3	9†	?	?	82*	·935*	5·5	7	?	?	8·95	?	?	11·71	?	?	3·49	Shortt's Island.	
9	2	...	...	...	1	12	1	5	14	?	?	84	·941	5·5	7	3·45	+3·55	21·66	2·58	+19·08	22·78	3·65	+19·13	6·76	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·79	1·98	+0·93	...	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
4	2	2	3	3	10	4	...	3	10	9	+ 11	62	·621	3·6	9	4·73	+ 4·27	5·11	2·71	+ 2·40	6·84	3·84	+ 3·00	1·41	Hazaribagh.	Chota Nagpur.
5	2	2	2	3	5	8	2	2	10	?	?	65	·623	3·5	7	5·00	+ 2·00	4·44	3·17	+ 1·27	8·03	4·90	+ 3·13	1·31	Ranchi.	
...	3	2	6	6	4	2	1	7	12	?	?	51	·668	0	2	?	?	0·32	?	?	?	?	?	0·14	Daltonganj.	
3	4	4	2	3	3	9	3	...	3	?	?	77	·810	4·5	11	6·11	+ 4·89	9·38	4·17	+ 5·21	12·78	6·05	+ 6·73	2·30	Chaibassa.	
...	1	1	16	6	5	...	1	1	7	4	+ 75	71	·804	3·5	6	2·45	+ 3·55	2·81	1·33	+1·48	4·08	2·12	+ 1·96	1·02	Gaya .	Bihar, South.
...	2	3	10	6	4	3	3	...	6	?	?	58	·723	1·7	5	1·57	+ 3·43	1·65	1·42	+ 0·23	2·84	2·23	+ 0·61	0·74	Dehri.	
2	...	5	17	3	1	1	2	...	6	5	+ 20	60	·710	4·0	2	3·18	− 1·18	1·30	2·25	− 0·95	3·56	2·84	+ 0·72	0·94	Patna	
...	3	8	8	6	3	1	2	...	4	?	?	66	·760	1·7	5	2·60	+ 2·40	3·66	1·80	+ 1·86	4·09	2·36	+ 1·73	1·39	Arrah.	
1	1	6	15	3	...	...	3	2	8	?	?	62	·706	2·7	4	2·15	+ 1·85	1·69	1·03	+ 0·66	2·63	1·48	+ 1·15	0·82	Buxar.	
7	...	8	9	7	...	...	...	...	3	3	0	79	·839	1·4	4	5·45	− 1·45	1·41	4·65	− 3·24	6·54	6·28	+ 0·26	0·68	Purnea .	Bihar, North.
14	...	3	6	4	2	1	1	...	2	?	?	74	·835	4·5	9	4·15	+ 4·85	4·87	2·59	+ 2·28	8·78	3·69	+ 5·09	1·28	Bhagalpur.	
...	...	4	14	10	1	...	...	2	5	6	− 17	71	·789	3·2	5	4·73	+ 0·27	4·95	3·50	+ 1·45	6·34	4·42	+ 1·92	2·22	Darbhanga.	
9	...	3	11	7	...	...	...	1	3	?	?	74	·817	2·5	7	3·35	+ 3·65	2·39	2·72	− 0·33	4·58	3·72	+ 0·86	0·74	Muzaffarpur.	
1	2	6	12	5	...	2	1	2	5	?	?	69	·756	3·5	6	4·25	+ 1.75	2·82	2·50	+ 0·32	5·43	3·65	+ 1·78	1·07	Motihari.	
2	...	4	10	10	...	1	2	2	6	?	?	70	·800	3·6	6	2·20	+ 3·80	1·97	1·52	+ 0·45	3·04	2·09	+ 0·95	0·58	Chapra.	
5	2	7	7	1	1	3	4	1	5	5	0	70	·828	2·6	3	1·45	+ 1·55	0·95	0·78	+ 0·17	1·48	1·08	+ 0·40	0·37	Benares .	N.-W. Provinces (Eastern Districts).
1	1	7	7	4	3	...	3	5	7*	4	+ 75	51	·642	3·5	2	1·18	+ 0·82	0·77	0·37	+ 0·40	1·82	0·74	+ 1·08	0·38	Allahabad .	
11	1	4	6	1	1	...	4	3	3	4	− 25	64	·718	2·7	5	2·64	+ 2·36	1·95	1·45	+ 0·50	3·43	2·19	+ 1·24	0·90	Gorakhpur	N.-W. Provinces (East Sub-montane).
16	1	...	11	1	...	...	2	...	1	4	− 75	60	·647	3·9	4	1·91	+ 2·09	2·16	0·98	+ 1·18	2·47	1·29	+ 1·18	0·74	Lucknow .	Oudh, South.
2	1	2	1	5	2	5	3	10	8	?	?	70	·791	2·1	8	?	?	5·53	1·42	+ 4·11	8·93	2·23	+ 6·70	1·82	Bahraich .	Oudh, North.
1	1	5	7	6	1	2	4	4	5	?	?	59	·732	1·4	3	1·1	+ 1·9	0·53	0·56	− 0·03	1·03	0·91	+ 0·12	0·18	Cawnpore .	N.-W. Provinces (Central).
11	2	7	3	1	2	...	...	5	1*	?	?	53	·633	3·7	2	?	?	0·75	0·66	+ 0·09	0·98	1·02	− 0·04	0·30	Mainpuri	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·00	1·12	+0·88	...	...	...	...	**6. Upper—Sub-Himalayas.**	
11	2	2	1	12	...	...	...	3	4	5	− 20	60	·672	3·1	3	2·27	+ 0·73	1·09	0·95	+ 0·14	2·41	2·10	+ 0·31	0·56	Bareilly .	N.-W. Provinces (Sub-montane).
27	2	...	1	1	...	...	...	...	1	2	− 50	62	·568	3·5	8	4·09	+ 3·91	2·74	2·16	+ 0·58	5·00	4·29	+ 0·71	0·78	Dehra Dun.	
16	1	1	7	6	...	...	...	...	3‖	4	− 25	58	·612	2·8	6	2·00	+ 4·00	2·04	0·91	+ 1·13	3·65	2·20	+ 1·45	0·73	Roorkee.	
13	...	2	8	3	...	...	4	1	2	3	− 33	49	·562	1·6	2	1·64	+ 0·36	0·73	0·72	+ 0·01	1·71	2·05	− 0·34	0·41	Meerut.	
10	...	...	5	5	1	3	7	...	4	4	0	49	·585	2·5	5	1·64	+ 3·36	1·54	0·60	+ 0·94	3·28	1·37	+ 1·91	0·61	Delhi .	Punjab, Central.
6	2	1	6	6	2	...	6	2	3	3	0	52	·607	1·9	3	2·00	+ 1·00	1·90	1·08	+ 0·82	3·03	2·15	+ 0·88	1·05	Lahore.	

* Mean of 30 days. † Mean of 25 days. ‡ Mean of 29 days. ‖ Mean of 25 days.

Table

Abstract of Observations taken at 8 A.M. at 196 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Sub-montane).	Umballa	962?	28·798*	?	29·658*	29·030	9th	28·630	28th	·400	83·0	98·5	?	75·1	?	86·8	?	23·4	110·9	25th	67·5	6th & 10th.	43·4
	Ludhiana	812	28·872	+·023	29·643	29·089	9th	28·700	28th	·389	84·5	99·1	−4·9	75·1	+1·7	87·1	−1·6	24·0	110·4	25th	64·1	11th	46·3
Punjab, North	Sialkot	830	28·843	+·021	29·634	29·095	9th	28·681	1st	·414	84·4	100·7	−1·7	75·3	+1·8	88·0	+0·1	25·4	112·3	25th	64·3	11th	48·0
	Rawalpindi	1,649	28·036	0	29·611	28·221	9th	27·861	28th	·360	78·2	92·9	−4·3	68·8	+1·3	80·9	−1·5	24·1	104·0	25th	61·1	11th	42·9
Indus Valley and North-West Rajputana.		...	...	−·004	...	...	...	...	...	...	...	103·1	−0·7	76·8	+1·2	89·9	+0·3	26·4	...	...	...	...	45·3
Punjab, West	Peshawar	1,110	28·579	−·009	29·608	28·786	9th	28·395	1st	·391	83·6	100·3	+3·1	71·3	+2·0	85·8	+2·6	29·0	112·0	24th	59·5	11th	52·5
	Mardan	?	?	?	?	?	...	?	...	?	84·6	107·5	?	68·8†	?	87·3†	?	38·7	113·9	24th	58·2	11th	55·7
	Khushab	612	29·040	?	29·612	29·253	10th	28·845	28th	·408	86·3	101·9	?	77·1	?	89·5	?	24·8	114·1	25th	61·0	11th	53·1
	Montgomery	558	29·086	?	29·605	29·303	10th	28·922	1st	·381	87·4	104·5	?	76·9	?	90·7	?	27·6	114·4	2nd	64·5	11th	49·9
	D. I. Khan	573	29·067	?	29·603	29·299	10th	28·865	28th	·434	85·2	102·8	−0·2	74·4	+0·3	88·6	+0·1	28·4	110·1	1st & 25th	63·8	11th	46·3
	Mooltan	420	29·224	−·007	29·608	29·462	10th	29·047	29th	·415	86·4	104·4	+0·2	79·0	+3·5	91·7	+1·9	25·4	113·4	6th	67·1	11th	46·3
	Sirsa	662	29·000?	?	29·616?	29·234	10th	28·835	28th	·399	86·7	105·5	−0·6	78·2	+2·5	91·8	+1·0	27·3	114·9	25th	65·8	1st	49·1
Sind and Cutch.	Jacobabad	186	29·467	+·010	29·611	29·697	10th	29·284	27th	·413	89·2	109·5	−0·6	79·6	+3·4	94·6	+1·4	29·9	119·0	7th	70·7	30th	48·3
	Hyderabad	117	29·558	−·009	29·626	29·709	9th	29·393	27th	·316	85·4	103·5	−3·4	79·4	+1·2	91·5	−1·1	24·1	111·2	1st	75·1	15th	36·1
	Kurrachee	49	29·674	−·013	29·673	29·789	10th	29·504	27th	·285	85·2	92·9	+0·1	79·8	+1·5	86·4	+0·8	13·1	106·7	30th & 31st.	77·3	15th & 16th.	29·4
	Bhuj	395	29·358	+·006	29·706	29·472	9th	29·188	29th	·284	84·5	98·8	−2·9	77·4	+0·7	88·1	−1·1	21·4	105·6	1st & 31st.	74·9	1st	30·7
Rajputana, West	Bickancer	753	28·917	?	29·615	29·155	10th	28·749	28th & 29th	·406	88·4	104·1	−2·4	78·4	−4·0	91·3	−3·2	25·7	112·9	2nd	67·1	10th	45·8
	Pachpadra	380	29·332	?	29·663	29·453	15th	29·177	29th & 30th	·276	86·0	105·2	?	77·7*	?	91·5*	?	27·5	113·0	1st	67·2	9th	45·8
8. East Rajputana, Central India and Guzerat.		...	...	+·013	...	...	...	...	...	.	...	101·2	−2·4	78·1	−0·1	89·7	−1·3	23·0	...	...	...	...	35·2
Rajputana, East	Jeypore	1,431	28·296	+·009	29·663	28·500	10th	28·144	28th	·356	86·3	103·6	−1·9	76·0	−0·2	89·8	−1·1	27·6	110·3	3rd	71·0	14th	39·3
	Sambhar	1,254	28·447	+·004	29·647	28·666	10th	28·288	29th	·378	84·5	101·0	−3·5	77·2	−0·8	89·2	−2·2	23·8	106·5	2nd	69·9	12th	36·6
	Ajmere	1,611	28·137	+·017	29·684	28·364	10th	27·980	28th	·384	85·6	101·8	−1·3	79·3	+2·1	90·6	+0·4	22·5	107·4	1st & 2nd.	72·6	12th	34·8
	Deesa	466	29·290	+·007	29·708	29·432	10th	29·115	29th	·317	85·3	104·5	−1·7	78·6	+1·1	91·6	−0·3	25·9	110·5	1st	73·5	1st	37·0
Kattywar	Rajkot	429	29·358	+·016	29·737	29·466	9th & 10th.	29·194	29th	·272	84·8	103·0	−2·5	75·6	+0·3	89·3	−1·1	27·4	107·8	1st	71·8	3rd & 5th.	36·0
	Veraval	?	29·798	?	29·758	29·919	9th	29·634	29th	·285	82·9	86·7	?	79·3	?	83·0	?	7·4	89·1	3 days	75·3	15th	13·8
	Bhavnagar	?	29·787	?	29·772	29·892	9th	29·604	29th	·288	88·4	100·4	?	80·5	?	90·5	?	19·9	105·4	1st	75·5	2nd & 3rd.	29·9
Central India	Nowgong	757	28·942	+·004	29·642	29·119	9th	28·792	27th	·327	87·2	103·7	−3·8	76·8	−2·3	90·3	−3·1	26·9	110·1	25th	67·5	8th	42·6
	Indore	1,827	27·961	+·020	29·706	28·067	9th	27·821	29th	·246	83·2	100·3	−2·1	74·6	−0·8	87·5	−1·5	25·7	103·6	2nd	68·9	15th	34·7
	Neemuch	1,630	28·134	+·022	29·692	28·283	9th	28·000	29th	·283	85·2	100·8	−3·3	76·6	+0·4	88·7	−1·5	24·2	104·9	2nd	64·7	9th	40·2
Guzerat	Surat	36	29·777	?	29·756	29·879	9th	29·606	29th	·273	84·4	96·9	−1·1	79·0	+1·3	88·0	+0·1	17·9	103·2	6th	73·5	6th	29·7
	Ahmedabad	176	29·627	?	29·750	29·737	10th	29·457	29th	·280	86·9	104·6	?	79·8	?	92·2	?	24·8	107·3	1st & 2nd.	73·6	2nd	33·7
N.-W. P., West	Agra	555	29·156	+·021	29·664	29·361	9th	28·979	27th	·382	86·5	103·8	−2·7	79·8	−0·8	91·8	−1·8	24·0	113·5	25th	70·5	8th	43·0
	Jhansi	840	28·859	+·009	29·657	29·034	9th	28·694	27th	·340	88·5	105·0	−2·5	80·6	−1·3	92·8	−1·9	24·4	110·5	2nd & 25th.	69·4	8th	41·1
9. Deccan		...	...	−·004	...	...	...	...	...	...	...	101·2	−2·9	76·1	−0·9	88·7	−2·0	25·0	...	...	...	...	37·8
Bombay, Deccan	Belgaum	2,524	27·320	−·007	29·757	27·414	10th	27·208	29th	·206	74·6	90·1	−3·4	67·6	−0·2	78·9	−1·8	22·5	98·8	5th & 6th.	64·4	1st	34·4
	Sholapur	1,590	28·219	+·009	29·740	28·328	9th	28·099	29th	·229	71·5	99·9	−4·3	74·6*	−1·2	87·3*	−2·8	25·3	106·7	6th	69·0	12th	37·7
	Poona	1,840	27·995	+·006	29·763	28·103	9th	27·851	29th	·252	79·6	97·4	−0·7	71·2	−0·7	84·3	−0·7	26·2	104·0	6th	67·4	1st	36·6
	Bijapur	1,946	27·877	?	29·744	27·987	9th	27·741	30th	·246	79·8	97·6	?	72·9	?	85·3	?	24·7	103·8	6th	67·0	20th	36·8
Khandesh	Malegaon	1,430	28·385	+·024	29·750	28·475	8th	28·251	29th	·224	83·4	100·3	−3·4	74·0	−0·6	87·2	−2·0	26·3	105·8	2nd	66·3	15th	39·5
	Ahmednagar	2,152	27·673	?	29·739	27·767	9th	27·553	30th	·214	80·2	97·2	?	70·9	?	84·0	?	26·3	102·7	5th	63·0	1st	39·7
Berar	Akola	930	28·812?	−·006?	29·624?	28·910	10th	28·703	27th & 30th	·207	86·4	104·4	−2·8	79·3	−1·3	91·9	−2.0	25·1	108·6	24th	70·2	30th	38·4
	Amraoti	1,215	28·520	−·001	29·666	28·643	9th	28·402	27th	·241	87·3	104·0	−3·3	78·7	−0·2	91·4	−1·8	25·3	107·3	5 days	73·3	13th	34·0

* Mean of 3 days. † Mean of 21 days.

I—*continued.*

in India, Burma, etc., in May 1893—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 31st May 1893.	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.
5	...	2	2	12	1	4	...	5	3	?	?	60	·670	2·3	7	?	?	2·46	0·97	+1·49	3·48	2·23	+1·25	0·84	Umballa .	Punjab (Sub-montane).
10	2	3	2	7	1	...	4	2	3	2	+50	55	·652	2·8	4	1·91	+2·09	2·09	0·83	+1·26	4·25	2·71	+1·54	0·83	Ludhiana.	
12	5	2	6	1	2	...	1	2	3	3	0	54	·622	2·2	4	2·73	+1·27	1·61	1·19	+0·42	4·50	3·37	+1·13	0·93	Sialkot .	Punjab, North.
8	3	5	4	6	1	...	1	3	1	3	—67	64	·628	1·3	6	3·00	+3·00	3·79	1·83	+1·96	7·99	5·80	+2·19	1·30	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·91	0·48	+0·41	...	...	...	...	**7. Indus Valley and North-West Rajputana.**	
7	5	3	2	...	3	1	2	8	4	5	−20	47	·536	1·6	3	2·09	+0·91	0·69	0·92	−0·23	3·71	4·77	−1·06	0·30	Peshawar .	Punjab, West.
					Not recorded.				?	?	?	?	?	?	3	?	?	1·30	?	?	...	...	...	0·66	Mardan.	
8	2	3	7	4	1	4	1	1	3	?	?	46	·570	1·8	4	1·0	+3·0	3·22	0·41	+2·81	5·36	1·57	+3·79	1·30	Khushab.	
2	...	6	3	3	8	6	3	...	8	?	?	52	·666	2·3	3	1·1	+1·9	1·28	0·45	+0·83	1·70	0·97	+0·73	0·65	Montgomery	
16	5	...	2	1	3	2	...	2	2	2	0	61	·740	0·9	5	0·82	+4·18	1·35	0·40	+0·95	2·44	1·77	+0·67	0·45	D. I. Khan.	
5	1	3	...	10	1	10	...	1	3	3	0	54	·663	0·8	2	0·82	+1·18	0·95	0·36	+0·59	1·23	0·89	+0·34	0·59	Mooltan.	
1	2	3	2	7	1	6	6	3	8	5	+60	49	·614	2·2	2	1·82	+0·18	0·58	0·68	−0·10	0·65	1·43	−0·78	0·36	Sirsa.	
5	1	1	7	11	3	...	...	3	6	5	+20	50	·674	0·7	1	0·45	+0·55	0·18	0·07	+0·11	0·57	0·25	+0·32	0·18	Jacobabad .	Sind and Cutch.
2	...	...	...	...	7	21	1	...	25	13	+92	61	·735	1·0	0	0·45	−0·45	0	0·13	−0·13	0·48	0·30	+0·18	0	Hyderabad.	
...	...	...	...	...	...	15	16	...	15	17	−12	77	·930	3·9	0	0	0	0	0	0	0·05	0·62	−0·57	0	Kurrachee.	
...	...	...	...	...	...	8	21	2	21	15	+40	64	·768	2·6	0	?	?	0·01	0·15	−0·14	0·01	0·28	−0·27	0·01	Bhuj.	
...	3	1	1	2	7	16	...	1	8	7	+14	43	·564	1·0	3	?	?	0·93	1·30	−0·37	1·10	1·44	−0·34	0·40	Bickaneer .	Rajputana, West.
2	...	1	...	7	8	13	...	...	11	?	?	61	·755	4·4	3	?	?	1·40	0·83	+0·57	1·66	0·91	+0·75	0·80	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·76	0·47	+0·48	...	...	...	...	**8. East Rajputana, Central India and Guzerat.**	
3	1	2	...	2	1	11	9	2	5	7	−29	44	·558	3·0	2	1·20	+0·80	0·80	0·40	+0·40	1·90	0·57	+1·33	0·49	Jeypore .	Rajputana, East.
...	5	2	2	2	1	1	14	4	9*	10	−10	52	·614	1·9	5	1·27	+3·73	2·22	0·64	+1·58	2·53	1·07	+1·46	0·67	Sambhar.	
1	...	2	1	2	2	4	18	1	11	7	+57	47	·567	1·6	3	2·09	+0·91	0·45	0·75	−0·30	0·75	0·86	−0·11	0·15	Ajmere.	
...	...	1	1	...	4	10	12	3	?	13	?	61	·739	4·0	0	0·55	−0·55	0	0·20	−0·20	0·25	0·26	−0·01	0	Deesa.	
...	...	...	...	...	...	4	21	6	14	13	+8	69	·833	2·5	0	0·36	−0·36	0·10	0·18	−0·08	0·10	0·18	−0·08	0·08	Rajkot .	Kattywar.
3	1	...	...	...	...	3	17	7	8	?	?	83	·929	4·5	0	?	?	0	?	?	0	?	?	0	Veraval.	
...	...	...	...	...	1	18	10	2	19	?	?	66	·889	2·6	1	?	?	0·24	?	?	0·24	?	?	0·23	Bhavnagar.	
4	3	5	4	...	1	2	8	4	5	3	+67	46	·593	2·8	3	1·09	+1·91	1·42	0·36	+1·06	3·24	0·53	+2·71	0·73	Nowgong .	Central India.
2	6	1	...	...	...	1	11	10	6	6	0	63	·771	1·5	4	1·36	+2·64	1·53	0·80	+0·73	2·13	0·80	+1·33	0·64	Indore.	
...	1	3	1	...	...	7	12	7	12	12	0	46	·565	1·7	2	1·18	+0·82	0·74	0·60	+0·14	1·12	0·75	+0·37	0·43	Neemuch.	
...	...	...	...	2	...	10	18	1	?	13	?	79	·949	3·3	0	0·45	−0·45	0	0·29	−0·29	0·17	0·29	−0·12	0	Surat .	Guzerat.
...	3	...	...	...	...	7	3	8	7	?	?	63	·812	4·5	0	?	?	0·06	?	?	0·28	?	?	0·03	Ahmedabad‡	
...	...	2	1	13	...	5	...	10	6	3	+100	47	·581	2·2	3	1·91	+1·09	1·17	0·59	+0·58	1·57	0·94	+0·63	0·49	Agra . .	N.-W. P., West.
5	1	4	...	2	1	8	...	10	2	5	−60	42	·544	1·9	3	1·36	+1·64	1·96	0·31	+1·65	2·75	0·71	+2·04	0·84	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·85	1·03	+1·91	...	...	...	...	**9. Deccan.**	
5	4	...	...	...	...	3	10	8	?	18	?	73	·620	4·5	8	4·36	+3·64	8·03	2·23	+5·80	9·16	4·04	+5·12	2·51	Belgaum† .	Bombay, Deccan.
1	4	...	...	...	...	4	4	18	13	10	+30	57	·597	4·6	9	2·18	+6·82	5·56	0·95	+4·61	9·06	1·48	+7·58	1·31	Sholapur.	
...	...	...	...	...	...	...	11	20	13	14	−7	62	·616	3·3	3	2·00	+1·00	3·80	1·71	+2·09	4·99	2·23	+2·76	2·09	Poona.	
...	...	1	...	...	...	5	9	16	9	?	?	66	·660	5·1	6	3·10	+2·90	3·43	1·15	+2·28	6·25	1·99	+4·26	1·73	Bijapur.	
1	1	..	...	...	...	5	15	9	17	10	+70	64	·718	3·0	6	1·27	+4·73	6·01	0·78	+5·23	6·53	0·85	+5·68	3·44	Malegaon .	Khandesh.
2	12	3	...	...	...	...	2	12	14	?	?	72	·743	3·5	6	?	?	5·05	1·04	+4·01	6·77	1·26	+5·51	2·12	Ahmednagar.	
...	1	1	...	...	1	2	17	9	9	8	+13	48	·580	3·4	5	0·91	+4·09	4·10	0·44	+3·66	7·90	0·86	+7·04	1·46	Akola .	Berar.
1	6	...	1	2	...	3	10	8	7	6	+17	42	·528	2·5	4	1·73	+2·27	1·11	0·96	+0·15	4·41	1·21	+3·20	0·46	Amraoti.	

* Mean of 25 days. † Wind directions of 30 days. ‡ Wind directions of 21 days.

Table

Abstract of Observations taken at 8 A.M. at 196 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Provinces, West.	Khandwa	1,044	28·713	+·008	29·703	28·822	9th	28·587	29th	·235	84·1	103·5	−2·7	79·4	−0·8	91·5	−1·8	24·1	107·2	6th & 24th.	72·1	8th & 13th.	35·1
	Hoshangabad	1,020	28·717	−·013	29·679	28·851	9th	28·583	27th	·268	86·8	103·3	−4·4	78·5	−1·2	90·9	−2·8	24·8	108·0	2nd	69·8	8th & 9th.	38·2
	Nagpur	1,025	28·678	−·019	29·633	28·824	10th	28·558	27th	·266	90·6	106·2	−2·4	81·0	+0·2	93·6	−1·1	25·2	109·8	6 days	71·6	16th	38·2
Central Provinces, Central.	Chanda	634	29·082	?	29·649	29·211	10th	28·957	26th	·254	89·1	104·9*	?	79·1	?	92·2*	?	25·8	110·4	23rd	72·0	1st	38·4
	Seoni	2,030	27·683?	?	29·623?	27·813	9th	27·555	27th	·258	88·7	100·4	− 2·8	75·5	−1·0	88·0	−1·9	24·9	105·2	6th	68·1	15th	37·1
	Jubbulpore	1,327	28·392	+·004	29·648	28·530	9th & 10th	28·255	27th	·275	87·2	102·0	−2·8	76·4	−2·0	89·2	−2·4	25·6	106·5	3rd & 6th.	64·2	1st	42.3
	Saugor	1,762	27·971	−·003	29·648	28·100	9th	27·835	27th	·265	85·8	102·5	−2·0	75·6	−1·9	89·1	−2·0	26·9	107·4	2nd	65·7	9th	41·7
Central Provinces, East.	Raipur	970	28·736	−·008	29·633	28·894	9th	28·592	26th	·302	89·4	104·4	−2·0	79·8	−1·1	92·1	−1·6	24·6	110·0	21st	72·6	2nd	37·4
	Sutna	1,040	28·651	−·001	29·632	28·819	9th	28·473	27th	·346	87·8	101·5	−3·1	77·8	−0·1	89·7	−1·6	23·7	108·2	23rd	68·1	1st	40·1
	Sambalpur	463	29·219	−·027	29·623	29·385	10th	29·005	26th	·380	87·2	100·7	−5·5	78·9	−1·9	89·8	−3·7	21·8	109·5	21st & 22nd	69·2	1st	40·3
Hyderabad, North.	Aurangabad	?	27·948	?	?	28·039	8th & 9th.	27·811	29th	·228	83·4	100·4	?	72·6	?	86·5	?	27·8	105·5	2nd	69·2	3rd	36·3
	Indur	?	?	?	?	?	...	?	...	?	87·3	102·0	?	79·6	?	90·8	?	22·4	107·3	24th	74·3	13th & 26th.	33·0
	Bidar	?	27·631	?	?	27·734	9th	27·530	29th	·204	83·6	97·7	?	75·8	?	86·8	?	21·9	101 7	19th	69·2	12th	32·5
	Gulburga	?	28·286	?	?	28·394	9th	28·172	29th	·222	82·3	100·3	?	75·6	?	88·0	?	24·7	106·9	3rd	68·6	12th	38·3
Hyderabad, South.	Raichur	?	28·407?	?	?	28·499	9th	28·286	29th	·213	83·1	99·2	?	77·1	?	88·2	?	22·1	105·5	3rd & 5th.	71·6	11th	33·9
	Hyderabad (Deccan).	1,690	28·091	?	29·700	28·200	9th	27·983	26th	·217	83·3	99·7	?	77·6	?	88·7	?	22·1	104·4	3rd	73·7	21st	30·7
	Secunderabad	1,787	28·013	−·017	29·717	28·126	9th	27·905	26th	·221	82·8	101·0	−1·8	76·5*	−0·6	89·0*	−1·3	24·1	106·2	1st & 2nd.	73·4	13th & 29th.	32·8
	Khamamet	?	29·376	?	?	29·523	9th	29·217	22nd	·306	87·1	103·0	?	81·4	?	92·2	?	21·6	109·7	21st & 24th.	74·3	1st	35·4
10. West Coast		...	...	−·005	...	...	...	...	...	...	...	87·9	−1·7	77·9	−0·5	83·0	−1·1	10·1	...	...	...	...	18 1
Konkan	Bombay	37	29·813	0	29·790	29·916	9th	29·656	29th	·260	83·5	89·8	−0·2	80·0	−0·3	84·9	−0·3	9·8	92·0	28th	75·5	29th	16·5
	Ratnagiri	110	29·735	+·008	29·783	29·838	10th	29·593	27th	·245	83·5	89·2	−1·7	78·7	−0·2	84·0	−1·0	10·5	91·4	22nd & 23rd.	73·9	29th	17·5
	Mormugoa	60	29·806	?	29·801	29·910	10th	29·673	27th	·237	82·6	87·8	?	79·1	?	83·5	?	8·7	90·0	6 days	73·4	30th & 31st.	16·6
	Goa*	23	29·839	−·010	29·776	29·928	10th	29·677	27th	·251	83·3	90·4	?	76·6	?	83·5	?	13·8	94·0	10th	70·0	28th	24·0
	Karwar	44	29·803	−·013	29·779	29·899	10th	29·679	27th	·220	84·6	88·1	−1·6	79·7	+0·7	83·9	−0·5	8·4	90·3	3 days	72·6	29th	17·7
Malabar	Cochin*	10	29·871	+·002	29·809	29·945	10th	29·797	2nd	·148	80·3	87·3	−2·0	76·4	−0·5	81·9	−1·3	10·9	90·8	2nd	73·2	28th	17·6
	Calicut	27	29·841	−·015	29·797	29·932	11th	29·759	16th	·173	80·9	88·0	?	76·5	?	82·3	?	11·5	92·8	2nd	72·1	28th	20·7
	Mangalore	26	29·844	−·004	29·801	29·919	10th	29·775	30th	·144	80·0	87·5	−2·4	76·5	−2·0	82·1	−2·2	11·0	90·3	5 days	70·9	8th & 18th.	19·4
	Trivandrum	198	29·682	?	29·811	29·759	10th	29·602	2nd	·157	79·2	84·0	?	77·4	?	80·8	?	6·6	88·5	4th	75·0	3 days	13·5
11. South India		...	...	−·020	...	...	...	...	...	...	...	95·1	−1·2	76·0	−0·9	85·6	−1·2	19·0	...	...	...	...	30·8
Madras, South.	Pamban	37	29·791	?	29·755	29·888	9th	29·711	2nd	·177	84·6	89·9	?	80·7	?	85·3	?	9·2	91·8	3rd	74·2	13th	17·6
	Tinnevelly	168	29·667	?	29·763	29·754	9th	29·573	2nd	·181	85·9	99·5	?	80·2	?	89·9	?	19·3	104·5	1st	74·9	5th & 18th.	29·6
	Madura	447	29·371	−·019	29·750	29·473	9th	29·300	2nd	·173	84·4	98·8	−1·5	77·4	+0·9	88·1	−0·3	21·4	103·5	2nd	74·0	5th & 16th.	29·5
Madras, South, Central.	Salem	940	28·910	−·016	29·784	28·990	9th	28 842	1st	·148	80·7	95·5	−3·4	74·0*	−1·2	84·7*	−2·3	21·5	102·4	2nd	65·4	13th	37·0
	Coimbatore	1,348	28·490?	−·012?	29·779?	28·596	10th	28·409	2nd	·187	77·2	92·2	−2·9	70·5	−3·2	81·4	−3·1	21·7	99·8	2nd	64·6	28th	35·2
Coorg	Mercara	3,781	26·184?	−·004?	29·796?	26·270	10th	26·104?	8th	·166?	68·1	79·3†	−1·7	63·9	−0·5	71·6†	−1·1	15·4	83·4	5th	61·2	16th & 27th.	22·2
	Chitaldroog	2,405	27·451	?	29·770	27·535	9th	27·365	29th	·170	75·7	91·3	?	69·4	?	80·4	?	21·9	97·7	5th	63·9	16th	33·8
Mysore	Bangalore Bazar	2,982	26·925	−·015	29·795	26·999	10th	26·858	29th	·141	73·5	89·2	−2·1	67·6	−1·4	78·4	−1·8	21·6	94·2	3 days	64·0	6th & 14th.	30·2
	Bangalore Fort	3,019	26·875	?	29·772	26·949	10th	26·812	27th	·137	73·5	89·5	−2·1	67·8	−1·4	78·7	−1·8	21·7	94·8	5th	64·8	6th & 14th.	30·0
	Hassan	3,091	26·826	?	29·800	26·902	10th	26·752	29th	·150	73·1	85·5	?	65·0	?	75·3	?	20·5	93·9	5th	59·3	14th	34·6
	Mysore	2,518					Obse	rvations	Inco	mplet	e.												
Madras, East Coast, South.	Negapatam	31	29·788	?	29·747	29·895	9th	29·714	2nd	·181	86·7	98·2	+2·4	78·5	−0·6	88·4	+0·9	19·7	102·2	2nd	71·7	1st	30·5
	Cuddalore	12	29·785	?	29·726	29·893	9th	29·698	1st	·195	86·5	98·2	?	80·1	?	89·2	?	18·1	105·3	2nd	75·2	24th	30·1
	Trichinopoly	255	29·561	−·022	29·747	29·656	10th	29·482	2nd	·174	84·2	99·9	−1·0	78·0	0	89·0	−0·5	21·9	104·1	1st & 2nd.	72·4	5th	31·7
	Madras	22	29·774	−·008	29·726	29·893	10th	29·683	1st	·210	87·3	98·5	+1·3	81·3	+0·7	89·9	+0·9	17·2	107·5	3rd	75·5	20th	32·0

* Mean of 30 days. † Mean of 29 days.

I—*continued.*

in India, Burma, etc., in May 1893—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 31st May 1893.	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.
1	3	...	...	1	...	1	10	15	11	9	+ 22	54	·617	1·6	3	1·09	+1·91	0·92	0·49	+ 0·43	1·84	0·62	+ 1·22	0·36	Khandwa .	Central Provinces, West.
6	4	2	1	...	1	5	10	2	3	4	− 25	49	·605	2·6	6	1·18	+4·82	5·72	0·54	+ 5·18	7·41	0·68	+ 6·73	1·41	Hoshangabad.	
2	6	2	2	4	2	1	1	11	9	7	+ 29	40	·554	2·9	4	2·09	+1·91	0·81	1·15	− 0·34	4·16	1·96	+ 2·20	0·31	Nagpur.	
5	...	2	1	3	2	4	7	7	5	?	?	46	·616	2·5	3	?	?	2·05	?	?	16·81	?	?	0·75	Chanda .	Central Provinces, Central.
..	4	9	1	4	2	1	1	9	12	5	+140	39	·522	2·0	3	2·36	+0·64	1·73	1·23	+ 0·50	5·20	1·97	+ 3·23	0·89	Seoni.	
6	1	..	1	4	3	3	8	5	4	4	0	41	·553	2·6	6	1·45	+4·55	2·44	0·80	+ 1·64	4·73	1·25	+ 3·48	0·75	Jubbulpore.	
5	4	2	2	5	2	3	6	2	5	4	+ 25	44	·516	1·6	4	1·27	+2·73	3·08	0·65	+ 2·43	5·13	0·79	+ 4·34	1·70	Saugor.	
5	2	4	4	2	1	5	6	2	8	8	0	46	·614	4·7	0	2·91	−2·91	0·10	1·15	− 1·05	2·29	2·23	+ 0·06	0·05	Raipur .	Central Provinces, East.
1	7	3	7	1	2	...	4	6	8	8	0	41	·517	2·3	4	1·64	+2·36	1·16	0·40	+ 0·76	4·70	1·60	+ 3·10	0·70	Sutna.	
...	6	3	2	4	10	1	3	2	6	?	?	62	·792	4·7	6	?	?	3·31	1·90	+ 1·41	8·08	3·29	+ 4·79	2·33	Sambalpur.	
2	3	1	1	...	...	6	9	9	6	?	?	52	·569	2·3	7	?	?	4·87	0·75	+ 4·12	5·63	0·99	+ 4·64	1·19	Aurangabad	Hyderabad, North.
...	4	1	...	...	1	6	6	13	11	?	?	61	·776	5·0	3	?	?	1·17	0·33	+ 0·84	7·02	0·91	+ 6·11	0·46	Indur.	
...	9	1	1	...	...	5	7	8	10	?	?	61	·682	1·2	7	?	?	2·02	1·07	+ 0·95	7·16	2·24	+ 4·92	0·42	Bidar.	
4	4	2	...	...	1	2	4	12	13	?	?	62	·664	4·9	6	?	?	2·96	1·39	+ 1·57	6·53	2·31	+ 4·22	0·89	Gulburga .	Hyderabad, South.
...	3	1	1	...	1	7	9	9	12	?	?	60	·679	5·2	2	?	?	1·95	1·14	+ 0·81	2·39	2·05	+ 0·34	0·94	Raichur.	
3	1	1	1	...	2	1	18	4	7	?	?	57	·645	4·8	3	?	?	0·56	1·27	− 0·71	9·85	2·19	+ 7·66	0·31	Hyderabad (Deccan).	
1	..	1	2	1	1	5	10	10	9	8	+ 13	58	·650	3·8	1	2·55	−1·55	0·73	1·30	− 0·57	8·46	2·46	+ 6·00	0·46	Secunderabad.	
6	1	...	1	5	6	3	3	6	9	?	?	61	·792	2·7	1	?	?	0·60	?	?	7·84	?	?	0·60	Khamamet.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·30	5·55	+4·71	...	...	...	...	**10. West Coast.**	
...	4	...	...	1	5	2	5	14	11	10	+ 10	75	·871	5·1	3	1·00	+2·00	6·30	0·97	+ 5·33	6·32	0·97	+ 5·35	4·97	Bombay .	Konkan.
1	7	2	1	1	1	2	3	13	7	11	− 36	75	·850	6·4	5	1·64	+3·36	7·79	1·57	+ 6·22	8·30	1·62	+ 6·68	3·59	Ratnagiri.	
...	9	...	...	1	1	1	2	11	10	?	?	79	·883	5·3	7	?	?	6·53	?	?	7·72	?	?	1·51	Mormugao.*	
3	4	1	1	...	1	2	8	10	2	?	?	71†	·812†	5·7	5	?	?	6·89	3·02	+ 3·87	7·43	3·10	+ 4·33	3·23	Goa.‡	
3	7	5	...	...	...	4	2	10	5	?	?	80	·845	4·9	5	4·09	+0·91	10·11	3·70	+ 6·41	11·06	3·98	+ 7·08	4·04	Karwar.	
5	5	6	7	1	4	...	...	2	6	?	?	84	·881	5·2	15	13·45	+1·55	13·89	14·36	− 0·47	24·09	19·66	+ 4·43	2·28	Cochin‡ .	Malabar.
6	6	2	3	1	3	3	...	7	15	?	?	81	·845	6·6	11	9·00	+2·00	14·95	7·44	+ 7·51	17·73	10·74	+ 6·99	2·77	Calicut.	
11	5	8	2	1	...	1	...	3	3	5	− 40	82	·838	7·3	12	6·80	+5·20	11·86	7·77	+ 4·09	14·64	8·38	+ 6·26	3·07	Mangalore.	
...	10	2	...	...	...	...	6	13	8	?	?	87	·867	7·2	14	?	?	5·40	?	?	9·05	?	?	1·02	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·35	2·75	−0·59	...	...	...	...	**11. South India.**	
...	...	...	2	2	8	13	4	2	9	?	?	79	·948	3·4	1	2·3	−1·3	1·25	2·21	− 0·96	5·91	7·13	− 1·22	1·25	Pamban .	Madras, South.
...	4	4	2	5	1	4	4	7	7	?	?	61	·766	6·3	5	3·8	+1·2	1·51	2·04	− 0·53	4·84	5·61	− 0·77	0·70	Tinnevelly.	
6	5	2	...	2	1	2	...	13	1	4	− 75	67	·797	3·8	6	4·00	+2·00	1·77	3·58	− 1·81	8·53	4·78	+ 3·75	0·36	Madura.	
11	...	...	...	1	6	9	3	1	4	4	0	74	·785	5·4	9	8·64	+0·36	5·69	5·68	+ 0·01	9·19	8·08	+ 1·11	1·41	Salem .	Madras, South, Central.
...	1	...	...	1	15	13	1	...	3	5	− 40	81	·764	3·5	5	6·45	−1·45	2·59	2·81	− 0·22	6·28	4·83	+ 1·45	1·08	Coimbatore.	
...	4	...	...	1	...	1	12	13	7	5	+ 40	86	·594	7·0	15	10·00	+5·00	9·86	6·80	+ 3·06	12·37	9·84	+ 2·53	1·76	Mercara .	Coorg.
...	..	...	...	...	...	12	15	4	10	?	?	73	·656	5·9	7	?	?	3·58	?	?	6·88	?	?	1·35	Chitaldroog	
...	1	...	...	...	2	11	14	3	10	6	+ 67	80	·662	6·8	5	7·55	−2·55	1·92	4·72	− 2·80	5·08	6·02	− 0·94	0·51	Bangalore Bazar.	Mysore.
...	...	...	...	...	...	10	19	2	6	?	?	78	·646	5·0	5	?	?	1·21	?	?	4·87	?	?	0·45	Bangalore Fort.	
2	2	1	...	...	...	5	7	14	5	?	?	81	·659	6·5	11	?	?	6·06	?	?	6·82	?	?	1·02	Hassan.	
									Observations incomplete.																Mysore	
4	...	...	...	1	10	4	12	...	7	7	0	62	·796	4·0	1	2·18	−1·18	0·44	2·01	− 1·57	3·77	2·78	+ 0·99	0·33	Negapatam	Madras, East Coast, South.
...	...	1	...	...	6	11	9	4	4	?	?	79	·996	4·5	0	1·5	−1·5	0·23	2·24	− 2·01	3·65	3·43	+ 0·22	0·08	Cuddalore.	
7	...	...	...	...	...	15	8	1	6	6	0	65	·760	5·3	6	3·91	+2·09	4·41	3·28	+ 1·13	6·70	5·25	+ 1·45	1·68	Trichinopoly.	
...	...	...	...	1	11	11	7	1	9	9	0	66	·853	5·1	1	1·45	−0·45	0·24	1·50	− 1·26	1·90	1·92	− 0·02	0·22	Madras.	

* Wind direction of 25 days. † Mean of 28 days. ‡ Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 196 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.
Madras, East Coast, Central.	Nellore	71	29·686	?	29·689	29·799	10th	29·588	26th	·211	88·6	103·8	?	81·3	?	92·6	?	22·5	111·3	3rd	77·1	11th & 14th.	34·2
	Masulipatam	15	29·734	−·031	29·682	29·888	9th	29·580	22nd	·308	87·5	100·3	+1·5	79·3	−1·2	89·8	+0·2	21·0	110·7	1st & 24th.	67·2	8th	43·5
Madras, Central	Cuddapah	433	29·368	−·033	29·734	29·463	9th	29·298	27th	·165	88·5	102·9	−2·1	82·1	−1·2	92·5	−1·7	20·8	108·2	2nd	73·8	11th	34·4
	Kurnool	923	28·870	?	29·724	28·977	10th	28·789	27th	·188	84·2	101·2	−3·3	78·6	−1·9	89·9	−2·6	22·6	106·1	3 days	73·0	11th	33·1
	Bellary	1,475	28·349	+·016	29·751	28·432	9th	28·260	29th	·172	83·1	98·6	− 4·0	75·9	−1·2	87·3	−2·6	22·7	105·0	5th	71·5	19th	33·5
Madras, East Coast, North.	Rajahmundry	112	29·625	−·043	29·673	29·772	10th	29·458	22nd	·314	86·1	100·9	− 1·1	80·0	−1·0	90·5	−1·1	20·9	108·1	2nd	71·5	12th	36·6
	Cocanada	26	29·712	−·030	29·673	29·881	9th	29·527	22nd	·354	86·0	97·7	+ 1·6	?	?	?	?	?	107·8	22nd	?	...	?
	Vizagapatam	31	29·696	−·044	29·664	29·859	9th	29·489	26th	·370	86·2	89·0	− 1·1	83·4	+0·6	86·2	−0·3	5·6	95·9	27th	80·4	9th	15·5
	Gopalpur	21	29·681	?	29·642	29·871	9th	29·405	25th	·466	82·6	88·3	?	78·2	?	83·3	?	10·1	92·2	28th & 29th.	68·9	13th	23·3
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Kuch Fort* (a)	?	23·838	?	?	23·928	4th	23·686	27th	·242	72·2	86·4	?	52·8	?	69·6	?	33·6	93·0	21st	44·0	2nd	49·0
	Quetta	5,502	24·577	+·013	?	24·654	4th	24·431	27th	·223	71·2	86·5	+ 4·0	55·0	+2·9	70·8	+3·5	31·5	95·1	24th	44·9	2nd & 3rd.	50·2
	Kalat	?	?	?	?	?	?	?	...	?	79·3	85·9	?	47·7	?	66·8	?	38·2	96·0	23rd	38·0	3rd	58·0
	Chaman	5,488	25·573	?	?	25·666	15th	25·455	27th	·211	81·6	95·2	?	66·4	?	80·8	?	28·8	105·0	23rd & 24th.	51·1	2nd	53·9
Northern India	Srinagar	5,204	24·819	?	?	25·016	9th	24·645	28th	·371	61·3	76·4	?	52·9	?	64·7	?	23·5	89·3	24th	43·2	1st & 8th.	46·1
	Gilgit	?	25·524	?	?	25·680	9th	25·280	24th	·400	73·5	90·5	?	63·9	?	77·2	?	26·6	105·9	23rd	53·9	29th	52·0
	Cherat	?	25·599	?	?	25·744	9th	25·423	28th	·321	75·4	87·0	?	69·1	?	78·1	?	17·9	99·5	25th	55·2	11th	44·3
	Murree	6,344	23·782	−·003	?	23·982	9th	23·637	28th	·345	65·1	74·5	− 1·1	58·5	−0·6	66·5	−0·9	16·0	85·7	25th	45·8	11th	39·9
	Simla	7,224	23·079	+·002	?	23·207	9th	22·960	27th &28th	·247	61·7	70·0	− 5·9	56·0	−1·0	63·0	− 3·5	14·0	78·4	24th & 25th	45·5	11th	32·9
	Chakrata	7,052	23·216	+·005	?	23·339	9th	23·097	28th	·242	62·4	71·5	− 1·9	55·3*	−0·4	63·4*	−1·2	16·2	80·3	3 days	46·7	7th	33·6
	Mussoorie	?	23·512	?	?	23·634	9th	23·380	28th	·254	62·5	72·6	− 2·5	57·0	−0·5	64·8	−1·5	15·6	83·3	25th	50·0	6th	33·3
	Ranikhet	6,069	24·054	+·018	?	24·150	10th	23·934	28th	·216	66·1	74·3	− 2·3	58·9	−0·4	66·6	−1·4	15·4	84·5	22nd	49·5	6th	35·0
	Gnatong	?	19·202	?	?	19·252	9th	19·138	27th	·114	44·4	49·4	?	29·9	?	39·7	?	19·5	59·4	2 days	23·1	2 days	36·3
	Darjeeling	7,421	22·954	+·011	?	23·066	9th	22·767	27th	·299	58·5	63·8	+ 1·2	52·0	+1·6	58·0	+1·4	11·8	72·1	21st	45·7	2 days	26·4
Central India	Mount Abu	3,945	25·964	−·004	?	26·099	10th	25·828	28th & 29th	·271	74·9	84·1	− 5·0	67·4	−3·7	75·7	−4·4	16·7	89·2	1st	63·8	4 days	25·4
	Pachmarhi	3,511	26·364	−·001	?	26·477	9th	26·236	27th	·241	79·7	92·5	− 2·0	72·7	−1·9	82·6	−2·0	19·8	97·2	24th	62·2	8th	35·0
South India	Wellington	6,200	24·229	+·006	?	24·303	10th	24·165	27th	·138	67·9	74·7	+ 0·8	56·3	−2·3	65·5	−0·8	18·4	78·2	3rd & 5th	52·7	13th	25·5
	Kodaikanal	?	...			Not recorded.			...	...	63·2	69·3	?	55·3	?	62·3	?	14·0	74·5	3rd	49·1	18th	25·4
	Kottagiri	?	23·810	?	?	23·882	9th	23·743	27th	·139	64·9	72·7	?	56·9	?	64·8	?	15·8	77·4	3rd	51·4	2days	26·0
13. Extra India	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ceylon	Colombo	40	29·864	+·014	29·830	29·945	14th	29·785	2nd	·160	82·7	85·2	?	77·0	?	81·1	?	8·2	88·5	3rd & 4th	71·5	15th	17·0
Persia	Meshed	?	?	?	?	?	...	?	...	?	67·5	80·4	?	59·8	?	70·1	?	20·6	91·5	17th	49·9	10th	41·6
	Bushire	14	29·721	?	29·692	29·844	13th	29·587	28th	·257	82·1	88·2	?	75·0	?	81·7	?	13·2	103·5	8th	68·0	11th & 25th.	35·5
	Jask†	?	29·716	?	?	29·826	4th	29·477	27th	·349	84·4	92·9	?	78·8	?	85·9	?	14·1	102·3	19th	73·1	3rd	29·2
Arabia	Muscat	?	29·703	?	?	29·813	10th	29·513	27th	·300	87·4	90·6	?	86·0	?	88·3	?	4·6	98·7	9th	82·0	17th	16·7
	Baghdad	?	29·436	?	?	29·729	2nd	29·211	31st	·518	76·4	?	?	66·2	?	?	?	?	?	?	50·0	2nd	?
	Aden	94	29·737	?	29·762	29·834	10th	29·627	31st	·207	85·6	92·5	?	81·3	?	86·9	?	11·2	96·5	18th	78·8	3 days	17·7
	Perim	?	29·620	?	?	29·747	13th	29·481	27th	·266	84·6	91·7	?	80·9	?	86·3†	?	10·8	99·1	28th	74·1	9th	25·0
Arabian Sea Islands.	Minicoy	10	29·901	?	29·836	29·989	10th	29·839	1st	·150	81·6	86·1	?	80·5‡	?	83·3‡	?	5·6	89·5	14th	75·0	31st	14·5
Africa	Zanzibar	73	30·012*	?	30·012*	30·140	24th	29·913	3rd	2·27	75·9*	80·8*	?	74·2	?	77·5†	?	6·6	83·8	22nd	71·9	27th	11.9

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

(a) Uncorrected readings.

I—*concluded.*

in India, Burma, etc., in May 1893 —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 Mar. to 31st May 1893.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
6	...	...	...	2	7	...	9	7	9	?	?	66	·888	7·2	1	2·1	−1·1	0·37	1·88	− 1·51	1·15	2·25	− 1·10	0·30	Nellore	Madras, East Coast, Central.
5	1	...	...	2	5	3	8	7	9	9	0	81	1·049	6·2	1	2·73	− 1·73	0·94	1·95	− 1·01	1·04	2·11	− 1·07	0·90	Masulipatam.	
...	...	...	...	...	1	9	12	9	?	?	?	52	·693	5·1	2	3·40	−1·40	1·22	1·86	− 0·64	1·62	2·30	− 0·68	0·86	Cuddapah.	Madras, Central
20	...	...	...	...	...	...	10	1	?	?	?	61	·721	5·0	2	2·67	− 0·67	1·36	1·00	+ 0·36	4·80	2·01	+ 2·79	0·90	Kurnool	
4	1	...	...	...	...	6	10	10	9	8	+ 13	68	·779	5·1	2	3·36	−1·36	0·76	1·86	− 1·10	2·27	2·51	− 0·24	0·43	Bellary.	
8	2	2	2	...	2	3	10	2	?	?	?	68	·858	5·6	4	4·20	−0·20	2·13	2·82	− 0·69	7·07	3·64	+ 3·43	0·69	Rajahmundry	Madras, East Coast, North.
1	2	...	2	4	...	11	6	5	8	?	?	71	·890	5·2	0	3·6	−3·6	0·22	1·39	− 1·17	4·12	1·80	+ 2·32	0·06	Cocanada.	
...	...	...	...	...	...	7	18	6	2	4	− 50	74	·932	6·3	3	4·36	− 1·36	1·06	3·26	− 2·20	6·87	3·71	+ 3·60	0·55	Vizagapatam.	
1	5	1	...	1	7	11	2	3	15	13	+ 15	83	·923	2·5	6	3·44	+ 2·56	5·18	2·17	+ 3·01	9·27	3·44	+ 5·83	1·61	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
...	...	...	5	...	...	...	25	...	?	?	?	41	·324	0·5	0	?	?	0	?	?	3·48	?	?	0	Kuch Fort††	Baluchistan.
28	...	...	...	...	1	1	...	1	3	5	− 40	49	·386	0·5	0	1·18	− 1·18	0	0·39	− 0·39	2·27	3·54	− 1·27	0	Quetta.	
...	...	...	...	...	...	10	...	21	?	?	?	?	?	?	0	?	?	0	?	?	1·00	?	?	0	Kalat.	
8	1	...	1	1	1	13	5	1	6	?	?	28	·304	1·3	0	?	?	0	?	?	0·80	?	?	0	Chaman.	
17	1	2	1	5	5	...	...	...	3	?	?	79	·438	3·6	8	?	?	3·67	?	?	8·95	?	?	0·88	Srinagar	Northern India.
				Not	recorded.				?	?	?	36	·285	2·7	2	?	?	0·54	?	?	2·31	?	?	0·34	Gilgit.	
6	6	3	4	3	4	1	4	...	6	?	?	44	·365	2·5	4	?	?	3·94	?	?	10·19	?	?	2·70	Cherat.	
5	1	5	3	4	2	...	...	11	8	8	0	52	·318	2·2	9	5·55	+ 3·45	6·38	3·41	+ 2·97	15·01	10·81	+ 4·20	1·80	Murree.	
7	14	...	...	...	10	..	...	...	?	3	?	60	·330	3·6	6	6·18	− 0·18	3·61	4·23	− 0·62	7·84	9·03	− 1·19	1·32	Simla.	
14	1	...	10	...	...	1	5	...	11	?	?	63	·354	2·3	5	?	?	2·53	2·85	+ 0·32	9·37	7·10	+ 2·27	1·05	Chakrata.	
3	2	3	9	5	1	...	3	5	?	12	?	72	·407	3·3	10	4·55	+ 5·45	2·89	2·42	+ 0·47	8·15	5·69	+ 2·46	0·62	Mussoorie.	
22	1	1	2	...	...	...	5	...	3	3	0	65	·408	3·2	8	6·00	+ 2·00	4·82	2·76	+ 2·06	9·26	6·54	+ 2·72	1·22	Ranikhet.	
6	...	2	5	8	1	...	4	5	4	?	?	79	·230	3·6	23	?	?	8·66	?	?	26·11	?	?	1·48	Gnatong.	
4	2	4	7	1	2	2	5	4	6	6	0	87	·431	6·3	10	13·29	− 3·29	3·31	9·02	− 5·71	13·01	15·60	− 2·59	0·83	Darjeeling.	
...	1	2	...	1	1	8	12	6	9	9	0	54	·454	1·2	3	1·45	+ 1·55	2·03	0·89	+ 1·14	2·43	0·95	+ 1·48	1·35	Mount Abu	Central India.
1	5	1	1	5	...	...	13	5	10	7	+ 43	47	·461	2·9	4	2·09	+ 1·91	2·24	0·76	+ 1·48	3·67	1·15	+ 2·52	1·00	Pachmarhi.	
18	3	1	...	1	...	4	1	3	3	3	0	65	·450	5·8	9	8·78	+ 0·22	4·94	4·22	+ 0·72	18·60	8·46	+10·14	1·24	Wellington.	
4	3	10	1	3	...	1	...	9	7	?	?	67	·388	5·5	14	10·8	+ 3 2	7·80	4·86	+ 2·94	19·74	14·02	+ 5·72	1·77	Kodaikanal.	South India.
6	7	1	2	2	...	1	2	10	4	?	?	73	·450	5·3	12	10·5	+ 1·5	8·40	7·41	+ 0·99	?	?	?	2·48	Kottagiri .	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
...	...	...	...	2	3	22	4	...	11	?	?	77	·868	7·5	17	?	?	10·32	12·84	− 2·52	35·80	29·03	+ 6·77	1·64	Colombo .	Ceylon.
5	7	...	2	1	11	3	1	1	?	?	?	?	?	2·5	1	?	?	0·13	?	?	0·45	?	?	0·13	Meshad .	Persia.
...	3	2	3	5	...	1	...	17	8	?	?	58	·636	0	0	?	?	0	?	?	1·51	?	?	0	Bushire.	
...	1	...	7	9	4	2	1	5	15§	?	?	75	·885	0·1	0	?	?	0	?	?	0·61	?	?	0	Jask.†	
...	3	5	5	...	1	1	4	12	4	?	?	72	·925	0·3	0	?	?	0	?	?	0	?	?	0	Muscat.	Arabia.
...	16	5	2	3	1	...	...	4	?	?	?	53	478	?	0	?	?	0	?	?	0·95	?	?	0	Baghdad.	
6	1	3	12	...	2	4	1	2	9	11	− 18	76	·932	2·2	0	?	?	0	0·14	− 0·14	0·21	1·14	−0·93	0	Aden.	
...	7	1	8	3	...	...	2	10	16	?	?	76	·903	1·6	0	?	?	0	?	?	0·31	?	?	0	Perim.	
3	4	...	1	...	...	...	10	13	15	?	?	81	·878	6·7	14	?	?	9·26	?	?	13·14	?	?	1·94	Minicoy .	Arabian Sea Islands.
...	...	...	...	2	17	10	...	...	12‡	?	?	86††	·772††	7·2††	16	?	?	11·92	?	?	34·81	?	?	2·33	Zanzibar .	Africa.

† Mean of 29 days.
‡ Do. „ 25 „
†† Mean of 30 days.
§ Do. „ 27 „

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 to 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	...	29·784	29·699	·085	29·740	−·012	29·731	86·3	78·1	8·2	89·9	74·7	15·2	83·3	83·4	81·2	−1·0	75·5	79·6	79·2	78·1
	Rangoon	...	·802	·690	·112	·750	−·008	·728	86·5	76·6	9·9	93·7	73·9	19·8	81·2	82·6	79·7	−3·3	74·8	78·2	77·7	76·9
	Diamond Island	...	·792	·695	·097	·742	−·026	·717	86·3	78·2	8·1	90·0	74·3	15·7	83·9	84·1	81·4	−1·7	75·7	78·0	77·8	77·2
	Coco's Island	111	·704	·629	·075	·665	?	·707	90·7	73·3	17·3	94·7	71·0	23·7	87·1	85·6	80·5	?	72·1	80·2	79·2	77·2
	Akyab	...	·775	·679	096	·731	−·030	·694	86·9	76·6	10·3	92·1	70·6	21·5	83·8	84·0	80·9	−2·4	73·6	79·5	79·0	77·4
Assam.	Silchar	...	·660	·538	·122	·599	−·051	·653	90·1	73·8	16·3	101·8	68·1	33·7	84·4	87·2	80·9	+1·4	72·4	78·0	77·9	76·1
	Sibsagar	...	·457	·311	·146	·383	−·043	·669	88·6	72·8	15·8	98·6	61·6	37·0	82·2	86·9	79·8	+2·5	71·5	77·0	78·3	75·6
	Dhubri	...	·645	·511	·134	·573	−·030	·641	86·7	74·4	12·3	96·5	66·9	29·6	81·2	85·3	78·8	+1·2	72·0	75·9	76·7	74·9
Bengal and Orissa.	Chittagong	...	·691	·584	·107	·639	−·033	·673	86·1	74·2	11·9	91·4	67·0	24·4	82·8	83·9	79·5	−1·6	72·9	78·4	79·3	76·9
	Dacca	...	·705	·599	·106	·654	−·039	·624	88·5	75·5	13·0	96·3	69·2	27·1	83·5	84·7	81·4	−1·2	73·6	77·6	77·3	76·2
	Calcutta (Alipore)	...	·670	·571	·099	·622	−·039	·589	89·2	75·3	13·9	96·9	66·4	30·5	84·1	86·8	82·1	−3·0	73·5	77·3	77·1	76·0
	Ditto (Chowringhee).	?	·677	?	?	?	?	?	90·6	75·4	15·2	98·0	65·1	32·9	85·5	?	?	?	74·2	78·9	?	?
	Saugor Island	...	·668	·564	·104	·618	−·053	·587	88·1	77·9	10·2	93·4	59·4	34·0	84·5	85·9	82·2	−2·9	76·1	79·8	80·1	78·8
	Burdwan	...	·610	·497	·113	·557	−·018	·602	91·0	75·9	15·1	100·1	67·2	32·9	84·7	88·1	81·8	−4·2	73·7	76·8	76·6	75·7
	Berhampore	...	·655	·539	·116	·600	−·003	·615	90·1	76·0	14·1	100·7	66·8	33·9	83·6	87·7	81·6	−4·5	73·6	77·6	77·5	76·2
	False Point	...	·657	·547	·110	·604	−·088	·566	87·9	77·4	10·5	94·5	69·5	25·0	85·4	84·9	81·8	−1·9	76·1	79·6	79·5	78·5
	Cuttack	...	·599	·485	·114	·552	−·057	·573	93·8	78·3	15·5	103·6	72·0	31·6	88·4	90·4	83·8	−3·9	75·5	78·1	77·5	77·0
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·717	27·630	·087	27·678	−·069	·582	91·9	71·6	20·3	101·9	63·2	38·7	85·7	86·9	80·4	−4·8	65·7	71·6	70·8	69·4
	Patna	...	29·531	29·397	·134	29·462	−·006	·594	96·6	76·7	19·9	108·4	64·3	44·1	90·7	94·2	85·7	−1·5	71·4	75·5	75·3	74·0
	Darbhanga	...	·568	·436	·132	·500	−·004	·617	93·5	75·3	18·2	103·5	67·7	35·8	87·4	91·2	83·5	−1·0	72·0	77·0	76·5	75·2
	Allahabad	...	·389	·257	·132	·323	−·001	·581	102·5	78·2	24·3	111·0	68·3	42·7	94·4	100·7	90·4	−1·5	69·2	74·8	74·6	72·9
	Ghazipur	220	·484	·359	·125	·421	+·008	·589	99·2	78·6	20·6	109·3	68·0	41·3	91·8	96·9	88·2	−1·4	72·1	75·8	75·5	74·5
	Lucknow	...	·329	·205	·124	·263	−·009	·580	99·4	75·0	24·4	111·3	67·1	44·2	91·6	97·4	87·3	−3·5	70·9	74·3	74·6	73·3
Upper Sub-Himalayas.	Dehra Dun	...	27·513	27·423	·090	27·458	−·011	·597	90·3	68·9	21·4	100·4	62·9	37·5	82·3	86·2	78·9	−3·5	63·7	69·7	71·5	68·3
	Roorkee	...	28·824	28·703	·121	28·758	+·017	·587	97·6	72·8	24·8	108·7	65·3	43·4	87·8	95·7	85·0	−2·6	66·6	72·3	73·4	70·8
	Meerut	...	·965	·845	·120	·897	+·014	·578	99·1	74·4	24·7	110·2	66·0	44·2	90·8	96·7	86·5	−1·7	68·8	72·2	72·5	71·2
	Lahore	...	·974	·869	·105	·915	0	·571	100·4	76·4	24·0	112·3	62·2	50·1	91·0	98·6	88·3	+1·8	68·0	73·3	74·8	72·0
	Ludhiana	...	·865	·757	·108	·804	−·009	·558	98·8	75·2	23·6	110·4	64·2	46·2	90·7	97·3	87·1	0	70·1	74·8	76·7	73·9
Indus Valley and N.-W. Rajputana.	Peshawar	...	·584	·486	·098	·528	−·021	·586	99·9	71·4	28·5	112·0	59·5	52·5	90·4	95·8	84·9	+2·5	62·1	70·0	70·8	67·6
	Mooltan	...	29·240	29·143	·097	29·185	−·004	559	104·1	79·0	25·1	113·4	67·1	46·3	92·0	102·8	91·5	+1·5	69·5	76·6	81·3	75·8
	Jacobabad	...	·478	·337	·141	·401	−·010	·536	109·2	79·7	29·5	118·9	70·6	48·3	97·9	107·2	94·3	+1·0	69·1	76·2	76·0	73·7
	Kurrachee	...	·685	·600	·085	·642	−·009	·642	93·3	79·8	13·5	106·7	77·1	29·6	88·7	89·6	84·7	+0·8	77·6	81·5	81·8	80·3
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·306	28·191	·115	28·248	+·003	·601	103·3	76·1	27·2	110·0	70·9	39·1	93·5	100·3	89·2	−1·1	65·6	72·6	73·2	70·5
	Ajmere	...	·149	·037	·112	·091	+·009	·607	101·5	79·3	22·2	107·2	72·6	34·6	91·8	99·0	89·8	+0·2	69·9	72·6	74·5	72·3
	Deesa	...	29·294	29·158	·136	29·225	−·003	·629	104·7	78·6	26·1	109·6	73·4	36·2	91·9	103·4	91·1	0	70·6	75·5	74·4	73·5
	Nowgong	...	28·945	28·829	116	28·887	−·001	·570	103·2	76·8	26·4	110·1	67·5	42·6	94·5	99·8	89·5	−3·7	67·9	73·6	73·8	71·8
	Agra	...	29·184	29·039	·145	29·103	+·024	·598	103·4	79·8	23·6	113·5	70·5	43·0	94·0	100·5	91·3	−1·4	68·4	73·6	74·4	72·2
Deccan.	Belgaum	...	27·321	27·213	·108	27·271	−·020	·662	89·9	67·6	22·3	99·0	64·5	34·5	82·0	83·6	75·9	−1·7	65·6	68·8	71·9	68·8
	Sholapur	...	28·218	28·070	·148	28·146	−·004	·631	99·3	74·6	24·7	106·5	69·1	37·4	88·2	95·5	85·5	−3·7	66·3	70·8	71·6	69·6
	Poona	...	27·987	27·873	·114	27·930	−·016	·671	97·0	71·2	25·8	104·0	67·4	36·6	86·4	91·0	82·8	−1·6	66·8	70·4	71·7	69·6
	Akola	...	28·810	28·648	·162	28·726	−·033	·574	104·4	79·3	25·1	108·6	70·1	38·5	93·8	102·2	91·6	−2·1	67·6	73·5	73·5	71·6

II.

at 89 Stations in India, Burma, etc., for May 1893.

Vapour Tension. From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Humidity. From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Cloud. Mean 10 hours.	Mean 16 hours.	Mean daily.	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.	Normal percentage.	Wind Velocity. Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·851	·965	·942	·920	—·022	89	85	82	85	+ 1	8·0	8·5	8·3	+2·0	8	...	...	...	2	8	20	17	7	S 62° W	S 34° W	63	48	135	166	...	...	Port Blair	Burma Coast and Bay Islands.
·840	·928	·889	·886	+·018	92	87	81	86	+ 9	7·6	7·4	7·5	+0·8	...	5	1	3	5	23	20	5	...	S 19° W	S 19° W	60	59	96	119	...	...	Rangoon	
·857	·881	·871	·870	—·028	89	76	74	80	+ 8	7·7	8·0	7·9	+2·4	3	...	1	...	2	11	27	9	9	S 53° W	S 76° W	66	45	269*	162	...	...	Diamond Island	
·775	·940	·913	·876	?	94	73	75	81	?	4·3	5·7	5·0	?	...	3	2	...	2	7	34	10	4	S 54° W	?	68	?	315	?	4·33	0·84	Coco's Island.	
·790	·953	·929	·891	+·008	86	83	80	83	+ 6	7·3	7·1	7·2	+1·9	...	5	6	8	13	15	3	7	5	S 33° E	S 33° W	26	31	106	88	...	...	Akyab	
·781	·885	·839	·835	+·041	93	76	67	79	— 1	7·5	7·5	7·5	+1·3	19	2	7	10	5	2	3	10	4	N 59° E	N 75° E	6	10	162*	79	...	...	Silchar	
·762	·865	·861	·829	+·045	94	79	66	80	— 2	4·9	3·8	4·4	—3·4	20	...	27	...	5	...	10	...	...	N 61° E	N 56° E	29	37	37	66	...	...	Sibsagar	Assam.
·757	·821	·810	·795	+·008	89	78	67	77	— 3	5·3	4·6	5·0	+0·4	11	3	21	14	6	...	6	...	1	N 70° E	N 70° E	48	21	139	168	...	...	Dhubri	
·795	·915	·945	·886	+·023	94	82	81	86	+ 6	7·5	6·7	7·1	+2·0	2	1	2	3	11	11	14	13	4	S 30° W	S	43	38	117	153	...	...	Chittagong	Bengal and Orissa.
·805	·874	·841	·840	—·047	91	76	71	79	— 1	7·4	7·0	7·2	+1·9	...	1	6	9	8	17	12	6	3	S 6° E	S 19° E	39	60	140	149	...	...	Dacca	
·807	·849	·806	·821	—·075	91	73	65	76	0	5·9	6·0	6·0	+1·6	...	1	3	9	9	12	19	6	3	S 9° W	S 11° E	43	66	138	172	...	...	Calcutta (Alipore).	
·836	·893	?	?	?	94	74	?	?	?	Not recorded.				?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	16·64	5·47	" (Chowringhee).	
·876	·959	·956	·931	—·054	89	81	77	82	+ 2	7·4	7·3	7·4	+1·9	...	2	2	8	6	19	16	7	2	S 11° W	S 12° W	48	69	375	367	...	...	Saugor Island.	
·808	·810	·764	·797	—·016	90	69	59	73	+ 7	6·6	6·6	6·6	+2·6	4	5	6	6	14	8	12	3	4	S 21° E	S 9° E	24	52	258*	131	...	...	Burdwan	
·801	·872	·810	·828	+·026	89	76	64	76	+ 5	6·3	6·5	6·4	+1·2	1	4	5	19	5	13	7	4	4	S 52° E	S 36° E	29	37	114	132	...	...	Berhampore	
·891	·939	·937	·925	—·036	94	77	78	83	0	7·0	7·1	7·1	+2·6	...	5	4	2	17	17	12	5	...	S 7° E	S 31° W	48	71	319*	324	...	...	False Point	
·852	·827	·773	·818	—·014	88	62	56	69	+ 5	4·6	5·7	5·2	+1·3	4	3	6	7	6	12	15	6	3	S 11° W	S 5° W	29	61	103	125	...	...	Cuttack	
·562	·601	·558	·574	+·102	73	51	48	58	+18	4·6	6·5	5·6	+2·2	2	13	6	12	4	7	7	3	8	N 34° E	S 77° W	16	15	260	210	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·703	·682	·627	·671	—·014	77	50	42	56	+ 1	4·4	3·3	3·9	+1·2	3	5	13	25	2	1	1	9	3	N 61° E	N 54° E	43	38	132	118	...	...	Patna	
·747	·790	·719	·752	—·006	85	62	51	66	+ 6	2·9	3·2	3·1	+1·1	6	...	7	20	19	3	2	3	2	S 71° E	S 86° E	55	59	112	145	...	...	Darbhanga	
·600	·605	·512	·572	+·044	62	39	28	43	+ 5	2·3	3·0	2·7	+1·1	...	9	20	12	3	1	...	5	12	N 27° E	N 8° E	52	20	170	99	...	...	Allahabad	
·706	·677	·599	·661	+·104	72	48	36	52	+12	2·8	2·8	2·8	+1·5	6	5	11	23	9	...	...	1	7	N 70° E	N 10° W	53	9	90	82	2·28	0·73	Ghazipur	
·709	·620	·557	·629	+·087	83	44	33	54	+13	3·4	3·4	3·4	+1·5	42	...	...	10	...	...	...	10	...	Calm	N 15° E	0	15	35	102	...	...	Lucknow	
·531	·575	·597	·568	?	75	53	49	59	?	2·5	4·3	3·4	+0·6	6	1	3	2	4	12	11	17	6	S 55° W	S 76° W	43	17	31	59	...	...	Dehra Dun	Upper Sub-Himalayas.
·574	·589	·528	·564	+·149	72	47	32	50	+15	2·3	2·9	2·6	+0·8	15	2	...	13	4	5	7	14	2	S 26° W	S 68° W	18	6	?	88	...	...	Roorkee	
·634	·543	·477	·551	+·048	75	39	28	47	+ 6	1·6	1·9	1·8	0	21	...	2	13	8	...	...	13	5	S 75° E	N 32° W	6	24	47	63	...	...	Meerut	
·581	·584	·547	·571	+·136	65	42	31	46	+13	2·4	1·9	2·2	—0·1	9	5	5	10	5	8	2	10	8	N	N 7° E	2	21	78	79	...	...	Lahore.	
·691	·654	·636	·661	+·180	79	47	37	53	+11	2·5	3·5	3·0	+0·8	11	10	2	10	6	3	...	15	5	N 20° W	N 57° W	13	10	71	56	...	...	Ludhiana	
·451	·484	·449	·461	+·036	62	35	27	41	+ 1	1·1	4·7	2·9	0	5	9	14	15	3	5	3	2	6	N 53° E	N 16° E	37	32	108*	118	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·598	·713	·786	·699	+·120	61	48	38	49	+ 7	0·5	0·9	0·7	—0·4	4	...	10	...	24	...	22	...	2	S 16° E	S 35° W	40	35	72*	68	...	...	Mooltan	
·576	·622	·482	·560	+·110	56	35	21	37	+ 6	0·6	0·8	0·7	—0·5	16	2	3	9	14	11	2	...	5	N 79° E	S 61° E	26	17	146*	107	...	...	Jacobabad	
·924	·978	·989	·964	+·083	90	72	72	78	+ 5	2·5	2·5	2·5	+0·5	...	...	...	...	...	...	31	31	...	S 68° W	S 60° W	92	85	361	420	...	...	Kurrachee	
·501	·543	·479	·508	+·083	55	35	25	38	+ 7	2·8	4·2	3·5	+1·5	...	2	2	3	2	9	32	11	1	S 45° W	N 50° W	66	50	125	159	...	...	Jeypore	E. Rajputana, C. India and Guzerat.
·619	·565	·548	·577	+·059	62	38	30	43	+ 5	1·7	2·7	2·2	+0·6	...	1	4	...	4	4	7	37	5	S 84° W	S 60° W	64	63	259	181	...	...	Ajmere	
·651	·665	·461	·592	+·008	66	45	22	44	+ 5	2·0	3·3	2·7	+1·2	...	1	...	...	1	2	14	20	5	S 76° W	S 55° W	76	76	334	321	...	...	Deesa	
·574	·552	·488	·538	+·131	62	35	28	42	+11	2·7	5·2	4·0	+0·9	2	6	7	13	...	2	1	20	11	N 33° W	N 70° W	31	44	104*	81	...	...	Nowgong	
·550	·559	·504	·538	+·097	55	37	27	40	+ 9	2·7	2·1	2·4	+1·2	...	...	8	...	18	...	11	...	25	N 67° E	N 72° W	13	30	135	139	...	...	Agra	
·607	·543	·637	·596	0	90	52	58	67	+ 7	3·5	5·4	4·5	+1·0	...	6	3	1	...	1	16	24	7	N 89° W	S 88° W	64	73	404	435	...	...	Belgaum	Deccan.
·551	·539	·481	·527	+·063	66	43	33	47	+11	3·5	6·7	5·1	+1·1	2	12	3	...	3	1	4	6	31	N 41° W	N 41° W	64	46	301*	242	...	...	Sholapur	
·607	·548	·537	·564	+·054	79	45	40	55	+12	3·4	4·8	4·1	+1·1	...	1	...	...	...	...	...	25	36	N 62° W	N 55° W	92	66	306	337	...	...	Poona	
·525	·556	·445	·508	+·110	53	36	24	38	+11	2·6	4·8	3·7	+1·4	12	4	...	...	1	1	3	10	31	N 56° W	N 51° W	64	72	220	208	...	...	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 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 to 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—*continued.*	Buldana	2,132	27·659	27·538	·121	27·598	−·019	29·594	98·1	75·4	22·7	103·6	69·6	34·0	88·0	95·1	86·2	−2·5	65·0	70·8	70·0	68·6
	Khandwa	...	28·726	28·573	·153	28·649	+·004	·613	103·1	79·4	23·7	107·2	72·1	35·1	92·0	100·4	90·5	−1·9	67·1	73·3	72·6	71·0
	Hoshangabad	...	·716	·575	·141	·645	−·029	·585	102·7	78·4	24·3	107·9	69·6	38·3	93·9	100·4	89·9	−3·2	67·7	74·7	75·2	72·4
	Nagpur	...	·685	·542	·143	·613	−·021	·549	105·8	81·4	24·4	109·8	72·0	37·8	96·9	101·5	92·8	−1·4	67·3	73·9	74·0	71·7
	Jubbulpore	...	·391	·257	·134	·323	−·011	·554	101·9	76·4	25·5	106·7	64·3	42·4	94·1	98·5	88·2	−2·7	66·8	72·5	72·4	70·6
	Saugor	...	27·972	27·858	·114	27·914	−·001	·556	102·3	75·6	26·7	107·4	66·2	41·2	94·3	97·9	87·8	−1·8	64·8	71·2	71·5	69·2
	Raipur	...	28·735	28·575	·160	28·654	−·028	·531	104·3	79·8	24·5	109·8	72·7	37·1	95·5	101·8	91·7	−1·8	67·4	74·4	73·6	71·8
	Sutna	...	·657	·534	·123	·596	−·004	·558	101·2	77·8	23·4	108·2	68·1	40·1	94·5	98·9	89·1	−2·0	66·4	71·5	71·2	69·7
	Secunderabad	...	·003	27·883	·120	27·945	−·011	·610	100·6	76·8	23·8	106·1	73·3	32·8	89·4	97·1	87·4	−1·9	72·8	74·1	75·1	73·9
	Hyderabad (Deccan).	...	·098	·964	·134	28·031	?	·605	99·4	77·6	21·8	104·2	73·7	30·5	89·5	97·5	88·0	?	69·7	72·9	73·6	72·0
West Coast.	Bombay	...	29·817	29·714	·103	29·764	−·002	·741	89·8	79·9	9·9	91·8	75·3	16·5	85·4	86·2	83·9	−0·8	75·0	78·1	78·4	77·2
	Ratnagiri	...	·739	·642	·097	·689	0	·734	89·1	78·8	10·3	91·6	73·8	17·8	86·5	86·1	83·1	−1·2	74·4	78·1	78·4	77·0
	Karwar	...	·819	·726	·093	·771	−·002	·746	87·7	79·6	8·1	90·3	72·4	17·9	84·3	84·7	82·8	−1·0	74·9	77·1	77·9	76·6
	Cochin	...	·884	·796	·088	·838	+·004	·776	87·2	76·3	10·9	90·8	73·3	17·5	83·1	84·4	81·0	−1·6	74·9	78·1	78·7	77·2
South India.	Salem	...	28·917	28·775	·142	28·859	−·020	·716	95·6	74·0	21·6	102·6	65·7	36·9	86·1	92·2	82·5	−2·1	71·4	75·3	75·6	74·1
	Mysore	...	27·376	27·263	·113	27·320	?	·717	87·2	68·3	18·9	91·6	65·6	26·0	79·2	81·9	76·5	?	66·0	71·0	71·0	69·4
	Mercara	...	26·202?	26·112?	·090	26·170	−·009	·780	78·6	63·9	14·7	83·3	61·2	22·1	71·6	72·4	69·7	−1·8	62·4	66·4	68·0	65·6
	Chitaldroog	...	27·457	27·328	·129	27·394	?	·667	91·1	69·4	21·7	97·7	63·9	33·8	81·0	88·5	79·6	?	65·6	70·9	70·9	69·2
	Bangalore (Fort)	...	26·890	26·768	·122	26·836	−·029	·682	89·4	67·8	21·6	94·8	64·6	30·2	79·3	86·2	77·8	−1·3	65·4	70·4	70·6	68·7
	Hassan	...	·829	·729	·100	·786	?	·723	85·3	65·0	20·3	93·9	59·3	34·6	78·2	78·6	73·5	?	63·3	70·7	72·0	68·7
	Trichinopoly	...	29·508	29·424	·144	29·509	−·026	·688	99·8	78·1	21·7	104·0	72·2	31·8	90·9	96·9	86·8	−0·4	73·5	76·0	76·8	75·4
	Madras	...	·769	·653	·116	·721	−·014	·670	98·2	81·3	16·9	107·6	75·5	32·1	92·1	91·0	87·9	+0·7	?	80·2	80·3	79·5
	Bellary	...	28·346	28·205	·141	28·278	+·001	·653	98·6	75·9	22·7	105·2	71·4	33·8	88·7	94·7	85·8	−2·8	72·7	77·5	78·8	76·3
	Vizagapatam	...	29·706	29·594	·112	29·649	−·037	·617	89·1	83·6	5·5	96·2	80·5	15·7	88·4	88·9	87·5	−0·5	74·6	81·1	81·7	79·1
Hill Station, Baluchistan.	Cocanada	...	·711	·583	·128	·647	?	·608	97·7	Imperfect.		107·6	?	?	90·1	91·1	?	?	?	78·7	79·3	?
	Quetta	...	24·579	24·502	·077	24·532	−·009	?	86·3	55·0	31·3	95·2	44·7	50·5	78·5	83·8	70·0	+3·3	49·8	61·3	63·0	58·0
Hill Stations, Northern India.	Leh	11,503	19·726	19·646	·080	19·698	+·014	?	67·3	38·6	28·7	83·9	31·0	52·9	57·1	62·1	52·0	+4·5	31·9	42·0	42·4	38·8
	Srinagar	...	24·830	24·743	·087	24·778	?	?	75·6	52·9	22·7	88·0	43·0	45·0	66·2	74·3	63·9	?	51·5	58·8	62·1	57·5
	Murree	...	23·807	23·778	·029	23·784	−·001	?	74·0	58·5	15·5	85·7	45·9	39·8	69·1	71·1	65·6	−0·9	51·0	58·1	58·6	55·7
	Chamba	3,005	26·794	26·706	·088	26·762	−·017	?	87·1	64·1	23·0	98·2	56·6	41·6	76·4	83·4	74·4	−0·6	58·8	64·9	67·2	63·6
	Kailang	10,087	20·779	20·744	·035	20·771	−·007	?	66·2	39·8	26·4	80·0	33·2	46·8	57·0	60·8	51·3	+4·0	36·8	45·6	46·2	42·8
	Simla (Ridge)	...	23·092	23·047	·045	23·061	+·004	?	69·7	56·1	13·6	78·4	45·6	32·8	64·3	66·7	62·6	−2·1	49·5	55·5	56·7	53·9
	Simla (Chapslee)	?			Not recorded.				74·8	56·4	18·4	85·2	45·3	39·9	67·1	?	?	?	49·3	56·8	?	?
	Chakrata	...	·235	·170	·065	·194	−·006	?	71·5	55·4	16·1	80·5	46·8	33·7	65·6	68·6	63·2	−1·3	50·9	56·8	58·3	55·3
	Ranikhet	...	24·067	24·002	·065	24·023	+·007	?	74·1	58·9	15·2	84·5	49·5	35·0	69·6	70·3	65·9	−1·6	54·8	60·1	59·8	58·3
	Katmandu	4,388	25·537	25·445	·092	25·487	−·021	?	82·6	59·7	22·9	94·8	52·3	42·5	75·3	77·9	69·5	−0·8	59·0	65·8	66·6	63·8
	Darjeeling	...	22·961	22·889	·072	22·921	+·007	?	64·1	52·0	12·1	72·0	45·8	26·2	60·5	61·7	57·6	+1·7	50·1	57·0	57·9	55·0
	Demagiri	?			Not recorded				85·8	72·1	13·7	94·4	55·6	38·8	81·1	82·6	77·9	−2·1	Not recorded			
	Tura	3,943			Ditto.				84·5	71·9	12·6	93·2	64·6	28·6	78·3	81·7	77·5	?	?	72·6	74·4	?
Hill Stations, Central India.	Mount Abu	...	25·979	25·903	·076	25·940	−·018	?	84·1	67·4	16·7	88·0	63·7	24·3	77·7	82·0	75·2	−4·4	59·7	66·1	67·2	64·3
	Pachmarhi	...	26·375	26·267	·108	26·320	−·002	?	92·0	72·7	19·3	97·2	62·2	35·0	83·9	88·6	81·6	−2·5	61·6	66·6	67·0	65·1
	Chikalda	3,642	·247	·145	·102	·195	−·024	?	90·3	70·7	19·6	94·3	64·4	29·9	81·6	87·7	79·9	−2·9	62·0	66·6	67·5	65·4

II —*continued.*

in India, Burma, etc., for May 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.					
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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·491	·543	·422	·486	+·044	57	43	28	43	+8	1·3	4·0	2·7	0	...	4	...	...	...	1	4	10	43	N 55° W	N 53° W	85	51	369*	284	2·70	0·97	Buldana	Deccan—*continued.*
·516	·590	·458	·521	+·035	52	40	25	39	+5	1·9	3·9	2·9	+0·6	...	6	1	...	1	...	3	18	33	N 57° W	N 61° W	81	69	264	225	...	...	Khandwa	
·551	·627	·568	·582	+·125	58	41	31	43	+12	2·4	5·5	4·0	+1·5	20	3	2	2	...	1	4	25	5	N 82° W	W	45	54	80	93	...	...	Hoshangabad	
·498	·551	·497	·515	+·087	47	33	26	35	+7	2·0	5·5	3·8	−0·1	..	12	7	3	3	8	4	10	15	N 43° W	N 41° W	32	44	226	168	...	...	Nagpur	
·549	·534	·474	·519	+·114	60	35	28	41	+11	2·5	4·6	3·6	+0·5	9	6	5	4	3	1	4	14	16	N 51° W	N 62° W	39	44	89	104	...	...	Jubbulpore	
·485	·481	·448	·471	+·106	55	31	28	38	+10	1·5	4·2	2·9	+1·0	...	11	5	2	3	3	14	9	15	N 65° W	N 87° W	39	60	114	105	...	...	Saugor	
·515	·568	·457	·513	+·042	51	35	23	36	+3	4·3	6·5	5·4	+2·1	3	11	6	2	3	1	9	15	12	N 56° W	N 78° W	42	39	183*	190	...	...	Raipur	
·516	·488	·422	·475	+·120	54	32	24	37	+10	1·7	2·7	2·2	−0·1	2	22	2	10	1	4	...	8	13	N 10° W	N 50° W	45	52	192*	198	...	...	Sutna	
·756	·652	·595	·665	+·147	82	48	35	55	+16	3·1	6·0	4·6	+1·8	2	6	4	...	2	3	13	10	22	N 71° W	N 76° W	52	34	219	183	...	...	Secunderabad	
·627	·604	·530	·587	?	66	44	31	47	?	3·4	5·3	4·4	?	7	6	2	1	1	1	5	24	14	N 71° W	?	59	?	160*	?	...	...	Hyderabad (Deccan.)	
·805	·867	·868	·847	−·034	79	71	73	74	0	3·4	2·7	3·1	−0·8	...	1	...	1	...	5	5	23	27	N 76° W	N 82° W	74	67	255	248	...	...	Bombay	West Coast.
·792	·851	·871	·838	+·013	81	68	70	73	+4	4·6	5·0	4·8	+3·0	...	5	...	...	...	1	6	19	31	N 64° W	N 73° W	81	64	274*	255	...	...	Ratnagiri	
·804	·838	·864	·836	−·017	80	72	73	75	+1	3·7	4·2	4·0	+0·8	1	3	...	...	...	...	8	5	45	N 55° W	N 69° W	84	81	127	?	...	...	Karwar	
·849	·896	·907	·884	−·009	94	79	77	83	+2	4·8	4·9	4·9	−0·8	8	4	1	2	...	1	4	20	20	N 66° W	W	63	49	151	?	...	...	Cochin	
·735	·734	·663	·709	−·060	89	59	45	64	0	4·8	6·8	5·8	+1·2	14	1	1	...	6	10	15	11	4	S 44° W	S 50° W	45	61	84	100	...	...	Salem	South India.
·612	·650	·624	·629	?	88	66	58	71	?	6·9	7·6	7·3	?	...	1	1	1	2	1	15	22	1	S 71° W	?	69	?	338*	?	...	...	Mysore	
·548	·585	·637	·590	−·025	92	77	80	83	+3	6·3	7·5	6·9	+0·2	...	5	1	...	1	1	7	20	27	N 67° W	N 68° W	74	66	163	113	...	...	Mercara	
·586	·631	·543	·587	?	82	60	42	61	?	4·6	6·9	5·8	?	...	2	2	1	...	1	13	27	16	N 84° W	?	74	?	237*	?	...	...	Chitaldroog	
·598	·641	·568	·601	+·009	88	64	47	66	+4	3·7	5·5	4·6	+0·2	...	2	3	4	...	...	17	28	8	S 87° W	S 71° W	64	72	154*	133	...	...	Bangalore (Fort)	
·565	·666	·713	·648	?	91	69	73	78	?	5·0	7·2	6·1	?	...	4	4	.	2	1	14	18	19	N 78° W	?	61	?	117*	?	...	...	Hassan	
·769	·698	·652	·706	−·032	80	48	38	55	−2	4·0	5·4	4·7	−0·8	12	...	2	...	3	1	28	15	1	S 57° W	S 82° W	61	59	139	145	...	...	Trichinopoly	
?	·871	·889	·900	+·030	?	59	61	69	0	4·5	4·8	4·7	+0·8	...	1	2	5	20	11	8	13	2	S 1° E	S 15° E	44	66	227	220	...	...	Madras	
·767	·812	·795	·791	+·221	85	59	50	65	+22	5·6	6·8	6·2	+1·4	10	2	1	...	...	...	7	18	24	N 69° W	N 76° W	68	52	217	200	...	...	Bellary	
·735	·969	·993	·899	−·009	63	72	72	69	0	5·6	5·7	5·7	+1·6	...	...	1	...	3	16	22	16	4	S 46° W	S 41° W	71	60	50	86	...	...	Vizagapatam	
?	·833	·807	?	?	?	60	52	?	?	4·6	3·9	4·3	?	...	1	3	4	19	2	13	13	7	S 24° W	?	29	?	193*	?	...	...	Cocanada	
·313	·372	·369	·351	+·071	70	37	32	46	+4	0·5	1·6	1·1	+0·2	29	1	...	...	2	2	3	13	12	N 80° W	N 69° W	37	51	88*	106	...	...	Quetta	Hill Station, Baluchistan.
·127	·141	·105	·124	+·001	54	32	19	35	−5	4·7	6·2	5·5	−0·9	...	5	3	3	1	11	16	18	5	S 65° W	S 72° W	48	25	66	75	*Nil*	0	Leh	Hill Stations, Northern India.
·373	·420	·428	·407	?	91	65	52	69	?	2·9	4·1	3·5	?	32	2	7	1	9	5	1	1	4	S 74° E	?	13	?	57*	?	...	...	Srinagar	
·303	·376	·367	·346	+·085	61	51	48	54	+10	3·1	4·4	3·8	−0·5	3	1	1	4	25	8	7	4	8	S 19° E	S 18° E	40	13	203*	193	...	...	Murree	
·442	·489	·487	·473	+·135	73	54	44	57	+13	4·2	6·8	5·5	+1·0	18	7	3	1	3	...	1	2	27	N 33° W	N 16° W	48	14	117*	119	3·73	1·54	Chamba	
·197	·210	·190	·199	+·021	79	46	38	54	−2	4·5	6·3	5·4	−0·8	...	2	1	...	3	6	30	12	8	S 60° W	S 61° W	68	70	55	54	1·86	0·80	Kallang	
·290	·353	·361	·335	+·049	64	58	55	59	+12	3·9	6·4	5·2	+1·3	12	26	1	1	2	9	3	4	4	N 19° W	S 66° W	29	51	?	?	...	...	Simla (Ridge)	
·287	·358	?	?	?	62	54	?	?	?	3·9	?	?	?				Not	reco	rded				?	?	?	?	?	?	4·90	1·72	Simla (Chapslee)	
·327	·377	·383	·360	+·086	74	60	56	63	+14	1·6	2·9	2·3	−1·4	9	1	...	7	...	...	...	44	1	N 87° W	S 63° W	61	29	250*	147	...	...	Chakrata	
·394	·426	·410	·410	+·085	79	59	56	65	+14	4·1	5·2	4·7	+1·1	24	1	...	1	...	...	3	32	1	S 89° W	S 63° W	55	46	70	87	...	...	Kanikhet	
·483	·531	·530	·507	+·022	92	61	57	70	+2	4·8	6·3	5·6	+0·3	...	3	...	12	1	2	3	40	1	S 87° E	S 86° W	42	64	31	?	5·53	1·82	Katmandu	
·347	·434	·447	·410	+·011	89	82	80	84	−3	7·0	8·0	7·5	+0·2	6	5	10	7	1	1	11	12	4	N 56° W	S 79° W	14	46	141	149	...	...	Darjeeling	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	3	4	23	4	6	3	17	1	S 63° E	S 11° E	16	6	?	?	38·41	17·20	Demagiri	
?	·739	·772	?	?	?	76	72	?	?	3·6	3·5	3·6	−1·3	...	13	3	4	5	18	14	1	4	S 17° W	S 4° W	23	58	?	?	11·48	4·45	Tura	
·433	·512	·501	·482	+·141	65	55	46	56	+21	1·9	1·9	1·9	+0·3	1	6	1	2	...	4	22	19	7	S 78° W	S 62° W	61	70	202	231	...	...	Mount Abu	Hill Stations, Central India.
·426	·457	·417	·433	+·078	54	41	34	43	+11	2·8	4·2	3·5	+0·7	4	6	3	1	1	2	5	22	18	N 67° W	N 55° W	60	62	223*	164	...	...	Pachmarhi	
·459	·481	·443	·461	+·093	62	46	36	48	+13	3·3	5·7	4·5	+1·8	7	21	2	...	...	1	1	3	27	N 28° W	N 37° W	72	63	258	226	4·01	1·87	Chikalda	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 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 to 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 Stations, South India.	Wellington	...	24·237	24·161	·076	24·199	—·004	?	74·8	56·3	18·5	78·2	52·9	25·3	70·5	67·9	63·8	—2·0	54·5	61·7	61·9	59·4
Extra India.	Muscat	...	29·708	29·635	·073	29·672	?	?	90·3	86·0	4·3	98·7	82·0	16·7	88·4	89·4	87·9	?	76·8	80·1	80·7	79·2
	Aden	...	·740	·608	·132	·671	—·047	29·695	92·4	81·3	11·1	97·7	78·8	18·9	88·1	90·4	86·4	+0·6	74·8	80·1	79·0	77·9
	Perim	...	·630	·532	·098	·578	?	?	91·5	80·9	10·6	97·3	74·1	23·2	86·8	87·7	85·3	?	76·5	78·6	79·6	78·2
	Minicoy	...	·914	·827	·087	·869	?	·804	83·3	77·9	5·4	89·5	75·0	14·5	83·1	80·6	79·7	?	75·6	77·8	77·7	77·2
	Zanzibar	...	30·021	·933	·088	·977	?	·978	80·9	74·3	6·6	83·8	71·9	11·9	77·3	80·1	77·4	?	71·5	73·5	73·9	72·9

II—*concluded.*

in India, Burma, etc., for May 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.						
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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·407	·459	·494	·453	+·011	90	62	73	75	+5	6·4	8·1	7·3	+1·6	1	6	5	6	17	4	10	4	9	S 29° E	N 88° E	13	24	75	70	...	...	Wellington	Hill Stations South India.
·805	·922	·934	·887	?	66	70	69	68	?	0·4	0·1	0·3	?	...	4	12	24	...	1	...	3	18	N 35° E	?	47	?	92	?	...	...	Muscat	Extra India.
·777	·923	·844	·848	−·002	72	70	59	67	−2	1·1	0·8	1·0	−0·9	2	...	7	14	7	10	18	4	...	S 18° E	S 67° E	39	40	271	257	...	...	Aden	
·854	·868	·904	·870	?	81	68	69	72	?	0·5	0·3	0·4	?	...	13	5	14	9	...	...	3	18	N 20° E	?	39	?	385	?	...	...	Perim	
·796	·886	·880	·833	?	75	78	78	75	?	7·1	7·1	7·1	?	1	5	1	2	1	...	...	18	33	N 53° W	?	77	?	357	...	...	...	Minicoy	
·736	·776	·754	·755	?	87	83	74	81	?	7·2	6·4	6·7	?	...	...	...	...	12	38	7	...	...	S 4° E	S 17° W	92	69	249*	179	...	...	Zanzibar	

G. I. C. P. O.—No. 26 Meteor.—22-9-93. 400.

* Corrected.

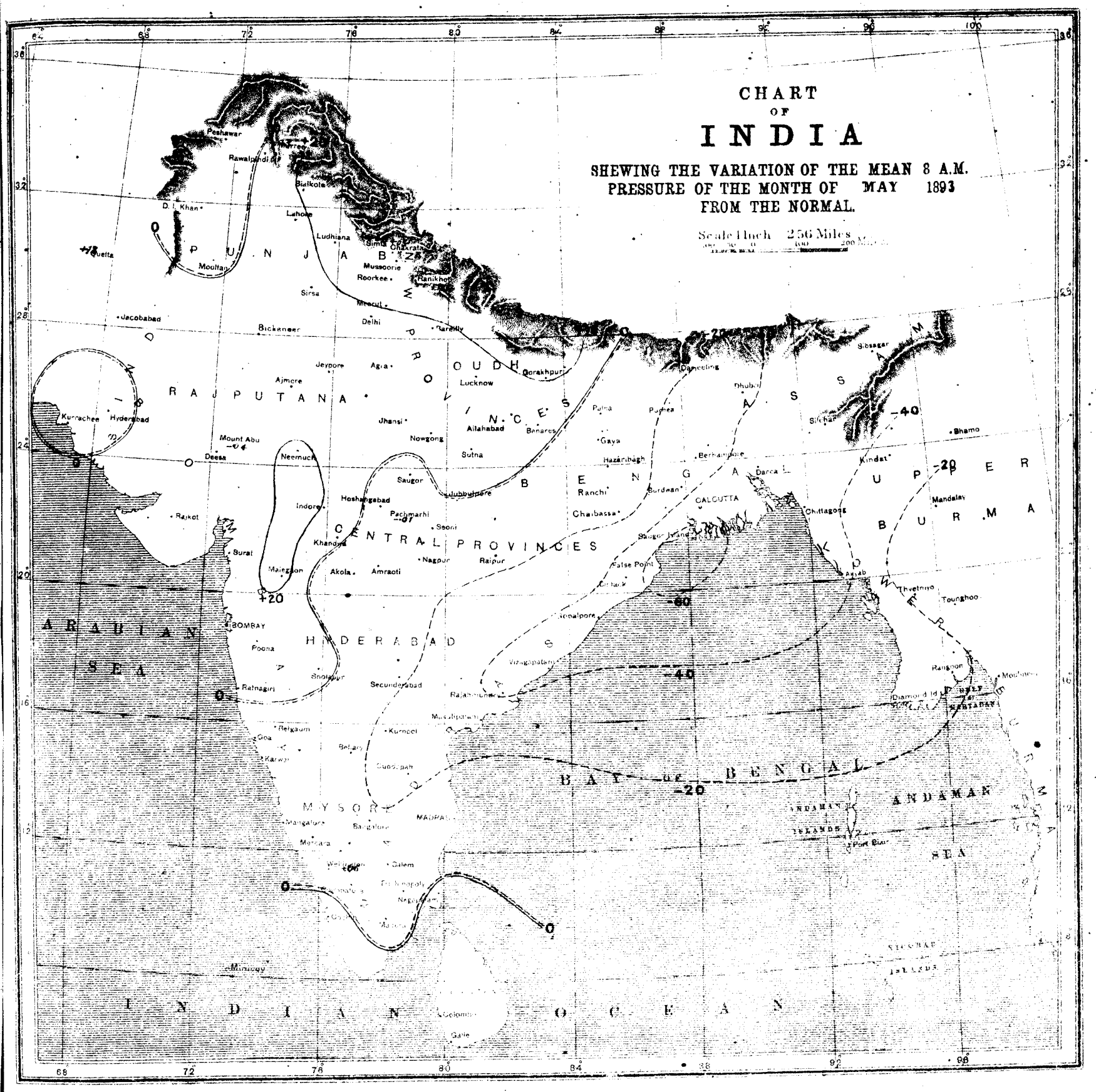
Explanation

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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93.—8,500.



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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93—5,500.

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

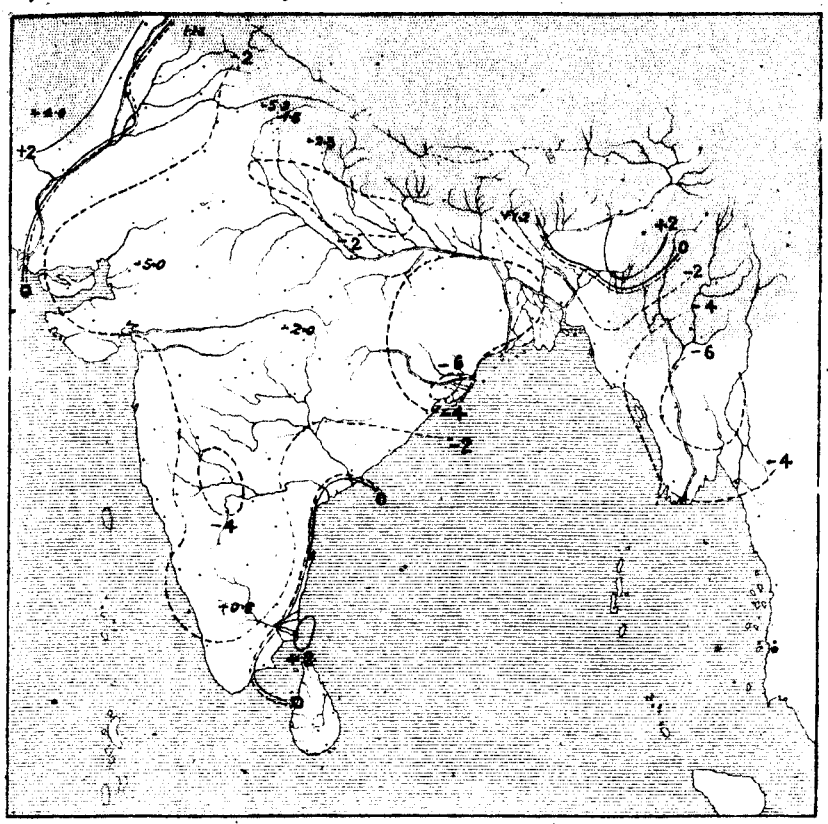
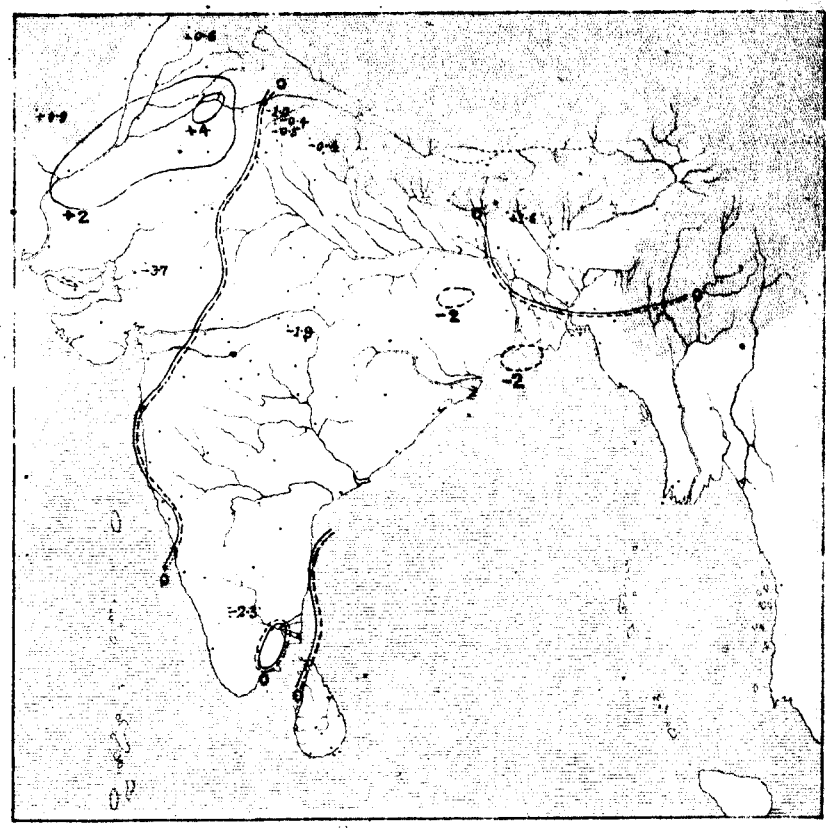


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

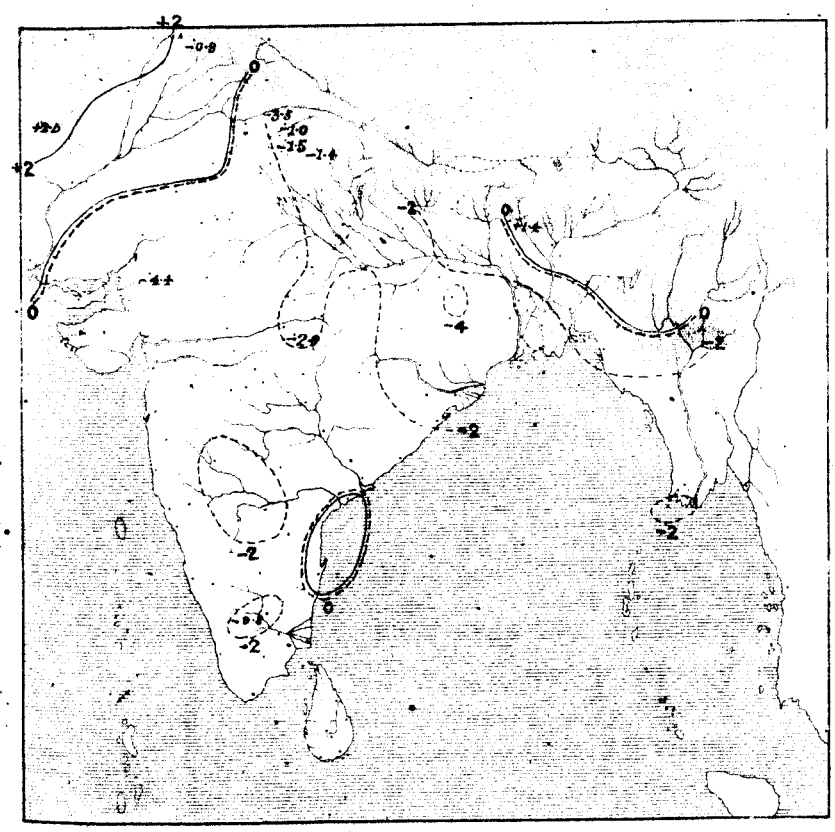
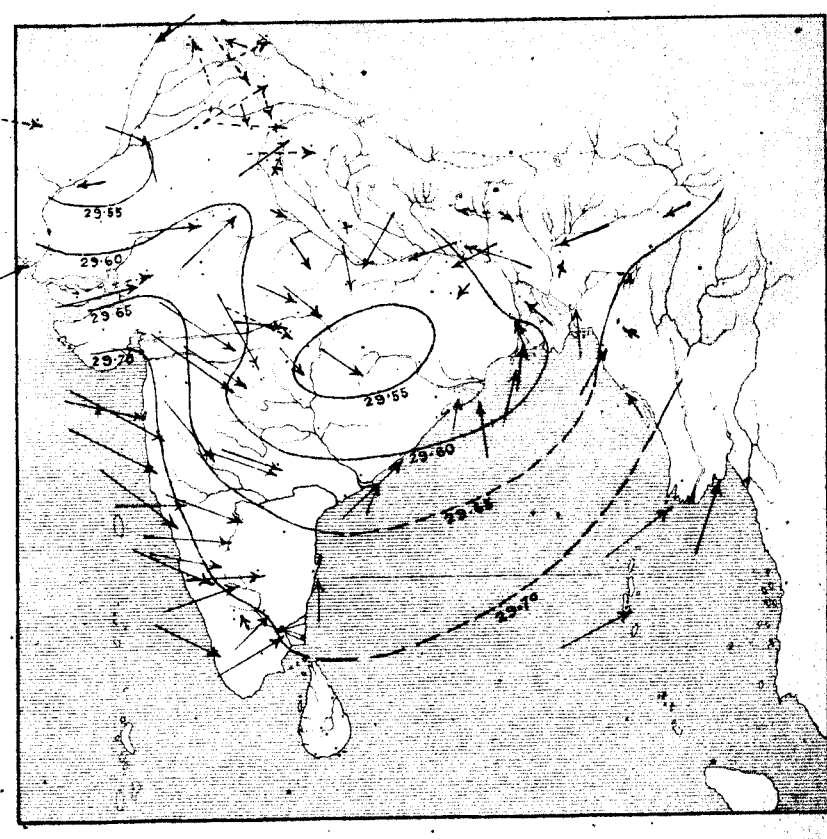


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MAY 1893.



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. 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. 199, Wr., I.—April 93.—500—199 R., May 93—5,500.

Litho. S. T. O. Calcutta

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93.—5,500

Litho., S. I. O., Calcutta.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JUNE, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of June 1893 is based on observations taken daily at 8 A.M. at 196 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 88 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 1893.

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. In one year (for example, 1889) the Bombay branch of the monsoon current advances northwards along the west coast from Malabar to Bombay or Surat at a fairly uniform rate of progression, whilst in another year (for example, 1890) it appears to march westwards across the centre of the Arabian Sea, and set in over the greater part of the west coast almost simultaneously. 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 largely from one year to another.

Temperature is usually excessive in 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 Sind, the West Punjab and North-West Rajputana. The highest maximum temperatures of the year are hence occasionally recorded in that area in June or July.

The change from great heat and dryness of the air to moderate heat, excessive humidity and frequent rain showers is usually not completed over Northern India until the third or fourth week of June, by which time the monsoon currents usually penetrate into the East and North Punjab.

There is always much disturbance and squally weather in front of the advancing monsoon. This squally weather, if conditions are favourable, may develop 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 form 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 in 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.

In the present year, however, the change from the hot season conditions to those of the South-West monsoon or rainy season has perhaps been not quite so sudden as usual. At the end of May, as described in the last monthly report, a first advance of monsoon winds took place up the Bay of Bengal, and in front of it a cyclonic storm was generated in the north of the Bay, which advanced inland near Saugor Island. In the rear of this storm a wave of monsoon winds advanced over Bengal and gradually spread northwards up the Gangetic plain, and also over parts of North-Western and Central India. At the same period with this advance of monsoon winds up the Bay of Bengal, an advance of monsoon winds took place in the Arabian Sea, and at the close of May it had spread partially over the western districts of India, where it was giving moderate to heavy rain. Therefore at the beginning of June conditions were to a great extent those of monsoon character over Bengal, Assam, North-Western Provinces, Central Provinces and Berar, and partly so over Central and Northern India, though ordinary hot season conditions, partially modified by the cool wave of air produced by the preliminary burst of the monsoon, still prevailed in Sind, the Punjab, etc. Thus on June 1st temperature was still rather high over North-Western India, and Hyderabad (Sind) registered a maximum temperature of 110°, but the general temperature of June 1st for the whole of India was about 5° below the normal. This preliminary burst of the monsoon currents, however, was not maintained, and from the early part of the month the humid currents began to retreat southwards, and ordinary hot weather conditions again set in. The monsoon currents steadily retreated, and after the first day or two of June they were mainly confined to the sea area to the south of Lat. 10°, though they still affected the southern parts of the Peninsula. Rainfall, therefore, with the withdrawal of the humid winds, rapidly decreased in amount over Central and Northern India, and from about the 5th, with the exception of a few local showers in Assam and Bengal and in the west and south of the Peninsula, there was no rain falling in India. During this period hot weather conditions generally prevailed over a large part of India, temperature steadily increased, and some very high maximum temperatures were recorded, the maximum temperature on the 10th at Montgomery being 114·4°, at Sirsa and Mooltan 112·4°, and at Jacobabad and Agra about 110°.

From about June 9th or 10th, however, the monsoon winds to the south of Lat. 10°, both in the Arabian Sea and the Bay of Bengal, began to make another forward advance, and shortly after this two small cyclonic storms were formed one in front of each branch of the monsoon. Both of these small storms advanced in a west-north-westerly or north-westerly direction. The storm in front of the advance of the Arabian Sea branch of the monsoon did not reach the land at all, but filled up or dispersed in its advance. It, however, brought up a strong advance of monsoon winds in its rear, and as it moved northwards more or less parallel to the coast line, the monsoon current swept over Western India and gave very disturbed weather with gales of wind at many stations. This advance gave very heavy rain, the rainfall passing steadily northwards, and it became general from about the middle of the month. In the case of the storm in front of the Bay of Bengal branch of the monsoon current, this was formed to the west or north-west of the Andaman Islands about the 11th or 12th June, and advanced slowly across the Bay in a westerly or west-north-westerly direction, steadily increasing in force in its advance. It crossed the coast between Vizagapatam and Coconada soon after noon on the 15th of June, giving decidedly stormy weather and very heavy rain. It passed first into the Central Provinces and then advanced to Sutna, where it filled up about the 18th instant. In the rear of this storm an exceedingly heavy wave of monsoon winds advanced over the Peninsula and over Upper India, and rather heavy general rain was received in all districts, except parts of Sind, Rajputana, and the Punjab from about the middle of the month. Later on in the

month while the monsoon current was still fairly well established over the greater part of India, a barometric depression formed over Lower Bengal, the first indication of it being noticed on June 22nd. It slowly intensified for several days, and then passed in a westerly or west-north-westerly direction, reaching Jessore on the 26th, Hazaribagh on the 27th, Sutna on the 28th, Jeypore on the 29th, and Bikanir on the 30th, but it was steadily filling up on the 30th. This small storm was noticeable for the exceptionally heavy rain it gave in its path, particularly in Bengal. It also caused another heavy wave of moisture-laden winds to advance over North-Western India, and at the close of the month rain was falling in all districts except perhaps the south of the Peninsula, where the rainfall was unusually light.

The monsoon current, therefore, was fully established over India (except the extreme north-western part) from about the middle of June. So far as can be judged by the wind velocities recorded at the various meteorological observatories on and near the coasts, and from the logs of very numerous vessels navigating the Bay of Bengal and Arabian Sea, the monsoon current during the month of June was unusually strong. The Arabian Sea branch was extremely strong from about the 12th to the end of the month, and if anything, it was rather more westerly in direction than usual. In the case of the Bay of Bengal branch, though stronger than usual, the excess strength did not appear so marked as in the case of the Arabian Sea branch, and in this case the winds recorded at the land stations were more easterly than in normal years.

On the whole, therefore, the monsoon conditions in June were particularly favourable for heavy rainfall. That such has been the case will be seen from the small table given below which shows the actual rainfall for the month of June in each of the eleven meteorological provinces into which India is divided, and where also the falls are compared with the normal values for the same period :—

DISTRICT.	Rainfall of month.	Normal rainfall of month. *	Variation of actual from normal. *
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	21·14	27·38	−6·24
Burma Inland	8·49	9·33	+2·22*
Assam	17·41	20·03	−2·63
Bengal and Orissa	17·55	12·93	+5·17
Gangetic Plain and Chota Nagpur	9·38	6·54	+2·75
Upper Sub-Himalayas	6·62	3·72	+2·90
Indus Valley and North Western Rajputana.	2·67	0·86	+1·45
East Rajputana, Central India, and Guzerat.	9·98	4·00	+5·78
Deccan	9·27	6·73	+2·98
West Coast	28·71	31·37	+0·76*
South India	4·79	4·05	+0·42

* A reference to Table I will show that the means in columns 2 and 3 are for 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.

It will be seen that the Burma Coast and Assam have received somewhat defective falls of rain, but that all other districts have received far more rain than usual, and in such cases as Rajputana and the Upper Sub-Himalayas District, the falls have been more than twice the normal amount. Indeed, in the Indus Valley and North-West Rajputana, the fall has been more than three times as heavy as usual. Generally for the whole of India, therefore, the rainfall of June has been abundant.

As stated under the section dealing with pressure, the general pressure for June was 0·016″ in excess of the normal, but this excess has been mainly confined to the eastern districts and to the Gangetic plain, while the western and southern districts have shown somewhat defective pressures.

The mean temperature of the month for the whole of India was in defect in all districts except over very small areas in the south of Burma and in Upper Sind, and the S.W. districts of the Punjab, and also at one or two stations on the west coast of India, where the excess amounts averaged about a degree, while on the other hand, the general defect of mean temperature in India varied from 1° to 6°, the focus of maximum defect being represented by the stations of Lucknow and Nowgong. The changes of temperature during the month showed that for the first few days the mean for the whole of India ranged from about 5° below the normal on the 1st to a normal temperature on the 6th, this rise in temperature accompanying the cessation of rain, and the retreat of the first advance of monsoon winds. Temperature then was about 1° in excess of the normal up to the 11th, and with the recommencement of heavy rainfall, and with the second advance of the comparatively cool monsoon current, temperature was about 2° to 3° below the normal from this date almost steadily up to the end of the month.

The following table will show the variation of the average maximum, minimum and mean temperature of the month for the eleven meteorological provinces into which India is divided :—

PROVINCE.	VARIATION OF		
	Average maximum temperature from normal.	Average minimum temperature from normal.	Average mean temperature from normal.
	°	°	°
Burma Coast and Bay Islands	+1·1	+0·6	+0·9
Burma Inland	−0·3	+0·3	0
Assam	−1·3	−0·7	−1·0
Bengal and Orissa	−3·4	−0·9	−2·2
Gangetic Plain and Chota Nagpur	−5·1	−2·3	−3·7
Upper Sub-Himalayas	−6·5	−2·3	−4·4
Indus Valley and North-Western Rajputana.	−0·8	−0·1	−0·5
East Rajputana, Central India, and Guzerat.	−4·1	−1·5	−2·8
Deccan	−4·8	−1·6	−3·2
West Coast	−0·7	0	−0·4
South India	−1·7	−0·8	−1·3

The actual average maximum temperature for the month for the various districts ranged from 104°·3 in the Indus Valley and North-Western Rajputana to 84°·6 along the West Coast of India, and the average minimum temperature from 72°·8 in the Gangetic Plain and Chota Nagpur to 81°·4 in the Indus Valley and North-Western Rajputana. Taking the mean temperature of the whole of India for the month, and comparing it with the normal value, it is found that temperature in June 1893 was in defect by 1°·7.

It will also be seen under the appropriate section that humidity and cloud proportion in June have been in decided excess of the normal in practically all districts of India. The excess in the humidity has probably averaged about 5 per cent., and cloud proportion also has been about 6 or 7 per cent. above the normal amount.

The principal features in the meteorology of June 1893 have, therefore, been :—

1. The occurrence of rather general rainfall in the early part of June, due to a cyclonic storm having passed from the Bay of Bengal into Bengal at the end of May, which brought up a first advance of the South-West monsoon current, and also to the advance at the same time of the Arabian Sea monsoon current over Western India.
2. The retreat of the current southwards about the 4th or 5th of the month, and its second large and permanent advance, commencing over the sea area about the 9th or 10th of June.
3. The formation of two storms in front of the second advance of the two branches of the monsoon current, both storms travelling in a west-north-westerly direction. The Arabian Sea storm filled up without reaching land, and the Bay of Bengal storm passed into the centre of India, and filled up near Sutna.
4. These storms really brought about the complete establishment of the south-west monsoon current over India, and the monsoon may be said to have established itself at about the usual period, *i.e.*, the middle of June.
5. The occurrence of a land-formed depression at the end of the month over Bengal, which travelled in a westerly direction across India to Bikanir, giving very heavy rain in its advance, and bringing up a heavy wave of monsoon winds in its rear.
6. The monsoon current in the Arabian Sea was unusually strong in June, and probably had a stronger westerly element in it than usual.
7. The Bay of Bengal monsoon current was also stronger than usual in June, and the wind direction over the land area was more easterly than in normal years.
8. The rainfall over practically the whole of India in June was extremely heavy, and largely in excess of the normal amount.
9. Barometric pressure was generally in slight excess of the normal during the month.
10. Temperature and particularly the day or maximum temperature was in large defect of the normal.
11. Humidity and cloud were both in excess of the usual amounts in June.

Atmospheric Pressure.

The more important barometric changes during the month have been those in connection with the advance of the two great branches of the monsoon current over India, and also with the development of the two small cyclonic storms, one over the Arabian Sea and the other over the Bay of Bengal, and of a land formed barometric depression which generated over Bengal. These changes are discussed in the two sections dealing with the weather over the sea area, and with the storms of the month, and hence need not be referred to in detail again. Outside these large changes the variations from day to day were of a more or less oscillatory character, but as is usually the case, when the monsoon current had finally established itself over the land area, it was accompanied by a very distinct decrease in pressure, which then remained to a considerable extent permanent till the close of the month. Taking the general mean pressure for the whole of India and comparing it with the normal pressure for the month, it was found that in June 1893 there has been an excess pressure of 0·016 inch registered. This excess has, however, to a great extent been confined to the Punjab, Sind, North-Western Provinces, Bengal, Assam, Burma, Central Provinces and the northern parts of Madras, where the excess ranges up to about 0·04″ or 0·05″ along the base of the Himalayas, while, on the other hand, the Bombay Presidency and the southern half of the Peninsula have registered pressures of about 0·02″ in defect of the normal. The excess pressure has, however, to a great extent been confined to the lower strata of the atmosphere; for at the hill stations in the Himalayas the excess pressure registered has been very much smaller than at the stations in the plains nearest to them, while on the other hand, in those areas where defective pressures have been registered, the defects are larger at the stations in the plains than in the hills, and in both cases, therefore, the variations from normal have been largest in the plains.

This is clearly shown in the following table :—

PLAIN STATIONS.	Variation from normal (a).	HILL STATIONS.	Variation from normal (b).	Difference between (a) and (b).
	Inch.		Inch.	Inch.
Jacobabad . .	+·018	Quetta . . .	+·015	+·003
Rawal Pindi . .	+·036	Murree . . .	+·005	+·031
Lahore . . .	+·040	Leh . . .	—·033	+·073
Lahore . . .	+·040	Kailang . . .	—·009	+·049
Ludhiana . .	+·043	Simla . . .	+·008	+·035
Bareilly . . .	+·038	Ranikhet . .	+·031	+·007
Dhubri . . .	+·041	Darjeeling . .	+·023	+·018
Hoshangabad . .	—·007	Pachmarhi . .	+·001	—·008
Coimbatore . .	—·027	Wellington . .	*Nil.*	—·027

In the above table it will be seen that in all cases the variations from the normal, whether positive or negative, have been largest at the stations in the plains.

The following table will show the variations of the pressure of June from the normal from the figures given in Table I for each district or province of India :—

DISTRICT.	Variation of mean 8 A.M. pressure from normal.	DISTRICT.	Variation of mean 8 A.M. pressure from normal.
	Inch.		Inch.
Burma Coast and Bay Islands.	+·018	Indus Valley and North-Western Rajputana.	+·008
Burma Inland . .	+·026	East Rajputana, Central India, and Guzerat.	—·006
Assam . . .	+·040	Deccan . . .	—·005
Bengal and Orissa .	+·045	West Coast . .	—·020
Gangetic Plain and Chota Nagpur.	+·037	South India . .	+·002
Upper Sub-Himalayas	+·039		

When the pressure variations from the normal in the various districts are compared with the general pressure variation of the whole of India for June, it will be found that an area of slight excess pressure covered the greater part of the Bay of Bengal, Bengal, Assam, parts of the Central Provinces, and also the Gangetic plain. A large part of this area had only a relative excess of less than 0·02″, but in Bengal and Assam and along the base of the Himalayas the excess was nearly 0·03″. The area of largest excess was registered over parts of South-West Bengal and Orissa, where False Point, Balasore and Burdwan showed an excess of 0·04″ and upwards. An excess of 0·04″ was also registered at Bogra. Indeed, this excess pressure over Orissa and the neighbouring parts of the Central Provinces is a very striking pressure anomaly in June. The area of relative defect covered practically the whole of the Madras and Bombay Presidencies, Central India, Sind and Rajputana, and the greater part of this area showed a relative defect of more than 0·03″. Indeed, in the areas represented by Bhuj and Surat in one case and Coimbatore and Calicut in another, and also at Goa the defective pressure was 0·04″ and upwards, and these, therefore, represent very decided areas of low pressure. These defective areas and also the excess pressures in Orissa and the Central Provinces were very important factors in the general pressure distribution.

Barometric depression and Cyclonic storms of the month.

Feeble cyclonic storm of the 9th to the 14th June in the Arabian Sea.—This small storm was formed in front of the second advance of monsoon winds up the Arabian Sea. The first inrush had occurred at the end of May, but after that the monsoon current had retreated southwards. About the 4th or 5th of June another advance commenced, and it was in front of this advance that the storm was formed. For the first four or five days of June, therefore, the weather over the Arabian Sea as far south as Lat. 10°N. was fine with light winds, and over the land the rainfall which had been brought up by the previous advance of monsoon winds was becoming light and scanty. The only change of importance which took place from the 4th to the 8th over the sea area was the slow but steady advance of strong monsoon winds from the south, but over the land there were no particular changes calling for comment. The history of the small storm may, indeed, be said to date from the 9th of June.

June 9th.—On this day pressure was rising everywhere over India, and it was in excess of the normal, but the relative distribution of pressure favoured the advance of the monsoon winds. Winds on the west coast of India were generally westerly and south-westerly, but there were also easterly winds appearing at some of the southern stations. Over the sea area the weather conditions are indicated in the following data giving observations made on a few ships at 8 A.M. on this day :—

NAME OF VESSEL.	POSITION 8 A.M.		Barometer cor-d.	WIND 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S. S. Golconda	11·33	59·48	29·715	WSW	9	High confused sea.	Fierce squalls with rain.
S. S. Shannon	16·25	62·50	29·658	SE	2	S. W. Swell.	
S. Sir Lancelot.	12·41	67·41	?	NW	2	...	Rainy and squally.
S. S. Port Melbourne.	17·30	68·06	29·707	ESE	2		

These observations are probably sufficient to show that strong south-westerly monsoon winds were pouring into the Arabian Sea from the south, while in the centre of this there was an area where light and variable winds with rainy weather prevailed, even if on this day there was not a feeble commencement of wind circulation in the centre of the Arabian Sea

June 10th.—On this day pressure had commenced to fall over the whole of India, but there were no definite indications at the land stations of any storm forming in the Arabian Sea, and the winds along the west coast of India generally varied between south-west and north-west. In one respect, however, the chart of the 10th showed a change in the distribution of pressure along the coast between Mangalore and Bombay, which became much more uniform than on the previous day.

The observations over the Arabian Sea however appeared to indicate distinctly that a barometric depression accompanied by a cyclonic circulation of winds was forming. The following are a few of the observations received :—

Name of Vessel.	Position 8 A.M.		Barometer corrected.	Wind 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S.S. Rauenthaler . .	13·02	59·02	29·723	S W	8		
S.S. Castledale	10·31	61·34		S W	8	High Sea	Heavy squalls and rain.
S.S. Golconda	10·19	64·30	·773	W S W	5		Overcast.
S.S. Shannon	17·51	68·02	·701	E S E	2		Lightning to East.
S.S. Indrapura . .	17·46	67·28		S E	4		
S.S. Assam .	18·49	68·54	·678	S E	2-3	S.W.swell	Continuous light rain.
S.S. Khandalla . .	15·33	73·37	·710	Var.	2	S.W.swell	
S.S. Oriental.	17·44	73·01	·683	N E	3		

June 11th.—The observations on the western side of India appeared on this day to indicate the existence of the small storm in the Arabian Sea. Pressure had fallen by 0·117″ at Veraval, and had fallen moderately rapidly along the whole of the west coast from Kurrachee to Karwar, and the general distribution of pressure indicated comparatively low pressure over the Arabian Sea. Winds had also shifted round to the south-east at Bombay and Ratnagiri.

The marine data for this day given in the following table show the formation of the small storm rather more clearly:—

Name of Vessel.	Position 8 A.M.		Barometer corrected.	Wind 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S.S. Assam .	18·51	64·27	29·526	E. by S.	3-4	High SSW swell.	Lightning to south.
S.S. Rauenthaler .	12·27	62·45	29 723	W S W	7		
S.S. Indrapura . .	18·32	71·36		N E	2		
S. Sir Lancelot . .	15·54	70·38		S W to N N W	2		Rain squalls with vivid lightning to north-west.
S. S. Khandalla . .	12·31	74·49	29·710	S W	6	Heavy.	Heavy rain.

It will be seen that there is here a fairly complete cyclonic circulation of winds, and with a possible centre in or about Lat. 16° or 17°N. and Long. 67°E. The S.S. *Assam* also had experienced a fall of the barometer of 0·152″, during the previous 24 hours, and had a wind E. by S., pointing to the development of a centre to the south of this steamer, but the observations are too few to give more than a general idea of the position of the small storm.

June 12th.—On this day pressure continued to fall from Veraval to Bombay, and winds continued more or less cyclonic in direction and rather strong in force, but the small storm was at a considerable distance from the coast, and the observations at the coast stations did not give any very definite indication of its position. The information from the Arabian Sea was also particularly scanty on this day, and only very few vessels were influenced by the small storm. This information is given in the following table :—

Name of Vessel.	Position 8 A.M.		Barometer corrected.	Wind 8 A.M		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S.S. King Arthur .	21·06	67·45		Calm	0		
S.S. Purulia	21·33 (no on)	67·24	29·570	Var.	2	Heavy swell.	Lightning to south.
S.S. Pachamba	20·29	71·01	·665	E	2		Occasiona squalls.
S.S. A. J. Balfour .	14·53	56·17	·567	S W	4		Rain and lightning to north-east.
S.S. Assam .	17·32	59·33	·500	N N N	4	High swell from S.W. Heavy.	
S.S. Manilla	17·40	68· 0	·512				Raining.
S. Sir Lancelot . .	17·41	72·04		W S W	5		Incessant showers of rain.

So far as can be judged, the centre of the wind circulation indicated in these logs was about Lat. 18° N., but its longitude is doubtful but it may have been about 66°E. To the south of the small storm strong winds were blowing, and the S.S. *Rauenthaler* in Lat. 11° N. and Long. 66° E. reported south-west winds of force 7.

It is probable from the 11th to the 12th the small storm was moving slowly in a north-westerly or west-north-westerly direction, but it was not intensifying at all.

June 13th.—The storm centre having continued to move slowly in a north-westerly or west-north-westerly direction, the land observations again gave little indication of its position. Pressure was falling by small amounts at Veraval, Bhuj and Rajkot, but it was rising generally in Bombay. The storm had given fairly strong winds at these stations and at Kurrachee, but so far as the land area was concerned the small storm had become of no practical importance on this day. Again the information from the sea area is exceedingly meagre, and only one vessel, the S.S. *King Arthur*, gave any indication of the position of the depression. This vessel was in Lat. 22°34′ N. and Long. 64°15′ E., and experienced a northerly wind with lightning to the south, so that the disturbance was probably to the south or south-east of this point on the 13th.

June 14th.—The information from the sea area in the neighbourhood of the depression is again confined to one or two vessels. The S.S. *Henry Balckow* in Lat. 23½ N. and Long. 67°E. had easterly winds of force 4, and the *King Arthur* in Lat. 24° N. and Long. 60°50′ E. had north-easterly winds, so that it is clear there was still a cyclonic circulation of winds with a centre to the south of the *Henry Balckow* perhaps in Lat. 22° N. and Long. 62° or 63° E., but it was apparently of no practical importance, and the small storm was probably rapidly filling up and dispersing on this day, for on the 15th none of the vessels showed any indication of a cyclonic circulation of winds.

Throughout therefore the information with reference to this small storm was scanty and it is uncertain whether it ever reached the phase of a definite cyclonic storm, though it is clear there was a distinct barometric depression and cyclonic circulation of winds. It probably originated about the 10th or 11th in Lat. 16° N. and advanced north-westward to about Lat. 22°, where it broke up or filled up on the 14th, but it never developed into a fierce storm, and was perhaps only a stormy area and not a true storm.

Small Cyclonic Storm of the 11th to the 18th June in the Bay of Bengal.—This small storm also originated about the 11th or 12th of June in front of an advance of strong monsoon winds up the Bay of Bengal. The first indication of it was seen in a moderate fall of pressure over the south of Burma, and the setting in of rather strong north-easterly winds at Diamond Island on the 11th. So far as can be judged from the logs of ships navigating the Bay on the 11th, the winds blowing in the centre and south of the Bay also formed part of a cyclonic circulation, though at first winds were light in force. The following information extracted from the logs of a few vessels will establish this :—

11th of June.

Name of Vessel.	Position 8 A.M. Lat. N.	Position 8 A.M. Long. E.	Barometer corrected.	Wind 8 A.M. Direction.	Wind 8 A.M. Force.	State of Sea.	Weather.
	° ′	° ′	″				
S. Brenda .	17·40	86·24		E	3		Fine.
S.S. Mombassa	10·49	84·31	29·670	S W	5	Westerly swell.	Cloudy.
S.S. Loodiana	11·54	86·06	·643	W N N	4	High S.W swell.	Raining.
S.S. Pentakota . .	18·04	91·49	·624	S E	2		Fine.
S.S. Maharaja	19·42	92·32	·699	N E	2		Fine and clear.
S.S. Bhundara . .	9·11	88·48	·592	W S W	5	Heavy head sea.	Squally.

There was hence an almost complete cyclonic circulation of winds round the east of the centre of the Bay, or perhaps round a point to the west or north-west of the Andamans.

June 12th.—The observations round the coast of the Bay of Bengal on this day gave little indication of the commencement of the storm except on the Burma coast where pressure continued to fall slowly. At the same time wind at Diamond Island became easterly with a velocity of 15 miles an hour. At Port Blair in the Andamans however pressure had fallen from 29·643″ at 8 A.M. on the 11th to 29·583″ on the 12th, a fall of 0·06″. On the 12th also wind was south-west, velocity 3 miles an hour, and 0·24 inch of rain had fallen.

The observations from the vessels navigating the Bay are, however, much more important, and some of them are contained in the following table :—

Name of Vessel.	Position 8 A.M. Lat. N.	Position 8 A.M. Long. E.	Barometer corrected.	Wind, 8 A.M. Direction.	Wind, 8 A.M. Force.	State of Sea.	Weather.
	° ′	° ′	″				
S. Khyber .	18 29	85 29	29·685	SE	2	...	Fine.
S. Brenda .	18 57	87 06	...	S	4	...	Much lightning.
S.S. City of Canterbury.	12 32	84 14	29·619	W by S	5	...	Rain, thunder and lightning.
S.S. Mombassa	13 11	85 48	29·627	NW	4	Moderate	Passing showers.
S.S. Purnea .	18 30	91 02	29·661	E	...	...	Fine and clear.
S.S. Booldana	16 18	93 29	29·651	SE	4	...	Strong squalls.
S.S. Bhundara	8 16	86 51	29·623	NW	2	...	Terrific heavy squalls from north-north-west.
S.S. Loodiana	9 25	84 33	29·670	WNW	6-7	...	Frequent heavy squalls of wind and rain.

None of these vessels appear to have been very near the centre of the cyclonic circulation of winds or storm, but it is probable that the centre was in about Lat. 12½ to 13° N. and Long. 91½°E. at 8 A.M. on this day. Near the centre the winds do not appear to have been very strong, but winds to the south were of force 6 to 7, and heavy squalls were reported.

June 13th.—From the 12th to the 13th the small storm had moved slowly in a west-north-westerly direction, and pressure was rising in Burma, Bengal and Orissa, while it was falling in Madras. Winds also from Gopalpur southwards were beginning to be influenced by the advancing storm, which, however, was still at a considerable distance from the land.

The observations made at the land observatories are again of little importance on this day, but the observations made on board the following ships practically fix the position of the storm :—

Name of Vessel.	Position 8 A.M.		Barometer corrected.	Wind, 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S. Khyber .	19 17	85 41	29·653	E	2	...	Fine.
S. Kelton .	11 50	84 35	29·621	SW	...	...	Squall from south-west.
S.S. Clyde .	12 34	84 12	29·657	WNW	2	...	Overcast with rain.
S.S. Baroda .	15 18	82 17	29·506	W	3	...	Heavy wind squalls.
S.S. City of Canterbury.	16 33	85 57	29·579	N	4	...	Occasional showers.
S.S. Mombassa	16 38	86 57	29 632	NNE	5	Smooth .	Cloudy and squally appearance.
S.S. River Indus.	17 16	86 33	29·765	E	2	...	Rain.
S.S. Shahjehan	14 29	95 02	29·750	SE	5-6	...	Hard squalls of rain.
S S. Bhundara	7 21	84 35	29 ·624	WSW	2	...	Squally.

These observations would indicate that the storm centre was in about Lat. 14° N. and Long. 90° E. The depression of the barometer at the centre had probably increased only slightly, but wind force was steadily becoming higher, and several vessels reported squally weather.

June 14th.—The observations made at the west coast stations of the Bay of Bengal on this day began to show the decided influence of the approaching storm. The observations made from Gopalpur to Madras are given below :—

Station.	Barometer.			Wind.		Cloud.	Rainfall since 8 A.M. of previous day.	State of Sea
	8 A.M reduced to sea level and gravity, Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.			
	″	″	″				Inch.	
Gopalpur .	29·597	—·065	?	NNE	13	10	0 57	Sea smooth.
Vizagapatam	·618	—·034	+·069	NNW	1	10	0·26	
Coconada .	·584	—·077	+·006	NW	7	10	0·06	Sea smooth.
Masulipatam	·602	—·064	—·013	NNW	8	10	0·36	
Nellore .	·600	—·070	?	WNW	12	10		
Madras .	·640	—·055	—·038	W	7	10	0·20	

Pressure was hence falling decidedly along this coast, the largest fall being between Coconada and Nellore. Winds were also forming part of a somewhat irregular cyclonic circulation, and the centre of the circulation appeared to be to the south-east of Coconada, where also the lowest pressure was reported.

Several vessels were also influenced by the storm on this day, and their observations are included in the following table:—

Name of Vessel.	Position, 8 A.M.		Barometer corrected.	Wind, 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S.S. Albion .	17·18	83·00	29·488	NE	5	...	Squally with heavy rain.
S. Kelton .	12·11	84·41	·551	W	8	...	Squally with rain.
S. Brenda .	19·26	87·34	...	E	7	...	Frequent heavy squalls and blinding rain.
S.S. Clyde .	17·21	86·11	·536	ENE	5 to 6	Rising	Cloudy.
S.S. Baroda .	18·32	85·27	·466	NE	6	Very high.	Very heavy squalls.
S.S. Maori .	15·40	82·58	...	NNW	6	Smooth	Rain squalls.
S.S. Nurani .	15·05	82·29	·498	WNW	2 to 5	...	Heavy squalls.
S.S. River Indus.	14·49	85·28	·025	NNE	2	High cross.	Rain.
S.S. Nadir .	16·08	82·12	·505	W	3	Moderate.	Rain.

From these observations it is probable the storm centre was nearest to the position of the *River Indus*, and it may have been in about Lat. 15° N. and Long. 86½° E., and it had probably moved slowly in a westerly or west-north-westerly direction since the previous day. It had also increased very decidedly in intensity, as is shown by the strong winds blowing in connection with it, and also by the rather large fall of pressure. Thus since the previous day the barometer on the *River Indus* had fallen 0·14″, and that on the *Nurani* 0·1″. It was therefore a well-defined storm with decidedly strong winds.

June 15th.—On the morning of this day the storm had approached near the coast between Vizagapatam and Coconada, and it had also increased decidedly in severity. The observations at the coast stations which show the position of the storm are as follows:—

STATION.	BAROMETER.			WIND.		Cloud.	Rainfall since 8 A.M. of previous day.	State of Sea.
	8 A.M. reduced to sea-level and gravity, Lat. 45°.	Change in past 24 hours.	Variation from normal pressure.	Direction.	Velocity in miles per hour.			
	"	"	"				Inches	
Gopalpur .	29·473	—·124	?	ENE	19	9	3·18	Sea rough.
Vizagapatam	·366	—·252	—·185	N	2	10	1·36	...
Coconada .	·366	—·218	—·211	NW	9	10	0·86	Sea rough.
Masulipatam .	·468	—·134	—·149	WNW	10	10	1·00	Gale of wind.
Nellore . .	·541	—·059	?	W	10	10	2·15	...
Madras .	·580	—·060	—·099	SW	8	10	0·12	...

There had been a very rapid fall of the barometer of more than a fifth of an inch at Vizagapatam and Coconada, and pressure at the latter station was a fifth of an inch in defect. Winds formed part of a complete cyclonic circulation, the centre of which was a little to the south-east of Vizagapatam, and the wind force together with the low barometer showed that the storm was one of considerable severity.

Over the sea area the position of the storm was also shown by the following observations taken at 8 A.M. on this day:—

NAME OF VESSEL.	POSITION, 8 A.M.		Barometer corrected.	WIND, 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	"				
S.S. Albion .	18·18	84·49	29·458	NE	6	High cross.	Heavy squalls.
S. Kelton .	13·05	83·59	·601	SW	6	...	Ditto.
S.S. Maori .	18·14	85·26	...	E by S	7	...	...
S.S. Nurani .	17·05	84·37	·338	SE	4 to 5	...	Cloudy.
S.S. Chanda .	18·32	84·29	·405	ENE	4	Heavy S.E. swell.	Threatening appearance.
S.S. River Indus.	13·14	84·43	·625	SWbyW	9	...	Heavy squalls.

These observations point to the centre of the storm being about 50 or 60 miles from the coast, and to the south-east or south-south-east of Vizagapatam probably in Lat. 17 or 17¼° N. and Long. 83¾ to 84° E. The pressures recorded on some of these vessels show a large fall; and on the *Nurani* the barometer had fallen 0·16″ since the previous day, showing that the storm was still continuing to increase in intensity. To the south of the centre also as shown in the log of the *River Indus* wind force had incrased to 9.

The storm centre appears to have passed inland between Vizagapatam and Coconada soon after noon on this day, and the lowest pressure recorded at Vizagapatam was at 4 P.M. when 29·3″ was recorded. The change of direction of the wind at Vizagapatam attending the inland passage of the storm is clearly seen in the following observations made by the Port Officer at Vizagapatam:—

Abstract of Log at Vizagapatam, Thursday, 15th June 1893.

Hour.	Direction of wind.	Force.	General weather.	State of Sea.
A. M.				
2	N by E	7	Cyclonic with very threatening appearance throughout the whole day.	Very rough and confused.
4	N by E	7		
6	N by E	6		
8	N E	6		
10	E N E	6		
Noon	East	6		
P. M.				
2	E S E	6	...	Very rough and confused.
4	S E	6		
6	S E	9		
8	S S E	8		
10	S S E	8·7		
Midnight.	South.	7		

June 16th.—On this date the storm centre was well inland in the Central Provinces and close to Chanda. It had become of only moderate intensity and was evidently filling up, but it affected the winds over the greater part of the Indian region, and gave squally unsettled weather with heavy rain over a large area. At the stations on and near the coast a gale of wind accompanied the inland passage of the storm, and rain was heavy, and falls of about two inches occurred at Gopalpur, Rajahmundry and Coconada, while Khamamet registered 5·85 inches of rain.

Over the sea area also very strong winds continued to blow in the rear of the storm, and over the Bay of Bengal generally winds ranged in force from 5 to 7.

June 17th.—The storm centre was still in the Central Provinces, and had not moved much since the previous day. The winds at the inland stations accompanying it were of only moderate force, but it was still giving moderate to rather heavy general rain. Over the Bay weather was moderating and the majority of vessels did not report winds of greater force than 4.

June 18th.—On this date the centre of the small storm was close to Sutna, and hence it had moved in a northerly direction since the previous day. It had, however, been steadily filling up, and was now of little importance, though it was giving heavy rain in the Central Districts of India.

On the 19th June there was still a shallow barometric depression near Sutna, but practically the storm may be said to have filled up on the evening of the 18th instant.

Land formed Barometric Depression in Bengal.—This depression commenced on June 23rd, when there was a rapid fall of pressure over Lower Bengal, the fall exceeding 0·15" at several stations and equalling 0·166" at Calcutta. This fall was also attended with a feeble commencement of a cyclonic circulation of winds. Very heavy rain also occurred, falls of three to four inches being reported at Chittagong, Calcutta, Barisal and Berhampore. On the 24th there was a further rapid fall of pressure over this area, largest in South-East Bengal, and a distinct cyclonic circulation of winds commenced round the low pressure area, the centre of which was probably to the south-east of Dacca. On the 25th a further small fall of pressure occurred, and the centre of the depression had commenced to move in a westerly direction, and was not far from Burrisal, where pressure was probably nearly three-tenths of a inch below the normal. On the 26th the depression had moved to Jessore, and on the 27th it was near Hazaribagh, having commenced to move rather rapidly in a westerly or west-north-westerly direction. On the 28th its centre had reached Sutna, and on the 29th it had advanced in a north-westerly direction to Jeypore, while on the 30th it was near Bickaneer, but it was less marked than it was, and was apparently filling up rather quickly. The storm was noticeable chiefly for the heavy burst of rainfall which accompanied it, but the winds near the centre were never more than of moderate force. At the head of the Bay of Bengal, however, during the formation and movement of the storm in a westerly direction, very heavy weather was experienced, and several vessels navigating the head of the Bay on the 26th of June reported winds ranging in force from 6 to 10, and indeed, at this time there was heavier weather at the head of the Bay, than at any other time in June.

Summary of the Reports of the Weather and Snowfall in the mountain Districts to the north and north-west of India.

The information relating to snowfall in the Himalayan area is always small in June, for it is unusual for heavy snow to fall in the hills in this month. Indeed, it is a month in which usually any previous accumulations are to a certain extent melted, and this melted snow largely feeds the rivers of Upper India in this month.

The following gives the whole of the information received relating to snowfall and weather in the Himalayan districts in June. From these reports it will be seen there has been practically no snowfall in the outer Himalayas during June.

1. *Kabul.*—From Kabul it is reported that on June 1st, 1[illegible]th, 19th and 28th, very strong winds were blowing, but for the remainder of the month wind was light. There was no snow during June, and on the whole weather was fine and warm, and decidedly dry. Temperature ranged up to 87° in the shade on June 22nd. A few scanty patches of snow were still visible on the top of the Paghman ranges, 16 miles from Kabul.

2. *Kohat District.*—The Deputy Commissioner of the Kohat District, forwarding a statement from the Extra-Assistant Commissioner at Thall, reports there was no snowfall on any of the mountains from the 15th May up to the 15th of July, and that the weather steadily grew warmer up to the end of June, when frequent showers of rain occurred. The temperature has been about normal and the air has been damp, cloudy weather being more frequent than usual. The snow has melted from all the mountains except Safed Koh, on which it is still lying to a small depth.

3. *Bannu District.*—The Deputy Commissioner of the Bannu District states there has been no snowfall in the hills adjoining his district since the 28th of February.

4. *Almorah District.*—The report from the Almorah District deals with the period 5th of May to the 5th of July, and the following is the information given :—

Malla Johar.—There were two falls of snow during the period averaging 2 feet in depth on the passes known as Utadhura and Ralamdhura.

Malla Byans, Chandans and Darma.—There were six falls during the period under report, *viz.* :—

21st May	one	foot.
22nd "	ditto	ditto.
23rd "	ditto	ditto.
30th "	ditto	ditto.
1st June	ditto	ditto.
2nd "	ditto	ditto.

Malla Danpur.—There were two falls of snow during the period under report. The fall averaged 4 inches on the peaks known as Pindari and Kantela.

Malla Johar.—Snow lay to a depth of 2 feet on the Utadhura and Ralamdhura passes at the end of the period.

Malla Byans, Chandans and Darma.—The depth of snow averaged 5 feet at the end of the period.

Malla Danpur.—Snow measured 4 inches deep at the end of the period.

Weather was generally warmer and damper than usual, and there was much more cloud than usually prevails in the district during the month of June.

Summary of Special Storm Reports.

Two small cyclonic storms developed over the sea area during June, one in the Arabian Sea and one in the Bay of Bengal, but they were not of much importance. These two small storms are discussed in a preceding section, and therefore need not be again dealt with here. In addition to these two storms a number of smaller and more or less local disturbances have occurred, of which reports have been sent in from various observing stations, and the principal facts with reference to them are detailed below. The majority of these storms were of very small importance, and many of them simply amounted to the ordinary small storms or stormy weather with strong winds, which accompany the first burst of the South-West monsoon in its inland advance.

1st.—A violent thunderstorm with rain at Allahabad from 12-45 P.M. to 2-45 P.M. Thunderstorm with rain at Nagpur from about 10 to 12-40 A.M. Thunderstorm with rain at Hyderabad Deccan from 7 to 9 P.M.

2nd.—Thunderstorm with rain at Hyderabad Deccan from 5 to 7 P.M.

5th.—Thunderstorm with rain at Poona from 2-50 P.M. to 4 P.M.

7th.—Squally weather with heavy rain at Calicut from 2-30 to 4 P.M.

9th.—Thunderstorm with rain at Poona from 7 P.M. to midnight.

10th.—At Aurangabad, violent storm from the north-east with heavy rain (1·47 inches), thunder and lightning, doing considerable damage in the station ; hail also fell in the neighbourhood. The storm commenced at 5-30 P.M. and lasted twenty minutes.

At Jubbulpore, thunderstorm with rain at 1-25 P..M., lasting half-an-hour.

11th.—At Cuddapah, thunderstorm with very heavy rain at 8 P.M. lasting till 10-30 P.M.

At Ranikhet, thunderstorm with violent winds and light rain lasting from 5 to 10 P.M.

At Poona, thunderstorm with strong winds and slight rain lasting from 8-10 P.M. to 8-50 P.M.

At Pachpadra, thunderstorm with strong winds from 5-30 P.M. to 6-45 P.M.

At Sutna, duststorm from 2-40 P.M. to 3 P.M.

12th.—At Pachpadra, violent thunderstorm with strong winds and rain from 7 P.M. of the 12th to 4 A.M. of 13th.

At Sirsa, duststorm from 5-55 P.M. to 6-40 P.M.,

At Aurungabad, storm with rain and strong wind (58 miles an hour). Storm commenced at 4 P.M. and lasted till 5-10 P.M.

At Ahmedabad, violent duststorm with thunder and lightning, hail and heavy rain, commenced at 8 P.M. and lasted 10 minutes.

At Ranikhet, thunderstorm with violent wind and rain from 6 to 10 P.M.

13th.—At Allahabad, severe thunderstorm with rain and strong wind from midnight to 7 A.M.

14th.—At Ajmere, duststorm with rain from 4 to 4-30 P.M.

At Delhi, heavy thunderstorm with strong wind and rain (1·67 inches) commencing 3-30 A.M.

At Hyderabad (Sind), duststorm at 5-25 P.M. accompanied by a little rain lasting for one hour.

At Pachpadra, gale of wind with rain from 4 P.M. to 10 P.M.

15th.—At Allahabad, thunderstorm with rain and strong wind commencing at 7-45 P.M. and lasting two hours.

At Sutna, duststorm from 5-45 to 6 P.M.

At Jubbulpur, duststorm with rain from north-east at noon lasting 17 minutes.

22nd.—At Allahabad, thunderstorm with heavy rain from 7-30 P.M. to 9-30 P.M.

At Hyderabad (Sind), gale of wind from south-west with thunder and lightning and heavy rain from 4-50 P.M. to 5-30 P.M. Another gale of wind from north north-west with thunder, lightning and rain at 11 P.M., and at 6 A.M. of the 23rd strong winds again set in from north.

28th.—At Jacobabad, severe duststorm from north-west lasting 30 minutes.

29th.—At Jacobabad, severe duststorm with thunder lasting twelve minutes, followed by heavy rain commencing 4 P.M.

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

Arabian Sea.—At the close of May a preliminary burst of South-West monsoon winds had advanced up the Arabian Sea and had spread over Western India. It had, however, then to a great extent retreated again, and on the 1st of June fine weather with light winds (force 2 to 4) usually of south-westerly and westerly direction prevailed as far south as Lat. 10°N. ; but though weather was fine there was a heavy swell reported by most of the vessels navi-

gating the Arabian Sea. To the south of Lat. 10° N. the south-westerly winds were stronger, generally of about force 4; weather was squally, and there was a good deal of rain and cloud, showing that the South-West monsoon current still obtained over the area. Little change appears to have occurred on the 2nd and 3rd, but on the 4th a slight advance of the monsoon winds took place, and the *S.S. City of Canterbury* in Lat. 11°26′ N. and Long. 53°52′E. reported south-west winds of force 6 with a heavy sea. The *S. S. Imaum* in Lat. 15°N. and Long. 56½°E. also experienced south west winds of force 6 and a high sea, and some other vessels also to the north of Lat. 10° experienced squally weather with rain. On the 5th the South-West monsoon current had again strengthened, and the average force of the south-westerly winds between 10 and 20°N. Lat. as shown by the logs. of 22 vessels was 3·5, and in some areas very strong winds were blowing. Thus the *S.S. Bawtry* in Lat. 12° N. and Long. 58° E. experienced south-south-westerly winds of force 9, and sea was reported to be "mountainous." The *S.S. Clan Sinclair* in Lat. 13°N. and Long. 56°E. also had south-south-westerly winds of force 6. To the south of Lat. 10°N. on this day, however, the wind registered on six vessels only averaged force 3·3. On the 6th there was again an increase in the strength of the monsoon current, and to the south of Lat. 10°N. the logs. of 8 vessels indicated that wind force was 4·3 instead of 3·3 on the 5th, but there had not been much change to the north of Lat. 10°. On the 7th the wind force over the area south of Lat. 10°N. had increased to nearly 5, and squally weather strong winds, high sea and heavy rain were generally reported, and on this day Colombo registered 3·78 inches of rain. The South-West monsoon current was thus again well established over the southern half of the Arabian Sea, and for the next day or two it continued to advance steadily northwards. Thus on the 8th the *S.S. Castledale* in Lat. 11°40′N. and Long. 55° 12′E. had south-west winds of force 9 with a tremendous sea, and the *S S. Golconda* in Lat. 12°36′ N. and Long. 55°E. southerly winds of force 7 with rough sea. Again on the 9th the *Golconda* in Lat. 11° 33′N. and Long 59°48′E. had west-south-westerly winds of force 9 with fierce squalls and high confused sea, and the *Castledale* in 11°N. and Long. 57°45′E. had south-west winds of force 8 with very heavy sea. Further to the north, however, on this day between about Lat. 13° and 17°N. and Long. 63° and 70°E. winds were beginning to show a distinct cyclonic circulation, though there was no evidence of any storm having formed. On the 10th probably a storm centre had been formed, accompanied by a large but perhaps irregular cyclonic circulation of winds, and though the logs of the vessels navigating the Arabian Sea do not show its position clearly, its centre was probably in about Lat. 16°N. and Long. 67° or 68°E. and it was giving decidedly heavy weather to the south of it. On the 11th the conditions pointed to the slow development of the storm area, but no definite change had occurred. On the 12th the storm area had apparently advanced northwestwards, and was in about Lat. 18°N., with a strong monsoon blowing to the south of it. On the 13th and 14th it had again advanced in a north-westerly direction, and on the latter date was probably in about Lat. 21° or 22° N. and Long. 64° to 65° E., but it seemed to have decreased in intensity, and it was of little importance so far as can be judged by the observations received. On the 15th the storm had apparently either broken up or passed away in a north-westerly direction, and the observations received show no sign of its existence over the sea area. In the rear of the storm, however, the monsoon current had fully established itself over the whole of the sea area, and very strong south-westerly winds ranging up to force 8 and 9 with very heavy sea and heavy rain were generally reported. Thus on the 15th the *S. S. Assam* in Lat. 13°N. and Long. 46½°E. had west-south-westerly winds, force 4 to 5, the *S.S. Siam* in Lat. 16°N. and Long. 59°E. had south-westerly winds, force 5 to 6, with high sea, and the *S.S. Amphitrite* in Lat. 14⅓°N. and Long. 53°E. had south-south-westerly winds, force 7 to 8; the *S.S. Australia* in Lat. 15½°N. and Long. 58⅓°E. had south-westerly winds, force 6 to 9, with high confused sea, and the *S.S. City of Edinburgh* in Lat. 13°N. and Long. 55½°E. had south-westerly winds, force 9. To the south of Lat. 10°N. winds ranged up to about force 5 to 6, and there was considerable sea and heavy rain.

This extremely heavy burst of the monsoon continued practically without interruption till the 22nd of June, when the wind force began to moderate, and from the 23rd to the 25th the highest wind force reported was about 5 to 6. From the 25th again, however, the monsoon strengthened, and wind force ranged up to 9, or a strong gale of wind, and this continued on the 26th; but on the 27th the force moderated to about 6 to 7, and did not again exceed this up to the close of the month.

As the normal strength of the monsoon winds in the centre and south of the Arabian Sea in June is about 5 or between 5 and 6, it will be seen that from the date of the commencement of the second advance of the monsoon current of the Arabian Sea, *i.e.*, from about the 8th, the monsoon current was unusually strong, and it was accompanied with exceptionally high sea and heavy weather generally.

Bay of Bengal.—At the end of May a severe cyclonic storm had passed into Bengal from the head of the Bay, and in the rear of this storm the monsoon current had advanced northwards, and a wave of south-west monsoon winds had passed into that province. Hence on the 1st of June a light to moderate south-west monsoon current was blowing over the whole Bay, the wind force usually equalling about 2, and the average force as indicated by vessels which were

navigating the Bay equalling 2·7. The wind force strengthened somewhat on the 2nd, when it equalled 3 to 4, but fine weather with smooth or slight sea was reported. Little change took place for the next four or five days, and during this period light monsoon winds were blowing in the centre and north of the Bay, while in the south of the Bay (south of Lat. 10°N.) stronger monsoon winds of force 4 to 5 obtained. On the 7th, winds became south-easterly, force 2, in the western half of the Bay, while in the eastern half very variable winds and calms were reported. To the south of Lat. 10°N., on the other hand, strong westerly and south-westerly winds of force 4 to 7 were blowing, and rain was falling. Rather variable light winds continued generally in the centre and north of the Bay on the 8th, 9th and 10th, though winds of force 4 were blowing to the south of Lat. 10°N., but on the 11th a distinct change had occurred. Winds in the centre and south of the Bay began to show very distinct indications of a cyclonic circulation, weather became dull and cloudy, and several vessels reported rain. Again to the south of Lat. 10°N. winds had strengthened, and westerly winds of force 5 to 6 were blowing, and weather was rather squally. On the 12th light winds and fine weather prevailed quite at the head of the Bay. In the centre and south of the Bay the cyclonic circulation of winds had become more definite, round a centre probably to the north-west of the Andamans, weather was unsettled with much thunder and lightning and with some rain and squalls, so that clearly a storm was forming over this area. To the south of Lat. 10°N. weather had again become more unsettled, and westerly and south-westerly winds of force 5 to 7 were reported, while the *S.S. Bhundara* in Lat. 8°N. and Long 87° E. experienced "terrific heavy squalls," and the *S.S. Loodiana* also in Lat. 9½°N. and Long. 84½°E. had frequent heavy squalls of wind and rain. From the 12th to the 13th the storm appeared to become more definite, the cyclonic circulation of winds was more complete, and it had intensified very considerably, while at the same time the storm had moved in a west-north-westerly direction. So far as can be judged its centre on this day was in about Lat. 15° N. and Long. 86°, E., and it was giving heavy wind squalls and rain in its neighbourhood, and weather was rather stormy to the east and south of it. It had again increased in intensity or the 14th, and was giving winds of force 7 to 8, and its centre had moved to about Long. 85½° E., but it was nearly in the same latitude as on the previous day, probably about 15°N. Over the whole of the south-east and south of the Bay it was giving rather heavy weather with winds of force from 4 to 7. On the 15th the centre of the storm had approached towards the coast opposite Cocanada and Vizagapatam, and it was giving heavy weather with winds ranging up to force 7 to 9 near the centre, while over the greater part of the Bay winds were of force ranging up to about 6, sea was rough and weather was squally. Between the 15th and 16th the centre of the storm passed inland into the Central Provinces, and a strong monsoon current set in over the whole Bay, winds being south-easterly and of force 5 at the head of the Bay, and south-westerly and of about force 4 over the remainder of the Bay. Ordinary monsoon winds of about force 4 to 6 were reported from this date up to the 22nd instant; after this date up to the 26th a small barometric depression gradually developed over Bengal, when it moved away in a west-north-westerly direction. This small depression very considerably increased the force of the monsoon winds blowing at the head of the Bay, until on the 26th wind force ranging up to 9 and 10 was reported in the north of the Bay, while decidedly heavy weather was also experienced. Thus the *S.S. Madura* in Lat. 19°N. and Long. 90½°E. had south-westerly winds of force 9 with heavy sea, and the *S.S. Shahazada* in Lat 19° N. and Long. 92⅔°E. had south-westerly winds of force 7 to 10. From the 26th to the end of the month the force of the monsoon slowly decreased, and generally south-westerly winds of force 4 to 5 prevailed during this period.

It will again be seen that from the beginning of the second advance of monsoon winds, or from about the 7th or 8th of June, when strong winds commenced in the south of the Bay and gradually spread northwards in the rear of the small storm, the monsoon current which has been blowing in the Bay of Bengal (as well as in the Arabian Sea) has been most unusually strong, and it has also given rather heavier weather than in normal years.

Temperature of the air.

The mean day or maximum temperature for the month was very largely in defect of the normal over the whole of India, except at the extreme north-western stations, and in the extreme east, over parts of Burma, where small excess temperatures were registered. The areas of excess were indeed very small, and at few stations was the excess larger than a degree, these being represented by such places as Mooltan with an excess of 2·8°, Rangoon with one of 1·5°, Toungoo 2°, and Moulmein 3·1°. On the other hand the defects increased from the west, east and south of India towards the focus of largest defect, which lies near Lucknow with a deficiency of 8·9°, and Rawalpindi with one of 9·4°. The area of largest defect covers Oudh, the North-Western Provinces and part of the Central Provinces, and also extends generally along the base of the Himalayas, and probably in the hills themselves, where the defect was larger than 6°.

This is represented in the following table by certain typical stations in the above districts:—

MEAN MAXIMUM TEMPERATURE FOR JUNE.

STATION.	Variation from normal values.	STATION.	Variation from normal values.
	°		°
Murree	−6·1	Benares	−6·8
Sialkot	−6·9	Allahabad	−6·9
Ludhiana	−7·5	Jhansi	−6·4
Simla	−7·7	Nowgong	−7·9
Dehra Dun	−5·9	Sutna	−6·0
Delhi	−6·5	Saugor	−6·7
Bareilly	−7·6	Jubbulpore	−6·3
Gorakhpur	−7·2	Hoshangabad	−6·6

The mean maximum temperature was also below the normal over the whole of the remaining districts by amounts which usually ranged from about 2° to 5°. The defect exceeded 4° in the following areas :—

DISTRICT.	Station.	MEAN MAXIMUM TEMPERATURE.		
		Actual, June 1893.	Normal, June.	Variation from normal.
		°	°	°
PUNJAB	Lahore	100·7	105·7	−5·0
	Roorkee	96·3	102·0	−5·7
	Meerut	97·7	101·8	−4·1
BENGAL	Gaya	95·6	100·2	−4·6
	Hazaribagh	86·9	92·7	−5·8
	Cuttack	91·1	96·1	−5·0
	Balasore	88·5	93·3	−4·8
	Burdwan	89·6	94·4	−4·8
CENTRAL PROVINCES.	Sambalpur	91·5	97·4	−5·9
	Akola	92·4	98·0	−5·6
	Seoni	88·4	93·9	−5·5
	Nagpur	93·2	98·0	−4·8
	Raipur	92·9	97·2	−4·3
RAJPUTANA	Jeypore	99·1	103·1	−4·0
BOMBAY	Malegaon	90·8	94·9	−4·1
	Sholapur	90·3	94·7	−4·4

So far as can be judged this deficiency of temperature was by no means confined to the lower strata of the atmosphere, for the hill stations of Northern India showed equally as large defects from the normal day temperature as were shown at the neighbouring plains stations.

The average minimum or night temperature for the month was also in defect of the normal over practically the same areas as the day or maximum temperature. Thus the night temperatures showed slight excess at Mooltan (+3.2°), Jacobabad (+1.4°), Rangoon (+0.1°), Toungoo (+0·8°), and Moulmein (+0·8°), but over the whole of the remainder of India there was a defect ranging up to 4° at Benares. Over the North-Western Provinces, Oudh, part of the Central Provinces, Chota Nagpur and on and near the North-Western Himalayas, the defect generally equalled 2° to 4°, and over the Peninsula generally and over the greater part of Bengal, Rajputana, etc., the defect equalled about 1° to 2°.

Hence the mean temperature for the month was in considerable defect except at a few stations in the west of the Punjab and in the south of Burma. The principal excess in the mean temperatures thus registered has been Mooltan +3°·0, Moulmein +2°·0, and Toungoo +1.4°. On the other hand, the North-Western Provinces, Oudh, Chota Nagpur, parts of the Central Provinces, and the Punjab along the line of the Himalayas show defects of from 4° to 6°, the defect being absolutely greatest at Lucknow (6·3°), Nowgong (6·1°), and Bareilly (5·7°) while the remaining portion of India shows defects of about 1° to 3°.

The following table gives the summary of the temperature data of the month for the 50 meteorological divisions of the Empire :—

PROVINCE	DIVISION.	ACTUAL TEMPERATURE.					VARIATION OF		
		Mean maximum.	Mean minimum.	Mean daily.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
BURMA	Tenasserim	87·8	75·0	81·4	12·8	22·9	+2·6	+0·8	+1·8
	Lower Burma	86·5	76·6	81·5	9·9	17·6	+0·7	+0·4	+0·3
	Central do.	91·9	76·2	84·1	15·7	26·9	−0·3	+0·3	−0·6
	Upper do.	90·4	76·0	83·2	14·4	23·8	?	?	?
	Arakan	85·3	77·2	81·3	8·1	19·5	−0·6	−0·5	−0·1
BENGAL AND ASSAM	Eastern Bengal	86·4	76·7	81·5	9·7	19·3	−1·6	−0·6	−1·0
	Assam (Surma)	88·1	75·7	81·9	12·4	23·7	−0·6	−0·4	−0·2
	Do. (Brahmaputra)	86·3	75·8	81·1	10·5	20·8	−1·7	−0·8	−0·9
	Deltaic Bengal	88·4	78·1	83·3	10·3	20·6	−3·3	−1·1	−2·2
	Central do.	89·4	77·3	83·3	12·1	22·7	−4·1	−0·7	−3·4
	North do.	87·8	75·9	81·9	11·8	22·3	?	?	?
	Orissa	89·0	78·9	84·0	10·0	20·2	−4·3	−1·0	−3·3
	Chota Nagpur	89·7	74·8	82·3	14·9	29·5	−5·8	−3·7	−2·1
	Bihar (South)	94·2	78·4	86·3	15·8	31·6	−4·0	−1·4	−2·6
	Do. (North)	92·1	77·7	84·9	14·4	28·5	−1·2	−0·2	−1·0

Province.	Division.	Actual Temperature. Mean maximum.	Mean minimum.	Mean daily.	Mean daily range.	Absolute range.	Variation of Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	North-Western Provinces (East)	94·0	78·3	86·2	15·7	34·5	−7·0	−3·5	−3·5
	Oudh (South)	93·2	77·9	85·6	15·3	34·2	−8·9	−3·7	−5·2
	North-Western Provinces (Central)	95·9	78·8	87·4	17·1	35·9	?	?	?
	Do. do. (West)	99·3	81·9	90·6	17·4	37·6	−5·1	−2·4	−2·7
	Do. do. (Sub-montane)	93·9	75·2	84·6	18·8	37·3	−5·8	−3·6	−2·2
Punjab	Punjab (South)	101·6	81·3	91·5	20·4	38·6	−4·2	−1·9	−2·3
	Do. (Central)	100·7	80·6	90·7	20·1	36·7	−5·0	+0·9	−5·9
	Do. (Sub-montane)	98·5	78·8	88·7	19·7	39·5	−7·5	−0·4	−7·1
	Do. (Hill Districts)	75·9	59·9	67·9	16·0	33·1	−6·9	−2·6	−4·3
	Do. (North-West)	98·6	75·8	87·2	22·8	41·8	−6·1	−1·3	−4·8
	Do. (West)	106·6	82·5	94·6	24·1	40·6	+0·3	+1·8	−1·5
Bombay and Malabar Coast Districts (Madras).	Malabar	84·0	74·7	79·4	9·3	16·5	+0·3	−0·1	+0·4
	Madras (South Central)	90·9	71·3	81·1	19·6	27·6	−1·3	−1·2	−0·1
	Coorg	78·5	65·9	72·2	12·7	24·0	+1·9	+0·6	+1·3
	Mysore	83·0	66·8	74·9	16·2	26·9	−1·7	−0·1	−1·6
	Konkan	85·1	76·9	81·0	8·1	16·3	−1·2	+0·1	−1·3
	Bombay Deccan	85·8	70·3	78·0	15·5	27·8	−3·3	−0·8	−2·5
	Hyderabad (North)	89·4	73·4	81·4	16·0	29·2	?	?	?
	Khandesh	88·0	72·1	80·1	15·9	28·8	−4·1	−1·2	−2·9
Central Provinces and Berar.	Berar	92·7	75·4	84·1	17·3	32·3	−4·9	−1·3	−3·6
	Central Provinces (West)	93·0	76·7	84·9	16·3	32·5	−5·1	−1·6	−3·5
	Do. (Central)	91·6	75·7	83·7	15·9	30·9	−6·2	−1·8	−4·4
	Do. (East)	92·2	76·9	84·6	15·4	27·3	−5·1	−2·6	−2·5
Bombay (North)	Guzerat	94·1	78·8	86·5	15·3	32·2	−2·9	−1·3	−1·6
	Kattywar	92·4	79·1	85·8	13·3	26·4	−4·3	−0·7	−3·6
	Sind and Cutch	100·8	80·8	90·8	20·1	35·2	−0·5	−0·9	+0·4
Rajputana and Central India.	Central India (East)	94·5	78·5	86·5	16·0	34·4	−7·0	−3·6	−3·4
	Rajputana (East) Central India (West)	96·8	78·0	87·4	18·8	35·3	−3·3	−1·0	−2·3
	Rajputana (West)	104·2	82·9	93·5	21·3	35·2	−1·8	−2·1	+0·3
Madras	East Coast (North)	90·7	80·6	85·7	10·1	18·9	−2·0	0	−2·0
	Hyderabad (South)	91·2	75·1	83·1	16·1	27·1	−3·3	−1·1	−2·2
	Madras (Central)	93·9	76·2	85·0	17·7	28·2	−2·9	−1·3	−1·6
	East Coast (Central)	97·5	79·7	88·6	17·8	29·4	−2·5	−1·2	−1·3
	East Coast (South)	95·8	78·1	87·0	17·7	28·0	−1·8	−1·0	−0·8
	Madras (South)	93·8	78·2	86·0	15·6	24·0	−2·6	−0·3	−2·3

The following short summary will indicate the principal changes of temperature during June.

In the report for May it was noticed that at the close of that month a small cyclone had passed inland from the head of the Bay of Bengal and had given a heavy wave of rainfall. At the same time also a temporary advance of the monsoon took place over Western India, and hence at this time rainfall was fairly general over India except in Kattywar and Rajputana. The mean temperature was thus much lower than usual at the beginning of June in all districts except Burma, and for the 24 hours preceding the 1st of June the mean temperature for the whole of India was no less than 4·8° in defect. With the continuance of the rainfall the temperature of the 2nd was almost as low, and the defect equalled 4·6°, but from the 3rd the rain began rapidly to fall off in amount, and hence temperature rose steadily up till the 6th, when it became actually normal, and for some days after this it ranged slightly in excess in practically all districts except Madras.

This is shown clearly in the following table where the variations from the normal are given for the different provinces of India:—

Variation of the mean temperature from the normal.

Province.	June 1st.	3rd.	6th.	7th.	9th.	11th.
	°	°	°	°	°	°
Burma	−0·3	+2·3	+3·4	+1·5	+0·8	+2·2
Bengal and Assam	−2·7	−1·3	−0·1	−0·4	−1·0	−1·4
North-Western Provinces and Oudh.	−10·3	−7·8	−0·9	+0·8	−1·8	+0·5
Punjab	−7·5	−6·3	+0·5	+1·9	+0·9	+1·1
Bombay	−3·0	−1·8	+1·5	+1·2	+1·1	−0·1
Central Provinces and Berar.	−7·4	−6·4	−2·1	−0·5	0	+0·3
Central India and Guzerat	−5·1	−5·5	−1·7	+0·4	+0·6	+2·8
Sind and Rajputana	−4·2	−4·8	+0·6	+0·6	−1·6	+2·4
Madras	−2·8	−2·9	−1·2	−0·6	−1·8	−1·4
Mean for the whole of India	−4·8	−3·8	0	+0·5	−0·3	+0·7

From about June 12th, however, a fresh advance of the monsoon current took place both in the Arabian Sea and in the Bay of Bengal, and in each case the advance was preceded by a small cyclonic storm, that in the Arabian Sea passing away in a north-westerly direction, but giving strong winds and gales and heavy rain to Western India, while that from the Bay of Bengal moved in a westerly direction across the North Madras coast into the Central Provinces between the 15th and 16th, and gave heavy rain to the whole of the Peninsula, also along the east coast districts and to Bengal, and after this date the monsoon current flowed freely over the whole of India. Again with the commencement of general rainfall the temperature began to decrease, and from the 12th when the mean for the whole of India was practically normal, and when rainfall began and then increased in heaviness, there was a steady fall, so that in the period from the 18th up till the close of June, the mean temperature of the whole of India was from 3° to 3°·5 in defect of the normal. This is again clearly shown in the following table giving the daily variation in the different provinces of India :—

Variation of the mean temperature from the normal.

Province.	June				
	12th.	16th.	20th.	25th.	30th.
	°	°	°	°	°
Burma	+3·0	+2·0	−1·8	−1·8	−1·4
Bengal and Assam	−2·6	−1·6	−3·7	−2·5	−3·1
North-Western Provinces and Oudh.	−3·1	−8·0	−7·5	−6·2	−4·9
Punjab	+1·8	−1·4	−3·0	−5·0	−7·1
Bombay	−1·1	−3·1	−3·0	−1·8	−0·1
Central Provinces and Berar.	−1·8	−1·3	−7·7	−2·5	−0·7
Central India and Guzerat	+0·6	−0·2	−5·9	−5·6	−8·
Sind and Rajputana	+2·3	+1·7	−0·2	−5·8	−6·0
Madras	−1·6	−6·7	−0·8	−0·5	+1·4
Mean for whole of India	−0·3	−2·1	−3·7	−3·5	−3·3

Hence it will be seen at the close of the month temperature was decidedly low, but that the largest defects were confined to Central India, Guzerat, the Punjab, Sind and Rajputana, and that, on the other hand, temperatures were fairly normal in Bombay, the Central Provinces and Berar, while in Madras there was a general slight excess. It is also noticeable that at the close of the month the defects were generally largest in the maximum or day temperatures as is shown by the following figures, which give the temperature variation data for the 24 hours preceding 8 A.M. of June 30th :—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−1·8	−1·0	−1·4
Bengal and Assam	−4·2	−1·9	−3·1
North-Western Provinces and Oudh	−6·9	−2·8	−4·9
Punjab	−11·4	−2·8	−7·1
Bombay	+0·4	−0·5	−0·1
Central Provinces and Berar	−0·3	−1·1	−0·7
Central India and Guzerat	−13·2	−3·0	−8·1
Sind and Rajputana	−7·3	−4·7	−6·0
Madras	+2·2	+0·5	+1·4

During the periods from the 3rd to the 10th or 11th, there was thus a fairly steady increase of temperature in India, and some high maximum temperatures were recorded throughout India, and on the 11th Jacobabad registered a maximum temperature of 115·6° and Sirsa one of 115·4°, but from this date the temperature of the greater part of India began to fall, and comparatively low maximum temperatures were reported. The highest temperature recorded during the month was however on the 20th, when no less than 117·6° was registered at Jacobabad in Sind, at which station no rain fell up to the 23rd instant.

Winds.

Winds in June were again less steady in Burma and in the Bay Islands than usual, the actual percentage of steadiness being only about three-fourths the usual amount. The general direction of the wind was however nearly normal as judged by the three stations, Port Blair, Rangoon and Diamond Island, but, if anything, the wind velocities were lower than usual. In Assam the general wind directions for the month showed them to be more southerly than usual, while the percentage of steadiness was, if anything, slightly in excess of the usual amount, but wind velocity was about 25 per cent. higher than usual, pointing to the unusual strength of the monsoon currents

in June. In Bengal and Orissa also winds were on the whole nearly normal in direction, but they were much more steady than usual, and the velocities were generally much higher than usual, particularly along the coast, and at the stations near the sea. The following figures will indicate these points:—

STATION.	STEADINESS.		VELOCITY.	
	Actual percentage, June 1893.	Normal percentage, June.	Mean daily air movement, June 1893.	Normal daily air movement, June.
Chittagong	57	56	122	166
Dacca	65	75	180	172
Calcutta	63	59	109	146
Saugor Island	77	69	479	350
Burdwan	52	58	204	118
False Point	78	63	341	288

In the Gangetic Plain also the winds were decidedly more easterly than usual; they were also unusually steady and abnormally strong. This is again shown by the following figures:—

STATION.	DIRECTION.		STEADINESS.		VELOCITY IN MILES.	
	Mean June 1893.	Normal June.	Actual percentage, June 1893.	Normal percentage, June.	Mean daily air movement, June 1893.	Normal daily air movement, June.
Hazaribagh	S 37°W	S 36° W	30	19	244	213
Patna	N 81°E	N 73° E	43	45	173	106
Darbhanga	S 73°E	S 89° E	59	71	182	139
Allahabad	N 38°E	N 2° E	30	12	188	102
Ghazipur	S 85°E	N 74° E	27	12	109	73
Lucknow	E	N 51° E	45	17	53	102

The unusual strength and steadiness of the monsoon winds blowing up the Gangetic Plain will be seen from these figures to have been rather remarkable.

In the Upper Sub-Himalayas district, in the hill stations in Northern India and in the Indus Valley and North-West Rajputana, the same facts as to wind being more easterly than usual and being steadier and also stronger than the normal are also fairly clearly shown.

In the western districts of India influenced by the monsoon current from the Arabian Sea the winds appear to have been very nearly normal in direction, and on the whole of about the usual steadiness. They have also been almost equal to the normal in strength, and the same has been the case in Southern India. These facts are shown by the figures for the following typical stations:—

STATION.	DIRECTION.		STEADINESS.		VELOCITY IN MILES.	
	Mean, June 1893.	Normal, June.	Actual percentage, June 1893.	Normal percentage, June.	Mean daily air movement, June 1893.	Normal daily air movement, June.
A.—Coast Stations						
Bombay	S 56° W	S 63° W	50	66	350	389
Ratnagiri	S 73° W	S 53° W	70	66	266	278
Karwar	S 65° W	S 76° W	84	76	115	?
Cochin	N 57° W	S 75° W	52	42	152	?
B.—Inland Stations						
Deesa	S 84° W	S 36° W	71	72	367	403
Mount Abu	S 64° W	S 42° W	55	74	202	242
Khandwa	N 87° W	N 77° W	66	71	224	228
Akola	N 89° W	N 71° W	52	71	167	215
Poona	S 79° W	S 79° W	67	73	273	375
Sholapur	S 74° W	N 86° W	63	66	375	203
Belgaum	S 59° W	S 73° W	71	86	574	583
Bangalore	S 81° W	S 71° W	75	90	201	202
Marcara	N 83° W	N 81° W	75	86	227	196
Wellington	S 32° W	N 88° W	67	52	107	123

Of these stations the majority show that the monsoon current blowing from the Arabian Sea was a little more strongly westerly than usual, but that on the whole the steadiness and strength of the winds were a little below the normal.

If, however, the figures as to wind direction, steadiness and velocity for June given in Table II, at the end of the Summary, are compared with the normal values, it will be seen that out of the thirteen districts (excluding the extra Indian stations and Quetta) wind has been steadier than usual in eight districts, and rather less steady than usual in five. Also that in eleven out of the same thirteen districts wind velocity has been about equal to or in distinct excess of the normal, and only in defect in two districts (*i.e.*, in Burma and the Bay Islands and in the South India Hill stations). Again in practically all the districts fed by the Bay of Bengal current winds have been rather more easterly than usual, while in the districts fed by the Arabian Sea monsoon current wind direction has been, if anything, rather more westerly than in normal years.

On the whole, therefore, it may be said that the monsoon current blowing up the Bay of Bengal has been much stronger than in normal years, and that the Arabian Sea branch has been fully normal in strength.

Humidity and Cloud.

Owing to the heavy burst of rainfall at the close of May and in the early part of June, and to the rather early and very complete establishment of the South-West monsoon rains in India in the middle of the month, the amount of moisture in the atmosphere registered in most districts was unusually high. This has been particularly the case in the Upper Sub-Himalayas District, where for the month the mean aqueous vapour pressure was 0·075″ in excess of the normal. In the Gangetic Plain, Chota Nagpur, Indus Valley, Rajputana, Central

India, Guzerat and the Deccan, the atmosphere has contained much more moisture than usual, the excess in the mean vapour pressure equalling about 0·03″ to 0·04″, but in other districts the variations have not been so large, and in Bengal, Orissa and Assam the vapour pressure has been decidedly less than usual. In Lower Burma also the amount of vapour in the air has been smaller than in normal years, and this feature has been very persistent in that area since the termination of the previous South-West monsoon rains. The deficiency in June was however small, but the percentage of saturation of the air (*i. e.*, humidity) over Burma was in distinct defect. In Bengal and Assam, on the other hand, as the air temperature in June over these areas was decidedly lower than usual, the smaller amount of moisture in the air indicated by the lower vapour tension was nevertheless sufficient to cause a higher percentage of saturation of the air than in normal years, and in both these areas humidity was above the usual amount. Indeed, the only district of India where the humidity in June was less than in normal years was the Burma Coast and the Bay Islands, and here the deficiency was only 1 per cent., while in all other districts humidity was either normal or in rather large excess. The excess in all districts except Bengal, Orissa, Assam, the west coast of India and the south of the Peninsula averages about 10 per cent. and in some cases equals 12 per cent.

The following table will show the areas in which the air contained more vapour than usual, and in which the largest excess of humidity occurred, and also the amount of the variation :—

Station.	Humidity.		Aqueous vapour pressure.	
	Average actual humidity.	Variation from normal value.	Average actual amount.	Variation from normal value.
	%		″	″
Hazaribagh . . .	78	+ 13	·737	+ ·052
Allahabad . . .	69	+ 14	·824	+ ·061
Lucknow . . .	74	+ 19	·855	+ ·095
Lahore . . .	53	+ 15	·697	+ ·089
Nowgong . . .	66	+ 14	·762	+ ·045
Saugor	67	+ 15	·710	+ ·098
Sutna	63	+ 14	·723	+ ·087
Murree	66	+ 20	·441	+ ·080
Chakrata . . .	78	+ 13	·461	+ ·055

The figures in this table will show how extremely damp the air in June was in many districts, particularly in those where humidity is usually low. The figures in the case of the last two stations also indicate that this high humidity has not been confined to the lower strata of the atmosphere only, but has been equally pronounced in the upper layers.

Cloud.—Owing probably to the advance of the monsoon current at the end of May, and to the storm at the head of the Bay of Bengal at the same period, and to the rather early and complete establishment of the South-West monsoon in June, there was decidedly more cloud over India in the month under review than in normal years. The excess was large in the Gangetic Plain, Chota Nagpur, the Upper Sub-Himalayas district, Rajputana, Central India and Guzerat, and it was also decidedly large in Burma, the Bay Islands, Bengal, Orissa and the Deccan. The excess was small in the Indus Valley and South India, and on the other hand, there was a very small defect in Assam, and on the west coast of India.

The sky was indeed almost overcast for a large part of the month over a very considerable area. Thus taking the case of an overcast sky to equal 10, the mean cloud proportion of the whole month in Burma and the Bay Islands equalled 8·6, and in Bengal and Assam it equalled 8·1. On the west coast of India the proportion was smaller, and it only averaged 6·9, and in the Deccan cloud proportion was 7·1. Further from the sea the proportion was smaller, but even at a station like Meerut the cloud proportion was 5 or 1·8 in excess of the normal, and at Peshawar it was 2·7 or 0·7 in excess of the usual amount. Hence it will be seen that during the month under review the sky over practically the whole of India has been much more cloudy than usual.

The table below will give a condensed view of the variations in June of the amount of moisture in the air, of the humidity, and of cloud proportion from the normal in the various meteorological areas into which India is divided :—

Division.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	″		
Burma Coast and Bay Islands . .	−·001	− 1	+0·8
Assam	−·018	0	−0·1
Bengal and Orissa . . .	−·022	+ 1	+0·8
Gangetic Plain and Chota Nagpur .	+·035	+10	+1·1
Upper Sub-Himalayas . . .	+·075	+12	+1·5
Indus Valley and North-Western Rajputana.	+·035	+ 3	+0·3
East Rajputana, Central India and Guzerat.	+·028	+ 9	+1·7
Deccan	+·037	+ 8	+0·8
West Coast	−·002	+ 1	−0·5
South India	+·002	+ 2	+0·1

Rainfall.

It has been explained previously that a temporary advance of the monsoon current had taken place over a large part of India at the end of May, the advance from the Bay of Bengal having been brought up by a cyclonic storm which advanced into Bengal from the Bay, and which carried forward with it a heavy wave of the south-west monsoon current, while at the same time there was a similar advance of the Arabian Sea branch of the monsoon current over Western India. Hence on June 1st, general rainfall was reported in Assam, Bengal, North-Western Provinces, Oudh, Berar, and Central Provinces, while scattered rainfall had occurred in all other districts of India except Sind, Guzerat, and considerable parts of Bombay, and the Circars Coast. The rainfall on this day was particularly heavy over the south of the Gangetic Plain, where several stations reported falls of about two inches and upwards. This preliminary advance of the monsoon winds was however rapidly becoming feeble and also retreating southwards, and on the 2nd of June little rain was reported except in North-Western Provinces, in Assam, in Bengal, in the Central Provinces and over the south of the Peninsula, where moderate rain was falling. On the 3rd the monsoon current had retreated still further, and the rainfall reported on this day was confined to Assam and parts of Lower Bengal and Burma and to the south of the Peninsula, and only scattered showers of little importance fell elsewhere. On the 4th of June the monsoon current had practically retreated over the sea area, probably to the south of about Lat. 10° or 12° N., and though still fairly general rain fell in the south of the Peninsula, only scattered showers were reported over the remainder of India. On the 5th, there was rather scattered rainfall in Assam, North and East Bengal, Burma, and the Peninsula, while on the 6th rainfall was confined practically to the south and west of the Peninsula.

These conditions of rainfall in the south and west of the Peninsula and a few scattered showers in Eastern and North-Eastern India continued up till about the 8th or 9th instant. About this period the south-west monsoon current began to make a second advance, and as described in the previous sections in front of both branches, small storms were formed, which began to advance in a north-westerly direction, carrying with them a heavy burst of monsoon winds and rainfall. Thus on the 10th rain began to be reported at the more northerly stations on the Bombay coast, while the falls over the southern part of the Peninsula were general. On the 11th rain was reported over the whole of the south and west of the Peninsula, in the Central Provinces, and also over the greater part of North-Eastern India. On the 12th the area of rainfall had advanced still further, and rain was reported more or less generally over Lower Burma, Bengal, Assam, the west of the Peninsula and the Central Provinces, while showers were reported from the Gangetic Plain, the North-West Himalayas and the east and south of the Peninsula, and in many cases very heavy falls were received. On the 13th a further advance had occurred and a few showers were reported in the Punjab. On the 14th a strong rush of monsoon winds of direction more southerly than usual had occurred along the west coast of India, and had brought up very heavy rainfall. The small storm in the Bay of Bengal had still not reached the land, and was interfering with the northward advance of the Bay of Bengal monsoon current, and hence on the 14th heavy general rain was reported in the western part of India and more or less general rain was also falling in all districts except the central parts of the North-West Provinces, the west of the Punjab, Sind, Central India, parts of the Central Provinces and the south of Madras. The small storm in the Bay of Bengal was close to the coast near Vizagapatam on the 15th, and passed inland during the day and then advanced gradually northwards to Sutna, where it reached on the 18th, and from this period both branches of the monsoon current swept freely over India and the monsoon rain became general. Districts like Sind and the Punjab received this general rainfall later than other districts, and here rain did not commence till about the 22nd or 23rd of June. As described previously the monsoon current during the second-half of June, after it had finally established itself, was decidedly stronger than in former years, and for this period rainfall was unusually heavy over the greater part of India.

It may be stated generally therefore that the true monsoon rains this year commenced in the following districts on about the following dates:—

District.	Date.
Malabar	2nd
South Konkan	6th
North Konkan	7th
Kattywar	12th
Berar	7th
Sind	22nd
North-Western Provinces (west)	12th
(Probably from the Arabian Sea current.)	
North-Western Provinces (east)	18th
(From the Bay of Bengal current).	
Punjab	23rd
Bengal	14th
Central Provinces	17th

The general distribution of the rainfall over India in June

is illustrated in Plate IV, which gives the actual distribution of the rainfall so far as it is indicated by the returns of upwards of 160 meteorological stations. The distribution of rainfall in this chart is shown by means of isohyetic lines or lines of equal amount of rainfall, the numbers attached to each line indicating the rainfall. The general falls have varied from about 48 inches on the Arakan coast (at Akyab) to falls of less than an inch or even no rainfall at all at some of the stations on the extreme northwest frontier, such as Mooltan, Peshawar, Quetta, etc. Roughly the lines of heaviest rainfall are to be found along the west of the Peninsula and along the Arakan and Burma coasts, where falls were usually of about 30 inches in amount, and they decrease rapidly from west to east, so that along the east coast of the Peninsula the falls were from 2 to 4 inches, and in Upper Burma they equalled about 5 inches. There is also an area in South and South-East Bengal, which received heavy rainfall, and another area running east to west across the head of the Peninsula, and from these areas of heavy rainfall the amounts steadily diminished in a northerly and north-westerly direction until on the North-Western frontier rainfall was practically absent in June.

The following table gives comparative rainfall data of June 1893, referred to the normal rainfall of the month of the 51 meteorological districts of India. In the case of Bengal, Assam, the North-Western Provinces, the Punjab, Rajputana, Central India, Hyderabad 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 districts 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 and stations, the averages were derived from the data of the rainfall telegrams for the period, sent by the district officers, which are usually included in the published weekly meteorological reports.

Province.	Division.	Number of Rainy Days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	30·02	39·94	− 9·92
	Lower Burma*	?	?	12·77	19·06	− 6·29
	Central do.*	?	?	10·43	17·30	− 6·87
	Upper do.*	?	?	5·49	?	?
	Arakan*	?	?	59·10	52·22	+ 6·88
Bengal and Assam	Eastern Bengal	18·6	16·9	24·45	18·93	+ 5·52
	Assam (Surma)*	?	?	38·61	37·26	+ 1·35
	Do. (Brahmaputra)*	?	?	10·59	15·08	− 4·49
	Deltaic Bengal	15·8	12·8	19·05	10·66	+ 8·39
	Central do.	16·9	12·0	16·79	10·22	+ 6·57
	North do.	20·3	17·3	21·53	23·62	− 2·09
	Orissa	12·1	9·9	8·65	8·79	− 0·14
	Chota Nagpur	15·2	10·7	12·86	7·80	+ 5·06
	Bihar (South)	11·8	7·2	9·30	5·79	+ 3·51
	Do. (North)	11·8	9·0	9·54	8·72	+ 0·82
North-Western Provinces and Oudh.	North-Western Provinces (East)	11·7	5·1	11·19	4·28	+ 6·91
	Oudh (South)	10·3	4·6	8·29	4·38	+ 3·91
	Do. (North)	10·0	5·6	7·98	4·93	+ 3·05
	North-Western Provinces (Central)	7·8	4·2	5·93	3·47	+ 2·46
	Do. do. (West)	5·9	3·7	4·72	2·72	+ 2·00
	Do. do. (Sub-montane)	10·1	5·9	8·59	5·55	+ 3·04
Punjab	Punjab (South)	3·0	2·1	1·93	1·40	+ 0·53
	Do. (Central)	5·5	2·7	3·60	2·18	+ 1·42
	Do. (Sub-montane)	6·1	3·2	6·07	2·84	+ 3·23
	Do. (Hill Districts)	10·1	6·9	9·06	4·81	+ 4·25
	Do. (North-West)	5·2	1·9	4·65	1·34	+ 3·31
	Do. (West)	1·5	1·2	0·99	0·65	+ 0·34
Bombay and Malabar Coast Districts (Madras).	Malabar	25·2	24·8	38·13	37·30	+ 0·83
	Madras (South Central)	6·9	3·8	3·92	2·03	+ 1·89
	Coorg	24·6	?	21·12	?	?
	Mysore*	?	?	6·09	4·76	+ 1·33
	Konkan	19·2	19·2	35·20	27·15	+ 8·05
	Bombay Deccan	10·6	8·2	9·95	5·75	+ 4·20
	Khandesh	12·6	7·6	11·81	5·69	+ 6·12
	Berar	9·6	?	6·18	7·39	− 1·21
Central Provinces and Berar.	Central Provinces (West)*	?	?	8·38	6·99	+ 1·39
	Do. (Central)*	?	?	12·54	7·90	+ 4·64
	Do. (East)*	?	?	10·22	8·48	+ 1·74
Bombay (North)	Guzerat	13·3	6·7	18·84	6·26	+ 12·58
	Kattywar	10·1	3·6	12·88	3·26	+ 9·62
	Sind	2·2	?	1·63	0·20	+ 1·43

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

Province.	Division.	Number of Rainy Days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Rajputana and Central India.	Central India (East)	10·0	?	10·03	6·02	+ 4·01
	Rajputana (East), Central India (West)	5·8	?	4·58	3·11	+ 1·47
	Do. (West)	5·6	?	3·86	1·51	+ 2·35
Madras	East Coast (North)	6·4	6·7	5·76	4·90	+ 0·86
	Do. (do.) (a)	12·5	11·1	7·00	10·41	− 3·41
	Hyderabad (South)*	?	?	4·74	4·52	+ 0·22
	Madras (Central)	5·5	4·8	3·51	2·63	+ 0·88
	East Coast (Central)	4·1	3·1	3·19	1·65	+ 1·54
	Do. (South)	4·9	3·8	2·86	2·27	+ 0·59
	Madras (South)	2·8	2·2	1·56	1·06	+ 0·50

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

Plate V gives the variation of the amount of rain which fell in June 1893 from the amount in normal years, the figures for which are given in the foregoing table, and this plate at a glance shows the comparative heaviness of the rainfall in the month under review. Throughout the whole of the 51 districts, with two or three exceptions, the rainfall for June 1893 has been in excess of the normal. The exceptions where the falls are less than the normal were comprised in the divisions in the south of Burma, in Assam, and North Bengal, and in Berar, and in the northern section of the East Coast and in Orissa, and with these small exceptions the whole of India has received a rainfall in excess of the normal. The excess falls have also been unusually large in some districts, and thus in Gujerat the falls were more than 12 inches in excess of the usual amount. In Kattywar, Konkan, and Deltaic Bengal, the falls were more than 8 inches in excess, and in Khandesh, Arakan, Eastern Bengal, Central Bengal, Chota Nagpur, and North-Western Provinces (east), the falls were more than 5 inches in excess. Hence it will be seen that generally the whole of India had received fairly abundant rain in June.

The rainfall data for Burma for June show that the greater part of the Province has received falls of from 6 to 9 inches less than usual, this defect equaling approximately 30 per cent. of the normal. On the other hand, the district of Arakan received about 7 inches more than usual, or about 13 per cent. in excess.

The following table will show the summary of the rainfall data of Burma for June :—

Province.	Division.	Number of Rainy Days.			Rainfall.		
		Actual, June 1893.	Normal, June.	Variation.	Actual, June 1893.	Normal, June.	Variation.
Burma	Tenasserim	21·3	?	?	29·29	?	?
	Lower Burma	19·0	?	?	13·60	?	?
	Central do.	16·8	?	?	11·17	?	?
	Upper do.	9·9	?	?	5·87	?	?
	Arakan	23·5	?	?	48·58	?	?

In Bengal moderate rain fell quite at the commencement of June, and there was then a partial break till the second advance of the monsoon current came up the Bay, with the small storm in front of it. The rainfall again was general from about the 13th or 14th, and from this date until about the 23rd it was usually light. Much heavier rain then set in, owing to the formation and development of the barometric depression over South-East Bengal, and to its subsequent westerly movement, and from the 23rd to the end of June extremely heavy rain fell in Bengal. Thus on the 23rd Khatra in the Bankura district reported 12·08 inches of rain and Raipur in the same district 10·08 inches, Kushtia in the Nadia district 7·50 inches, and many stations 5 and 6 inches. On the 24th falls exceeding 5 inches were reported at Cox's Bazar, Chittagong, Kutubdia and Satkanya, all in the Chittagong district, and similar heavy amounts fell in the succeeding days of the month in other districts. Indeed for the last week of June the rainfall in Bengal and Assam was so heavy that Assam (Surma district) received an average fall of 7·84 inches, or more than an inch a day, while the falls in Eastern Bengal, Deltaic Bengal, North Bengal, and Chota Nagpur were about 6 inches and upwards, or practically an inch of rain a day.

The following table will give a summary of the rainfall data of the province of Bengal for June 1893 :—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, June 1893.	Normal average, June.	Variation from normal.	Actual average, June 1893.	Normal average, June.	Variation from normal.
Orissa	12·1	9·9	+ 2·2	8·65	8·79	− 0·14
Deltaic Bengal	15·8	12·8	+ 3·0	19·05	10·66	+ 8·39
Central "	16·9	12·0	+ 4·9	16·79	10·22	+ 6·57
North "	20·3	17·3	+ 3·0	21·53	23·62	— 2·09
East "	18·6	16·9	+ 1·7	24·45	18·93	+ 5·52
North Bihar	11·8	9·0	+ 2·8	9·54	8·72	+ 0·82
South Bihar	11·8	7·2	+ 4·6	9·30	5·79	+ 3·51
Chota Nagpur	15·2	10·7	+ 4·5	12·86	7·80	+ 5·06

These figures show that there was a slightly defective fall in Orissa in June (but this was to a great extent confined to the Puri district) and in North Bengal, and that there was, on the other hand, a large excess in all other districts. Compared with the normal falls for the month, the actual falls have equalled the following percentage amounts:—

DISTRICT.	Variation of actual rainfall of June 1893 from normal expressed as a percentage of normal fall.	DISTRICT.	Variation of actual rainfall of June 1893 from normal expressed as a percentage of normal fall.
Orissa . . .	− 2	East Bengal .	+ 29
Deltaic Bengal .	+ 79	North Bihar .	+ 9
Central " . .	+ 64	South " . .	+ 61
North " . .	− 9	Chota Nagpur .	+ 65

In Assam there was a slight break in the rains from June 5th to the 8th inclusive, but throughout the remainder of the month rainfall was received almost daily in all districts. The rainfall was comparatively light for the first ten days of the month, but the falls were heavy in the week ending the 20th of June, and again heavy in the following week, during which the Sylhet district received an average amount of about 11 inches of rain, and the Cachar, Khasi, and Jaintia Hills district and the Garo Hills district about seven inches, and the heavy rainfall continued practically till the close of the month. On the whole, however, the falls in Assam have not been particularly heavy, and even at Cherra Punji the falls (for that station) have been moderate. Thus the total rainfall for June at Cherra Punji has been 80·82 inches, but a large part of this fell in a few days. Thus on the 22nd 9·30 inches were received, on the 21st 8·35 inches, on the 29th 6·65 inches, and on the 18th 5·94 inches.

The total rainfall of Assam for the month was 4·47 inches in defect of the normal in the Brahmaputra district and 3·53 inches in excess in the Surma Valley district.

The following statement will show the summary of the rainfall data in Assam for June 1893:—

PROVINCE.	DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
		Actual, June 1893.	Normal, June.	Variation.	Actual, June 1893.	Normal, June.	Variation.
ASSAM .	Assam (Surma)	21·5	20·3	+ 1·2	26·79	23·26	+ 3·53
	Do. (Brahmaputra.	15·2	17·1	—1·9	11·37	15·84	− 4·47

Rainfall was fairly general in the North-Western Provinces on the 1st and 2nd of June, due to the first advance of the monsoon currents from the Bay of Bengal and Arabian Sea, but a break then took place owing to the retreat of the monsoon. Rainfall again commenced about the 12th in the western districts, due perhaps to the second advance of the monsoon current from the Arabian Sea, but the eastern districts did not receive general rain again till about the 18th instant, when it was brought up apparently by the current from the Bay of Bengal, which had advanced in connection with the small storm, which on the 18th was filling up near Sutna. These advances gave good general rain in all districts, and at many stations the falls were heavy. Again towards the close of the month there was another rather heavy general burst of rainfall over the North-Western Provinces in connection with a barometric depression which had formed in South-East Bengal, and then travelled in a westerly direction across the head of the Peninsula and which on the 30th was near Bikanir.

The days on which the heaviest falls were received were the 1st, 15th, 24th, and 27th, and this will be shown by the unusually heavy falls which were reported on these dates at various stations in different districts—

DATE.	District.	Station.	Fall in inches.	DATE.	District.	Station.	Fall in inches.
1st	Jalaun .	Kunch .	7·50	24th	Sultanpur.	Khadipur .	6·10
15th	Kheri .	Muhamdi .	5·03	24th	Sultanpur.	Musafirkhana.	5·10
15th	Pilibhit .	Puranpur .	7 26				
15th	Shahjahanpur.	Pawayan .	7·00	24th	Fyzabad .	Bikapur .	7·68
				26th	Garhwal .	Kotdwara .	5·91
15th	Shahjahanpur.	Shahjahanpur.	5·60	27th	Banda .	Girwan .	5·40
				27th	Jhansi .	Moth .	5·20
24th	Sulatnpur.	Sultanpur.	5·61	27th	Jhansi .	Barwasagar	5·90

The falls generally in the various divisions in the North-Western Provinces were largely in excess of the normal in June; the excess varying from more than 150 per cent. of the normal in the eastern division of the North-Western Provinces to about 60 per cent. in the northern and sub-montane divisions. Practically all parts of the North-Western Provinces received abundant rain in June.

The Punjab received no general rainfall up till about the 18th or 19th, and even at this period the falls did not extend to the western division, and the falls were very scattered in the southern and central divisions. From about the 24th rainfall was general in all excepting the western division, and such districts as Jhang, Mozuffergarh and Mooltan received practically no rainfall at all during the month. The falls generally in the Punjab have been much heavier than usual, and the excess varies from about 40 per cent of the normal fall in South Punjab to about 110 per cent. in the Sub-montane districts, and to about 250 per cent. in excess in the north-western districts.

The following table gives the actual rainfall of June 1893 in the Punjab contrasted with the normal fall for the same period and will show the large excess which has been received :—

STATION.	Actual rainfall for June 1893.	Normal rainfall for June.	STATION.	Actual rainfall for June 1893.	Normal rainfall for June.
Firozepur . .	3·10	1·70	Gurdaspur .	11·74	2·95
Rohtak . .	3·93	2·47	Amritsar . .	4·88	2·39
Delhi . .	6·96	3·26	Simla . .	7·43	7·68
Lahore . .	4·74	1·35	Kangra . .	10·13	5·65
Umballa . .	3·63	3·86	Sialkot . .	8·03	2·87
Ludhiana . .	2·33	2·03	Rawal Pindi .	4·99	1·84
Jullundur .	6·29	2·56	Abbottabad .	9·06	2·93
Hoshiarpur (sadr station).	9·31	3·31			

In British Baluchistan rather numerous rain showers were received from about the 17th to the end of the month, and probably the falls at the majority of the stations were in excess of the normal. Fort Sandeman received the fall of 3·81 inches, Shahrig one of 2·83 inches, and Nasak 2·46 inches. In Kashmir also rain showers were frequent between the middle and end of June, and at several stations the falls were very heavy, thus Poonch received 20·11 inches of rain in June, Domel 11·34 inches, and Jammu 5·09 inches.

Rain also occurred in Rajputana tolerably frequently from the middle to the end of June, and the periods during which the rain was most general were from the 18th to the 23rd, and from the 27th to the 30th. The falls over Rajputana generally averaged about 4 inches, and they were usually about 50 per cent. in excess of the normal fall. Some very heavy falls took place in the Jodhpur State, where Bali received 10·87 inches, and Jaswantpura 9·44 inches. Some very heavy falls were reported in Oodeypur, where Kherwara registered 19·23 inches, Kotra 11·26 inches, and Oodeypur 10·98 inches. Partabgarh received 18·58 inches, the normal being four and a half inches, and Banswara 22·83 inches against the normal amount of 5·40 inches. In the Central India States Bhopal received 17·71 inches, the normal being about six and a half inches and Neemuch in Gwalior 12·85 inches against the normal 4·10 inches, and the rainfall was also generally much heavier than the normal in Rewah and Bundelkhand.

In the Central Provinces rainfall was fairly general on the 1st and 2nd of June, but after that date rainfall diminished, and only local showers fell until about the 11th, when it began again to become general. It was, however, generally light up till about the 16th, when the small storm from the Bay of Bengal had reached Chanda, and on the morning of the 17th very heavy general rain was reported in all districts. Thus on the 17th falls of two inches and upwards were registered at Pachmari, Hinganghat, Nagpur, Umrer, Chanda, Mul, Tirora, and Bilaspur, and numerous stations received more than an inch, while on the 18th Harda received 5·70 inches, Kurai 3·81 inches, Damoh 3·51 inches, etc. Indeed from the 17th instant general and rather heavy rain was received in practically all districts of the Central Provinces up till the end of June. The falls in the central districts of the Central Provinces were about 60 per cent. in excess of the normal fall, and in the eastern and western districts they were about 20 per cent. in excess.

The following table contains a summary of the rainfall data for the Central Provinces for June 1893:—

PROVINCE.	DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
		Actual, June 1893.	Normal June.	Variation.	Actual, June 1893	Normal, June.	Variation.
CENTRAL PROVINCES	Central Provinces (East.)	13·1	8·6	−4·5	10·21	8·19	+2·02
	Central Provinces (Central).	10·9	8·9	+2·0	12·18	8·27	+3·91
	Central Provinces West).	10·5	8·8	+1·7	8·68	7·48	+1·20

In Berar rainfall became fairly general though light from about the 8th instant, the heavier and more general rainfall commencing from the 17th instant, but towards the close of the month for the last two or three days rainfall almost ceased. The general fall in Berar has averaged about 6 inches or about 16 per cent. less than in normal years.

In the Bombay Presidency scattered rain was received on the 1st of June, but for the next two or three days little or no rain was received, owing to the retreat of the monsoon current. The south-west monsoon winds however were still blowing in the south of the Bay, and from about the 7th again commenced to advance northwards. Hence the South Konkan began to receive the regular monsoon rain from about the 6th, and the North Konkan from about the 7th. The South (Bombay) Deccan received moderately heavy general rain from about the 6th, and the North (Bombay) Deccan or Khandeish from about the 7th or 8th. Guzerat received general rain from about the 11th or 12th, and Kattywar from about the 12th, while in Sind the rain bearing current did not give general rain till about the 22nd, and in most districts rainfall continued fairly general till the close of June.

The falls in Guzerat were excessive and averaged about 19 inches or about three times as much as usual. In Kattywar also there was a fall of 13 inches or about four times as large as usual. In the Konkan an average amount of 35 inches of rain fell or about 8 inches more than usual, and the excess therefore equalled about 30 per cent. In the Bombay Deccan, and Khandeish a fall of about 70 to 110 per cent. in excess of the normal was received, while even in Sind the falls were in excess, this district having registered an average fall of 1·63 inches, while in normal years only one-fifth of an inch of rainfalls in June over that area.

Some exceedingly heavy rain falls were reported at some of the stations in Western India in June; thus Khed in the

Ratnagiri district on the 17th registered 11·60 inches, Malcolmpeth in the Satara district on the 19th received 13·84 inches, Lanoli in the Poona district 12·60 inches on the 19th, Bardoli in the Surat district 14·24 inches on the 21st, and Junagad in Kattywar 13·51 inches also on the 19th.

Travancore, Cochin, and Coorg received fairly general rain from the 2nd of June, and in most cases the falls continued up till the end of the month, but in parts of Travancore a decided break in the rains set in from about the 17th, which lasted till the end of June. Except in the south of Travancore where the falls were very small, equalling usually from 2 to 4 inches, and where probably rainfall was in large defect of the normal, the falls have been heavy in these areas, averaging probably from 15 to 20 inches of rain.

In Mysore the rainfall was fairly general almost throughout the month, except in the districts Bangalore, Kolar, Tumkur, and Mysore where there was a break from 17th to the 28th. In Hyderabad scattered showers were received from the 1st to the 4th and from the 27th to the 21st.

The following table gives a summary of the data for these two districts :—

Province.	Division.	Number of Rainy Days.			Rainfall.		
		Actual, June 1893.	Normal, June.	Variation.	Actual, June 1893.	Normal, June.	Variation.
Mysore	Mysore	9·8	6·6	+3·2	6·89	4·18	+2·71
Hyderabad	Hyderabad (North).	8·7	?	?	8·30	5·13	+3·17
	Hyderabad (South).	7·9	?	?	6·76	4·77	+1·99

The rainfall in June over the greater part of the Madras Presidency was fairly abundant, and was in excess of the normal in all districts except one portion of the northern section of the East Coast, where there has been a defect of about 30 per cent. In the other divisions there has been an excess varying from about 90 per cent. in the central parts of the east coast down to a nearly normal fall in Hyderabad (south).

The rainfall along the East Coast division generally fell in three periods in June, the first from about the 1st to the 5th (*i.e.*, during the retreat of the first advance of the monsoon current down the Bay), the second from the 12th to the 18th (during the north-westerly advance of the small storm in the Bay and the second advance of the monsoon current) and the third period (when the rainfall was limited almost to the northern section of the coast) from the 21st to the 30th, and during which rain fell owing to the strong burst of the monsoon which swept up to the head of the Bay in the latter part of June.

In South and Central Madras the greater part of the rain fell within the first fifteen or eighteen days of the month, or during the strong advance of the Bombay branch of the monsoon current, while on the Malabar coast it rained on about every day of the month, and the same was the case at the hill stations in Madras. As the monsoon current did not at any time in June retreat further than to about Lat. 10°N. in the south of the Arabian Sea, this current affected the Malabar coast practically throughout the month, and this district hence received almost daily rainfall.

The following table gives a comparative statement of the rainfall of June for all the districts in the Madras Presidency :—

District.	Number of Rainy days.			Rainfall.			
	Actual, June 1893.	Normal, June.	Variation from normal.	Actual, June 1893.	Normal, June.	Variation from normal.	Percentage variation.
				Inches	Inches	Inches	
Ganjam	6·3	6·8	−0·5	6·33	5·08	+1·25	+ 25
Vizagapatam	8·1	8·1	0	5·67	5·89	−0·22	− 4
Godavari	5·5	5·9	−0·4	5·96	4·53	+1·43	+ 32
Kistna	5·4	5·9	−0·5	4·95	4·23	+0·72	+ 17
Nellore	4·1	3·1	+1·0	3·19	1·65	+1·54	+ 93
Chingleput	6·1	4·8	+1·3	3·23	3·10	+0·13	+ 4
Madras	5·0	4·7	+0·3	1·24	2·07	−0·83	− 40
North Arcot	6·1	4·6	+1·5	3·66	2·84	+0·82	+ 29
South Arcot	4·7	4·0	+0·7	2·41	2·16	+0·25	+ 12
Tanjore	3·6	3·2	+0·4	1·82	1·97	−0·15	− 8
Trichinopoly	4·4	2·1	+2·3	3·72	1·21	+2·51	+207
Madura	3·5	2·3	+1·2	2·21	1·21	+1·00	+ 82
Tinnevelly	2·2	2·0	+0·2	0·88	0·87	+0·01	+ 1
Malabar	25·4	23·9	+1·5	34·65	32·01	+2·64	+ 8
South Canara	25·0	26·2	−1·2	43·14	44·96	−1·82	− 4
Salem	7·3	4·4	+2·9	4·28	2·54	+1·74	+ 69
Coimbatore	6·5	3·0	+3·5	3·52	1·42	+2·10	+148
Nilgris	15·2	13·8	+1·4	11·60	10·64	+0·96	+ 9
Cuddapah	5·7	4·4	+1·3	3·47	2·30	+1·17	+ 51
Anantapur	4·7	4·4	+0·3	3·91	2·32	+1·59	+ 69
Bellary	5·2	5·2	0	3·15	2·89	+0·26	+ 9
Kurnool	6·3	5·5	+0·8	3·50	3·08	+0·42	+ 14

The preceding statement shows that in all districts except Vizagapatam, Tanjore, and South Canara, where there were small defects, and in Madras where there was a decidedly large defect, the general rainfall of the Madras Presidency has been in moderate to large excess. The excess culminates in Coimbatore where the rainfall has been two and a half times as large as usual, while in several districts such as Nellore, Madura, Salem, Cuddapah, and Anantapur the falls have been from one and a half to twice as much as usual.

Table

Abstract of Observations taken at 8 A.M. at 196

Meteorological Province or District.	Station.	Elevation of barometer 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.		...	...	+·018	...	...	...	...	...	...	...	86·7	+1·1	76·4	+0·6	81·5	+0·9	10·3	...	...	...	...	19·7
Bay Islands	Port Blair	61	29·744	?	29·732	29·850	22nd	29·589	13th	·261	80·4	85·5	?	77·5	?	81·5	?	8·0	89·5	6th	73·7	24th	15·8
Tenasserim	Mergui	96	29·779	?	29·807	29·852	22nd	29·690	12th	·162	78·8	87·0	?	?	?	?	?	?	91·0	8th	?	?	?
	Tavoy	26	29·843	?	29·800	29·947	21st	29·779	12th	·168	78·4	86·1	?	73·9	?	80·0	?	12·2	91·2	2 days	70·2	26th	21·0
	Moulmein	94	29·743	+·015	29·775	29·875	21st	29·676	5th	·199	79·2	87·1	+3·1	75·2	+0·8	81·2	+2·0	11·9	95·5	13th	71·3	28th	24·2
	Toungoo	181	29·612	+·017	29·739	29·725	21st	29·524	25th	·201	80·6	90·1	+2·0	75·9	+0·8	83·0	+1·4	14·2	96·7	14th	73·2	3 days	23·5
Lower Burma	Rangoon	41	29·776	+·015	29·754	29·890	21st	29·710	25th	·180	79·1	87·4	+1·5	76·5	+0·1	82·0	+0·8	10·9	91·7	3 days	73·4	2 days	18·3
	Bassein	27	29·781	+·017	29·743	29·875	21st	29·700	25th	·175	79·5	87·1	+1·0	76·1	−0·1	81·6	+0·5	11·0	92·7	6th	72·9	30th	19·8
	Diamond Island.	41	29·766	+·014	29·742	29·874	21st	29·688	12th	·186	81·4	84·9	−0·5	78·5	+2·6	81·7	+1·1	6·4	88·1	12th	73·3	29th	14·8
Arakan	Akyab	20	29·738	+·032	29·701	29·838	1st	29·543	25th	·295	79·8	85·3	−0·6	77·2	−0·5	81·3	−0·6	8·1	92·7	14th	73·2	28th	19·5
II.—Burma Inland		...	...	+·026	...	...	...	...	...	...	...	90·3	−0·3	75·2	+0·3	82·7	0	15·1	...	...	...	...	25·0
Central Burma	Thayetmyo	134	29·641	+·026	29·716	29·724	21st	29·535	25th	·189	81·3	90·5	−0·3	76·7	+0·3	83·5	0	13·8	95·1	4 days	74·0	22nd	21·1
	Minbu	?	29·596	?	29·536	29·688	9th	29·448	25th	·240	81·0†	93·4	?	76·6	?	85·0	?	16·8	101·6	5th	69·1	1st	32·5
	Yamethin	?	29·125	?	29·066	29·200	9th	29·001	25th	·199	81·2	91·9	?	75·4	?	83·7	?	16·5	100·1	15th	73·0	4 days	27·1
	Fort Stedman.	?	26·889	?	26·830	26·991	14th	26·784	25th	·207	75·2	84·8	?	69·7	?	77·3	?	15·1	89·6	4th	66·5	9th	23·1
Upper Burma	Mandalay	?	29·504	?	29·715	29·608	9th	29·367	25th	·241	84·4	92·7	?	78·6	?	85·8	?	14·1	98·0	2 days	74·1	15th	23·9
	Kendat	?	29·370	?	29·686	29·500	14th	29·210	25th	·290	79·4	88·4	?	75·5	?	82·0	?	12·9	96·8	6th	73·5	5th	23·3
	Bhamo	?	29·356	?	29·703	29·492	14th	29·222	25th	·270	79·1	90·1	?	73·8	?	81·9	?	16·3	95·1	4th	70·8	5th	24·3
III.—Assam		...	...	+·040	...	...	...	...	...	...	...	86·9	−1·3	75·8	−0·7	81·3	−1·0	11·1	...	...	...	...	22·0
Assam (Surma)	Silchar	104	29·613	+·033	29·668	29·741	9th	29·343	25th	·398	79·5	88·1	−0·6	75·7	−0·4	81·9	−0·5	12·4	94·0	2 days	70·3	5th	23·7
Brahmaputra	Sibsagar	333	29·397	+·049	29·684	29·533	9th	29·207	24th	·326	79·5	88·0	−2·0	76·0	−0·6	82·0	−1·3	12·0	94·1	2 days	70·4	17th	23·7
	Dhubri	115	29·569	+·041	29·637	29·711	9th	29·362	25th	·349	78·1	84·6	−1·3	75·6	−1·0	80·1	−1·2	9·0	91·0	5th	72·3	11th	18·7
IV.—Bengal and Orissa		...	...	+·045	...	...	...	...	...	...	...	87·7	−3·4	77·2	−0·9	82·4	−2·2	10·4	...	...	...	...	20·6
East Bengal	Chittagong	87	29·633	+·035	29·667	29·765	9th	29·370	25th	·395	79·7	84·5	−1·6	75·9	−0·5	80·2	−1·1	8·6	92·2	15th	73·1	1st	19·1
	Lungleh	?	?	?	?	?	?	?	?	?	69·0	73·3	?	68·8	?	71·1	?	4·5	80·8	15th	66·1	15th	14·7
	Noakhali	43	29·647	?	29·637	29·770	9th	29·352	25th	·418	80·6	84·9	?	76·8	?	80·9	?	8·1	91·5	7th & 15th	73·8	5th & 23rd	17·7
	Comilla	35	29·555	?	29·638	29·794	9th	29·370	25th	·424	79·5	86·3	?	76·0*	?	81·2*	?	10·3	94·3	15th	73·3	28th	21·0
	Sirajganj	46	29·618	?	29·614	29·757	9th	29·364	26th	·393	80·2	87·7	?	76·7	?	82·2	?	11·0	92·1	5th	72·7	3rd	19·4
	Dacca	22	29·643	+·029	29·613	29·794	9th	29·358	25th	·436	80·8	87·4	−1·6	77·7	−0·6	82·6	−1·1	9·7	93·1	7th	74·7	24th	18·4
	Barisal	13	29·659	+·036	29·617	29·793	9th	29·356	25th	·437	81·5	87·2	?	76·8	?	82·0	?	10·4	93·8	7th	70·9	2 days	22·9
	Mymensingh	59	29·624	+·037	29·635	29·755	9th	29·385	25th	·370	†81·0	86·5	?	76·9	?	81·7	?	9·6	91·2	2 days	74·6	2 days	16·6
Deltaic Bengal	Faridpur	46	29·628*	?	29·621*	29·745	9th	29·336	26th	·409	80·6	86·5	?	77·3	?	81·8	?	9·2	91·5	2 days	72·9	6th	18·6
	Jessore	33	29·626	+·038	29·606	29·774	9th	29·346	26th	·428	82·2	88·7	−3·0	77·9	−0·9	83·3	−2·0	10·8	93·5	4 days	71·4	5th	22·1
	Calcutta	21	29·631	+·052	29·598	29·774	9th	29·402	26th	·372	81·3	87·7	−3·7	78·1	−0·7	82·9	−2·2	9·6	92·1	4th	75·2	1st	16·9
	Saugor Island	25	29·629	+·048	29·598	29·775	9th	29·422	26th	·353	83·2	87·7	−3·1	80·3	−1·7	84·0	−2·4	7·4	91·2	2 days	77·0	30th	14·2
	Krishnagar	47	29·598	?	29·593	29·744	9th	29·324	26th	·420	82·2	89·9	?	77·5	?	83·7	?	12·4	96·2	5th	70·7	5th	25·5
	Midnapore	149	29·509	?	29·603	29·634	9th	29·308	26th	·326	82·2	90·0	?	77·4	?	83·8	?	12·6	98·3	5th	72·2	12th	26·1
Central Bengal	Bankura	298	29·329	?	29·576	29·459	13th	29·144	27th	·315	81·6	90·8	?	77·4	?	84·1	?	13·4	98·6	5th	72·1	12th	26·5
	Raniganj	334	29·303	?	29·585	29·443	14th	29·113	26th	·330	80·5	91·3	?	?	?	?	?	?	97·7	5th	?	...	?
	Burdwan	99	29·554	+·056	29·599	29·691	9th	29·317	26th	·374	81·8	89·6	−4·8	78·7	−0·7	84·2	−2·8	10·9	96·1	5th	73·2	12th	22·9

* Mean of 29 days.
† Mean of 22 days.

I.

Stations in India, Burma, etc., in June 1893.

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.
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 30th June 1893.	Normal rainfall for period 1st June to 30th June.	Variation from normal of period 1st June to 30th June.			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21·14	27·38	−6·24	...	...	...	...	I.—Burma Coast and Bay Islands.	
9	...	...	...	1	4	10	5	1	5·3	10	−47	91	·943	8·9	21	?	?	9·44	18·79	− 9·35	9·44	18·79	− 9·35	1·35	Port Blair	Bay Islands.
...	3	...	1	6	5	5	2	8	1·0	2	−50	87	·861	7·3	19	?	?	21·55	31·44	− 9·89	21·55	31·44	− 9·89	3·35	Mergui	Tenasserim.
27	...	...	...	1	...	2	...	...	1·5	?	?	90	·882	5·4	20	?	?	24·71	40·02	−15·31	24·71	40·02	−15·31	3·90	Tavoy.	
...	4	1	4	6	11	3	1	...	3·3	3	+10	89	·889	5·7	20	27·00	− 7·00	30·88	36·21	− 5·33	30·88	36·21	− 5·33	5·82	Moulmein.	
6	1	...	1	16	6	...	...	...	3·1	5	−38	89	·941	7·3	18	20·91	−2·91	8·23	15·17	− 6·94	8·23	15·17	− 6·94	1·19	Toungoo.	
...	...	...	3	4	6	10	7	...	4·6	5	− 8	92	·921	8·0	18	23·27	−5·27	10·77	18·10	− 7·33	10·77	18·10	− 7·33	1·39	Rangoon	Lower Burma.
1	...	1	...	8	6	6	6	2	4·5	4	+13	91	·920	7·1	20	24·82	−4·82	11·56	22·31	−10·75	11·56	22·31	−10·75	1·96	Bassein.	
3	...	1	4	3	1	11	6	1	12·8	9	+42	84	·896	8·5	20	21·73	−1·73	24·63	23·63	+ 1·00	24·63	23·63	+ 1·00	4·53	Diamond Island.	
...	4	4	4	4	10	2	1	1	3·4	4	−15	93	·952	8·7	21	23·09	−2·09	48·50	40·79	+ 7·71	48·50	40·79	+ 7·71	9·85	Akyab	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·49	9·33	+ 2·22	...	...	...	...	II.—Burma Inland.	
...	...	2	...	5	22	1	...	...	5·6	8	−30	82	·876	5·8	9	15·00	−6·00	6·76	7·04	− 0·28	6·76	7·04	−0·28	1·76	Thayetmyo	Central Burma.
3	1	...	...	25	1	...	...	...	9·8	?	?	83	·882	2·3	9	?	?	4·19	?	?	4·19	?	?	2·15	Minbu.	
...	3	...	...	11	16	...	...	...	10·0	?	?	79	·847	0	8	?	?	2·08	?	?	2·08	?	?	0·60	Yamethin.	
26	..	...	...	...	...	3	1	...	?	?	?	80	·710	5·9	12	?	?	7·00	?	?	7·00	?	?	1·34	Fort Stedman.	
2	...	...	...	3	24	1	...	...	7·8	?	?	70	·852	7·0	5	?	?	6·64	6·60	+ 0·04	6·64	6·60	+ 0·04	3·16	Mandalay	Upper Burma.
...	3	...	2	5	2	3	10	5	2·3	?	?	89	·809	6·8	17	?	?	21·06	7·97	+13·09	21·06	7·97	+13·09	3·95	Kendat.	
21	2	3	...	...	1	1	...	2	?	?	?	87	·864	7·2	20	?	?	11·73	15·72	− 3·99	11·73	15·72	− 3·99	1·35	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17·41	20·03	−2·63	...	...	...	...	III.—Assam.	
25	...	1	2	...	...	...	2	...	3·7	3	+23	90	·900	8·5	23	19·91	+3·09	24·12	21·36	+ 2·76	24·12	21·36	+ 2·76	3·65	Silchar	Assam (Surma).
5	...	12	2	5	...	5	...	1	1·7	3	−43	91	·916	8·3	15	16·27	− 1·27	10·51	13·36	− 2·85	10·51	13·36	− 2·85	2·11	Sibsagar	Brahmautra.
4	4	8	9	2	...	3	...	...	6·1	5	+22	91	·874	8·6	23	17·25	+ 5·75	17·59	25·38	− 7·79	17·59	25·38	− 7·79	3·08	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17·55	12·93	+ 5·17	...	...	...	...	IV.—Bengal and Orissa.	
1	1	3	3	11	7	2	1	1	5·1	7	−27	91	·929	8·6	20	16·18	+3·82	37·50	23·44	+14·06	37·50	23·44	+14·06	7·53	Chittagong	East Bengal.
...	...	...	...	...	...	...	...	...	?	?	?	95	·680	?	14	?	?	16·96	?	?	16·96	?	?	4·18	Lungleh.	
...	1	2		10	5	7	...	...	6·2	?	?	88	·960	5·4	23	18·15	+4·85	31·10	26·07	+ 5·03	31·10	26·07	+ 5·03	4·31	Noakhali.	
...	...	...	17	4	6	3	...	...	6·9	?	?	95	·954	7·7	17	17·35	−0·35	20·35	19·13	+ 1·22	20·35	19·13	+ 1·22	3·43	Comilla.	
3	1	4	5	7	7	2	1	...	4·0	?	?	92	·948	8·6	9	12·55	− 3·55	16·16	11·40	+ 4·76	16·16	11·40	+ 4·76	3·24	Sirajganj.	
1	...	2	4	9	11	3	...	...	7·5	7	+ 7	91	·954	9·1	17	13·64	+3·36	18·50	12·25	+ 6·25	18·50	12·25	+ 6·25	3·11	Dacca.	
12	...	2	1	2	8	4	...	1	4·0	?	?	89	·960	9·5	23	17·15	+5·85	24·42	16·23	+ 8·19	24·42	16·23	+ 8·19	3·70	Barisal.	
1	...	4	7	10	4	4	...	...	6·2	?	?	90*	·949	8·1	23	18·25	+4·75	21·36	18·78	+ 2·58	21·36	18·78	+ 2·58	3·77	Mymensingh.	
2	1	1	4	8	10	3	1	...	6·0	?	?	92	·964	6·8	20	14·40	+5·60	23·32	12·49	+10·83	23·32	12·49	+10·83	4·52	Faridpur	Deltaic Bengal.
3	1	1	...	10	11	2	1	1	4·9	5	− 2	90	·992	8·4	18	14·55	+3·45	15·94	11·69	+ 4·25	15·94	11·69	+ 4·25	3·06	Jessore.	
4	1	...	2	2	5	12	3	1	4·6	6	−23	87	·944	8·2	15	12·00	+3·00	25·65	9·27	+16·38	25·65	9·27	+16·38	8·46	Calcutta.	
...	...	...	3	...	12	11	3	1	20·0	15	+33	87	·991	9·4	12	11·64	+0·36	10·36	9·29	+ 1·07	10·36	9·29	+ 1·07	1·89	Saugor Island.	
1	2	1	4	5	10	3	2	2	6·5	?	?	84	·923	7·5	17	11·95	+5·05	17·25	8·81	+ 8·44	17·25	8·81	+ 8·44	2·56	Krishnagar.	
3	1	2	...	4	10	9	...	1	5·9	?	?	84	·923	5·3	16	10·80	+5·20	20·70	8·82	+11·88	20·70	8·82	+11·88	6·52	Midnapore.	
8	3	...	2	3	9	2	3	...	4·0	?	?	85	·916	6·8	13	12·40	+0·60	19·80	9·35	+10·45	19·80	9·35	+10·45	5·83	Bankura	Central Bengal.
2	1	2	2	8	7	6	...	2	3·5	?	?	89	·922	2·5	18	11·30	+6·70	15·23	8·38	+ 6·85	15·23	8·38	+ 6·85	2·10	Raniganj.	
	2	...	3	4	6	10	...	2	8·6	5	+72	84	·906	8·0	16	11·27	+4·73	11·17	7·64	+ 3·53	11·17	7·64	+ 3·53	1·94	Burdwan.	

* Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 196 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Bengal —*contd.*	Naya Dumka	489	29·136	?	29·578	29·268	14th	28·943	26th	·325	81·0	89·5	?	76·9	?	83·2	?	12·6	98·7	5th	74·3	12th	24·4
	Berhampore	67	29·579	+·043	29·594	29·719	9th	29·335	26th	·384	80·6	89·2	−3·4	77·9	−0·7	83·6	−2·1	11·3	95·2	6th	74·8	12th	20·4
	Rampur Boalia.	70	29·574	?	29·593	29·709	14th	29·325	26th	·284	85·4	88·3	?	76·3	?	82·4	?	12·0	94·1	6th	73·2	3 days	20·9
	Malda	80	29·566	?	29·597	29·710	14th	29·362	26th	·348	81·2	89·5	?	77·4	?	83·5	?	12·1	97·1	5th	75·5	5 days	21·6
	Bogra	61	29·592	+·056	29·605	29·731	9th	29·390	2 days	·341	81·1	88·7	?	76·2	?	82·4	?	12·5	94·2	5th	72·2	8th	22·0
North Bengal	Dinajpur	118	29·545	+·039	29·620	29·682	9th	29·347	26th	·335	83·0	88·0	?	76·9	?	82·5	?	11·1	97·1	5th	72·7	12th	24·4
	Rangpur	123	29·554	?	29·630	29·697	14th	29·360	25th	·337	80·0	87·6	?	75·9	?	81·8	?	11·7	92·8	4th	71·7	3 days	21·1
	Jalpaiguri	284	29·410	+·049	29·647	29·562	9th	29·226	26th	·336	79·2	87·7	?	75·0	?	81·4	?	12·7	93·9	5th	72·6	11th	21·3
Orissa	Balasore	56	29·596	+·057	29·599	29·724	9th	29·431	26th	·293	81·8	88·5	−4·8	77·6	−0·6	83·1	−2·7	10·9	95·4	5th	72·8	12th	22·6
	False Point	21	29·653	+·056	29·615	29·787	9th	29·492	20th	·295	83·6	87·7	−3·3	79·0	−1·2	83·4	−2·2	8·7	90·5	21st	71·6	5th	18·9
	Cuttack	80	29·572	+·047	29·594	29·716	9th	29·415	20th	·301	83·4	91·1	−5·0	78·9	−1·3	85·0	−3·2	12·2	97·1	4th	73·8	27th	23·3
	Shortt's Island	?	29·638	?	?	29·804	1st	29·471	20th	·333	83·6	88·0	?	79·8	?	83·9	?	8·2	92·4	4th	75·2	27th	17·2
	Puri	15	29·648	?	29·604	29·771	9th	29·498	20th	·273	82·9	88·2	?	80·2	?	84·2	?	8·0	91·7	2 days	76·6	3 days	15·1
V.—Gangetic Plain and Chota Nagpur.		...	...	+·037	...	...	...	...	...	...	...	92·9	−5·1	72·8	−2·3	85·2	−3·7	15·3	...	...	...	...	31·2
Chota Nagpur	Hazaribagh	2,007	27·637*	+·030	29·573*	27·760	14th	27·391	27th	·369	77·1	86·9	−5·8	72·4	−3·7	79·7	−4·8	14·5	98·7	7th	68·8	1st	29·9
	Ranchi	2,128	27·520	?	29·572	27·648	14th	27·238	27th	·410	76·3	86·1	?	71·2	?	78·7	?	14·9	95·0	7th	65·4	9th	29·6
	Daltonganj	?	28·837	?	?	28·965	13th	28·609	27th	·356	84·1	95·0	?	78·9	?	87·0	?	16·1	108·3	2 days	75·0	3 days	33·3
	Chaibassa	760	28·831	?	29·584	28·997	9th	28·661	27th	·336	80·6	90·7	?	76·7	?	83·7	?	14·0	98·8	6th	73·7	30th	25·1
Bihar (South)	Gaya	375	29·234	+·037	29·560	29·366	14th	29·030	27th	·336	82·4	95·6	−4·6	78·4	−0·8	87·0	−2·7	17·2	107·6	2 days	72·3	18th	35·3
	Dehri	351	29·247	?	29·549	29·371	14th	29·058	20th	·313	83·3	94·5	?	78·4	?	86·5	?	16·1	105·4	7th	73·0	14th & 16th	32·4
	Patna	183	29·437	+·036	29·570	29·582	14th	29·266	20th	·316	83·7	93·6	−3·4	78·2	−2·0	85·5	−2·7	15·4	104·5	5th	75·2	20th	29·3
	Arrah	190	29·419	?	29·559	29·553	14th	29·253	20th	·300	83·2	93·7	?	78·9	?	86·3	?	14·8	103·4	6th	74·5	1st	28·9
	Buxar	239	29·370	?	29·561	29·496	14th	29·187	20th	·309	83·0	93·8	?	78·2	?	86·0	?	15·6	106·5	6th	74·3	21st	32·2
Bihar (North)	Purnea	125	29·526	+·050	29·604	29·671	14th	29·346	26th	·325	81·5	91·1	−1·6	77·5	+0·6	84·3	−0·5	13·6	102·3	5th	73·2	4th	29·1
	Bhagalpur	160	29·472	?	29·585	29·611	14th	29·308	27th	·303	82·0	90·8	?	77·2	?	84·1	?	13·6	101·8	5th	74·0	12th	27·8
	Darbhanga	166	29·473	+·042	29·591	29·615	14th	29·315	20th	·300	82·5	91·6	−0·8	78·0	−0·9	84·8	−0·9	13·6	101·0	5th	74·2	3 days	26·8
	Muzaffarpur	178	29·457	?	29·587	29·595	14th	29·301	20th	·294	82·4	93·8	?	78·3	?	86·1	?	15·5	103·7	5th	74·2	5th	29·5
	Motihari	224	29·402	?	29·582	29·542	14th	29·244	20th	·298	82·1	92·2	?	76·9	?	84·5	?	15·3	101·2	6th	72·8	12th	28·4
	Chapra	181	29·442	?	29·574	29·574	14th	29·273	20th	·301	83·1	93·2	?	78·4	?	85·8	?	14·8	103·8	6th	74·6	12th	29·2
N.-W. P. (Eastern Districts).	Benares	267	29·329	+·037	29·549	29·440	9th	29·149	20th	·291	83·6	94·6	−6·8	78·5	−4·0	86·6	−5·4	16·1	108·8	6th	74·5	2nd	34·3
	Allahabad	309	29·276	+·024	29·537	29·446	13th	29·084	20th	·362	84·4	95·9	−6·9	79·4	−3·7	87·7	−5·3	16·5	108·4	7th & 8th	71·8	13th	36·6
N.-W. P. (East Submontane).	Gorakhpur	256	29·364	+·051	29·578	29·503	14th	29·203	20th	·300	81·7	91·6	−7·2	77·1	−2·9	84·4	−5·1	14·5	102·8	6th	70·2	14th	32·6
Oudh (South)	Lucknow	375	29·217	+·030	29·549	29·371	14th	29·071	20th	·300	82·2	93·1	−9·0	77·9	−3·7	85·5	−6·4	15·2	104·3	6th & 11th	72·1	13th	32·2
Oudh (North)	Bahraich	403	29·230	?	29·587?	29·373	9th	29·055	19th	·318	82·2	93·1	?	?	?	?	?	?	101·5	6th & 11th	?	...	?
N.-W. Provinces (Central).	Cawnpore	416	29·171	?	29·541	29·328	14th	29·031	19th	·297	84·5	95·2	?	79·0	?	87·1	?	16·2	105·6	11th	73·5	13th	32·1
	Mainpuri	516	29·055	?	29·523	29·218	14th	28·922	25th	·296	84·2	96·6	?	78·6	?	87·6	?	18·0	110·2	9th	70·5	13th	39·7
VI.—Upper Sub-Himalayas		...	...	+·039	...	...	...	...	...	...	...	96·4	−6·5	77·0	−2·3	86·7	−4·4	19·4	...	...	...	...	37·9
N.-W. Provinces (Submontane).	Bareilly	568	29·024	+·038	29·551	29·186	14th	28·862	25th	·324	82·6	93·9	−7·6	76·4	−3·7	85·2	−5·7	17·5	106·4	11th	68·7	14th	37·7
	Dehra Dun	2,233	27·428	+·027	29·589	27·655	14th	27·240	25th	·415	76·1	87·7	−5·9	70·9	−3·9	79·3	−4·9	16·8	95·5	3 days	61·0	3rd	34·5
	Roorkee	887	28·711	+·039	29·554	28·955	14th	28·519	25th	·436	82·3	96·3	−5·7	76·0	−3·1	86·2	−4·4	20·3	106·7	12th	66·7	4th	40·0
	Meerut	738	28·853	+·040	29·545	29·059	14th	28·689	25th	·370	84·5	97·7	−4·1	77·3	−3·8	87·5	−4·0	20·4	108·3	11th	71·5	3rd	36·8
Punjab (Central)	Delhi	718	28·865	+·034	29·534	29·062	14th	28·720	25th	·342	85·4	98·3	−6·5	80·7	−2·7	89·5	−4·6	17·6	109·2	11th	73·1	14th	36·1
	Lahore	702	28·860	+·040	29·516	28·989	14th	28·690	26th	·299	88·0	100·7	−5·0	80·6	+0·9	90·7	−2·1	20·1	111·3	7th	74·6	3rd	36·7

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in June 1893—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 June 1893.	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.
...	2	...	4	8	8	4	1	3	4·8	?	?	84	·885	5·7	19	11·89	+7·11	17·69	8·86	+ 8·83	17·69	8·86	+ 8·83	2·73	Naya Dumka.	Central Bengal—*contd.*
1	1	2	6	5	8	5	1	1	4·3	5	− 14	92	·958	8·1	17	10·64	+6·36	23·13	8·39	+14·74	23·13	8·39	+14·74	4·04	Berhampore.	
1	...	3	4	9	6	6	...	1	6·6	?	?	87	·960	6·7	20	12·10	+7·90	20·01	9·65	+10·36	20·01	9·65	+10·36	3·09	Rampur Boalia.	
2	...	5	...	16	2	5	...	...	3·6	?	?	89	·952	7·5	19	11·80	+7·20	14·63	11·14	+ 3·49	14·63	11·14	+ 3·49	1·97	Malda.	
2	...	5	9	9	2	1	2	...	4·3	?	?	89	·945	7·1	18	14·53	+3·47	18·90	13·82	+ 5·08	18·90	13·82	+ 5·08	3·60	Bogra.	
...	...	6	16	2	3	2	...	1	4·7	?	?	89	·903	8·4	21	14·00	+7·00	16·82	16·42	+ 0·40	16·82	16·42	+ 0·40	4·02	Dinajpur	North Bengal.
...	2	4	15	2	4	1	1	1	3·9	?	?	89	·907	3·0	19	15·35	+3·65	22·03	19·51	+ 2·52	22·03	19·51	+ 2·52	6·22	Rangpur.	
4	1	6	6	8	2	...	...	3	4·1	?	?	87	·862	7·8	18	19·40	−1·40	15·91	28·49	−12·58	15·91	28·49	− 12·58	4·65	Jalpaiguri.	
...	...	...	2	1	5	17	5	...	7·8	?	?	90	·979	5·0	15	10·35	+4·65	14·49	8·80	+ 5·69	14·49	8·80	+ 5·69	2·66	Balasore	Orissa.
...	...	...	1	2	5	17	5	...	14·3	12	+19	82	·949	8·1	11	8·60	+2·40	5·80	6·54	− 0·74	5·80	6·54	− 0·74	1·14	False Point.	
5	...	...	2	1	4	13	5	...	4·3	4	+ 18	77	·879	7·1	10	11·00	−1·00	6·32	9·40	− 3·08	6·32	9·40	− 3·08	1·16	Cuttack.	
...	...	...	1	1	7	17	4	...	19·7	?	?	85	·974	6·7	8	?	?	2·75	?	?	2·75	?	?	0·92	Shortt's Island	
3	...	...	1	1	...	14	9	...	14·9	?	?	84	·959	6·7	7	8·25	−1·25	2·37	7·98	− 5·61	2·37	7·98	− 5·61	0·74	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·38	6·54	+2·75	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
1	2	...	2	2	6	14	1	2	10·5	9	+ 17	84	·774	8·2	16	10·09	+5·91	15·66	7·37	+ 8·29	15·66	7·37	+ 8·29	2·46	Hazaribagh.	Chota Nagpur.
2	...	...	1	2	1	17	3	4	8·7	?	?	82	·744	6·3	20	12·40	+7·60	14·25	8·65	+ 5·60	14·25	8·65	+ 5·60	3·05	Ranchi.	
...	2	...	3	7	5	9	2	2	9·5	?	?	73	·869	?	13	?	?	10·63	?	?	10·63	?	?	2·53	Daltonganj.	
1	...	1	2	2	6	10	8	...	2·3	?	?	82	·855	7·2	16	11·55	+4·45	14·90	8·30	+ 6·60	14·90	8·30	+ 6·60	4·17	Chaibassa.	
...	1	1	12	1	10	1	3	1	6·4	3	+113	86	·952	5·9	11	6·82	+4·18	8·28	6·51	+ 1·77	8·28	6·51	+ 1·77	1·60	Gaya	Bihar (South).
...	2	1	10	5	3	6	3	...	6·2	?	?	78	·880	4·2	14	6·71	+7·29	9·21	4·65	+ 4·56	9·21	4·65	+ 4·56	1·49	Dehri.	
1	...	3	19	2	...	3	2	...	7·3	4	+ 83	79	·888	6·5	11	7·09	+3·91	11·02	6·80	+ 4·22	11·02	6·80	+ 4·22	3·74	Patna.	
...	1	3	14	3	2	3	2	2	3·7	?	?	82	·924	4·0	11	7·35	+3·65	8·53	5·95	+ 2·58	8·53	5·95	+2·58	2·10	Arrah.	
...	...	3	17	1	...	1	5	3	7·7	?	?	79	·876	6·3	13	7·55	+5·45	6·56	4·96	+ 1·60	6·56	4·96	+1·60	1·51	Buxar.	
8	...	11	6	1	...	3	1	...	4·0	3	+ 33	85	·914	4·0	14	11·00	+3·00	8·14	11·85	− 3·71	8·14	11·85	− 3·71	1·30	Purnea	Bihar (North).
9	2	5	9	2	1	2	...	...	2·5	?	?	85	·919	7·6	16	9·30	+6·70	10·08	7·71	+ 2·37	10·08	7·71	+2·37	1·91	Bhagalpur.	
...	...	2	13	12	...	1	1	1	7·6	6	+ 27	81	·895	5·4	12	9·45	+2·55	7·91	9·42	−1·51	7·91	9·42	−1·51	3·89	Darbhanga.	
...	...	4	13	8	...	1	2	2	7·9	?	?	84	·926	5·7	8	8·15	− 0·15	5·74	7·53	−1·79	5·74	7·53	−1·79	2·13	Muzaffarpur	
2	...	9	14	3	...	...	1	1	7·5	?	?	81	·875	5·9	11	8·94	+2·06	11·55	7·89	+ 3·66	11·55	7·89	+3·66	2·82	Motihari.	
2	...	1	12	8	...	2	4	1	7·5	?	?	83	·931	6·6	13	6·90	+6·10	7·15	6·02	+ 1·13	7·15	6·02	+1·13	2·93	Chapra.	
1	...	5	14	1	2	2	5	...	6·0*	5	+ 20	83	·945	6·2	13	4·64	+8·36	10·22	4·53	+ 5·69	10·22	4·53	+5·69	2·07	Benares	N.-W. P. (Eastern Districts).
...	1	8	9	4	1	1	3	3	7·8	4	+ 95	74	·865	6·8	14	4·73	+9·27	13·91	4·68	+ 9·23	13·91	4·68	+9·23	2·42	Allahabad.	
...	2	5	11	1	4	1	6	...	3·2	4	− 20	80	·866	5·1	13	7·00	+6·00	8·86	8·22	+ 0·64	8·86	8·22	+·064	2·59	Gorakhpur	N.-W. P. (East Submontane).
12	...	...	15	...	...	...	3	...	2·2	4	45	78	·851	6·7	11	5·64	+5·36	9·55	4·62	+ 4·93	9·55	4·62	+4·93	2·88	Lucknow.	Oudh (South).
...	1	3	7	14	1	1	...	3	6·6	?	?	84	·935	3·6	10	?	?	4·64	5·64	− 1·00	4·64	5·64	−1·00	1·18	Bahraich	Oudh (North).
...	...	4	10	6	3	3	4	...	5·9	?	?	81	952	5·8	7	4·3	+2·7	5·74	3·09	+ 2·05	5·74	3·09	+2·05	3·40	Cawnpore	N.-W. Provinces (Central).
16	...	6	5	...	1	1	...	1	1·1	?	?	72	·833	5·5	8	?	?	3·85	3·00	+ 0·85	3·85	3·00	+0·85	0·81	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·62	3·72	+2·90	...	...	...	...	**VI.—Upper Sub-Himalayas.**	
6	...	...	1	19	...	2	...	2	3·4	5	− 32	78	·870	4·8	11	4·91	+6·09	7·11	5·28	+ 1·83	7·11	5·28	+1·83	2·22	Bareilly	N.-W. Provinces (Submontane).
29	...	...	...	...	1	...	...	...	0·9	2	− 55	78	·699	6·0	20	8·91	+11·09	21·81	7·72	+14·09	21·81	7·72	+14·09	4·09	Dehra Dun.	
13	...	...	3	10	3	...	...	1	3·7	4	− 8	68	·748	5·0	5	5·64	−0·64	4·90	4·48	+ 0·42	4·90	4·48	+0·42	3·10	Roorkee.	
5	...	...	17	4	...	1	3	...	2·7	3	−10	65	·756	4·6	6	3·64	+2·36	3·59	2·59	+ 1·00	3·59	2·59	+1·00	1·21	Meerut.	
9	...	...	4	13	...	1	3	...	4·5	5	− 10	64	·791	6·3	9	4·00	+5·00	6·96	3·83	+ 3·13	6·96	3·83	+3·13	2·05	Delhi	Punjab (Central).
7	1	1	4	12	1	...	3	1	3·9	3	+ 30	57	·731	3·5	6	2·73	+3·27	2·72	1·84	+ 0·88	2·72	1·84	+ 0·88	0·70	Lahore.	

* Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 196 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.
Punjab (Submontane).	Umballa	962?	28·713	?	29·565	28·941	14th	28·539	25th	·402	83·9	98·2	?	78·0	?	88·1	?	20·2	108·5	12th	69·5	14th	39·0
	Ludhiana	812	28·771	+·043	29·536	28·975	14th	28·602	25th	·373	86·4	98·7	−7·5	79·6	−0·4	89·2	−4·0	19·1	110·4	12th	70·5	3rd	39·9
Punjab (North)	Sialkot	830	28·749	+·052	29·535	28·866	9th	28·580	26th	·286	85·8	98·8	−6·9	77·8	−2·3	88·3	−4·6	21·0	112·3	12th	72·3	3 days	40·0
	Rawalpindi	1,649	27·949	+·036	29·513	28·063	1st	27·775	25th & 26th.	·288	80·2	93·8	−9·4	72·7	−2·0	83·2	−5·7	21·1	101·0	12th	62·6	6th	38·4
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·008	...	...	...	...	...	...	...	104·3	−0·8	81·4	−0·1	92·9	−0·5	22·9	...	...	...	...	3·88
Punjab (West)	Peshawar	1,110	28·477	+·047	29·494	28·603	3rd	28·284	26th	·319	87·5	103·3	−2·1	76·9	+0·5	90·1	−0·8	26·4	110·0	12th	63·0	2nd	47·0
	Mardan	?	?	?	?	?	...	?	...	?	88·1	109·6	?	83·0	?	96·3	?	26·6	112·3	12th	74·0	2nd	38·3
	Khushab	612	28·928	?	29·494	29·051	3rd	28·759	26th	·292	89·6	103·9	?	82·2	?	93·1	?	21·7	112·0	7th & 12th.	72·0	2nd	40·0
	Montgomery	558	28·973	?	29·480	29·160	3rd	28·813	25th	·287	93·9	108·4	?	82·0	?	95·2	?	26·4	114·9	13th	75·1	1st & 5th.	39·8
	D. I. Khan	573	28·947	+·010	29·476	29·098	3rd	28·758	26th	·340	89·7	105·3	−2·3	80·8	+0·4	93·0	−1·0	24·5	111·1	6th & 13th.	68·8	2nd	42·3
	Mooltan	420	29·098	+·013	29·475	29·263	1st	28·939	26th	·324	92·7	108·9	+2·8	85·0	+3·2	97·0	+3·0	23·9	114·5	22nd	74·1	1st	40·4
	Sirsa	662	28·897	+·020	29·507	29·056	14th	28·746	20th	·310	89·5	104·9	−1·8	81·8	−1·1	93·4	−1·5	23·1	115·4	12th	74·3	26th	41·1
Sind and Cutch	Jacobabad	186	29·331	+·018	29·473	29·469	1st	29·159	20th	·310	92·2	111·0	−0·6	84·7	+1·4	97·8	+0·4	26·3	117·6	20th	78·2	30th	39·4
	Hyderabad	117	29·422	+·003	29·490	29·592	4th	29·244	20th	·348	86·3	103·4	+0·2	80·6	−1·0	92·0	−0·4	22·8	113·2	18th	73·6	5th	39·6
	Kurrachee	49	29·531	−·016	29·530	29·696	4th	29·395	20th	·301	85·7	93·1	−0·3	80·2	−1·8	86·6	−1·1	12·9	104·8	1st	73·8	24th & 25th.	31·0
	Bhuj	395	29·211	−·028	29·554	29·369	4th	29·081	20th	·288	83·3	95·8	−1·4	77·6†	−2·3	86·6†	−1·9	18·2	104·6	10th	73·9	24th	30·7
Rajputana (West)	Bickaneer	753	28·799	?	29·495	28·929	3rd	28·671	19th	·258	90·0	104·2	−1·8	84·9	−0·1	94·5	−1·0	19·3	111·0	11th & 12th.	75·8	1st	35·2
	Pachpadra	380	29·192	?	29·519	29·358	9th	29·039	20th	·319	86·6	104·0	?	78·9	?	91·5	?	25·1	112·0	17th	72·6	3rd & 20th.	39·4
VIII.—East Rajputana, Central India and Guzerat.		...	...	−·006	...	...	...	...	...	...	...	95·7	−4·1	78·9	−1·5	87·3	−2·8	16·8	...	...	...	...	33·3
Rajputana (East)	Jeypore	1,431	28·182	+·001	29·544	28·305	14th	28·045	29th	·260	85·5	99·1	−4·0	78·6	−1·4	88·9	−2·7	20·5	111·8	12th	73·5	14th	38·3
	Sambhar	1,254	28·335	−·005	29·527	28·444	3rd	28·202	29th	·242	85·5	98·4	−3·6	79·5	−2·1	89·0	−2·9	18·9	107·0	12th	72·9	1st	34·1
	Ajmere	1,611	28·018	0	29·558	28·135	9th	27·873	29th	·262	85·7	98·6	−1·9	80·4	+0·8	89·5	−0·6	18·2	106·9	11th & 12th.	71·6	3rd	35·3
	Deesa	466	29·151	−·022	29·567	29·309	4th	29·023	17th	·286	84·2	98·8	−2·9	79·0	−1·5	88·9	−2·2	19·8	109·4	3 days	73·5	30th	35·9
Kattywar	Rajkot	429	29·216	−·013	29·593	29·365	4th	29·083	23rd	·282	83·0	96·1	−4·3	76·6	−0·7	86·3	−2·5	19·5	106·4	1st	71·8	20th	34·6
	Veraval	?	29·653	?	29·613	29·799	4th	29·531	20th	·268	82·7	85·2	?	79·7	?	82·5	?	5·5	90·1	6th	73·8	19th	16·3
	Bhavnagar	?	29·642*	?	29·627	29·789	4th	29·510	20th	·279	86·5	96·0	?	81·0	?	88·5	?	15·0	104·9	1st & 11th	76·5	19th	28·4
Central India	Nowgong	757	28·831	+·006	29·534	28·962	13th	28·659	28th	·303	83·6	95·5	−7·9	78·7	−4·3	87·1	−6·1	16·8	109·6	12th	73·5	27th	36·1
	Indore	1,827	27·845	−·002	29·597	27·957	4th	27·701	20th	·256	79·1	91·2	−3·4	73·9	−0·9	82·6	−2·2	17·3	103·6	10th	69·9	29th	33·7
	Neemuch	1,630	28·012	0	29·573	28·123	9th	27·877	20th	·246	82·2	94·6	−3·8	76·3	−0·8	85·4	−2·3	18·3	106·0	10th	71·6	19th & 30th.	34·4
Guzerat	Surat	36	29·642	−·027	29·620	29·789	4th	29·500	20th	·289	82·6	91·2	−2·9	78·1	−1·3	84·6	−2·1	13·1	103·7	8th	73·5	18th & 21st.	30·2
	Ahmedabad	176	29·482	?	29·605†	29·630	4th	29·350	17th	·280	†84·8	96·9†	?	79·5†	?	88·3†	?	17·4	108·3	10th & 11th.	74·1	3 days	34·2
N.-W. P. (West)	Agra	555	29·048	?	29·552	29·217	14th	28·927	20th	·290	87·7	101·5	−3·8	82·5	−2·3	92·0	−3·1	19·0	114·5	12th	76·5	29th	38·0
	Jhansi	858	28·740	+·006	29·539	28·865	13th	28·599	19th	·266	86·0	97·0	−6·4	81·3	−2·5	89·2	−4·5	15·7	112·0	12th	74·9	3 days	37·1
IX.—Deccan	...	...	...	−·005	...	...	...	...	...	...	...	90·4	−4·8	74·3	−1·6	82·4	−3·2	16·1	...	...	...	...	29·7
Bombay (Deccan)	Belgaum	2,524	27·260	−·010	29·708	27·318	4th	27·156	16th	·162	71·3	78·7	−2·3	67·6	−0·2	73·2	−1·3	11·1	87·8	6th	65·8	3 days	22·0
	Sholapur	1,590	28·158	0	29·683	28·280	4th	27·992	16th	·288	77·5	90·3	−4·4	71·9	−0·6	81·1	−2·5	18·4	98·2	4th	69·5	16th	28·7
	Poona	1,840	27·900	−·005	29·673	28·019	4th	27·771	16th	·248	76·6	85·6	−3·1	70·9	−1·7	78·3	−2·4	14·7	98·0	8th	68·4	8th	29·6
	Bijapur	1,946	27·815	?	29·690	27·909	4th	27·673	16th	·236	76·2	88·4‡	?	70·6	?	79·5	?	17·8	95·7	11th	65·0	22nd	30·7
Khandesh	Malegaon	1,430	28·279	+·005	29·650	28·394	4th	28·134	17th	·260	79·3	90·8	−4·1	73·4	−1·2	82·0	−2·7	17·4	100·4	7th	69·7	15th & 17th.	30·7
	Ahmednagar	2,152	27·586	?	29·663	27·712	4th	27·449	16th	·263	75·7	85·2	?	70·8	?	78·1	?	14·4	94·3	10th	67·4	24th	26·9
Berar	Akola	930	28·735	−·006	29·604	28·843	4th	28·578	16th	·265	81·1	93·4	−4·6	75·4	−1·9	84·4	−3·3	18·0	103·6	8th	72·2	3 days	31·4
	Amraoti	1,215	28·447	+·005	29·607	28·549	4th	28·284	16th	·265	79·9	92·9	−4·2	75·4	−0·6	84·2	−2·4	17·5	104·3	7th	70·3	13th	34·0

* Uncorrected reading. † Mean of 29 days. ‡ Mean of 28 days.

I—*continued.*

in India, Burma, etc., in June 1893—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 June, 1893.	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.
2	...	1	3	21	1	...	...	2	2·5	?	?	72	·826	4·0	6	?	?	3·89	3·83	+ 0·06	3·89	3·83	+ 0·06	1·11	Umballa .	Punjab (Sub-montane).
6	2	...	8	9	2	...	2	1	3·3	2	+ 65	62	·767	4·6	5	3·64	+1·36	2·15	2·47	− 0·32	2·15	2·47	− 0·32	0·59	Ludhiana .	
6	3	2	17	1	1	...	...	...	2·8	2	+ 40	60	·730	3·6	8	3·73	+4·27	7·96	3·51	+ 4·45	7·96	3·51	+ 4·45	1·69	Sialkot .	Punjab (North).
9	...	12	2	6	1	...	...	...	2·2	3	− 27	69	·715	4·3	5	3·55	+1·45	5·10	1·66	+ 3·44	5·10	1·66	+ 3·44	2·22	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·67	0·86	+1·45	...	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
8	9	1	2	1	1	1	3	4	4·7	5	− 6	51	·658	2·2	0	0·73	-0·73	0·06	0·47	− 0·41	0·06	0·47	− 0·41	0·04	Peshawar .	Punjab (West).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	?	?	6·96	?	?	6·96	?	?	6·32	Mardan	
3	1	18	5	1	...	1	1	...	3·5	?	?	49	·671	2·8	1	1·2	−0·2	0·36	0·70	− 0·34	0·36	0·70	− 0·34	0·28	Khushab .	
...	1	1	5	8	6	4	4	1	9·5	?	?	48	·759	1·5	4	2·0	+2·0	2·00	1·29	+ 0·71	2·00	1·29	+ 0·71	0·92	Montgomery.	
8	2	8	7	1	...	1	...	3	2·3	2	+ 15	65	·918	1·4	3	0·91	+2·09	0·73	0·52	+ 0·21	0·73	0·52	+ 0·21	0·30	D. I. Khan.	
3	...	2	...	17	...	8	...	...	2·0	4	− 50	46	·697	0·6	0	1·45	−1·45	0	0·68	− 0·68	0	0·68	− 0·68	0	Mooltan.	
4	...	1	3	6	3	8	5	...	7·7	5	+ 54	52	·777	3·2	3	3·18	−0·18	3·12	1·90	+ 1·22	3·12	1·90	+ 1·22	1·73	Sirsa.	
3	1	1	7	11	6	...	1	...	5·5	5	+ 10	53	·795	1·8	2	0·09	+1·91	1·33	0	+ 1·33	1·33	0	+ 1·33	0·74	Jacobabad .	Sind and Cutch.
...	1	1	...	...	8	19	...	1	23·9	15	+ 59	65	·812	2·7	3	0·45	+2·55	1·18	0·14	+ 1·04	1·18	0·14	+ 1·04	0·56	Hyderabad.	
...	...	...	...	...	...	15	15	...	14·9	19	− 22	80	·983	4·5	2	0·18	+1·82	6·50	0·12	+ 6·38	6·50	0·12	+ 6·38	3·27	Kurrachee.	
...	...	...	...	1	1	7	16	5	18·7	16	+ 17	74	·848	5·7	9	?	?	5·05	1·99	+ 3·06	5·05	1·99	+ 3·06	2·46	Bhuj.	
1	1	2	3	3	6	12	2	...	7·3	?	?	52	·711	3·4	5	?	?	1·06	1·82	− 0·76	1·06	1·82	− 0·76	0·38	Bickaneer .	Rajputana (West).
2	...	...	...	7	11	9	...	1	11·8	12	− 2	71	·896	7·7	8	?	?	6·36	0·69	+ 5·67	6·36	0·69	+ 5·67	1·90	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·98	4·00	+ 5·78	...	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
3	3	5	1	3	1	8	5	1	4·4	8	− 45	62	·732	5·8	8	3·70	+4·30	3·63	2·31	+ 1·32	3·63	2·31	+ 1·32	1·09	Jeypore .	Rajputana (East).
1	3	2	4	2	1	2	11	4	7·9	11	− 28	61	·738	5·0	7	3·10	+3·90	2·34	1·31	+ 1·03	2·34	1·31	+ 1·03	0·57	Sambhar.	
2	1	1	2	1	1	2	19	1	7·7	9	− 14	60	·718	4·5	7	3·73	+3·27	4·19	2·43	+ 1·76	4·19	2·43	+ 1·76	1·35	Ajmere.	
...	...	...	...	1	5	10	4	10	14·7*	17	− 14	70	·805	6·7	10	2·18	+7·82	9·08	1·73	+ 7·35	9·08	1·73	+ 7·35	2·37	Deesa.	
...	1	...	...	...	1	8	15	5	12·6	14	− 10	72	·817	5·4	13	5·27	+7·73	14·50	4·83	+ 9·67	14·50	4·83	+ 9·67	8·62	Rajkot .	Kattywar.
6	1	...	.	1	2	8	11	1	9·7	?	?	84	·935	8·2	8	?	?	9·12	?	?	9·12	?	?	4·77	Veraval.	
...	...	1	1	...	5	17	4	2	18·6	?	?	79	·981	6·6	7	?	?	5·96	?	?	5·96	?	?	2·02	Bhavnagar.	
...	4	2	3	...	3	8	10	...	5·0	4	+ 25	70	·790	7·4	11	5·91	+5·09	9·90	5·05	+ 4·85	9·90	5·05	+ 4·85	3·98	Nowgong.	Central India.
2	2	...	...	...	5	6	10	5	5·5	7	− 21	82	·817	6·2	9	8·27	+0·73	14·63	6·96	+ 7·67	14·63	6·96	+ 7·67	3·44	Indore.	
2	2	2	1	...	...	6	14	3	11·5	14	− 18	66	·708	5·7	12	5·09	+6·91	13·08	4·09	+ 8·99	13·08	4·09	+ 8·99	3·83	Neemuch.	
...	...	2	1	1	4	14	7	1	...	16	...	84	·941	6·5	16	8·18	+7·82	23·41	8·31	+15·10	23·41	8·31	+15·10	5·50	Surat .	Guzerat.
1	1	1	...	1	3	8	3	5	5·9†	?	?	*75	·882*	6·8*	12	?	?	17·08	?	?	17·08	?	?	6·15	Ahmedabad§.	
...	...	8	..	12	...	8	...	7	6·9	6	+ 15	64	·772	5·1	7	3·64	+3·36	1·77	2·84	− 1·07	1·77	2·84	− 1·07	0·34	Agra .	N.-W. P. (West).
1	4	6	2	2	2	11	1	1	*5·4	6	− 10	62	·751	5·1	9	6·09	+2·91	11·04	4·12	+ 6·92	11·04	4·12	+ 6·92	3·06	Jhansi .	
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·27	6·73	+2·98	...	...	...	...	**IX.—Deccan.**	
2	1	...	...	1	1	9	15	1	?	24	?	90	·685	8·5	20	12·27	+7·73	12·33	7·47	+ 4·86	12·33	7·47	+ 4·86	1·92	Belgaum .	Bombay (Deccan).
...	1	...	...	1	...	14	9	5	15·2	12	+ 27	75	·703	7·1	7	7·82	−0·82	6·49	5·25	+ 1·24	6·49	5·25	+ 1·24	2·24	Sholapur.	
2	...	...	...	1	1	4	17	5	11·3	16	− 29	71	·750	7·6	14	7·18	+6·82	15·13	4·35	+10·78	15·13	4·35	+10·78	3·78	Poona.	
...	1	...	...	1	...	10	13	5	10·9	?	?	76	·686	8·0	3	6·30	−3·30	2·85	2·79	+ 0·06	2·85	2·79	+ 0·06	2·00	Bijapur.	
2	...	1	...	1	1	8	12	5	15·0	12	+ 25	81	·797	6·9	12	7·82	+4·18	4·26	4·99	− 0·73	4·26	4·99	− 0·73	1·24	Malegaon .	Khandesh.
1	3	2	...	4	1	8	9	2	16·3	?	?	87	·774	6·4	10	?	?	6·37	4·95	+ 1·42	6·37	4·95	+ 1·42	1·23	Ahmednagar.	
4	1	...	...	1	2	7	14	1	6·7	9	− 26	72	·745	7·1	11	8·55	+2·45	4·79	5·86	− 1·07	4·79	5·86	− 1·07	1·18	Akola .	Berar.
1	1	1	1	1	2	6	13	4	7·3	7	+ 4	74	·744	6·6	7	10·36	−3·36	3·85	7·67	− 3·82	3·85	7·67	− 3·82	1·06	Amraoti.	

* Mean of 29 days. § Wind direction of 23 days.
† „ „ 28 „

Table

Abstract of Observations taken at 8 A.M. at 196 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 Provinces (West).	Khandwa	1,044	28·608	−·011	29·601	28·708	3rd	28·465	16th	·243	79·9	94·0	−3·8	76·8	−1·3	85·4	−2·6	17·2	106·2	8th	72·1	17th	34·1
	Hoshangabad	1,020	28·622	−·007*	29·587*	28·710	3rd	28·462	17th	·248	81·2	91·9	−6·6	76·8	−2·2	84·4	−4·4	15·1	102·0	8th	71·7	28th	30·3
	Nagpur	1,025	28·625*	+·011	29·595	28·714	3rd	28·453	16th & 17th.	·261	81·4	93·2	−4·8	76·6	−1·2	84·9	−3·0	16·6	103·3	11th	70·1	12th	33·2
Central Provinces (Central).	Chanda	634	29·037	?	29·611	29·128	4th	28·818	16th	·310	82·3	94·3	?	77·8	?	86·0	?	16·5	102·9	11th	74·0	17th	28·9
	Seoni	2,030	27·601	?	29·570	27·718	12th	27·425	20th	·293	79·6	88·4	−5·5	73·1	−2·2	80·8	−3·9	15·3	100·7	10th	70·1	12th & 29th	30·6
	Jubbulpore	1,327	28·296	+·004	29·563	28·416	13th	28·100	20th	·316	81·1	91·1	−6·3	76·1	−2·1	83·6	−4·2	15·0	102·0	5 days	72·6	3 days	29·4
	Saugor	1,762	27·864	−·009	29·550	27·999	13th	27·687	28th	·312	81·0	92·5	−6·7	75·8	−1·0	84·2	−3·9	16·7	105·9	8th	71·1	29th	34·8
Central Provinces (East).	Raipur	970	28·684	+·038	29·595	28·788	12th	28·517	16th	·271	81·3	92·9	−4·3	76·6	−1·4	84·8	−2·9	16·3	102·9	10th	73·1	3 days	29·8
	Sutna	1,040	28·539	+·003	29·525	28·706	13th	28·298	28th	·408	83·6	93·4	−6·0	78·3	−2·9	85·9	−4·5	15·1	106·2	11th & 12th,	73·6	29th	32·6
	Sambalpur	463	29·175	+·048	29·583	29·266	1st	29·016	20th	·250	82·4	91·5	−5·9	77·1	−3·8	84·3	−4·9	14·4	98·0	3 days	73·2	3 days	24·8
Hyderabad (North).	Aurangabad	?	27·857	?	?	28·000	4th	27·725	17th	·275	78·3	89·3	?	71·6	?	80·4	?	17·7	101·0	10th	68·0	25th	33·0
	Indur	?	?	?	?	?	...	?	...	...	80·5	91·7	?	76·0	?	83·9	?	15·7	99·6	10th	67·7	17th	31·9
Hyderabad (South).	Bidar	?	27·577	?	?	27·678	4th	27·353	16th	·325	75·0	87·0	?	70·8	?	78·9	?	16·2	92·7	11th	66·2	16th	26·5
	Gulburga	?	28·229	?	?	28·343	4th	28·051	16th	·292	77·7	90·8	?	72·2	?	81·5	?	18·6	98·4	4th	68·1	16th	30·3
	Raichur	?	28·358	?	...	28·407	9th	28·180	16th	·227	80·0	90·8‡	?	75·0	?	‡82·6	?	15·8	97·1	3rd & 4th,	71·1	16th	26·0
	Hyderabad (Deccan).	1,690	28·043		29·668	28·143	4th	27·818	16th	·325	77·5	89·6	?	73·8	?	81·7	?	15·8	96·4	11th	69·7	16th	26·7
	Secunderabad	1,787	27·970	+·004	29·690	28·068	4th	27·745	16th	·323	77·3	90·4	−3·3	72·8	−1·1	81·6	−2·2	17·6	98·7	12th	68·4	16th	30·3
	Khamamet	369	29·346	?	29·581	29·447	22nd	29·149	16th	·298	82·7	94·0	?	78·8	?	86·5	?	15·2	99·8	12th	74·3	2nd & 16th	25·5
X.—West Coast		...	...	−·020	...	...	...	...	...	...	...	84·6	−0·7	76·0	0	80·3	−0·4	8·6	...	...	...	...	16·5
Konkan	Bombay	37	29·697	−·017	29·674	29·809	4th	29·550	16th	·259	81·4	85·5	−2·1	78·2	−1·1	81·9	−1·6	7·3	90·9	10th	74·3	20th	16·6
	Ratnagiri	110	29·653	−·007	29·701	29·721	4th	29·528	16th	·193	81·5	85·6	−0·8	77·0	+0·3	81·4	−0·3	8·6	90·4	5th & 6th	73·9	3 days	16·5
	Mormugoa	60	29·742	?	29·736	29·816	22nd	29·649	16th	·167	80·7	85·8	?	77·1	?	81·5	?	8·7	89·0	7 days	74·4	4 days	14·6
	Goa	23	29·778	−·024	29·715	29·846	23rd	29·685	16th	·161	80·4	84·3	?	75·9	?	80·1	?	8·4	90·5	6th & 7th	72·0	1st	18·5
	Karwar	44	29·759	−·021	29·735	29·828	22nd	29·686	11th	·142	79·4	84·2	−0·8	76·4	+0·9	80·3	+0·1	7·8	90·3	7th	74·1	19th & 23rd.	16·2
Malabar	Cochin	10	29·863	−·022	29·801	29·951	22nd	29·758	7th	·193	78·5	85·0	+0·4	74·4	0	79·7	+0·2	10·6	87·7	5th & 7th,	71·7	4 days	16·0
	Calicut	27	29·824	−·033	29·781	29·920	22nd	29·710	7th	·210	77·9	84·4	?	74·2	?	79·3	?	10·2	89·8	8th	70·6	11th	19·2
	Mangalore	26	29·816	−·017	29·774	29·902	22nd	29·732	7th	·170	78·2	84·5	+0·1	74·8	−0·1	79·7	0	9·7	88·7	3rd	71·9	14th	16·8
	Trivandrum	198	29·670	?	29·799	29·762	22nd	29·574	5th	·188	77·5	82·1	?	75·5	?	78·8	?	6·6	85·0	19th	71·0	10th	14·0
XI.—South India		...	...	+·002	...	...	...	...	...	...	...	90·6	−1·7	74·6	−0·8	82·5	−1·3	15·8	...	...	...	...	25·9
Madras (South)	Pamban	37	29·776	?	29·740	29·874	22nd	29·694	8th	·180	83·2	89·0	?	79·7	?	84·4	?	9·3	91·3	11th	73·2	10th	18·1
	Tinnevelly	168	29·653	?	29·749	29·737	22nd	29·572	8th	·165	83·7	95·9	?	78·5	?	87·2	?	17·4	100·3	1st & 5th	73·9	15th	26·4
	Madura	447	29·355	−·012	29·734	29·444	22nd	29·273	8th	·171	83·1	96·4	−2·6	76·3	−0·3	86·4	−1·5	20·1	100·5	4 days	73·0	28th	27·5
Madras (South Central).	Salem	940	28·889	−·017	29·767	28·968	22nd	28·799	15th	·189	78·4	92·8	−1·5	73·0	−0·3	82·9	−0·9	19·8	99·4	1st	71·5	23rd	27·9
	Coimbatore	1,348	28·455	−·027	29·747	28·520	23rd	28·382	15th	·138	75·6	88·9	−1·1	69·6	−2·1	79·3	−1·6	19·3	92·3	2nd	65·1	2nd	27·2
Coorg	Mercara	3,781	26·150	−·010	29·786	26·206	23rd	26·060	15th	·146	65·5	74·0	+1·9	63·5	+0·6	68·7	+1·3	10·5	81·5	5th	62·2	5 days.	19·3
	Chitaldroog	2,404	27·403	?	29·731	27·477	22nd	27·296	16th	·181	73·2	83·0	?	68·2	?	75·6	?	14·8	91·1	6th	63·4	6th	27·7
Mysore	Bangalore Bazar	2,982	26·888	−·013	29·767	26·979	22nd	26·796	15th	·183	71·5	83·0	−1·7	66·4	−0·1	74·7	−0·9	16·6	90·2	1st	64·0	20th	26·2
	Bangalore Fort	3,019	26·842	?	29·751	26·926	22nd	26·742	15th	·184	70·8	82·8	−1·7	66·4	−0·1	74·6	−0·9	16·4	90·3	1st	64·3	19th & 20th	26·0
	Hassan	3,091	26·784	?	29·770	26·874	22nd	26·695	16th	·179	70·4	79·6	?	64·8	?	72·2	?	14·8	88·1	6th	60·8	7th	27·3
	Mysore	2,518	27·340	?	...	27·427	22nd	27·256	15th	·171	72·7	83·1	?	67·5	?	75·3	?	15·6	90·4	1st	62·0	3rd	28·4
Madras (East Coast, South).	Negapatam	31	29·780	+·017	29·739	·29867	22nd	29·689	15th	·178	83·8	94·2	−2·6	78·1	−0·8	86·2	−1·7	16·1	100·2	24th	73·7	3rd	26·5
	Cuddalore	12	29·779	?	29·720	29·861	22nd	29·678	15th	·183	84·3	95·3	?	78·2	?	86·8	?	17·1	101·3	21st	74·2	11th	27·1
	Trichinopoly	255	29·547	−·010	29·734	29·636	22nd	29·470	15th	·166	82·2	96·9	−1·4	77·1	−0·8	87·0	−1·1	19·8	101·1	6th & 30th	69·9	2nd	31·2
	Madras	22	29·758	+0·13	29·710	29·857	22nd	29·627	15th	·230	84·6	96·7	−1·5	79·0	−1·3	87·9	−1·4	17·7	102·0	19th & 20th	75·0	30th	27·0

* Mean of 20 days. Mean of 25 days. ‡ Mean of 21 days.

I—*continued.*

in India, Burma, etc., in June 1893—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 June 1893.	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.
1	...	...	1	...	2	6	13	7	9·3	10	− 7	73	·724	5·9	10	7·91	+2·09	9·07	6·30	+ 2·77	9·07	6·30	+ 2·77	1·44	Khandwa	Central Provinces (West).
...	...	1	3	...	2	13	11	...	4·4	5	− 12	78	·831	6·8	9	10·09	−1·09	15·21	8·43	+ 6·78	15·21	8·43	+ 6·78	4·41	Hoshangabad	
2	1	3	2	1	3	10	7	1	9·5	8	+ 19	75	·794	7·6	9	12·73	−3·73	9·84	9·74	+ 0·10	9·84	9·74	+ 0·10	3·13	Nagpur.	
...	1	1	1	7	2	11	5	2	5·5	?	?	70	·774	7·3	10	?	?	6·22	?	?	6·22	?	?	2·27	Chanda	Central Provinces (Central).
...	...	2	2	1	...	17	5	3	11·3	6	+ 88	76	·744	3·7	11	13·00	−2·00	10·77	11·50	− 0·73	10·77	11·50	− 0·73	2·72	Seoni.	
5	...	2	...	1	6	7	9	...	4·3	5	− 14	73	·752	6·9	15	11·18	+3·82	20·71	9·98	+10·72	20·71	9·98	+10·72	5·85	Jubbulpore.	
6	1	1	...	1	1	11	7	2	6·3	5	+ 26	71	·727	5·8	13	9·73	+3·27	15·75	6·32	+ 9·43	15·75	6·32	+ 9·43	4·37	Saugor.	
1	...	1	2	1	3	14	7	1	11·4	9	+ 27	77	·807	8·0	11	11·55	− 0·55	3·44	11·54	− 8·10	3·44	11·54	− 8·10	0·70	Raipur	
...	1	3	5	2	6	1	8	4	8·7	10	− 13	68	·750	6·2	11	5·91	+5·09	9·90	5·73	+ 4·17	9·90	5·73	+ 4·17	2·76	Sutna.	Central Provinces (East).
...	1	4	1	3	11	8	1	1	6·2	?	?	80	·882	7·2	17	?	?	16·09	10·57	+ 5·52	16·09	10·57	+ 5·52	3·03	Sambalpur.	
3	...	1	...	1	2	11	9	3	8·5	?	?	76	·728	6·9	9	?	?	7·12	6·34	+0·78	7·12	6·34	+ 0·78	2·17	Aurangabad	Hyderabad (North).
...	4	...	1	...	1	6	13	5	13·9	?	?	78	·801	7·0	10	?	?	7·67	4·60	+ 3·07	7·67	4·60	+ 3·07	5·03	Indur	
...	1	2	...	...	...	13	10	4	13·2	?	?	85	·734	4·6	7	?	?	15·54	6·30	+ 9·24	15·54	6·30	+ 9·24	6·45	Bidar.	
1	3	...	...	...	1	7	11	7	14·5	?	?	77	·728	7·4	8	?	?	9·91	4·82	+ 5·09	9·91	4·82	+ 5·09	3·30	Gulburga	Hyderabad (South).
...	1	1	...	...	1	15	7	5	12·4	?	?	68	·694	6·0	4	?	?	2·43	?	?	2·43	?	?	0·75	Raichur.	
5	...	...	...	...	1	1	20	3	8·6	?	?	76	·715	7·3	10	?	?	8·68	4·60	+ 4·08	8·68	4·60	+ 4·08	2·41	Hyderabad (Deccan).	
1	...	...	1	...	1	11	13	3	11·7	12	− 3	73	·685	5·5	11	7·73	+3·27	7·67	4·68	+ 2·99	7·67	4·68	+ 2·99	2·54	Secunderabad	
6	...	...	...	3	4	10	5	2	9·5	?	?	71	·799	3·7	8	?	?	8·96	?	?	8·96	?	?	5·85	Khamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28·71	31·37	+0·76	...	...	...	...	**X.—West Coast.**	
...	...	2	2	6	5	6	7	2	14·4	16	− 10	85	·916	8·2	13	14·82	−1·82	21·40	19·91	+ 1·49	21·40	19·91	+ 1·49	5·08	Bombay	Konkan.
...	2	1	...	4	4	14	3	2	7·2	12	− 40	87	·919	8·6	20	21·45	−1·45	39·56	30·96	+ 8·60	39·56	30·96	+ 8·60	8·80	Ratnagiri.	
1	3	...	2	3	3	4	11	3	6·5	?	?	87	·915	7·0	22	?	?	24·26		?	24·26	?	?	4·69	Mormugoa.	
8	2	1	5	...	...	12	1	1	4·8	?	?	85	·888	8·5	20	?	?	27·77	30·36	− 2·59	27·77	30·36	− 2·59	4·30	Goa.	
4	4	2	...	...	...	15	4	1	4·8	?	?	86	·854	7·1	17	24·36	−7·36	29·59	38·59	− 9·00	29·59	38·59	− 9·00	4·29	Karwar.	
6	2	3	10	...	1	1	5	2	6·9	?	?	88	·849	4·8	23	24·80	−1·82	27·97	29·50	− 1·53	27·97	29·50	− 1·53	4·50	Cochin	Malabar.
4	2	9	5	2	...	2	3	3	14·1	?	?	89	·851	7·9	24	25·00	−1·00	46·12	33·97	+12·15	46·12	33·97	+12·15	7·64	Calicut.	
7	...	...	2	3	...	5	9	4	2·5	4	− 38	90	·869	9·2	25	25·60	−0·60	32·49	36·29	− 3·80	32·49	36·29	− 3·80	5·08	Mangalore.	
3	14	2	...	...	...	...	2	9	8·2	?	?	91	·856	7·0	17	?	?	9·24	?	?	9·24	?	?	2·58	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·79	4·05	+0·42	...	...	...	...	**XI.—South India.**	
...	2	1	1	...	3	17	6	...	8·5	?	?	77	·878	4·0	1	0·30	+0·70	0·46	0·04	+ 0·42	0·46	0·04	+ 0·42	0·46	Pamban.	Madras (South).
...	1	2	...	1	...	3	10	13	9·1	?	?	62	·714	6·9	3	1·6	+1·4	1·67	0·76	+ 0·91	1·67	0·76	+ 0·91	1·32	Tinnevelly	
6	2	...	1	1	...	6	4	10	1·6	5	− 68	68	·771	4·2	5	2·00	+3·00	1·23	1·19	+ 0·04	1·23	1·19	+ 0·04	0·44	Madura.	
5	...	...	...	3	11	11	...	...	4·0	5	− 20	78	·766	5·8	11	6·00	+5·00	4·84	3·60	+ 1·24	4·84	3·60	+ 1·24	0·82	Salem	Madras (South Central).
...	1	1	1	...	14	13	1	...	5·5	8	− 31	86	·768	6·3	5	4·55	+0·45	1·78	1·56	+ 0·22	1·78	1·56	+ 0·22	0·73	Coimbatore.	
...	4	...	...	...	...	7	13	6	9·4	9	+ 4	93	·590	8·8	25	25·00	0	26·44	26·62	− 0·18	26·44	26·62	− 0·18	3·44	Mercara	Coorg.
2	...	...	...	...	...	13	13	2	10·4	?	?	82	·673	8·7	10	?	?	7·82	?	?	7·82	?	?	2·48	Chitaldroog.	
...	2	...	...	...	5	14	9	...	11·2	8	+ 40	85	·657	7·3	10	5·91	+4·09	5·61	2·73	+ 2·88	5·61	2·73	+ 2·88	2·72	Bangalore Bazar.	Mysore.
...	1	...	1	...	...	15	13	...	8·4	?	?	86	·647	5·9	8	?	?	5·08	?	?	5·08	?	?	2·18	Bangalore Fort	
2	1	1	...	...	...	10	12	4	5·1	?	?	86	·639	8·5	11	?	?	5·14	?	?	5·14	?	?	0·92	Hassan.	
...	...	1	...	...	...	14	12	3	16·4	?	?	83	·654	7·2	9	?	?	7·54	?	?	7·54	?	?	2·38	Mysore.	
6	...	...	...	...	2	6	14	2	5·0	8	−38	69	·799	5·2	4	3·09	+0·91	2·65	1·87	+ 0·78	2·65	1·87	+ 0·78	1·80	Negapatam.	Madras (East Coast, South).
...	1	...	...	...	5	8	10	6	3·1	?	?	80	·941	5·0	3	3·3	−0·3	2·18	1·70	+ 0·48	2·18	1·70	+ 0·48	1·50	Cuddalore.	
2	...	...	...	...	...	13	12	3	7·8	10	− 22	67	·730	6·0	4	2·00	+2·00	2·57	1·51	+ 1·06	2·57	1·51	+ 1·06	1·52	Trichinopoly.	
...	...	...	...	2	5	12	10	1	8·0	9	− 11	70	·838	5·6	5	4·18	+0·82	1·16	2·45	− 1·29	1·16	2·45	−1·29	0·23	Madras.	

Table

Abstract of Observations taken at 8 A.M. at 196 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.
Madras (East Coast, Central).	Nellore	71	29·673	?	29·676	29·766	22nd	29·537	15th	·229	87·0	99·8	?	80·4	?	90·1	?	19·4	104·3	12th	73·6	15th	30·7
	Masulipatam	15	29·710	+·018	29·659	29·812	22nd	29·518	15th	·294	85·2	95·2	−2·5	79·0	−1·2	87·1	−1·8	16·2	100·7	23rd	72·6	18th	28·1
Madras (Central)	Cuddapah	433	29·338	−·020	29·706	29·432	22nd	29·206	16th	·226	85·2	97·4	−1·7	78·7	−1·6	88·1	−1·7	18·7	102·7	6th	73·8	15th	28·9
	Kurnool	923	28·834	−·014	29·691	28·921	22nd	28·682	16th	·239	81·8	92·5	−3·7	75·5	−0·9	84·0	−2·3	17·0	101·6	8th	72·4	16th & 21st	29·2
	Bellary	1,475	28·305	+·008	29·713	28·387	22nd	28·171	16th	·216	80·0	91·7	−3·3	74·3	−1·3	83·0	−2·3	17·4	97·4	4th	71·0	6th & 21st	26·4
Madras (East Coast, North).	Rajahmundry	112	29·598	+·025	29·645	29·695	22nd	29·362	15th	·333	84·6	96·0	−2·0	79·9	−0·3	88·0	−1·2	16·1	102·0	5th & 11th	75·1	16th	26·9
	Cocanada	26	29·680	+·036	29·641	29·780	22nd	29·405	15th	·375	84·5	93·0	−1·4	?	?	?	?	?	100·2	5th	?	...	?
	Vizagapatam	31	29·661	+·040	29·629	29·762	1st	29·397	15th	·365	85·7	88·1	−2·0	82·7	+0·3	85·5	−0·9	5·4	91·4	24th	77·4	19th	14·0
	Gopalpur	21	29·646	?	29·607	29·760	9th	29·488	16th	·274	82·7	87·9	0	79·2	−2·5	83·6	−1·3	8·7	91·7	14th	75·8	16th	15·9
XII.—Hill Stations.																								
Baluchistan	Kutch Fort*	?	23·843	?	?	23·950	4 days	23·700	2 days	·250	76·1	92·1†	?	59·4	?	†75·8	?	32·7	96·5	6 days	41·0	2nd & 3rd	55·5
	Quetta	5,502	24·479	+·015	?	24·587	4th	24·327	24th	·260	75·9	90·7	+0·3	59·6	+0·4	75·2	+0·4	31·1	95·6	22nd & 23rd	42·9	3rd & 4th	52·7
	Kelat	?	?	?	?	?	...	?	...	?	77·9	88·6	?	53·9	?	71·2	?	34·7	97·2	23rd	35·9	3rd	61·3
	Chaman	5,488	?	?	?	?	...	?	...	?	87·8	100·2	?	72·4	?	86·3	?	27·8	112·0	14th	58·1	2nd & 3rd	53·9
Northern India	Srinagar	5,204	24·724	?	?	24·928	9th	24·531	26th	·397	67·8	81·7	?	59·7	?	70·7	?	22·0	91·3	22nd	51·2	3 days	40·1
	Gilgit	?	25·284	?	?	25·640	3rd	24·960	25th to 28th	·680	81·2	98·2	?	70·1	?	84·2	?	28·1	110·5	28th	56·9	2nd & 3rd	53·6
	Cherat	?	25·526	?	?	25·660	9th	25·357	25th	·303	77·0	91·0	?	72·3	?	81·7	?	18·7	99·0	12th	62·7	2nd	36·3
	Murree	6,344	23·727	+·005	?	23·842	9th	23·588	25th	·254	66·7	76·1	−6·1	61·1	−3·7	68·6	−4·9	15·0	83·1	7th & 12th	51·8	19th	31·3
	Simla	7,224	23·017	+·008	?	23·141	9th	22·864	25th	·277	63·4	69·9	−7·7	58·8	−1·4	64·4	−4·6	11·1	78·2	12th	50·3	14th	27·9
	Chakrata	7,052	23·144	+·010	?	23·293	14th	22·992	25th	·301	63·1	70·0	−4·9	58·8	−1·1	64·4	−3·0	11·2	77·3	6th & 7th	51·8	3rd	25·5
	Mussoorie	?	23·442	?	?	23·596	14th	23·282	25th	·314	63·3	71·8	−3·8	59·3	−1·3	65·6	−2·6	12·5	79·3	9th	51·5	3rd	27·8
	Ranikhet	6,069	23·982	+·031	?	24·124	14th	23·818	25th	·306	67·1	74·1	−4·1	61·4	−2·0	67·8	−3·1	12·7	80·0	7th	56·0	13th & 14th	24·0
	Gnatong	?	19·070	?	?	19·210	9th	18·920	25th	·290	46·8	51·8	?	35·1	?	43·5	?	16·7	55·9	1st	28·6	5th	27·3
	Darjeeling	7,421	22·908	+·023	?	23·006	14th	22·775	25th	·231	59·0	63·7	−1·0	54·8	−0·4	59·3	−0·7	8·9	66·6	2 days	52·6	5th	14·0
	Gantok	?	†24·353	?	?	24·468	9th	24·209	25th	·259	‡64·4	‡72·6	?	§59·8	?	§66·2	?	12·8	77·2	13th & 14th	56·0	2nd	21·2
Central India	Mount Abu	3,945	25·846	−·028	?	25·989	9th	25·726	22nd & 24th	·263	73·6	80·7	−3·0	68·1	+0·2	74·4	−1·4	12·6	89·2	11th & 13th	63·8	2nd	25·4
	Pachmarhi	3,511	26·253	+·001	?	26·362	9th	26·095	20th	·267	74·1	81·6	−4·2	70·5	−1·1	76·1	−2·7	11·1	93·7	8th & 10th	65·2	29th	28·5
South India	Wellington	6,200	24·187	0	?	24·264	22nd	24·108	15th	·156	65·0	71·9	+0·2	56·6	−1·8	64·3	−0·8	15·3	74·7	4 days	51·2	23rd	23·5
	Kodaikanal	?	?	?	?	?	...	?	...	?	61·6	67·3	?	54·2	?	60·8	?	13·1	70·5	14th & 21st	50·6	18th	19·9
	Kottagiri	?	23·781	?	?	23·809	28th	23·735	8th	·074	62·6	70·3	?	56·1	?	63·2	?	14·2	72·2	21st	52·3	28th	19·9
XIII.—Extra India.																								
Ceylon	Colombo	40	29·843	−·021	29·809	29·930	22nd	29·757	8th	·173	82·4	85·0	?	77·4	?	81·2	?	7·6	86·5	22nd	74·0	4th	12·5
Persia	Meshed	?	?	?	?	?	...	?	...	?	77·1	88·5	?	65·6	?	77·1	?	22·9	95·5	17th	53·8	1st	41·7
	Bushire	14	29·541	?	29·510	29·714	1st	29·383	24th	·331	86·1	90·0	?	80·2	?	85·2	?	9·8	95·6	10th	74·3	6th & 7th	21·3
	Jask	?	29·536	?	?	29·766	4th	29·326	27th	·440	90·5	96·6	?	82·9	?	89·7	?	13·7	100·1	4 days	80·2	4 days	19·9
Arabia	Muskat	?	29·546	?	?	29·721	1st	29·413	24th	·308	88·7	91·1	?	87·0	?	89·1	?	4·1	97·7	23rd	83·0	5th	14·7
	Baghdad	?	29·326	?	?	29·398	3rd	29·154	13th	2·44	87·5	?	?	76·8	?	?	?	?	?	...	66·8	7th	?
	Aden		29·627	?	29·651	29·693	2nd	29·547	17th	·146	87·1	93·7	?	83·4	?	88·6	?	10·3	97·7	1st	80·6	4th	17·1
Arabian Sea Islands.	Minicoy	10	29·871	?	29·800	29·956	22nd	29·780	8th	·176	80·8	84·5	?	‡79·0	?	‡81·7	?	5·5	87·3	3rd	75·2	15th	12·1
Africa	Zanzibar	73	30·074	?	‖30·075	30·113	11th	30·011	16th	·102	¶74·6	**80·6	?	‖73·4	?	‖77·0	?	7·2	82·2	18th	71·2	29th	11·0

** Mean of 22 days.
‖ „ „ 21 „
Mean of 27 days.
* Uncorrected readings.
† Mean of 29 days.
§ „ „ 26 „

I—*concluded.*

in India, Burma, etc., in June 1893—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Heaviest rainfall during month.	Station.	Meteorological Province or District.
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 30th June 1893.	Normal rainfall for period, 1st June to 30th June.	Variation from normal of period, 1st June to 30th June.			
5	...	...	...	3	6	...	9	7	8·2	?	?	66	·848	7·8	2	3·1	−1·1	2·32	1·26	+1·06	2·32	1·26	+ 1·06	2·15	Nellore	Madras (East Coast, Central).
4	1	...	..	1	3	3	9	9	10·5	9	+ 17	79	·956	6·2	6	7·00	−1·00	4·23	5·22	−0·99	4·23	5·22	− 0·99	1·33	Masulipatam.	
...	1	...	...	1	1	10	7	10	...	?	?	60	·726	6·4	7	5·50	+1·50	7·50	3·26	+4·24	7·50	3·26	+ 4·24	2·45	Cuddapah	Madras (Central).
10	...	...	...	...	...	4	14	2	...	?	?	67	·737	6·5	7	5·50	+1·50	3·54	3·75	−0·21	3·54	3·75	− 0·21	1·01	Kurnool.	
4	2	...	...	...	1	12	7	4	9·4	11	− 15	67	·686	8·0	4	3·64	+0·36	3·08	1·59	+1·49	3·08	1·59	+ 1·49	1·30	Bellary.	
1	1	...	...	2	3	8	12	3	?	?	?	69	·840	6·9	5	6·6	−1·6	3·16	5·24	−2·08	3·16	524	− 2·08	1·70	Rajahmundry	Madras (East Coast, North).
...	2	4	...	...	1	16	5	2	8·8	?	?	73	·869	5·2	6	6·0	0	6·11	5·88	+0·23	6·11	5·88	+ 0·23	2·01	Cocanada.	
	...	...	...	...	1	6	20	2	2·9	4	− 28	72	·884	7·2	6	6·64	−0·64	2·79	3·78	−0·99	2·79	3·78	− 0·99	1·36	Vizagapatam.	
...	1	1	1	...	9	18	...	...	19·0	12	+ 58	84	·926	4·0	5	7·44	−2·44	6·07	7·00	−0·93	6·07	7·00	− 0·93	3·18	Gopalpur.	
																									XII.—Hill Stations.	
...	...	...	12	...	...	...	18	...	?	?	?	42	·386	2·3	0	?	?	0	?	?	0	?	?	0	Kuch Fort	Baluchistan.
29	...	...	...	1	...	...	...	...	3·4	4	− 15	53	·494	0·6	0	0·36	−0·36	0	0·10	−0·10	0	0·10	− 0·10	0	Quetta.	
...	...	...	...	...	4	21	...	5	...	?	?	...	...	...	1	?	?	0·54	?	?	0·54	?	?	0·41	Kelat.	
5	...	...	...	...	2	16	4	3	5·8	?	?	27	·347	0·5	0	?	?	0	?	?	0	?	?	0	Chaman.	
22	...	1	...	3	3	...	...	1	1·7	?	?	79	·549	3·4	3	?	?	1·55	?	?	1·55	?	?	0·85	Srinagar	Northern India.
				Not recorded.					?	?	?	31*	·315*	2·3	0	?	?	0·01	?	?	0·01	?	?	0·01	Gilgit.	
7	3	1	1	5	10	2	1	...	6·1	?	?	57	·516	3·6	1	?	?	0·27	?	?	0·27	?	?	0·10	Cherat.	
1	2	2	...	8	1	1	1	14	8·0	7	+14	66	·427	5·1	14	4·55	+9·45	11·05	2·51	+8·54	11·05	2·51	+ 8·54	3·13	Murree.	
13	12	...	...	...	5	...	...	...	?	?	?	75	·433	5·7	12	10·00	+2·00	7·43	7·10	+0·33	7·43	7·10	+ 0·33	1·14	Simla.	
16	...	...	2	...	...	...	12	...	9·7	?	?	78	·452	5·2	18	?	?	11·60	6·70	+4·90	11·60	6·70	+ 4·90	2·35	Chakrata.	
6	2	...	5	6	1	...	5	5	...	10	?	85	·491	6·5	20	10·20	+9·80	18·61	7·88	+10·73	18·61	7·88	+10·73	2·25	Mussoorie.	
16	...	1	3	1	1	...	7	1	3·3	3	+ 10	76	·495	6·8	18	9·12	+8·88	7·31	5·58	+1·73	7·31	5·58	+ 1·73	1·14	Ranikhet.	
...	2	1	3	6	2	1	6	9	3·0	?	?	90	·290	7·6	28	?	?	22·84	?	?	22·84	?	?	2·57	Gnatong.	
6	1	4	6	4	1	3	5	...	6·1	5	+ 22	97	·485	9·4	24	19·71	+4·29	27·32	24·54	+2·78	27·32	24·54	+ 2·78	4·44	Darjeeling.	
...	...	...	...	...	...	...	...	...	...	...	...	92†	·559†	...	25	?	?	18·80	?	?	18·80	?	?	1·95	Gantok.	
1	1	2	...	3	1	7	11	4	8·3	10	− 17	73	·583	5·7	14	6·70	+7·30	24·15	4·80	+19·35	24·15	4·80	+19·35	6·70	Mount Abu.	Central India.
1	3	...	2	...	1	8	13	2	12·6	8	+ 58	74	·608	6·8	16	11·64	+4·36	19·72	10·58	+9·14	19·72	10·58	+ 9·14	3·38	Pachmarhi.	
10	...	1	...	...	1	11	7	...	4·4	5	− 12	71	·447	5·6	10	7·22	+2·78	3·89	3·28	+0·61	3·89	3·28	+ 0·61	0·82	Wellington	South India.
1	1	6	...	6	...	...	3	13	8·5	?	?	72	·392	6·4	11	9·00	+2·00	8·45	3·90	+4·55	8·45	3·90	+ 4·55	2·00	Kodaikanal.	
7	2	...	...	3	1	1	11	5	4·2	?	?	77	·439	6·1	11	7·80	+3·20	5·28	2·43	+2·85	5·28	2·43	+ 2·85	1·17	Kottagiri.	
																									XIII.—Extra India.	
...	...	...	...	1	2	11	14	2	10·2	?	?	76	·844	7·2	12	?	?	11·03	8·03	+3·00	11·03	8·03	+ 3·00	3·78	Colombo	Ceylon.
19	..	...	1	3	...	2	3	2	?	?	?	?	?	0·6	0	?	?	0	?	?	0	?	?	0	Meshed	Persia.
...	1	1	2	2	...	2	1	21	8·8	?	?	65	·812	0	0	?	?	0	?	?	0	?	?	0	Bushire	
...	2	...	2	8	6	4	2	3	?	?	?	70	·998	0·7	0	?	?	0	?	?	0	?	?	0	Jask.	
...	2	2	12	5	...	1	3	5	2	?	?	72	·968	0·4	0	?	?	0	?	?	0	?	?	0	Muskat	Arabia.
...	17	4	3	3	1	...	1	1	?	?	?	41	·531	?	0	?	?	0	?	?	0	?	?	0	Baghdad	
8	...	1	8	2	3	6	1	1	9·1	8	+ 14	74	·952	1·7	0	?	?	0	0	0	0	0	0	0	Aden.	
...	...	...	...	...	...	...	21	9	19·0	?	?	82	·860	6·0	13	?	?	8·45	?	?	8·45	?	?	2·28	Minicoy.	Arabian Sea Islands.
...	...	...	...	...	9	12	..	...	12·3‡	?	?	§85	§·728	5·0‖	3	?	?	0·57	?	?	0·57	?	?	0·24	Zanzibar	Africa.

* Mean of 29 days.
† „ „ 27 „
‡ „ „ 19 „

§ Mean of 21 days.

‖ Mean of 20 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88

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 to 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	...	29·754	29·674	·080	29·710	−·015	29·702	85·4	77·5	7·9	89·5	73·7	15·8	82·5	82·9	80·3	− 0·5	75·2	79·4	79·1	77·9
	Rangoon	...	·786	·688	·098	·747	+·009	·725	87·4	76·4	11·0	91·9	73·3	18·6	81·9	82·9	80·0	+ 0·7	74·7	78·5	77·9	77·0
	Diamond Island	...	·782	·689	·093	·732	+·008	·708	84·7	78·4	6·3	88·0	73·1	14·9	82·3	82·3	80·5	+ 1·3	75·1	77·8	77·6	76·9
	Akyab	...	29·761	·662	·099	·715	+·038	·677	85·6	77·2	8·4	92·7	73·4	19·3	82·2	83·1	80·5	− 0·8	74·8	79·6	80·1	78·2
Assam.	Silchar	...	·621	·518	·103	·580	+·041	·634	88·0	75·8	12·2	94·1	70·3	23·8	82·5	83·2	80·3	− 1·3	74·6	78·3	78·6	77·2
	Sibsagar	...	·390	·287	·103	·341	+·034	·626	88·2	76·0	12·2	94·3	70·4	23·9	82·9	85·9	80·8	− 0·7	74·6	78·8	80·3	77·9
	Dhubri	...	·580	·460	·120	·529	+·029	·597	84·6	75·6	9·0	91·0	72·3	18·7	79·8	82·8	78·9	− 0·4	74·1	76·6	78·0	76·2
Bengal and Orissa.	Chittagong	...	·644	·558	·086	·607	+·040	·642	84·6	75·8	8·8	92·6	73·0	19·6	81·5	82·3	79·3	− 1·2	74·7	78·6	79·2	77·5
	Dacca	...	·653	·551	·102	·609	+·029	·579	87·3	77·6	9·7	92·8	74·6	18·2	82·8	84·0	81·9	− 1·2	75·7	79·3	79·4	78·2
	Calcutta (Alipore)	...	·639	·545	·094	·598	+·052	·565	87·6	78·1	9·5	91·9	75·4	16·5	84·0	84·3	82·6	− 2·1	76·4	79·5	79·3	78·4
	Calcutta (Chowringhee).	?	·617	?	?	?	?	?	89·7	77·9	11·8	94·0	75·3	18·7	85·3	?	?	?	76·7	80·8	?	?
	Saugor Island	...	·611	·546	·095	·600	+·052	·568	87·6	80·2	7·4	91·1	76·8	14·3	84·7	85·3	83·0	− 1·8	77·3	80·6	80·7	79·6
	Burdwan	...	·558	·456	·102	·514	+·052	·559	89·5	78·7	10·8	96·1	73·2	22·9	84·2	86·9	82·7	− 2·6	76·8	78·7	79·3	78·2
	Berhampore	...	·587	·483	·104	·542	+·056	·557	89·0	77·9	11·1	95·2	74·8	20·4	83·9	85·1	81·8	− 3·0	75·7	79·8	79·9	78·5
	False Point	...	·664	·565	·099	·619	+·044	·581	87·6	79·1	8·5	90·3	71·5	18·8	85·5	85·3	82·3	− 1·7	77·1	80·2	80·4	79·2
	Cuttack	...	·584	·484	·100	·543	+·042	·564	91·0	78·9	12·1	97·1	73·8	23·3	87·3	88·5	83·5	− 2·3	76·2	78·8	78·9	78·0
	Hazaribagh	...	27·646	27·567	·079	27·616	+·039	·534	86·7	72·4	14·3	98·6	68·8	29·8	81·1	81·6	77·9	− 4·3	69·7	74·6	74·0	72·8
Gangetic Plain and Chota Nagpur.	Patna	...	29·438	29·323	·115	29·387	+·038	·519	93·2	78·2	15·0	104·4	75·2	29·2	87·7	90·2	84·0	− 3·2	75·2	79·0	78·8	77·7
	Darbhanga	...	·480	·364	·116	·428	+·045	·546	91·4	78·0	13·4	101·0	74·0	27·0	86·1	88·8	83·1	− 1·5	76·0	79·0	79·2	78·0
	Allahabad	...	·283	·182	·101	·235	+·033	·494	95·3	79·2	16·6	108·4	71·8	36·6	88·6	92·7	86·1	− 4·8	75·0	78·8	78·8	77·5
	Ghazipur	220	·398	·289	·109	·318	+·054	·517	95·0	79·9	15·1	106·7	76·1	30·6	88·0	92·4	86·1	− 1·5	75·8	78·4	79·6	77·9
	Lucknow	...	·231	·129	·102	·181	+·031	·506	93·2	77·9	15·3	104·3	72·3	32·0	86·6	90·8	85·4	− 6·2	75·8	78·7	78·8	77·7
Upper Sub-Himalayas.	Dehra Dun	...	27·432	27·349	·083	27·381	+·029	·524	87·6	70·9	16·7	95·7	60·9	34·8	80·4	83·2	78·4	− 6·2	67·2	72·1	73·1	70·8
	Roorkee	...	28·719	28·612	·107	28·661	+·048	·483	96·6	76·0	20·6	106·4	66·6	39·8	87·6	94·0	85·9	− 4·5	71·5	76·4	76·4	74·8
	Meerut	...	·863	·758	·105	·802	+·043	·482	97·5	77·5	20·0	108·2	71·5	36·7	90·1	94·4	86·9	− 4·2	73·1	76·3	75·6	75·0
	Lahore	...	·868	·772	·096	·814	+·044	·465	100·5	80·6	19·9	111·2	74·8	36·4	92·2	98·5	89·7	− 1·3	72·5	76·5	78·0	75·7
	Ludhiana	...	·766	·665	·101	·710	+·030	·462	98·6	79·3	19·3	110·3	70·5	39·8	90·9	96·5	88·2	− 3·2	73·6	76·9	78·1	76·2
Indus Valley and N.W. Rajputana.	Peshawar	...	·477	·359	·118	·412	+·031	·456	103·4	76·9	26·5	110·0	63·0	47·0	94·1	100·6	89·1	− 0·5	68·2	74·8	75·6	72·9
	Mooltan	...	29·111	29·020	·091	29·060	+·023	·428	108·9	85·0	23·9	114·5	74·3	40·2	97·7	107·5	96·2	+ 2·1	74·3	79·1	81·7	78·4
	Jacobabad	...	·338	·218	·120	·272	+·015	·406	110·8	84·8	26·0	117·6	78·1	39·5	99·8	107·9	96·7	− 0·1	73·9	79·8	79·3	77·7
	Kurrachee	...	·543	·462	·081	·504	−·012	·503	92·5	80·1	12·4	101·9	73·0	28·1	88·0	89·0	85·1	− 1·8	77·9	80·9	82·8	80·5
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·189	28·094	·095	28·142	+·011	·494	93·5	76·7	19·8	111·8	73·5	38·3	90·8	94·7	87·6	− 3·1	71·3	75·9	76·5	74·6
	Ajmere	...	·027	27·927	·100	27·983	+·001	·500	98·0	80·4	17·6	106·9	71·4	35·5	90·0	95·0	87·7	− 0·6	73·6	75·6	77·5	75·6
	Deesa	...	29·154	29·046	·108	29·105	−·018	·513	98·0	78·9	19·1	109·6	73·3	36·3	89·2	95·9	87·3	− 2·7	72·9	76·6	76·8	75·4
	Nowgong	...	28·833	28·738	·095	28·790	+·017	·481	95·4	78·5	16·9	109·6	73·3	36·3	88·0	92·3	85·9	− 5·5	74·4	76·8	76·8	76·0
	Agra	...	29·065	·944	·121	·998	+·044	·492	101·4	82·5	18·9	114·4	76·5	37·9	93·2	98·4	91·4	− 3·2	73·8	77·3	78·0	76·4
Deccan.	Belgaum	...	27·264	27·190	·074	27·231	−·018	·660	78·5	67·6	10·9	87·9	66·0	21·9	74·3	74·1	71·5	− 0·9	66·5	70·3	70·0	68·9
	Sholapur	...	28·156	28·049	·107	28·113	−·004	·618	90·0	71·9	18·1	98·3	69·5	28·8	81·9	86·9	79·2	− 2·4	69·6	72·6	72·9	71·7
	Poona	...	27·901	27·817	·084	27·866	−·011	·622	85·8	70·9	14·9	98·0	68·4	29·6	80·3	81·1	77·0	− 2·3	68·6	72·4	72·3	71·1
	Akola	...	28·743	28·612	·131	28·683	−·007	·544	93·4	75·6	17·8	103·6	72·1	31·5	85·6	90·0	83·0	− 2·5	71·9	75·8	76·1	74·6
	Buldana	2,132	27·562	27·469	·093	27·521	−·019	·543	87·7	71·5	16·2	98·2	68·1	30·1	81·3	85·6	78·2	− 2·4	68·6	72·6	72·7	71·3
	Khandwa	...	28·616	28·501	·115	28·564	−·004	·542	93·9	76·8	17·1	106·2	72·3	33·9	84·8	89·7	84·1	−2·8	71·2	74·6	74·7	73·5

II.

Stations in India, Burma, etc., for June 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.						
														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.	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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·844	·967	·948	·920	+ ·007	89	87	84	87	+ 1	9·4	9·3	9·4	+ 2·2	5	...	...	1	9	14	17	11	3	S. 30° W.	S. 38° W.	59	82	128	227	...	...	Port Blair	Burma Coast and Bay Islands.
·837	·932	·891	·887	− ·015	92	86	80	86	− 3	8·2	8·0	8·1	− 0·6	...	...	...	2	7	15	21	14	1	S. 34° W.	S. 19° W.	68	71	110	130	...	...	Rangoon	
·849	·897	·886	·877	− ·013	92	81	80	84	− 3	8·4	8·6	8·5	+ 0·7	2	1	...	5	11	3	22	11	5	S. 39° W.	S. 32° W.	47	75	293*	207	...	...	Diamond Island.	
·834	·977	·990	·934	+ ·018	89	89	88	89	+ 3	8·3	8·2	8·3	+11·0	...	1	6	9	3	26	6	8	1	S. 5° E.	S. 2° E.	45	58	86	96	...	...	Akyab	
·842	·917	·918	·892	− ·015	91	83	82	86	+ 1	8·9	8·7	8·8	+ 1·0	37	1	4	5	1	3	4	4	1	S. 27° E.	N. 58° E.	3	9	89*	72	...	...	Silchar	Assam.
·842	·931	·962	·911	− ·006	93	83	78	85	+ 1	7·2	6·6	6·9	− 1·5	11	...	24	1	8	...	14	..	2	N. 76° E.	S. 77° E.	22	11	40	62	..	...	Sibsagar	
·822	·873	·897	·864	− ·032	92	86	81	86	− 2	8·2	6·8	7·5	+ 0·2	9	5	13	12	7	2	11	1	...	S. 88° E.	S. 84° E	28	23	179	116	...	...	Dhubri	
·850	·915	·960	·918	+ ·070	95	88	87	90	+ 4	8·0	8·2	8·1	+ 0·6	1	0	2	2	17	18	11	6	3	S. 1° W.	S. 31° E.	57	56	122	166	...	...	Chittagong	Bengal and Orissa.
·867	·957	·947	·924	− ·047	91	86	82	86	− 1	8·7	8·3	8·5	+ 0·9	...	1	4	6	16	23	9	1	...	S. 19° E.	S. 16° E.	65	75	180	172	...	...	Dacca	
·890	·947	·937	·925	− ·046	92	82	80	85	+ 2	8·0	8·1	8·1	+ 1·0	...	2	...	2	7	17	23	6	3	S. 27° W.	S. 4° E.	63	59	109	146	...	...	Calcutta (Alipore).	
·906	·985	?	?	?	95	82	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	28·69	8·50	Do. (Chowringhee).	
·900	·994	·992	·961	− ·065	87	83	82	84	+ 1	9·4	8·7	9·1	+ 1·6	...	...	...	3	4	25	22	6	...	S. 20° W.	S. 15° W.	77	69	479	350	...	...	Saugor Island.	
·897	·907	·903	·902	− ·027	91	77	71	80	+ 3	8·0	8·2	8·1	+ 0·8	2	6	1	6	9	17	15	3	1	S. 2° E.	S. 20° E.	52	58	204*	118	...	...	Burdwan	
·862	·965	·947	·925	− ·011	90	84	80	84	+ 1	8·2	8·5	8·4	+ 0·2	2	2	5	14	6	18	8	3	2	S. 29° E.	S. 33° E.	40	48	106	133	...	...	Berhampore	
·907	·962	·975	·948	− ·022	91	79	80	83	0	8·3	8·0	8·2	+ 1·3	...	...	...	...	5	26	20	8	1	S. 24° W.	S. 45° W.	78	63	341*	288	...	...	False Point	
·865	·870	·863	·866	− ·024	88	68	65	74	+ 1	6·6	7·1	6·9	+ 0·2	4	...	1	4	1	13	28	8	1	S. 36° W.	S. 31° W.	67	53	100	96	...	...	Cuttack	
·693	·777	·740	·737	+ ·052	87	74	72	78	+ 13	8·4	9·1	8·8	+ 1·5	2	6	1	4	7	13	13	5	9	S. 37° W.	S. 36° W.	30	19	244	213	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·836	·878	·837	·850	− ·024	86	69	62	72	+ 3	6·5	5·4	6·0	− 0·1	3	2	6	33	2	...	2	11	1	N. 81° E.	N. 73° E.	43	45	173	106	..	...	Patna	
·869	·897	·872	·879	− ·034	91	73	66	76	− 1	6·0	4·5	5·3	+ 0·6	1	2	4	24	18	3	2	3	3	S. 73° E.	S. 89° E.	59	71	182	139	...	...	Darbhanga	
·816	·856	·801	·824	+ ·061	82	67	58	69	+ 14	6·7	6·0	6·4	+ 1·8	...	4	15	15	3	2	5	6	10	N. 38° E.	N. 2° E.	30	12	188	102	...	...	Allahabad	
·837	·844	·839	·840	+ ·062	82	66	58	69	+ 11	6·2	5·9	6·1	+ 1·8	10	2	4	16	14	...	...	9	5	S. 85° E.	N. 74° E.	27	12	109	73	5·36	1·27	Ghazipur	
·865	·876	·826	·855	+ ·095	91	71	60	74	+ 19	6·0	4·9	5·5	+ 0·8	27	...	...	30	...	...	...	3	...	E.	N. 51° E.	45	17	53	102	...	...	Lucknow	
·627	·638	·698	·671	?	82	68	63	71	?	5·6	5·6	5·6	+ 1·4	18	3	4	2	5	4	4	10	6	S. 88° W.	S. 66° W.	16	12	22	39	...	...	Dehra Dun.	Upper Sub-Himalayas.
·720	·762	·681	·721	+ ·084	79	60	46	62	+ 11	5·0	4·6	4·8	+ 1·7	19	2	3	15	6	1	8	2	4	S. 79° E.	S. 4° E.	20	11	?	94	...	...	Roorkee	
·764	·727	·639	·710	+ ·025	81	53	44	59	+ 9	5·1	4·8	5·0	+ 1·8	6	3	4	25	7	...	4	7	4	N. 87° E.	N. 26° W.	33	22	62	64	...	...	Meerut	
·698	·707	·687	·697	+ ·089	67	50	41	53	+ 15	3·7	3·7	3·7	+ 0·5	5	6	4	12	18	4	2	6	3	S. 68° E.	N. 19° W.	33	11	92	85	...	...	Lahore	
·759	·738	·705	·734	+ ·101	76	53	44	58	+ 11	4·9	4·9	4·9	+ 1·8	16	14	...	4	9	7	1	3	6	N. 30° E.	N. 74° W.	8	10	82	60	...	...	Ludhiana	
·602	·634	·585	·607	+ ·098	63	40	31	45	+ 8	1·7	3·6	2·7	+ 0·7	3	9	22	10	3	2	3	2	6	N. 40° E.	N. 44° E.	50	32	113*	112	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·714	·750	·737	·734	− ·010	59	42	31	44	− 4	0·6	1·8	1·2	+ 0·3	3	...	4	..	28	...	18	..	7	S. 11° E.	S. 25° W.	42	33	50*	87	...	...	Mooltan	
·697	·754	·624	·692	+ ·024	58	40	28	42	+ 2	1·5	2·1	1·8	+ 1·0	6	...	4	10	20	12	5	3		S. 38° E.	S. 31° E.	57	46	135*	117	..	...	Jacobabad	
·932	·962	1·040	·978	+ ·029	90	73	76	80	+ 6	3·2	3·5	3·4	− 0·9	...	...	...	...	...	...	30	30	..	S. 67° W.	S. 58° W.	94	85	354	447	...	...	Kurrachee	
·679	·712	·683	·691	+ ·021	70	52	48	57	+ 7	5·6	6·3	6·0	+ 1·7	3	8	11	...	3	4	19	9	3	S. 83° W.	N. 60° W.	25	47	110	178	...	...	Jeypore	E. Rajputana, Central India and Guzerat.
·747	·709	·724	·727	+ ·045	74	53	47	58	+ 7	4·8	5·5	5·2	+ 1·8	1	4	6	4	3	5	5	27	5	N. 87° W.	S. 61° W.	40	68	187	208	...	...	Ajmere	
·730	·749	·667	·716	− ·015	75	57	45	59	+ 7	6·1	7·3	6·7	+ 1·7	...	2	1	1	...	2	15	19	9	S. 84° W.	S. 86° W.	71	72	367	403	...	...	Deesa	
·798	·770	·717	·762	+ ·045	83	62	53	66	+ 14	7·3	7·7	7·5	+ 1·6	1	2	10	10	...	3	4	24	6	N 62° W.	N. 72° W.	27	43	119*	107	...	...	Nowgong	
·721	·729	·688	·712	+ ·042	66	50	41	53	+ 8	5·2	4·9	5·1	+ 1·6	...	1	19	2	11	...	10	1	16	N. 20° E.	N. 60° W.	18	28	171	138	...	...	Agra	
·639	·691	·686	·672	+ ·008	94	82	82	86	+ 4	8·6	9·1	8·9	+ 1·0	...	3	1	1	1	3	32	12	3	S. 59° W.	S. 73° W.	71	86	574	583	...	...	Belgaum	Deccan.
·696	·684	·637	·673	+ ·049	89	63	52	68	+ 8	6·7	8·3	7·5	+ 0·3	1	5	1	...	3	1	25	17	7	S. 74° W.	N. 86° W.	63	66	375*	293	...	...	Sholapur	
·674	·699	·684	·685	0	89	69	67	75	+ 5	7·1	8·0	7·6	+ 0·1	6	0	1	1	3	1	12	31	5	S. 79° W.	S. 79° W.	67	73	273	375	...	...	Poona	
·734	·761	·715	·737	+ ·052	84	63	54	67	+ 9	6·6	7·7	7·2	+ 0·7	10	2	2	2	...	3	10	21	10	N. 89° W.	N. 71° W.	52	71	167	215	...	...	Akola	
·664	·695	·644	·668	− ·007	86	66	55	69	+ 3	5·2	6·0	5·6	− 0·7	...	2	1	1	...	4	2	16	16	S. 84° W.	N. 75° W.	67	65	210*	253	9·21	3·55	Buldana	
·697	·731	·672	·701	− ·016	76	64	52	64	+ 4	5·9	6·7	6·3	+0·2	...	3	2	1	2	4	6	32	10	N. 87° W.	N. 77° W.	66	71	224	228	...	...	Khandwa	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88

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 to 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—*contd.*	Hoshangabad	...	·622	·511	·111	·572	—·014	·520	92·4	76·7	15·7	102·1	71·7	30·4	85·5	89·6	83·8	- 3·9	72·9	77·5	77·9	76·1
	Nagpur	...	·631	·510	·121	·576	+·013	·532	93·0	77·1	15·9	103·1	70·4	32·7	85·3	89·6	83·3	−2·5	72·3	76·1	76·7	75·0
	Jubbulpore	...	·301	·196	·105	·254	+·010	·505	90·8	76·2	14·6	102·2	72·4	29·8	84·9	87·8	82·5	−4·4	71·8	74·8	75·0	73·9
	Saugor	...	27·871	27·779	·092	27·830	+·007	·492	92·2	75·6	16·6	105·8	71·0	34·8	86·2	88·8	82·7	−3·0	71·1	74·7	74·9	73·6
	Raipur	...	28·687	28·575	·112	28·636	+·033	·524	92·8	76·6	16·2	102·7	73·0	29·7	85·8	87·7	82·6	−3·1	72·6	76·2	76·2	75·0
	Sutna	...	·547	·454	·093	·505	+·015	·477	93·1	78·3	14·8	106·2	73·6	32·6	88·2	90·8	84·7	−4·7	72·2	75·8	75·6	74·6
	Secunderabad	...	27·955	27·861	·094	27·918	0	·609	90·2	72·8	17·4	98·7	68·4	30·3	81·9	87·5	79·9	−1·8	70·2	72·3	73·3	71·9
	Hyderabad (Deccan).	...	28·048	·943	·105	28·003	?	·599	89·4	73·8	15·6	96·2	69·6	26·6	82·2	87·7	81·2	?	70·7	73·6	76·0	73·5
West Coast.	Bombay	...	29·702	29·619	·083	29·660	—·009	·637	85·9	78·2	7·7	91·3	74·3	17·0	82·7	83·1	81·6	−1·6	75·0	78·3	78·4	77·2
	Ratnagiri	...	·659	·581	·078	·619	−·013	·666	85·6	77·0	8·6	90·2	73·9	16·3	83·1	82·8	80·7	−0·2	74·3	78·9	78·6	77·3
	Karwar	...	·769	·704	·065	·736	−·011	·711	84·1	76·5	7·6	90·4	73·9	16·5	81·4	81·7	79·9	+0·2	75·3	76·7	76·9	75·6
	Cochin	...	·873	·806	·067	·839	- ·016	·777	85·5	74·4	11·1	87·9	71·5	16·4	81·5	81·5	79·2	−0·1	73·1	77·2	77·4	75·9
South India.	Salem	...	28·889	28·767	·122	28·843	—·027	·705	92·4	73·0	19·4	96·3	71·3	25·0	83·4	87·9	81·0	−1·4	71·1	75·3	75·2	73·9
	Mysore	...	27·344	27·259	·085	27·302	?	·712	82·9	67·7	15·2	90·1	65·4	24·7	76·7	78·1	74·1	?	66·3	70·0	70·1	68·7
	Mercara	...	26·168	26·097	·071	26·148	—·010	·785	73·6	63·5	10·1	81·5	62·1	19·4	67·8	67·9	67·1	+0·5	62·6	65·9	65·9	64·8
	Bangalore (Fort)	...	·846	·760	·086	·814	—·036?	·689	82·3	66·4	15·9	89·1	64·2	24·9	75·5	78·4	73·4	−1·3	65·2	69·5	69·8	68·2
	Hassan	...	·793	·719	·074	·767	?	·730	78·9	64·8	14·1	88·1	60·8	27·3	73·9	73·2	70·4	?	63·3	68·8	68·2	66·8
	Chitaldroog	...	27·410	27·324	·086	27·376	?	·677	82·6	68·1	14·5	90·9	63·5	27·4	76·8	79·6	74·6	?	66·2	70·5	71·0	69·3
	Trichinopoly	...	29·555	29·424	·131	29·505	−·011	·685	96·7	77·1	19·6	101·1	69·8	31·3	88·7	93·3	85·5	−1·1	72·2	75·1	76·2	74·5
	Madras	...	·751	·644	·107	·708	+·007	·657	96·5	78·6	17·9	102·0	72·6	29·4	89·6	91·1	85·7	−1·5	?	78·8	79·6	78·4
	Bellary	...	28·305	28·198	·107	28·262	—·004	·651	91·8	74·5	17·3	97·6	71·2	26·4	84·4	87·7	81·2	−1·6	70·0	73·2	73·6	72·3
	Vizagapatam	...	29·666	29·571	·095	29·623	+·031	·591	88·0	82·7	5·3	91·3	77·4	13·9	87·1	88·2	86·7	−0·9	74·0	79·2	79·4	77·5
	Coconada	...	·681	·570	·111	·626	?	·587	92·5	79·5	13·0	100·2	73·1	27·1	87·9	90·1	85·4	?	?	78·0	78·3	?
Hill Station, Baluchistan.	Quetta	...	24·479	24·401	·078	24·433	+·001	?	90·9	61·1	29·8	95·6	43·0	52·6	83·6	88·2	75·3	+0·9	55·6	64·4	63·7	61·2
Hill Stations, Northern India.	Leh	11,503	19·645	19·554	·091	19·606	−·033	?	75·8	46·8	29·0	86·7	34·7	52·0	64·3	71·3	58·0	+2·6	38·4	46·5	49·2	44·7
	Srinagar	...	24·729	24·647	·082	24·681	?	?		59·6			51·0		72·2	80·7		?	58·3	65·0	69·2	64·2
	Murree	...	23 742	23·708	·034	23·718	+·002	?	76·2	61·1	15·1	83·3	51·6	31·7	70·5	73·8	68·5	−4·3	55·4	61·4	63·2	60·0
	Chamba	3,005	26·689	26·611	·078	26·662	+·020	?	88·3	68·8	19·5	97·1	59·3	37·8	80·4	85·7	77·3	−2·8	64·1	68·9	70·0	67·7
	Kailang	10,087	20·716	20·661	·055	20·701	−·009	?	73·1	46·3	26·8	82·5	35·0	47·5	64·3	68·4	57·9	+2·9	43·1	52·1	52·2	49·1
	Simla (Ridge)	...	23·028	22·979	·049	22·993	+·003	?	69·9	58·8	11·1	78·2	50·3	27·9	66·1	66·5	64·0	−4·1	54·8	59·6	60·0	58·2
	Simla (Chapslee)	?	?	?	?	?	?	?	73·7	59·4	14·3	84·9	52·3	32·6	68·0	?	?	?	54·1	60·1	?	?
	Chakrata	...	·155	23·105	·050	23·123	—·006	?	70·0	58·7	11·3	77·3	51·7	25·6	65·4	67·6	64·2	−3·1	55·9	59·8	62·1	59·2
	Ranikhet	...	·997	·932	·065	·953	+·017	?	74·0	61·4	12·6	80·2	56·2	24·0	69·8	71·7	67·6	−3·2	58·9	62·8	64·3	62·0
	Katmandu	4,388	25·467	25·390	·077	25·427	+·027		82·3	66·7	15·6	87·0	62·3	24·7	76·4	77·4	73·2	−1·9	64·9	69·3	70·3	68·2
	Darjeeling	...	22·917	22·857	·060	22·885	+·026	?	63·5	54·8	8·7	66·6	52·8	13·8	61·2	61·2	58·5	−1·3	54·2	60·1	59·9	57·9
	Demagiri	?	?	?		?		?	84·6	75·5	9·1	93·9	72·2	21·7	82·7	82·2	79·5	−0·6	?	?	?	?
	Tura	3,943	?	?	?	?	?		83·1	73·7	9·4	88·4	70·7	17·7	79·1	80·7	77·8	?	?	74·9	76·0	?
Hill Stations, Central India.	Mount Abu	...	5·857	25·791	·066	25·829	—·028	?	80·1	67·9	12·2	89·4	63·8	25·6	76·1	77·7	73·4	−2·2	63·2	68·3	69·6	67·0
	Pachmarhi	...	26·265	26·187	·078	26·231	+·001	?	81·5	70·5	11·0	93·	65·4	28·3	76·0	78·9	75·2	−3·0	65·9	68·9	69·9	68·2
	Chikalda	3,6	·154	·075	·0	·120	—·008	?	79·3	67·	11·	88·9	63·8	25·1	74·1	77·3	72·7	−2·7	64·7	68·4	69·5	67·5

II—*continued.*

Stations in India, Burma, etc., for June 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.						
														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.	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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province
·764	·843	·811	·806	+·062	84	71	61	72	+12	6·4	7·1	6·8	+0·8	14	1	1	2	...	4	20	17	1	S. 62° W.	S. 88° W.	55	71	112	114	...	...	Hoshangabad.	Deccan—*contd.*
·735	·786	·759	·760	+·047	79	67	57	68	+ 7	7·1	8·3	7·7	+0·5	1	3	5	4	1	5	18	17	6	S. 73° W.	N. 76° W.	45	52	225	183	...	...	Nagpur.	
·727	·739	·712	·726	+·039	81	65	59	68	+ 9	7·0	8·0	7·5	+1·1	4	3	2	1	3	4	15	23	5	S. 75° W.	N. 80° W.	57	54	104	126	...	...	Jubbulpore.	
·708	·717	·694	·710	+·098	81	62	56	67	+15	5·4	6·6	6·0	+1·8	...	3	3	2	2	1	29	10	10	S. 72° W.	S. 82° W.	57	63	163	136	...	...	Saugor.	
·749	·777	·748	·756	+·031	82	64	60	69	+ 7	8·3	9·1	8·7	+2·2	2	...	3	3	2	4	22	20	4	S. 63° W.	S. 74° W.	60	66	267*	220	...	...	Raipur.	
·719	·739	·703	·723	+·087	75	59	55	63	+14	6·0	6·1	6·1	+1·4	2	2	2	7	1	13	2	20	11	S. 79° W.	N. 59° W.	33	50	210*	241	—	...	Sutna.	
·709	·674	·644	·676	+·030	88	63	51	67	+ 6	5·0	8·0	6·5	+0·8	3	2	3	3	...	2	14	24	9	S. 88° W.	S. 80° W.	59	82	279	297	...	...	Secunderabad.	
·716	·725	·756	·732	?	86	66	59	70	?	6·6	7·9	7·3	?	5	2	1	2	1	1	3	39	5	N. 87° W.	?	69	?	207*	?	...	...	Hyderabad (Deccan).	
·825	·912	·909	·882	—·045	86	82	81	83	+ 1	7·8	7·8	7·8	−0·1	...	1	1	3	8	6	16	19	6	S. 56° W.	S. 63° W.	50	66	350	389	...	...	Bombay.	West Coast.
·814	·934	·925	·891	+·044	88	83	83	85	+ 5	7·6	8·5	8·1	+1·5	...	3	...	...	2	3	25	17	0	S. 73° W.	S. 53° W.	70	66	266*	278	...	...	Ratnagiri.	
·780	·857	·860	·832	—·010	85	80	80	82	− 2	7·1	7·3	7·2	0	1	5	...	...	...	...	35	12	7	S. 65° W.	S. 76° W.	84	76	115	?	...	...	Karwar.	
·800	·882	·886	·856	+·002	94	82	83	86	− 2	2·5	6·0	4·3	−3·3	1	3	6	6	...	1	4	20	19	N. 57° W.	S. 75° W.	52	42	152	?	...	...	Cochin.	
·737	·768	·706	·737	—·027	91	67	55	71	+ 1	5·9	8·2	7·1	+1·3	10	1	1	...	5	18	21	3	1	S. 23° W.	S. 58° W.	62	82	95	113	...	...	Salem.	South India.
·631	·651	·639	·639	?	93	71	67	77	?	7·3	8·3	7·8	?	...	...	4	1	2	..	22	27	4	S. 74° W.	?	70	?	392*	?	...	...	Mysore.	
·560	·619	·616	·598	—·003	95	91	90	92	− 1	8·7	9·2	9·0	−0·4	...	2	2	1	...	2	7	33	13	N. 83° W	N. 81° W.	75	86	227	196	...	...	Mercara.	
·610	·653	·632	·632	+·015	94	74	66	78	+ 4	5·8	7·5	6·7	+0·9	4	3	...	2	...	...	15	35	1	S. 81° W.	S. 71° W.	75	90	201*	202	...	...	Bangalore.	
·567	·647	·633	·615	?	92	77	78	82	?	7·7	8·5	8·1	?	3	2	...	...	...	1	25	22	7	S. 75° W.	?	77	?	?	?	...	...	Hassan.	
·623	·670	·653	·649	?	91	73	65	76	?	7·5	7·8	7·6	?	2	1	3	1	...	2	25	22	4	S. 71° W.	?	70	?	248*	?	...	...	Chitaldroog.	
·728	·695	·675	·699	—·013	78	51	44	58	+ 1	4·9	6·2	5·6	−1·6	4	...	1	1	1	1	26	24	2	S. 66° W.	N. 87° W.	75	84	188	228	...	...	Trichinopoly.	
?	·842	·854	·874	+·075	?	61	60	71	+ 7	5·3	6·6	6·0	−0·4	...	1	1	5	12	6	17	16	2	S. 33° W.	S. 36° W.	47	58	188	213	...	...	Madras.	
·679	·677	·650	·669	+·011	79	58	50	62	+ 4	7·7	7·3	7·5	0	9	1	1	...	...	1	41	17	10	S. 79° W.	S. 86° W.	65	80	224	256	...	...	Bellary.	
·717	·904	·898	·840	—·042	64	70	67	67	− 1	6·3	6·8	6·6	+0·6	...	2	1	2	5	15	23	10	2	S. 34° W.	S. 58° W.	63	63	64	87	...	...	Vizagapatam.	
?	·828	·813	?	?	?	63	59	?	?	4·5	4·5	4·5	?	...	3	...	2	14	3	14	18	6	S. 53° W.	?	43	?	210*	?	...	...	Coconada.	
·406	·413	·339	·386	+·011	71	35	25	44	+ 2	0·6	2·2	1·4	+0·4	31	...	...	2	4	3	5	9	6	S. 87° W	N. 69° W.	22	43	8 6	101	...	...	Quetta.	Hill Stations, Baluchistan.
·168	·167	·163	·166	—·003	51	27	22	33	− 5	4·4	4·6	4·5	−0·5	1	1	3	4	2	8	18	16	7	S. 61° W.	S. 84° W.	50	26	71	57	0·03	0·03	Leh.	Hill Stations, Northern India.
·485	·546	·599	·543	?	93	68	57	72	?	3·4	3·7	3·6	?	33	1	4	5	7	5	2	2	1	S. 53° E.	?	18	?	63*	?	...	...	Srinagar.	
·387	·457	·480	·441	+·080	73	64	60	66	+20	5·7	5·5	5·6	+1·8	2	...	1	1	21	6	8	9	12	S. 21° W.	S. 2° W.	32	12	191*	158	...	...	Murree.	
·555	·580	·559	·565	+·100	77	57	47	60	+13	4·6	6·4	5·5	+1·2	11	10	...	2	...	...	2	5	30	N. 41° W	N. 27° W.	65	25	130*	123	4·35	2·30	Chamba.	
·258	·291	·254	·267	+·031	80	47	37	54	+ 1	4·5	5·3	4·9	−0·7	...	1	1	...	...	8	25	12	13	S. 69° W.	S. 66° W.	68	67	51	47	0·37	0·16	Kailang.	
·391	·442	·457	·430	+·017	78	71	72	73	+10	6·2	7·1	6·7	+0·8	24	21	...	...	...	10	4	...	1	N. 20° W.	S. 76° W.	15	40	?	?	...	...	Simla (Ridge).	
·372	·444	?	?	?	73	67	?	?	?	6·2	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	9·27	1 40	Simla (Chapslee).	
·419	·460	·504	·461	+ 055	85	75	76	78	+13	5·6	6·0	5·8	+0·7	6	1	...	4	...	...	1	48	...	N. 89° W.	S. 73° W.	73	50	234*	140	...	...	Chakrata.	
·477	·504	·530	·503	+·043	87	70	69	75	+11	6·9	6·8	6·9	+1·5	15	...	1	8	1	1	6	28	...	S. 77° W.	S. 65° W.	38	49	79	83	...	...	Ranikhet.	
·604	·638	·661	·640	+·014	92	70	71	78	+ 3	7·1	7·9	7·5	+1·8	...	5	...	23	2	1	2	23	4	N. 34° W.	S. 87° W.	8	53	26	?	8·93	1·54	Katmandu.	
·416	·589	·502	·472	— 019	96	94	93	94	− 1	9·5	9·3	9·4	+0·7	6	1	10	15	4	0	9	10	2	N. 89° E.	S. 88° E.	12	5	114	113	...	...	Darjeeling.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	0	6	32	3	1	1	13	3	N. 84° E.	S. 29° E.	38	23	?	?	26·77	3 20	Demagiri.	
?	·821	·843	?	?	?	83	81	?	?	7·3	5·9	6·6	−0·2	...	4	2	...	2	36	12	2	2	S. 13° W.	S. 3° W.	67	57	?	?	29 53	5 75	Tura.	
·529	·607	·632	·589	+·021	79	70	70	73	+ 6	5·5	6·6	6·1	−0·8	1	1	6	1	3	1	29	13	5	S. 64° W.	S. 42° W.	55	74	202	242	...	...	Mount Abu.	Hill Stations, C. India.
·586	·625	·628	·613	+·016	80	72	67	73	+ 7	6·8	7·3	7·1	+0·5	4	4	2	2	...	2	20	22	4	S. 78° W.	N. 71° W.	61	63	301*	185	...	...	Pachmarhi.	
·579	·631	·633	·614	+·017	86	77	70	78	+ 6	7·4	7·8	7·6	+0·8	9	9	1	1	...	3		17	20	N. 55° W	N. 45° W	60	62	184	233	10·52	2·30	Chikalda.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88

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 to 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 Stations, S. India.	Wellington	...	24·194	24·131	·063	24·162	−·003	?	71·6	56·6	15·0	74·6	51·4	23·2	67·5	65·7	62·6	−1·2	54·4	60·8	60·8	58·6
Extra India.	Muscat	...	29·552	29·489	·063	29·521	?	?	91·1	87·0	4·1	97·7	83·0	14·7	89·7	90·2	88·8	?	76·7	81·7	82·0	80·1
	Aden	...	·636	·514	·122	·571	−·031	29·595	92·6	83·4	9·2	95·5	80·6	14·9	89·0	90·7	87·5	−0·1	73·3	80·3	78·8	77·5
	Perim	...	·533	·449	·084	·487	?	·487	94·4	?	?	104·3	?	?	90·4	91·0	?	?	76·8	80·3	80·4	79·1
	Minicoy	...	·882	·806	·076	·840	?	·775	84·5	79·1	5·4	87·3	75·2	12·1	82·4	82·4	81·4	?	74·8	77·4	77·2	76·5
	Zanzibar	...	Imperfect.	·998	?	?	?	?	80·5	73·3	7·2	82·2	71·2	11·0	Imperfect.	79·4	76·7	?	70·1	Imperfect.	72·2	?

II—*concluded.*

Stations in India, Burma, etc., for June 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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 of the month.	Heaviest rainfall during mon/h.	Station.	Meteorological Province.
·402	·465	·483	·448	+·008	87	69	77	77	+ 2	6·6	8·2	7·4	−0·1	2	1	...	...	9	11	28	6	3	S. 32° W.	N. 88° W.	67	52	107	123	...	...	Wellington.	Hill Stations, S. India.
·788	·979	·983	·916	?	62	71	70	67	?	0·5	0·4	0·5	?	...	2	13	25	1	1	1	3	14	N. 48° E.	?	47	?	90	?	...	...	Muscat.	Extra India.
·691	·917	·825	·813	−·048	60	67	57	62	+ 4	0·8	0·4	0·6	−0·6	1	...	5	3	5	23	21	1	1	S. 10° W.	S. 2° E.	63	68	220	209	...	...	Aden.	
?	·902	·900	?	?	?	64	63	?	?	0·4	0·7	0·6	?	...	1	4	2	2	...	1	15	35	N. 52° W.	?	72	?	307	?	...	...	Perim.	
·805	·876	·867	·849	?	81	79	79	80	?	6·0	6·8	6·4	?	...	1	...	...	...	..	..	42	16	N. 77° W.	?	92	?	423*	?	...	...	Minicoy.	
·695	?	·686	?	?	85	?	67	?	?	Imperfect.	4·4	?	?				Imperfect						?	S. 10° W.	?	73	267	198	...	...	Zanzibar.	

* Corrected.

GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE.—No. 54 METEOR.—4-10-93.—400.

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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93.—5,500.

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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr. I.—April 93—500.—199 R., May 93—5,500.

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

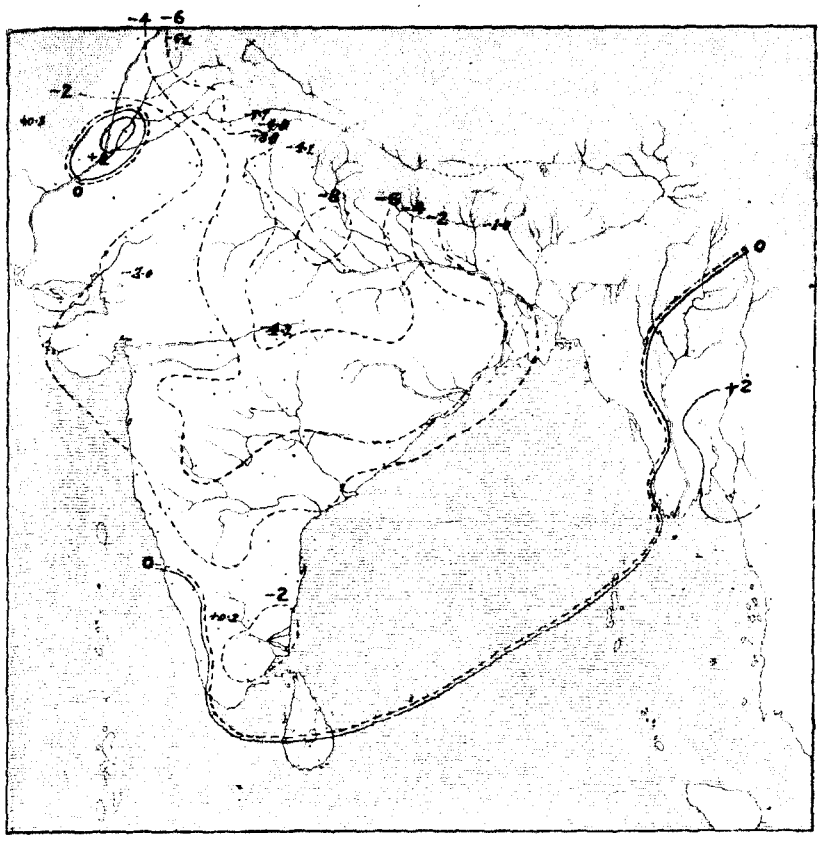
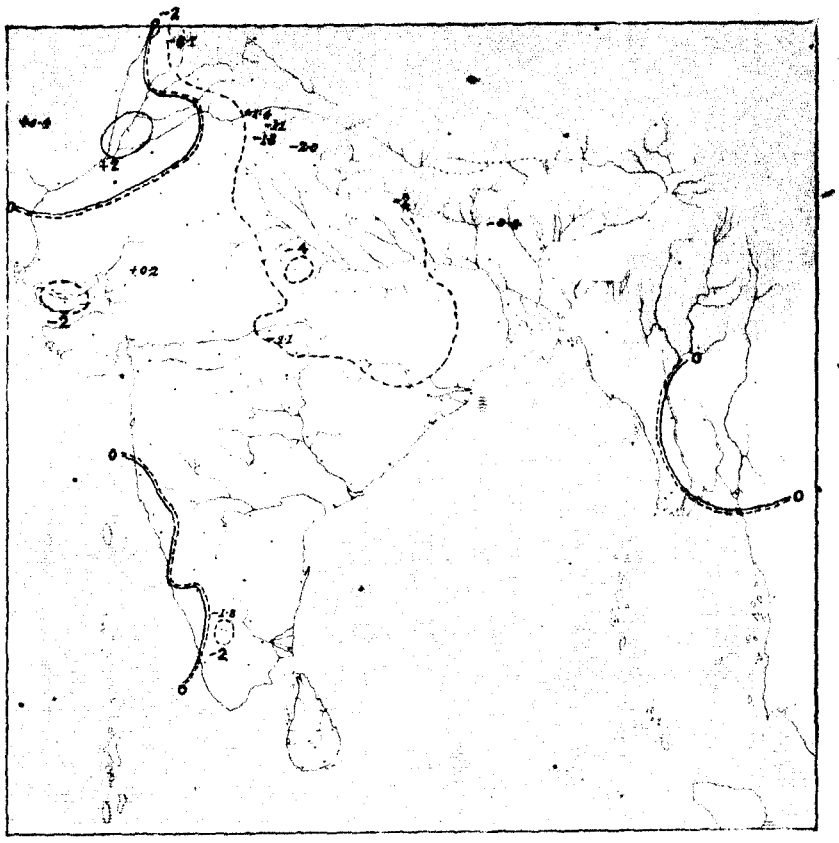


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

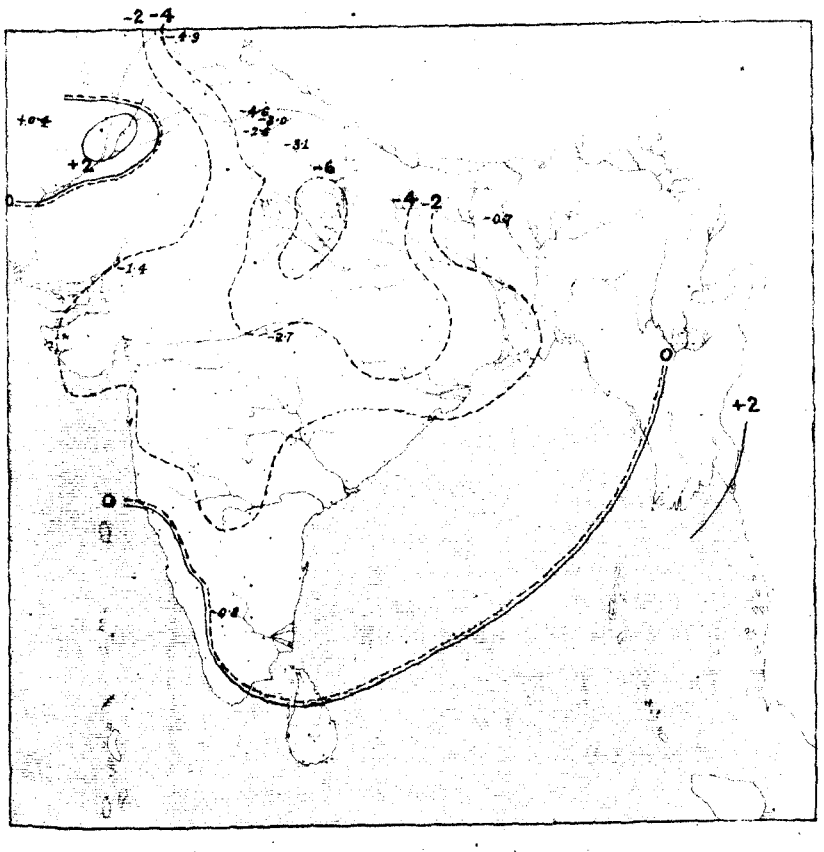
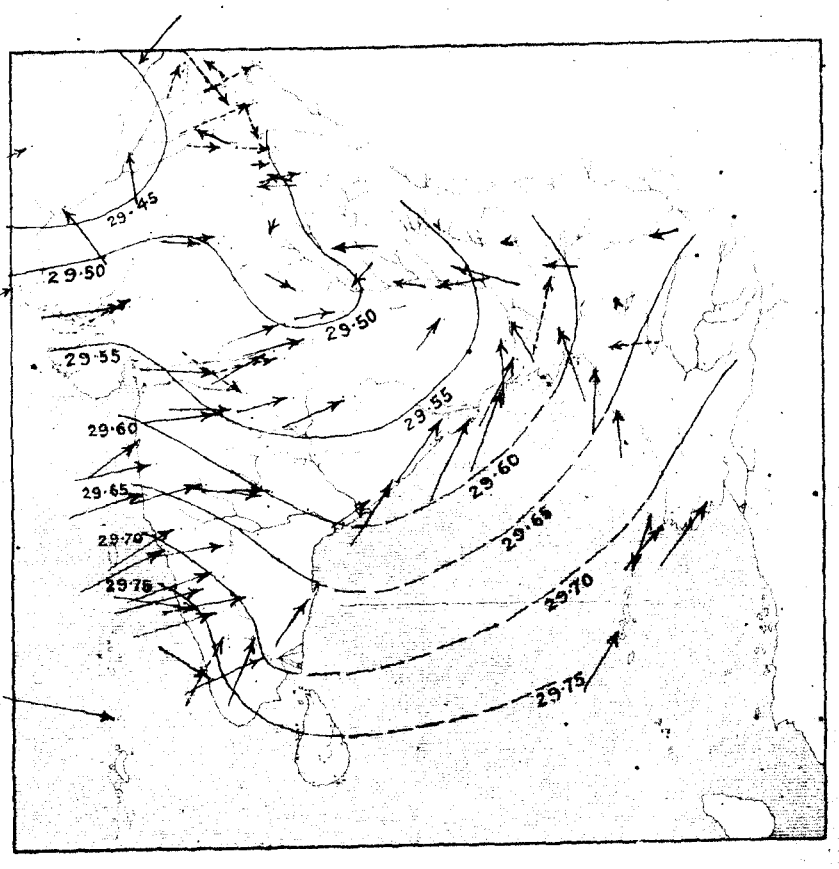


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JUNE 1893.



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.

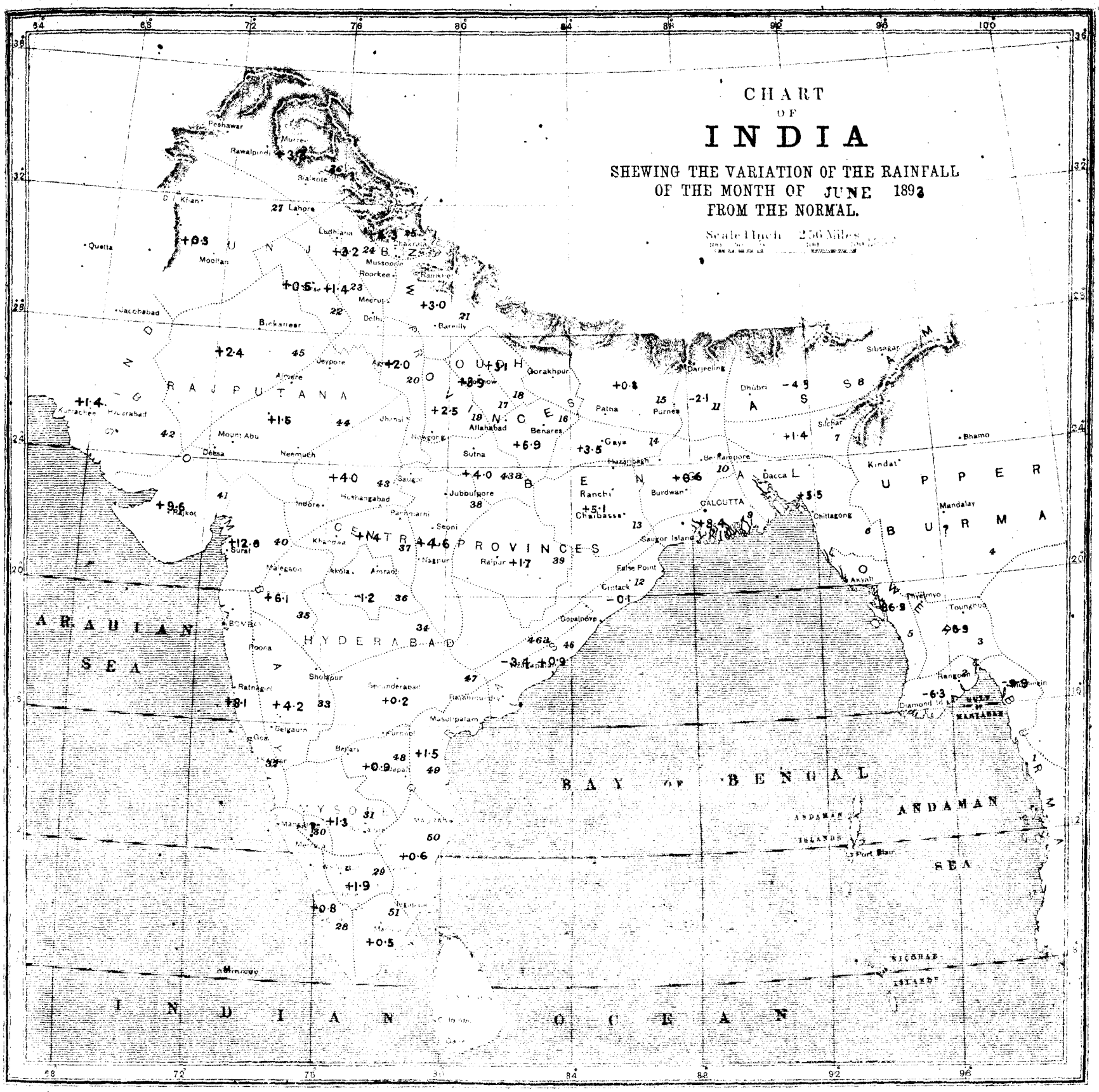
The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants 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 ⅛th 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. 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. 199, Wr., I.—April 93—500.—199 R., May 93—5,500.

Litho. S. I. O. Calcutta



Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

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Litho., S. I. O., Calcutta.

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INTRODUCTION

THIS Review of the weather in India during the month of July 1893 is based on observations taken daily at 8 A.M. at 199 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 89 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 July 1893.

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 disticts, 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 in a somewhat mitigated form, are Sind, North-West Rajputana, and the West of the 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 of the 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 movement 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 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 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 India.

The conditions for the first few days of July call for no detailed review, for ordinary monsoon conditions obtained over the whole of India. From the 7th, however, pressure began to rise moderately to rapidly over Northern India, particularly at the north-western stations, and also over Bihar, Chota Nagpur, and West Bengal. This increase continued on the 8th and 9th, and resulted in the development of a high pressure area over Bengal and the eastern districts of the North-Western and Central Provinces, also in the Punjab and over the Gangetic plain generally. Conditions at once became less favourable for rainfall over Northern India, and on the 10th comparatively little rain was reported from the Punjab, the Bombay Deccan, Lower Bengal and Upper Burma. This was, however, only a temporary establishment of the high pressure area, and from the 10th pressure began to fall, the decrease being rapid on the 11th and small on the 12th, and on the 13th the high pressure area had retreated southward and lay across the head of the Peninsula from about Gopalpur to Surat. The fall of pressure continued on the 14th, and pressure distribution became more normal. The monsoon current again advanced freely over Northern India and good general rain re-commenced, and conditions remained of ordinary monsoon character up till the 21st, when abnormal easterly winds appeared on the Konkan coast, indicating possibly slightly unsettled conditions in the Arabian Sea, and the falling off in the strength of the Arabian Sea branch of the monsoon current. This was also accompanied by the establishment of another feeble area of comparatively high pressure stretching from Orissa to Sind and the Punjab, and hence from about the 21st rainfall fell off in amount in the central and north-western parts of India, while heavy rain continued to fall in Northern, North-Eastern and Southern India. With the further development and extension of these conditions, the easterly monsoon current from the Bay practically ceased to pass into Upper India, and from the 23rd rainfall was confined to North-Eastern and Southern India.

There was no practical change in these conditions on the 24th, 25th, and 26th, though there was a slight tendency to the re-establishment of easterly winds along the north side of the Gangetic plain on the latter date, but on the 28th a well-marked band of high pressure appeared over Rajputana and Central India, which extended considerably in an easterly direction, and indeed included parts of South-West Bengal. Accompanying this change in the distribution of pressure winds became north-westerly down the Gangetic plain, while they were generally also westerly and north-westerly over practically the whole of Central India and over the Peninsula. Hence with the appearance of the dry air current rainfall rapidly ceased in Upper India, and skies also cleared. A slight change, however, occurred on the 29th from the development of a feeble low pressure area in the north-west of the Bay of Bengal, and this depression continued slowly to increase in importance up till the 31st, when it formed a well-defined storm, but of rather feeble character, lying off the Orissa coast. During this period rainfall was again practically absent in Upper India, though it continued fairly general in Bengal and over the south of the Peninsula, but the area of high pressure over Rajputana, etc., still existed, and prevented rain from reaching North-Western India.

As the result of the high pressure which had existed over Rajputana, Central India, parts of the Central Provinces, etc., the trough of low pressure was again pushed still further northwards, and the mean pressure chart for July shows that this trough ran from North Bengal along the base of the Himalayas to the Punjab, instead of from Orissa to Sind. This position of the trough of low pressure is distinctly unfavourable to the free advance of the monsoon current over Northern and North-Western India, while it is favourable for the advance of the current over Southern India and into Bengal. Compared with the normal pressure for the month, the general pressure over India was 0·015″ in excess. This excess was, however, to a great extent confined to an area comprising Assam, Bengal, the Central Provinces, Hyderabad, Central India, and Guzerat, the southern parts of the North-Western Provinces, Rajputana, and Sind, and the northern parts of Bombay and Madras. Defects, on the other hand, were recorded in the Punjab, Southern Burma, the south of Bombay, and over the greater part of the Madras Presidency. The maximum excess variation has equalled about 0·03″ to 0·04″ in the Central Provinces, while the maximum defects have been registered in the south of the Peninsula, where they have equalled about 0·04″, and at such stations as Dera Ismail Khan, Dehra Dun, Roorkee, etc., where the defects have been from 0·03″ to 0·04″.

Owing to the heavy rainfall during the month, the mean temperature has again been rather largely in defect of the normal over the greater part of India. Slight excess temperatures have indeed been registered across the middle

and north of the Peninsula including Orissa, the southern part of the Central Provinces, Hyderabad, the northern districts of Madras, and the greater part of Bombay, but elsewhere temperature has been in defect, usually by from 1° to 3°, the defect being largest at the northern stations, and rising in the north of the Punjab to 5° and 6° at such stations as Sialkot and Rawal Pindi. The variations have again been largest in the day or maximum temperatures, which have been in defect over practically the same areas as the mean temperature, but the defects in the maximum temperatures range up to no less than 10° at Rawal Pindi and 8·2° at Sialkot. The variations of the minimum temperature from the normal, on the other hand, have been smaller than the variations of the mean temperature. The greater part of India shows a defective minimum temperature for July, but the variations from the normal are rarely larger than from 1° to 2°.

The following table gives the temperature variation data of the eleven meteorological provinces into which the Empire is divided:—

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

The strength of the monsoon currents as judged by the wind velocities during July appears to have been almost normal for the whole of India. Of the two branches of the monsoon, that from the Arabian Sea was distinctly weaker than usual, while that from the Bay of Bengal was correspondingly stronger than usual. So far as can be judged also, the Arabian Sea current blew from about the normal direction and was quite as steady as usual, but at the stations affected by the Bay of Bengal current, winds were on the whole rather more westerly than usual, and the percentage of steadiness was also higher than in normal years. The air was decidedly damper over India generally in July than is usual in this month, and the largest excess variations occurred in Rajputana, the Indus Valley, and the Upper Sub-Himalaya districts; the variations were also considerable in Central India and Guzerat, but elsewhere they were not as a rule large. Slight but distinctly defective humidities were, however, registered in the Deccan and West Coast districts, where rainfall was also below the normal.

Cloud proportion was in considerable excess over the greater part of India, the only areas where it was almost normal or even in slight defect being the West Coast districts and the Deccan. The excess in Burma, the Gangetic Plain, Chota Nagpur, the Upper Sub-Himalayas, and South India districts was decidedly large.

The rainfall in July as compared with the normal was very considerably in defect on the Burma coast and the Bay Islands, and about normal or slightly in excess in Central and Upper Burma. It was in large excess in Assam and North Bengal, and over Bengal generally it was nearly normal, but over Orissa the falls were defective. In the Gangetic Plain, Chota Nagpur, and North-Western Provinces, the falls were in moderate to large excess. In the Punjab and Rajputana the falls were usually in rather large excess of the normal, while they were in defect in Sind, Kathiawar, and Central India. Falls also were in considerable to large defect in the Central Provinces, Berar, Khandesh, Bombay Deccan, and along the Konkan and Malabar coasts, but moderately large excess falls were recorded over the greater part of South India. Taking the rainfall in July of India generally, it was probably very nearly equal to the normal for the month.

The periods during which the rainfall was heaviest, and the causes which modified its distribution have been already referred to. It will be noticed that there has been a singular absence of barometric depressions and storms such as usually occur during the rainy season in July, and hence there has been no very marked concentration of the rainfall over particular areas or tracts of country, and as the monsoon currents have flowed fairly evenly over India, the greater part of the country has received good general rain in this month.

The following table gives a summary of the rainfall data for July, for the eleven meteorological divisions of the Empire:—

Province.	Mean actual rainfall of July 1893. *	Mean normal rainfall for July. *	Variation of actual from normal. *
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	21·49	31·68	— 9·06
Burma Inland	8·69	11·39	+ 1·14
Assam	27·21	14·39	+ 12·81
Bengal and Orissa	14·16	14·14	— 0·04
Gangetic plain and Chota Nagpur	15·90	11·89	+ 4·13
Upper Sub-Himalayas	14·49	11·98	+ 2·51
Indus Valley and North-West Rajputana	4·41	3·06	+ 1·23
East Rajputana, Central India, and Guzerat	7·65	11·69	— 3·17
Deccan	7·23	10·93	— 4·03
West Coast	19·84	31·44	— 10·73
South India	5·94	5·53	+ 0·75

* The figures in the second column or for the normal rainfall are obtained from a smaller number of stations than those for the actual rainfall in the first column. The figures in the third column are obtained by comparing the normal figures with the actual figures at the stations from which the normals have been obtained, and hence do not necessarily refer to the figures in the first column at all.

Atmospheric Pressure.

The more important barometric changes and movements during July are discussed in the following section devoted to the description of the barometric depressions of the month, but on the whole the variations have not been large. The actual mean pressure recorded at all the stations in India shows that it has been in excess of the normal for July by 0·015″. The defects from the normal pressure have been confined to a small number of districts only; mainly to the south of the Peninsula, south of Lat. 16° N., and to the Punjab and the northern districts of the North-Western Provinces, but a small part of the south of Burma also shows a defective pressure. Thus the extreme northern and the extreme southern stations show defective pressures, while the whole of the remainder of India has shown an excess, the excess being largest over parts of the Central Provinces, where it has equalled 0·05″. The seat of maximum excess stretches across the head of the Peninsula from Rajkot on the western side, to Calcutta, Barisal, and almost to Chittagong on the east of India and over this band the northern extremity of which is Jhansi, and the southern extremity Amraoti, the excess equals about 0·04″ and upwards. To the south and north of this area pressure has been in small excess, and further again, to the north and south the pressure registered is normal, and then finally in defect.

The area of excess pressure over India has therefore comprised by far the largest part of the reporting area, and across the head of the Peninsula the excess pressures have been very considerable, particularly in the Central Provinces, which is the seat of the maximum excess. This area of rather large excess pressure is best defined in the table below, where the stations at which the excess has equalled 0·04″ and upwards are given :—

Province.	Station.	Mean Pressure.		
		Actual July 1893 reduced to 32°.	Normal July reduced to 32°.	Variation of actual from normal.
		"	"	"
North-Western Provinces . .	Jhansi . .	28·751	28·711	+·040
Berar and Central Provinces . .	Amraoti . .	28·472	28·432	+·040
	Saugor . .	27·888	27·846	+·042
	Raipur . .	28·692	28·638	+·054
	Jubbulpore .	28·322	28·267	+·055
	Sambalpore .	29·166	29·118	+·048
Central India . .	Neemuch .	28·019	27·978	+·041
	Nowgong .	28·853	28·812	+·041
	Indore . .	27·865	27·817	+·048
Bombay . .	Rajkot . .	29·235	29·195	+·040
	Malegaon .	28·300	28·248	+·052
Bengal . . .	Chaibassa . .	28·852	28·808	+·044
	Saugor Island .	29·610	29·569	+·041
	Calcutta . .	29·610	29·569	+·041
	Barisal . .	29·643	29·601	+·042
	Burdwan . .	29·532	29·490	+·042

On the other hand, the areas, where there have been defective pressures of importance, have been confined to the extreme southern parts of India, and to the northern stations close to or in the Himalayas. This is also shown in the following table, where the stations at which the mean pressure has been more than 0·02″ in defect of the normal are given:—

District.	Station.	Mean Pressure.		
		Actual July 1893 reduced to 32°.	Normal July reduced to 32°.	Variation of actual from normal.
		"	"	"
Panjab . . .	Dera Ismail Khan.	28·907	28·928	−·021
North-Western Provinces . .	Roorkee .	28·656	28·679	−·023
	Dehra Dun .	27·370	27·392	−·022
Malabar . .	Mangalore .	29·833	29·856	−·023
	Calicut . .	29·842	29·877	−·035
	Cochin . .	29·879	29·900	−·021
Mysore . .	Bangalore .	26·851	26·880	−·029
Madras . . .	Coimbatore .	28·467	28·491	−·024
	Salem . .	28·893	28·916	−·023
	Trichinopoly .	29·549	29·571	−·022
	Madura . .	29·358	29·380	−·022
Ceylon . . .	Colombo . .	29·847	29·879	−·032

The effect of this distribution of pressure has been to throw the trough of low pressure, which in July and in the south-west monsoon months usually runs from about Orissa to Sind, to a more northerly position than usual, and its mean position in July 1893 was nearly along the foot of the hills, or between North Bengal and the Punjab. This had the effect of stopping the easterly current which usually flows up the Gangetic plain, and of confining the south easterly winds mainly to Bengal. The band of comparatively high pressure across the head of the Peninsula also had the effect of making the current of monsoon winds blowing from the Arabian Sea more westerly than usual.

The pressure recorded at the hill stations would tend to show that in the higher strata of the atmosphere over Northern India the pressure in July was much more

defective than over the plains, while the reverse was the case probably in Southern India. This is shown clearly in the following table :—

Hill Station.	Variation from normal pressure. (a)	Plain Station.	Variation from normal pressure. (b)	Vertical pressure anomaly (a)—(b)
	"		"	"
Murree . . .	—·037	Rawal Pindi .	—·005	—·032
Leh . . .	—·037	Lahore . .	—·014	—·023
Kailong . .	+·001	Lahore . .	—·014	+·015
Simla . . .	—·019	Ludhiana . .	—·005	—·014
Ranikhet . .	—·028	Bareilly . .	—·004	—·024
Darjeeling . .	—·009	Dhubri . .	+·022	—·031
Wellington . .	—·009	Coimbatore .	—·024	+·015

The following table will show the variations of the pressure for July from the normal, derived from the figures given in Table I, for each district or province of India :—

Province.	Variation of mean 8 A.M pressure from the normal.	Anomaly.
	"	"
Burma Coast and Bay Islands	+·005	—·010
Burma Inland	+·008	—·007
Assam	+·021	+·006
Bengal and Orissa	+·033	+·018
Gangetic plain and Chota Nagpur . . .	+·024	+·009
Upper Sub-Himalayas	—·009	—·024
Indus Valley and North-Western Rajputana .	+·004	—·011
East Rajputana, Central India, and Guzerat .	+·030	+·015
Deccan	+·037	+·022
West Coast	—·009	—·024
South India	—·005	—·020

Tabulated in this way the districts which have shown defective pressures in July have been the Upper Sub-Himalayas, the West Coast, and the Southern India districts, where the defects have been less than a hundredth of an inch. The largest excess has been registered over the Deccan, Bengal, Orissa, East Rajputana, Central India, and Guzerat, where the excess has been 0·03″ and upwards.

Barometric depressions of the month.

The month of July has been singularly free from barometric depressions and cyclonic storms. Indeed, there are few months during the rainy season in recent years when there has been such a freedom from these disturbances, and this fact tends to strengthen the conclusion that when the monsoon currents are blowing with considerable strength, these small storms only rarely form, while they are more frequent when the monsoon current is light, and when there are partial breaks in the rains.

Very feeble land-formed depression of July 13th to 16th.—The first indication of the formation of a depression was shown over South-West Bengal on the 13th, when pressure was relatively low at such stations as Calcutta and Jessore, and there was also a very feeble circulation of winds round that area. On the 14th this depression became slightly more pronounced, but it was still very feeble. On the 15th it had again developed very slightly, and was moving in a westerly direction, and was giving moderate rain ; and on this date Balasore registered 2·16 inches, Hazaribagh 2·31 inches, and several stations more than an inch. On the 16th the feeble depression had expanded and had become a large shallow low pressure area, which was drifting slowly over Chota Nagpur and up the Gangetic plain. It had again given rather heavy rain, Hazaribagh reporting 4·55 inches, and Saugor Island, 2·58 inches. From this date, however, the depression may be considered to have ceased to exist in a separate form, for it became merged into the usual trough of low pressure which exists in the rainy season in the Gangetic plain.

From the 17th up till the 29th of July there were slight indications on one or two days of the possible formation of the usual kind of barometric depressions, but none of them developed, and they therefore did not attain any separate existence ; but from the 29th till the close of the month a very distinct depression was generated in the north-west angle of the Bay of Bengal, and this formed the principal feature in the weather of the close of the month.

Barometric Depression of 29th July to August 5th.—This depression, which however never concentrated to form a true storm, began to develop over the north of the Bay of Bengal on the 29th of July, when a fall of pressure equalling about a twentieth of an inch took place over the northern half of the Bay; but on this day winds at the coast stations round the head of the Bay did not show the existence of any definite centre of disturbance. So far as can be ascertained, the disturbance originated in a strong wave of south-west monsoon winds with disturbed weather in front of it, which was advancing up the Bay about this period. Thus on the 28th the *Barque Jumna* in Lat. 14½° N. and Long. 88° 13′ E. experienced west

south-westerly winds, and weather was squally with rain; the S. *Enterpe* in Lat. 15⅜° N. and Long. 86° E. had winds west by south of force 6, and the S. *John Davie* in Lat. 17° N. and Long. 86° E. had north-west winds of force 4 with continual rain squalls. Moderate to heavy rain with squally weather also prevailed in the east of the Bay on this day. On the 29th most of the vessels in the north of the Bay had westerly and even north-westerly winds, and the *Barque Jumna* in Lat. 17° N. and Long. 88° E. had westerly winds, and experienced stiff squalls from the north-west. The S.S. *Clan Matheson* in Lat. 12° N. and Long. 80½° E. had westerly winds of force 5, and the S. S. *Virawa* in Lat. 12° N. and Long. 90° E. had south-west winds of force 6 with hard rain squalls. So far then as the land and sea observations show, no definite barometric depression existed on this day, but the north of the Bay was in a decidedly disturbed state.

July 30th.—A further brisk fall of pressure took place over the north-west and north of the Bay on this date, and winds also showed there was a distinct centre of disturbance off the South Orissa Coast, round which winds were beginning to circulate cyclonically.

The following table gives data for a few of the stations round the north of the Bay:—

Station.	Pressure.			Wind at 8 A.M.		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.	Average hourly velocity in miles.			
	"	"	"				Inches.	
Diamond Island.	29·641	—·065	—·067	SW	14	10	0·46	Sea slight.
Akyab .	29·579	—·046	—·055	SE	3	8	3·80	Continuous rain.
Chittagong .	29·567	—·048	—·030	E	5	10	0·59	
Saugor Island.	29·502	—·057	—·031	NNE	8	9	*Nil*	Sea slight.
False Point .	29·490	—·056	—·063	NW	9	10	*Nil*	Wind variable.
Gopalpur .	29·478	—·056	?	NNW	10	5	1·80	Sea smooth.
Cocanada .	29·575	—·021	—·058	W	15	10	0·01	Sea smooth.

The fall of pressure had been very general in the north of the Bay, and probably the disturbance was only a diffused one on this day, and did not possess any very definite centre.

The following table gives data for some vessels which were navigating the northern half of the Bay on this day:—

Name of vessel.	Position 8 A.M.		Barometer corrected 8 A.M.	Wind.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	"				
Barque *Jumna* .	18 32	88 01	29·534	NE	0 to 1		4 A.M. overcast.
S. *John Davie*.	19 38	87 00	...	SW	2		Heavy rain.
S.S. *Beswada* .	17 05	82 41	29·670	SW	2		Overcast.
S.S. *Rajputana* .	14 21	80 49	29·680	W	4 to 5		Cloudy.
S.S. *Chollerton* .	11 25	84 13	29·266	SW	6		Squalls.
S.S. *Virawa* .	10 50	88 10	29·676	SW	6	Heavy confused.	Overcast.

There was therefore a distinct tendency for winds to circulate, but the cyclonic circulation was not complete. The observations of the *Jumna* and *Enterpe* also show that pressure had fallen in the north of the Bay by nearly a tenth of an inch. In the south of the Bay strong winds were blowing, and the S S. *Peninsular* in Lat. 6° N. and Long. 88° E. experienced south-west winds of force 7 with high sea and squally weather, and the S.S. *Megna* in Lat. 6° N. and Long 82½° E. had west winds of force 7, also with high sea and heavy rain squalls.

July 31st.—Pressure continued to fall in the north-west angle of the Bay. Hence the depression was steadily developing, and a distinct but still rather feeble storm existed off the south Orissa Coast with a centre probably opposite Puri. Wind directions over the northern half of the Bay also formed part of a well-defined cyclonic circulation.

The position of the storm is fairly well defined by the following coast observations:—

Station.	Pressure.			Wind at 8 A.M.		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.	Average hourly velocity in miles.			
	"	"	"				Inches.	
Diamond Island.	29·683	+·042	—·026	SW	23	10	1·00	Sea rough.
Akyab .	29·587	+·008	—·052	SSE	4	10	0·32	
Chittagong .	29·559	—·008	—·044	ESE	4	10	0·06	
Saugor Island	29·453	—·049	—·080	NE	7	10	1·50	
False Point .	29·447	—·043	—·105	NNW	7	10	1·86	
Gopalpur .	29·468	—·010	?	NW	8	8	1·15	Sea smooth.
Cocanada .	29·567	—·008	—·064	W	14	10	0·17	Sea slight.

Strong winds, it will be seen, were blowing to the south of the storm, as shown by the high velocity (23 miles an hour) at Diamond Island, and by the rather high velocity at Cocanada. To the north of the small storm however winds were rather feeble, and Saugor Island only registered a velocity of 7 miles an hour. The cyclonic circulation of winds was however practically complete round a centre to the east of Puri.

The following table also contains some observations made on board vessels which were in the northern half of the Bay:—

Name of vessel.	Hour.	Position 8 A.M. Lat. N.	Position 8 A.M. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	State of sea.	Weather, remarks.
		° ′	° ′	″				
Barque *Jumna.*	4 A.M.				SW	4		Small rain.
	8 A.M.	20 04	88 18	29·454	SSW			Fine and clear.
	Noon	20 18	88 22		Do.			Fine and clear.
	4 P.M.				W			Fine and clear.
	8 P.M.				SSW			Cloudy.
	Mid-night.				Do.			Dark and cloudy.
S.S. *Africa* .	4 A.M.				SW	5	SW swell	Cloudy.
	8 A.M.	19 58	89 25	29·4,6	Do.	5	Ditto	Squally.
	Noon	20 30	88 53		Do.	5	Ditto	Fine and clear.
	4 P.M.				Do.	4 to 2		Squally and cloudy.
	8 P.M.	Saugor.			Do.	2		Overcast.
	Mid-night.				WSW	2		Fine and clear.
S. *John Davie.*	4 A.M.				NW	2		Passing clouds.
	8 A.M.	19 59	87 16		NE	1		Rainy.
	Noon	20 02	87 18		S	2		Fine.
	4 P.M.				W	4		Cloudy.
	8 P.M.				WSW	4		Ditto.
	Mid-night.				SW	6		Clear.
S.S. *Benwada*	4 A.M.				SW	4 to 5		Cloudy.
	8 A.M.	19 07	85 31	29·481	Var.	1	SW swell	Heavy rain.
	Noon	19 30	85 58		Do.	2	Heavy SW swell	Heavy showers.
	4 P.M.				Do.	2		Heavy showers.
	8 P.M.				Do.	2		Cloudy.
	Mid-night.				SW	5		Passing clouds.
S.S. *Chollerton.*	4 A.M.				WSW	6	Strong	
	8 A.M.	14 19	85 33	29·266	Do.	5		
	Noon	14 48	85 44		Do.	5		Heavy squalls of rain.
	4 P.M.				Do.	6	Strong	
	8 P.M.				Do.	6	Ditto	
	Mid-night.				Do.	6	Ditto	
Barque *Pauline.*	4 A.M.				NW			
	8 A.M.	19 50	86 46		Calm.			
	Noon				NW			
	4 P.M.				WNW			
	8 P.M.				SW			
	Mid-night.				Do.			
S.S. *Purnea*	4 A.M.				SW	6	Strong SW swell	Cloudy.
	8 A.M.	13 07	97 00	29·773	Do.	5	Heavy SW swell	Strong monsoon.
	Noon	12 36	97 06		SSW	5	Heavy SW swell	Cloudy.
	4 P.M.				WSW	4	Moderating.	Light rain.
	8 P.M.				Do.	5	Decreasing.	Squally towards end of the watch.
	Mid-night.				SSW	6		Heavy rain squalls.
S.S. *Bancoora*	4 A.M.				SW	6		Squalls and heavy rain.
	8 A.M.	15 08	94 59	29·684	WSW	8		6 A.M. furious squalls and heavy rain.
	Noon	14 57	94 45		SW	6	Very heavy.	
	4 P.M.				Do.	6		Fierce squalls at times.
	8 P.M.				Do.	6	Rough head.	
	Mid-night.				Do.	6	Rough.	

The wind directions recorded on board these vessels do not show the cyclonic circulation as clearly as the observations taken at the land observatories, but the *Pauline* appears to have been fairly near the centre of the circulation. This vessel experienced a calm with apparently fine weather. This, it will be seen, is in striking contrast to the weather experienced to the south-east where the *Bancoorá* had winds of force 8 and experienced furious squalls, and to the north of the centre where the *Africa* experienced winds of force 5 with squally weather.

August 1st.—On this date pressure was falling moderately over West and South-West Bengal and parts of the North-Western Provinces, while it was rising over almost the whole of the rest of India, so that the depression had evidently commenced to move in a north-westerly direction, and a large part of the depression indeed existed over the land. The centre of the wind circulation on this day appeared to be quite in the north-west angle of the Bay

and not very far from Saugor Island. These facts are shown by the following land observations :—

STATION.	PRESSURE. 8 A.M., reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND AT 8 A.M. Direction.	Average hourly velocity in miles.	Cloud.	Rainfall.	REMARKS.
	"	"	"				Inches	
Akyab . .	29·636	+·049	—·006	S	5	10	1·78	
Chittagong .	29·583	+·024	—·026	ESE	6	10	0·38	
Saugor Island	29·435	—·018	—·095	WNW	10	10	0·50	Sea slight.
Calcutta .	29·447	—·025	—·080	E	5	10	0·11	
Burdwan .	29·468	—·030	—·063	E	4	10	0·53	
Hazaribagh .	29·505	—·005	—·017	ENE	7	10	0·07	
Balasore .	29·443	—·013	?	NE	3	7	1·57	
False Point .	29·427	—·020	—·123	W	9	10	0·92	
Gopalpur .	29·479	+·011	?	SW	11	6	0·13	Sea slight.

The lowest pressure was recorded at Saugor Island, and though the wind direction at that station was reported to be west-north-west, it is still probable that the centre of the general wind circulation was to the south of Saugor Island. Over the northern half of the Bay weather was decidedly stormy, particularly to the south-east of the centre.

The following table contains the observations of a few vessels which were navigating the north of the Bay :—

NAME OF VESSEL.	POSITION, 8 A.M. Lat. N.	Long. E.	Barometer corrected.	WIND Direction.	Force.	State of sea.	WEATHER REMARKS.
	° ′	° ′	"				
S.S. Beswada	20 26	87 43	29·486	SW	2	SW swell.	Overcast.
S.S. City of Oxford.	14 07	85 11	29·675	WSW	5	...	Rain-squalls at times.
S. Holkar .	12 22	84 24	...	WSW	5	...	Gloomy.
S.S. Aglaja .	15 11	83 28	29·642	SW	4	...	
S.S. *Eridan* .	19 04	86 16?	29·488	WSW	5	Very heavy.	Slight rain.
S.S. *Landaura*	13 53 (noon)	80 48	...	WSW	6	...	...
S.S. *Baghdad*	15 51	94 15	29·654	WSW	6	Heavy head.	Noon. showery
S.S. *Bancoora*	14 10	93 22	29·690	SW	6	...	Very heavy rain-squalls at times.
S.S. *Virawa* .	8 30	85 06	29·789	SW	6	Heavy	Rain squalls at times.

August 2nd.—On this date the centre of the small storm had moved very slowly in a west-north-westerly direction, and it was near Balasore. Pressure had also again fallen very slowly over Western Bengal, Chota Nagpur, and Orissa, while it was rising generally elsewhere.

The position of the feeble depression on this day is shown by the data in the following table :—

STATION.	PRESSURE. 8 A.M., reduced to sea level and constant gravity at Lat. 45°	Change in past 24 hours.	Variation from normal.	WIND AT 8 A.M. Direction.	Average hourly velocity in miles.	Cloud.	Rainfall.	REMARKS.
	"	"	"				Inches	
Akyab . .	29·646	+·010	+·006	SSE	6	10	2·93	
Chittagong .	29·599	+·016	—·007	SE	7	10	0·32	
Saugor Island	29·443	+·008	—·084	SE	11	10	0·47	
Calcutta .	29·452	+·005	—·071	E	2	10	0·32	
Burdwan .	29·475	+·007	—·053	E	4	10	0·12	
Hazaribagh .	29·479	—·026	—·043	E	10	10	1·26	
Balasore .	29·439	—·004	?	ENE	2	6	0·13	
False Point .	29·446	+·019	—·100	WSW	11	10	0·02	
Gopalpur .	29·461	—·018	?	SW	12	5		Sea rough.

The small storm still continued to give rather heavy weather in the north of the Bay, as is shown in the following table :—

NAME OF VESSEL.	POSITION 8 A.M. Lat. N.	Long. E.	Barometer corrected.	WIND Direction.	Force.	State of sea.	WEATHER REMARKS.
	° ′	° ′	"				
S.S. *City of Oxford.*	18 19	86 53	29·475	WSW	4	...	Cloudy with frequent fierce squalls.
S.S *Booldana*	12 01	84 23	29·732	WSW	6	High .	Cloudy.
S.S. *Bendo* .	13 27	85 01	29·710	W by S	7	...	Squally.
S. *Foyle* .	16 01	85 33	29·755	Var.	6	High confused	Rainy.
S.S. *Loodiana*	19 18	85 07	29·561	WSW	4 to 5	Heavy SW	Overcast.
S.S. *Eridan* .	16 56	84 24?	29·575	WSW	8	Very heavy.	Do.
S.S. *Gulf of Martaban.*	10 24	90 04	29·875	WSW	8	Heavy	Squally.
S.S. *Bancoora*	13 22	91 50	29·728	SW	7	...	Squalls and rain.

August 3rd.—From the 2nd to the 3rd of August a rather rapid change had occurred. A brisk increase of pressure had set in over the north of the Bay and over South-West Bengal and Orissa, while a fall had occurred in the North-Western and Central Provinces, and over Western India generally. The depression had therefore moved rather rapidly in a north-westerly direction, and its centre was approaching Sutna. On the 4th the centre was probably a short distance only to the south of Sutna, while on August 5th the depression had practically filled up and disappeared. The latter part of the history of this storm therefore belongs to the month of August, and will be discussed in the summary for that month.

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

I.—MOUNTAINS BORDERING DERA ISMAIL KHAN.

The following summary of the chief facts regarding the snowfall on the ranges west of the Indus during the cold weather of 1892-93 has been received from the Deputy Commissioner of Dera Ismail Khan :—

(*a*) Snow fell down to about 2,000 feet.

(*b*) The total depth of the falls on the various peaks was as follows:—

Kanigoram . . .	4 feet.
Ghwelra . . .	1 foot.
Nili Kach . . .	4 inches.
Jandola	4 "
Gat Pass, Zao ", Sultan Zai, Khidar Zai and Chubarkhel Passes	About 10 feet.
Thakht-i-Suleman and Zamarai.	About 25 feet.
Kashmirkar . . .	1 foot.
Ziarat, Brunj, and Shinsar	3 feet.

The total snowfall in the Sherani and Waziri countries was about 35 feet and 12 feet respectively.

(*c*) The snowfall was general. In December 1892 it could be seen on the Razmak to the north and the Zamarai mountains in the south, *i. e.*, all along the border of the district. At the end of January snow fell on the Ghowelera at a height of about 3,300 feet to the depth of about 1 foot. Nili Kach, Jandola and the surrounding hills were also covered for several days down to about 2,000 feet to a depth of about 4 inches.

There was a slight fall on the Sheikh Budin hills, which lasted for a couple of days. The snowfall was unusually heavy as compared with that of previous years.

The information gathered from the hill-people goes to show that the snowfall was exceptionally heavy, and that no living man can remember to have ever experienced such a fall within the past 40 years. The fall was in fact not only remarkably heavy, but it was also very general, and extended to localities where it was never known before.

Traffic, as might be expected, was seriously interrupted, and had consequently to be suspended. The weather was unusually cold and damp, though it was warm during the day.

(*d*) The outturn of the crops in the Sherani and the Waziri countries was good, and the *Kharif* promises well.

(*f*) The rainfall was heavier than it has been for several years past, and the climate milder in consequence.

(*g*) No snow fell on the ranges bordering the district during the period 1st June to 15th July.

II.—NORTH-WESTERN PROVINCES HIMALAYAS.

Kumaun.—The following report has been received from the Commissioner of Kumaun.

Mallajohar.—There were two falls of snow during the period 6th June to 5th August on the Utadhura and Ralamdhura Passes, giving a total depth of about 4 inches.

Malla Danpur.—No snow fell during the period under report.

Weather was generally warm and dry, though skies were more cloudy than usual.

Summary of special storm reports.

The following gives a statement of the chief local storms of which reports were received during the month :—

6th.—Duststorm at Jacobabad from north-east at 3-20 P.M., lasted 15 minutes.

15th.—Severe duststorm at Jacobabad at 7-40 P.M. It came up from north-east, and lasted until 8-10 P.M. It was followed by a thunderstorm at 9 P.M., which gave 0·13 inch of rain.

18th.—Violent thunderstorm with heavy rain and strong wind at Pachpadra from 5 P.M. to 8 P.M. The storm was at its worst between 6 P.M. and 6-30 P.M., when the wind was blowing at the rate of 109 miles an hour. The rainfall accompanying the storm was exceptionally heavy, as 1·90 inches were recorded between 5-30 and 6 P.M., and 1·75 inches between 6-30 and 7 P.M. The total fall during the storm measured 5·45 inches. The storm is reported to have affected the whole Pachpadra district. Several trees were uprooted, and some huts destroyed.

22nd.—Thunderstorm with rain at Hyderabad (Deccan), 3 to 5 P.M., from north-east.

25th.—Thunderstorm at Masulipatam 2 to 2-45 P.M.

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

Arabian Sea.—Quite up to the close of June, the monsoon current blowing over the Arabian Sea had been decidedly strong, and the same conditions continued early in July. This was particularly the case over the western half of the Arabian Sea, where on July 1st the S.S. *Clan Macarthur* in Lat. 13° N. and Long. 53° E. had southerly winds of force 9 with heavy sea, and the S.S. *Ganges* in the same latitude and in Long. 57° E. had south-west winds of force 7 with high sea. More to the eastward winds were decidedly lighter in force, and usually varied from 2 to 4. Taking the average wind velocity of twenty vessels, which were navigating the Arabian Sea on this day, it was found to equal force 4·2. Conditions remained to a great extent unchanged on the 2nd, but on the 3rd wind force was a little lower. The average reported by 19 vessels was only force 3·9. On the 5th the average wind force over the Arabian Sea increased slightly to 4, and on the 7th it had again increased and equalled force 4·2, or the same as it was on the 1st; but it again slowly decreased up till the 10th, when it had fallen to 3·9. On the 11th the wind force decidedly increased, and the average of eighteen vessels showed a force of no less than 4·7; and on the 12th, some decidedly strong winds were reported, the S.S. *Sultan* in Lat. 13° ¾ N. and Long. 53° E. reporting south-westerly winds of force 9 and a heavy sea, and the S.S. *Dragoman* in Lat. 17½° N. and Long. 57½° E. experiencing south-west winds of force 8 with a high sea. Winds continued fairly strong for several days, alternately falling off in force and again strengthening, and on the 19th the average force reported from 20 vessels was 4·4, while on the 21st it was 4·1. On the 24th it was on the average of 13 vessels 3·8, though on the 27th the wind force as registered on 11 vessels equalled 4·4 again, and from this date up till the close of the month, there was not much change in the strength of the winds, and on the 31st on the average of 16 vessels wind force equalled 4·3. During the whole of this period wind was blowing from about normal monsoon directions, and during the whole month the wind force in the Arabian Sea has averaged about 4 or a little higher than this, on some days being below this force, but perhaps for the greater part of the month showing a force of from four to four and a half. This force is probably of about the normal strength, or perhaps slightly below it.

Bay of Bengal.—In the Bay also a rather strong monsoon was blowing at the close of June, and this continued at the beginning of July. The average wind force, however, reported from 13 vessels which were navigating the Bay of Bengal on the 1st, was only equal to 2·4, but this was only a temporary feebleness of the current, and by the 3rd the average force as reported from 17 vessels was 4·1; and from this date up till about the 13th, the wind force generally averaged from 3 to 4. With the formation of a feeble area of low pressure over South-West Bengal on the 12th and 13th, wind force began to increase, and on the 13th it averaged 4·4; but the depression did not develop, and beyond giving rather squally weather at the head of the Bay it had little effect. The monsoon current apparently rather fell off in force about the 18th, when the wind force as registered by 20 vessels only averaged 3·3; and on the 20th by seventeen vessels the force was only 3·2. On the 21st it had increased to force 3·6, and on the 25th to force 4. From the 29th the winds over the northern half of the Bay were influenced by the formation of a depression in the north-west angle of the Bay, and winds gradually assumed a cyclonic circulation off the Orissa Coast; and in the rear of the small storm very strong winds were reported. Thus on the 29th, the *Barque Jumna* in Lat. 17° N. and Long. 88° E. experienced stiff squalls from the north-west; the *Virawa* in Lat. 12° N. and 90° E. had south-west winds of force 6 with hard rain squalls and heavy sea; the S.S. *Megna* in Lat. 6½° N. and Long. 83½° E. had west-south-west winds of force 7 with high sea, and the S.S. *Peninsular* in Lat. 6° N. and Long. 91½° E. had west-south-west winds of force 7 with hard squalls and high sea. For the whole of the Bay of Bengal on this day, the wind force averaged 4·6 as registered on 18 vessels. On the 30th the influence of the depression in the north-west angle of the Bay was rather more pronounced. In the south of the Bay the *Peninsular* and the *Megna* reported winds of force 7 with high sea and squalls, while the *Bancoora*, *Chollerton*, and *Virawa* in the centre of the Bay experienced south-west winds of force 6 with heavy sea and squally weather. On the 31st when the small storm was still lying off the Orissa Coast and continued rather feeble in nature, the S.S. *Bancoora* in Lat. 15° N. and Long. 95° E. experienced west-south-west winds of force 8 with furious squalls, and several vessels reported winds of force 5 and 6 with heavy squalls and very heavy swell, and on this day the general wind force as registered by 15 vessels navigating the Bay of Bengal equalled nearly 5. Thus, during the whole of July a steady, and for the greater part of the time, a rather strong monsoon current blew over the Bay of Bengal, and the wind force recorded was probably decidedly higher than the average in normal years.

Temperature.

The mean day or maximum temperature was in considerable defect of the normal over the greater part of India. The only areas indeed which showed an excess were the southern parts of Burma, south of about Lat. 20° N., and a portion of the Peninsula lying between Lat. 16° N. and Lat. 22° N., and comprising the greater part of the Deccan, Khandesh, Berar and the Central Provinces. The excess over this area was on the whole small, and there were few stations where it equalled 2°. These stations are included in the following table :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, July 1893.	Normal, July.	Variation of actual from normal.
	°	°	°
Nagpur	89·3	87·1	+2·2
Amraoti	89·5	86·6	+2·9
Akola	91·7	87·9	+3·8
Poona	83·8	81·5	+2·3
Rajahmundry	91·1	88·4	+2·7
Cocanada	90·8	87·7	+3·1

The mean day temperature was below the normal over the remainder of India. To the south of Lat. 16° N. the defect usually ranged from 1° to 2°, except in the extreme south of the Peninsula where Madura registered a defect of 4·6° and Negapatam one of 3·4°. Generally the southern part of the Peninsula, south of Lat. 16° N., has shown a defect of a little less than 2°. The northern parts of India, north of about Lat. 22° N., however show defects ranging up to no less than 10° at Rawal Pindi. The defects have usually equalled from about 1° to 3° in all districts except Rajputana and the Punjab, where the largest defects have been registered, and usually the defects have increased from south to north, and the largest defects were registered close to the hills.

The following table contains the data for the stations where the defects have equalled 4° and upwards, and these will serve to define the area of largest defect :—

DISTRICT.	Station.	MEAN MAXIMUM TEMPERATURE.		
		Actual, July 1893.	Normal, July.	Variation of actual from normal.
		°	°	°
PUNJAB	Rawal Pindi	88·1	98·1	—10·0
	Sialkot	89·8	98·0	— 8·2
	Peshawar	97·1	103·0	— 5·9
	Lahore	93·2	98·9	— 5·7
	Ludhiana	92·5	98·2	— 5·7
	Dera Ismail Khan	99·6	103·8	— 4·2
	Sirsa	95·8	100·2	— 4·4
	Delhi	89·1	94·2	— 5·1
N.-W. PROVINCES	Agra	88·7	93·1	— 4·4
RAJPUTANA	Bikanir	95·2	100·2	— 5·0
	Sambhar	87·9	91·9	— 4·0
	Ajmere	85·4	91·2	— 5·8
	Deesa	87·3	91·6	— 4·3
HILL STATIONS	Murree	71·6	77·6	— 6·0
	Simla	66·8	71·8	— 5·0
	Mount Abu	70·2	75·0	— 4·8

The deficiency was generally less at the hill stations than at the plains stations nearest to them. Thus at Darjeeling the defect was 1·6° and at Purnea 2·8°; at Mussoorie, Chakrata, and Ranikhet the defects were less than 1°, and at Roorkee the defect was 1·3°, and finally at Murree the defect was 6°, while at Rawalpindi it was 10°.

The mean minimum temperature for July was also lower than usual over the greater part of India, and the variations to a great extent agreed with those of the maximum temperature, though they were smaller. Thus the part of Burma south of Lat. 20° N. has shown a slight excess minimum temperature during the month, and the portion of the Peninsula between Lat. 16° N. and about Lat. 21° N. has shown a slight excess. The excess has, however, been small, and only such stations as Akola, Amraoti, Vizagapatam and Diamond Island show variations larger than 1°, the largest being an excess of 1·8° at Vizagapatam. To the south of Lat. 16° N., the minimum temperatures have usually been about 1° to 2° in defect, except over a small area in Mysore. The largest defects in the south of the Peninsula have been registered at the eastern stations, where Negapatam, Madras, and Cuddapah show defects of from 2° to 2·5°.

The general defects over the greater part of Northern India have been less than a degree, but the defects increase from south to north, and are largest over the north of the Punjab and in Rajputana.

The following table gives the data for the stations where the defect has been 2° and upwards, and will thus define the area of largest defect :—

PROVINCE.	Station.	MEAN MINIMUM TEMPERATURE.		
		Actual, July 1893.	Normal, July.	Variation of actual from normal.
		°	°	°
PUNJAB	Rawalpindi	74·2	76·8	—2·6
	Sialkot	77·0	79·1	—2·1
	Delhi	78·2	80·4	—2·2
N.-W. PROVINCES	Meerut	76·9	79·7	—2·8
	Agra	78·1	80·2	—2·1
	Gorakhpur	77·7	79·7	—2·0
RAJPUTANA	Jeypore	74·8	76·8	—2·0
	Sambhar	75·6	77·6	—2·0
	Bikanir	79·5	82·4	—2·9
	Deesa	75·5	77·5	—2·0
CUTCH	Bhuj	76·1	78·1	—2·0
ASSAM	Dhubri	76·7	78·8	—2·1
HILL STATION	Murree	60·1	62·9	—2·8

The mean temperature for the month showed variations from the normal very similar to those previously described under the maximum and minimum temperatures. Thus slight excess temperatures ranging up to 1° were registered in Burma to the south of Lat. 20° N., the largest excess being 1° at Moulmein. Slight excess temperatures were also registered over the Peninsula from Lat. 16° N. to about

Lat. 22° N., and the only important excess temperatures registered were the following where the excess was 1° and upwards :—

Province.	Station.	Mean daily temperature. Actual, July 1893.	Normal, July.	Variation of actual from normal.
		°	°	°
Central Provinces and Berar.	Akola	83·5	80·9	+2·6
	Amraoti	82·1	79·9	+2·2
	Nagpur	82·2	80·8	+1·4
	Raipur	81·3	80·3	+1·0
Burma	Moulmein	79·2	78·2	+1·0
Madras	Rajahmundry	84·5	82·9	+1·6
	Cocanada	84·7	82·8	+1·9

To the north of Lat. 22° N. the mean temperature of India in July was in defect, the defect steadily increasing from south to north, and attaining its maximum in the north of the Punjab, where Rawal Pindi recorded a defect of no less than 6·3°.

The defects in Bengal were usually from about 0·5° to 1·5°, but in Assam the defect exceeded 2°. In the Central Provinces, Central India, and Guzerat and the southern parts of the North-Western Provinces also the defects usually ranged from about 0·5° to 1·5°, but to the north of this the defects usually equalled from 2° to 4°. The stations at which the defects were larger than 3° are given in the following table, which clearly shows the increasing variation which takes place from the south to the north :—

Province.	Station.	Mean daily temperature. Actual, July 1893.	Normal, July.	Variation of actual from normal.
		°	°	°
Punjab	Rawal Pindi	81·2	87·5	−6·3
	Sialkot	83·4	88·6	−5·2
	Peshawar	87·4	91·2	−3·8
	Lahore	86·6	89·6	−3·0
	Ludhiana	85·7	89·1	−3·4
	Sirsa	87·7	90·7	−3·0
	Delhi	83·7	87·4	−3·7
North-Western Provinces.	Meerut	83·1	86·4	−3·3
	Agra	83·4	86·7	−3·3
Rajputana	Sambhar	81·8	84·8	−3·0
	Ajmere	80·5	83·9	−3·4
	Bikanir	87·5	91·6	−4·1
	Deesa	81·4	84·6	−3·2
Hill Stations	Murree	65·9	70·3	−4·4
	Simla	63·0	66.2	−3·2
	Mount Abu	67·1	70·4	−3·3

So far as can be judged the deficiency in the mean temperature for July has been more marked at the stations in the plains than in the hills in Northern India, while the converse is the case in Southern India.

Thus the defect at Rawal Pindi was 6·3°; at Muree it was 4·4°; at Ludhiana it was 3·4° and Simla 3·2°; and at Dhubri 2·7° and Darjeeling, 1·1°. On the other hand the temperature at Coimbatore has been 0·3° in excess, and at Wellington 1·2° in defect.

The following table gives the temperature data for July for the 51 meteorological divisions of the Empire.

Province.	Division.	Temperature. Mean maximum.	Mean minimum.	Mean daily.	Mean Daily range.	Absolute range.	Variation of Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	84·8	74·4	79·6	10·4	17·6	+0·8	+0·2	+0·6
	Lower Burma	85·0	76·1	80·6	8·9	15·9	+0·4	+0·6	−0·2
	Central do.	90·1	75·8	83·0	14·3	20·2	+0·3	+0·2	+0·1
	Upper do.	88·1	75·9	82·0	12·2	19·8	?	?	?
	Arakan	84·7	77·3	81·0	7·4	13·0	+0·2	0	+0·2
Bengal and Assam	Eastern Bengal	85·6	77·3	81·5	8·3	14·7	−0·9	−0·3	−0·6
	Assam (Surma)	86·6	76·5	81·6	10·1	16·7	−3·6	−0·7	−2·9
	Do. (Brahmaputra)	86·5	77·0	81·8	9·6	16·0	−2·9	−1·5	−1·4
	Deltaic Bengal	87·9	78·7	83·3	9·1	16·2	−0·9	−0·2	−0·7
	Central do.	88·4	77·9	83·2	10·5	17·5	−1·8	+0·2	−2·0
	North do.	86·9	77·2	82·1	9·7	15·9	?	?	?
	Orissa	88·8	78·9	83·9	9·9	18·3	+0·3	−0·1	+0·4
	Chota Nagpur	86·6	74·6	80·6	12·0	20·6	−0·3	−0·9	+0·6
	Bihar (South)	88·7	78·5	83·6	10·2	19·1	−2·0	−0·5	−1·5
	Do. (North)	88·1	78·1	83·1	10·0	17·4	−2·3	−0·8	−1·5
North-Western Provinces and Oudh.	North-Western Provinces (East)	88·8	78·2	83·5	10·7	20·4	−2·6	−1·3	−1·3
	Oudh (South)	89·5	77·6	83·6	11·9	20·2	−2·7	−1·8	−0·9
	North-Western Provinces (Central)	89·5	77·6	83·6	11·9	23·0	?	?	?
	Do. do. (West)	89·3	78·0	83·7	11·3	19·6	−2·7	−1·2	−1·5
	Do. do. (Submontane)	87·9	76·2	82·1	11·7	20·6	−2·6	−1·5	−1·1

Province.	Division.	Temperature. Mean maximum.	Mean minimum.	Mean daily.	Mean daily range.	Absolute range.	Variation of Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
Punjab	Punjab (South)	92·5	78·9	85·7	13·6	25·1	−4·8	−1·9	−2·9
	Do. (Central)	93·2	80·0	86·6	13·2	26·2	−5·7	−0·3	−5·4
	Do. (Submontane)	92·2	78·5	85·4	13·7	27·3	−5·7	−1·1	−4·6
	Do. (Hill Districts)	73·4	62·0	67·7	11·4	24·2	−5·5	−2·1	−3·4
	Do. (North-West)	91·7	76·3	84·0	15·4	28·7	−8·0	−2·1	−5·9
	Do. (West)	99·7	81·9	90·8	17·8	31·4	−3·4	−0.1	−3·3
Bombay and Malabar Coast Districts (Madras).	Malabar	81·5	73·6	77·6	7·9	12·7	−1·1	−0·5	−0·6
	Madras (South Central)	89·8	71·2	80·5	18·5	22·6	−0·6	−0·3	−0·3
	Coorg	75·0	65·0	70·0	10·0	15·3	−0·4	+0·7	−1·1
	Mysore	79·9	65·7	72·9	14·3	20·5	−1·8	+0·5	−2·3
	Konkan	83·1	75·5	79·3	7·5	12·8	+0·2	+0·4	−0·2
	Bombay Deccan	84·4	69·4	76·9	15·0	21·9	+1·4	−0·3	+1·7
	Hyderabad (North)	86·7	71·5	79·1	15·2	23·9	?	?	?
	Khandesh	86·4	71·3	78·9	15·2	23·6	+1·3	−0·3	+1·6
Central Provinces and Berar.	Berar	90·6	74·9	82·8	15·7	24·2	+3·4	+1·5	+1·9
	Central Provinces (West)	88·1	74·8	81·4	13·3	20·8	+1·3	+0·1	+1·2
	Do. (Central)	85·7	73·6	79·7	12·1	19·6	0	−0·3	+0·3
	Do. (East)	87·8	75·7	81·8	12·1	20·0	+1·1	−0·3	+1·4
Bombay (North)	Guzerat	88·0	77·0	82·5	11·1	17·9	−0·1	−0·4	+0·3
	Kathiawar	87·9	77·2	82·6	10·7	17·4	−2·0	−0·9	−1·1
	Sind and Cutch	94·3	79·5	86·9	14·8	21·9	−2·4	−1·3	−1·1
Rajputana and Central India.	Central India (East)	87·6	76·5	82·1	11·2	20·8	−0·9	−0·9	0
	Rajputana (East), Central India (West)	86·4	74·1	80·3	12·3	18·7	−3·1	−1·6	−1·5
	Do. (West)	93·1	77·6	85·5	15·5	23·9	−5·0	−2·9	−2·1
Madras	East Coast (North)	89·3	79·1	84·3	10·2	18·9	+1·9	+1·0	+0·9
	Hyderabad (South)	87·6	73·0	80·3	14·6	23·4	+0·9	+0·8	+0·1
	Madras (Central)	90·1	74·4	82·3	15·7	23·8	−1·9	−1·0	−0·9
	East Coast (Central)	92·9	77·6	85·3	15·4	29·1	−0·8	−1·0	+0·2
	Do. (South)	93·0	76·5	84·8	16·6	25·7	?	?	?
	Madras (South)	92·2	77·5	84·9	14·7	23·3	−4·6	−1·6	−3·0

The changes of temperature from day to day during the south-west monsoon months are as a rule rather small, and the present month has not been an exception.

The following short summary will indicate the principal changes which have occurred in July.

At the commencement of the month the monsoon currents were blowing tolerably strongly, and good general rain was being received in practically all districts. Hence the general temperature was low, and the mean for the whole of India showed a defect of about 3° on the 1st, while on the 2nd, 3rd and 4th the defect had decreased to about 2°, and on the 4th, the North-Western Provinces and Oudh were in defect by no less than 5·0°. From the 5th to the 10th the defects equalled about two to two and a half degrees, and for the latter date the variation decreased to about a degree and a half, which defect continued until the 22nd, when it fell to less than half a degree. Owing to the diminution in the amount of rainfall about this date, temperature began to rise, and the defect was replaced by a small excess, usually of about half a degree, which lasted from the 23rd up to the close of the month. Temperature therefore for the first three weeks of the month was in decided defect of the normal, and in slight excess for the last week.

Over the greater part of India, therefore temperature has been unusually and also comparatively low, but in certain areas where the rain bearing current did not penetrate, or only penetrated to a partial extent, some rather high temperatures were recorded in July. These high temperatures were registered in the Punjab, Sind, and other districts which have received little or no rain, and the following are the highest temperatures, and the dates on which they were recorded over these areas.

District.	Station.	Date.	Highest maximum in July 1893.
Punjab	Mardan	1st	109·0
	Montgomery	15th	106·4
	D. I. Khan	12th	105·1
	Mooltan	2nd	105·9
Sind	Jacobabad	31st	110·8
Beluchistan	Chaman	14th	107·0
Persia	Bushire	22nd	106·0
Cashmere	Gilgit	15th	113·2

These temperatures are however decidedly low when compared with the records of previous years, and in several cases represent figures 10° lower than maximum temperatures which have been previously registered in July at these stations. This is certainly the case at Dera Ismail Khan, Mooltan, etc., and these figures again indicate the unusually low temperature which was experienced in July.

Winds.

During almost the whole of July a fairly strong monsoon was blowing both from the Arabian Sea and the Bay of Bengal, and on the whole the currents were about normal in character, the Arabian Sea branch being perhaps a little weak, and the Bay of Bengal branch decidedly stronger than usual. That this was the case may be seen by comparing the average wind velocities at certain typical stations on both sides of India with their normal values for July.

Arabian Sea branch of monsoon.			Bay of Bengal branch of monsoon.		
Station.	Average daily velocity in miles in July 1893.	Normal daily velocity in miles for July.	Station.	Average daily velocity in miles for July 1893.	Normal daily velocity in miles for July.
Karrachee	334	436	Port Blair	131	254
Khandwa	235	210	Diamond Island	236	210
Akola	224	200	Chittagong	126	172
Bombay	348	456	Dacca	224	173
Poona	297	400	Dhubri	95	94
Sholapur	310	300	Darjeeling	108	63
Ratnagiri	229	313	Saugor Island	372	341
Belgaum	457	669	False Point	271	268
Bellary	217	281	Calcutta	88	123
Mercara	259	247	Burdwan	144	100
Wellington	69	127	Patna	101	91

In the case of the stations affected entirely by the Arabian Sea branch of the monsoon current, seven out of the eleven stations selected show lower wind velocities than usual, and four somewhat larger than usual. In the case of stations affected by the Bay of Bengal branch, three out of eleven only show velocities less than usual, and eight velocities decidedly greater than usual, so that of the whole twenty-two stations, twelve show a higher wind velocity and ten a lower wind force than usual in July. It may therefore be probably accepted that the monsoon blowing in July has been quite equal in force to the normal, and, if anything slightly stronger than usual.

In considering the character of the monsoon current affecting the various meteorological divisions of the Empire, the comparative feebleness of the winds recorded at the Burma stations becomes clearly evident. The following are the data for these stations:—

Burma Stations.	Mean wind direction.		Wind steadiness.		Wind velocity in miles per diem.	
	Actual, July 1893.	Normal, July.	Actual percentage July 1893.	Normal percentage July.	Actual, July 1893.	Normal, July.
	°	°	%	%		
Port Blair	S 40 W	S 44 W	71	89	131	254
Rangoon	S 30 W	S 31 W	83	73	107	131
Diamond Island	S 34 W	S 41 W	84	80	236	210
Akyab	S 10 E	S 4 E	71	68	69	96

From these figures it will be clearly seen that at three stations out of four wind was very considerably below the normal in strength. The wind directions, on the other hand, were very nearly normal, and the steadiness was greater than usual. The feebleness of the monsoon winds blowing over Burma will probably account for the defective rainfall over that area.

In Assam winds were about equal to the normal in force, but they were much more strongly westerly than usual, and their steadiness was unusually great.

In Bengal also winds were less strongly easterly or more strongly westerly than usual, and their steadiness was remarkable, while as to wind force they were about equal to the normal. In the Gangetic Plain and in Chota Nagpur also winds were less strongly easterly than usual, the wind force was nearly equal to the normal, while steadiness was less than usual. The same fact that winds were less strongly easterly or more westerly than usual was also noticeable at the stations in the Upper Sub-Himalayas District. Winds had about the same percentage of steadiness, but on the whole they were deficient in strength. The fact that in these districts winds were less strongly easterly than usual may perhaps be accounted for by the position of the trough of low pressure, which in July was situated much nearer to the hills than usual.

In the Indus Valley and North-West Rajputana districts wind directions at three stations out of four were more easterly than usual, and the percentage of steadiness and average velocity were both high, but in the case of the winds in East Rajputana, Central India, and Guzerat, they were again more westerly than usual, and were unusually steady and strong. Over the Deccan winds were almost normal in direction, and at nine stations out of thirteen

winds were decidedly more feeble than usual, though the steadiness was nearly normal, and the same was the general character of the winds along the west coast of India and in South India.

The facts with reference to the stations in the Deccan and Western and Southern India, showing the slight weakness in the Arabian Sea monsoon current in July are shown in the following table :—

District.	Station.	Mean wind direction.		Wind steadiness.		Wind velocity in miles per diem.	
		Actual, July 1893.	Normal, July.	Actual percentage, July 1893.	Normal, percentage July.	Actual, July 1893.	Normal, July.
		°	°	%	%		
Deccan	Belgaum	S 66 W	S 70 W	89	90	457	669
	Poona	S 85 W	S 79 W	44	85	297	400
	Akola	N 77 W	N 74 W	82	77	224	200
	Khandwa	N 82 W	N 83 W	90	80	235	210
	Hoshangabad.	S 80 W	S 76 W	77	77	74	110
	Nagpur	S 89 W	N 88 W	68	69	165	189
	Jubbulpur	S 85 W	N 87 W	71	65	91	117
	Saugor	S 64 W	S 72 W	90	70	179	123
	Raipur	S 74 W	S 68 W	83	77	181	280
	Sutna	S 75 W	N 81 W	74	45	175	232
	Secunderabad.	N 75 W	S 75 W	77	85	226	318
West Coast.	Bombay	S 74 W	S 75 W	74	84	348	456
	Ratnagiri	S 88 W	S 55 W	71	77	229	313
	Salem	S 43 W	S 59 W	72	82	95	106
South India.	Mercara	N 73 W	N 79 W	82	91	259	247
	Bangalore	S 80 W	S 71 W	87	91	173	206
	Trichinopoly	S 87 W	N 87 W	77	81	129	239
	Madras	S 61 W	S 46 W	43	65	136	195
	Vizagapatam	S 61 W	S 74 W	61	74	38	94

At the hill stations in North-Western India also wind directions were nearly normal in July, wind steadiness was also about the same as usual, but in the great majority of cases winds were stronger than the normal. At such stations as Katmandu, Darjeeling, Demagiri, and Tura, representing the North-Eastern Himalayas, on the other hand, the variations of wind direction, velocity, etc., from the normal were so irregular that no general conclusions can be drawn from them. At the hill stations in Central India winds were practically normal in direction, but were steadier and stronger than usual, and in Southern India winds were less strongly westerly, and also less steady than normal.

At the land stations affected by the Bay of Bengal current therefore the wind directions were usually rather more strongly westerly than the normal, and also more steady and stronger in force except in Burma and the Bay Islands, where winds were very light, while at the stations principally affected by the Arabian Sea branch of the monsoon current, winds, though very nearly normal in direction and in steadiness, were rather largely below their usual strength. These facts will probably account for the comparatively light rainfall along the Burma coast, and in the Bay Islands, and also for the light rainfall along the west coast of India, and in the Deccan, Central India Guzerat, and over parts of Rajputana.

Humidity and cloud.

The air contained decidedly more aqueous vapour than usual in Lower Burma and at the Bay Islands, while in Assam there was a very considerable defect. In Bengal and Orissa there was a small defect, but in the Gangetic Plain and Chota Nagpur the defect was nearly as large as in Assam. As temperature in Lower Burma was in excess, while it was in defect over the other areas above mentioned, the variation of the humidity of the air in these cases was very small, and the largest variation was an excess of 2 per cent. in Assam and in the Gangetic Plain and Chota Nagpur. Small defects in the amount of aqueous vapour in the air were also registered in the Deccan, and on the west coast of India, but the variation of the humidity was not larger than 2 per cent. In East Rajputana, Central India and Guzerat also there was distinctly less aqueous vapour in the air than usual, but owing to the fact that the mean daily temperature was 2° lower than usual in this area, this smaller amount of vapour caused humidity to be higher than usual by about 5 per cent. In the other districts both the amount of aqueous vapour and the humidity were in excess of the normal. The variation was small, and of little importance in South India, where the excess of humidity was only 3 per cent., but in the Upper Sub-Himalayas, Indus Valley and North-West Rajputana Districts, the excess of humidity equalled no less than 7 and 8 per cent. The variation in the amount of aqueous vapour in the air in the Upper Sub-Himalayas District was not particularly large, but in the Indus Valley and North-West Rajputana it was unusually so. Thus the mean daily vapour tension in July at Peshawar equalled 0·827″, while the normal amount is 0·730″; that at Mooltan equalled 0·926″, the normal being 0·877″; that at Jacobabad was 0·909″, the normal being 0·814″, while at Karrachee the actual vapour pressure was 0·958″, while the normal is 0·918″, thus giving a general average excess in the vapour pressure of no less than 0·070″.

The cloud proportion has also been in very distinct excess of the normal in all districts except the Deccan, where there was a very small deficiency. The excess in the cloud proportion has been largest on the Burma coast and Bay Islands, in the Gangetic Plain and Chota Nagpur, and in the Upper Sub-Himalayas Districts. It has also been in rather large excess in South India, Bengal, Orissa, and in the Indus

Valley and North-West Rajputana Districts. The excess has been moderate to small in Assam and East Rajputana, Central India, and Guzerat, while the cloud proportion has been almost normal on the west coast and in the Deccan. These figures, it will be seen, to a great extent correspond with the figures representing the humidity.

The following table will show the variations of cloud proportion and of humidity and aqueous vapour pressure at those stations where the variation has been largest. The figures also illustrate how largely these elements have been in excess in North-Western and Southern India, and how largely in defect in Bombay, etc.

Station.	Aqueous vapour pressure.		Humidity.		Cloud proportion.	
	Average actual, July 1893.	Variation from normal.	Average actual, July 1893.	Variation from normal.	Average actual, July 1893.	Variation from normal.
	"	"	%			
Akyab	0·950	+·037	91	+ 2	9·1	+0·5
Dhubri	0·903	—·042	89	+ 3	8·6	+1·7
Allahabad	0·911	—·047	80	— 2	8·8	+1·1
Lahore	0·911	+·046	75	+14	5·1	+0·7
Peshawar	0·827	+·097	66	+13	3·6	+0·9
Jacobabad	0·909	+·095	60	+ 8	2·3	0
Akola	0·732	—·034	67	— 9	7·2	—1·4
Bombay	0·861	—·050	84	— 3	8·5	—0·6
Madras	0·871	+·087	78	+11	7·7	+0·6

The table below will give a condensed view of the variations of the amount of moisture in the air, of the humidity, and of the cloud proportion in July from the normal in the various meteorological areas into which India is divided :—

Division.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	"		
Burma Coast and Bay Islands	+·014	0	+0·9
Assam	—·025	+2	+0·5
Bengal and Orissa	—·011	0	+0·6
Gangetic Plain and Chota Nagpur.	—·020	+2	+0·9
Upper Sub-Himalayas	+·014	+7	+0·9
Indus Valley and North-West Rajputana.	+·070	+8	+0·6
East Rajputana, Central India and Guzerat.	—·011	+5	+0·4
Deccan	—·007	—2	—0·2
West Coast	—·018	—1	+0·1
South India	+·014	+3	+0·7

Rainfall.

The rainfall for July over the whole of India when compared with the normal has shown considerable variations in different districts, but on the whole has been equal to the usual fall in normal years. The falls in Bengal, Assam, the North-Western Provinces, Oudh, Punjab, West Rajputana, and Madras have been in moderate to large excess, while, on the other hand, Burma, Bombay, Konkan, Malabar Coast Districts, Deccan, Central Provinces, Berar, Guzerat, and Kathiawar have received falls in moderate to large defect. Probably, on the whole, the area of excess rainfall has been larger than that of defective fall, and the general fall has thus been quite as large as usual.

In the early part of July both branches of the monsoon current were blowing fairly strongly, and rainfall was tolerably abundant and general from day to day, but from the 9th the pressure conditions became less favourable for rainfall over Northern India, and on the 10th comparatively little rain was reported from the Punjab, Bombay, Deccan, Lower Bengal, and Upper Burma. The unfavourable pressure conditions, however, quickly gave way, and more normal conditions set in, and rainfall continued fairly general over India up till the 21st, when an area of comparatively high pressure was formed which stretched from Orissa to Sind and the Punjab, and from this date rainfall fell off in amount in the central and north-western parts of India, while it continued heavy in Northern, North-Eastern and Southern India, and with the development of these conditions of pressure from the 23rd, rain was confined to North-Eastern and Southern India. Conditions remained rather unfavourable for general rainfall up till the 29th, when a barometric depression formed in the north-west of the Bay of Bengal, which developed into a small cyclonic storm, and then drifted north-westwards, when the monsoon current again flowed over the whole of India and gave good general rain. For the greater part of the month, therefore conditions in India have been fairly favourable for good general rainfall.

The following table gives comparative rainfall data of the 51 meteorological districts of India. In the case of Bengal, Assam, the North-Western Provinces, the Punjab, Bombay, Rajputana, Central India, Hyderabad, and Coorg the monthly rainfall statements published by the respective local Governments were received in time to be utilised in the preparation of this table, and hence the variations in the districts given in the last column of this table and in Chart V are based on the whole of the available

information. In the case of the remaining provinces and stations, the averages were derived from the data of the rainfall telegrams for the period sent by the district officers:—

Province.	Division.	Rainy days. Actual.	Rainy days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
				Inches.	Inches.	Inches
Burma	Tenasserim*	?	?	37·81	47·26	—9·45
	Lower Burma*	?	?	19·14	23·06	—3·92
	Central do.*	?	?	16·54	20·16	—3·62
	Upper do.*	?	?	7·53	?	?
	Arakan*	?	?	37·36	48·32	—10·96
Bengal and Assam	Eastern Bengal	21·7	19·1	19·15	17·24	+1·91
	Assam (Surma)	27·4	20·5	34·21	19·00	+15·21
	Do. (Brahmaputra)	20·5	17·0	18·14	15·64	+2·50
	Deltaic Bengal	15·9	16·7	10·59	12·05	—1·46
	Central do.	17·8	16·2	13·47	12·15	+1·32
	North do.	23·9	17·6	31·50	20·03	+11·47
	Orissa	12·5	14·9	8·37	12·50	—4·13
	Chota Nagpur	17·4	17·9	14·25	13·16	+1·09
	Bihar (South)	16·2	14·5	14·42	11·87	+2·55
	Do. (North)	18·7	14·0	18·48	12·18	+6·30
North-Western Provinces and Oudh.	North-Western Provinces (East)	15·9	13·3	11·88	11·84	+0·04
	Oudh (South)	14·2	12·4	14·08	10·75	+3·33
	Do. (North)	14·7	12·1	13·67	11·69	+1·98
	North-Western Provinces (Central)	13·6	12·0	12·72	11·52	+1·20
	Do. do. (West)	12·6	10·6	19·04	9·92	—0·88
	Do. do. (Submontane)	17·3	13·4	4·99	14·61	+0·38
Punjab	Punjab (South)	7·8	4·7	7·17	4·27	+2·90
	Do. (Central)	10·9	6·7	8·97	6·62	+2·35
	Do. (Submontane)	10·1	8·4	11·67	9·28	+2·39
	Do. (Hill Districts)	18·1	15·1	17·19	16·75	+0·44
	Do. (North-West)	8·7	5·8	10·44	5·29	+5·15
	Do. (West)	3·8	2·9	3·50	2·45	+1·05
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	21·94	30·60	—8·66
	Madras (South Central)*	?	?	6·43	5·99	+0·44
	Coorg	21·3	?	11·55	?	?
	Mysore*	?	?	4·32	7·45	—3·13
	Konkan	26·5	26·9	26·67	40·04	—13·37
	Bombay Deccan	8·3	12·2	4·75	9·29	—4·54
	Khandesh	7·8	11·1	4·92	7·67	—2·75
	Berar	8·7	?	5·44	11·43	—5·99
Central Provinces and Berar.	Central Provinces (West)*	?	?	5·76	12·61	—6·85
	Do. (Central)*	?	?	10·20	18·00	—7·80
	Do. (East)*	?	?	16·71	15·75	+0·96
Bombay (North)	Guzerat	14·6	17·1	13·64	18·46	—4·82
	Kathiawar	9·9	11·5	6·61	11·27	—4·66
	Sind	2·4	?	1·50	1·86	—0·36
Rajputana and Central India.	Central India (East)	12·1	?	7·77	15·32	—7·55
	Rajputana (East), Central India (West)	10·5	?	8·90	9·77	—0·87
	Do. (West)	5·8	?	6·70	3·33	+3·37
Madras	East Coast (North)*	?	?	8·05	6·33	+1·72
	Do. (do. (a)*	?	?	14·97	15·59	—0·62
	Hyderabad (South)*	?	?	10·20	4·99	+5·21
	Madras (Central)*	?	?	5·16	3·48	+1·68
	East Coast (Central)*	?	?	4·60	3·91	+0·69
	Do. (South)*	?	?	5·70	2·92	+2·78
	Madras (South)*	?	?	2·80	1·05	+1·75

NOTE.—The figures enterod against divisions marked with asterisks have been obtained from tne weekly telegraphic reports.

The complete rainfall statement for Burma has been received just before this report was ready to be issued, and the figures show that rainfall was received steadily almost throughout the month in the great majority of districts except parts of Upper Burma. It would however appear that the rainfall in all divisions of Burma was rather largely in defect. The deficiency probably equalled 15 or 20 per cent. of the normal, and the actual deficiency of rain in Tenasserim and Arakan equalled about 10 inches.

The following statement shows the rainfall data for July calculated from the Provincial rainfall reports:—

Division.	Rainy days. Actual, July 1893.	Rainy days. Normal, July.	Rainfall. Actual, July 1893.	Rainfall. Normal, July.	Rainfall. Variation from normal.
Tenasserim	25·4	?	33·50	?	?
Lower Burma	23·4	?	17·06	?	?
Central "	21·0	?	16·83	?	?
Upper "	9·9	?	7·75	?	?
Arrakan	27·9	?	36·94	?	?

In Bengal rainfall was fairly general throughout the month, though it was comparatively light from the 9th to the 12th, and from the 24th or 25th up till the 29th. Throughout the remainder of the month on practically every day moderate rain was received. There were also no storms or depressions occurring which in any way modified the normal distribution, or concentrated the falls over any particular area. Consequently, the excess fall in Bengal has been fairly well distributed, though the falls have been specially abundant in North Bengal and North Bihar. A few noticeably heavy falls occurred at various stations during the month. Thus, Buxa in the Darjeeling district on the 1st received 15·10 inches, Debiganj in the Jalpaiguri district on the 10th received 8·6 inches, while the following stations received 7 inches and above within periods of 24 hours:—Sirajgunge, Thakurgaon (Dinajpur district), Bhagatpur (Jalpaiguri district), Kurseong, Rangamatti (Chittagong Hill Tracts), Atia (Mymensingh district), and Kaliaganj (Purnea district).

The following table gives a summary of the rainfall data in Bengal for the month:—

DIVISION.	Actual average number of rainy days.	Variation from normal number.	Variation expressed as a percentage of the normal number.	Actual average rainfall in inches.	Variation of actual from normal in inches.	Variation of rainfall expressed as a percentage of the normal fall.
Eastern Bengal	21·7	+2·6	+14	19·15	+1·91	+11
Deltaic "	15·9	—0·8	— 5	10·59	—1·46	—12
Central "	17·8	+1·6	+10	13·47	+1·32	+11
North "	23·9	+6·3	+36	31·50	+11·47	+57
Orissa . .	12·5	—2·4	—16	8·37	—4·13	—33
Chota Nagpur .	17·4	—0·5	— 3	14·25	+1·09	+ 8
Bihar (South) .	16·2	+1·7	+12	14·42	+2·55	+22
" (North) .	18·7	+4·7	+34	18·48	+6·30	+52

These data show that for the whole of Bengal, rainfall has been about 15 per cent. in excess of the normal. The falls have been comparatively small in the south-western sections, where Orissa shows a defect of about a third of the normal, and in Deltaic Bengal where there has been a defect of 12 per cent. On the other hand, the falls have been excessive in the northern districts, where North Bengal has received an excess of 57 per cent. and North Bihar an excess of 52 per cent.

In Assam rain fell on practically every day throughout the month and in all districts. The general rainfall in the Surma districts was about 15 inches in excess, or about 80 per cent. in excess of the normal, while the Brahmaputra district received from 2 to 3 inches more than usual, and the excess equalled about 16 per cent.

The rainfall at some of the Assam stations has been exceedingly heavy. Thus Cherra Punji has received a fall in July of 187·91 inches, Sunamgunj in the Sylhet district received 83·71 inches, Lalakhal also in the Sylhet district 90·86 inches, and Nemotha in the Cachar district 62·55 inches. The heaviest falls reported within a period of 24 hours have been 20·80 inches at Cherra Punji on July 23rd, 20·44 inches on the 2nd, 15·80 on the 3rd, 15·78 inches on the 27th, and 13·60 inches on the 12th. At Lalakhal on the 3rd July 12·89 inches were received, and at Sunamgunj on the 27th 10·00 inches were registered.

The following table gives a summary of the rainfall data of Assam for July:—

DIVISION.	Actual average number of rainy days.	Variation from normal number.	Variation expressed as a percentage of the normal number.	Actual average rainfall in inches.	Variation of actual from normal in inches.	Variation expressed as a percentage of the normal fall.
Assam (Surma)	27·4	+6·9	+34	34·21	+15·21	+80
" (Brahmaputra)	20·5	+3·5	+21	18·14	+2·50	+16

In the North-Western Provinces rainfall was very general on almost every day up till the 22nd or 23rd, when a slight break set in, and from the 23rd to the end of the month only scattered rainfall was received, principally in the submontane and north-eastern districts. The falls were generally moderately in excess of the normal, but the excess was not large in any particular district, and on the whole the rainfall was very well distributed, both as to time and place, except in one or two small districts such as Bulandshahr.

The following statement shows the rainfall data for July for the North-Western Provinces and Oudh:—

DIVISION.	Actual average number of rainy days.	Variation from normal number.	Variation expressed as a percentage of the normal number.	Actual average rainfall in inches.	Variation of actual from normal in inches.	Variation expressed as a percentage of the normal fall.
Oudh (North) .	14·7	+2·6	+21	13·67	+1·98	+17
" (South) .	14·2	+1·8	+15	14·08	+3·33	+31
North-Western Provinces (East) .	15·9	+2·6	+20	11·88	+0·04	0
North-Western Provinces (Central) .	13·6	+1·6	+13	12·72	+1·20	+10
North-Western Provinces (West) .	12·6	+2·0	+19	9·04	—0·88	— 9
North-Western Provinces (Submontane) . . .	17·3	+3·9	+29	14·99	+0·38	+ 3
North-Western Provinces (North-East)	16·4	+3·1	+23	12·73	+0·24	+ 2

In the Punjab rainfall was fairly general up to about the 21st in all districts, when a distinct break set in over the greater part of the Province, though it did not extend to the Gurdaspur, Simla and Kangra districts, where the rainfall was fairly general up to the 28th. For the last three days of the month rainfall was confined to a few local showers. Rainfall was also comparatively light from the 10th to the 15th, though numerous but rather local showers occurred in all districts between these dates. The falls, on the other hand, were very heavy on the 4th

and 5th, and from the 19th to the 21st, when a good many stations received amounts in excess of 7 inches, as will be seen in the following table :—

Date.	District.	Station.	Fall in inches.
4th	Simla	Kasauli	7·70
5th	Patiala State	Barthala	7·59
20th	Rawalpindi	Rawalpindi	9·50
,,	Do.	Murree	9·90
,,	Do.	Kahuta	7·50
,,	Hazara	Abbottabad	9·95
,,	Do.	Haripur	9·56
,,	Ferozepur	Nathana	8·00

The falls during July were unusually heavy in the following districts—Lahore, Gurdaspur, Kangra, Guzranwala, Sialkot, Guzerat, Jhelum, Rawalpindi, Hazara, Bannu, and Dera Ghazi Khan ; while on the other hand they were comparatively light in Simla, Umballa, and Peshawar.

The following table gives a summary of the rainfall data of the Punjab for the month :—

DIVISION.	Actual average number of rainy days.	Variation from normal number.	Variation expressed as a percentage of the normal number.	Actual average rainfall in inches.	Variation of actual from normal in inches.	Variation of rainfall expressed as a percentage.
Punjab (South)	7·8	+3·1	+66	7·17	+2·90	+68
,, (Central)	10·9	+4·2	+63	8·97	+2·35	+35
,, (Submontane)	10·1	+1·7	+20	11·67	+2·39	+26
,, (Hill Districts)	18·1	+3·0	+20	17·19	+0·44	+ 3
,, (North-West)	8·7	+2·9	+50	10·44	+5·15	+97
,, (West)	3·8	+0·9	+31	3·50	+1·05	+43

In Baluchistan a few local showers only occurred in July, which fell principally from the 1st to the 3rd, from the 6th to the 9th, and on the 15th and 16th. The most important amounts received in the month were Fort Sandeman 3·44 inches, Sunari 3·25 inches and Loralai 2·19 inches. Falls of 1 to 2 inches were received at Bostan, Sharigh, Nasak, Harnai, Spintangi, Tanduri, Nari, Sibi, and Ziarat, and a few stations received amounts less than an inch, but the most important station, Quetta received only 0·03 inch, Kelat 0·30 inch, and Pishin none at all. Out of 51 stations from which reports have been received, no less than twenty stations have received no rain at all. As the normal rainfall at most stations in Baluchistan is unknown, it is impossible to say how the rainfall for the month under review compares with previous years, but in three cases, Quetta, Kelat, and Pishin the fall has been much less than in previous years.

Reports received from Kashgar show there was practically no rain in July up till the 7th, when a little fell. From the 7th to the 18th there was again no rain, but on the latter date there were a few drops, and very light rain also fell on the 19th and 20th On the 25th heavy rain fel for half an hour, and a few drops of rain were received on the 30th, so that on the whole very little rain fell in July in Kashgar.

In Tashkurghan on the Pamirs up to the middle of July no rain at all fell, but on the 15th, 16th, and 17th moderate rain was received. Rain was again received on the 20th and 21st on which dates it rained for 3 hours and 2 hours respectively, and there was then no rain until the 28th, when it rained for an hour, and finally there was no further fall till the end of the month.

In Rajputana and Central India rainfall was fairly general up to the 20th, but after that date it was almost entirely absent. The falls in West Rajputana were usually about twice as heavy as in normal years, as an average fall of from 6 to 7 inches was received, the usual fall being three and a third. In East Rajputana, on the other hand, the fall was about equal to the usual amount, or even slightly in defect, the amounts received in East Rajputana and Central India West averaging about 9 inches against a normal of 9·77 inches. The falls have been very heavy in Jodhpur, Bhurtpore, Dholpur, and Sirohee (Mount Abu), and comparatively or decidedly light in Kerowlie, Ulwar, Tonk, Deoli, Kotah, Jhalawar, Pertabgarh, Rutlam, Bhopal, Gwalior, Maihar, and Rewah. The large variations which have occurred in some cases will be seen by the fact that Mount Abu received 39·73 inches against the normal fall of 22·04 inches ; while on the other hand, Neemuch in Gwalior received only 2·40 inches against the normal fall of 10·85 inches, and Bhopal 6·03 inches against the normal fall of 18·12 inches.

The following table gives the rainfall data of the States for which the normals are known :—

DISTRICT.	Actual average rainfall, July 1893.	Normal rainfall, July.	Variation from normal.
	Inches.	Inches.	Inches.
(A.) RAJPUTANA—			
Jeysulmere	7·53	2·14	+ 5·39
Jodhpur	6·75	3·46	+ 3·29
Bickaneer	4·44	3·47	+ 0·97
Jeypore	8·92	9·13	− 0·21
Ulwar	10·18	10·26	− 0·08
Bhurtpore	17·42	8·88	+ 8·54
Kerowlie	6·77	11·58	− 4·81
Tonk	4·55	9·99	− 5·44
Deoli	7·00	11·18	− 4·18
Kotah	5·38	9·88	− 4·50
Jhalawar	5·05	15·99	− 10·94
Ajmere-Merwara	6·75	7·17	− 0·42
Oodeypore	9·88	9·74	+ 0·14
Pertabgarh	7·50	10·54	− 3·04
Banswara	10·98	11·69	− 0·71
Sirohi	19·77	11·52	+ 8·25
Shahpura	9·94	6·65	+ 3·29
(B) CENTRAL INDIA—			
Rutlam	5·15	11·30	− 6·15
Bhopal Agency	6·19	18·12	− 11·93
Gwalior	5·27	10·78	− 5·51
Nagode	11·38	17·16	− 5·78
Maihar	7·21	16·46	− 9·25
Rewah	11·64	18·37	− 6·73
Bundelkhand	10·25	15·70	− 54·5

In the Central Provinces, the western and central districts received falls very largely in defect of the normal, the actual falls equalling half to two-thirds the usual amount while in the eastern districts the falls were almost normal. Rain was received in the Central Provinces generally from the 1st to about the 20th, when there was a break till about the 27th or 28th, and which in some districts continued almost till the end of the month. At no period of the month were the falls very heavy, but on the whole the rainfall was well distributed, except perhaps in the northern parts of the province, where the falls were rather scanty.

The following table gives a summary of the rainfall data for July compiled from the Provincial rainfall statement for the month, which has been received lately :—

DIVISION.	Actual average number of rainy days.	Variation from normal number.	Variation expressed as a percentage.	Actual average rainfall in inches.	Variation of actual from normal in inches.	Variation of rainfall expressed as a percentage.
(Central Provinces West) . .	10·6	−4·8	−31	57·1	−8·10	−59
(Central Provinces (Central) .	14·9	−2·2	−13	10·09	−7·93	−44
Central Provinces (East) .	17·3	+2·3	+15	16·30	+0·23	+ 1

In the Hyderabad Assigned Districts rainfall was very general up to the 10th, but from this date to the end of the month the falls were very scattered. Generally the falls over this area were in very considerable defect, and they were usually not larger than half or two-thirds of the normal. This is shown in the following table where the falls at representative stations are shown as compared with the normal :—

DISTRICT.	Station.	Actual fall, July 1893.	Normal fall, July.	Variation.
		Inches.	Inches.	Inches.
Amraoti . .	Amraoti .	7·77	9·38	−1 61
Ellichpur . .	Ellichpur .	5·61	7·96	−2·35
Do.	Chikalda . .	12·27	19·38	−7·11
Akola . . .	Akola . .	2·44	8·31	−5·87
Buldana . .	Buldana . .	2·22	8·31	−6·09
Wun . . .	Yeotmal . .	8·96	13·75	−4·79
Do.	Wun . .	9·25	13·28	−4·03
Basim . . .	Baim . .	6·86	11·04	−4·18

The rainfall over the Bombay Presidency was in very considerable defect from the normal, but good general rain was received in many districts. The Konkan received rain on practically every day throughout the month. The Karnatack and the South Deccan received good rain from the 1st to the 9th, and from the 23rd to the end of the month. The North Deccan or Khandeish received rain from the 3rd to the 21st, and scattered showers during the remainder of the month, except in the Ahmednagar district, which received only scattered showers throughout the month. In Guzerat rain fell steadily for the first twenty or twenty-one days, but after that only scattered showers were received. In Kattiawar also rainfall was fairly general, though light for the first twenty days, and almost absent during the last ten days, but in Sind only a few rather local showers were reported, principally during the first week in July, and on the 16th.

The following table gives a summary of the rainfall data in July for the Bombay Presidency compiled from the monthly rainfall statement published by the Bombay Government :—

DIVISION.	Actual average number of rainy days.	Variation from normal number of rainy days.	Variation expressed as a percentage.	Actual average rainfall in inches.	Variation from normal rainfall in inches.	Variation expressed as a percentage.
Konkan . . .	26·5	−0·4	− 2	26·67	−13·37	−33
Bombay Deccan . .	8·3	−3·9	−32	4·63	− 4·66	−50
Khandeish . . .	7·8	−3·3	−30	4·92	− 2·75	−36
Guzerat . . .	14·6	−2·5	−15	13·62	− 4·84	−26
Kattiawar . .	9·9	−1·6	−14	6·61	− 4·66	−41
Sind	2·4	?	?	1·50	− 0·36	−19

Travancore, Coorg, and Cochin received fairly general rain throughout the month, except over a part of Travancore which received little or no rain at all, where four stations indeed received less than an inch of rain ; while on the other hand, some stations in Travancore received more than 30 inches during the month. The average fall over Travancore has, however, been from about 6 to 12 inches. The falls in Cochin varied from about 10 to 15 inches, and in Coorg from about 6 to 15. The normal falls for these provinces have, however, not yet been ascertained, and hence it is not possible to say whether the falls were above or below the normal, but probably they have been about equal to the usual quantity.

In the Nizam's territory rainfall was rather scattered and local almost throughout the month, the periods of most general fall being between the 6th and 12th, and from the 25th to the end of the month. The falls have usually varied between about 8 and 12 inches, the heaviest fall being at Raichur (13·51 inches). In the districts of Bir and Parbhani the falls have only equalled between 3 and 4 inches, and at Aurangabad the very small fall of 1·12 inches is reported. The falls appear to have been in large defect over the greater part of Hyderabad.

Over Mysore also the rainfall in July was decidedly below the normal, the actual fall equalling about five-sixths of the normal quantity. The rainfall was received almost throughout the month, though slight breaks over parts of Mysore were experienced from the 2nd to the 10th, and in other districts from the 15th to the 24th. The most

general rain was received on the 11th and 12th, and from the 25th to the end of the month.

The following figures will show the summary of the rainfall information extracted from the Mysore Provincial rainfall statement:—

DIVISION.	Actual average number of rainy days.	Variation from normal number.	Variation expressed as a percentage.	Actual average rainfall in inches.	Variation of actual from normal in inches.	Variation of rainfall expressed as a percentage.
Mysore .	10·0	+1·0	+11	5·18	—1·14	—18

The rainfall in July was abundant over the whole of the Madras Presidency, except in the Malabar Division, where the fall equalled little more than two-thirds of the normal amount. The falls were fairly general throughout the month in the Ganjam, Vizagapatam, Malabar coast, and Nilgiris districts. The lightness of the rainfall in Malabar was therefore due not to want of rainy days but to the actual lightness of the showers received, as in this district rain fell on no less than 27 days in the month or on slightly more than the usual number. In most other cases decided breaks occurred, the periods during which little or no rain fell being from the 3rd to the 6th, and from the 15th to the 22nd, though in this second period rainfall was comparatively frequent in the east coast (south) division and in Madura, while in these districts rainfall was light from the 22nd to the end of the month. The district which received least rain and on the smallest number of days was Tinnevelly, where really only a few local showers were reported, principally between the 10th and the 13th, on the 20th and 21st, and on the 27th and 28th. The great contrasts which are shown in different districts of the Madras Presidency in the rainfall for July will be seen from the fact that while the South Canara District received 37·5 inches of rain falling on an average of more than 30 days (30·3) out of the 31 in July in the Tinnevelly District only 0·79 inch of rain was received which fell on 1·9 days. Also notwithstanding the heavy falls in the South Canara District, the amount received was very dicidedly less than the normal amount, while the very small fall in the Tinnevelly District was actually larger than the normal fall in July. In the case of the stations which are included in the rainfall reports of the Madras Presidency, it is found that the rainfall in July varied from 51·55 inches at Karakal in the South Kanara district to no rain at all at the stations of Tuticorin, Kulasekarapatnam and Nanguneri in the Tinnevelly District.

The following short table gives a condensed summary of the rainfall statistics for the Madras Presidency in the form adopted previously in the case of the other Presidencies:—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Actual, July 1893.	Normal, July.	Variation from normal.	Actual, July 1893.	Normal, July.	Variation from normal.
				Inches	Inches.	Inches.
Malabar	26·9	26·8	+0·1	24·79	34·42	—9·63
Madras (South Central) .	6·3	3·9	+2·4	3·73	2·36	+1·37
East Coast (North) . .	12·6	10·0	+2·6	9·18	6·77	+2·41
" " (a) .	24·0	19·7	+4·3	20·42	15·38	+5·04
Madras (Central) . .	8·6	6·2	+2·4	5·06	3·17	+1·89
East Coast (Central) . .	5·8	4·9	+0·9	3·11	2·45	+0·66
" (South) . .	8·2	4·7	+3·5	5·83	3·01	+2·82
Madras (South) . .	4·1	2·0	+2·1	2·33	1·05	+1·28

From this table it will be seen that when compared with the normal fall, the amount of rain received in July was very abundant in the following divisions—South Central, Central, East Coast (South) and South and abundant in East Coast (North and North a) and East Coast Central, while it was decidedly defective in Malabar.

The following table also gives a comparative statement of the rainfall of July in each of the districts of the Madras Presidency extracted from the Provincial rainfall statement:—

DISTRICT.	RAINY DAYS.		RAINFALL.			Percentage variation.
	Average actual, July 1893.	Normal, July.	Average actual, July 1893.	Normal, July.	Variation from normal.	
			Inches.	Inches.	Inches.	
Ganjam	13·9	10·0	11·02	7·04	+ 3·98	+ 57
Vizagapatam . . .	15·6	12·6	11·27	8·66	+ 2·61	+ 30
Godavari . . .	9·8	8·8	7·53	6·09	+ 1·44	+ 24
Kistna	10·8	8·3	6·82	5·30	+ 1·52	+ 29
Nellore	5·8	4·9	3·11	2·45	+ 0·66	+ 27
Madras	8·0	6·9	4·90	3·78	+ 1·12	+ 30
Chingleput . . .	9·4	6·3	5·12	3·70	+ 1·42	+ 38
North Arcot . . .	8·2	5·2	6·37	3·09	+ 3·28	+106
South " . . .	8·1	5·0	5·10	3·37	+ 1·73	+ 51
Tanjore	8·9	3·9	7·56	2·53	+ 5·03	+199
Trichinopoly . . .	5·7	2·9	3·48	2·35	+ 1·13	+ 48
Madura	6·0	2·4	3·77	1·37	+ 2·40	+175
Tinnevelly . . .	1·9	1·5	0·79	0·65	+ 0·14	+ 22
Malabar	24·5	25·6	15·99	29·02	—13·03	— 45
South Canara . . .	30·3	28·4	37·50	42·23	— 4·73	— 11
Salem	8·1	4·5	5·30	2·97	+ 2·33	+ 78
Coimbatore . . .	4·3	3·3	1·96	1·64	+ 0·32	+ 20
Nilgiris	18·2	16·1	12·37	13·56	— 1·19	— 9
Cuddapah . . .	8·2	5·6	5·37	2·95	+ 2·42	+ 82
Anantapur . . .	9·1	4·9	4·24	2·32	+ 1·92	+ 83
Bellary	8·7	6·4	4·13	2·62	+ 1·51	+ 58
Kurnool	8·7	7·9	6·31	4·85	+ 1·46	+ 30

Table

Abstract of Observations taken at 8 A.M. at 199 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1. Burma Coast and Bay Islands.		...	...	+·005	...	...	...	...	...	...	...	85·0	+0·5	75·8	+0·4	80·4	+0·4	9·1	...	...	...	...	15·6
Bay Islands	Port Blair	61	29·741	?	29·733	29·834	2nd	29·659	24th	·175	81·2	85·4	?	77·2	?	81·3	?	8·2	87·8	2nd	73·7	31st	14·1
	Camorta	?	29·836	?	?	29·903	3rd	29·754	25th	·149	80·1	84·5	?	76·3	?	80·4	?	8·2	86·9	18th	74·2	18th & 30th	12·7
Tenasserim	Mergui	96	29·763	?	29·791	29·812	1st	29·695	24th	·117	78·5	86·3	?	?	?	?	?	?	89·8	1st	?	...	?
	Tavoy	26	29·833	?	29·790	29·885	2nd	29·766	24th	·119	77·7	84·0	?	74·0	?	79·0	?	10·0	88·2	3 days	72·2	15th & 16th	16·0
	Moulmein	94	29·729	+·007	29·761	29·813	9th	29·654	24th	·159	77·1	83·7	+1·1	74·7	+0·9	79·2	+1·0	9·0	87·5	3 days	72·3	25h & 31st	15·2
	Toungoo	181	29·604	+·010	29·728	29·694	1st	29·532	30th	·162	77·8	86·7	+0·4	74·4	−0·5	80·6	−0·1	12·3	91·7	8th	70·2	1st	21·5
Lower Burma	Rangoon	41	29·760	−·001	29·738	29·859	1st	29·688	30th	·171	78·4	85·1	+0·3	76·0	+0·3	80·6	+0·3	9·1	89·7	3 days	73·9	3 days	15·8
	Bassein	27	29·763	+·002	29·726	29·868	1st	29·666	30th	·202	78·5	85·8	+1·1	76·0	+0·3	80·9	+0·7	9·8	90·7	4th	73·4	1st	17·3
	Diamond Island	41	29·750	−·009	29·726	29·853	1st	29·665	30th	·188	80·7	84·2	−0·3	76·4†	+1·2	80·3†	+0·5	7·8	86·1	4 days	71·4	12th	14·7
Arakan	Akyab	20	29·717	+·020	29·680	29·828	1st	29·611	14th	·217	80·1	84·7	+0·2	77·3	0	81·0	+0·1	7·4	87·7	21st	74·7	12th	13·0
2. Burma, Inland		...	...	+·008	...	...	...	...	...	...	...	88·3	+0·3	75·0	+0·2	81·7	+0·3	13·3	...	...	...	...	19·9
Central Burma	Thayetmyo	134	29·620	+·008	29·696	29·711	1st	29·538	30th	·173	80·1	89·1	+0·3	76·4	+0·2	82·8	+0·3	12·7	92·1	7th	74·0	12th	18·1
	Minbu	?	29·568	?	?	29·671	9th	29·489	24th	·182	80·3	91·7	?	76·6	?	84·2	?	15·1	95·1	24th	74·6	1st	20·5
	Yamethin	?	29·117*	?	?	29·328	25th	28·994	19th	·334	78·4	89·5	?	74·3	?	81·9	?	15·2	94·1	8th & 19th	72·0	12th	22·1
	Fort Stedman	?	26·856†	?	?	26·947	9th	26·774	24th	·173	73·8	83·4	?	70·0	?	76·7	?	13·4	87·1	7th & 8th.	68·0	18th	19·1
Upper Burma	Mandalay	?	29·472	?	?	29·581	8th	29·392	24th	·192	82·9	91·6	?	77·5	?	84·6	?	14·1	96·0	4th	75·1	8th	20·9
	Kindat	?	29·326	?	?	29·450	8th	29·262	14th	·188	79·4	87·0	?	76·2	?	81·6	?	10·8	90·8	4 days	71·5	5th	19·3
	Bhamo	?	29·313	?	?	29·453	8th	29·214	24th	·239	77·0	85·7	?	73·9	?	79·8	?	11·8	90·6	15th	71·3	6h	19·3
3. Assam		...	...	+·021	...	...	...	...	...	...	...	86·5	−3·1	76·8	−1·2	81·7	−2·2	9·7	...	...	...	...	16·2
Assam (Surma)	Silchar	104	29·592	+·030	29·647	29·705	8th	29·503	14th	·202	79·2	86·6	−3·6	76·5	−0·7	81·6	−2·2	10·1	90·5	20th	73·8	4th	16·7
Brahmaputra	Sibsagar	333	29·348	+·011	29·635	29·473	7th	29·251	24th	·222	79·8	88·6	−2·4	77·2	−0·8	82·9	−1·6	11·4	92·1	20th	74·5	4th	17·6
	Dhubri	115	29·528	+·022	29·597	29·655	8th	29·429	24th	·226	78·5	84·4	−3·3	76·7	−2·1	80·6	−2·7	7·7	88·2	25th	73·8	4th	14·4
4. Bengal and Orissa		...	...	+·033	...	...	...	...	...	...	...	87·0	−0·8	77·7	−0·1	82·4	0·5	9·3	...	...	...	...	16·2
East Bengal	Chittagong	87	29·621	+·039	29·655	29·734	1st	29·513	14th	·221	79·4	84·4	−1·1	75·9	−0·5	80·2	−0·8	8·5	87·7	27th	73·1	17th	14·6
	Lungleh	?	?	?	?	?	...	?	...	?	68·5	73·0	?	68·3	?	70·7	?	4·7	76·4	9th & 10th	65·6	2nd	10·8
	Noakhali	43	29·634	?	29·624	29·758	9th	29·533	14th	·225	80·7	84·1	?	77·1	?	80·6	?	7·0	87·5	3 days	74·8	6th & 20th	12·7
	Comilla	35	29·641	?	29·624	29·765	9th	29·544	14th	·221	80·1	85·8	?	76·6	?	81·3	?	9·2	89·4	24th	74·8	5 days	14·6
	Sirajganj	46	29·590	?	29·586	29·707	9th	29·503	14th	·204	80·1	86·0	?	77·7	?	81·8	?	8·3	89·1	10th	74·7	4 days	14·4
	Dacca	22	29·623	+·021	29·593	29·746	9th	29·531	14th	·215	81·4	87·6	−0·9	79·2	−0·1	83·4	−0·5	8·4	90·1	25th	75·2	5th	14·9
	Barisal	13	29·643	+·022	29·601	29·769	9th	29·542	31st	·227	81·3	86·2	?	77·7	?	82·0	?	8·5	91·3	24th	74·9	5th & 6th	16·4
	Mymensingh	59	29·593	+·018	29·604	29·705	9th	29·511	24th	·194	79·4	84·9	?	77·0	?	81·0	?	7·9	89·2	10th	74·6	4th & 6th	14·6
Deltaic Bengal	Faridpur	46	29·618	?	29·612	29·751	9th	29·529	14th	·222	81·4	86·3	?	78·8	?	82·5	?	7·5	88·5	3 days	74·9	3rd	13·6
	Jessore	33	29·605	+·030	29·585	29·725	9th	29·516	15th	·209	82·4	88·4	−1·1	78·7	−0·4	83·6	−0·8	9·7	92·0	28th	74·4	5th	17·6
	Calcutta	21	29·610	+·041	29·577	29·739	9th	29·506	31st	·233	81·8	86·9	−1·2	78·5	+0·1	82·7	−0·6	8·4	90·6	28th	75·2	5th & 6th	15·4
	Saugor Island	25	29·610	+·041	29·579	29·732	9th	29·485	31st	·247	82·8	87·3	−0·4	80·2	−0·2	83·8	−0·3	7·1	90·2	4 days	77·0	26th	13·2
	Krishnagar	47	29·575	?	29·570	29·694	9th	29·492	31st	·202	82·1	88·5	?	78·5	?	83·5	?	10·0	92·3	13th	75·7	5th	16·6
	Midnapore	149	29·489	?	29·581	29·598	9th	29·396	31st	·202	82·2	89·7	?	77·8	?	83·8	?	11·9	93·3	23rd & 24th	74·1	4th	19·2
Central Bengal	Bankura	298	29·307	?	29·555	29·421	9th	29·233	31st	·188	80·8	89·5†	?	78·1	?	83·8†	?	11·4	94·1	29th	75·6	5th & 21st.	18·5
	Raniganj	334	29·290	?	29·575	29·410	9th	29·222	31st	·188	80·6	90·1	?	77·2	?	83·7	?	12·9	94·7	28th	73·9	23rd	20·8
	Burdwan	99	29·532	+·042	29·577	29·647	9th	29·451	15th	·196	81·7	88·8	−1·5	79·4	0	84·1	−0·8	9·4	92·6	13th	76·2	4th & 5th	16·4

* Mean of 29 days. † Mean of 30 days.

I.

in India, Burma, etc., in July 1893.

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 1893.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21·49	31·68	−9·06	...	...	...	...	**1. Burma Coast and Bay Islands.**	
4	...	...	...	...	7	12	7	1	5·4	11·0	−51	88	·939	8·1	17	?	?	10·11	15·98	− 5·87	19·55	34·77	−15·22	2·64	Port Blair .	BAY ISLANDS.
4	...	...	...	...	21	6	...	...	7·4	?	?	85	·875	6·0	14	?	?	11·27	?	?	29·74	?	?	3·64	Camorta.	
...	3	...	1	4	6	8	2	7	1·1	1·8	−39	91	·885	7·0	24	?	?	18·87	31·99	−13·12	40·42	63·43	−23·01	3·00	Mergui .	TENASSERIM.
22	...	...	...	...	2	7	...	...	1·9	?	?	92	·882	6·6	25	?	?	32·75	46·53	−13·78	57·46	86·55	−29·09	7·02	Tavoy.	
...	...	2	1	11	9	5	3	...	2·9	3·8	−25	93	·867	7·9	28	27·75	+0·25	32·66	47·88	−15·22	63·54	84·09	−20·55	5·29	Moulmein.	
4	...	...	1	14	12	...	...	...	3·2	4·8	−33	93	·903	9·7	27	25·09	+1·91	18·55	18·43	+ 0·12	26·78	33·60	− 6·82	2·55	Toungoo.	
...	...	...	...	2	10	14	4	1	4·4*	5·5	−20	94	·919	9·0	23	25·36	−2·36	26·08	21·94	+ 4·14	36·85	40·04	-- 3·19	5·05	Rangoon .	LOWER BURMA.
1	...	...	...	5	18	5	1	1	3·6	4·0	−10	93	·915	7·7	20	27·00	−7·00	13·91	24·37	−10·46	25·47	46·68	−21·21	2·70	Bassein.	
...	...	...	...	2	4	22	3	...	9·6	8·9	+ 8	86	·897	8·6	19	24·00	−5·00	14·17	25·81	−11·64	38·80	49·44	−10·64	2·46	Diamond Island.	
...	...	8	8	5	10	...	...	...	2·8	3·8	−26	95	·966	8·8	29	27·55	+1·45	36·48	52·20	−15·72	84·98	92·99	− 8·01	4·45	Akyab .	ARAKAN.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·69	11·39	+1·14	...	...	...	...	**2. Burma, Inland.**	
...	...	...	...	16	13	2	...	...	5·9	6·7	−12	86	·875	9·3	16	15·91	+0·09	8·55	6·87	+ 1·68	15·31	13·91	+ 1·40	1·60	Thayetmyo	CENTRAL BURMA.
...	...	...	...	27	4	...	...	...	12·4	?	?	83	·871	2·7	9	?	?	2·77	?	?	6·96	?	?	0·62	Minbu.	
...	...	...	...	16	15	...	...	...	12·9	?	?	83	·806	0·5	8	?	?	2·87	?	?	4·95	?	?	0·80	Yamethin.	
29	...	...	...	...	...	2	...	...	?	?	?	81	·688	9·4	9	?	?	5·04	?	?	12·04	?	?	2·72	Fort Stedman.	
...	...	...	...	6	23	2	...	...	9·8	?	?	74	·828	8·8	9	?	?	5·89	3·95	+ 1·94	12·53	10·55	+ 1·98	2·16	Mandalay .	UPPER BURMA.
...	...	2	1	8	5	4	8	3	1·5	?	?	92	·929	6·3	14	?	?	11·81	14·82	− 3·01	32·87	22·79	+10·08	1·90	Kindat.	
23	...	1	...	1	...	3	1	1	?	?	?	92	·851	8·5	23	?	?	23·87*	19·92	+ 3·95	35·60	35·64	− 0·04	4·80	Bhamo.	
...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	27·54	14·39	+13·15	...	...	...	...	**3. Assam.**	
29	..	...	...	...	2	...	...	...	3·0	3·1	− 3	93	·923	9·7	28	21·45	+6·55	33·87	18·05	+15·82	57·99	39·41	+18·58	4·54	Silchar .	ASSAM (SURMA).
4	1	1	...	1	3	18	3	...	1·5	2·8	− 46	93	·943	8·4	23	18·73	+4·27	16·48	15·22	+ 1·26	26·99	28·58	− 1·59	1·92	Sibsagar .	BRAHMAPUTRA.
7	3	6	3	3	3	6	...	...	4·0	3·9	+ 3	93	·909	9·1	26	13·75	+12·25	32·27	9·91	+22·36	49·86	35·29	+14·57	4·02	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14·16	14·14	−0·04	...	...	...	...	**4. Bengal and Orissa.**	
...	...	1	2	10	12	6	...	...	5·4	7·2	−25	92	·922	8·9	19	19·64	−0·64	12·99	20·42	− 7·43	50·49	43·86	+ 6·63	3·38	Chittagong	EAST BENGAL.
Not recorded.									?	?	?	?	?	?	26	?	?	28·68	?	?	45·64	?	?	6·09	Lungleh.	
...	...	...	1	17	5	8	...	...	6·8	?	?	91	·959	4·1	26	22·60	+3·40	24·07	23·97	+ 0·10	55·17	50·04	+ 5·13	2·96	Noakhali.	
...	...	...	17	7	5	2	...	...	7·1	?	?	95	·974	8·2	24	18·65	+5·35	20·96	16·98	+ 3·98	41·31	36·11	+ 5·20	3·90	Comilla.	
2	...	...	4	7	11	6	1	...	5·3?	?	?	94	·967	9·8	20	13·50	+6·50	20·23	10·97	+ 9·26	36·39	22·37	+14·02	7·34	Sirajganj.	
...	...	...	3	5	16	6	1	...	9·4	7·3	+29	90	·961	9·2	19	15·73	+3·27	8·30	12·63	− 3·83	27·30	24·88	+ 2·42	1·13	Dacca.	
9	...	...	...	7	9	6	...	...	4·8	?	?	89	·955	9·9	24	21·00	+3·00	15·27	15·81	− 0·54	39·69	32·04	+ 7·65	2·74	Barisal.	
3	...	1	5	11	7	4	...	...	5·2	?	?	93	·937	9·0	27	18·20	+8·80	27·98	14·26	+13·72	49·34	33·04	+16·30	3·20	Mymensingh.	
2	...	...	3	7	15	4	...	...	5·7	?	?	90	·969	8·0	15	16·75	−1·75	9·27	11·85	− 2·58	32·59	24·34	+ 8·25	1·83	Faridpur .	DELTAIC BENGAL.
6	...	...	3	8	9	3	1	1	3·8	4·6	−17	90	1·003	8·7	21	18·18	+2·82	8·09	12·55	− 4·46	24·03	24·24	− 0·21	0·89	Jessore.	
3	...	...	1	4	7	14	2	...	3·6	5·3	−32	89	·967	9·4	16	20·00	−4·00	10·97	12·79	− 1·82	36·62	22·06	+14·56	1·73	Calcutta.	
...	...	2	1	...	5	20	3	...	15·4	14·2	+ 8	89	1·004	9·5	15	17·36	−2·36	16·88	17·00	− 0·12	27·24	26·29	+ 0·95	3·13	Saugor Island.	
1	...	...	4	7	11	5	3	...	5·2	?	?	86	·941	8·8	12	15·75	−3·75	7·78	10·14	− 2·36	25·03	18·95	+ 6·08	2·45	Krishnagar.	
2	1	1	...	2	9	14	...	2	4·3	?	?	86	·954	4·9	11	16·20	−5·20	8·18	12·54	− 4·36	28·88	21·36	+ 7·52	2·54	Midnapore.	
14	...	...	2	4	3	4	4	...	2·8	?	?	88	·928	8·1*	19	17·45	+1·55	10·24	12·47	− 2·23	30·04	21·82	+ 8·22	1·95	Bankura .	CENTRAL BENGAL.
1	...	2	3	5	3	14	1	2	2·5	?	?	90	·944	3·3	17	16·85	+0·15	9·03	13·72	− 4·69	24·26	22·10	+ 2·16	1·72	Raniganj.	
7	...	2	3	6	10	2	...	1	6·0	4·3	+40	86	·930	9·4	13	16·82	−3·82	15·17	12·11	+ 3·06	25·76	19·75	+ 6·01	4·56	Burdwan.	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 199 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Bengal—*contd.*	Naya Dumka	489	29·112	?	29·555	29·229	9th	29·043	14th	·186	80·9	87·7	?	77·2	?	82·5	?	10·5	91·6	29th	72·8	7th	18·8
	Berhampore	67	29·553	+·024	29·568	29·676	9th	29·478	14th	·198	80·7	87·5	−2·0	79·0	+0·3	83·3	−0·9	8·5	91·7	28th	76·3	5th	15·4
	Rampur Boalia.	70	29·550	?	29·569	29·681	9th	29·472	14th	·209	82·1	87·4	?	77·2	?	82·3	?	10·2	90·6	28th	74·6	1st	16·0
	Malda	80	29·529	?	29·561	29·653	8th	29·460	14th	·193	81·8	88·4	?	78·3	?	83·3	?	10·1	93·3	29th	75·5	3rd	17·8
	Bogra	61	29·564	+·041	29·577	29·685	9th	29·490	14th	·195	80·7	87·6	?	76·7	?	82·2	?	10·9	90·2	10th & 26th.	74·2	6th	16·0
North Bengal	Dinajpur	123	29·502	+·019	29·577	29·627	9th	29·425	14th	·202	80·5	87·6	?	78·3	?	83·0	?	9·3	91·6	27th & 28th.	75·2	4th	16·4
	Rangpur	123	29·512	?	29·589	29·632	9th	29·426	24th	·206	80·4	86·5	?	77·2	?	81·9	?	9·3	89·8	16th	74·7	4 days	15·1
	Jalpaiguri	284	29·362	+·047	29·599	29·494	8th	29·263	24th	·231	78·9	86·5	?	76·1	?	81·3	?	10·4	89·9	3 days	73·6	4th	16·3
Orissa	Balasore	56	29·567	+·026	29·569	29·694	9th	29·454	31st	·240	81·9	88·3	?	78·0	?	83·2	?	10·3	92·4	30th	73·8	5th & 26th.	18·6
	False Point	21	29·628	+·036	29·591	29·753	9th	29·485	31st	·268	83·0	87·6	0	78·5	+0·1	85·1	+0·1	9·1	92·0	30th	74·6	4th	17·4
	Cuttack	80	29·554	+·032	29·576	29·665	9th	29·427	31st	·238	83·1	90·4	+0·6	78·3	−0·2	84·4	+0·2	12·1	95·2	27th & 28th.	74·8	5th	20·4
	Shortt's Island†	?	29·643	?	?	29·746	9th	29·530	15th	·216	83·4	88·1	?	79·2	?	83·6	?	8·9	91·6	13th	75·8	5th	15·8
	Puri	15	29·631	?	29·586	29·743	9th	29·519	31st	·224	83·6	89·7	?	80·6	?	85·2	?	9·1	96·7	30th	77·6	3 days	19·1
5. Gangetic Plain and Chota Nagpur.		...	...	+·024	...	...	...	...	...	...	...	88·3	−2·1	77·5	−1·0	82·9	−1·6	10·8	...	...	...	...	19·5
Chota Nagpur	Hazaribagh	2,007	27·630	+·035	29·567	27·727	9th	27·571	5th	·156	76·6	84·2	−0·3	72·7	−0·9	78·4	−0·6	11·5	89·2	28th & 29th.	70·3	19th	18·9
	Ranchi	2,128	27·506	?	29·554	27·612	9th	27·441	14th	·171	76·7	84·1	?	71·7	?	77·9	?	12·4	89·0	29th	69·4	5th & 20th	19·6
	Daltonganj	730?	28·862		29·540	28·924	9th	28·757	14th	·167	80·5	88·6	?	77·2	?	82·9	?	11·4	95·3	29th	71·0	4th	24·3
	Chaibassa	760	28·852	+·044	29·555	28·965	9th	28·764	31st	·201	80·1	89·3	?	76·6	?	83·0	?	12·7	93·9	27th	74·2	4th & 5th.	19·7
Bihar, South	Gaya	375	29·219	+·019	29·545	29·320	1st	29·164	25th	·156	81·6	90·2	−1·3	78·2	−0·2	84·2	−0·8	12·0	95·0	29th	75·8	15th	19·2
	Dehri	351	29·243*	?	29·545*	29·326	2nd	29·186	14th	·140	82·2	87·9	?	78·3	?	83·1	?	9·6	93·8	29th	74·0	7th	19·8
	Patna	183	29·409	+·008	29·542	29·516	8th	29·347	24th	·169	82·7	88·0	−2·6	79·1	−0·7	83·5	−1·7	8·9	93·5	29th	75·2	7th	18·3
	Arrah	190	29·398	?	29·538	29·503	9th	29·338	14th	·165	82·1	89·6	?	79·1	?	84·4	?	10·5	94·4	29th	74·5	7th	19·9
	Buxar	239	29·300	?	29·552	29·458	2nd	29·285	14th	·173	81·2	87·9	?	77·9	?	82·9	?	10·0	92·5	28th & 29th.	74·3	7th	18·2
Bihar, North	Purnea	125	29·481	+·011	29·559	29·610	8th	29·402	14th	·208	81·3	87·7	−2·8	78·3	−0·3	83·0	−1·6	9·4	92·2	28th & 29th.	74·2	4th	18·0
	Bhagalpur	160	29·436	?	29·548	29·559	9th	29·366	14th	·193	82·1	88·7	?	77·7	?	83·3	?	11·0	93·7	29th	74·5	4th & 7th.	19·2
	Darbhanga	166	29·439*	+·015	29·558*	29·560	8th	29·362	14th	·198	80·7	87·3	−1·8	78·6	−1·2	83·0	−1·5	8·7	89·9	28th	76·2	4 days	13·7
	Muzaffarpur	178	29·430	?	29·561	29·537	9th	29·354	14th	·183	80·5	87·6	?	78·2	?	82·9	?	9·4	90·7	19th	75·2	29th	15·5
	Motihari	224	29·370	?	29·550	29·478	9th	29·294	25th	·184	80·7	88·6	?	76·8	?	82·8	?	11·8	92·2	22nd	74·7	8th	17·5
	Chapra	181	29·417	?	29·550	29·515	9th	29·356	24th	·159	81·9	88·7	?	78·8	?	83·8	?	9·9	94·8	29th	74·6	7th & 8th.	20·2
N.-W. Provinces (Eastern Districts).	Benares	267	29·328	+·038	29·549	29·429	2nd	29·261	14th	·168	81·3	88·8	−2·7	78·3	−1·2	83·6	−2·0	10·5	97·8	29th	76·5	20th	21·3
	Allahabad	309	29·274	+·026	29·537	29·376	9th	29·210	14th	·166	81·9	90·0	−1·4	78·5	−0·7	84·3	−1·1	11·5	96·9	29th	75·8	20th	21·1
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·336	+·028	29·550	29·441	9th	29·259	14th	·182	80·8	87·7	−3·6	77·7	−2·0	82·7	−2·8	10·0	93·9	29th	75·2	24th	18·7
Oudh, South	Lucknow	375	29·199	+·016	29·532	29·297	9th	29·108	25th	·189	81·2	89·5	−2·7	77·6	−1·8	83·6	−2·3	11·9	95·3	29th	75·1	4 days	20·2
Oudh, North	Bahraich	403	29·168?	?	29·531?	29·279?	9th	29·040?	14th	·239?	80·8	88·5	?	78·1	?	83·7	?	10·4	93·4	29th	74·0	17th	19·4
N.-W. Provinces (Central).	Cawnpore	416	29·162	?	29·535	29·234	9th	29·076	14th	·158	81·5	89·2	?	77·7	?	83·5	?	11·5	95·1	31st	73·0	15th	22·1
	Mainpuri	516	29·034	?	29·504	29·103	9th	28·962	25th	·141	81·2	89·7	?	77·5	?	83·6	?	12·2	96·8	29th	73·0	4th	23·8
6. Upper—Sub-Himalayas		...	...	−·009	...	...	...	...	...	...	...	89·6	−5·0	77·1	1·6	83·4	−3·3	12·5	...	...	...	...	23·9
N.-W. Provinces (Sub-montane).	Bareilly	568	28·984	−·004	29·513	29·069	8th	28·894	24th	·175	80·3	88·1	−3·7	77·3	−1·4	82·7	−2·6	10·8	95·3	29th & 30th.	74·6	4 days	20·7
	Dehra Dun	2,233	27·370	−·022	29·528	27·467	9th	27·254	24th	·213	75·7	83·6	−1·7	73·1	−1·2	78·4	−1·5	10·5	88·0	31st	70·5	6th	17·5
	Roorkee	887	28·656	−·023	29·500	28·763	9th	28·541	24th	·222	80·6	90·5	−1·3	77·5	−0·5	84·0	−0·9	13·0	97·7	31st	75·0	18th	22·7
	Meerut	738	28·814	+·001	29·510	28·693	9th	28·713	24th	·180	81·0	89·3	−3·7	76·9	−2·8	83·1	−3·3	12·4	95·8	29th & 31st	74·4	13th	21·4
Punjab, Central.	Delhi	718	28·832	−·001	29·506	28·905	2nd	28·752	19th	·153	82·0	89·1	−5·1	78·2	−2·2	83·7	−3·7	10·9	97·1	3 days	75·1	6th	22·0
	Lahore	702	28·807	−·014	29·467	28·934	9th	28·695	4th	·239	84·4	93·2	−5·7	80·0	−0·3	86·6	−3·0	13·2	100·3	31st	74·1	10th	26·2

* Mean of 30 days. † Mean of 16 days.

I—*continued.*

in India. Burma, etc., in July 1893—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 1893.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period, 5th June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
1	...	1	7	6	7	5	3	1	3·0*	?	?	88	·932	5·5	18	18·50	− 0·50	12·80	13·44	− 0·64	30·49	22·30	+ 8·19	2·23	Naya Dumka	Central Bengal—*contd.*
1	...	...	5	5	15	4	1	...	4·1	5·0	−18	95	·994	9·4	18	16·27	+1·73	12·51	10·38	+ 2·13	35·64	18·77	+16·87	2·45	Berhampore.	
3	...	...	3	6	6	11	1	1	6·9	?	?	90	·989	7·6	16	14·85	+ 1·15	11·28	11·67	− 0·39	31·29	21·32	+ 9·97	3·10	Rampur Boalia.	
3	...	1	...	20	1	6	...	...	3·0*	?	?	91	·994	6·2	24	15·00	+ 9·00	16·43	11·41	+ 5·02	31·06	22·55	+ 8·51	1·64	Malda.	
3	...	...	4	23	1	...	...	...	3·6	?	?	91	·962	7·3	22	15·25	+ 6·75	14·14	13·66	+ 0·48	33·09	27·48	+ 5·61	2·75	Bogra.	
...	...	1	10	6	6	2	6	...	2·5	?	?	91	·950	9·4	23	15·70	+ 7·30	14·97	13·32	+ 1·65	31·79	29·74	+ 2·05	1·42	Dinajpur	North Bengal.
2	1	1	8	5	8	3	2	1	2·7	?	?	91	·947	3·3	19	14·75	+ 4·25	18·92	16·48	+ 2·44	40·95	35·99	+ 4·96	2·06	Rangpur.	
8	2	4	8	6	1	1	...	1	3·3	?	?	92	·907	8·4	26	19·35	+ 6·65	37·87	25·54	+12·33	53·76	54·03	− 0·27	4·29	Jalpaiguri.	
5	...	1	1	1	5	17	1	...	6·0	?	?	90	·989	4·5	12	15·55	− 3·55	13·19	13·96	− 0·77	27·68	22·76	+ 4·92	6·08	Balasore	Orissa.
...	1	...	...	...	6	12	10	2	11·0	10·5	+ 5	85	·963	7·8	11	15·20	− 4·20	6·86	12·80	− 5·94	12·66	19·34	− 6·68	1·86	False Point.	
6	...	...	...	...	1	13	8	3	3·0	3·2	− 6	77	·875	6·1	11	16·09	− 5·09	6·48	12·78	− 6·30	12·80	22·18	− 9·38	1·90	Cuttack.	
...	...	...	...	...	3	11	2	...	22·1	?	?	84	·959	6·6	4	?	?	1·24	?	?	3·99	?	?	0·43	Shortt's Island.‖	
8	1	...	...	...	...	11	9	1	8·8	?	?	84	·969	5·8	8	13·45	− 5·45	3·58	10·39	− 6·81	5·95	18·37	−12·42	1·59	Puri.**	
...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	15·90	11·89	+4·13	...	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
2	2	1	...	..	3	6	7	10	7·6	8·4	− 10	87	·800	10·0	20	18·64	+ 1·16	22·81	12·97	+ 9·84	38·47	20·34	+18·13	4·69	Hazaribagh.	Chota Nagpur.
5	2	...	...	...	...	14	4	6	6·7	?	?	87††	·787††	6·3	19	19·45	− 0·45	15·77	13·72	+ 2·05	30·02	22·37	+ 7·65	2·57	Ranchi.	
...	...	...	...	4	5	15	3	4	5·6	?	?	83	·869	7·6	18	?	?	13·24	?	?	23·87	?	?	2·29	Daltonganj.	
7	1	...	...	2	2	9	9	1	1·2†	?	?	87	·892	8·3	15	17·15	− 2·15	8·90	14·27	− 5·37	23·80	22·57	+ 1·23	1·55	Chaibassa.	
1	1	...	9	1	2	2	14	1	5·5	2·9	+ 80	89	·966	5·9	16	16·00	0	14·93	13·08	+1·85	23·00	19·59	+ 3·41	2·35	Gaya	Bihar, South.
...	1	...	5	1	6	10	8	...	2·3?	?	?	86	·940	4·7	15	15·38	− 0·38	10·35	11·25	− 0·90	19·56	15·90	+ 3·66	3·80	Dehri.	
2	...	3	11	1	1	3	9	1	4·2	3·6	+ 17	87	·968	9·4	15	15·00	0	14·50	12·96	+ 1·54	25·52	19·76	+ 5·76	3·87	Patna	
1	2	4	4	2	3	4	8	3	1·9	?	?	88	·966	4·6	17	14·94	+ 2·06	16·61	11·03	+ 5·58	25·14	16·98	+ 8·16	2·60	Arrah.	
1	1	...	9	1	2	5	9	3	4·1	?	?	89	·941	8·5	19	14·50	+ 4·50	12·24	11·07	+ 1·17	18·80	16·03	+ 2·77	2·61	Buxar.	
17	...	2	3	1	...	6	...	2	1·9	2·9	− 34	91	·974	5·8	23	17·09	+ 5·91	23·63	13·04	+10·59	31·27	24·89	+ 6·38	2·88	Purnea	Bihar, North.
18	...	...	3	6	1	2	1	...	1·5	?	?	88	·965	9·0	12	15·40	− 3·40	18·51	11·16	+ 7·35	28·59	18·87	+ 9·72	3·29	Bhagalpur.	
1	2	4	10	6	...	3	3	2	4·3	5·0	− 14	90	·951	8·1	25	13·55	+11·45	16·00	11·19	+ 4·81	23·91	20·61	+ 3·30	2·54	Darbhanga.	
1	...	2	11	10	...	1	4	2	4·2	?	?	92	·960	7·6	24	14·00	+10·00	13·07	11·81	+ 1·26	18·81	19·34	− 0·53	1·56	Muzaffarpur	
7	...	10	11	3	...	...	...	...	4·5	?	?	89	·936	8·3	23	11·29	+11·71	31·92	10·45	+21·47	43·47	18·34	+25·13	6·36	Motihari.	
5	1	1	7	5	...	4	6	2	4·1	?	?	89	·969	9·4	15	14·15	+ 0·85	9·85	12·30	− 2·45	17·00	18·32	− 1·32	1·62	Chapra.	
8	...	1	4	1	1	11	5	...	3·5	4·8	−27	90	·960	9·0	18	14·27	+ 3·73	9·30	10·80	− 1·50	19·52	15·33	+ 4·19	1·38	Benares	N.-W. Provinces (Eastern Districts).
4	...	1	1	2	1	8	11	3	5·3	4·0	+ 33	85	·920	8·9	13	14·18	− 1·18	13·12	11·38	+ 1·74	27·03	16·06	+10·97	4·27	Allahabad	
4	2	2	8	3	1	1	9	1	1·4	2·8	− 50	88	·931	5·8	16	13·91	+ 2·09	13·74	13·23	+ 0·51	22·60	21·45	+ 1·15	4·50	Gorakhpur	N.-W. Provinces (East Sub-montane).
25	1	...	2	...	1	...	...	2	0·7	3·9	− 82	83	·875	8·5	16	13·64	+ 2·36	14·18	10·47	+ 3·71	23·73	15·09	+ 8·64	4·55	Lucknow	Oudh, South.
...	3	5	3	6	1	9	1	3	3·8	?	?	92	·974	6·1	18	?	?	20·01	12·49	+ 7·52	24·65	18·13	+ 6·52	4·80	Bahraich	Oudh, North.
...	...	2	1	4	4	5	9	6	4·8	?	?	89	·954	7·4	15	12·1	+ 2·9	23·80	9·99	+13·81	29·54	13·08	+16·46	4·00	Cawnpore	N.-W. Provinces (Central).
22	...	1	2	1	...	...	2	3	0·9	?	?	85	·900	9·1	15	?	?	13·27	11·07	+ 2·20	17·12	14·07	+ 3·05	4·12	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14·49	11·98	+2·51	...	...	...	...	**6. Upper—Sub-Himalayas.**	
17	...	...	...	8	...	1	2	3	1·1	4·1	− 73	88	·910	7·9	20	13·45	+ 6·55	20·90	16·86	+ 4·04	29·01	22·14	+ 6·87	4·34	Bareilly	N.-W. Provinces (Sub-montane).
31	...	...	...	...	...	...	...	...	0·8‡	1·2	− 33	91	·813	8·8	24	21·27	+ 2·73	30·84	27·80	+ 3·04	52·65	35·52	+17·13	4·39	Dehra Dun.	
13	...	...	1	10	2	...	3	2	3·5§	2·9	+ 21	84	·877	7·4	11	11·82	− 0·82	6·91	13·13	− 6·22	11·81	17·61	− 5·80	2·32	Roorkee.	
7	...	...	9	3	...	3	9	...	2·6	2·3	+ 13	81	·946	7·3	14	10·18	+ 3·82	10·26	9·51	+ 0·75	13·85	12·10	+ 1·75	1·95	Meerut.	
10	...	...	1	6	...	5	8	1	3·7	4·5	−18	81	·875	7·5	18	8·64	+ 9·36	12·80	9·08	+ 3·72	19·76	12·91	+ 6·85	3·32	Delhi	Punjab, Central.
3	2	1	6	8	3	1	6	1	3·3	3·3	0	79	·928	5·6	6	6·45	− 0·45	7·36	6·57	+ 0·79	10·08	8·41	+ 1·67	3·32	Lahore.	

* Mean of 30 days.
† Mean of 22 days.
‡ Mean of 29 days.
Mean of 26 days.
‖ Mean of 16 days.
†† Mean of 24 days.
** Wind directions for 30 days.

Table

Abstract of Observations taken at 8 A.M. at 199 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Sub-montane).	Umballa	962?	?	?	?	?	...	?	...	?	81·2	91·8	?	78·2	?	85·0	?	13·6	101·0	31st	75·0	5th & 18th.	26·0
	Ludhiana	812	28·727	−·005	29·496	28·832	9th	28·619	24th	·213	83·4	92·5	−5·7	78·8	−1·1	85·7	−3·4	13·7	100·0	31st	71·5	11th	28·5
Punjab, North	Sialkot	830	28·690	−·010	29·481	28·820	9th	28·565	24th	·255	81·7	89·8	−8·2	77·0	−2·1	83·4	−5·2	12·8	97·6	25th	71·3	9th	26·3
	Rawalpindi	1,649	27·892	−·005	29·458	28·003	9th	27·778	4th	·225	78·5	88·1	−10·0	74·2	−2·6	81·2	−6·3	13·9	94·0	3 days	66·7	20th	27·3
Indus Valley and North-West Rajputana.		...	...	+·004	...	...	...	...	...	...	...	97·1	−3·5	80·0	−1·3	88·6	−2·4	17·1	...	...	...	...	27·5
Punjab, West	Peshawar	1,110	28·419	+·001	29·441	28·543	9th	28·254	4th	·289	83·6	97·1	−5·9	77·6	−1·6	87·4	−3·8	19·5	105·0	4th	71·4	20th	33·6
	Mardan	?	?	?	?	?	...	?	...	?	84·9	107·8	?	82·3	?	95·1	?	25·5	109·0	1st	74·0	15th	35·0
	Khushab	612	28·881	?	29·450	29·008	9th	28·733	4th	·275	86·4	97·6	?	81·4	?	89·5	?	16·2	104·0	25th & 31st.	73·0	29th	31·0
	Montgomery	558	28·937	?	29·451	29·031	9th	28·802	4th	·229	87·8	101·1	?	81·5	?	91·3	?	19·6	106·4	15th	76·1	16th & 21st.	30·3
	D. I. Khan	573	28·907	−·021	29·438	29·042	9th	28·743	4th	·299	87·3	99·6	−4·2	81·3	−0·8	90·5	−2·5	18·3	105·1	12th	71·8	16th	33·3
	Mooltan	420	29·071	+·001	29·451	29·172	9th	28·934	4th	·238	87·3	100·5	−2·6	83·4	+0·6	92·0	−1·0	17·1	105·9	2nd	75·1	19th	30·8
	Sirsa	662	28·862	−·005	29·479	28·950	27th	28·758	19th	·192	83·5	95·8	−4·4	79·5	−1·6	87·7	−3·0	16·3	103·4	31st	75·3	6th	28·1
Sind and Cutch.	Jacobabad	186	29·296	+·006	29·440	29·383	9th	29·155	4th	·228	88·2	105·7	−1·7	83·2	−0·7	94·5	−1·2	22·5	110·8	31st	79·7	3 days	31·1
	Hyderabad	117	29·392	+·008	29·461	29·494	2nd	29·286	5th & 6th.	·208	83·7	96·5	−2·5	79·7	−0·8	88·1	−1·7	16·8	100·7	18th	77·1	16th	23·6
	Kurrachee	49	29·526	+·017	29·526	29·608	28th	29·418	6th	·190	82·6	88·6	−1·5	79·0	−1·5	83·8	−1·5	9·6	91·0	4th	76·8	6th	14·2
	Bhuj	395	29·219	+·021	29·567	29·306	29th	29·113	6th	·193	80·0	86·3	−3·8	76·1	−2·0	81·3	−2·9	10·2	90·5	29th	71·9	19th	18·6
Rajputana, West	Bickaneer	753	28·784	?	29·485	28·866	27th	28·693	4th	·173	84·3	95·2	−5·0	*79·5	−2·9	*87·5	−4·0	15·7	99·6	31st	73·3	8th	26·3
	Pachpadra	380	29·197	?	29·530	29·304	29th	29·060	7th	·244	81·0	91·0	?	†75·7	?	†83·5	?	15·3	94·5	4th	73·1	7th & 30th.	21·4
8. East Rajputana, Central India and Guzerat.		...	...	+·030	...	...	...	...	...	...	...	87·5	−2·5	75·9	−1·4	81·7	−2·0	11·6	...	...	...	...	18·5
Rajputana, East	Jeypore	1,431	28·175	+·023	29·555	28·265	27th	28·049	19th	·216	78·7	88·5	−3·3	74·8	−2·0	81·7	−2·7	13·7	95·1	28th	72·5	3 days	22·6
	Sambhar	1,254	28·324	+·013	29·531	28·408	28th	28·196	19th	·212	78·7	87·9	−4·0	75·6	−2·0	81·8	−3·0	12·3	91·4	29th	72·4	26th	19·0
	Ajmere	1,611	28·011	+·025	29·574	28·090	27th	27·884	19th	·206	77·7	85·4	−5·8	75·4	−1·0	80·5	−3·4	10·0	89·4	28th	74·1	4 days	15·3
	Deesa	466	29·156	+·025	29·578	29·250	2nd	29·006	6th	·244	78·6	87·3	−4·3	75·5	−2·0	81·4	−3·2	11·8	91·7	30th	73·0	19th	18·7
Kattywar	Rajkot	429	29·235	+·040	29·617	29·321	3rd	29·139	6th	·182	79·5	88·3	−2·0	74·5	−0·9	81·4	−1·5	13·8	93·4	3rd	71·8	25th	21·6
	Veraval	?	29·678	?	29·638	29·767	3rd	29·581	6th	·186	80·4	83·5	?	78·4	?	81·0	?	5·1	85·6	28th	76·3	29th & 30th.	9·3
	Bnavnagar	?	29·661	?	29·646	29·755	3rd	29·558	6th	·197	83·2	92·0	?	78·7	?	85·3	?	13·3	97·4	3rd & 26th.	76·0	5th	21·4
Central India	Nowgong	757	28·853	+·041	29·562	28·926	2nd	28·800	6th	·126	80·3	88·6	−1·7	76·2	−1·8	82·4	−1·8	12·4	94·0	29th	73·5	17th	20·5
	Indore	1,827	27·865	+·048	29·632	27·959	3rd	27·760	6th	·199	74·7	84·3	+0·3	71·0	−1·3	77·7	−0·5	13·3	88·0	23rd & 24th.	69·4	23rd	18·6
	Neemuch	1,630	28·019	+·041	29·598	28·101	29th	27·923	7th	·178	76·3	85·2	−1·4	72·5	−1·3	78·9	−1·4	12·7	87·8	4 days	70·1	31st	17·7
Guzerat	Surat	36	29·652	+·016	29·631	29·746	3rd	29·560	6th	·186	80·7	87·0	−0·1	76·9	−0·4	81·9	−0·3	10·1	91·1	31st	74·0	8th & 27th.	17·1
	Ahmedabad	176	29·504	?	29·629	29·599	3rd	29·400	6th	·199	80·5	89·0	?	77·0	?	83·0	?	12·0	93·2	26th	74·6	19th	18·6
N.-W. P., West	Agra	555	29·031	+·023	29·542	29·099	27th	28·971	25th	·128	81·3	88·7	−4·4	78·1	−2·1	83·4	−3·3	10·6	94·5	29th	76·0	15th	18·5
	Jhansi	858	28·751	+·040	29·558	28·828	2nd	28·689	6th	·139	81·2	89·8	−0·9	77·9	−0·3	83·9	−0·6	11·9	96·0	28th	75·4	15th	20·6
9. Deccan		...	...	+·037	...	...	...	...	...	...	...	86·9	+1·2	72·9	+0·1	79·9	+0·6	13·9	...	...	...	...	22·1
Bombay, Deccan	Belgaum	2,524	27·277	+·009	29·733	27·364	3rd	27·206	24th	·158	70·1	76·3	+0·7	66·5	−0·4	71·4	+0·2	9·8	81·8	23rd	65·3	3 days	16·5
	Sholapur	1,590	28·179	+·027	29·712	28·253	3rd	28·091	24th	·162	76·4	89·7	+1·1	71·4	+0·2	80·6	+0·7	18·3	94·7	20th	69·5	31st	25·2
	Poona	1,840	27·922‡	+·022	29·702‡	28·018	3rd	27·855	6th	·163	74·6‡	‖83·8	+2·3	‖69·9	−0·7	‖76·9	+0·8	13·9	89·0	23rd	67·9	30th	21·1
	Bijapur	1,946	27·837	?	29·720	27·918	3rd	27·755	24th	·163	74·3	87·7	?	69·9	?	78·8	?	17·8	91·7	17th & 20th.	67·0	14th	24·7
Khandesh	Malegaon	1,430	28·300	+·052	29·675	28·387	3rd	28·220	6th	·167	78·3	87·8	+1·3	72·6	−0·3	80·2	+0·5	15·2	94·4	23rd	69·7	22nd	24·7
	Ahmednagar	2,152	27·607	?	29·689	27·697	3rd	27·539	6th	·158	74·9	85·0	?	69·9	?	77·5	?	15·1	89·3	23rd	66·9	9th & 13th.	22·4
Berar	Akola	930	28·769	+·038	29·641	28·866	3rd	28·707	6th	·159	80·3	91·7	+3·8	75·3	+1·4	83·5	+2·6	16·4	96·9	24th	73·2	5th & 8th.	23·7
	Amraoti	1,215	28·472	+·040	29·639	28·553	3rd	28·416	25th	·137	77·5	89·5	+2·9	74·5	+1·5	82·1	+2·2	15·0	95·4	25th	70·8	5th	24·6

* Mean of 28 days. † Mean of 30 days. ‡ Mean of 23 days. ‖ Mean of 22 days.

I—*continued.*

in India, Burma, etc., in July 1893—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 1893.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
7	...	1	...	15	...	1	2	5	2·0	?	?	87	·926	6·7	15	?	?	8·83	10·86	−2·03	12·72	14·69	−1·97	1·81	Umballa .	Punjab (Sub-montane).
8	...	1	1	5	9	...	6	1	2·8	2·0	+40	79	·897	7·0	7	9·36	−2·36	10·81	11·20	−0·39	12·96	13·67	−0·71	6·42	Ludhiana.	
12	1	1	15	2	...	...	...	...	2·1	2·5	−16	82	·893	5·0	13	8·45	+4·55	15·51	7·67	+7·84	23·47	11·18	+12·29	2·45	Sialkot .	Punjab, North.
13	1	4	6	6	1	...	...	...	1·2	2·1	−43	88	·869	5·8	13	8·64	+4·36	20·65	7·12	+13·53	25·75	8·78	+16·97	9·80	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·41	3·06	+1·23	...	...	...	...	**7. Indus Valley and North-West Rajputana.**	
5	7	4	1	2	2	...	3	7	4·8	4·4	+9	76	·869	4·5	10	1·91	+8·09	6·89	1·44	+5·45	6·95	1·91	+5·04	1·88	Peshawar .	Punjab, West.
					Not recorded.				?	?	?	?	?	?	6	?	?	5·81	?	?	12·77	?	?	1·81	Mardan.	
6	3	10	9	1	2	...	...	...	3·4	?	?	72	·913	3·9	2	3·2	−1·2	1·01	2·86	−1·85	1·37	3·56	−2·19	0·59	Khushab.	
3	1	2	3	4	7	10	1	...	8·4	?	?	67	·882	3·2	4	3·6	+0·4	1·45	3·06	−1·61	3·45	4·35	−0·90	0·70	Montgomery	
13	1	6	7	...	3	1	...	...	1·9	2·4	−21	75	·971	2·8	4	3·64	+0·36	2·66	2·61	+0·05	3·39	3·13	+0·26	1·29	D. I. Khan.	
4	...	5	...	11	1	9	...	1	2·6	3·4	−24	70	·895	3·0	3	2·82	+0·18	6·04	2·17	+3·87	6·04	2·85	+3·19	3·62	Mooltan.	
...	...	1	4	6	...	6	14	...	8·5	4·8	+77	78	·890	5·0	9	5·55	+3·45	6·16	4·04	+2·12	9·28	5·94	+3·34	2·13	Sirsa.	
6	...	1	5	16	3	...	...	...	5·7	5·3	+8	70	·941	2·3	1	1·45	−0·45	0·13	1·54	−1·41	1·46	1·54	−0·08	0·13	Jacobabad .	Sind and Cutch.
1	...	...	...	...	4	26	...	...	28·3	13·9	+104	70	·810	2·9	2	3·18	−1·18	0·86	2·86	−2·00	2·04	3·00	−0·96	0·56	Hyderabad.	
...	...	...	...	...	...	15	16	...	14·1	17·8	−21	88	·986	8·3	3	3·64	−0·64	0·76	3·64	−2·88	7·26	3·76	+3·50	0·34	Kurrachee.	
...	...	...	...	...	1	10	20	...	20·0	16·6	+20	84	·863	8·1	8	?	?	6·09	6·42	−0·33	11·12	8·41	+2·71	2·33	Bhuj.	
...	...	2	2	...	13	13	1	...	8·1	6·7	+21	71	·828	5·1	5	?	?	4·44	3·48	+0·96	5·50	5·30	+0·20	1·63	Bickaneer .	Rajputana, West.
5	...	...	...	4	12	10	...	...	12·5	9·8	+28	79	·837	10·0	6	?	?	15·05	2·64	+12·41	21·41	3·33	+18·08	6·47	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·65	11·69	−3·17	...	...	...	...	**8. East Rajputana, Central India and Guzerat.**	
3	...	...	3	2	5	18	...	...	5·1	6·2	−18	84	·827	7·7	14	12·90	+1·10	10·30	9·61	+0·69	13·93	11·92	+2·01	2·01	Jeypore .	Rajputana, East.
1	...	...	1	1	3	5	20	...	7·5	9·1	−18	82	·822	6·4	10	10·20	−0·20	10·27	7·96	+2·31	12·61	9·27	+3·34	2·11	Sambhar.	
1	...	...	...	...	1	10	19	...	8·9	6·9	+29	85	·804	7·0	9	10·27	−1·27	8·40	8·13	+0·27	12·59	10·56	+2·03	2·55	Ajmere.	
...	...	...	...	...	4	24	3	...	14·0*	14·5	−4	87	·850	9·0	13	10·73	+2·27	13·59	10·79	+2·80	22·67	12·52	+10·15	6·79	Deesa.	
...	...	...	...	...	...	7	23	1	14·2	14·5	−2	84	·848	8·4	9	12·91	−3·91	5·58	14·11	−8·53	20·08	18·94	+1·14	1·60	Rajkot .	Kattywar.
...	...	...	...	...	...	4	25	2	10·4	?	?	88	·914	7·9	5	?	?	1·13	?	?	10·25	?	?	0·16	Veraval.	
...	...	...	...	...	1	30	...	...	20·1	?	?	81	·914	6·5	4	?	?	0·86	?	?	6·82	?	?	0·34	Bhavnagar.	
1	...	...	...	...	...	8	22	...	4·1	4·2	−2	81	·842	8·6	13	15·73	−2·73	10·25	15·70	−5·45	20·15	20·75	−0·60	1·99	Nowgong .	Central India.
1	...	...	...	...	2	12	14	2	5·9	6·8	−13	90	·779	7·6	7	13·73	−6·73	3·40	9·72	−6·32	18·03	16·68	+1·35	0·85	Indore.	
...	...	...	...	...	2	11	18	...	15·3	12·2	+25	85	·786	6·8	5	11·73	−6·73	2·61	10·48	−7·87	15·69	14·57	+1·12	0·93	Neemuch.	
...	...	...	...	1	1	14	11	4	?	15·7	?	85	·901	7·4	16	16·45	−0·45	10·75	16·34	−5·59	34·16	24·65	+9·51	3·50	Surat .	Guzerat.
2	...	...	...	...	...	17	7	1	5·4	?	?	86	·896	8·8	16	?	?	11·41	?	?	28·49	?	?	2·65	Ahmedabad‡	
2	...	...	...	6	...	15	...	8	5·4	5·0	+8	83	·883	7·8	17	13·00	+4·00	12·09	11·74	+0·35	13·86	14·58	−0·72	3·90	Agra . .	N.-W. P., West.
2	3	1	...	...	4	17	2	2	3·5	4·1	−15	78	·830	4·6	14	14·36	−0·36	6·41	13·96	−7·55	17·45	18·08	−0·63	1·39	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·23	10·93	−4·03	...	...	...	...	**9. Deccan.**	
...	1	...	...	...	...	6	19	5	?	27·9	?	91	·672	9·4	11	22·91	−11·91	3·86	15·71	−11·85	16·19	23·18	−6·99	0·69	Belgaum .	Bombay, Deccan.
...	...	...	...	...	...	10	15	6	12·8	12·3	+4	75	·680	8·6	6	9·45	−3·45	2·65	4·82	−2·17	9·14	10·07	−0·93	1·12	Sholapur.	
...	...	...	...	...	...	4	18	1	12·0§	16·9	−29	80‖	·688	8·5‖	5	12·73	−7·73	2·13	6·97	−4·84	17·26	11·32	+5·94	0·76	Poona.†	
...	...	...	...	...	...	12	15	4	9·9	?	?	80	·676	9·5	7	6·4	+0·6	2·23	3·07	−0·84	5·08	5·86	−0·78	0·83	Bijapur.	
2	...	..	...	...	...	13	13	3	16·6	11·8	+40	86	·829	7·1	6	8·55	−2·55	1·27	5·44	−4·17	5·53	10·43	−4·90	0·56	Malegaon .	Khandesh.
1	2	...	...	1	...	8	16	3	16·8	?	?	82	·707	7·7	2	?	?	0·35	3·29	−2·94	6·72	8·24	−1·52	0·17	Ahmednagar.	
...	...	...	...	...	...	6	23	2	8·9	8·4	+6	72	·742	6·8	7	13·18	−6·18	2·44	11·17	−8·73	7·23	17·03	−9·80	0·51	Akola .	Berar.
...	...	...	...	...	1	4	18	8	6·2	7·6	−18	80	·758	7·6	9	12·73	−3·73	7·77	10·71	−2·94	11·62	18·38	−6·76	2·58	Amraoti.	

* Mean of 17 days.
§ „ 21 „

† Wind directions of 23 days.
‖ Mean of 23 days.

‡ Wind directions of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 199 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Provinces, West.	Khandwa	1,044	28·635	+·039	29·633	28·720	3rd	28·549	6th	·171	77·8	88·3	+1·3	74·9	+0·2	81·6	+0·8	13·4	92·2	23rd	72·6	2nd & 7th.	19·6
	Hoshangabad	1,020	28·637*	+·027	29·615*	28·708	3rd	28·576	6th	·132	77·1	86·6	+0·4	74·4	−0·5	80·5	−0·1	12·2	90·8	29th	71·7	13th	19·1
	Nagpur	1,025	28·644	+·038	29·619	28·726	2nd	28·583	14th	·143	79·4	89·3	+2·2	75·1	+0·6	82·2	+1·4	14·2	95·5	25th.	72·1	6th	23·7
Central Provinces, Central.	Chanda	634	29·058	?	29·637	29·147	3rd	28·992	24th	·155	79·1	88·6	?	75·1	?	81·9	?	13·5	94·4	1st	73·0	3 days	21·4
	Seoni	2,030	...	Not	recorded.			...	...	...	77·2	83·4	− 0·1	71·8	−0·6	77·6	−0·4	11·6	89·2	1st & 25th	70·1	5th & 15th	19·1
	Jubbulpore	1,327	28·322	+·046	29·600	28·403	2nd	28·252	6th	·151	77·7	86·1	+0·3	74·6	+0·1	80·4	+0·2	11·5	90·9	29th	72·6	6th	18·3
	Saugor	1,762	27·888	+·042	29·591	27·967	2nd	27·822	6th	·145	76·4	84·8	−0·2	73·0	−0·5	78·9	−0·4	11·8	90·8	31st	71·1	25th & 26th	19·7
Central Provinces, East.	Raipur	970	28·692	+·054	29·609	28·786	2nd	28·619	14th	·167	78·5	88·0	+1·8	74·6	+0·1	81·3	+1·0	13·4	93·4	1st & 10th.	71·7	18th	21·7
	Sutna	1,040	28·559	+·035	29·552	28·640	2nd	28·496	14th	·144	79·8	86·6	0	76·7	0	81·7	0	9·9	92·1	29th	71·1	5th	21·0
	Sambalpur	463	29·166	+·048	29·576	29·273	2nd	29·069	31st	·204	80·2	87·6	+0·3	76·8	−0·7	82·2	−0·2	10·8	92·5	25th	74·2	3 days	18·3
Hyderabad, North.	Aurangabad	?	27·882	?	?	27·970	3rd	27·779	25th	·191	77·8	88·7†	?	70·6	?	79·6†	?	18·1	93·9	24th	67·6	20th	26·3
	Indur	?	...	Not	recorded.			...	...	...	77·2	87·3	?	74·0	?	80·7	?	13·3	92·3	21st	70·2	25th.	22·1
	Bidar	?	27·592	?	?	27·660	3rd	27·498	24th	·162	73·4	84·0	?	69·9	?	76·9	?	14·1	90·5	1st	67·2	28th	23·3
Hyderabad, South.	Gulburga	?	28·251	?	?	28·327	3rd	28·164	24th	·163	75·3	88·3	?	71·2	?	79·8	?	17·1	94·2	1st	68·6	27th	25·6
	Raichur	?	...	Not	recorded.			...	...	...	76·2	87·0	?	72·9	?	80·0	?	14·1	91·1	1st & 21st	70·1	26th	21·0
	Hyderabad (Deccan).	1,690	28·056	?	29·689	28·133	3rd	27·962	24th	·171	75·2	85·9	?	72·6	?	79·3	?	13·3	90·9	23rd & 24th	68·7	30th	22·2
	Secunderabad	1,787	27·982	+·026	29·709	28·055	3rd	27·895	24th	·160	75·2	86·9	+0·9	71·8	+0·8	79·3	+0·9	15·1	92·6	23rd.	67·9	30th	24·7
	Khamamet	369	29·350	?	29·586	29·447	2nd	29·274	24th	·173	80·3	89·9	?	76·3	?	83·1	?	13·6	95·5	23rd	71·8	30th & 31st	23·7
10. West Coast		...	...	−·009	...	...	...	...	...	...	...	82·4	−0·3	74·7	+0·1	78·6	−0·1	7·7	...	...	...	...	12·7
Konkan	Bombay	37	29·726	+·022	29·703	29·841	3rd	29·684	25th	·157	79·7	84·9	+0·8	77·0	−0·2	81·0	+0·3	7·9	87·5	13th	74·5	3rd & 4th.	13·0
	Ratnagiri	110	29·677	+·012	29·725	29·780	3rd	29·610	24th	·170	79·8	84·5	+0·8	76·1	+0·8	80·3	+0·8	8·4	86·9	17th	73·9	5 days	13·0
	Mormugoa	60	29·765	?	29·760	29·873	3rd	29·679	24th	·194	78·3	83·4	?	75·2	?	79·3	?	8·2	86·0	7 days	71·4	5th	14·6
	Goa	23	29·812	−·007	29·749	29·905	3rd	29·727	24th	·178	77·2	80·4	?	74·1	?	77·3	?	6·3	82·5	17th & 18th	71·0	5th & 6th.	11·5
	Karwar	44	29·781	−·011	29·757	29·854	3rd	29·700	24th	·154	77·3	82·1	−1·0	75·2	+0·7	78·7	−0·2	6·9	85·2	19th	73·2	28th	12·0
Malabar	Cochin	10	29·879	−·021	29·816	29·965	3rd	29·829	15th & 24th	·136	76·2	82·6	−0·7	73·6	−0·2	78·1	−0·5	9·0	85·2	1st & 14th	71·7	6th & 8th.	13·5
	Calicut	27	29·842	−·035	29·799	29·933	3rd	29·777	24th	·156	75·7	81·6	?	73·3	?	77·5	?	8·3	84·3	11th	71·1	22nd & 25th.	13·2
	Mangalore	26	29·833	−·023	29·791	29·901	3rd	29·764	24th	·137	76·1	81·3	−1·4	73·2	−0·8	77·3	−1·1	8·1	84·3	7th & 21st	71·9	26th	12·4
	Trivandrum	198	29·680	?	29·810	29·758	31st	29·621	15th	·137	75·6	80·5	?	74·4	?	77·5	?	6·1	84·0	13th	72·5	25th	11·5
11. South India		...	...	−·005	...	...	...	...	...	...	...	88·0	−1·2	73·7	−0·4	80·9	−0·8	14·3	...	...	...	...	22·3
Madras, South.	Pamban	37	29·775	?	29·739	29·832	27th	29·718	24th	·114	82·9	88·7	?	78·9	?	83·8	?	9·8	91·3	8th & 26th.	73·2	25th	18·1
	Tinnevelly	168	29·652	?	29·749	29·716	29th	29·588	24th	·128	84·1	94·8	?	79·2	?	87·0	?	15·6	100·3	2nd	76·4	13th	23·9
	Madura	447	29·358	−·022	29·741	29·424	3rd	29·285	24th	·139	79·9	93·2	−4·6	74·5	−1·6	83·9	−3·1	18·7	99·5	8th	71·5	10th & 15th.	28·0
Madras, South, Central.	Salem	940	28·893	−·023	29·773	28·954	3rd	28·829	24th	·125	77·5	89·7	−3·0	72·8	+0·7	81·3	−1·2	16·9	92·9	7th	71·0	25th	21·9
	Coimbatore	1,348	28·467	−·024	29·763	28·525	29th	28·388	24th	·137	74·2	89·8	+1·9	69·5	−1·3	79·6	+0·3	20·3	91·3	18th	68·1	5th & 6th	23·2
Coorg	Mercara	3,781	26·158	?	29·805	26·220	3rd	26·112	25th	·108	64·0	68·7	−0·4	62·6	+0·7	65·7	+0·2	6·1	72·0	3rd	60·2	5th	11·8
	Chitaldroog	2,405	27·416	?	29·750	27·483	3rd	27·335	24th	·148	71·7	81·2	?	67·3	?	74·3	?	13·9	84·6	3rd	65·9	27th & 30th.	18·7
Mysore	Bangalore Bazar	2,982	26·895	−·017	29·785	26·963	3rd	26·826	24th	·137	69·6	80·1	−1·8	66·0	+0·5	73·1	−0·7	14·1	83·2	9th & 10th.	63·5	30th	19·7
	Bangalore Fort	3,019	26·851	−·029	29·772	26·927	3rd	26·778	24th	·149	68·8	79·7	−1·8	66·0	+0·5	72·9	−0·7	13·7	83·3	10th	63·3	5th & 30th.	20·0
	Hassan	3,091	26·794	?	29·782	26·870	3rd	26·726	24th	·144	70·0	78·0	?	63·9	?	71·0	?	14·1	82·7	10th	61·8	20th	20·9
	Mysore	2,518	27·347	?	29·794	27·415	3rd	27·275	24th	·140	71·1	81·9	?	66·8	?	74·4	?	15·1	86·4	10th	65·0	30th	21·4
Madras, East Coast, South.	Negapatam	31	29·779	−·003	29·739	29·835	2nd	29·700	24th	·135	80·6	91·8	−3·4	75·8	−2·1	83·9	−2·8	16·0	98·7	7th	72·7	20th & 29th	26·0
	Cuddalore	12	29·773	?	29·714	29·831	27th	29·698	25th	·133	81·5	92·5	?	76·8	?	84·7	?	15·7	97·8	18th	72·7	1st	25·1
	Trichinopoly	255	29·549	−·022	29·737	29·604	3rd	29·478	24th	·126	80·6	95·2	−1·8	76·7	−0·6	86·0	−1·2	18·5	100·1	7th	73·9	19th	26·2
	Madras	22	29·754	−·012	29·707	29·821	8th	29·671	24th	·150	81·7	92·6	−2·6	76·5	−2·0	84·6	−2·3	16·1	98·0	7th	72·5	1st	25·5

* Mean of 29 days. † Mean of 30d ays

I—*continued.*

in India, Burma, etc., in July 1893—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 1893.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	...	...	...	2	22	7	9·6	8·4	+ 14	80	·760	6·1	4	11·91	−7·91	1·45	9·82	− 8·37	10·52	16·12	− 5·60	0·50	Khandwa	Central Provinces, West.
1	...	...	...	...	2	14	14	...	3·1	4·5	− 31	89	·841	8·2	12	17·27	−5·27	3·66	19·53	−15·87	18·87	27·96	− 9·09	0·77	Hoshangabad.	
1	1	...	1	...	3	7	12	6	6·8	7·9	− 14	82	·822	8·6	14	17·64	−3·64	7·59	15·43	− 7·84	17·43	25·17	− 7·74	2·24	Nagpur.	
2	...	...	...	1	4	6	12	6	4·3	6·2	− 31	80	·802	8·0	18	?	?	11·48	?	?	17·70	?	?	2·10	Chanda	Central Provinces, Central.
...	...	...	...	...	...	18	9	4	9·7	6·2	+ 56	86	·806	3·8	20	18·64	+1·36	8·48	17·40	− 8·92	19·25	28·90	− 9·65	2·48	Seoni.	
1	...	...	...	1	1	8	19	1	3·8	5·0	− 24	85	·806	8·6	15	19·27	−4·27	9·86	21·73	−11·87	30·57	31·71	− 1·14	2·35	Jubbulpore.	
1	...	...	...	...	...	15	14	1	7·0	5·1	+ 37	86	·784	6·2	10	15·64	−5·64	9·55	14·86	− 5·31	25·30	21·18	+ 4·12	3·22	Saugor.	
2	...	...	...	...	...	15	14	...	7·6	11·6	− 35	89	·858	9·0	17	16·36	+0·64	13·29	16·92	− 3·63	16·73	28·46	−11·73	2·23	Raipur	Central Provinces, East.
...	...	...	...	1	7	2	21	...	7·7	9·4	− 18	83	·840	6·8	13	15·73	−2·73	12·90	14·75	− 1·85	22·80	20·48	+ 2·32	4·27	Sutna.	
...	...	...	...	1	6	19	2	3	5·4	3·6	+ 50	87	·897	8·2	22	?	?	15·04	20·97	− 5·93	31·13	31·54	− 0·41	3·83	Sambalpur.	
...	...	...	...	...	2	14	11	4	6·8	?	?	73	·698	7·2	4	?	?	1·15	7·37	− 6·22	8·27	13·71	− 5·44	0·35	Aurangabad	Hyderabad, North.
...	...	...	...	...	...	3	17	11	10·6	?	?	87	·808	8·7	16	?	?	9·31	10·64	− 1·33	16·98	15·24	+ 1·74	1·78	Indur.	
...	2	...	...	...	...	3	11	15	9·2	?	?	91	·751	6·1	14	?	?	12·06	9·29	+ 2·77	27·60	15·59	+12·01	4·20	Bidar.	
2	2	...	...	...	...	3	11	13	13·7	?	?	82	·714	9·2	12	?	?	6·93	4·89	+ 2·04	16·84	9·71	+ 7·13	1·61	Gulburga	Hyderabad, South.
...	...	...	...	...	...	9	16	6	9·9	?	?	82	·743	7·1	19	?	?	12·51	4·02	+ 8·49	14·94	7·92	+ 7·02	2·07	Raichur.	
...	...	...	...	...	...	2	28	1	7·2	?	?	83	·728	9·1	15	?	?	7·57	6·33	+ 1·24	16·25	10·93	+ 5·32	2·00	Hyderabad (Deccan).	
...	...	...	...	...	...	3	18	10	9·4	13·3	− 29	79	·694	4·9	13	12·91	+0·09	11·58	7·15	+ 4·43	19·25	11·83	+ 7·42	2·37	Secunderabad.	
11	1	...	...	...	2	3	10	4	6·5	?	?	83	·871	4·9	10	?	?	10·92	?	?	19·88	?	?	2·49	Khamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19·84	31·44	−10·73	...	...	...	...	**10. West Coast.**	
...	1	3	2	...	1	8	15	1	14·3	19·1	− 26	86	·883	8·5	20	21·91	−1·91	15·78	27·87	−12·09	37·18	47·78	−10·60	3·86	Bombay	Konkan.
2	1	2	1	3	1	9	3	9	6·1	13·7	− 55	88	·890	8·3	26	26·36	−0·36	17·34	33·80	−16·46	56·90	64·76	− 7·86	2·01	Ratnagiri.	
2	...	2	1	...	2	1	16	7	9·7	?	?	90	·873	7·4	25	?	?	29·33	?	?	53·59	?	?	3·94	Mormugao.	
11	1	1	1	...	...	5	12	...	8·5	?	?	91	·844	8·6	27	?	?	22·15	32·83	−10·68	49·92	63·19	−13·27	3·92	Goa.	
8	12	...	...	...	...	...	11	...	2·7	?	?	90	·839	7·5	27	27·45	−0·45	28·27	37·17	− 8·90	57·86	75·76	−17·90	2·42	Karwar.	
5	3	3	4	1	...	...	5	10	5·8	?	?	89	·813	8·0	21	23·91	−2·91	10·90	22·36	−11·46	38·87	51·86	−12·99	1·66	Cochin	Malabar.
14	4	1	1	...	...	2	1	8	11·2	?	?	92	·818	9·1	27	26·63	+0·37	15·77	29·79	−14·02	61·89	63·76	− 1·87	2·60	Calicut.	
14	4	2	1	1	...	...	3	6	1·7	3·2	− 47	93	·841	9·6	30	28·10	+1·90	34·74	36·26	− 1·52	67·23	72·55	− 5·32	3·38	Mangalore.	
...	15	...	...	...	...	...	3	13	9·8	?	?	94	·836	8·7	9	?	?	4·29	?	?	13·53	?	?	1·06	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·94	5·53	+0·75	...	...	...	...	**11. South India.**	
1	...	2	2	3	5	8	10	...	6·0	?	?	77	·869	4·5	1	1·30	−0·30	0·23	0·71	− 0·48	0·69	0·75	− 0·06	0·10	Pamban	Madras, South.
...	2	...	...	...	...	2	10	17	10·1	?	?	57	·676	7·4	1	0·90	+0·10	0·87	0·19	+ 0·68	2·54	0·95	+ 1·59	0·87	Tinnevelly.	
6	8	...	...	...	...	...	3	14	0·9	4·6	− 80	73	·750	5·9	10	1·45	+8·55	11·78	1·04	+10·74	13·01	2·23	+10·78	4·90	Madura.	
3	...	...	...	...	11	15	2	...	3·9	4·7	− 47	79	·758	7·7	9	6·91	+2·09	4·08	3·53	+ 0·55	8·92	7·13	+ 1·79	0·85	Salem	Madras, South, Central.
...	...	...	...	1	19	9	2	...	3·4	8·2	− 59	89	·758	6·7	3	4·36	−1·36	0·98	1·34	− 0·36	2·76	2·90	− 0·14	0·49	Coimbatore.	
1	2	...	...	...	...	...	12	16	10·6	11·3	− 7	94	·572	9·6	31	29·30	+1·70	16·17	43·05	−26·88	42·61	69·67	−27·06	2·01	Mercara	Coorg.
...	..	...	...	...	...	12	16	3	10·9	?	?	83	·653	9·2	8	?	?	2·74	?	?	10·56	?	?	0·55	Chitaldroog	
...	...	...	...	...	1	15	14	1	9·2	8·6	+ 7	87	·634	9·0	12	9·00	+3·00	6·91	4·68	+ 2·23	12·52	7·41	+ 5·11	2·35	Bangalore Bazar.	Mysore.
...	...	...	...	...	...	10	20	1	7·0	?	?	90	·641	9·0	14	?	?	6·65	?	?	11·73	?	?	1·56	Bangalore Fort.	
...	...	...	...	...	...	9	12	10	4·7	?	?	85	·621	8·5	4	?	?	2·70	?	?	7·84	?	?	1·65	Hassan.	
...	...	...	...	...	...	15	15	1	13·9	?	?	84	·638	8·4	8	?	?	3·94	?	?	11·48	?	?	1·35	Mysore	
8	...	...	...	...	3	3	14	3	4·6	7·1	− 35	74	·780	7·6	11	3·64	+7·36	7·09	1·48	+ 5·61	9·74	3·35	+ 6·39	2·42	Negapatam	Madras, East Coast, South.
...	...	...	...	...	3	6	12	10	2·5	?	?	85	·922	6·6	5	5·6	−0·6	5·93	3·29	+ 1·64	8·11	4·99	+ 3·12	2·38	Cuddalore.	
5	...	...	...	...	...	6	17	3	5·2	9·9	− 47	70	·727	7·6	6	2·18	+3·82	1·91	1·52	+ 0·39	4·48	3·03	+ 1·45	0·53	Trichinopoly.	
2	...	...	...	...	5	15	9	...	5·6	8·3	− 33	78	·853	7·7	7	7·00	0	4·08	3·91	+ 0·17	5·24	6·36	− 1·12	1·22	Madras.	

Table

Abstract of Observations taken at 8 A.M. at 199 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras, East Coast, Central.	Nellore	71	29·677	?	29·681	29·754	2nd	29·586	24th	·168	83·2	94	?	78·1	?	86·3	?	16·3	99·8	24th	72·6	8th	27·2
	Masulipatam	15	29·710	+·003	29·660	29·800	2nd	29·635	25th	·165	81·9	91·4	−0·8	77·0	−1·0	84·2	−0·9	14·4	97·7	19th	66·7	26th	31·0
Madras, Central	Cuddapah	433	29·354	−·012	29·727	29·430	3rd	29·263	24th	·167	80·2	91·4	−2·9	75·4	−2·3	83·4	−2·6	16·0	97·1	25th	71·7	31st	25·4
	Kurnool	923	28·852	+·002	29·716	28·932	2nd	28·757	24th	·175	78·6	89·2	−1·4	74·1	−0·1	81·7	−0·8	15·1	93·5	5 days	71·4	2nd & 31st	22·1
	Bellary	1,475	28·324	+·022	29·738	28·399	3rd	28·229	24th	·170	77·8	89·6	− 1·5	73·7	−0·5	81·7	−1·0	15·9	94·4	3 days	70·5	26th	23·9
Madras, East Coast, North.	Rajahmundry	112	29·594	+·015	29·642	29·701	2nd	29·537	24th & 25th	·164	81·8	91·1	+ 2·7	77·8	+0·6	84·5	+1·7	13·3	98·0	24th	74·1	14th	23·9
	Cocanada	26	29·673	+·024	29·634	29·795	2nd	29·606	31st	·189	82·0	90·8	+ 3·1	78·6	+0·6	84·7	+1·9	12·2	96·7	19th & 22nd	75·0	31st	21 7
	Vizagapatam	31	29·648	+·021	29·616	29·778	2nd	29·549	31st	·229	84·9	87·4	− 0·2	82·2	+1·8	84·8	+0·8	5·2	90·4	13th	79·4	31st	11·0
	Gopalpur	21	29·631	?	29·592	29·744	2nd	29·507	31st	·237	82·2	88·0	?	77·9	?	83·0	?	10·1	94·2	30th	74·8	15th	19·4
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Kuch	?	23·793*	?	?	23·850	6 days	23·700	19th	·150	77·7*	?	?	?	?	?	?	?	?	...	?	...	?
	Quetta	5,502	24·429	+·015	?	24·497	9th	24·342	4th	·155	76·1	90·7	− 1·8	64·1	−1·4	77·4	−1·6	26·6	95·1	14th & 15th	54·4	31st	40·7
	Shirino	?	?	?	?	?	...	?	...	?	81·0†	97·9†	?	80·7†	?	89·3†	?	17·2	102·4	19th	74·2	20th	28·2
	Kalat		?	?	?	?	?	?	?	?	78·2	87·2	?	55·1	?	71·1	?	32·1	94·4	7th	41·0	19th	53·4
	Chaman	5,488	?	?	?	?	...	?	...	?	86·2	100·5	?	73·4	?	87·0	?	27·1	101·0	14th	65·6	19th	41·4
Northern India	Srinagar	5,204	24·637‡	?	?	24·713	8th	24·527	4th	·186	71·6a	81·8a	?	66·6a	?	74·2a	?	15·2	91·3	15th	59·7	20th	31·6
	Gilgit	?	25·157	?	?	25·660	21st	24·900	5th & 15th	·760	80·6	96·5	?	73·2	?	84·9	?	23·3	113·2	15th	60·2	21st	53·0
	Cherat	?	25·470	?	?	25·570	9th	25·345	4th	·225	73·4	84·4	?	69·5	?	76·9	?	14·9	94·4	25th	62·7	20th	31·7
	Murree	6,344	23·668	−·037	?	23·746	9th	23·577	20th	·169	64·3	71·6	− 6·0	60·1	−2·8	65·9	−4·4	11·5	78·6	4th	51·8	20th	26·8
	Simla	7,224	22·966	−·019	?	23·032	9th	22·902	14th	·130	61·8	66·8	− 5·0	59·2	−1·4	63·0	−3·2	7·6	71·4	3rd	57·2	28th	14·2
	Chakrata	7,052	23·094	−·024	?	23·168	9th	23·008	24th	·160	63·5	69·6	− 0·2	60·2	+0·2	64·9	0	9·4	76·3	15th	57·8	11th	18·5
	Mussoorie	?	23·390	?	?	23·454	9th	23·294	24th	·160	63·2	68·9	− 0·7	60·6	+0·1	64·8	−0·3	8·3	73·3	19th	58·9	3 days	14·4
	Ranikhet	6,069	23·916	−·028	?	24·006	9th	23·834	24th	·172	66·4	72·9	−0·7	62·4	−0·3	67·7	−0·5	10·5	76·5	17th	60·0	11th	16·5
	Gnatong	?	18·999	?	?	19·051	8th & 9th	18·962	12th & 25th	·089	48·5*	53·0b	?	37·8*	?	45·4b	?	15·2	56·9	6th	35·1	5th & 6th	21·8
	Darjeeling	7,421	22·873	−·009	?	22·950	9th	22·803	24th & 25th	·147	59·9	64·7	− 1·6	56·7	−0·6	60·7	−1·1	8·0	68·6	16th	54·1	6th	14·5
	Gantok	?	24·321	?	?	24·416	9th	24·229	14th	·187	65·2*	73·9	?	61·4	?	67·7	?	12·5	81·2	31st	58·9	4th	22·3
Central India	Mount Abu	3,945	25·822	−·007	?	25·904	3rd	25·748	6th & 7th	·156	65·3	70·2	− 4·8	63·9	−1·7	67·1	−3·3	6·3	73·1	3rd	61·9	8 days	11·2
	Pachmarhi	3,528	26·275	+·058?	?	26·346	2nd	26·195	6th	·151	69·2	76·7	+ 1·4	67·5	−0·2	72·1	+0·6	9·2	81·2	28th	66·2	4 days	15·0
South India	Wellington	6,200	24·186	−·009	?	24·247	3rd	24·130	24th	·117	64·1	69·9	− 0·9	56·9	−1·4	63·4	−1·2	13·0	73·2	16th	53·2	3rd & 4th	20·0
	Kodaikanal	?	?	?	?	?	...	?	...	?	60·4	65·2	?	54·4	?	59·8	?	10·8	68·4	20th	52·1	30th	16·3
	Kottagiri	?	23·797	?	?	23·813	18th & 29th	23·775	1st	·038	61·5	69·0	?	55·6	?	62·3	?	13·4	71·4	6th	54·0	21st	17·4
13. Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ceylon	Colombo	40	29·847	−·032	29·813	29·939	29th	29·782	19th	·157	81·3	83·9	?	77·3	?	80·6	?	6·6	87·0	16th	73·5	3rd	13·5
Persia	Meshed	?	?	?	?	?	...	?	...	?	78·8	90·0	?	64·1	?	77·1	?	25·9	98·4	11th to 13th	55·8	24th	42· 6
	Isphahan	?	?	?	?	?	...	?	...	?	80·4*	97·8‡	?	67·1*	?	82·5	?	30·7	104·5	14th	59·1	26th	45·4
	Bushire	14	29·481	?	29·450	29·606	23rd	29·371	15th	·235	91·2	95·1	?	83·4	?	89·3	?	11·7	106·0	22nd	78·4	4th & 15th	27·6
Arabia	Muscat	?	29·520	?	?	29·624	23rd	29·406	6th	·218	88·5	90·3	?	87·4	?	88·9	?	2·9	95·3	7th	84·0	17th	11·3
	Baghdad	?	29·185	?	?	29·282	4th	28·978	25th	·304	90·0	107·4†	?	79·3	?	93·5†	?	28·1	111·8	18th	74·7	10th & 29th	37·1
	Aden	94	29·604b	?	29·628b	29·702	5th	29·509	20th	·193	86·3b	92·9*	?	83·8	?	88·4*	?	9·1	96·7	11th	80·8	27th	15·9
	Perim	?		Reading's	untrustworthy		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arabian Sea Islands.	Minicoy	10	29·894	?	29·829	29·960	29th	29·848	16th	·112	79·8	83·4	?	78·3*	?	80·9*	?	5·1	87·4	9th	74·2	2nd	13·2
Africa	Zanzibar	73	30·087c	?	30·088c	30·142	23rd	29·986	25th	·156	73·4c	79·8c	?	72·2§	?	76·0c	?	7·6	81·8	18th	69·3	1st	12·5

* Mean of 30 days.
† " " 24 "
‡ " " 28 "
§ " " 26 "

a Mean of 21 days.
b " " 29 "
c " " 25 "

I —*concluded.*

in India, Burma, etc., in July 1893 —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 1893.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	...	1	1	...	19	10	8·2	?	?	76	·855	8·7	8	4·7	+ 3·3	6·89	2·55	+ 4·34	9·21	3·81	+ 5·40	1·81	Nellore .	Madras, East Coast, Central.
3	..	...	...	...	2	1	6	19	7·3	9·7	— 25	84	·910	8·0	14	9·36	+ 4·64	9·88	5·69	+ 4·19	14·11	10·91	+ 3·20	2·25	Masulipatam.	
...	...	...	...	...	...	15	9	7	?	?	?	78	·799	8·8	12	6·00	+ 6·00	11·38	3·55	+ 7·83	18·88	6·81	+ 1·27	3·82	Cuddapah.	Madras, Central.
17	...	...	...	...	...	...	14	...	?	?	?	77	·754	9·5	11	9·83	+ 1·17	8·99	4·54	+ 4·45	12·53	8·29	+ 4·24	5·20	Kurnool.	
5	...	...	...	...	...	7	15	4	9·0	11·6	— 22	71	·668	7·6	9	3·91	+ 5·09	5·05	1·96	+ 3·09	8·13	3·55	+ 4·58	1·84	Bellary.	
2	1	...	...	...	...	1	19	8	?	?	?	80	·890	7·8	11	10·10	+ 0·90	6·52	7·81	— 1·29	9·68	13·05	— 3·37	2·30	Rajahmundry	Madras, East Coast, North.
...	1	...	...	.	...	17	11	2	7·6	?	?	82	·901	6·0	11	10·00	+ 1·00	5·78	6·91	— 1·13	11·89	12·79	— 0·90	1·43	Cocanada.	
...	...	..	...	...	2	4	23	2	1·6	4·0	— 60	76	·916	7·7	12	10·18	+ 1·82	5·76	4·91	+ 0·85	8·55	8·69	— 0·14	1·75	Vizagapatam.	
1	1	...	...	...	6	16	2	5	10·9	11·3	— 4	86	·939	3·0	10	11·33	— 1·33	6·36	8·03	— 1·67	12·43	15·03	— 2·60	1·80	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
...	4	2	12	...	...	...	9	...	?	?	?	?	?	?	0	?	?	0·07	?	?	0·07	?	?	0·07	Kuch (d) .	Baluchistan.
30	...	...	...	1	...	...	...	...	3·9	5·1	— 24	58	·530	0·7	0	1·36	— 1·36	0·04	0·63	— 0·59	0·04	0·73	— 0·69	0·04	Quetta.	
...	1	2	1	2	3	4	3	8	4·4	?	?	48†	·512†	0	0	?	?	0	?	?	?		?	0	Shirino.(c)	
...	...	...	1	...	11	1	...	18	?	?	?	?	?	?	1	?	?	0·30	?	?	0·84	?	?	0·24	Kalat.	
...	...	...	...	2	4	22	3	...	6·4	?	?	28	·344	0·2	0	?	?	0	?	?	0	?	?	0	Chaman.	
22	...	...	1	3	1	...	1	...	1·4**	?	?	87**	·684**	5·0‡	7	?	?	6·31	?	?	7·86	?	?	2·12	Srinagar (a)	Northern India.
...	...	...		Not	recorded.		...	...	?	?	?	49	·471	?	5	?	?	2·30	?	?	2·31		?	1·19	Gilgit.	
17	2	2	...	2	7	1	...	...	5·5	?	?	82	·664	7·5	8	?	?	8·38	?	?	8·65	?	?	2·76	Cherat.	
2	2	...	1	7	1	2	3	13	8·8	5·7	+ 54	88	·532	7·1	19	12·00	+ 7·00	20·56	9·65	+10·91	31·61	12·16	+19·45	10·03	Murree.	
12	16	...	...	...	3	...	...	...	?	1·6	?	95	·523	9·2	22	19·27	+ 2·73	12·89	17·46	— 4·47	20·32	24·56	— 4·24	1·42	Simla.	
14	...	...	8	...	...	...	8	1	7·2	4·6	+ 57	94	·555	8·9	24	?	?	19·25	18·44	+ 0·81	30·35	25·14	+ 5·71	2·59	Chakrata.	
6	2	1	7	3	2	1	4	5	?	8·7	?	98	·569	9·2	28	21·91	+ 6·09	25·34	31·23	— 5·89	43·95	39·11	+ 4·84	2·95	Mussoorie.	
11	1	1	8	...	...	1	9	...	3·4	2·1	+ 62	87	·562	8·5	21	19·18	+ 1·82	12·49	13·31	— 0·82	19·80	18·89	+ 0·91	2·12	Ranikhet.	
...	1	2	6	5	2	3	5	6	7·0	?	?	92*	·315*	8·6*	31	?	?	28·01	?	?	50·70	?	?	2·57	Gnatong.(e)	
6	1	1	4	4	...	6	6	2	4·5	2·6	+ 73	98	·504	9·9	29	24·43	+ 4·57	25·06	29·46	— 4·40	52·38	54·00	— 1·62	2·42	Darjeeling.	
...	...	...	Not	recorded		...	...	...	?	?	?	96*	·599*	8·8	31	?	?	24·32	?	?	43·12	?	?	1·84	Gantok.	
...	...	...	...	...	...	13	17	1	12·3	10·5	+ 17	98	·586	9·6	19	16·73	+ 2·27	39·73	23·16	+16·57	63·87	27·96	+35·91	9·54	Mount Abu	Central India.
...	...	...	..	...	...	7	21	3	12·0	9·5	+ 26	90	·640	8·8	18	23·09	— 5·09	8·78	27·64	—18·86	28·50	38·22	— 9·72	1·12	Pachmarhi.	
15	..	...	...	2	1	9	2	2	2·9	5 8	— 50	74	·451	7·9	13	6·75	+ 6·25	11·40	3·03	+ 8·37	15·29	6·31	+ 8·98	2·97	Wellington.	South India.
...	...	1	...	3	...	2	1	24	11·0	?	?	76	·399	7·9	23	8·50	+14·50	13·33	4·92	+ 8·41	21·78	8·82	+12·96	1·80	Kodaikanal.	
2	...	...	...	...	...	...	20	9	4·3	?	?	77	·424	6·5	7	9·80	— 2·80	4·72	4·58	+ 0·14	10·00	7·01	+ 2·99	1·04	Kottagiri .	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
...	1	...	...	...	1	15	14	...	9·8	9·0	+ 9	75	·811	7·4	1	?	?	2·20	6·40	— 4·20	13·23	14·43	— 1·20	1·93	Colombo .	Ceylon.
14	...	...	1	3	3	3	4	3	?	?	?	?	?	0·6	0	?	?	0·07	?	?	0·07	?	?	0·07	Meshad .	Persia.
...	4	6	...	1	...	1	8	10	3·2‡	?	?	48*	·511*	0·5*	0	?	?	0	?	?	?	?	?	0	Isphahan(e)	
...	1	3	2	4	...	5	...	16	5·3	9·2	— 42	66*	·954*	?	0	?	?	0	?	?	0	?	?	0	Bushire.	
...	1	6	20	1	1	...	...	2	?	?	?	88*	1·116*	2·2	0	?	?	0	?	?	0	?	?	0	Muscat .	Arabia.
...	15	8	5	...	...	...	2	1	?	?	?	41††	·546††	?	0	?	?	0	?	?	0	?	?	0	Baghdad.	
2	...	...	6	6	9	4	2	...	10·9	9·4	+ 16	70‖	·881‖	2·7	0	?	?	0	0·01	— 0·01	0	0·01	— 0·01	0	Aden.(f)	
1	1	2	9	1	1	...	10	6	13·0	?	?	?	?	1·7	0	?	?	0	?	?	0		?	0	Perim.	
...	...	...	...	...	...	...	12	19	21·2	?	?	82	·836	6·9	14	?	?	10·29	?	?	18·74	?	?	2·40	Minicoy .	Arabian Sea Islands.
...	...	...	...	...	13	12	...	..	11·4§	?	?	86‖	·706‖	5·6§§	4	?	?	1·02	?	?	1·59	?	?	0·30	Zanzibar(b)	Africa.

†† Mean of 26 days.
* Do. „ 30 „
† Do. „ 24 „

** Mean of 21 days.
‡ Do. „ 28 „
§ Do. „ 23 „

‖ Mean of 29 days.
‖‖ Do. „ 25 „
§§ Do. „ 22 „

(a) Wind directions for 28 days.
(b) Do. „ 25 „
(c) Do. „ 24 „

(d) Wind directions for 27 days.
(e) Do. „ 30 „
(f) Do. „ 29 „

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 to 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	...	29·750	29·678	·072	29·721	−·025	29·713	85·4	77·2	8·2	87·8	73·7	14·1	83·6	82·6	80·1	−0·1	74·9	79·7	79·0	77·9
	Rangoon	...	·769	·688	·081	·735	−·002	·713	85·0	76·0	9·0	89·9	73·7	16·2	80·6	79·9	78·6	+0·5	74·4	78·3	77·2	76·6
	Diamond Island	...	·761	·683	·078	·729	−·009	·705	84·0	76·3	7·7	86·1	71·6	14·5	81·6	81·3	79·1	+0·8	74·8	77·6	77·2	76·5
	Coco's Island	111	·735	.663	·072	·699	?	·749	87·0	·767	10·3	91·4	70·1	21·3	82·9	83·1	80·4	?	74·5	79·8	79·7	78·0
	Akyab	...	·729	·645	084	·690	+·018	·653	84·7	77·3	7·4	87·7	74·9	12·8	81·4	82·5	80·1	+0·1	74·8	79·9	80·5	78·4
Assam.	Silchar	...	·596	·489	·107	·553	+·027	·607	86·6	76·5	10·1	90·7	73·9	16·8	81·8	83·5	80·5	−1·7	75·5	78·4	78·9	77·6
	Sibsagar	...	·341	·225	·116	·285	−·001	·570	88·5	77·2	11·3	92·2	74·5	17·7	82·6	86·6	81·8	−1·4	75·8	79·2	81·0	78·7
	Dhubri	...	·537	·431	·106	·492	+·009	·560	84·3	76·7	7·6	88·0	73·8	14·2	80·0	82·1	79·4	−2·2	75·1	77·7	78·6	77·1
Bengal and Orissa.	Chittagong	...	·632	·546	·086	·596	+·037	·631	84·5	75·9	8·6	87·7	73·1	14·6	82·0	81·8	79·1	−0·9	74·8	78·7	78·7	77·4
	Dacca	...	·631	·535	·096	·592	+·021	·562	87·7	79·2	8·5	90·0	75·1	14·9	83·4	84·2	82·8	−0·4	76·9	79·9	79·9	78·9
	Calcutta (Alipore)	...	·618	·525	·093	·578	+·040	·545	87·0	78·5	8·5	90·5	75·2	15·3	83·7	84·4	82·7	−0·3	77·1	79·7	80·2	79·0
	Ditto (Chowringhee).	?	·624	?	?	?	?	?	88·9	78·3	10·6	93·0	75·2	17·8	85·1	?	?	?	77·5	81·3	?	?
	Saugor Island	...	·619	·527	·092	·579	+·042	·548	87·3	80·1	7·2	90·2	77·0	13·2	84·4	85·2	82·7	−0·1	77·7	81·0	81·2	80·0
	Burdwan	...	·540	·439	·101	·497	+·042	·542	88·8	79·4	9·4	92·6	76·2	16·4	84·0	85·8	82·8	−1·1	77·5	79·6	80·5	79·2
	Berhampore	...	·562	·468	·094	·522	+·034	·538	87·5	79·0	8·5	91·7	76·8	14·9	83·2	84·2	81·9	−1·5	77·1	80·3	80·3	79·2
	False Point	...	·636	·548	·088	·597	+·030	·560	87·5	78·5	9·0	91·9	74·7	17·2	85·2	84·6	81·8	0	76·8	80·1	79·8	78·9
	Cuttack	...	·565	·467	·098	·525	+·025	·546	90·3	78·3	12·0	95·2	74·8	20·4	86·8	87·3	83·1	+0·6	76·3	78·9	79·3	78·2
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·635	27·553	·082	27·602	+·033	·525	84·2	72·7	11·5	89·2	70·4	18·8	79·5	79·7	77·0	−1·2	71·0	74·8	75·0	73·6
	Patna	...	29·420	29·310	·110	29·371	+·016	·505	87·9	79·0	8·9	93·7	75·2	18·5	84·5	83·9	81·8	−2·4	77·2	80·1	79·7	79·0
	Darbhanga	...	·452	·346	·106	·405	+·025	·523	87·2	78·6	8·6	90·1	76·0	14·1	82·2	85·7	81·8	−2·1	77·4	79·2	80·6	79·1
	Allahabad	...	·288	·187	·101	·240	+·031	·501	89·8	78·6	11·2	96·6	75·9	20·7	84·5	87·2	83·3	−1·2	76·2	79·1	80·1	78·5
	Ghazipur	220	·370	·272	·098	·325	+·029	·496	89·3	79·6	9·7	94·9	76·5	18·4	84·9	86·8	83·5	−0·3	76·9	80·0	80·6	79·2
	Lucknow	...	·211	·106	·105	·162	+·007	·490	89·6	77·6	12·0	95·5	75·1	20·4	84·2	86·6	82·6	−3·0	75·4	78·7	79·9	77·9
Upper Sub-Himalayas.	Dehra Dun	...	27·380	27·316	·064	27·341	−·009	·493	83·5	73·0	10·5	87·8	70·4	17·4	78·5	78·8	76·8	−2·9	71·5	74·9	75·6	74·0
	Roorkee	...	28·670	28·586	·084	28·625	+·003	·460	90·3	77·5	12·8	97·7	74·3	23·4	84·0	87·8	83·0	−1·6	75·1	78·2	79·5	77·6
	Meerut	...	·828	·742	·086	·782	+·015	·472	89·3	76·9	12·4	95·8	74·9	20·9	84·1	86·4	82·4	−3·0	76·0	77·8	78·8	77·6
	Lahore	...	·821	·750	·071	·785	+·012	·442	93·5	80·0	13·5	102·3	74·3	28·0	87·3	90·7	85·7	−2·3	76·6	80·4	80·7	79·2
	Ludhiana	...	·728	·643	·085	·684	0	·443	92·8	78·9	13·9	103·4	74·1	29·3	86·4	90·7	85·0	−1·5	76·7	78·9	80·0	78·5
Indus Valley and N.-W. Rajputana.	Peshawar	...	·423	·330	·093	·376	+·017	·426	97·2	77·7	19·5	105·0	71·4	33·6	88·3	95·3	86·6	−3·0	74·0	78·7	79·5	77·4
	Mooltan	...	29·088	29·013	·075	29·050	+·028	·422	100·6	83·3	17·3	105·9	75·1	30·8	90·9	99·2	91·2	−0·7	77·8	81·4	83·8	80·9
	Jacobabad	...	·308	·193	·115	·250	+·017	·386	106·0	83·2	22·8	110·9	79·5	31·4	94·5	103·0	93·4	−1·1	77·9	82·4	83·7	81·3
	Kurrachee	...	·533	·454	·079	·499	+·016	·498	88·5	79·0	9·5	90·9	77·0	13·9	84·7	86·0	82·6	−1·3	76·8	80·5	81·0	79·4
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·186	28·098	·088	28·143	+·025	·513	89·0	74·7	14·3	95·3	72·5	22·8	82·3	86·5	80·6	−3·2	72·6	76·3	77·5	75·5
	Ajmere	...	·020	27·945	·075	27·978	+·027	·525	85·6	75·4	10·2	90·2	73·6	16·6	80·4	84·7	79·3	−2·6	73·5	75·1	76·9	75·2
	Deesa	...	29·164	29·070	·094	29·119	+·022	·535	87·4	75·3	12·1	92·0	73·0	19·0	81·8	85·4	80·8	−3·0	74·2	76·5	77·2	75·9
	Nowgong	...	28·857	28·766	091	28·813	+·037	·514	88·8	76·3	12·5	94·3	74·2	20·1	83·5	85·6	81·2	−1·4	75·2	77·6	78·0	76·9
	Agra	...	29·043	28·956	·087	28·998	+·040	·504	88·8	78·0	10·8	94·6	75·5	19·1	84·1	86·2	83·4	−3·5	75·1	78·6	79·2	77·6
Deccan.	Belgaum	...	27·283	27·212	·071	27·248	−·003	·684	76·6	66·5	10·1	81·9	65·1	16·8	72·9	72·9	70·4	+0·3	65·8	69·6	69·7	68·3
	Sholapur	...	28·179	28·059	·120	28·128	+·007	·636	89·1	71·4	17·7	94·7	69·5	25·2	80·8	86·8	78·6	+0·7	68·9	71·8	72·9	71·2
	Poona	...	27·932	27·858	·074	27·897	+·023	·665	83·5	69·9	13·6	89·0	67·9	21·1	77·6	78·2	75·2	+0·2	68·0	71·4	71·5	70·3
	Akola	...	28·775	28·648	·127	28·712	+·021	·576	91·6	75·3	16·3	96·9	73·1	23·8	84·7	88·8	82·7	+2·5	72·1	75·0	75·6	74·2

II.

at 89 Stations in India, Burma, etc., for July 1893.

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.	Total rainfall for the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·837	·963	·942	·914	+·018	90	83	84	86	+ 1	8·5	8·7	8·6	+1·4	1	...	...	...	5	18	19	18	1	S 40° W	S 44° W	71	89	131	254	...	...	Port Blair	Burma Coast and Bay Islands.
·832	·940	·899	·889	+·004	93	90	88	90	0	9·4	9·6	9·5	+0·6	...	...	...	...	3	21	31	5	1	S 30° W	S 31° W	83	73	107	131	...	...	Rangoon	
·843	·895	·879	·873	—·004	93	83	82	86	— 2	8·6	9·2	8·9	+1·1	1	...	...	...	4	14	37	6	...	S 34° W	S 41° W	84	80	236*	210	...	...	Diamond Island	
·826	·979	·971	·925	?	90	87	85	88	?	7·6	8·3	7·9	?	...	...	...	...	...	9	45	1	...	S 39° W	?	84	?	460*	?	9·22	1·42	Coco's Island.	
·833	1·004	1·014	·950	+·037	89	93	91	91	+ 2	9·1	9·0	9·1	+0·5	...	2	3	5	8	37	7	...	...	S 10° E	S 4° E	71	68	69	96	...	...	Akyab	
·870	·931	·926	·909	—·023	95	86	81	87	+ 2	9·3	8·7	9·0	+1·1	40	2	...	3	1	2	6	5	3	S 70° W	N 6° W	13	3	69*	72	...	...	Silchar	Assam.
·876	·956	·983	·938	—·011	94	86	77	86	+ 2	7·8	6·7	7·3	—1·2	8	...	4	...	1	...	45	3	1	S 49° W	S 18° W	69	15	38	65	...	...	Sibsagar	
·842	·919	·937	·903	—·042	93	90	85	89	+ 3	8·9	8·3	8·6	+ 1·7	14	2	10	5	4	5	20	...	2	S 4° W	S 70° E	18	22	95	94	...	...	Dhubri	
·851	·939	·941	·911	—·001	95	86	87	89	+ 2	8·9	8·6	8·8	+1·2	...	...	...	...	8	30	22	2	...	S 13° W	S 40° E	85	63	126	172	...	...	Chittagong	Bengal and Orissa.
·895	·977	·967	·946	—·034	90	85	83	86	— 1	8·8	8·4	8·6	+0·7	...	...	1	2	9	36	14	...	...	S 1° W	S 19° E	84	80	224	173	...	...	Dacca	
·916	·961	·975	·951	—·022	94	83	83	87	0	9·1	9·0	9·1	+0·9	3	...	...	1	9	21	23	4	1	S 18° W	S 11° E	72	65	88	123	...	...	Calcutta (Alipore).	
·936	1·022	?	?	?	97	85	?	?	?	?	?	?	?	Not recorded.															10·90	1·27	„ (Chowringhee).	
·920	1·015	1·014	·383	—·019	89	86	84	86	0	9·4	9·4	9·4	+1·4	...	...	1	2	2	26	26	3	2	S 23° W	S 24° W	76	59	372	341	...	...	Saugor Island.	
·922	·952	·972	·949	—·006	92	82	79	84	+ 1	9·1	9·4	9·3	+1·0	6	...	3	7	17	21	8	...	...	S 23° E	S 26° E	64	47	144*	100	...	...	Burdwan	
·908	·997	·981	·962	0	91	87	83	87	0	9·2	9·1	9·2	+0·4	2	2	1	11	12	20	12	1	1	S 17° E	S 41° E	56	51	98	121	...	...	Berhampore	
·900	·963	·954	·939	+·002	92	80	80	84	— 1	7·9	8·2	8·1	0	...	2	1	1	3	26	14	15	...	S 31° W	S 59° W	66	64	271*	268	...	...	False Point	
·884	·885	·898	·889	—·011	91	69	70	77	— 3	6·3	7·7	7·0	—0·7	2	3	...	...	2	9	25	18	3	S 58° W	S 44° W	69	52	71	79	...	...	Cuttack	
·740	·804	·811	·785	—·033	92	80	80	84	— 1	10·0	10·0	10·0	+0·9	2	12	6	4	3	7	4	6	18	N 34° W	S 16° E	32	19	184	203	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·912	·968	·962	·947	—·013	92	82	83	86	+ 4	9·4	9·5	9·5	+1·4	2	...	7	21	4	4	2	19	3	S 80° E	N 85° E	10	41	101	91	...	...	Patna	
·926	·960	·977	·955	—·014	94	87	79	87	+ 4	7·9	6·4	7·2	+0·9	2	4	7	19	15	...	5	6	4	S 79° E	S 82° E	37	58	105	123	...	...	Darbhanga	
·873	·925	·934	·911	—·047	89	78	73	80	— 2	8·9	8·7	8·8	+1·0	3	4	3	3	2	1	9	17	20	N 71° W	N 84° E	53	7	127	103	...	...	Allahabad	
·892	·962	·968	·941	+·013	88	80	79	82	+ 3	7·8	7·2	7·5	+0·5	22	2	...	7	1	1	8	20	1	S 75° W	S 63° E	31	22	59	65	12·61	3·46	Ghazipur	
·853	·907	·933	·899	—·023	90	78	74	82	+ 5	8·3	7·9	8·1	+0·4	52	...	...	4	...	...	...	...	6	N 3° W	N 85° E	7	18	19	94	...	...	Lucknow	
·756	·822	·846	·808	?	93	85	86	88	?	8·1	9·1	8·6	+0·8	15	4	1	5	10	9	8	5	3	S	S 37° W	25	10	18	29	...	...	Dehra Dun	Upper Sub-Himalayas.
·842	·891	·898	·877	+·003	89	77	69	78	+ 1	7·6	6·9	7·3	+0·8	17	...	...	19	3	1	6	10	6	S 40° E	S 39° E	6	33	?	71	...	...	Roorkee	
·887	·871	·886	·882	—·007	96	75	72	81	+ 7	7·0	7·5	7·3	+0·5	13	...	1	10	12	...	9	17	...	S 13° W	S 86° E	21	23	63	57	...	...	Meerut	
·873	·947	·913	·911	+·046	85	74	65	75	+14	5·4	4·7	5·1	+0·7	5	3	...	14	17	6	14	2	1	S 29° E	S 84° E	45	34	77	80	...	...	Lahore	
·889	·889	·883	·887	+·015	90	72	63	75	+ 5	7·4	7·7	7·6	+1·5	19	2	...	...	4	19	...	17	1	S 38° W	S 46° E	39	25	65	49	...	...	Ludhiana	
·800	·866	·813	·827	+·097	84	65	49	66	+13	3·5	3·6	3·6	+0·9	6	2	24	18	6	2	1	...	3	N 69° E	N 50° E	63	50	106*	111	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·883	·945	·949	·926	+·049	78	65	51	65	+ 6	3·0	4·3	3·7	+1·5	3	...	8	...	19	...	20	...	12	S 15° W	S 25° W	23	33	65*	75	...	...	Mooltan	
·885	·944	·897	·909	+·095	78	59	43	60	+ 8	1·8	2·7	2·3	0	19	...	...	16	25	2	...	...	...	S 60° E	S 45° E	63	56	139*	125	...	...	Jacobabad	
·894	·988	·993	·958	+·040	90	83	80	84	+ 6	7·7	6·6	7·2	0	...	...	...	...	...	...	25	37	...	S 72° W	S 62° W	93	83	334	436	...	...	Kurrachee	
·777	·835	·828	·813	—·038	90	76	66	77	+ 1	8·1	7·9	8·0	+0·5	...	1	3	1	6	10	39	1	1	S 30° W	N 58° W	71	27	124	141	...	...	Jeypore	E. Rajputana, C. India and Guzerat.
·804	·808	·831	·815	+·027	91	78	71	80	+ 9	6·2	4·8	5·5	—0·7	1	...	...	1	1	2	17	40	...	S 74° W	S 62° W	85	64	219	173	...	...	Ajmere	
·830	·842	·825	·832	+·004	95	78	69	81	+ 7	8·5	8·0	8·3	+0·2	...	...	...	...	...	...	31	7	...	S 53° W	S 40° W	58	75	?	347	...	...	Deesa	
·858	·871	·857	·862	—·012	94	76	71	81	+ 2	8·9	9·0	9·0	+0·4	2	...	...	1	1	2	3	52	1	S 85° W	S 78° W	85	40	96*	99	...	...	Nowgong	
·834	·906	·903	·881	—·034	87	78	73	79	+ 4	8·3	8·3	8·3	+1·7	...	...	3	1	10	...	25	...	23	S 75° W	N 63° E	40	13	131	119	...	...	Agra	
·627	·684	·686	·666	—·003	96	84	85	88	— 1	8·8	9·3	9·1	+0·1	...	1	...	...	...	1	31	26	1	S 66° W	S 70° W	89	90	457	669	...	...	Belgaum	Deccan.
·678	·670	·637	·662	+·003	88	64	51	68	0	8·7	9·0	8·9	+0·6	...	1	1	...	...	...	11	31	18	N 83° W	S 80° W	82	81	310*	300	...	...	Sholapur	
·663	·695	·691	·683	—·014	91	74	72	79	— 1	8·6	8·7	8·7	—0·3	...	...	...	...	...	...	9	30	4	S 85° W	S 79° W	44	85	297	400	...	...	Poona	
·749	·739	·709	·732	—·034	86	62	53	67	— 9	6·5	7·8	7·2	—1·4	3	4	...	...	...	...	4	37	14	N 77° W	N 74° W	82	77	224	200	...	...	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 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 to 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—*continued.*	Buldana	2,132	27·603	27·503	·100	27·553	+·024	29·590	85·1	70·3	14·8	88·0	68·8	19·2	79·2	82·1	77·0	+0·8	68·1	72·0	72·8	71·0
	Khandwa	...	28·639	28·536	·103	28·588	+·028	·573	88·3	75·1	13·2	92·4	72·6	19·8	81·4	86·1	80·8	+1·1	71·6	74·7	75·5	73·9
	Hoshangabad	...	·647	·536	·111	·592	+·014	·556	86·8	74·5	12·3	91·1	72·7	18·4	80·8	85·8	80·0	+0·5	73·0	76·7	78·3	76·0
	Nagpur	...	·648	·537	·111	·593	+·032	·557	88·8	75·5	13·3	95·8	72·2	23·6	82·6	84·7	81·1	+1·1	72·4	76·2	76·7	75·1
	Jubbulpore	...	·329	·228	·101	·279	+·046	·542	86·0	74·7	11·3	90·9	72·7	18·2	81·1	83·2	79·2	+0·1	72·8	75·5	76·1	74·8
	Saugor	...	27·900	27·802	·098	27·851	+·050	·535	84·9	73·0	11·9	90·7	71·0	19·7	79·8	83·2	78·1	+0·5	71·4	75·1	76·0	74·1
	Raipur	...	28·700	28·589	·111	28·645	+·046	·552	87·6	74·6	13·0	93·5	71·7	21·8	81·6	82·6	79·8	+0·2	72·4	76·5	76·4	75·1
	Sutna	...	·570	·473	·097	·523	+·037	·508	86·7	76·7	10·0	92·1	71·6	20·5	82·8	83·8	80·7	−0·7	73·6	76·9	77·0	75·8
	Secunderabad	...	27·969	27·881	·088	27·934	+·015	·641	86·5	71·7	14·8	92·6	67·9	24·7	83·0	82·1	78·0	+1·1	70·1	72·2	73·6	72·0
	Hyderabad (Deccan).	...	28·065	·961	·104	28·018	?	·631	85·5	72·7	12·8	91·1	68·5	22·6	79·2	82·5	78·3	?	70·2	72·8	74·3	72·5
West Coast.	Bombay	...	29·734	29·665	·069	29·698	+·030	·675	84·8	76·9	7·9	87·3	74·3	13·0	81·5	81·8	80·6	−0·3	73·9	77·7	77·4	6·3
	Ratnagiri	...	·687	·619	·068	·651	+·007	·698	84·4	76·0	8·4	86·7	73·8	12·9	81·7	81·2	79·8	+0·2	73·5	77·9	77·6	76·4
	Karwar	...	·793	·731	·062	·760	−·004	·736	82·0	75·1	6·9	85·2	73·2	12·0	79·2	79·3	78·4	−0·1	72·6	75·8	75·8	74·7
	Cochin	...	·889	·816	·073	·851	−·020	·789	82·5	73·7	8·8	85·1	71·7	13·4	78·9	79·5	77·8	−0·7	72·6	75·3	75·6	74·4
South India.	Salem	...	28·896	28·778	·118	28·850	−·032	·715	89·6	72·8	16·8	92·8	71·2	21·6	82·1	86·7	79·7	−0·9	70·9	74·2	74·8	73·3
	Mysore	...	27·353	27·268	·085	27·311	?	·727	82·1	66·8	15·3	86·2	64·8	21·4	75·9	77·0	73·2	?	65·6	69·1	69·7	68·2
	Mercara	...	26·169	26·104	·065	26·150	−·014	·807	68·6	62·5	6·1	71·8	60·3	11·5	65·4	65·4	64·8	−0·1	61·6	64·4	64·5	63·5
	Bangalore (Fort)	...	·857	·767	·090	·823	−·036	·711	79·7	66·0	13·7	83·2	63·3	19·9	72·7	77·2	72·2	−0·5	65·2	68·4	70·2	67·9
	Hassan	...	·800	·726	·074	·774	?	·739	77·9	63·9	14·0	82·5	61·8	20·7	73·4	73·4	69·8	?	62·7	67·9	68·0	66·2
	Chitaldroog	...	27·422	27·333	·089	27·387	?	·697	80·9	67·3	13·6	85·0	65·9	19·1	75·1	77·3	73·2	?	65·4	69·6	70·4	68·4
	Trichinopoly	...	29·556	29·434	·122	29·508	−·022	·689	95·4	76·7	18·7	100·3	74·1	26·2	87·2	92·0	84·4	−1·0	71·8	74·8	76·3	74·3
	Madras	...	·758	·661	·097	·720	−·002	·670	92·8	76·6	16·2	97·8	73·4	24·4	86·2	87·7	82·8	−2·5	?	77·7	78·6	77·4
	Bellary	...	28·324	28·208	·116	28·275	−·006	·671	89·5	73·5	16·0	94·9	70·4	24·5	81·9	86·4	79·7	−0·9	69·4	72·0	73·0	71·5
	Vizagapatam	...	29·654	29·561	·093	29·614	+·021	·582	87·4	82·2	5·2	90·5	79·4	11·1	86·8	86·9	85·9	+0·8	74·5	79·4	79·4	79·3
	Cocanada	...	·674	·569	·105	·622	?	·584	90·9	78·6	12·3	96·9	75·0	21·9	85·2	88·6	84·2	?	76·1	78·4	79·1	77·9
Hill Station, Baluchistan.	Quetta	...	24·429	24·351	·078	24·388	+·005	?	90·8	64·0	26·8	95·3	54·4	40·9	83·1	89·4	77·1	−1·1	59·6	65·1	64·6	63·1
Hill Stations, Northern India.	Leh	11,503	19·600	19·499	·101	19·559	−·037	?	78·8	51·6	27·2	86·8	47·0	39·8	66·8	72·5	62·4	+1·0	44·6	53·1	54·6	50·8
	Srinagar	...	24·645	24·569	·076	24·607	?	?	82·0	66·8	15·2	90·8	59·7	31·1	74·5	80·2	74·2	?	65·3	70·2	72·6	69·5
	Murree	...	23·686	23·664	·022	23·673	−·020	?	71·8	60·4	11·4	79·3	52·8	26·5	66·8	69·6	65·7	−3·3	58·7	64·2	66·7	63·2
	Chamba	3,005	26·637	26·575	·062	26·610	+·005	?	82·6	70·9	11·7	87·3	67·6	19·7	77·8	79·9	75·7	−2·4	69·6	73·1	74·0	72·3
	Kailang	10,087	20·686	20·608	·078	20·652	+·001	?	74·1	51·6	22·5	83·0	46·5	36·5	66·0	70·0	61·2	−0·3	49·6	58·5	57·3	55·1
	Simla (Ridge)	...	22·982	22·936	·046	22·957	−·009	?	66·9	59·2	7·7	71·4	57·2	14·2	63·6	64·5	62·7	−2·3	58·0	62·3	62·9	61·1
	Simla (Chapslee)	?			Not recorded.				69·5	59·8	9·7	76·1	57·6	18·5	64·8	?	?	?	58·2	62·8	?	?
	Chakrata	...	23·110	23·066	·044	23·086	−·016	?	69·4	60·1	9·3	76·2	57·9	18·3	66·7	64·7	63·8	−0·7	59·7	64·7	63·5	62·6
	Ranikhet	...	·929	·874	·055	·894	−·032	?	72·8	62·5	10·3	76·3	60·2	16·1	68·7	69·5	67·0	−1·1	61·6	65·1	65·9	64·2
	Katmandu	4,388	25·427	25·351	·076	25·391	−·001	?	81·0	68·2	12·8	86·4	65·1	21·3	75·2	77·0	73·6	−2·4	66·5	70·2	71·4	69·3
	Darjeeling	...	22·882	22·821	·061	22·854	−·007	?	64·8	56·7	8·1	68·7	54·2	14·5	61·7	63·1	60·3	−0·7	56·6	60·9	62·1	60·0
	Demagiri	?			Not recorded				85·0	75·6	9·4	90·9	74·2	16·7	82·9	82·1	79·6	0	Not recorded			
	Tura	3,943			Ditto.				81·6	73·5	8·1	83·8	69·9	13·9	78·1	78·6	76·8	?	?	75·4	75·5	?
Hill Stations, Central India.	Mount Abu	...	25·839	25·773	·066	25·808	−·003	?	70·3	63·8	6·5	72·9	61·9	11·0	66·7	69·4	66·8	−2·8	63·6	66·0	67·6	65·7
	Pachmarhi	...	26·287	26·200	·087	26·244	+·052	?	76·5	67·4	9·1	81·2	66·2	15·0	71·1	74·4	72·0	+0·5	66·1	68·4	70·0	68·1
	Chikalda	3,642	·163	·085	·078	·124	+·022	?	75·2	65·4	9·8	78·2	64·3	13·9	69·6	73·1	70·2	+0·4	64·8	67·8	69·6	67·4

II—*continued.*

in India, Burma, etc., for July 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from										Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	Heaviest rainfall during month.	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.				
·660	·696	·693	·683	—·032	89	70	64	74	— 6	3·4	5·9	4·7	—3·4	...	4	...	...	1	1	10	20	26	N 73° W	N 82° W	76	73	203*	221	2·22	0·69	Buldana	Deccan—*continued.*
·733	·775	·752	·753	—·028	84	72	61	72	— 5	5·9	6·6	6·3	—1·6	...	...	...	...	...	1	4	41	16	N 82° W	N 83° W	90	80	235	210	...	...	Khandwa	
·795	·867	·875	·846	+·014	93	82	71	82	— 1	8·5	7·6	8·1	—0·1	2	1	1	...	1	2	16	33	6	S 80° W	S 76° W	77	77	74	110	...	...	Hoshangabad	
·761	·822	·822	·802	—·010	86	74	70	77	— 3	9·0	9·5	9·3	+0·6	...	2	...	1	2	4	12	25	16	S 89° W	N 88° W	68	69	165	189	...	...	Nagpur	
·784	·814	·813	·804	—·013	91	77	73	80	— 2	8·5	8·9	8·7	0	5	3	...	...	1	2	14	29	8	S 85° W	N 87° W	71	65	91	117	...	...	Jubbulpore	
·750	·813	·808	·790	+·019	92	80	72	81	+ 2	6·6	6·7	6·7	+0·3	...	...	...	...	...	...	37	22	3	S 64° W	S 72° W	90	70	179	123	...	...	Saugor	
·771	·845	·828	·815	—·012	90	79	76	81	— 1	9·1	9·4	9·3	+0·9	3	...	...	...	...	1	24	29	5	S 74° W	S 68° W	83	77	181*	280	...	...	Raipur	
·792	·851	·832	·825	—·009	87	77	75	79	0	7·1	7·5	7·3	+0·2	...	2	...	1	1	7	3	34	14	S 75° W	N 81° W	74	45	175*	232	...	...	Sutna	
·716	·697	·723	·712	+·031	92	68	67	76	+ 2	7·2	9·1	8·2	+1·0	4	1	1	1	...	...	5	30	20	N 75° W	S 75° W	77	85	226	318	...	...	Secunderabad	
·712	·730	·747	·729	?	89	73	68	77	?	8·6	9·3	9·0	?	1	...	1	...	...	...	1	53	6	N 86° W	?	92	?	176*	?	...	...	Hyderabad (Deccan.)	
·798	·903	·883	·861	—·050	86	84	81	84	— 3	8·3	8·6	8·5	—0·6	...	...	1	3	...	4	16	35	3	S 74° W	S 75° W	74	84	348	456	...	...	Bombay	West Coast.
·793	·908	·898	·866	+·008	88	84	85	86	+ 1	8·2	9·1	8·7	+1·1	4	4	...	...	1	1	15	27	10	S 88° W	S 55° W	71	77	229*	313	...	...	Ratnagiri	
·769	·848	·846	·821	—·009	88	85	85	86	— 1	7·1	8·5	7·8	+0·1	8	26	...	...	...	...	...	28	...	S 47° W	S 74° W	61	80	66	?	...	...	Karwar	
·787	·829	·832	·815	—·021	95	84	82	87	— 1	5·9	8·0	7·0	—0·3	5	3	2	3	...	...	1	22	26	N 59° W	S 88° W	69	51	139	?	...	...	Cochin	
·731	·740	·705	·725	—·029	91	68	56	72	+ 1	8·1	8·9	8·5	+2·4	6	...	...	...	2	13	29	9	3	S 43° W	S 59° W	72	82	95	106	...	...	Salem	South India.
·622	·629	·638	·630	?	95	70	69	78	?	9·3	8·8	9·1	?	...	...	...	...	...	1	22	35	4	S 76° W	?	89	?	339*	?	...	...	Mysore	
·539	·594	·598	·577	—·002	94	95	95	95	— 1	9·6	9·8	9·7	—0·1	...	4	...	...	...	1	5	30	22	N 73° W	N 79° W	82	91	259	247	...	...	Mercara	
·615	·645	·658	·640	+·033	96	80	71	82	+ 5	9·3	8·0	8·7	+2·3	...	...	1	...	...	...	19	37	5	S 80° W	S 71° W	87	91	173*	206	...	...	Bangalore (Fort)	
·557	·621	·623	·601	?	93	76	76	82	?	8·6	8·9	8·8	?	...	...	...	...	...	...	19	25	18	S 89° W	?	82	?	112*	?	...	...	Hassan	
·602	·654	·658	·638	?	90	75	71	79	?	9·1	8·6	8·9	?	...	...	...	...	...	1	27	28	6	S 73° W	?	87	?	263*	?	...	...	Chitaldroog	
·715	·698	·695	·703	+·005	78	54	47	60	+ 2	6·4	7·1	6·8	—0·8	6	...	...	...	...	2	11	32	11	S 87° W	N 87° W	77	81	129	239	...	...	Trichinopoly	
?	·836	·857	·871	+·087	?	67	66	78	+11	7·2	8·2	7·7	+0·6	...	...	1	5	10	4	11	24	7	S 61° W	S 46° W	43	65	136	195	...	...	Madras	
·667	·663	·646	·659	—·003	81	61	53	65	+ 2	7·8	8·4	8·1	—0·1	7	2	...	...	...	...	9	33	11	N 86° W	S 88° W	76	89	217	281	...	...	Bellary	
·744	·911	·917	·857	+·005	67	71	71	70	— 1	7·4	7·5	7·5	+0·6	...	...	3	...	2	13	16	21	7	S 61° W	S 74° W	61	74	39	94	...	...	Vizagapatam	
·870	·882	·866	·873	?	89	73	65	76	?	5·5	4·8	5·2	?	...	...	...	2	1	1	16	23	19	N 1° W	?	72	?	189*	?	...	...	Cocanada	
·476	·438	·353	·422	—·039	78	38	26	47	— 1	0·8	1·8	1·3	—0·2	17	...	...	...	1	5	6	18	15	N 89° W	W	52	34	92*	107	...	...	Quetta	Hill Station, Baluchistan.
·236	·287	·273	·265	+·016	62	45	35	47	+ 3	5·0	5·1	5·1	0	2	1	5	7	2	9	20	14	2	S 44° W	S 80° W	41	36	42	48	0·37	0·13	Leh	
·612	·695	·724	·682	?	93	81	71	82	?	4·0	4·3	4·2	?	40	...	2	3	4	1	...	2	2	S 75° E	?	8	?	35*	?	...	...	Srinagar	Hill Stations, Northern India.
·480	·576	·629	·561	+·026	91	88	87	89	+14	7·3	7·6	7·5	+1·1	2	...	...	4	27	3	7	3	15	S 16° E	S 15° E	27	14	203*	137	...	...	Murree	
·711	·763	·775	·750	+·012	94	80	76	83	+ 5	7·6	7·7	7·7	+0·8	23	5	...	...	2	1	...	3	28	N 44° W	N 39° W	50	35	95*	97	9·36	1·47	Chamba	
·339	·428	·360	·376	+·011	88	67	51	68	+ 3	6·5	6·8	6·7	+0·3	...	2	1	...	2	5	15	15	22	N 88° W	S 83° W	63	63	50	44	1·25	0·32	Kailang	
·473	·551	·558	·527	—·018	93	94	92	93	+ 4	9·6	9·4	9·5	+0·6	24	21	1	...	...	15	1	...	...	N	S 63° W	10	25	?	?	...	...	Simla (Ridge)	
·470	·553	?		?	91	90	?	?	?	9·6	?	?	?				Not	reco	rded				?	?	?	?	?	?	12·25	1·44	Simla (Chapslee)	
·508	·592	·575	·559	+·049	97	90	94	94	+ 2	8·6	9·5	9·1	+0·3	11	...	...	5	2	...	1	43	...	S 87° W	S 71° W	60	42	165*	118	...	...	Chakrata	
·542	·583	·600	·575	—·006	96	83	83	87	+ 1	9·2	9·2	9·2	+0·5	22	2	...	8	...	4	1	24	1	S 83° W	S 65° W	27	25	80	51	...	...	Kanikhet	
·632	·686	·706	·675	—·012	92	79	76	82	+ 3	8·3	8·0	8·2	+1·8	...	6	...	25	2	4	22	...	3	S 34° E	S 75° W	24	38	18	?	15·29	2·12	Katmandu	
·458	·530	·549	·514	—·005	98	96	95	96	+ 1	9·9	9·8	9·9	+1·1	12	...	10	10	3	...	13	13	1	S 47° W	N 88° E	8	43	108	63	...	...	Darjeeling	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	...	2	51	5	...	...	3	...	?	S 33° E	?	30	?	?	18·53	5·43	Demagiri	
?	·848	·849	?	?	?	88	87	?	?	8·7	7·5	8·1	+1·2	...	...	1	1	4	46	10	...	...	S 3° W	S 7° W	89	64	?	?	37·91	7·45	Tura	
·587	·629	·658	·624	—·004	99	96	91	95	+ 7	9·6	8·1	8·9	+0·1	...	...	...	...	...	...	40	21	1	S 61° W	S 49° W	92	66	298	265	...	...	Mount Abu	Hill Stations, Central India.
·626	·665	·683	·658	—·014	93	88	81	87	— 3	8·8	8·2	8·5	—0·3	1	...	...	...	...	...	16	39	6	S 82° W	N 80° W	89	75	288*	227	...	...	Pachmarhi	
·609	·660	·687	·652	—·002	97	91	85	91	— 1	8·7	8·1	8·4	—0·7	9	9	...	...	...	...	...	10	34	N 46° W	N 57° W	76	68	238	230	12·21	3·52	Chikalda	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 Station

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 to 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 Stations, South India.	Wellington	...	24·195	24·132	·063	24·163	—·005	?	69·9	56·9	13·0	73·0	53·3	19·7	66·2	64·7	62·1	—1·1	55·3	60·8	60·8	58·9
Extra India.	Muscat	...	29·522	29·460	·062	29·491	?	?	90·3	87·3	3·0	95·3	84·0	11·3	89·4	89·4	88·6	?	81·0	84·3	84·1	83·1
	Aden	...	·606	·471	·135	·536	—·022	29·559	92·1	83·9	8·2	96·5	80·8	15·7	88·2	90·6	87·7	+1·8	74·1	78·5	78·5	76·9
	Perim	...	...	Untrustworthy.			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Minicoy	...	29·908	29·835	·073	29·879	?	·814	83·4	78·4	5·0	87·4	74·2	13·2	80·9	81·1	80·8	?	74·1	76·2	76·4	75·6
	Zanzibar	...	30·102	30·011	·091	30·057	?	30·058	79·9	72·2	7·7	81·8	69·3	12·5	75·3	78·4	75·7	?	69·2	71·5	70·8	70·7

II—*concluded.*

in India, Burma, etc., for July 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.						
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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·418	·477	·492	·462	+·039	89	74	81	82	+9	8·7	9·2	9·0	+1·3	2	3	...	1	9	10	25	6	6	S 38° W	N 82° W	55	69	69	127	...	...	Wellington	Hill Station, South India.
·976	1·110	1·100	1·062	?	75	80	79	78	?	0·9	0·7	0·8	?	...	2	14	41	1	1	...	...	3	N 76° E	?	82	?	98	?	...	...	Muscat	Extra India.
·714	·849	·819	·789	−·019	62	64	58	60	−6	1·9	0·9	1·4	−0·9	5	...	...	2	11	29	12	3	...	S 2° W	S 11° E	73	73	263	250	...	...	Aden	
?	?	?	?	?	?	?	?	?	?	1·0	1·7	1·3	?	...	1	6	18	4	2	2	12	17	N 2° W	?	18	?	309	?	...	...	Perim	
·786	·844	·848	·826	?	81	80	80	80	?	6·8	7·3	7·1	?	...	2	...	...	...	...	...	21	39	N 59° W	?	92	?	508	?	...	...	Minicoy	
·675	·723	·652	·693	?	86	83	67	81	?	5·3	5·8	5·5	?	...	...	...	...	20	19	6	1	...	S 13° E	S 2° W	82	64	266	191	...	...	Zanzibar	

* Corrected.

G. I. C. P. O.—No. 6. Meteor.—22-11-93.—400.

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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93.—5,500.

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.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93 — 5,500.

Litho., S. I. O., Calcutta.

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

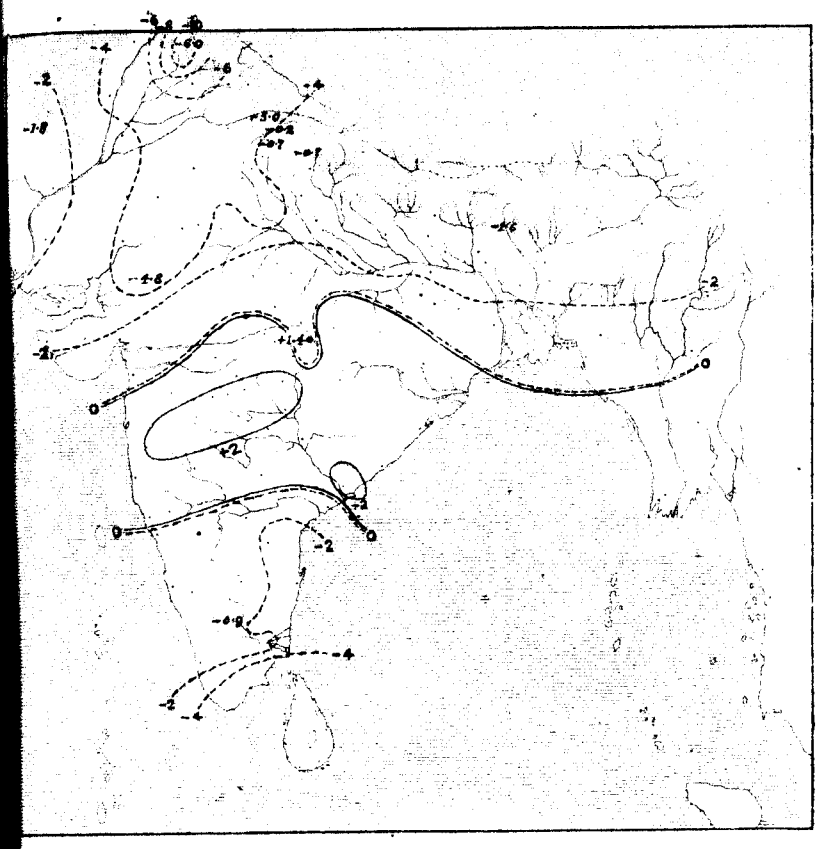
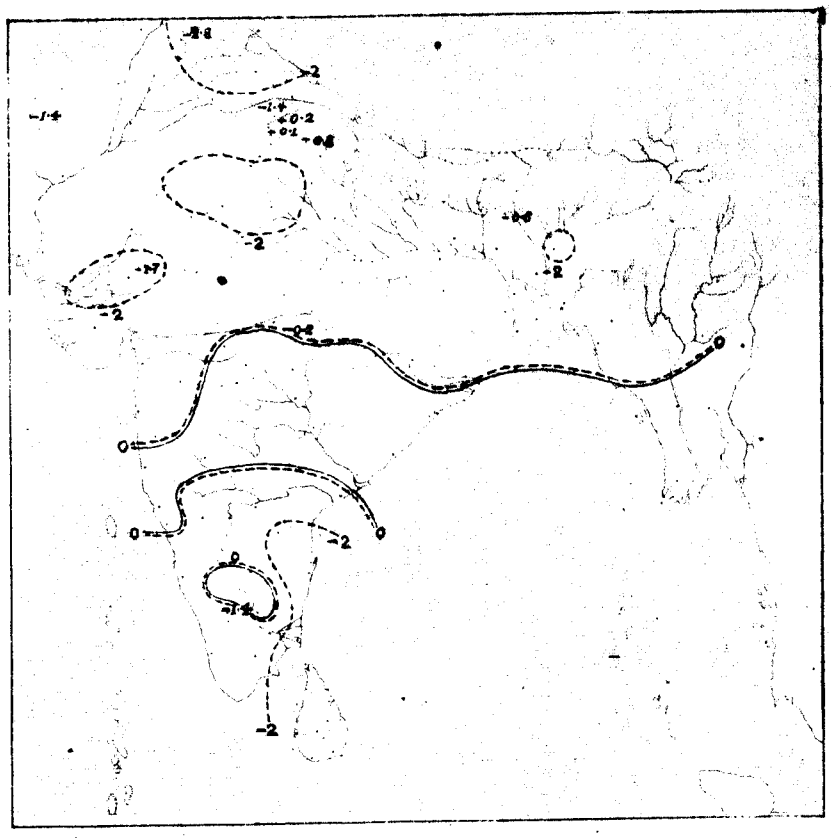


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

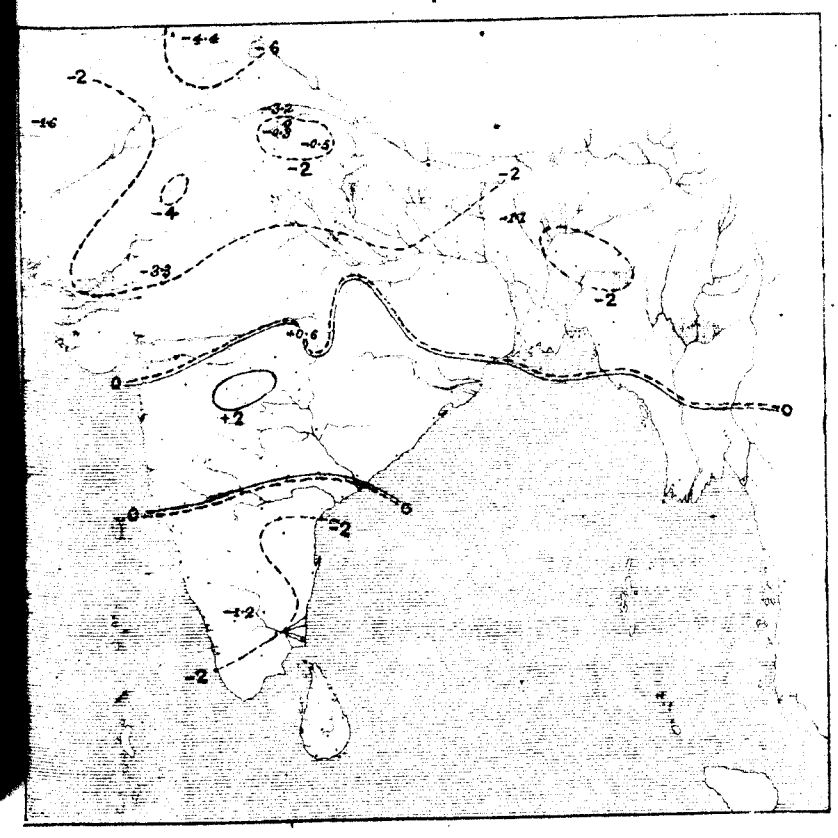
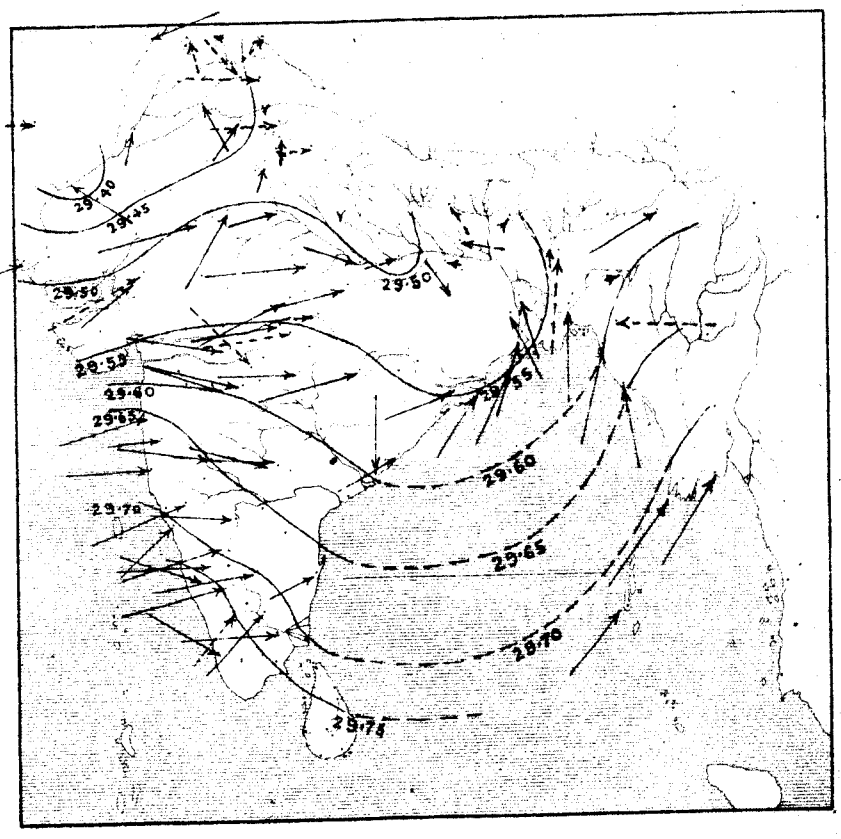


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JULY 1893.



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.

No. 199. Wr. I.—April 93—500—199 R., May 93—5,500.

Litho., S. I. O., Calcutta.

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. 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. 199, Wr., I.—April 93—500—199 R., May 93—5,000.

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 51 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 districts 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 figures.

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

Reg. No. 199, Wr., I.—April 93 — 500.—199 R. May 93 — 5,500.

Litho., S. I. O., Calcutta.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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CALCUTTA, AUGUST, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of August 1893 is based on observations taken daily at 8 A.M. at 201 stations, and on additional observations taken at 10 A.M. and 4 P M. at 88 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 August 1893.

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 good general rain in practically all districts. Indeed, it sometimes happens that August is the month of the greatest extension of the monsoon currents, and that some parts of Upper India obtain more rain in August than in July. On the whole the monsoon current blowing in August is usually not so strong as in July, and there are also more frequent breaks in the rains in August than in July. Hence the general rainfall in India is usually smaller in August than in July.

It is scarcely necessary to review the meteorology of August in great detail, for it was of fairly normal monsoon character throughout, and there were no very marked peculiarities calling for very special notice.

In the present month, indeed, the monsoon current as judged by the wind measurements made at the land stations was certainly fully equal to the normal in strength, and the same fact is shown by the wind records at the hill stations as well as at the stations in the plains, so that it would appear that the strength of the monsoon was not restricted to the surface currents only. Also the observations made on board vessels in the Arabian Sea and Bay of Bengal, have shown that the monsoon current blowing over the sea area in August was, on the whole, fully equal to the normal in strength. From about the middle of the month, however, the current appeared to fall off slightly in force, and the rainfall also became lighter, and this feebleness of the current continued until the last week of the month, when it again rather strengthened, so that for the greater part of the month a fairly strong monsoon current was blowing. The variations in the rainfall of August in different years are apparently not only due to

variations in the strength of the current from year to year, but also depend on the occurrence and line of advance of small cyclonic storms, which generally form in the Bay of Bengal, and then advance west-north-westwards towards Central and Upper India. These small storms usually advance along the trough of low pressure, which is an important feature in the meteorology of August. This trough of low pressure generally runs in August from Orissa in a west-north-westerly direction towards the south of the Punjab or Sind, but the position varies from year to year, and hence the direction of advance of the small storms also varies. In the present year the position of the trough of low pressure was considerably further to the north than usual, and for a part of the month it ran along the base of the Himalayas. In addition, too, the number of small storms originating in the Bay has been exceedingly small. They have also been remarkably feeble in character, so that there has been a marked absence of the heavy concentrated rainfall, which is due to such storms, and also a partial absence of the heavy inrush of monsoon winds, which as a rule follows the advance of such storms. The position of the trough of low pressure was also such as to prevent these storms from advancing towards or into Upper India at all, and they usually had not only a brief existence, but scarcely advanced further than the Central Provinces. Indeed, the only storms of this class which have been of sufficient importance to deserve separate mention were as follows. A depression which formed on July 29th, and advanced from the north-west angle of the Bay in a west-north-westerly direction to Sutna, where it remained nearly stationary for a day or so, and then filled up on August 5th. A second very feeble depression developed on the 7th in the north-west angle of the Bay, but it passed inland in the afternoon of that date, and was absorbed in the trough of low pressure. Another feeble depression existed from the 14th to the 21st. This apparently passed from Burma into the Bay on the 15th, and advanced slowly across the Bay without intensifying to any appreciable extent, and crossed the Ganjam coast between the 18th and 19th, and then advanced towards Sutna, where it reached on the 20th, and on the 21st it had passed into the usual trough of low pressure, and practically ceased to exist as a storm at all. The last depression existed between the 21st and 26th of August, but this was also exceedingly feeble. Like the previous feeble storm the depression apparently originated over Burma and passed across the Bay. On the 24th it was close to Gopalpur, and on the 26th it had passed again into the trough of low pressure, and had ceased to exist as a separate storm.

It will thus be seen that all these depressions were particularly feeble, and they did little more than bring up very mild advances of monsoon winds over India. During their periods of formation, also from the slight indraught of the monsoon winds towards them, they even had the effect of withdrawing the monsoon current partially from the land area, and hence, if anything, they tended to lighten the rainfall rather than increase it. Hence for a certain part of the month, the monsoon conditions obtaining over India were rather feeble in character.

The general rainfall of India during August has been very decidedly lighter than the normal, notwithstanding that a rather strong monsoon current was blowing during a part of the month. In the Burma coast and the Bay Islands, Assam, and the Deccan divisions, however, the falls were in excess of the usual amounts, the excess being fairly large in Assam and the Deccan, but in the Burma coast division the excess was small. In the remaining eight meteorological Provinces the rainfall was in defect, the defects being moderate only in Burma (Inland), Bengal and Orissa; but in the Gangetic Plain, Chota Nagpur, East Rajputana, Central India, Guzerat, West Coast, and South India divisions they were large, and in the Upper Sub-Himalayas, Indus Valley and North-West Rajputana the defects were very large.

The following table gives the actual average rainfall in August in each of the eleven meteorological provinces into which India has been divided, together with the normal falls for the same period. The two last columns also give the variation of the actual fall from the normal in inches, and the actual fall expressed as a percentage of the normal amount :—

Meteorological Province.	Rainfall of month.*	Normal rainfall of month.*	Variation of actual from normal.*	Variation expressed as a percentage of the normal.
	Inches.	Inches.	Inches.	Percentage.
Burma Coast and Bay Islands.	26·60	28·29	+0·25	+1
Burma Inland. . . .	8·53	11·19	−1·58	−14
Assam	19·51	16·02	+3·49	+22
Bengal and Orissa . .	12·34	13·94	−1·55	−11
Gangetic Plain and Chota Nagpur.	8·06	11·65	−3·60	−31
Upper Sub-Himalayas .	5·80	11·00	−5·21	−47
Indus Valley and North-West Rajputana.	1·10	2·41	−1·32	−55
East Rajputana, Central India and Guzerat.	5·39	9·43	−3·43	−36
Deccan	10·81	8·62	+2·08	+24
West Coast . . .	12·96	19·18	−5·37	−28
South India . . .	3·95	5·81	−1·44	−25

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

The pressure variations from day to day during the month have probably been smaller than usual. The general pressure over India for the whole of August shows an excess of 0·011 inch. This excess pressure has been fairly equally distributed, except in the case of the Burma Coast and Bay Islands Division, which shows a defect of 0·015 inch, and the Burma Inland Division, which shows

a defect of 0·008 inch on the one hand, while on the other the Indus Valley and North-West Rajputana Division shows an excess of 0·023 inch, and the East Rajputana, Central India and Guzerat Division shows an excess of 0·026 inch. It will be noticed in the case of the two first divisions, the rainfall in August has been nearly normal in amount, and that in the latter two the rainfall has been largely defective. Considering the actual pressures recorded with reference to the general anomaly of 0·011 inch, it will be found that the greater part of Rajputana, Sind, Guzerat, Kathiawar, and part of the Punjab, show a large excess, and the whole of Western and North-Western India a moderate excess, while decided defects have been registered in the Central Provinces, the eastern parts of the Peninsula, Burma, Assam and parts of Bengal and the North-Western Provinces. The extreme variations range from an excess variation of 0·028 inch at Jacobabad to a defective variation of 0·034 inch at Moulmein, the variations thus being largest at the extreme north-western and the extreme south-eastern stations respectively.

The day or maximum temperatures during August were usually in excess of the normal over Northern India and in defect over the Peninsula. The largest excess temperatures were registered over parts of the Punjab, Sind, Rajputana, and the North-Western Provinces, where they equalled from 2° to 3° at many stations, up to 5·2° at Sirsa and 4·3° at Sambhar. The defects were largest in the centre of the Peninsula, the Deccan, etc., where they ranged up to 4·2° at Bellary and 3·2° at Amraoti. In the various meteorological provinces the mean maximum temperatures ranged from 99·2° in the Indus Valley and North-West Rajputana to 82·9° along the west coast of the Peninsula.

In the case of the minimum or night temperatures there were comparatively small variations from the normal. Slight excess temperatures were registered in Burma, Assam, Bengal, the south of the Peninsula and parts of the Punjab, Sind, Rajputana, and the North-Western Provinces, while the whole of the Peninsula from about Lat. 14° to 24° N. together with Oudh, parts of the North-Western Provinces, etc., showed slightly excessive minimum temperatures. At the very great majority of stations, however, the variation was less than one degree. During the rainy season the mean night temperatures are very nearly equal in different districts, and thus taking the case of the meteorological divisions, the extreme variation has only been from an average night temperature of 71·9° in the Deccan to 79·2° in the Indus Valley and North-West Rajputana, or a variation of little more than 7°.

The mean temperature has naturally shown a variation about midway between the day and night temperatures. Practically the whole of the Peninsula south of Lat. 21° N., together with a few of the North-Western Frontier stations and a few at the base of the Himalayas and in Assam, have shown slightly defective temperatures, while Northern India generally, the greater part of Bengal, and the whole of Burma have shown slight excess temperatures. The extreme variations from the normal occupy nearly the same areas as the largest variations of the maximum from the normal, and thus the largest excess in the mean temperatures is shown over parts of the Punjab, the North-Western Provinces, and Rajputana, where an excess of about 2° to 3° has been registered, while the largest defects occupy the centre of the Peninsula, and these range up to 2° to 3° at Amraoti and Bellary. The actual average mean temperatures for August have varied from 89·2° in the Indus Valley and North-West Rajputana to 78·2° in the Deccan, showing a range of 11° over the whole of India, and the largest variations from the normal have been an excess of 1·2° in East Rajputana, Central India, and Guzerat, and a defect of 1° in Assam.

The following table gives a condensed summary of the temperature data of the whole of India for August. In the table are given the average maximum, minimum, and mean temperatures of each of the eleven meteorological provinces into which India is divided, together with their variations from the normal, as well as the mean daily range of temperature, and the absolute range of temperature in each province for the month:—

PROVINCE.	Mean maximum.	Variation.	Mean minimum.	Variation.	Mean daily temperature.	Variation.	Mean daily range.	Absolute range.
	°	°	°	°	°	°	°	°
Burma Coast and Bay Islands . . .	84·5	+0·7	75·9	+0·6	80·3	+0·6	8·6	15·8
Burma Inland . .	88·3	+0·4	74·2	+0·2	81·3	+0·3	14·1	22·6
Assam . . .	86·8	—1·9	77·5	0	82·2	—1·0	9·3	20·1
Bengal and Orissa .	87·6	+0·5	78·2	+0·7	82·9	+0·6	9·4	16·8
Gangetic Plain and Chutia Nagpur .	89·5	+0·4	78·0	0	83·8	+0·2	11·5	19·3
Upper Sub-Himalayas	93·6	+1·3	77·0	—0·5	85·3	+0·4	16·5	26·9
Indus Valley and North-West Rajputana .	99·2	+2·1	79·2	—0·4	89·2	+0·9	20·0	30·3
East Rajputana, Central India, and Guzerat . . .	89·6	+2·1	75·8	+0·2	82·7	+1·2	13·7	23·7
Deccan . . .	84·4	—0·8	71·9	—0·4	78·2	—0·7	12·5	22·8
West Coast . .	82·9	+0·6	75·0	+0·6	78·9	+0·6	7·9	12·8
South India . .	88·1	—0·6	73·4	—0·3	80·9	—0·5	14·7	23·3

The character of the winds during August has been already briefly alluded to. The facts may be summarized briefly in the following statement. In the Arabian Sea the average wind force as registered on all vessels from which logs have been received equalled 3·8, this number being obtained from about 20 to 25 vessels daily. The average normal force in the Arabian Sea in August is 3·1. In the Bay of Bengal the average wind force determined in the same way from the logs of about the same number of

vessels was 4·0, or almost exactly the normal force for the month. Both these sets of observations, therefore, prove that the monsoon blowing in August over the sea area was fully equal to, and indeed rather stronger than, that which occurs in normal years.

In the case of the winds blowing over the land area, the observations made as detailed under the section on "Winds" appear to prove also that the monsoon current blowing iu August was, on the whole, fairly normal in direction. But while the observations at the hill stations tended to show that the currents had a rather more westerly element in them than usual, the stations nearer the sea-level showed the current to be rather less westerly than the normal, so that probably as a whole it was nearly normal. The land observations also showed that the two branches of the monsoon current—the one from the Bay of Bengal, and the other from the Arabian Sea—were fully of normal strength and steadiness, except perhaps in the extreme north-western districts of India, Baluchistan, etc., where winds were light and rather variable.

In the case of humidity and cloud proportion the variations from the normal figures in August have not been very important. The variations of aqueous vapour pressure and humidity have to a great extent followed the variations in the amount of the rainfall Thus the observations made at the stations in the Burma Coast and Bay Islands, Assam, and the Deccan Divisions showed that the air contained decidedly more moisture than usual, while, on the other hand, the Upper Sub-Himalayas, the Indus Valley and North-West Rajputana Divisions, where rainfall was very light, showed a large deficiency in the aqueous vapour pressure. Humidity was also in slight excess in Assam and the Deccan, where the rainfall was heavy, and it was in defect in the remaining nine divisions, in most of which rainfall was comparatively light. In the case of cloud proportion, however, there has been a small to decided excess in all divisions except the Upper Sub-Himalayas, Indus Valley, Rajputana, Central India, and Guzerat districts, where small to moderate defects were registered.

Atmospheric Pressure.

During the greater part of August the barometric changes have on the whole been moderate in amount. This is, indeed, usually the case during the rainy season, except when barometric depressions or cyclonic storms form in the advancing south-west monsoon current. In the present month, however, though two or three of these depressions have formed, yet all except the first have been of an extremely feeble character.

Hence, except during the period when the weather was influenced by the first storm, which occurred during the last few days of July and the first few days of August, when the barometric movements were fairly large, for the remainder of the month, the barometric changes from day to day were moderate only, even though the weather was slightly influenced by two or three feeble depressions in the middle and end of the month. The general distribution of pressure for the month has been fairly normal for the season. The mean pressures range from 29·85″ in the south of the Peninsula, and 29·87″ at Colombo to 29·52″ at such stations as Dera Ismail Khan, Khushab, and Mooltan, thus showing a difference of pressure of about 0·32″ to 0·35″. Baric gradients therefore, though not unusually steep, were fairly high for August. The trough of low pressure which is one of the prominent features in the distribution of pressure during the monsoon season, and which generally runs from Orissa to Sind, was in the month under review situated rather further north than usual, and ran from the head of the Bay from about the stations of Balasore and Cuttack to the north of the Punjab, thus covering the greater part of the Gangetic Plain, and being situated decidedly nearer to the Himalayas than is usual in August. The line of actual lowest mean pressure for August, which may be said to define the centre of the trough of low pressure, was represented by the stations Balasore, Chaibassa, Allahabad, Mainpuri, Delhi, Sirsa and Dera Ismail Khan.

When the actual mean pressure for the month is compared with the normal, it is found that it has been in excess by small amounts over by far the greater part of India. Indeed, the only areas which show defective pressure are the south of Burma, south of about Latitude 22°N., where the defective pressure ranges up to 0·02″ at Bassein and Moulmein, and an area running from the west coast of the Bay between Balasore and Vizagapatam in a north-westerly direction to Allahabad, but here the defect is in all cases less than 0·01″. These areas, it will be seen under the section describing the barometric depressions of the month, have been more or less influenced by the feeble depressions which have been formed in August.

Very small areas of slightly defective pressure are represented by the stations of Dacca and Mymensingh in one case, Kurnool and Cuddapah in another, and Mercara and Bangalore in a third.

On the other hand, pressure has been in slight to moderate excess over the remaining districts, the excess increasing in amount towards the west of the Peninsula and towards the North-Western Frontier of India, the excess ranging up to 0·06″ at Quetta, 0·039″ at Jacobabad, and 0·037″ at Peshawar. The whole of the area to the west of Longitude 76° E. and between Latitude 16° and 28°N. has

shown an excess pressure of 0·02″ and above, and hence includes the greater part of Sind, Rajputana, Kathiawar, Guzerat, Central India, Bombay, and Khandeish. Comparatively large excess pressures were also registered in the south-east of the Peninsula and Ceylon, where Madras, Negapatam, and Colombo have recorded pressures more than 0·02″ in excess.

When the pressure variations from the normal for the whole of India are considered, it is found that the general pressure anomaly for the whole of India for August has been +·011 inch. On also, again, comparing the actual pressures in the various provinces with the general average pressure registered over India, it will be found that pressure has been below the average over practically the whole of India Burma, etc., to the east of Longitude 80° E. and in excess to the west of this. Thus, in this way, Burma, practically the whole of Bengal, the Central Provinces, the north of Madras, and the northern and eastern parts of the North-Western Provinces have registered relatively defective pressures, while the whole of Western India has registered relatively rather large excess pressures.

So far as can be judged by a comparison of the pressures registered at the hill stations and at the stations in the plains nearest to them, the variations of pressure from the normal at the hill stations in the Himlayas have been smaller than in the plains, while the opposite has been the case in Southern India. This is shown in the following table:—

Plain Stations.	Variation from normal (a).	Hill Stations.	Variation from normal (b).	Difference between (a) and (b)
	Inch.		Inch.	Inch.
Rawalpindi	+·022	Murree	+·006	+·016
Lahore	0	Leh	—·025	+·025
Lahore	0	Kailong	+·036	—·036
Ludhiana	+·016	Simla	+·011	+·008
Bareilly	+·011	Ranikhet	+·003	+·005
Jalpaiguri	+·032	Darjeeling	+·012	+·020
Hoshangabad	—·018	Pachmarhi	+·018	—·036
Coimbatore	+·009	Wellington	+·026	—·017

The following table will show the variations of the pressure from the normal figures given in table I for each district or province in India:—

District.	Variation of mean 8 A.M. pressure from normal.	District.	Variation of mean 8 A.M. pressure from normal.
	Inch.		Inch.
Burma Coast and Bay Islands	—·015	Indus Valley and North Western Rajputana	+·023
Burma Inland	—·008	East Rajputana, Central India, and Guzerat	+·026
Assam	+·010	Deccan	+·009
Bengal and Orissa	+·009	West Coast	+·016
Gangetic Plain and Chota Nagpur	+·006	South India	+·009
Upper Sub-Himalayas	+·012		

Barometric Depressions of the month.

A very decided barometric depression had formed in the Bay of Bengal on the 29th of July, which slowly concentrated and marched towards the South Orissa Coast, and on July 31st the centre of the depression was not very far from the coast, and probably opposite Pooree. On August 1st a part of the depression had advanced over the land, while the centre of the wind circulation was close to the land in the north-west angle of the Bay, and probably not very far from Saugor Island. On the 2nd the centre of the small storm was close to Balasore, so that the storm was then moving slowly in a west-north-westerly or north-westerly direction, and from the 2nd to the 3rd instant the centre of the storm passed inland. In the Monthly Review for July the history of this small storm was traced in detail so long as it existed over the sea, and the history of its advance over the land still remains to be recorded in this month's Review.

Barometric depression of 29th July to 5th August.—From the 2nd to the 3rd of August a rather rapid change of conditions had occurred. Pressure had increased briskly over the north of the Bay and over South-West Bengal and Orissa, while a fall had occurred in the Central and North-Western Provinces. The barometric depression had advanced rather rapidly in a west-north-westerly direction over the Central Provinces, and its centre at 8. A.M. of the 3rd was advancing towards Sutna, though it was still at some distance to the south-east of it. The depression had, therefore, advanced over about 400 miles, or at the rate of roughly 16 miles an hour since the morning of the 2nd. The following observations will serve to show the position of the small storm on the 3rd:—

Station.	Pressure corrected to sea-level and constant gravity at Latitude 45°.	Change since 8 A.M. of previous day.	Variation from normal.	Wind. Direction.	Wind. Velocity in miles per hour.	Cloud.	Rainfall in inches.
	″	″	″				
Burdwan	29·522	+·047	0	SE	4	10	0·36
Calcutta	29·520	+·068	+·002	ESE	6	10	0·32
Saugor Island	29·538	+·095	+·014	NNE	11	10	5·85
False Point	29·519	+·073	—·024	W	9	10	0·08
Gopalpur	29·522	+·061	?	WSW	11	4	0·68
Patna	29·511	+·026	—·016	E	11	10	0·22
Hazaribagh	29·505	+·026	—·022	SSE	6	10	1·18
Chyebassa	29·482	+·059	?	Calm	1	10	1·13
Sambalpur	29·485	+·039	—·058	S	7	10	0·81
Raipur	29·513	—·041	—·050	WSW	13	10	4·50
Seoni	29·555	?	—·053	SW	11	6	3·96
Jubbulpore	29·501	—·072	—·054	WSW	7	10	3·15
Sutna	29·466	—·060	—·053	NNE	8	8	0·36
Allahabad	29·473	—·042	—·035	ENE	5	9	0·47
Benares	29·471	—·038	—·036	E	6	7	2·17

The centre of the small storm was clearly to the south-east of Sutna, to the south of Benares and to the north-west of Sambalpur, and must have been either in the extreme south-west of Chota Nagpur or the east of the Central Provinces, but the exact position cannot be stated as there are no meteorological observatories in these localities. The small storm was giving heavy rain at many stations, and a strong wave of monsoon winds was following in its rear.

August 4th.—The small storm had again advanced in a west-north-westerly direction, and on the morning of the 4th it was close to Sutna, so that it had moved comparatively slowly since the previous day, and probably had not advanced over more than 150 miles, or at the rate of 6 miles an hour. Pressure had risen rapidly in the rear of the small storm, the increase at Cuttack having equalled 0·105 inch, while it was falling moderately in front of it, the fall at Saugor having equalled 0·078 inch. The small storm was giving moderate to heavy rain in all except the extreme eastern, north-western, and southern districts of India, and at many stations in the centre of India falls were heavy, Jubbulpore reporting 7·32 inches, Pachmarhi 4·59 inches, Hoshangabad 3·51 inches, and Saugor 3·06 inches. The following table contains the observations for certain stations in the centre of India, which serve to show the position of the small storm at 8 A.M. on the 4th :—

Station.	Pressure corrected for sea-level and constant gravity at Lat. 45°.	Change since 8 A.M. of previous day.	Variation from normal.	Wind. Direction.	Wind. Velocity in miles per hour.	Cloud.	Rainfall in inches.
	"	"	"				
Hazaribagh	29·530	+·025	+·002	SSW	12	10	0·05
Patna	29·520	+·009	—·011	SE	10	10	0·57
Gorakhpur	29·513	—·007	—·004	SSE	6	6	0·06
Lucknow	29·497	—·030	—·016	E	2	8	0·57
Agra	29·527	—·029	+·010	NE	5	10	*Nil*
Jhansi	29·470	—·061	—·048	E	4	9	0·35
Nowgong	29·458	—·060	—·056	ENE	2	8	1·62
Sutna	29·453	—·013	—·071	ENE	4	7	1·15
Saugor	29·474	—·078	—·096	SW	8	10	3·06
Jubbulpore	29·532	+·031	—·022	SW	7	10	7·32

The barometric depression at Sutna, which was the station nearest to the centre of the storm, was, however, only 0·071 inch, so that the depression appeared to be rapidly filling up, and the storm consequently becoming of little importance.

August 5th.—Pressure had risen moderately over parts of the Central and North-Western Provinces, while it was falling over the remainder of India and rather briskly in Rajputana and the Punjab, and the feeble depression had apparently again moved in a westerly direction, and had passed into the trough of low pressure which was at this time running between the Central Provinces and the Punjab, so that from this day the depression ceased to exist as a separate storm. Indeed beyond pressure being unusually low over parts of Central India and the Central Provinces, there was no sign of its existence. The rainfall reported on the 5th was much lighter than on the previous days, though it was fairly general except over parts of North-Western and Southern India.

There was no important change of conditions on the 6th, but on the 7th, a small centre of depression was developed in the north-west angle of the Bay. The feeble depression apparently passed inland on the afternoon of the 7th, and was absorbed into the trough of low pressure.

Feeble barometric depression of the 14th to the 21st of August.—From the 8th up to the 13th of August conditions were fairly normal, and the monsoon current blew steadily over the greater part of India, but on the 13th a feeble low pressure area appeared in Burma, which became more pronounced on the 14th, and on the 15th this apparently passed over the east of the Bay. On the 16th a distinct low pressure area existed in the Bay probably in about Lat. 18°N. and Long. 90° E., where the S.S. *Lightning* reported a pressure of 29·591″ with a calm. To the south of this position winds were westerly and south-westerly, to the west, north-westerly winds, and to the east, north-easterly winds were blowing, thus showing a distinct indraught towards the area of low pressure in the centre of the Bay. The following table giving extracts from the logs of certain vessels in the Bay on the 16th August will show these facts clearly :—

Name of vessel.	Position, 8 A.M. Lat. N.	Position, 8 A.M. Long. E.	Barometer corrected.	Wind, 8 A.M. Direction.	Wind, 8 A.M. Force.	State of sea.	Weather.
	° ′	° ′	"				
S.S. *Kistna*	19 00	93 19	29·654	NE by N	2	Smooth	Fine and clear.
S.S. *Eridan*	19 24	86 42	29·657	WNW	2		Fine.
S.S. *Rajpootana*	19 26	85 29*	29·585	W by N	2		
S.S. *Virawa*	18 42	87 07	29·626	NW	2		Overcast; noon heavy showers.
S.S. *Lightning*	18 56	89 40	29·591	Calm	0 to 1	S.W. swell.	Clear.
S.S. *Katoria*	17 03	91 11	29·638	SW	0 to 1		Overcast.
S.S. *Byculla*	16 25	89 47	29·639	W	5		Squally.
S.S. *Maharani*	16 05	94 11	29·810	S	4		Fine.
S.S. *Megna*	16 49	84 55	29·642	WSW	4		Cloudy.
S.S. *Canara*	16 06	96 14	29·661	SE	1		Fine.

* Noon position.

On the 17th the conditions still pointed to the existence of a feeble barometric depression in the Bay, but it had not developed to any appreciable extent. On the 18th also the depression still existed over the Bay, and though it had not developed to any extent, it had apparently commenced a west-north-westerly movement towards the Ganjam Coast.

The position of the feeble depression on the 18th is shown by the following observations made on board ships:—

Name of vessel.	Position, 8 A.M.		Barometer corrected.	Wind, 8 A.M.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	″				
S.S. *Clan Macintosh.*	18 45	86 22	29·614	N	4	...	Squally.
S.S. *Ameer* .	14 57	85 44	29·686	SW	4	...	Heavy showers.
S.S. *Vadala* .	11 04	84 04	29·691	SW	5	...	Cloudy.
S.S. *Lawada* .	15 11	81 01	29·743	W	4	...	Dull overcast.
S.S. *Australia* .	12 06	80 20	29·678	NNW			
S.S. *Aglaja* .	18 52	86 09	29·329	E	2	High	Rainy.
S.S. *Byculla* .	12 23	86 14	29·669	SW	5	Very heavy SW. swell.	Cloudy.
S.S. *Shahzada* .	19 17	90 08	29·649	SSE	2	...	Fine and clear.

It will be seen that the depression was rather feeble, and though there was a distinct cyclonic circulation of winds accompanying it, the wind strength was moderate only.

On the 19th the depression had crossed the Ganjam Coast and the centre was probably near Sambalpur, but it was still very feeble. Pressure had therefore fallen slowly over the Central Provinces, while it was rising moderately to rather rapidly in the rear of the small storm, and over Eastern and North-Eastern India generally. On the 20th the small depression had again advanced over a north-westerly direction, and the centre was probably not very far from Sutna, but it was still a very feeble disturbance, though it was bringing up with it a moderate wave of monsoon winds, and good general rain was being recorded over a large part of the country. On the 21st the depression had apparently again advanced in a north-westerly direction, and had passed into the usual low pressure area which exists at this season over North-Western India, and hence the depression had ceased to exist from the 21st. Again in the rear of the storm a good advance of monsoon winds took place, and general and rather heavy rain was reported on the 22nd.

Very feeble barometric depression of August 21st to August 26th.—When the small depression last described was passing into the permanent south-west monsoon low pressure area over North-Western India, another feeble low pressure area was developing or appeared over Burma, and this existed and moved in a north-westerly direction for several days, but it was a more feeble depression even than the former one. The history of this depression apparently commences on the 21st when pressure became distinctly low in the south of Burma, and winds showed a feeble tendency to cyclonic circulation over this area. On the 22nd the depression had apparently moved in a westerly direction, and passed into the east of the Bay of Bengal. From the logs of vessels navigating the Bay it would appear on the 22nd there was an area of winds of variable direction in about Lat. 16° N. and Long. 91° E., as indicated by the S.S. *Katoria*, where heavy rain was falling, and where weather was squally, and the winds recorded on some of the other vessels navigating the Bay and at the coast stations showed indraught towards this area. On the 23rd there was a slight tendency to a circulation of winds in the western half of the Bay in about Lat. 17° N. and Long. 85° E., and it is probable, therefore, the feeble disturbance had moved in a west-north-westerly or westerly direction, while at the same time another feeble disturbance had appeared over Ganjam and Orissa, and on this day there were two centres of feeble low pressure, one inland and one over the sea area. On the 24th there were again two centres of disturbance, one almost over the coast line close to Gopalpur, and the second in the Central Provinces close to Raipur and Seoni. The disturbance close to Gopalpur was probably that which on the 23rd had been over the Bay, and which had advanced in a west-north-westerly direction, and the second in the Central Provinces was the disturbance which had formed in Ganjam on the previous day, and hence both had advanced in a westerly direction. On the 25th conditions were practically unchanged, and two feeble depressions still existed one close to Seoni and the other close to Gopalpur, but they were of little importance, and on the 26th they had apparently merged into the south-west monsoon trough of low pressure, which on this date ran from Ganjam to the southern part of the North-Western Provinces.

On August 31st another barometric depression commenced to form off the Ganjam coast, but as this depression took some days to develop, and only really influenced the weather in September, it will be best to discuss its history in the Review for September.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the north and north-west of India.

I.—PUNJAB HIMALAYAS.

Upper Sutlej Valley.—There was a shower of rain of 0·15 inch on the 1st of August. This was followed on the 2nd by a fall of snow above 17,000 feet, and by rain on lower heights. The fall, though slight, was widespread, as it extended all over the hills of Upper Kunawar and into Thibet. During the remainder of the month weather was fine. Except when raining or snowing the air was dry and warm.

II.—TASKURGHAN ON THE PAMIRS.

Rather cloudy weather with easterly winds prevailed up to August 7th when rain was received on every day up to the 12th, but on the 13th the rain stopped. Rain recommenced on the 14th and fell for three hours after 9 P. M. and until 10 A. M. of the 15th when it stopped, but recommenced and rained till 8 P.M. On the 16th, 17th and 18th there was no rain, but on the early morning of the 19th it rained for three hours. From the 19th to the 24th there was no rain, and it then rained for an hour, and again from the 25th to the 30th there was no rain, but it rained for an hour at 8 P.M. of the 31st. The rainfall over this area during August was, therefore, decidedly frequent.

Summary of Special Storm Reports.

8th.—Severe duststorm at Jacobabad at 5 P.M. It came down from north-east and lasted ten minutes. The storm was followed by a shower of rain measuring 0·04 inch in amount.

20th.—Thunderstorm at Allahabad from 1-40 P.M. to 4 P.M. The storm was at its worst at 3-25 P.M., when the thunder was exceptionally loud.

21st.—Severe thunderstorm with rain at Hyderabad (Deccan) from south-west from 6 A.M. to 8 A.M. 2-57 inches of rain fell during the storm.

21st.—Thunder-storm at Allahabad at 3-30 P.M. It came down from north-east and lasted until 3-45 P.M.

27th.—Severe thunderstorm at Pachpadra from 6-30 P.M. to 10 P.M. Temperature fell from 89·5° at 6·30 P.M. to 82° at 7 P.M. The changes of pressure (if correct) during the storm were large and rather unusual, and are given below :—

Hour.	Barometer reduced to 32°. Inches.
6-30 P.M.	29·291
7 "	29·210
7-30 "	29·262
8 "	29·259
8-30 "	29·215
9 "	29·165
9-30 "	29·165
10 "	29·165

The storm was accompanied by heavy winds and rain the latter amounting to 1·90 inches.

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

Arabian Sea.—At the beginning of the month fresh to strong south-westerly winds prevailed over the centre and west of the Arabian Sea, moderate to fresh westerly or northerly winds over the north and along the Konkan and Malabar coasts, and light to moderate south-westerly breezes in the south-east of it, while in the Gulf of Aden light southerly breezes were blowing. Weather was fine over the whole of the area except on the Malabar coast, where it was squally with heavy rain, and on the Konkan coast, where it was showery. Thus the S. S. *Umballa* in Lat. 11°37′ N. and Long. 75° 22′E. at 8 A.M. of the 1st experienced heavy rain squalls at noon, and the S.S. *Ellora* a few miles to the south-east of the S.S. *Umballa* had frequent squalls and rain in the afternoon. Winds decreased rapidly in force during the next 24 hours, more especially in the centre, west, and south-east of the Arabian, Sea, and the mean force for the whole area averaged 3·5 on the 2nd, instead of 4·2 on the previous day. This decrease in the strength of the monsoon current was, however, only temporary, as the winds began to rise again in force during the next 24 hours, and on the morning of the 3rd were blowing with almost the same force as on the 1st. The increase in the strength of the current, although general, was considerable only in the centre of the sea, where the S.S. *Java* (in Lat. 16° 36′ N. and Long. 60°7′ E. experienced a strong south-westerly gale of force 9. A further increase in the strength of the current occurred during the next 24 hours, and the mean force for the whole area had increased to 4·5 on the morning of the 4th. Weather continued fine except over the area defined by the parallels of 11° N. and 18½° N. and the meridians of 63° and 75° E., where moderate to heavy rain was falling, and squalls were of frequent occurrence.

An important change had taken place in the wind circulation along the Konkan and Malabar coasts, where the normal north-westerly winds had become replaced by south-westerly and west-south-westerly winds. Winds fell off slightly, particularly over the centre, during the next 24 hours, but continued unchanged in direction so that the south-westerly winds prevailed over the whole of the Arabian Sea on the morning of the 5th. Weather was squally and rainy along the Malabar and Konkan coasts and over the centre, but elsewhere fine or cloudy weather still continued. During the next 24 hours winds increased in force in the centre and continued steady elsewhere. Weather conditions were still unchanged except over the west of the sea, where weather had be-

come unsettled with squalls and rain. Thus the S.S. *Naseri* in Lat. 17° 57′ N. and Long. 59° 42′ E. at 8 A.M. of the 6th experienced strong south-westerly winds and severe squalls and rain.

The increase in the strength of winds over the centre continued on the 6th, and on the morning of the 7th the mean wind force for the whole of the Arabian Sea had risen to as much as 4·9 as compared with 4·3 on the 5th and 4·6 on the 6th. Weather was still unsettled along the west coast and over the west and centre of the sea. Winds began to fall off in force on this day, and the average force on the morning of the 8th had decreased to 4·6. Weather conditions were unchanged, though a slight improvement was setting in. A further decrease in the wind force took place during the next 24 hours, and weather improved rapidly, so much so, that on the morning of the 9th only one vessel (*viz.*, S.S. *Tanjore* in Lat. 18°42′ N. and Long. 64° 18′ E.) out of 18 furnishing weather data for this day, experienced squally weather. Winds continued to decrease in strength during the next 24 hours, and on the morning of the 10th were blowing with an average force of only 3·9 instead of 4·9 on the 7th, on which day the highest average force of the month was recorded. Fine weather now prevailed over the whole of the sea. No change of importance occurred during the next 24 hours beyond a slight rise in the force of the wind, which averaged 4·3 on the morning of the 11th. Although the winds were from the monsoon direction and of about normal strength, the weather was generally fine over the sea area. Winds fell off quickly during the next two days, and on the morning of the 14th the mean force, as determined from the log data of 21 vessels, was only 3·1 or 1·2 lower than that recorded on the 11th. A change had, however, occurred on the 13th over the south-east of the sea, where the winds had shifted round to north-west or west, but otherwise the general weather conditions were unchanged, and fine weather still continued over the whole of the sea. Winds began to rise again in force, and on the morning of the 16th the average for the whole of the sea area had increased to 3·7. The increase was not, however, maintained as the data of the following day showed that the current was falling off again in force. The current continued to weaken rather rapidly during the next two days, and on the morning of the 19th the average force had decreased to 2·8. The monsoon current was hence abnormally weak at this period, and a partial break in the monsoon obtained over almost the whole of the Arabian Sea. As sometimes happens when the current is very weak, the winds on the Bombay coast had become easterly, and were unsteady.

A change had, however, already commenced in the extreme south, where a fresh advance of the monsoon current was in progress. On the afternoon of the 17th the strong advance of the current was to the south of Lat. 5½° N., and was advancing northwards. On the morning of the 18th it had reached Lat. 9½° N., to the south of which rain was falling, and squalls were of occasional occurrence. Thus the S.S. *Loodiana* in Lat. 9° 31′ N. and Long. 76° 00′ E. at 8 A. M. of this day experienced rain and wind squalls and a south-westerly swell, and the S. *Forteviot* in Lat. 7° 56′ N. and Long. 66° 7′ E. had rain in the early morning. On the 19th the current had extended to the South Malabar coast, and on the 20th as far north as the parallel of 15½° N. To the south of this latitude weather was rainy and squally, while to its north it was still fine. Winds were rising again in force, and had shifted round to west on the Bombay coast. During the next 24 hours the advance of the current was rather slow, and hence it had not extended beyond Lat. 17½° N. on the morning of the 21st. It had, however, gained further in strength, and was now of about normal force. The squally and rainy weather continued to advance northwards, and on the morning of the 22nd had reached the latitude of Bombay. Winds had increased still further in force, more especially in the neighbourhood of Socotra, where they had also shifted round to south. The S.S. *Eiffel Tower* in Lat. 13° 36′ N. and Long. 54 °5′ E. at 8 A.M. of the 22nd experienced south winds of force 9 and a "terrific high cross sea", and the S.S. *Sharlachberger* only a few miles distant from it had south-south-east winds of force 8. A strong monsoon current now prevailed over by far the greater part of the sea. Winds fell off slightly in force and shifted round to south-west in the west of the sea during the next 24 hours, and hence the mean force for the whole sea area decreased to 4·0 on the 23rd. No change of importance occurred until the 25th, on which day the winds shifted round to their normal north-westerly direction along the Konkan and Malabar coasts, and weather began to improve slightly. A very rapid decrease in the strength of winds took place during the next four days, and the weather improved very considerably except along the west coast, where rather heavy showers continued to fall. The mean strength of the current over the whole sea area had decreased from 3·5 on the 27th and 3·1 on the 28th to 2·9 on the 29th. The current on this day was as abnormally weak as on the 18th and 19th. It may be noted that this weakness of the current was as on the 18th and 19th accompanied by easterly or variable winds on the west coast. Winds however increased rapidly in strength during the next 24 hours, and the monsoon current became again of normal strength on the 30th. With this change the winds returned to south-west again on the west coast, and the weather became more rainy and squally. Thus the S.S. *Byculla* in Lat. 16° 49′ N. and Long. 73° 4′ E. at 8 A.M. of the 30th experienced hard squalls of wind and rain. These conditions continued during the next 24 hours, so that ordinary monsoon weather prevailed at the close of the month over the whole of the Arabian Sea.

The statement which is given below shows the mean wind

force for the whole of the Arabian Sea for each day of August and also the number of vessels furnishing wind data:—

Date.	Number of vessels furnishing data.	Average actual force.	Date.	Number of vessels furnishing data.	Average actual force.
1	25	4·2	17	22	3·4
2	24	3·5	18	24	2·9
3	29	4·0	19	24	2·8
4	26	4·5	20	24	3·1
5	23	4·3	21	24	3·4
6	23	4·6	22	21	4·4
7	24	4·9	23	25	4·0
8	23	4·6	24	25	3·6
9	21	4·0	25	19	4·0
10	22	3·9	26	18	3·8
11	22	4·3	27	17	3·5
12	23	3·7	28	18	3·1
13	22	3·6	29	18	2·9
14	21	3·1	30	17	3·8
15	21	3·3	31	21	3·6
16	19	3·7	Mean for the month.		3·8

The mean wind force for the month for the whole of the Arabian Sea area averaged 3·8. As the normal for the month is 3·1, it is clear that the monsoon current in the Arabian Sea has been slightly stronger than usual. So far as can be judged, it has been also nearly of normal direction and steadiness.

Bay of Bengal.—At the commencement of the month unusually strong south-west monsoon winds prevailed over the centre and east of the Bay, and weather was very squally and rainy over the greater part of that area. Thus the S. S. *Nuddea* in Lat. 19° 18′ N. and Long. 90° 16′ E. at 8 A.M. of the 1st had westerly winds of force 9, a high beam sea and heavy squalls, and the S. S. *Bancoora* in Lat. 14° 10′ N. and Long. 93° 22′ E. at the same hour experienced south-west winds of force 6 and very heavy rain squalls. Over the north of the Bay winds were light to moderate in force, and were feeding into the area of depression, which existed on this day in the north-west angle of the Bay. The depression was, however, a very feeble one, and was not affecting the weather at the head of the Bay to any material extent. So slight in fact was the influence of the depression over the weather that the S. S. *Bezwada* in Lat. 20° 26′ N. and Long. 87°43′ E. at 8 A. M., and probably not more than 50 or 60 miles to the south or south-west of the centre of the storm had south-west winds of force 2, and overcast weather but no rain. Over the west of the Bay moderate to fresh south-west winds were blowing, and weather was cloudy or rainy; while at the entrance to the Bay weather was squally with fresh to strong south-west winds. The average wind force for the whole of the Bay as deduced from the wind data of 22 vessels was 4·8 on this day. The storm in the north-west angle of the Bay moved slightly in a north-westerly direction during the day, but did not intensify, and again its influence on the weather in the north of the Bay was slight. Winds had, however, risen over the remainder of the Bay except in the extreme south-east, and on the morning of the 2nd averaged 5·2 in force. A very strong monsoon now prevailed over the west, east, and centre of the Bay, and weather was unsettled with heavy squalls, and rain was falling to the east of the meridian of 85½° E. To the west of this longitude fine clear weather obtained. The small storm passed inland during the next 24 hours, and its passage inland was accompanied by the extension of rainy weather to the head of the Bay. Thus the S.S. *Chelydra* in Lat. 21° 6′ N. and Long. 88° 30′ E. at 8 A.M. of the 3rd experienced south-south-west winds of force 4 and constant rain. The general weather conditions were otherwise unchanged, though the current showed a tendency to fall off in strength. A further slight decrease occurred during the next 24 hours, and the average strength of the current on the morning of the 4th was 4·5. From this date until the 6th winds continued unchanged in strength, but began to fall off rapidly on the afternoon of the latter date, and on the morning of the 7th had decreased to force 3·8. Weather continued squally and rainy over the head of the Bay, where there was a decided tendency to the formation of a low pressure area. On the other hand showers had commenced to fall over the west of the Bay. The tendency to the formation of the depression over the north-west angle of the Bay developed rather rapidly, and a small centre of a depression apparently passed inland on the afternoon of this day. The pressure gradients increased considerably over the Bay, and accompanying this there was an increase in the strength of winds, more especially over the north-west angle of the Bay, where a fresh to a whole gale and very unsettled weather were experienced. Thus the S.S. *Nadir* in Lat. 20° 15′ N. and Long. 87° 1′ E. at 8 A.M. of the 8th had south winds of force 7 to 8 and squalls and heavy rain, and the S.S. *Nurani*, only a few miles to the north-east, had south-south-west winds of force 7 to 10 with very hard squalls of wind and rain. Winds had, on the other hand, fallen off considerably over the centre and east of the Bay, and the weather had consequently improved rapidly in that area. Hence, fine weather prevailed generally over the Bay on this day, except over the north-west angle, where weather was unusually disturbed with heavy squalls and rain. The average strength of the wind over the Bay at 8 A.M. of this day was 4·0.

The gradients decreased considerably over the Bay during the next 24 hours, and the air motion decreased slightly in strength, particularly over the north-west angle of the Bay. Weather, however, still continued squally over the north-west of the Bay, where the Ship *Wiscombe Park* experienced high sea and hard squalls at noon of the 9th. No change occurred during the next 24 hours except that conditions improved in the north-west angle of the Bay, and fine weather was established over practically the whole of the Bay on the morning of the 10th. The pressure differ-

ence increased again over the Indian region, and accompanying this change the air motion over the Bay rose to an average force of 4·3 on the morning of the 11th. This increase of strength of the wind was, however, only temporary, as the barometric gradient decreased considerably during the next 24 hours, and the air motion fell off to a mean force of 3·4 on the morning of the 12th. Fine clear weather continued over the whole of the Bay, except over the area between the Nicobars and the Malay Peninsula, where conditions had become unsettled. The S.S. *Purnea* in Latitude 7° 21′ N. and Longitude 98° 21′ E. at 8 A.M. of the 12th experienced dense rain-squalls.

An important change took place during the next 24 hours off the Lower Arakan coast, where the wind shifted round to west-north-west forming part of an irregular cyclonic circulation around a small low pressure area existing in the interior of Lower Burma. The indraught to the low pressure area initiated showery weather again on the Burma and Arakan coasts on the 13th. The depression developed slightly on the 14th, and passed out into the east of the Bay on the 15th. Winds, which had been steady during the previous two days, increased rapidly in force, and on the morning of the 15th were blowing with an average force of 4·3 as compared with 3·6 on the 13th and 14th. Conditions were, however, unfavourable to the development of the storm, and hence, notwithstanding its existence in the Bay, the air motion diminished rapidly, and on the morning of the 16th had decreased to an average of 3·3, or 1·0 lower than on the previous day. The chart of the 17th showed that the feeble storm was still in existence, but as on the previous day had but little effect on the weather. Winds, although forming part of the cyclonic circulation in the north of the Bay, were only moderate in force, and weather was practically fine. No change occurred during the next 24 hours beyond a rapid rise in the strength of the winds, which had a mean force of 4·0 on the morning of the 18th. The depression in the Bay had apparently developed a west-north-westerly movement, and was approaching the Ganjam coast. A rapid change in the weather was in progress over the west and south of the Bay, where rain was commencing. During the next 24 hours winds increased in force in the south of the Bay and fell off in the centre and east, and the mean force on the 19th had therefore decreased again to an average of 3·4. Weather, on the other hand, had become further unsettled over the west and south, and several vessels in these areas experienced heavy rain and passing squalls. The small storm had passed inland on the morning of the 19th and was still a feeble depression, but with the inland advance of the small storm winds increased in force, and on the morning of the 21st were of average force 4·2. The squally weather, which on the 18th and 19th was confined to the south of the Bay, had advanced rapidly northwards, and on the morning of the 22nd was affecting the whole of the Bay except the west portion of it, where fine weather, which had set in on the afternoon of the 19th after the passage inland of the small storm over the Bay, continued. Again a small depression had passed out on this day into the east of the Bay from Burma, and was beginning to affect the winds over the northern half of the sea. Winds increased slightly in force during the next 24 hours, particularly in the west portion of the Bay, and the weather there became unsettled. Over the south of the Bay, on the other hand, conditions began to improve, and fine clear weather was setting in. The storm in the Bay moved in a west-north-westerly direction during the next 24 hours, and on the morning of the 24th was close to Gopalpur, where it continued stationary during the next three days, and then passed into the monsoon trough of low pressure. Like the previous depression it was a feeble storm, and its effect on the weather in the Bay was extremely slight, so much so that the air movement instead of rising or even continuing steady during its period of existence over the Bay, had decreased steadily, and on the morning of the 27th averaged only 3·1 as compared with 4·0 on the 23rd. From the 27th to the close of the month the monsoon current strengthened again, and on the morning of the 31st the mean wind force as determined from the wind data of 18 vessels was as much as 4·6. During the whole of this period the weather was rainy and squally over the whole of the Bay, except in the extreme south, where it had remained settled since the 24th.

From the above account of the weather in the Bay it will be seen that there were two periods of fine weather during the month, *viz.*, from the 10th to the 18th, and from the 24th to the 26th. During the remainder of the month ordinary monsoon weather prevailed. The following gives a statement for the Bay similar to that for the Arabian Sea :—

Date.	Number of vessels furnishing data.	Average actual force.	Date.	Number of vessels furnishing data.	Average actual force.
1	22	4·8	17	19	3·3
2	28	5·2	18	24	4·0
3	26	4·9	19	25	3·4
4	27	4·5	20	27	4·0
5	26	4·6	21	26	4·2
6	23	4·6	22	30	3·8
7	20	3·8	23	24	4·0
8	23	4·0	24	26	3·7
9	17	3·9	25	24	3·6
10	17	3·8	26	20	3·3
11	15	4·3	27	18	3·1
12	21	3·4	28	21	3·7
13	22	3·6	29	22	3·6
14	22	3·6	30	22	4·3
15	16	4·3	31	18	4·6
16	20	3·3	Mean for the month.		4·0

Taking the mean for the whole month it is evident that notwithstanding the two slight breaks in the monsoon

current above noted, the average strength was normal, even if not slightly stronger than usual. It may be mentioned that the normal force of the winds in the Bay in August equals about 4·0.

It may be interesting to note that the periods of weakness or of slight breaks in the case of both branches of the monsoon current coincided very nearly, though in the case of the Bay current the falling off in strength was shown rather earlier than in the Arabian Sea branch.

Temperature of the Air.

The mean day or maximum temperature of the month was above the normal over the greater part of Northern India north of about Lat. 21° N., while it was in defect over the greater part of the Peninsula south of this position. Slight defects were also registered over a considerable part of Bengal and Assam, while on the other hand slight excess temperatures were registered in the extreme south of the Peninsula. The largest excess temperatures were shown over parts of the Punjab, Sind, Rajputana, and the North-Western Provinces, as indicated in the following table, where the stations at which the average maximum temperatures for August were more than 3° in excess of the normal are given :—

PROVINCE.	STATION.	Actual average maximum, August 1893.	Variation from normal for August.
		°	°
NORTH-WESTERN PROVINCES.	Jhansi . . .	92·5	+4·2
PUNJAB . .	Sialkot . . .	97·9	+3·5
	Lahore . . .	99·7	+3·4
	Sirsa	102·7	+5·2
RAJPUTANA .	Sambhar . . .	93·3	+4·3
	Jeypore . . .	93·7	+3·9
SIND . . .	Jacobabad . . .	106·6	+3·3

The area of largest deficiency in the maximum temperature was confined to the centre of the peninsula between about Lat. 21° and 15° N, and comprised a large part of the Deccan and Berar. This area is defined in the table below, where the stations at which the defects have exceeded 1·5° are given. It will, however, be noticed that the excess temperatures as given in the previous table are decidedly larger than the defects in this table :—

PROVINCE.	STATION.	Actual average maximum, August 1893.	Variation from normal for August.
		°	°
CENTRAL PROVINCES AND BERAR	Khandwa . . .	84·2	—1·7
	Nagpur . . .	85·8	—1·7
	Akola . . .	85·3	—1·9
	Amraoti . . .	83·4	—3·2
BOMBAY DECCAN.	Sholapur . . .	86·7	—1·8
	Secunderabad . .	84·1	—2·1
MADRAS . .	Bellary . . .	86·9	—4·2
	Kurnool . . .	88·0	—1·6
	Bangalore . . .	80·3	—1·7
	Vizagapatam . .	85·9	—1·7

It will be noticed that in neither of these two small tables does the name of any hill station appear, and indeed the maximum temperature of the upper strata of the atmosphere appears to have been fairly normal in most cases. Thus the variation of the day temperature from the normal at Darjeeling, Ranikhet, Mussooree, Chakrata, Mount Abu and Wellington has been in each case decidedly less than a degree, while at Murree an excess of 1·3° and at Simla a defect of 2·1° was registered, giving very nearly a normal temperature for the hill stations as a whole.

The average minimum or night temperature for August has not varied much from the normal, and for the greater part of India the variations have been less than a degree. The south and west of the peninsula and a considerable part of Rajputana, Sind, the Punjab and North-Western Provinces, together with practically the whole of Bengal and Burma show slight excess amounts, while elsewhere defects have been registered. On the North-Western Frontier two or three stations show rather large variations; thus Quetta shows a defect of 6·4°, which is perhaps of doubtful accuracy, Peshawar a defect of 3·1° and Rawal Pindi a defect of 2·7°. With these exceptions the variations have been usually very small, and the stations (other than the three previously given) at which the variations have been largest are given in the following table :—

STATION.	EXCESS VARIATION OF MINIMUM TEMPERATUEE.		STATION.	DEFECTIVE VARIATION OF MINIMUM TEMPERATURE.	
	Actual average minimum temperature for August 1893.	Variation from normal for August.		Actual average minimum temperature for August 1893.	Variation from normal for August.
	°	°		°	°
Jhansi . .	78·2	+1·6	D. I. Khan .	79·8	—1·4
Ajmere . .	75·9	+1·6	Meerut . .	77·4	—1·2
Purnea . .	79·5	+1·5	Nowgong .	75·5	—1·4
Berhampore .	79·5	+1·0	Bellary . .	72·3	—1·1
Burrisal . .	78·6	+1·2	Gopalpore .	77·5	—2·9
Diamond Island .	77·2	+1·8	Coconada .	77·6	—1·1
Cochin . .	75·0	+1·0	Coimbatore .	69·5	—1·2
Trichinopoly .	77·3	+1·1			

The mean temperature for the month has hence been in defect of the normal over the greater part of the Peninsula, excluding the extreme western and southern stations, while Northern and Eastern India have generally registered slightly excessive temperatures for August, though slight defects have been registered in Assam and along the North-West Frontier. The areas of maximum variation to a great extent agree with those given under the heading of the day temperature, and hence the area of largest excess has included some stations in the Punjab, Rajputana, etc., and that of largest defect certain parts of the Berars, Deccan, etc. Both these areas are defined in the following table, where the stations at which the variations have equalled or exceeded 1·5° are given :—

Station.	Excess variation of mean temperature.		Station.	Defective variation of mean temperature	
	Actual mean temperature for August 1893.	Variation from normal.		Actual mean temperature for August 1893.	Variation from normal.
	°	°		°	°
Sialkot	87·9	+2·0	Peshawar	87·2	−1·6
Lahore	89·7	+2·0	Rawalpindi	82·7	−1·9
Sirsa	91·6	+3·1	Simla	63·3	−1·7
Mooltan	92·9	+1·7	Amraoti	77·6	−2·0
Agra	86·0	+1·5	Bellary	79·6	−2·7
Jhansi	85·4	+2·9			
Bikaneer	90·0	+1·8			
Sambhar	84·8	+2·5			
Jeypore	84·6	+2·3			
Ajmere	82·4	+1·6			
Burrisal	83·2	+1·8			
Trichinopoly	87·6	+1·5			

Again, the temperature of the higher strata of the atmosphere does not appear to have shown such large variations from the normal as the temperature of the plains stations. This will be seen clearly in the following table, where the variations at the hill stations are compared with those of the plain stations nearest to them, and all the hill stations except Simla (and Quetta) show smaller variations than the stations in the plains near them :—

Hill Station.	Variation of average mean temperature of August 1893 from normal.	Nearest Plain Station.	Variation of average mean temperature of August 1893 from normal.
	°		
Quetta	−4·0	Jacobabad	+1·4
Leh	+1·1		
Murree	+0·6	Rawalpindi	−1·9
Simla	−1·7	Ludhiana	+0·4
Chakrata	−0·1	Roorkee	−0·4
Mussooree	−0·1	Dehra Dun	−0·3
Ranikhet	+0·1	Bareilly	+0·2
Darjeeling	−0·1	Dhubri	−1·0
Mount Abu	−0·4	Deesa	+0·7
Pachmarhi	+0·2	Hoshangabad	−0·3
Wellington	−0·1	Coimbatore	+0·9

The following table gives the summary of the temperature data for the month for the 50 meteorological divisions of the Empire :—

Province.	Division.	Actual Temperature.					Variation of		
		Mean Maximum.	Mean Minimum.	Mean daily.	Mean Daily Range.	Absolute Range.	Maximum.	Minimum.	Range.
		°	°		°	°	°	°	°
Burma	Tenasserim	85·0	74·5	79·8	10·5	17·9	+ 1·6	+ 0·6	+ 1·0
	Lower Burma	84·6	76·4	80·5	8·1	14·5	+ 0·2	+ 0·8	− 0·6
	Central do.	90·5	75·7	83·2	14·8	20·1	+ 0·4	+ 0·2	+ 0·2
	Upper do.	87·5	74·3	80·9	13·2	22·3	?	?	?
	Arakan	84·6	76·9	80·9	7·7	13·0	+ 0·4	− 0·2	+ 0·6
Bengal and Assam	Eastern Bengal	86·6	77·9	82·3	8·7	15·9	+ 1·1	+ 0·7	+ 0·4
	Assam (Surma)	87·7	76·8	82·4	10·9	24·3	− 1·5	+ 0·2	− 1·7
	Do. (Brahmaputra)	86·4	77·9	82·2	8·5	18·8	− 2·1	− 0·1	− 2·0
	Deltaic Bengal	88·2	79·1	83·7	9·0	15·4	+ 0·5	+ 0·5	0
	Central do.	88·8	78·4	83·6	10·4	17·5	− 0·2	+ 0·9	− 1·1
	North do.	88·5	78·0	83·2	10·4	19·6	?	?	?
	Orissa	88·4	79·0	83·8	9·4	17·5	+ 0·3	+ 0·5	− 0·2
	Chota Nagpur	86·4	74·6	80·5	11·8	18·9	+ 1·1	− 0·5	+ 1·6
	Bihar (South)	90·1	79·1	84·6	11·0	18·8	+ 0·6	+ 0·3	+ 0·3
	Do. (North)	89·1	79·1	84·1	10·1	17·0	− 0·4	+ 1·2	− 1·6

Province.	Division.	Actual Temperature.					Variation of		
		Mean Maximum.	Mean Minimum.	Mean daily.	Mean Daily Range.	Absolute Range.	Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	North-Western Provinces (East)	90·5	78·4	84·5	12·1	20·5	+ 0·4	− 0·4	+ 0·8
	Oudh (South)	91·2	77·9	84·6	13·3	22·2	+ 0·5	− 0·7	+ 1·2
	North-Western Provinces (Central)	92·1	78·3	85·3	13·8	23·7	?	?	?
	Do. do. (West)	92·9	78·5	85·7	14·4	24·8	+ 3·5	+ 0·9	+ 2·6
	Do. do. (Submontane)	89·8	76·1	83·0	13·8	23·0	+ 0·8	− 0·8	+ 1·6
Punjab	Punjab (South)	98·2	80·1	89·2	18·1	23·3	+ 3·5	+ 0·8	+ 2·7
	Do. (Central)	99·7	79·6	89·7	20·1	31·7	+ 3·4	+ 0·6	+ 2·8
	Do. (Submontane)	96·2	78·2	87·2	18·1	28·0	+ 1·2	− 0·5	+ 1·7
	Do. (Hill Districts)	75·0	59·8	67·4	15·2	25·7	− 0·4	− 0·8	+ 0·4
	Do. (North-West)	96·7	75·2	85·9	21·5	35·9	+ 0·8	− 2·1	+ 2·9
	Do. (West)	103·2	81·0	92·1	22·2	36·6	+ 1·7	− 0·4	+ 2·1
Bombay and Malabar Coast Districts (Madras).	Malabar	83·1	74·6	78·8	8·5	13·5	+ 1·3	+ 0·7	+ 0·6
	Madras (South Central)	90·9	70·9	81·0	20·0	26·8	+ 1·1	− 0·3	+ 1·4
	Coorg	74·6	64·6	69·6	10·0	17·8	− 1·2	+ 0·9	− 2·1
	Mysore	80·6	65·4	73·0	15·2	22·1	− 1·7	+ 0·4	− 2·1
	Konkan	82·7	75·3	79·0	7·4	12·2	− 0·1	+ 0·6	− 0·5
	Bombay Deccan	81·7	68·3	75·0	13·4	21·9	− 1·5	− 0·5	− 1·0
	Hyderabad (North)	82·6	70·2	76·4	12·4	22·6	?	?	?
	Khandesh	84·0	70·0	77·1	14·0	26·5	− 0·4	0	− 0·4
Central Provinces and Berar.	Berar	84·4	72·3	78·4	12·1	21·9	− 2·6	− 0·7	− 1·9
	Central Provinces (West)	85·0	73·5	79·3	11·5	23·8	− 1·2	− 0·5	− 0·7
	Do. (Central)	84·6	72·8	78·7	11·9	23·2	+ 0·3	− 0·5	+ 0·8
	Do. (East)	86·6	75·9	81·3	10·8	21·0	− 0·4	− 0·3	− 0·1
Bombay (North)	Guzerat	88·9	76·7	82·9	12·2	19·9	+ 1·2	+ 0·2	+ 1·0
	Kathiawar	88·8	76·6	82·7	12·2	19·6	+ 1·8	− 0·6	+ 2·4
	Sind	95·6	78·5	87·1	17·1	24·4	+ 2·0	− 0·1	+ 2·1
Rajputana and Central India.	Central India (East)	88·8	75·8	82·4	13·0	22·8	+ 1·8	− 0·6	+ 2·4
	Rajputana (East), Central India (West)	88·8	74·3	81·6	14·5	26·5	+ 1·9	+ 0·4	+ 1·5
	Do. (West)	96·5	78·6	87·6	18·0	27·9	+ 2·7	+ 0·8	+ 1·9
Madras	East Coast (North)	87·3	78·2	82·8	9·1	19·0	− 0·6	− 1·0	+ 0·4
	Hyderabad (South)	85·1	71·9	78·5	13·3	22·6	− 2·1	− 0·1	− 2·0
	Madras (Central)	89·0	74·0	81·5	15·1	25·8	− 2·3	− 0·6	− 1·7
	East Coast (Central)	92·9	78·3	85·6	14·6	24·2	− 1·2	− 0·7	− 0·5
	East Coast (South)	95·1	77·1	86·1	17·9	27·5	+ 1·1	+ 0·4	+ 0·7
	Madras (South)	93·1	76·6	85·4	16·5	23·3	− 1·0	− 0·1	− 0·9

The following short summary will indicate the principal changes of temperature during August.

It must be remembered that during the south-west monsoon months the variations of temperature from day to day are usually small, unless from some cause there should happen to be a break in the rains, when as the natural result of the cessation of rainfall and of the clearing of the sky from clouds, temperature as a rule rapidly increases. As the south-west monsoon or rainfall bearing current in August was fairly strong over the greater part of India, and as there were no very marked breaks in the rains in any province during the month, the temperature variations in August have been decidedly small.

The mean temperature for the whole of India as registered on August 1st was almost exactly normal, the variation only being a tenth of a degree in defect, and this was also the case on the 2nd. From the 3rd to the 5th owing to rather heavier rainfall, following in the rear of the first barometric depression of the month, the mean temperature fell and became nearly 1° in defect; but as the rain fell off in heaviness, temperature became first, nearly normal, and then slightly in excess, until the 8th or 9th. From the 7th to the 9th an exceedingly feeble low pressure area existed; it was formed on the 7th over South-West Bengal and the head of the Bay, and then advanced north-westward up the Gangetic Plain. In its rear another inrush of monsoon winds took place and rainfall again became heavy, and from the 9th to the 13th the mean temperature of India was about 1° in defect. A period of comparatively light rainfall then set in which lasted till about the end of August, and from the 15th to practically the end of the month temperature was slightly above the normal, the excess being largest on the 20th, 21st and 22nd, when it equalled about 2°, but before the close of the month the excess had again become rather smaller.

The following table will show the variation of the mean

temperature of the weeks of August from the normal in each of the 9 meteorological Provinces into which India is divided :—

PROVINCE.	1st to 5th August.	6th to 12th August.	13th to 19th August.	20th to 26th August.	27th to 31st August.
	°	°	°	°	°
Burma	−1·3	+0·3	+2·2	+0·8	+0·3
Bengal and Assam . .	−0·9	−1·1	+0·5	+1·3	+1·3
North-Western Provinces and Oudh.	−0·9	−1·1	+0·6	+1·8	+1·6
Punjab	+1·1	−0·8	−1·4	+3·3	+1·7
Bombay . . .	−0·1	−0·1	+0·9	0	−0·7
Central Provinces and Berar.	−1·9	−2·2	+0·4	+0·8	−1·1
Central India and Guzerat	+0·5	−0·8	−0·2	+2·1	+0·8
Sind and Rajputana .	+1·6	+1·1	0	+3·0	+2·0
Madras . . .	−2·7	−0·2	+0·9	−0·9	−0·2
Mean for whole of India .	−0·5	−0·5	+0·4	+1·4	+0·6

Winds.

The character of the monsoon winds blowing in August over both the Arabian Sea and the Bay of Bengal has been already fully discussed under the section dealing with the weather over these areas, and therefore in this place it is only necessary to deal with the winds registered at the land stations. The figures on which the conclusions in this portion of the summary are based will be found in Table II.

In Burma and the Bay Islands during August wind directions were fairly normal as recorded at Port Blair, Diamond Island and Akyab, but somewhat unusual at Rangoon where the mean direction was N 61° W as against the normal direction of S 34° W. The average percentage of steadiness of the winds was very nearly normal, the mean at the four stations amounting to 72 per cent. for both the actual steadiness in August and the normal steadiness in previous years. The actual steadiness at Rangoon was a little lower than usual, but at the stations of Port Blair and Diamond Island it was somewhat higher than the normal. The mean wind velocity as registered during August at the four stations was 155 miles per day, while the normal velocity is 147 miles, so that the actual strength registered in August was higher than the normal. The excess, however, was confined to the stations of Diamond Island, Akyab and Rangoon, as Port Blair showed slightly defective wind velocity.

In Assam Sibsagar and Dhubri showed very nearly normal wind directions, but at Silchar the mean wind direction was N 13° W as against the normal direction S 63° W. The average percentage of steadiness was much greater than usual at Sibsagar, but at the other two stations it was fairly normal. In the case of the mean wind daily velocity, the average for August for the three stations has been 55 miles, while the normal velocity is 70 miles, and therefore the winds in August have been particularly feeble. This weakness has, however, been entirely confined to Silchar and Sibsagar, and at the former station the wind velocity has been reported to be 12 miles a day as against the normal velocity of 69 miles or about a sixth of the normal, while at Sibsagar the velocity has been about half as much as usual. Silchar has therefore not only shown an unusual mean wind direction in August, but wind velocity has also been extraordinarily small.

In Bengal and Orissa the general wind directions were very nearly normal, and so were the percentages of wind steadiness and mean wind velocities. The figures for the stations in this province are given in the table below.

STATION.	DIRECTION.		STEADINESS.		VELOCITY IN MILES.	
	Mean, August 1893.	Normal, August.	Actual percentage, August 1893.	Normal percentage, August.	Mean daily air movement in miles, August 1893.	Normal daily air movement in miles, August.
Chittagong .	S 1°E	S32°E	55	55	114	146
Dacca . .	S 14°E	S14°E	69	72	167	151
Calcutta . .	S 33°E	S17°E	40	57	107	122
Saugor Island .	S 4°W	S17°W	43	54	312	299
Burdwan . .	S 39°E	S27°E	35	48	106	84
Berhampore .	S 55°E	S40°E	43	45	85	101
False Point .	S 30°W	S57°W	48	53	252	238
Cuttack . .	S 42°W	S44°W	37	45	79	62

To show how closely the figures for velocity taken as a whole agree with one another, it may be stated that the actual average mean daily wind velocity at all the stations has equalled 153 miles, while the normal average is 150 miles, so that the monsoon current has been very slightly stronger than usual in August, as judged by the observations at those stations.

Over the Gangetic Plain and in Chota Nagpur the wind directions on the whole have been rather more easterly than usual, but the variation has not been large. The percentage of wind steadiness has been decidedly greater than usual. The wind strength has, however, been much

greater than the normal, for the average mean daily wind velocity for the six stations has equalled 122 miles, while the normal amount is only 99 miles. As judged by this district, which is fed mainly by the Bay of Bengal branch of the monsoon, the strength of the current was decidedly above the normal in August.

At the stations in the Upper Sub-Himalayas District the winds at Dehra Dun and Roorkee were fairly normal in direction and steadiness and probably also in velocity, but at Meerut and Lahore there were considerable variatoins from the normal. Thus winds were more southerly and westerly than usual at Meerut, and more northerly and westerly than the normal at Lahore, while at Ludhiana wind was S 82° W. instead of S. 66° E. Wind velocities at these three stations were decidedly lower than the normal, but the steadiness, though variable at different stations, was on the whole nearly normal. In the Indus Valley and North-West Rajputana division two stations recorded wind directions more easterly and two less easterly or more westerly than in normal years, so that probably over this province the wind direction has been not very far removed from the normal. The percentage of wind steadiness was, however, decidedly higher than usual at three stations out of four. Wind velocity was in decided excess at one station, in distinct defect at two, and exactly normal at the fourth station, so that on the whole the strength of the monsoon in this province was lower than usual.

In East Rajputana, Central India and Guzerat winds were decidedly more westerly than usual at practically all stations, and also somewhat more northerly at some stations. The percentage of steadiness was also higher than the normal at three out of the five stations, but the mean wind velocity was in defect at three out of the five stations, so that probably the monsoon blowing in this province was less strong than the normal.

The following table contains the wind statistics of the stations in the Deccan and West Coast division. Out of 17 stations wind direction was slightly more westerly than usual at six, and slightly less strongly westerly at ten stations, while it was exactly mormal in one case, so that the monsoon over this area was distinctly less strongly westerly than usual. Out of the same 17 stations the percentage of wind steadiness was higher than usual at eight stations, at eight in defect, and normal at one station. In the case of wind velocity, out of 15 stations for which normals are known, nine have shown wind velocities higher than usual, and six below it. Indeed at five stations winds were unusually strong The average actual mean velocity at the 15 stations, of which normal velocities are known for August, has been 237 miles, while the normal velocity is 226 miles. These figures for these provinces which are entirely fed by the Arabian Sea branch of the monsoon current would therefore show that this branch was decidedly above the normal strength in August, though perhaps its direction was rather less westerly than usual.

Station.	Direction.		Steadiness.		Velocity in miles.	
	Mean, August 1893.	Normal, August.	Actual percentage, August 1893.	Normal percentage, August	Mean daily air movement in miles, August 1893.	Normal daily air movement in miles, August.
A—Deccan.						
Belgaum . .	S 67°W	S 79°W	90	89	532	497
Sholapur . .	N 88°W	N 89°W	77	79	355	279
Poona . . .	S 87°W	S 84°W	95	82	290	340
Akola . . .	N 82°W	N 71°W	81	80	214	194
Buldana . .	N 85°W	N 65°W	82	72	223	199
Khandwa . .	N 75°W	N 80°W	90	80	246	102
Hoshangabad . .	S 64°W	S 79°W	63	73	80	85
Nagpur . . .	N 77°W	N 76°W	61	62	202	144
Jubbulpore . .	N 88°W	N 84°W	49	64	66	107
Saugor . . .	S 61°W	S 78°W	66	66	135	104
Raipur . . .	S 77°W	S 76°W	58	64	188	187
Sutna . . .	N 44°W	N 70°W	24	39	169	191
Secunderabad . .	N 78°W	S 87°W	79	83	280	244
Hyderabad (Dn.) .	N 83°W	?	87	?	218	?
B—West Coast.						
Bombay . .	S 81°W	S 81°W	85	81	344	384
Ratnagiri . .	S 85°W	S 63°W	79	61	229	242
Karwar . . .	N 47°W	W	63	79	60	?
Cochin . . .	N 71°W	N 85°W	85	59	171	?

At the stations in Southern India in several cases the normal figures for the winds have not yet been ascertained, so that the comparison of the actual result for August is less reliable than in most other provinces. In this district out of seven stations for which the normal figures have been obtained, winds were less strongly westerly than usual at five, and more westerly at two only. In the case of the percentage of wind steadiness three stations showed greater steadiness and four less steadiness than usual, and in the case of velocity four stations showed distinctly greater wind velocities than usual, and three smaller wind velocities. Southern India is also to a great extent under the influence of the Arabian Sea branch of the monsoon current, and the figures for the Southern Indian stations practically confirm those of the Deccan and West Coast stations in showing that the Arabian Sea current was above the normal in strength, though rather less strongly westerly than usual.

At the hill stations in Baluchistan the observations made at Quetta showed that the wind direction was decidedly less strongly westerly than usual, but that the steadiness was larger than usual, while the wind strength was feeble. At the stations in the Himalayas between Leh and Ranikhet out of six stations of which normal figures have been ascertained, four stations have shown that the mean wind direction was more strongly westerly than usual, and two slightly less strongly westerly. Five out of the six stations have shown a percentage of steadiness much higher than the normal, and at all the six stations the mean daily wind velocity has been decidedly higher than usual. At the hill stations in the Eastern Himalayas from Katmundu to Darjeeling winds have been on the other hand decidedly more

easterly than usual, and the percentage of steadiness has been very low. In only one case (Darjeeling) can the velocity be compared with normal figures, and wind velocity at that station has been higher than the normal. At the three hill stations in Central India also winds have had a decidedly more strongly pronounced westerly element in them than usual; thesteadiness has been greater, and wind velocity has been higher, than the normal.

Thus, generally at the hill stations winds have been decidedly above the normal in strength, and in all except the Eastern Himalayas and Baluchistan, where winds have been more easterly than normal, the usual wind directions have had a much stronger westerly element in them than in normal years.

For the whole of the inland stations the general wind statistics would appear to show that the monsoon current blowing in August, both from the Bay of Bengal and the Arabian Sea, was above the normal in strength, except perhaps in the extreme north-western districts of India, Baluchistan, etc.

The decided strength of the two branches of the monsoon is shown clearly by the figures given in the two small tables of this section, and is also shown in the discussion of almost all the smaller meteorological provinces. The directions on the whole have been fairly normal, but while the hill stations would tend to show the current to have been more westerly than usual, the stations near sea level have shown that the currents were rather less westerly than usual.

Humidity and Cloud.

During August in normal years the south-west monsoon current blows fairly steadily over the whole of India, practically throughout the month, and hence humidity and cloud proportion both remain high. In the event of there being any cessation of the current, followed by a break in the rains, the sky clears more or less rapidly, particularly in Northern and North-Western India, and humidity also decreases rather rapidly. In the month under review, though there was no prolonged or entire break in the rains, yet in the second-half of the month the monsoon current blowing over Upper India was feeble, and this was at once followed by a reduction in humidity and to a smaller extent in cloud proportion. Thus, in seven out of ten meteorological divisions of the Empire the amount of aqueous vapour in the air was lower than usual in August, and humidity was less than usual in eight divisions out of ten, while cloud proportion was in defect in three divisions.

At periods when the monsoon current becomes weak, it is naturally the areas which are furthest removed from the sea area, from which the current starts, which show the greatest effect of this weakness in the way of decrease of humidity, etc., while the peninsular portion of India, the eastern and north-eastern districts, such as Burma and Bengal, do not show any marked variations until the break in the Rains becomes pronounced.

Hence, the weakness of the south-west monsoon current in the second-half of August has shown mainly a reduction in the amount of aqueous vapour in the air and of humidity in the northern and north-western districts of India. In the Upper Sub-Himalayas district the deficiency in the mean aqueous vapour pressure for the month has equalled 0·049 inch, while at Lahore it has been 0·083 inch, and at Ludhiana 0·069 inch. The deficiency has been also rather large in the Indus Valley and North-West Rajputana division, where it has equalled 0 025 inch, and at Peshawar, which is in this division, and which is one of the stations in India farthest from the sea area, the deficiency has been no less than 0·120 inch. In other divisions the deficiency is comparatively small, and in the Gangetic Plain and Chota Nagpur, West Coast, and South Indian districts the defect is a little more than 0·01 inch, and in East Rajputana, Central India and Guzerat it has equalled 0·003 inch. On the other hand, very slight excess amounts of aqueous vapour pressure have been registered in the Deccan, Burma Coast and Bay Islands and Assam, the amounts, however, only ranging up to 0·012 inch in Assam.

The humidity variations follow almost precisely the variation of the aqueous vapour pressure as previously described, for the mean temperature of India and of the various provinces having been fairly normal, the variation in the amount of moisture present in the air has caused an approximately equal variation of the percentage of saturation of the air with moisture. Thus, the percentage of saturation (humidity) has been in defect in the Upper Sub-Himalayas division by 5 per cent. In the Indus Valley and North-West Rajputana division and in the East Rajputana, Central India and Guzerat divisions the deficiency of humidity has equalled 3 per cent. In Bengal, Orissa, the Gangetic Plain, Chota Nagpur, and West Coast divisions the deficiency has been 2 per cent. In South India and the Burma Coast and Bay Islands divisions the deficiency has been 1 per cent. It is only in the last case of the Burma Coast and Bay Islands division that there has been any striking variation between the mean aqueous vapour pressure and the mean humidity, and in this case the former showed an excess amount of ·009 inch, while humidity was 1 per cent. in defect. This has been due to the fact that the temperature over this area was actually rather higher than the normal for the month.

The following table will show the stations at which the variations of the aqueous vapour pressure and of the humidity from the normal were largest, and will therefore define the areas over which the air was unusually damp or unusually dry during the month :—

Station.	Humidity.		Aqueous Vapour Pressure.	
	Average actual	Variation from normal value.	Average actual amount.	Variation from normal value.
	%		"	"
a. *Less moist than usual.*				
Peshawar	53	−8	·656	−·120
Lahore	58	−6	·784	−·083
Ludhiana	65	−7	·803	−·069
Salem	67	−7	·693	−·069
Quetta	42	−4	·327	−·067
Murree	72	−10	·494	−·061
b. *More moist than usual.*				
Kurrachi	82	+4	·924	+·071
Akyab	90	+2	·955	·049
Hoshangabad	88	+4	·851	+·041
Madras	73	+2	·863	+·057

Cloud.—August is a month in which cloud proportion is very high in practically all districts of India, except parts of the Punjab and Sind. The cloud proportion is largest at the stations in Burma, Bengal and along the west coast of the Peninsula, in Bombay, etc., where the full force of the monsoon currents is experienced, while it becomes smaller at the stations which are furthest from the sea, and from the source of the monsoon winds. Thus, the average cloud proportion during the past month has equalled about 8 and 9 (an overcast sky being equal to a cloud proportion of 10) in Eastern and North-Eastern India, along the greater part of the west coast of the Peninsula, at the Bombay stations, at many stations in the Deccan, etc. In Northern India the cloud proportion was rather smaller, and it decreased rapidly towards the extreme north-western stations, where at Peshawar the cloud proportion during August averaged 2·6, at Mooltan 0·8, at Jacobabad 0·7, and at Quetta 0·8.

Compared with the normal cloud proportion the amount recorded in the month under review was in excess in seven out of the ten meteorological divisions of India. The areas over which the cloud proportion was smaller than usual were the Upper Sub-Himalayas, Indus Valley, North-West Rajputana, East Rajputana, Central India and Guzerat Divisions, in which in normal years the cloud proportion is not very large. The defect in the Indus Valley and North-West Rajputana has equalled 1·1, the actual average cloud proportion having been 2·4, while the normal is 3·5. This therefore represents a large defect, and shows that the monsoon current must have penetrated rather feebly over this area in August. The defects in the other divisions previously mentioned have been smaller, and only equal 0·7 and 0·6 respectively, so that the variation was not so marked as in the other case.

In all the seven meteorological divisions of India in which excess cloud proportion has been registered, the excess has not been very large, and the largest variation has been in the case of the Burma Coast and Bay Islands Division, with an excess of 0·9. In this division the actual average cloud proportion for August equalled 8·8, so that it will be seen the sky was almost overcast throughout the greater part of the month. The excess variation of the cloud proportion from the normal in Assam, the Gangetic Plain and Chota Nagpur, and on the West Coast of the Peninsula, was very small.

The table below will give a condensed view of the variations in August of the amount of moisture in the air, of the humidity, and of cloud proportion from the normal in the various meteorological areas into which India is divided :—

Division.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	"		
Burma Coast and Bay Islands	+·009	−1	+0·9
Assam	+·012	+2	+0·1
Bengal and Orissa	−·004	−2	+0·4
Gangetic Plain and Chota Nagpur	−·012	−2	+0·2
Upper Sub-Himalayas	−·049	−5	−0·7
Indus Valley and North-West Rajputana	−·025	−3	−1·1
East Rajputana, Central India and Guzerat.	−·003	−3	−0·6
Deccan	+·006	+2	+0·5
West Coast	−·012	−2	+0·1
South India	−·014	−1	+0·3

Rainfall.

The rainfall in August is generally heavy over the greater part of India, for the rain-bearing current, which is fully established in July, is maintained throughout the whole of August, though the strength in August is usually not so great as in July. In August also there is a much 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 falls in August is however very similar to that in July. The areas of heaviest rainfall are the districts

on the west coast of the Peninsula and the Western Ghats, which receive moderate to heavy rain almost daily in August. Another area of heavy rainfall is in Arakan, Lower Pegu and Tenasserim, another in Assam and the Lower Himalayas, another in South, and parts of, Central Bengal and parts of the Central Provinces. On the other hand, there are areas of comparatively light rainfall in Central Burma, the southern districts of Madras including Tinnevelly, Madura, and parts of Coimbatore and Salem, and Upper Sind and the West Punjab. The normal rainfall in August indeed varies from nearly thirty-eight inches in Tenasserim and thirty-two inches in Arakan to about two inches in Sind, West Punjab and the South Madras District.

The actual falls in August have to a great extent followed the normal distribution, but on the whole the falls have been decidedly lighter than usual. Falls averaging 28·54 inches have been recorded on the Burma Coast and Bay Islands, and of 19·51 inches in Assam, while the falls along the West Coast of the Peninsula have averaged 12·96 inches, these districts representing the areas of heaviest rainfall. On the other hand, in the Indus Valley and North-West Rajputana an average rainfall of only 1·08 inches has been recorded, and in South India the fall has only equalled 3·95 inches. In the case of stations and not large districts, the falls have ranged from about 55 inches of rain at Tavoy, 44 inches at Moulmein, 34 inches at Akyab and from 15 to 20 inches at several stations along the West Coast of the Peninsula to no rainfall at all at such stations as Quetta, Chaman, Hyderabad (Sind) and Karachi in North-Western India, and to no rainfall also at Nellore on the east coast of the Peninsula. Generally the rainfall over the Peninsula and Burma has decreased from the west to the east. There is also a line of maximum precipitation in and near the hills, the falls decreasing with the distance from the Himalayas, while the falls are also usually large at the southern stations and gradually decrease towards North-Western India. Finally, there is also an area of decidedly heavy precipitation in the Central Provinces.

Compared with the normal fall for the month, the actual amount of rain received in the Upper Sub-Himalayas, the Indus Valley and North-West Rajputana, East Rajputana, Central India and Guzerat, the West Coast and South India divisions were largely in defect of the normal. On the other hand, slight to moderate excess falls have been received in the Assam, Deccan, Burma Coast and Bay Islands divisions, and in the other divisions the falls were in small defect from the normal.

In the case of the smaller meteorological districts the actual falls in August were about 50 per cent. and upwards in defect in the Punjab (South, Central, North-West, West Submontane and Hill districts), Mysore, Sind, Madras (South) and Madras (East Coast South), while defects of about 25 per cent. and upwards were registered in Deltaic Bengal, Central Bengal, Chota Nagpur, South Bihar North-Western Provinces (East, Central, West), Oudh (South), Malabar, Madras (South Central), Kathiawar, Rajputana (East) and Central India (West). On the other, hand the falls were about 25 per cent. and upwards in excess of the normal in Tenasserim, Assam (Surma), Khandeish, Berar, Central Provinces (West), Madras East Coast (North (a)) and Hyderabad (South).

The following table gives comparative data for August 1893 referred to the normal rainfall for the month of the 51 meteorological districts of India. In the case of Bengal, Assam, the North-Western Provinces, Oudh, the Punjab, Rajputana, Central India, Sind, Guzerat, Kathiawar, Coorg, Konkan, Bombay Deccan, and Khandeish 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 districts given in the last column of that table and used in Plate V are based on the whole of the available information. In the case of the remaining provinces and districts the averages were derived from the data of the rainfall telegrams for the period sent by the district officers, which are usually included in the published Weekly Meteorological Report:—

Province.	Division.	Number of Rainy Days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	48·06	37·81	+ 10·25
	Lower Burma*	?	?	18·65	20·75	− 2·10
	Central do.*	?	?	15·05	17·18	− 2·13
	Upper do.*	?	?	7·17	?	?
	Arakan*	?	?	31·88	32·45	− 0·57

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

Province.	Division.	Number of Rainy Days. Actual.	Number of Rainy Days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	16·7	18·9	16·90	16·49	+ 0·41
	Assam (Surma)	22·0	21·1	28·46	20·73	+ 7·73
	Do. (Brahmaputra)	15·8	15·4	13·99	13·86	+ 0·13
	Deltaic Bengal	14·4	16·3	9·09	12·74	− 3·65
	Central do.	12·6	15·9	8·24	12·17	− 3·93
	North do.	15·3	17·0	19·37	18·21	+ 1·16
	Orissa	14·5	15·4	10·30	11·41	− 1·11
	Chota Nagpur	14·0	17·5	10·09	13·56	− 3·47
	Bihar (South)	10·1	13·6	7·68	11·27	− 3·59
	Do. (North)	10·9	13·6	9·56	11·49	− 1·93
North-Western Provinces and Oudh.	North-Western Provinces (East)	9·3	12·5	7·07	10·73	− 3·66
	Oudh (South)	8·2	11·9	6·72	10·47	− 3·75
	Do. (North)	8·3	11·7	8·15	10·44	− 2·29
	North-Western Provinces (Central)	7·6	11·5	6·20	10·28	− 4·08
	Do. do. (West)	5·7	10·3	4·40	8·66	− 4·26
	Do. do. (Sub-montane)	10·7	12·4	11·04	12·87	− 1·83
Punjab	Punjab (South)	2·4	4·3	1·24	3·44	− 2·20
	Do. (Central)	3·2	6·2	2·32	5·27	− 2·95
	Do. (Sub-montane)	4·3	8·1	3·72	8·33	− 4·61
	Do. (Hill Districts)	10·2	15·3	7·01	16·68	− 9·67
	Do. (North-West)	4·2	6·0	2·78	5·61	− 2·83
	Do. (West)	1·4	2·7	0·89	2·08	− 1·19
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	12·31	17·89	− 5·58
	Madras (South Central)*	?	?	3·54	5·25	− 1·71
	Coorg	21·0	?	14·71	?	·?
	Mysore*	?	?	2·48	5·32	− 2·84
	Konkan	25·2	23·8	23·54	23·96	− 0·42
	Bombay Deccan	11·3	9·9	6·16	6·08	+ 0·08
	Khandeish	13·2	8·6	8·79	5·99	+ 2·80
Central Provinces and Berar.	Berar*	?	?	11·11	7·39	+ 3·72
	Central Provinces (West)*	?	?	12·43	8·88	+ 3·55
	Do. (Central)*	?	?	16·21	13·40	+ 2·81
	Do. (East)*	?	?	14·89	12·32	+ 2·57
Bombay (North)	Guzerat	12·0	13·6	8·25	9·28	− 1·03
	Kathiawar	5·8	7·4	3·85	6·28	− 2·43
	Sind	0	?	0·01	1·94	− 1·93
Rajputana and Central India.	Central India (East)	12·3	?	10·94	12·64	− 1·70
	Rajputana (East), Central India (West)	7·6	?	6·28	9·68	− 3·40
	Do. (West)	4·6	?	3·72	4·48	− 0·76
Madras	East Coast (North)*	?	?	7·22	6·37	+ 0·85
	Do. (do.) (a)	?	?	17·56	12·95	+ 4·61
	Hyderabad (South)*	?	?	11·14	5·97	+ 5·17
	Madras (Central)*	?	?	3·40	4·23	− 0·83
	East Coast (Central)*	?	?	3·27	4·05	− 0·78
	Do. (South,*	?	?	2·38	5·15	− 2·77
	Madras (South)*	?	?	0·83	2·00	− 1·17

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

It will be seen from the above table that out of 49 rainfall districts for which the normal falls are known, the falls have been in excess of the normal in 14 districts only, and in defect in 35 districts. The defective falls were not only much more numerous than the excess falls, but the defects themselves were much larger than the excess amounts, so that it may be safely said the rainfall of India during August was rather largely in defect of the normal.

The complete rainfall data of Burma for August had not been received when this report was prepared. In the first week the falls in Arakan were very heavy, and in Lower and Central Burma they were decidedly heavy, and in these three areas the falls were in distinct excess. Heavy falls were also received in Tenasserim, but the falls were below the normal. In Upper Burma only small falls were received. In the second week the falls were comparatively small in all divisions, and in all cases were less than the normal, and the same was practically the case in the third week of the month, the falls being particularly defective in Lower Burma and Arakan. In the next week the falls became heavy in Tenasserim, and towards the end of the month the falls in this division were exceptionally heavy, over 9 inches falling within seven days, and at this time all divisions in Burma were receiving falls in excess of the normal. So far as the reports which have been received show, the fall in Tenasserim was more than 10 inches in excess of the normal, and in Lower and Central Burma about 2 inches in defect, while in Arakan the fall was almost normal.

The following table will show the summary of the rainfall data of Burma for August, as determined from the provincial rainfall statement lately received :—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Tenasserim . . .	27·5	?	?	48·03	?	?
Lower Burma . .	21·9	?	?	16·80	?	?
Central Burma . .	19·1	?	?	14·59	?	?
Upper Burma . .	10·3	?	?	6·74	?	?
Arakan . . .	26·9	?	?	30·52	?	?

Over the greater part of Bengal the rainfall was fairly general throughout August, but in Bihar and parts of Chota Nagpur, South-West Bengal, etc., a distinct break set in from the 13th to the 21st, and from the 26th to the 30th. The falls were heaviest from August 8th to the 13th, and again from the 23rd to the end of the month, during which periods the following falls in excess of 5 inches in a single day were reported :—

Date.	District.	Station.	Fall in inches.	Date.	District.	Station.	Fall in inches.
9th	24-Parganas	Canning Town.	8·75	10th	Noakhali .	Fenny .	8·45
,,	Khulna .	Khulna .	6·80	,,	Mymensingh	Jamalpur .	5·85
,,	Darjeeling .	Darjeeling .	5·50	,,	,, .	Sherpur Town.	5·78
,,	Darjeeling .	Kurseong .	6·94	,,	Darbhanga	Bahera .	5·80
,,	Chittagong	Kutubdia .	5·20	11th	Noakhali .	Fenny .	5·10
,,	,, .	Mirsarai .	6·02	12th	Jalpaiguri .	Jalpaiguri .	5·48
,,	Noakhali .	Harishpur .	6·42	,,	,, .	Bhagatpur .	5·24
,,	Dacca .	Munshiganj	6·60	,,	Darjeeling .	Buxa .	8·25
,,	,, .	Naraingan j	5·34	13th	Jalpaiguri .	Bhagatpur .	5·24
,,	Tippera .	Brahman-baria.	6·82	15th	,, .	,, .	7·83
10th	Khulna .	Bagerhat .	5·32	,,	Darjeeling .	Buxa .	11·97
,,	Kuch Bihar	Mathabhanga.	5·35	29th	,, .	,, .	6·10
,,	Chittagong	Mirsarai .	5·19	30th	,, .	Siliguri .	5·61

The following table will give a summary of the rainfall data of the Province of Bengal for August 1893 :—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual, average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Orissa . . .	14·5	15·4	—0·9	10·30	11·41	—1·11
Deltaic Bengal . .	14·4	16·3	—1·9	9·09	12·74	—3·65
Central ,, . .	12·6	15·9	—3·3	8·24	12·17	—3·93
North ,, . .	15·3	17·0	—1·7	19·37	18·21	+1·16
East ,, . .	16·7	18·9	—2·2	16·90	16·49	+0·41
North Bihar . . .	10·9	13·6	—2·7	9·56	11·49	—1·93
South ,, . . .	10·1	13·6	—3·5	7·68	11·27	—3·59
Chota Nagpur . .	14·0	17·5	—3·5	10·09	13·56	—3·47

The only districts which received excess falls were Eastern Bengal and North Bengal, but even here the excess amounts were not large. On the other hand, the falls were largely in defect in Deltaic and Central Bengal, South Bihar and Chota Nagpur, and in moderate defect in North Bihar and Orissa.

In Assam there was a slight break in the rains in certain parts from the 20th to about the 24th, but for the remainder of the month the falls were fairly general in all districts. The heaviest falls, as usual, have been received at Cherrapunji, which received 89·19 inches during August, the heaviest fall in any one day being 27·20 inches on the 11th. On the other hand, Gauhati in the Kamrup District received only 5·52 inches throughout the whole month. The periods of heaviest rain were usually from the 1st to the 3rd, the 8th to the 15th, and the 24th to the end of the month.

The following small table will show the heaviest falls exceeding 5 inches within 24 hours during the month in the various districts of Assam, and the dates on which they occurred :—

Date.	District.	Station.	Fall in inches.	Date.	District.	Station.	Fall in inches
5th	Cachar .	Koyah .	6·83	11th	Khasi and Jaintia Hills	Cherrapunji	27·20
9th	Sylhet .	Habiganj .	5·53	12th	Sylhet .	Lalakhal .	10·36
,,	Khasi and Jaintia Hills	Cherrapunji	10·36	,,	Cachar .	Nemotha .	6·50
10th	Garo Hills .	Tura .	6·30	,,	Khasi and Jaintia Hills	Jowai .	6·62
,,	Khasi and Jaintia Hills	Cherrapunji	13·20	,,	,, .	Cherrapunji	14·75
11th	Sylhet .	Sunamganj	8·68	13th	Sylhet .	Lalakhal .	5·10
,,	,, .	Lalakhal .	6·92	28th	,, .	Karimgan	6·80
,,	Cachar .	Nemotha .	5·11	,,	Darrang .	Gahpur .	5·30
,,	Khasi and Jaintia Hills	Jowai .	9·03				

The following statement will also show the summary of the rainfall data of Assam for 1893 :—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Assam (Surma) . .	22·0	21·1	+0·9	28·4	20·73	+7·73
,, (Brahmaputra) .	15·8	15·4	+0·4	13·99	13·86	+0·13

The falls in the North-West Provinces occurred principally from the 1st to the 12th, when there was a break in the rains, which in most districts lasted up till the 21st, when rain was again fairly general up to the 25th, when

a second break of three or four days occurred, but rain began again on the 28th or 30th in various districts, and continued till the close of the month. The actual average fall over the North-Western Provinces was about seven inches, or from about two to four inches in defect of the normal. The falls in the western section of the North-Western Provinces were indeed less than four and-a-half inches, and only about half the normal amount. The falls in the North-Western Provinces were generally heaviest from the 1st to the 3rd, from the 9th to the 12th, and about the 28th instant. The following small table gives the stations which received more than 5 inches in one day, and the dates on which the amounts fell:—

Date.	District.	Station.	Fall in inches.	Date.	District.	Station.	Fall in inches.
2nd	Pilibhit .	Pilibhit City	5·30	9th	Budaun .	Budaun .	5·70
,,	Dehra Dun	Ambari .	7·30	10th	Kheri .	Kheri .	6·22
3rd	Ditto .	Dehra .	5·30	,,	Moradabad	Hasanpur .	6·59
6th	Ditto .	Kalsi .	7·25	11th	Basti .	Harraiya .	6·77
,,	Ditto .	Dehra .	5·90	12th	Budaun .	Bisauli .	5·10
,,	Ditto .	Rajpur .	6·70	,,	Ditto .	Dataganj .	5·54
8th	Budaun .	Sahswan .	6·00	18th	Dehra Dun	Mussoorie .	7·65
,,	Ditto .	Budaun .	5·20	27th	Almora .	Chaukuri .	5·15
9th	Banda .	Mau .	5·20	28th	Moradabad	Amroha .	5·20
,,	Budaun .	Gunnaur .	5·70	31st	Kheri .	Kheri .	7·12

The following table also gives a condensed summary of the rainfall statistics in the North-West Provinces and Oudh during August 1893:—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
North-West Provinces (East) .	9·3	12·5	—3·2	7·07	10·73	—3·66
North-West Provinces (Central)	7·6	11·5	—3·9	6·20	10·28	—4·08
North-West Provinces (West)	5·7	10·3	—4·6	4·40	8·66	—4·26
North-West Provinces (Sub-montane.)	10·7	12·4	—1·7	11·04	12·87	—1·83
Oudh (South) .	8·2	11·9	—3·7	6·72	10·47	—3·75
Oudh (North) .	8·3	11·7	—3·4	8·15	10·44	—2·29

In the Punjab there were practically only two periods of rainfall, from the 6th to the 13th and from the 25th to the close of the month, but during the first period the greater part of the rain was received in several districts. The falls were actually heaviest and most general on the 9th, 10th, 12th, 27th and 28th, when some fairly heavy falls were received, falls of four inches and upwards being recorded at the following stations:—

Date.	District.	Station.	Fall in inches.	Date.	District.	Station.	Fall in inches.
3rd .	Gurdaspur	Dalhousie	4·05	9th .	Kangra .	Kangra .	6·63
7th .	Kohat .	Hangu .	4·34	10th	Rohtak .	Rohtak .	4·40
9th .	Gurgaon .	Farukhnagar.	4·00				

The following table gives the actual rainfall in each division of the Punjab for August 1893 contrasted with the normal fall for the same period, and will show how largely in defect the falls in most districts were:—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches,	Inches.
Punjab (South) .	2·4	4·3	—1·9	1·24	3·44	—2·20
Do (Central)	3·2	6·2	—3·0	2·32	5·27	—2·95
Do (Sub-montane.)	4·3	8·1	—3·8	3·72	8·33	—4·61
Punjab (Hill Districts)	10·2	15·3	—5·1	7·01	16·68	—9·67
Punjab (North-West.)	4·2	6·0	—1·8	2·78	5·61	—2·83
Punjab (West) .	1·4	2·7	—1·3	0·89	2·08	—1·19

In the Bombay Presidency rain was fairly general throughout the month except between the 13th and 19th in some districts, and the 13th and 24th in portions of others, but in no case was the break at all pronounced. Indeed, the number of rainy days has been generally almost equal to the normal, though the falls have usually been in defect. The actual falls which have been received have varied largely, Matheran in the Kolaba district having received 58·89 inches, while the falls at several stations in Kathiawar have been less than half an inch.

The following table contains a summary of the rainfall information for the whole of the Bombay Presidency compiled from the provincial rainfall summary. It will be seen that Sind has received an exceedingly scanty fall, while the defects in Kathiawar have been large. Small defects have also been registered in the Konkan and Guzerat. On the other hand, small excess falls have been received

in the Bombay Deccan, and moderate excess falls in Khandeish :—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Guzerat	12·0	13·6	—1·6	8·25	9·28	—1·03
Kathiawar	5·8	7·4	—1·6	3·85	6·28	—2·43
Sind	?		?	0·01	1·94	—1·93
Konkan	25·2	23·8	+1·4	23·54	23·96	—0·42
Bombay Deccan	11·3	9·9	+1·4	6·16	6·08	+0·08
Khandeish	13·2	8·6	+4·6	8·79	5·99	+2·80

In Coorg at some stations, such as Mercara, Virajpet, and Padinalknad rain fell on almost every day of the month, while in others falls occurred on the first two or three days and from the 21st to the end of the month only. In no case, however, were the falls particularly heavy. The average fall for the whole division was between fourteen and fifteen inches, which is probably nearly the normal amount, and rain was received on an average of twenty-one days.

In the Central Provinces rain was decidedly abundant. There was a break in the rains from about the 13th to the 20th, but with this exception rain was fairly general throughout the month.

The following table contains a summary of the rainfall data in the Central Provinces, determined from the Provincial Rainfall Report:—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Berar	17·2	?	?	11·77	8·94	+2·83
Central Provinces (West)	16·8	12·8	+4·0	13·84	9·87	+3·97
Central Provinces (Central)	16·5	14·1	+2·4	16·60	12·86	+3·74
Central Provinces (East)	14·1	12·9	+1·2	14·28	12·53	+1·75

In Rajputana and Central India rainfall has also been decidedly in defect of the normal, the defect being largest in East Rajputana and West Central India. The falls in Rajputana and Central India took place principally between the 4th and the 11th, and the 24th and the end of the month. In large areas of these divisions the normal rainfalls have not yet been accurately ascertained; hence the comparisons with the normal given below are confined to small areas, and are not of great value. The falls in Jeypore in August usually equalled from half to two-thirds the normal amount; those in Ulwar and Bhurtpur have probably equalled half the normal. In Kerowlee, Deoli and Tonk the falls appear to have been less than 50 per cent. of the normal. In Kotah, Jhalawar, Ajmere-Merwara, Oodeypore, Pertabgarh, Banswara and Shahpura the falls appear to have been about normal, but in Serohi they were largely in defect.

The following table contains a comparative statement of the rainfall in August for the three divisions of Central India and Rajputana:—

Division.	Number of Rainy Days.			Rainfall.		
	Actual average, August 1893.	Normal, August.	Variation from normal.	Actual average, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Central India (East).	12·3	?	?	10·94	12·64	—1·70
Rajputana (East), Central India (West).	7·6	?	?	6·28	9·68	—3·40
Rajputana (West)	4·6	?	?	3·72	4·48	—0·76

In the Central India States, Indore, Rutlam, Bhopal and Gwalior appear to have received falls larger than usual, and Nagode, Maihar, Rewah and Bandelkhand smaller than usual. This is shown in the following table:—

State.	Station.	Actual fall in inches.	Variation from normal.	State.	Station.	Actual fall in inches.	Variation from normal.
Indore	Indore	8·40	+0·79	Nagode	Nagode	9·06	—3·96
Rutlam	Rutlam	11·35	+0·74	Maihar	Maihar	10·67	—2·38
Bhopal Agency.	Sehore	20·70	+7·85		Rewah	8·39	—7·16
	Bhopal	20·88	+8·03		Sutna	9·21	—2·61
Gwalior	Neemuch	14·51	+3·54		Chandia	20·63	+2·61
	Sirdarpur	7·94	+1·22	Rewah	Ramnagar	8·27	—7·86
	Agar	20·13	+10·21		Sohagpur	10·03	—3·33
	Goona	14·72	+1·43		Bardi	6·10	—10·10
	Gwalior Residency	7·53	—3·46		Teonthar	10·43	—3·00
				Bundelkhand.	Nowgong	4·74	—8·96

In Baluchistan only a few scattered showers occurred during the month, and out of 51 recording stations only 13 received any rain at all, and the largest fall was 0·96 inch at Jhatput. Probably the rainfall in Baluchistan during August was very deficient.

In Kashmir all the recording stations received small to moderate amounts of rain, the falls ranging from 7·62 inches at Poonch and 3·24 inches at Jammu to 0·03 inch at Leh and 0·15 inch at Ramban. Probably in Kashmir also the rainfall in August was less than usual.

In Travancore the falls, as usual, have varied largely, falls of about 24 inches having been received at Meenachel and Peermede, and on the other hand falls of less than one inch at Velavencode, Eraneil and Thamaracolem. The falls in Travancore have also been probably below the normal in amount.

In Cochin only three stations send in reports, and the

falls have varied between seven and fourteen inches, and the amounts have probably been fairly normal.

In Pudukota the falls have been very small, the largest being 5·00 inches at Pudukota, 3·60 inches at Alangud and 3·10 inches at Odaiyalipatti, while on the other hand no rain at all fell at Keelanilai. Probably the falls in this district were decidedly less than usual.

In the Nizam's territory showers of rain were frequent between the 1st and the 10th, the 17th and the 25th, and on the 30th. The falls varied from 30 25 inches at Nander to 5·53 inches at Bir, but the majority of stations received from about 9 to 15 inches.

The following table contains a summary of the data as given in the Provincial Rainfall Report:—

PROVINCE.	Number of rainy days.	Average number of rainy days.	Variation from the normal.	Total rainfall for the month.	Average rainfall for the month.	Variation from the normal.
				Inches.	Inches.	Inches.
Hyderabad (South) .	13·0	...	...	10·62	6·45	+4·17
" (North) .	16·4	...	...	13·36	8·05	+5·31

The falls in Mysore were very variable; the districts of Hassan, Shimoga, Kadur and Chitaldroog received rain almost daily, except between the 10th and 17th, while those of Bangalore, Kolar, Tumkur and Mysore received only a few scattered showers. The actual falls varied from 25·85 inches at Koppa in the Kadur district to either no rainfall at all or to falls of less than half an inch at many stations in the second group of districts previously mentioned.

The following table contains a summary of the data as compiled from the Provincial Rainfall Report:—

DISTRICT.	RAINY DAYS.			RAINFALL.		
	Actual, August 1893.	Normal, August.	Variation from normal.	Actual, August 1893.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Mysore . .	6·8	8·2	−1·4	3·08	5·03	−1·95

In the Madras Presidency rain was received on almost every day of the month in the northern districts of the East Coast division, in the Malabar coast districts, and in the Nilgiris. In other districts the falls were much less numerous, but in many districts showers were frequent from about the 15th to the 23rd. The district receiving least rain was Tinnevelly, which only received a few local showers, and seven out of nineteen of the stations in this district received no rain at all.

The following table contains a summary of the data as compiled from the Provincial Rainfall Report:—

DIVISION.	Actual Number of rainy days.	Normal Number of rainy days.	Variation.	Actual rainfall for the month.	Normal rainfall for the month.	Variation.
				Inches.	Inches.	Inches.
East Coast, North .	12·1	10·1	+2·1	7·40	7·13	+0·27
" " " (a)	22·0	17·7	+2·3	16·96	12·75	+4·21
" " Central .	2·5	5·2	−2·7	0·99	3·06	−2·07
" " South .	4·1	7·4	−3·3	2·38	5·16	−2·78
Madras " .	1·3	3·2	−1·9	0·75	1·97	−1·22
Malabar Coast .	22·2	21·8	+0·4	15·72	20·13	−4·41
Madras, South, Central.	3·5	5·6	−2·1	1·85	3·49	−1·64
" Central .	5·5	6·0	−0·5	2·98	4·35	−1·37

The following table also contains a comparison of the actual rainfall statistics of each district of Madras with the normal figures. Out of 22 districts only five have received a normal fall or a fall in excess of the normal amount:—

DISTRICT.	NUMBER OF RAINY DAYS.			RAINFALL.			
	Actual August 1893.	Normal, August	Variation, from normal.	Actual, August 1893.	Normal, August.	Variation, from normal.	Percentage Variation.
				Inches	Inches.	Inches.	Inches.
Ganjam . . .	13·4	11·0	+2·4	8·33	7·66	+0·67	+9
Vizagapatam . .	14·9	12·5	+2·4	9·07	9·05	+0·02	0
Godavari . . .	11·2	8·2	+3·0	7·00	5·79	+1·21	+21
Kistna . . .	7·4	8·6	−1·2	4·82	5·84	−1·02	−17
Nellore . . .	2·5	5·2	−2·7	0·99	3.06	−2·07	−68
Chingleput . .	5·8	8·3	−2·5	2·54	5·12	−2·58	−50
Madras . . .	7·0	8·2	−1·2	2·45	4·48	−2·03	−45
North Arcot . .	3·5	7·6	−4·1	1·73	5·38	−3·65	−68
South " . .	4·9	8·2	−3·3	3·66	6·04	−2·38	−39
Tanjore . . .	3·1	6·6	−3·5	1·85	4·61	−2·76	−60
Trichinopoly . .	3·6	5·9	−2·3	2·39	4·34	−1·95	−45
Madura . . .	1·5	4·3	−2·8	1·02	2·75	−1·73	−63
Tinnevelly . . .	1·1	2·0	−0·9	0·47	1·00	−0·53	−53
Malabar . . .	19·7	19·6	+0·1	12·39	16·45	−4·06	−25
South Canara . .	25·9	24·8	+1·1	20·52	25·43	−4·91	−19
Salem . . .	4·6	6·9	−2·3	2·64	4·58	−1·94	−42
Coimbatore . .	2·2	4·0	−1·8	0·96	2·19	−1·23	−56
Nilgiris . . .	11·5	14·5	−3.0	9·39	9·10	+0·29	+3
Cuddapah . . .	3·4	6·2	−2·8	1·62	4·37	−2·75	−63
Anantapur . . .	4·6	5·7	−1·1	1·96	3·98	−2·02	−51
Bellary . . .	8·1	6·4	+1·7	4·50	3·67	+0·83	+23
Kurnool . . .	6·3	4·9	+1·4	4·11	5·38	−1·27	−24

Abstract of Observations taken at 8 A.M. at 200

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.		...	...	−·015	...	...	...	...	...	...	...	84·5	+0·7	75·7	+0·2	80·2	+0·5	8·8	...	...	...	...	15·9
Bay Islands	Port Blair	61	29·781	?	29·773	29·869	9th	29·724	17th & 21st.	·145	79·7	84·2	?	76·7	?	80·5	?	7·5	88·4	14th	73·2	4th	15·2
	Camorta	?	29·880	?	?	29·951	4th	29·787	16th	·164	79·9	84·9	?	76·5	?	80·7	?	8·4	87·9	10th	72·9	22nd	15·0
Tenasserim	Mergui	96	29·786	?	29·815	29·862	4th	29·698	20th	·164	77·2	83·0	?	76·5†	?	79·9†	?	6·5	88·6	28th	71·1	31st	17·5
	Tavoy	26	29·854	?	29·810	29·935	8th	29·771	20th	·164	76·7	82·3	?	73·6	?	78·0	?	8·7	87·2	20th	72·2	6 days	15·0
	Moulmein	94	29·731	−·023	29·767	29·835	9th	29·636	21st	·199	77·4	84·4	+1·1	74·4	+0·6	79·5	+0·9	10·0	88·5	15th	71·3	1st	17·2
	Toungoo	181	29·606*	−·001	29·730*	29·747	9th	29·515	21st	·232	78·6*	88·3	+2·1	75·4	+0·5	81·9	+1·3	12·9	92·7	18th	71·2	12th	21·5
Lower Burma	Rangoon	41	29·769	−·018	29·747	29·897	9 h	29·673	21st	·224	78·1	85·4	+0·7	76·3	+0·5	80·9	+0·6	9·1	89·2	3 days	73·9	3rd	15·3
	Bassein	27	29·770	−·021	29·740	29·905	9th	29·692	21st	·213	78·5	84·9	+0·6	75·8	+0·1	80·3	+0·4	9·1	88·7	12th	73·8	3 days	14·9
	Diamond Island.	41	29·769	−·012	29·745	29·890	9th	29·693	17th	·197	79·9	83·4	−1·0	75·1	−0·3	79·2	−0·7	8·3	86·1	20th	71·5	1st & 2nd	14·6
Arakan	Akyab	20	29·730	−·012	29·693	29·875	9th	29·654	6th	·221	79·7	84·6	+0·4	76·9	−0·2	80·9	+0·1	7·7	88·2	2 days	75·2	2 days	13·0
II.—Burma Inland		...	...	−·008	...	...	...	...	...	...	...	88·3	+0·4	74·2	+0·2	81·3	+0·3	14·1	...	...	...	...	22·1
Central Burma	Thayetmyo	134	29·633	−·008	29·709	29·775	9th	29·533	21st	·242	80·8	89·2	+0·4	76·3	+0·2	82·8	+0·3	12·9	92·1	4 days	74·0	10th	18·1
	Minbu	?	29·597	?	?	29·731	9th	29·513	21st	·218	79·9	91·4	?	76·6	?	84·0	?	14·8	96·1	14th	75·1	4 days	21·0
	Yamethin	?	29·127	?	?	29·249	9th	29·046	20th	·203	79·4	90·9	?	74·3	?	82·7	?	16·6	94·1	6 days	73·0	6 days	21·1
	Fort Stedman.	?	26·837	?	?	26·995	2 days	26·725	20th	·270	74·3	81·9	?	69·2	?	77·1	?	15·7	93·6	26th	66·0	10th	27·6
Upper Burma	Mandalay	?	29·509	?	?	29·620	9th	29·431	14th	·189	83·3	91·8	?	77·7	?	84·8	?	14·1	98·0	14th	72·1	10th	25·9
	Kendat	?	29·367	?	?	29·463	19th	29·275	5th	·188	79·4	87·1	?	76·2	?	81·6	?	10·9	91·8	3 days	73·5	19th	18·3
	Lashio	?	27·010	?	?	27·096	10th	26·933	5th	·163	72·2	82·9	?	68·7	?	75·9	?	14·2	88·1	22nd	67·0	20th	21·1
	Bhamo	?	29·352	?	?	29·453	9th	29·270	5th	·183	78·4	88·0	?	74·4	?	81·2	?	13·6	95·6	23rd	71·8	18th	23·8
III.—Assam		...	...	+·010	...	...	...	...	...	...	...	86·8	−1·9	77·5	0	82·2	−1·0	9·3	...	...	...	...	20·6
Assam (Surma)	Silchar	104	29·622	+·006	29·678	29·733	19th	29·534	5th	·199	79·5	87·7	−1·5	76·8‡	+0·2	82·4‡	−0·7	10·9	98·6	23rd	74·3	25th	24·3
Brahmaputra	Sibsagar	333	29·403	+·020	29·690	29·487	28th	29·297	4th	·190	80·1	87·5	−2·5	77·9	+0·2	82·8	−1·2	9·6	95·1	24th	73·5	8th	21·6
	Dhubri	115	29·569	+·005	29·637	29·691	19th	29·468	5th	·223	79·9	85·1	−1·7	77·8	−0·4	81·5	−1·0	7·3	89·7	31st	73·8	15th	15·9
IV.—Bengal and Orissa		...	...	+·009	...	...	...	...	...	...	...	87·6	+0·5	78·2	+0·7	82·9	+0·6	9·4	...	...	...	...	16·9
East Bengal	Chittagong	87	29·640	+·003	29·674	29·756	10th	29·535	7th	·221	80·4	85·9	+0·9	76·6	+0·5	81·2	+0·7	9·3	89·2	17th	74·1	9th	15·1
	Lungleh	?	?	?	?	?	...	?	...	?	69·9	74·4	?	69·5	?	71·9	?	4·9	78·9	19th & 31st.	65·1	11th	13·8
	Noakhali	43	29·653	?	29·643	29·761	19th	29·529	1st	·232	81·4	85·7	?	77·4	?	81·6	?	8·3	89·5	17th	74·8	9th	14·7
	Comilla	35	29·668	?	29·651	29·780	19th	29·555	1st	·225	80·4	87·5	?	77·1	?	82·3	?	10·4	91·8	23rd	74·8	10th & 14th.	17·0
	Sirajganj	46	29·630	?	29·626	29·754	19th	29·530	5th	·224	81·1	85·9	?	78·7	?	82·3	?	7·2	90·1	23rd	74·7	10th	15·4
	Dacca	22	29·655	−·002	29·625	29·779	19th	29·537	1st	·242	81·8	87·5	−0·1	79·5	+0·4	83·4	+0·2	8·2	91·1	23rd	75·7	9th	15·4
	Barisal	13	29·667‡	+·015	29·625‡	29·798	19th	29·547	1st	·251	81·8	87·7	+2·4	78·6§	+1·2	83·2§	+1·8	9·1	91·8	2 days	75·9	2 days	15·9
	Mymensingh	59	29·631	−·001	29·641	29·748	19th	29·538	5th	·210	80·7	86·3	?	77·8	?	82·1	?	8·5	92·7	23rd	74·6	3 days	18·1
Deltaic Bengal	Faridpur	46	29·653	?	29·647	29·782	19th	29·524	1st	·258	82·0	86·1	?	79·6	?	82·9	?	6·5	89·5	23rd	75·4	10th	14·1
	Jessore	33	29·637	+·008	29·617	29·764	19th	29·497	1st	·267	82·6	88·9	+0·3	79·2	+0·5	84·0	+0·4	9·7	92·0	22nd	75·9	9th	16·1
	Calcutta	21	29·637	+·011	29·604	29·768	19th	29·480	1st	·288	82·1	87·6	+0·5	78·8	+0·7	83·2	+0·6	8·8	91·6	15th	76·2	9th	15·4
	Saugor Island	25	29·632	+·006	29·601	29·740	19th	29·467	1st	·273	82·8	87·9	+0·8	80·1	+0·5	84·0	+0·6	7·8	90·7	2 days	77·5	2 days	13·2
	Krishnagar	47	29·610	?	29·605	29·740	19th	29·469	1st	·271	83·0	89·2	?	78·8	?	84·0	?	10·4	92·3	22nd	76·2	3 days	16·1
	Midnapore	149	29·509	?	29·604	29·630	19th	29·339	1st	·291	82·4	89·2	?	78·3	?	83·8	?	10·9	93·3	15th & 22nd.	76·1	4 days	17·2
Central Bengal	Bankura	298	29·329	?	29·577	29·446	19th	29·194	8th	·252	81·2	88·6	?	78·0	?	83·3	?	10·6	93·1	15th & 22nd	74·6	3rd	18·5
	Raniganj	334	29·321	?	29·603	29·455	19th	29·173	2nd	·282	81·0	91·4	?	77·4	?	84·4	?	14·0	95·7	22nd	73·9	3rd	21·8
	Burdwan	99	29·565	+·017	29·610	29·695	19th	29·422	1st	·273	82·2	89·2	+0·1	79·7	+0·8	84·5	+0·5	9·5	92·1	3 days	77·2	2 days	14·9

* Mean of 22 days.
† Mean of 29 days.
‡ Mean of 30 days.
§ Mean of 28 days.

I.

Stations in India, Burma, etc., in August 1893.

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 1893.	Normal rainfall for period 1st June to 31st August.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26·60	28·29	+ 0·25	...	...	...	...	I.—Burma Coast and Bay Islands.	
2	...	...	...	...	2	13	12	2	7·5	9·6	−22	90	·913	8·9	20	?	?	16·80	15·20	+ 1·60	36·35	49·97	−13·62	2·67	Port Blair	Bay Islands.
3	...	...	...	...	18	6	4	...	7·9	?	?	86	·879	6·9	11	?	?	9·06	?	?	38·80	?	?	2·12	Camorta.	
...	1	...	1	3	3	5	8	10	1·2	1·6	−25	92	·864	8·3	27	?	?	27·84	28·85	− 1·01	68·26	92·28	−24·02	2·20	Mergui	Tenasserim.
24	...	...	...	...	2	3	1	1	1·5	?	?	93	·860	8·3	27	?	?	54·89	42·91	+11·98	112·35	129·46	−17·11	6·91	Tavoy.	
...	1	...	1	9	11	3	6	...	2·7	3·2	−16	94	·880	6·9	28	26·18	+1·82	43·86	40·37	+ 3·49	107·40	124·46	−17·06	7·74	Moulmein.	
6	...	...	...	10	6	...	...	...	2·7	3·9	−31	92*	·915*	9·3	19	23·91	−4·91	14·31	20·11	− 5·80	41·09	53·71	− 12·62	1·74	Toungoo.	
...	6	2	...	...	...	4	8	11	5·3	4·7	+13	94	·906	8·5	21	22·73	−1·73	15·61	18·61	− 3·00	52·16	58·65	− 6·19	3·20	Rangoon	Lower Burma.
3	1	...	...	9	8	7	2	1	4·3	3·4	+26	93	·908	7·2	23	25·27	−2·27	23·99	23·07	+ 0·92	49·46	69·75	−20·29	3·50	Bassein.	
1	...	...	...	1	3	16	10	...	9·1	6·7	+36	86	·873	8·9	23	22·10	+0·90	25·56	22·00	+ 3·56	64·36	71·44	− 7·08	4·65	Diamond Island.	
...	...	3	8	5	12	1	2	...	3·5	3·2	+ 9	93	·957	8·6	28	26·09	+1·91	34·04	43·53	− 9·49	119·02	136·52	−17·50	4·80	Akyab	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·53	11·19	−1·58	...	...	...	...	II.—Burma Inland.	
...	...	...	...	27	4	...	...	...	6·1	5·9	+ 3	85	·886	8·0	15	12·36	+2·64	5·34	7·41	2·07	20·65	21·32	−0·67	0·77	Thayetmyo	Central Burma.
1	...	...	2	22	6	...	...	...	11·1	?	?	84	·865	2·3	10	?	?	6·93	?	?	13·89	?	?	2·52	Minbu.	
2	...	...	...	13	15	1	...	...	9·6	?	?	84	·853	0	10	?	?	6·15	?	?	11·10	?	?	1·70	Yamethin.	
20	1	2	...	...	...	8	...	...	?	?	?	86	·738	6·2	19	?	?	7·52	?	?	19·56	?	?	0·91	Fort Stedman	
3	...	...	1	...	27	...	...	...	6·9	?	?	76	·851	7·9	6	?	?	3·64	5·00	− 1·36	16·17	15·55	+ 0·62	0·96	Mandalay	Upper Burma.
...	8	2	1	4	5	2	5	4	1·5	?	?	91	·920	6·1	15	?	?	8·28	17·05	− 8·77	41·16	39·84	+ 1·32	1·40	Kendat.	
...	7	13	..	...	1	8	...	2	?	?	?	91	·717	9·9	17	?	?	9·18	?	?	9·18	?	?	2·59	Lashio.	
17	1	3	...	...	2	2	2	4	1·3	?	?	91	·889	8·1	21	?	?	21·20	15·31	+ 5·89	56·80	50·95	+ 5·85	2·56	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19·51	16·02	+ 3·49	...	...	...	...	III.—Assam.	
31	...	...	...	...	...	...	...	...	0·5	3·0	−83	92	·924	9·5	20	22·00	−2·00	27·52	20·36	+ 7·16	85·51	59·77	+25·74	3·80	Silchar	Assam (Surma).
6	...	1	2	3	1	3	4	1	1·5	2·7	−44	94	·967	7·9	18	16·91	+1·09	18·25	14·15	+ 4·10	45·25	42·73	+ 2·52	3·35	Sibsagar	Brahmaputra.
6	2	8	5	2	2	...	...	1	4·9	3·2	+53	92	·941	8·6	12	13·50	−1·50	12·76	13·55	− 0·79	61·71	48·84	+12·87	4·15	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·34	13·94	−1·55	.	...	...	...	IV.—Bengal and Orissa.	
1	1	2	9	8	8	2	...	...	4·3	6·1	−30	90	·937	7·6	17	17·27	0·27	21·68	18·52	+ 3·16	72·17	62·38	+ 9·79	3·82	Chittagong	East Bengal.
				Not	recorded.				?	?	?	94	·690	?	25	?	?	20·03	?	?	65·67	?	?	2·50	Lungleh.	
...	1	1	9	11	4	5	...	...	6·9	?	?	92	·994	4·2	21	22·15	−1·15	22·41	25·33	− 2·92	77·58	75·37	+ 2·21	2·91	Noakhali.	
..	...	...	13	4	7	2	...	...	5·4	?	?	94	·974	7·2	17	18·06	−1·06	16·75	17·65	− 0·90	58·06	53·76	+ 4·30	2·32	Comilla.	
11	...	1	6	7	3	3	...	...	4·0	?	?	92	·971	9·1	14	13·20	+0·80	11·56	11·23	+ 0·33	47·95	33·60	+14·35	2·69	Sirajganj.	
1	1	1	8	7	9	4	...	...	7·0	6·0	+17	90	·974	8·6	14	17·36	−3·36	14·07	12·31	+ 1·76	41·39	37·19	+ 4·20	4·61	Dacca.	
19	...	...	1	4	4	3	...	...	4·1	?	?	89	·968	9·4	17	19·15	−2·15	11·31	12·58	− 1·27	51·00	44·62	+ 6·38	2·71	Barisal.	
2	1	4	8	10	4	2	...	...	4·3	?	?	91	·961	8·1	19	19·20	−0·20	16·02	13·95	+ 2·07	65·36	46·99	+18·37	3·87	Mymensingh.	
7	...	...	5	10	5	4	...	...	4·1	?	?	90	·987	7·3	14	15·95	−1·95	10·49	12·57	− 2·08	43·08	36·91	+ 6·17	1·75	Faridpur	Deltaic Bengal.
5	..	2	3	11	5	4	1	...	4·2	4·1	+ 2	91	1·013	7·8	15	18·18	−3·18	7·47	11·51	− 4·04	31·50	35·75	− 4·25	1·51	Jessore.	
3	...	...	10	6	1	9	2	...	4·3	5·3	−19	88	·965	8·7	18	18·91	−0·91	8·37	14·45	− 6·08	44·99	36·51	+ 8·48	1·79	Calcutta.	
...	1	2	7	4	3	9	3	2	14·4	12·4	+16	91	1·018	9·6	15	17·82	−2·82	16·02	18·10	− 2·08	43·26	44·39	− 1·13	5·85	Saugor Island.	
...	1	1	9	7	5	4	3	1	5·0	?	?	84	·954	7·9	11	14·40	−3·40	7·52	11·23	− 3·71	32·55	30·18	+ 2·37	1·44	Krishnagar.	
3	1	11	1	3	4	7	...	1	3·7	?	?	87	·962	5·4	17	16·35	+0·65	8·02	12·53	− 4·51	36·90	33·89	+ 3·01	1·27	Midnapore.	
8	1	1	10	3	4	1	3	...	3·4	?	?	89	·945	7·6	16	17·70	− 1·7	10·75	14·35	− 3·60	40·79	36·17	+ 4·62	1·90	Bankura	Central Bengal.
3	1	4	7	4	2	6	2	2	3·0	?	?	89	·945	2·8	12	16·85	−4·85	6·46	13·60	− 7·14	30·72	35·70	− 4·98	1·59	Raniganj.	
6	1	2	5	7	1	7	2	...	4·6	3·6	+22	86	·941	8·3	12	18·09	−6·09	4·64	13·36	− 8·72	36·40	33·11	− 2·71	1·58	Burdwan.	

* Mean of 22 days

Table

Abstract of Observations taken at 8 A.M. at 200 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Bengal—*cont'd.*	Naya Dumka	489	29·154	?	29·596	29·281	19th	29·020	8th	·261	81·6	88·4	?	77·7	?	83·1	?	10·7	92·1	22nd & 23rd.	73·8	3rd	18·3
	Berhampore	67	29·594	+·008	29·609	29·726	19th	29·452	2nd	·264	81·5	88·1	−0·4	79·5	+1·0	83·8	+0·3	8·6	91·7	23rd	76·3	10th	15·4
	Rampur Boalia.	70	29·588	?	29·607	29·715	19th	29·471	2nd	·244	83·1	87·8	?	77·9	?	82·9	?	9·9	91·6	23rd	74·1	12th	17·5
	Malda	80	29·569	?	29·601	29·706	19th	29·465	2nd	·241	83·1	89·4	?	79·8	?	84·6	?	9·6	92·6	21st & 23rd.	76·9	10th	15·7
	Bogra	61	29·602	+·031	29·615	29·721	19th	29·506	5th	·215	81·7	87·7	?	77·3	?	82·5	?	10·4	92·2	23rd	74·2	2 days	18·0
North Bengal	Dinajpur	123	29·549	+·015	29·625	29·686	19th	29·447	5th	·239	81·6	88·6	?	79·2	?	83·9	?	9·4	94·1	23rd	75·7	12th	18·4
	Rangpur	123	29·556	?	29·633	29·683	19th	29·468	1st	·215	81·5	88·5	?	78·3	?	83·4	?	10·2	94·3	23rd	74·7	10th	19·6
	Jalpaiguri	284	29·407	+·032	29·644	29·535	19th	29·306	5th	·229	80·1	88·3	?	76·6	?	82·4	?	11·7	93·4	23rd	72·6	16th	20·8
Orissa	Balasore	56	29·585	−·002	29·587	29·694	19th	29·437	2nd	·257	82·4	87·8	?	78·2	?	83·0	?	9·6	91·4	2 days	75·7	2 days	15·7
	False Point	21	29·637	−·001	29·600	29·749	10th	29·463	1st	·286	82·6	87·3	+0·8	79·0	+0·8	83·4	+0·8	8·8	92·5	16th	74·7	23rd	17·8
	Cuttack	80	29·564	−·009	29·587	29·670	10th	29·412	2nd	·258	82·7	89·0*	−0·4	78·3	+0·1	83·6*	−0·2	10·7	93·2	31st	75·8	4 days	17·4
	Shortt's Island	?	29·624	?	?	29·725	19th	29·481	1st	·244	83·4	88·1	?	80·2	?	84·2	?	7·9	92·0	30th	77·2	24th	14·8
	Puri	15	29·636	?	29·591	29·750	10th	29·488	2nd	·262	82·8	89·3	?	79·4	?	84·4	?	9·9	94·7	16th	71·1	30th	23·6
V.—Gangetic Plain and Chota Nagpur.		...	...	+·006	...	...	...	...	...	...	...	89·5	+0·4	78·0	0	83·8	+0·2	11·5	...	...	...	...	19·3
Chota Nagpur	Hazaribagh	2,007	27·658	+·014	29·596	27·768	19th	27·530	8th	·238	76·7	84·7	+1·1	72·4	−0·5	78·5	+0·3	12·3	89·2	22nd	70·3	4th & 24th.	18·9
	Ranchi	2,128	27·532	?	29·588	27·637	19th	27·389	8th	·248	75·3	83·2	?	72·0	?	77·6	?	11·2	88·5	28th	69·4	4th	19·1
	Daltonganj	730?	28·909	?	29·587	29·035	17th	28·798	8th	·237	82·3	89·1	?	77·3	?	83·2	?	11·8	93·3	21st	75·0	3 days	18·3
	Chaibassa	760	28·872	+·007	29·576	28·988	19th	28·720	2nd & 8th.	·268	80·0	88·4	?	76·7	?	82·6	?	11·7	93·4	22nd	74·2	3 days	19·2
Bihar (South)	Gaya	375	29·254	+·002	29·580	29·365	27th	29·128	8th	·237	82·1	91·3	+1·2	78·9	+0·4	85·1	+0·8	12·4	95·5	2 days	75·8	22nd	19·7
	Dehri	351	29·278	?	29·580	29·376	19th	29·165	8th	·211	83·2	89·6	?	78·7	?	84·2	?	10·9	98·4	18th	75·5	23rd	22·9
	Patna	183	29·451	−·004	29·585	29·583	19th	29·342	8th	·241	83·6	89·3	−0·1	79·6	+0·1	84·5	0	9·7	92·5	22nd	75·5	23rd	17·0
	Arrah	190	29·434	?	29·574	29·552	19th	29·327	8th	·225	83·1	90·9	?	79·7	?	85·3	?	11·2	94·4	21st	76·5	10th & 11th.	17·9
	Buxar	239	29·391	?	29·583	29·508	19th	29·285	8th	·223	82·5	89·4	?	78·5	?	84·0	?	10·9	92·5	3 days	75·8	3 days	16·7
Bihar (North)	Purnea	125	29·532	+·011	29·610	29·667	19th	29·435	5th	·232	82·5	89·0	−0·3	79·5	+1·5	84·2	+0·0	9·5	93·2	23rd	76·2	12th	17·0
	Bhagalpur	160	29·491	?	29·593	29·613	19th	29·369	8th	·244	83·2	89·4	?	78·4	?	83·9	?	11·0	92·7	21st & 22nd	76·0	3 days	16·7
	Darbhanga	166	29·480	0	29·598	29·618	19th	29·374	5th	·244	82·2	88·1	−0·4	80·0	+0·8	84·0	+0·2	8·1	92·0	23rd	76·2	12th	15·8
	Muzaffarpur	178	29·467	?	29·597	29·599	19th	29·369	8th	·230	82·0	88·5	?	79·3	?	83·9	?	9·2	91·7	22nd	76·2	4 days	15·5
	Motihari	224	29·406	?	29·585	29·540	19th	29·293	11th	·247	82·5	89·9	?	78·3	?	84·1	?	11·6	94·2	22nd	74·9	3 days	19·3
	Chapra	181	29·459	?	29·591	29·585	19th	29·355	8th	·230	82·9	89·9	?	79·2	?	84·6	?	10·7	94·3	22nd	76·6	3 days	17·7
N.-W. P. (Eastern Districts).	Benares	267	29·357	+·009	29·578	29·467	19th	29·248	8th	·219	81·8	90·3	+0·4	78·3	−0·5	84·3	−0·1	12·0	94·8	19th & 31st.	76·0	3 days	18·8
	Allahabad	309	29·304	−·004	29·567	29·408	19th	29·191	8th	·217	82·6	91·2	+1·4	78·5	−0·1	84·9	+0·7	12·7	97·4	19th	75·3	24th	22·1
N.-W. P. (East Submontane).	Gorakhpur	256	29·375	+·011	29·588	29·508	19th	29·265	11th	·243	82·6	89·9	−0·5	78·4	−0·6	84·2	−0·6	11·5	94·4	18th	73·7	12th	20·7
Oudh (South)	Lucknow	375	29·247	+·005	29·580	29·367	19th	29·122	11th	·245	82·6	91·2	+0·5	77·9	−0·7	84·6	−0·1	13·3	96·3	3 days	74·1	2nd	22·2
Oudh (North)	Bahraich	403	29·218?	?	29·580?	29·356?	19th	29·076?	11th	·280	82·5	91·0	?	78·4	?	84·7	?	12·6	94·9	18th	72·5	12th	22·4
N.-W. Provinces (Central).	Cawnpore	416	29·203	?	29·575	29·319	19th	29·092	8th	·227	82·6	90·9	?	78·0		84·5	?	12·9	96·1	18th & 19th.	73·0	12th	23·1
	Mainpuri	516	29·084	?	29·553	29·198	19th	28·979	8th	·219	82·9	93·3	?	78·6	?	86·0	?	14·7	99·3	19th	75·0	3rd & 13th.	24·3
VI.—Upper Sub-Himalayas		...	...	+·012	...	...	...	...	...	...	..	93·6	+1·3	77·0	−0·5	85·3	+0·4	16·5	..	...	...	...	26·9
N.-W. Provinces (Submontane).	Bareilly	568	29·049	+·011	29·578	29·181	19th	28·915	11th	·266	81·1	91·5	+1·2	77·3	−0·8	84·4	+0·2	14·2	97·4	28th	74·6	4 days	22·8
	Dehra Dun	2,233	27·441	+·008	29·605	27·563	19th	27·292	11th	·271	75·5	83·9	−0·1	72·9	−0·5	78·4	−0·3	11·0	89·0	19th	70·0	15th & 29th.	19·0
	Roorkee	887	28·726	−·001	29·573	28·850	19th	28·587	11th	·263	80·3	90·9	−0·1	76·6	−0·6	83·8	−0·4	14·3	97·2	22nd & 23rd.	71·1	15th	26·1
	Meerut	738	28·880	+·014	29·575	28·984	19th	28·751	11th	·233	82·8	92·9	+2·0	77·4	−1·2	85·2	+0·4	15·5	98·8	22nd & 23rd.	74·9	3 days	23·9
Punjab (Central)	Delhi	718	28·898	+·012	29·570	28·995	19th	28·795	5th & 11th.	·200	83·8	93·6	+1·7	79·7	+0·5	86·7	+1·1	13·9	98·6	19th	76·6	14th & 29th.	22·0
	Lahore	702	28·885	+·011	29·545	29·009	19th	28·749	6th	·260	85·7	99·7	+3·4	79·6	+0·6	89·7	+2·0	20·1	104·8	24th	73·1	13th	31·7

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in August 1893—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 1893.	Normal rainfall for period 1st June to 31st August	Variation from normal of period	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	1	1	12	3	6	3	3	2	3·3	?	?	85	·920	4·8	15	18·63	−3·63	14·13	13·35	+ 0·78	44·62	35·65	+ 8·97	2·55	Naya Dumka.	CENTRAL BENGAL —*contd.*
3	1	...	12	6	4	4	1	...	3·6	4·2	− 14	92	·995	8·8	19	16·73	+2·27	10·87	12·23	− 1·36	46·51	31·00	+15·51	1·30	Berhampore.	
2	1	1	4	11	6	6	...	...	5·6	?	?	88	·995	6·0	18	15·45	+2·55	10·52	12·05	− 1·53	41·81	33·37	+ 8·44	2·08	Rampur Boalia.	
9	...	2	...	20	...	...	...	...	3·0	?	?	89	·978	5·6	13	14·35	−1·35	8·37	9·95	− 1·58	39·43	32·50	+ 6·93	2·60	Malda.	
15	...	...	2	14	...	...	...	...	3·3	?	?	89	·967	6·3	14	15·85	−1·85	14·49	12·21	+ 2·28	47·58	39·69	+ 7·89	1·95	Bogra.	
...	...	3	10	10	3	2	3	...	2·4	?	?	90	·972	8·5	13	16·25	−3·25	11·56	12·26	− 0·70	43·35	42·00	+ 1·35	2·15	Dinajpur	NORTH BENGAL.
3	...	1	10	5	9	2	1	...	1·9*	?	?	90	·969	4·8	11	13·10	−2·10	12·37	12·06	+ 0·31	53·32	48·05	+ 5·27	4·39	Rangpur.	
3	6	8	6	3	2	1	...	2	3·4	?	?	90	·920	7·6	28	18·80	+9·20	26·21	24·47	+ 1·74	79·97	78·50	+ 1·47	5·18	Jalpaiguri.	
2	...	8	4	1	1	10	4	1	4·4*	?	?	91	1·011	4·9	17	16·70	+0·30	10·52	12·61	− 2·09	38·20	35·37	+ 2·83	3·02	Balasore	ORISSA.
...	2	...	...	4	2	8	14	1	10·4	9·5	+ 9	85	·952	7·7	12	16·09	−4·09	5·16	13·25	− 8·09	17·82	32·59	−14·77	1·02	False Point.	
6	1	3	1	...	1	14	4	1	3·3	2·6	+ 27	80	·887	6·7	13	16·18	−3·18	10·49	13·35	+ 3·14	29·29	35·53	− 6·24	3·70	Cuttack.	
...	1	...	5	3	3	7	11	1	15·2	?	?	84	·963	6·3	10	?	?	3·37	?	?	7·36	?	?	0·86	Shortt's Island.	
12	3	1	...	1	1	6	7	...	7·3	?	?	84	·949	6·5	10	13·25	−3·25	12·70	9·24	+ 3·46	18·65	27·61	− 8·96	3·34	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·06	11·65	−3·60	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
1	2	2	7	3	5	5	2	4	8·8	7·5	+ 17	87	·795	9·6	15	18·27	−3·27	9·24	13·94	− 4·70	47·71	34·28	+13·43	2·04	Hazaribagh.	CHOTA NAGPUR.
5	2	3	4	3	3	5	2	4	7·8	?	?	90	·785	6·2	15	17·85	−2·85	9·45	14·31	− 4·86	39·47	36·68	+ 2·79	3·05	Ranchi.	
...	1	3	6	3	5	6	3	4	6·0	?	?	79	·871	5·4	13	?	?	8·41	?	?	32·28	?	?	3·61	Daltonganj.	
14	1	2	3	2	3	4	2	...	1·6	?	?	87	·894	8·5	17	17·20	−0·20	10·66	13·83	− 3·17	34·45	36·40	−1·95	2·46	Chaibassa.	
...	4	2	14	1	3	3	3	1	5·6	2·6	+115	86	·936	5·6	9	13·73	−4·73	5·31	13·42	− 8·11	28·52	33·01	− 4·49	1·22	Gaya	BIHAR (South).
...	1	1	14	...	2	7	5	1	5·6	?	?	82	·936	2·4	13	13·14	−0·14	6·51	12·78	− 6·27	26·07	28·68	− 2·61	1·64	Dehri.	
1	...	3	13	3	4	1	6	...	5·9	3·2	+ 84	83	·958	8·8	12	13·73	−1·73	8·07	12·08	− 4·01	33·59	31·84	+ 1·75	2·32	Patna.	
...	1	6	9	4	3	3	3	2	2·3	?	?	87	·983	2·4	11	12·55	−1·55	6·66	10·93	− 4·27	31·80	27·91	+3·89	2·20	Arrah.	
...	1	6	14	1	...	5	3	1	6·3	?	?	86	·957	6·8	11	12·60	−1·60	7·37	10·22	− 2·85	26·17	26·25	−0·08	2·70	Buxar.	
11	...	3	7	5	1	1	2	1	2·3	2·3	0	89	·987	4·7	15	17·64	−2·64	10·93	14·67	− 3·74	42·20	39·56	+2·64	2·21	Purnea	BIHAR (North).
15	1	...	4	5	3	2	1	...	2·0	?	?	86	·973	7·3	10	13·70	−3·70	6·38	10·15	− 3·77	34·97	29·02	+5·95	2·43	Bhagalpur.	
2	...	5	12	5	1	3	2	1	5·0	4·4	+ 14	88	·976	6·7	12	14·27	−2·27	11·85	12·57	− 0·72	35·70	33·18	+2·52	2·35	Darbhanga.	
1	...	2	11	9	...	2	4	2	4·8	?	?	90	·987	6·0	14	13·25	+0·75	9·80	10·34	− 0·54	28·61	29·68	−1·07	2·27	Muzaffarpur.	
5	...	9	11	2	1	2	1	...	5·0	?	?	86	·959	6·2	14	12·22	+1·78	10·17	11·53	− 1·36	53·64	29·87	+23·77	2·43	Motihari.	
1	...	2	14	7	...	3	4	...	5·3	?	?	86	·970	8·6	9	12·25	−3·25	7·02	9·91	− 2·89	24·02	28·23	−4·21	2·27	Chapra.	
7	...	5	9	2	...	6	2	...	4·5	4·2	+ 7	88	·960	7·1	11	14·27	−3·27	6·60	11·98	− 5·38	26·12	27·31	−1·19	2·17	Benares	N.-W. P. (Eastern Districts).
3	...	4	8	5	...	3	5	3	6·5	3·5	+ 86	85	·939	8·2	6	13·91	−7·91	3·50	10·45	− 6·95	30·53	26·51	+4·02	0·78	Allahabad.	
5	1	3	7	6	5	...	4	...	2·1	2·3	− 9	84	·954	4·4	8	13·55	−5·55	5·44	10·76	− 5·32	28·04	32·21	−4·17	1·86	Gorakhpur	N.-W. P. (East Submontane).
18	...	...	8	...	...	...	5	...	0·9	3·0	− 70	83	·917	7·2	11	12·36	−1·36	8·02	11·13	− 3·11	31·75	26·22	+5·53	1·78	Lucknow.	OUDH (South).
...	1	4	8	11	...	1	1	5	3·4	?	?	87	·931	4·0	9	?	?	10·19	9·50	+ 0·69	34·84	27·63	+7·21	4·68	Bahraich	OUDH (North).
3	1	2	7	7	1	3	5	2	4·6	?	?	88	980	5·7	9	11·7	−2·7	11·72	10·21	+ 1·51	41·26	23·29	+17·97	2·97	Cawnpore	N.-W. PROVINCES (Central).
12	...	2	3	6	...	1	4	3	0·9	?	?	82	·928	7·5	7	?	?	3·97	9·84	− 5·87	21·09	23·91	−2·82	1·50	Mainpuri.	
...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·80	11·00	−5·21	...	...	...	...	**VI.—Upper Sub-Himalayas.**	
16	...	1	...	9	...	...	...	5	0·6	3·6	− 83	85	·912	6·8	10	12·18	−2·18	6·23	13·36	− 7·13	34·24	35·50	−1·26	1·52	Bareilly	N. W. PROVINCES (Submontane).
29	...	...	...	...	...	1	1	...	0·9	1·1	− 18	88	·785	7·9	16	21·30	− 5·30	22·90	27·47	−4·57	75·55	62·99	+12·56	5·84	Dehra Dun.	
13	1	...	...	10	4	...	1	2	1·3	2·5	− 48	83	·856	6·2	12	11·64	+0·36	9·13	12·72	− 3·59	20·94	30·33	−9·39	2·50	Roorkee.	
10	...	...	7	5	...	...	9	...	1·8	2·1	−14	75	·834	5·0	4	11·36	−7·36	2·32	9·97	− 7·65	16·17	22·07	−5·90	1·12	Meerut.	
5	1	...	2	8	...	5	10	...	3·1	4·1	− 24	72	·830	5·2	4	9·82	−5·82	2·93	8·72	− 5·79	22·69	21·63	+1·06	1·65	Delhi	PUNJAB (Central).
8	1	...	2	7	2	2	7	2	2·7	2·9	− 7	66	·808	3·0	1	6·45	−5·45	0·50	5·41	− 4·91	10·58	13·82	− 3·24	0·50	Lahore.	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 200 Stations

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.
Punjab (Submontane).	Umballa	962?	?	?	?	?	...	?	...	?	82·6	95·7	?	77·7	?	86·7	?	18·0	101·5	25th	74·5	9th	27·0
	Ludhiana	812	28·800	+·016	29·570	28·915	27th	28·667	11th	·248	84·6	96·7	+1·2	78·6	−0·5	87·7	+0·4	18·1	102·0	20th	73·0	13th & 29th.	29·0
Punjab (North)	Sialkot	830	28·769	+·015	29·557	28·885	19th & 27th.	28·630	11th	·255	85·0	97·9	+3·5	77·9	+0·4	87·9	+2·0	20·0	103·7	24th	67·8	12th	35·9
	Rawalpindi	1,649	27·971	+·022	29·541	28·088	19th	27·840	6th	·248	78·5	92·7	−1·1	72·6	−2·7	82·7	−1·9	20·1	97·0	3 days	65·2	13th	31·8
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·023	...	...	...	...	...	...	...	99·8	+2·1	79·3	−0·4	89·6	+0·9	20·5	...	...	...	...	3·3
Punjab (West)	Peshawar	1,110	28·509	+·037	29·534	28·644	19th	28·355	6th	·289	83·8	99·4	0	75·0	−3·1	87·2	−1·6	24·4	106·0	7th	66·0	13th	40·0
	Mardan	?			Not	recorded.					88·6	107·9	?	80·9	?	94·3	?	27·0	109·9	7th	73·8	14th	36·1
	Khushab	612	28·954	?	29·525	29·081	19th	28·814	6th	·267	85·8	101·5	?	80·1	?	90·8	?	21·4	108·0	6th & 7th.	71·0	12th	37·0
	Montgomery	558	29·017	?	29·531	29·160	19th	28·879	6th	·281	89·6	106·0	?	81·3	?	93·7	?	24·7	112·9	8th	73·2	18th	39·7
	D. I. Khan	573	28·986	+·004	29·519	29·125	18th	28·836	6th	·289	86·3	102·2	+0·5	79·8	−1·4	91·0	−0·5	22·4	107·1	26th	70·8	18th	36·3
	Mooltan	420	29·147	+·013	29·529	29·299	19th	29·003	6th	·296	88·1	103·0	+2·8	82·6	+0·6	92·9	+1·7	20·4	109·4	25th & 28th.	76·1	18th	33·3
	Sirsa	662	28·935	+·010	29·551	29·043	19th	28·822	11th	·221	85·9	102·7	+5·2	80·5	+1·0	91·6	+3·1	22·2	108·4	21st	73·8	28th	24·6
Sind and Cutch	Jacobabad	186	29·396	+·039	29·540	29·564	19th	29·251	6th	·313	86·8	106·6	+3·3	80·7	−0·6	93·7	+1·4	25·9	111·8	6th	76·7	15th & 16th.	35·1
	Hyderabad	117	29·492	+·033	29·562	29·667	19th	29·357	6th	·310	82·4	96·6	+1·6	78·7	+0·2	87·7	+0·9	17·9	103·2	25th	76·1	17th	27·1
	Kurrachee	49	29·606	+·022	29·606	29·754	19th	29·465	6th	·289	81·6	88·9	+1·3	78·4	+0·1	83·7	+0·7	10·5	90·5	9th	77·3	4 days	13·2
	Bhuj	395	29·293	+·028	29·640	29·420	19th	29·145	8th	·275	80·9	90·1	+1·7	76·1	−0·1	83·1	+0·8	14·0	95·5	25th	73·4	3 days	22·1
Rajputana (West)	Bickaneer	753	28·867	?	29·570	28·994	19th	28·740	6th	·254	85·0	98·9	+2·7	81·1	+0·8	90·0	+1·8	17·8	104·1	21st	75·8	29th	28·3
	Pachpadra	380	29·289	?	29·623	29·421	19th	29·176	5th	·245	82·2	94·1	?	76·0	?	85·1	?	18·1	99·0	26th	71·6	13th	27·4
VIII.—East Rajputana, Central India and Guzerat.		...	...	+·026	...	...	...	...	...	...	...	89·6	+2·1	75·8	+0·2	82·7	+1·2	13·7	...	...	...	...	23·7
Rajputana (East)	Jeypore	1,431	28·237	+·027	29·615	28·350	19th	28·109	5th	·241	80·8	93·7	+3·9	75·6	+0·7	84·6	+2·3	18·1	102·1	21st	70·0	15th	32·1
	Sambhar	1,254	28·392	+·024	29·598	28·504	19th	28·270	5th	·234	80·7	93·3	+4·3	76·3	+0·6	84·8	+2·5	17·0	101·0	21st	71·9	15th	29·1
	Ajmere	1,611	28·081	+·043	29·645	28·196	19th	27·960	5th	·236	79·0	88·8	+1·5	75·9	+1·6	82·4	+1·6	12·9	94·4	21st	71·1	12th	23·3
	Deesa	466	29·230	+·028	29·653	29·341	19th	29·117	5th & 9th.	·224	79·4	89·3	+1·2	75·4	+0·1	82·4	+0·7	13·9	96·3	21st	70·5	13th	25·8
Kattywar	Rajkot	429	29·296	+·031	29·678	29·405	19th	29·149	8th	·256	80·2	90·5	+1·8	74·0	−0·6	82·2	+0·6	16·5	94·9	3 days	70·8	14th & 15th.	24·1
	Veraval	?	29·743	?	29·703	29·833	19th	29·599	8th	·234	80·0	83·4	?	78·0	?	80·8	?	5·4	86·1	24th	75·8	19th	10·3
	Bhavnagar	?	29·721	?	29·706	29·820	19th	29·563	8th	·257	81·8	92·4	?	77·8	?	85·1	?	14·6	99·4	20th	75·0	18th	24·4
Central India	Nowgong	757	28·875	+·005	29·581	28·976	16th	28·747	8th	·229	80·4	90·0	+1·5	75·5	−1·4	82·8	+0·1	14·5	95·0	22nd & 29th.	70·0	14th	25·0
	Indore	1,823	27·892	+·020	29·662	27·993	13th	27·747	8th	·246	74·1	82·7	0	70·4	−0·9	76·6	−0·5	12·3	91·5	20th & 21st.	67·4	15th	24·1
	Neemuch	1,630	28·073	+·035	29·656	28·185	19th	27·930	8th	·255	76·1	85·1	+0·7	72·3	+0·1	78·7	+0·4	12·8	93·3	21st	68·6	17th	24·7
Guzerat	Surat	36	29·729?	+·032?	29·708?	29·795	14th	29·568	8th	·235	80·0	88·0	+1·2	76·5	+0·2	82·3	+0·7	11·5	92·1	20th & 24th.	73·0	28th	19·1
	Ahmedabad	176	*29·563	?	29·689*	29·656	19th	29·422	8th	·234	*80·4	89·8+	?	76·9†	?	83·4†	?	12·9	95·7	21st	75·1	3 days	20·6
N.-W. P. (West)	Agra	555	29·086	+·022	29·596	29·185	19th	28·975	5th	·210	83·2	93·2	+2·8	78·8	+0·1	86·0	+1·5	14·4	98·5	22nd	74·5	14th	24·0
	Jhansi	858	28·781	+·014	29·587	28·877	13th & 16th.	28·653	5th	·224	82·6	92·5	+4·2	78·2	+1·6	85·4	+2·9	14·3	99·5	22nd	73·9	14th	25·6
IX.—Deccan	...	...	...	+009	...	...	...	...	...	...	...	84·4	−0·8	71·9	−0·4	78·2	−0·7	12·5	...	...	...	...	22·8
Bombay (Deccan)	Belgaum	2,524	27·314	+·024	29·778	27·386	13th	27·227	8th	·159	69·1	75·0	−1·2	65·9	−0·3	70·5	−0·8	9·1	80·3	19th	63·4	16th	16·9
	Sholapur	1,590	27·206	+·023	29·745	27·300	13th	27·105	8th	·195	74·9	86·7	−1·8	69·7	−0·7	78·2	−1·3	17·0	93·2	15th	67·0	11th	26·2
	Poona	1,840	27·963	+·026	29·752	28·045	14th	27·804	8th	·241	73·2	80·3	−1·4	69·0	−0·5	74·7	−1·0	11·3	85·0	19th	65·9	18th	19·1
	Bijapur	1,946	27·866	?	29·756	27·950	13th	27·777	8th	·173	73·0	84·7	?	68·4	?	76·6	?	16·3	92·2	16th	66·0	12th	26·2
Khandesh	Malegaon	1,430	28·336	+·034	29·719	28·419	15th	28·211	8th	·208	75·9	85·9	−0·4	71·3	0	78·6	−0·2	14·6	92·9	21st	68·2	4 days	24·7
	Ahmednagar	2,152	27·641	?	29·734	27·737	13th	27·527	8th	·210	73·0	82·1	?	68·7	?	75·5	?	13·4	89·8	16th	61·5	15th	28·3
Berar	Akola	930	28·794	+·013	29·675	28·928	13th	28·675	8th	·253	76·1	85·3	−1·9	72·7	−0·6	79·1	−1·3	12·6	92·9	1st	69·7	11th	23·2
	Amraoti	1,215	28·489	+·010	29·664	28·606	13th	28·380	8th	·226	74·3	83·4	−3·2	71·8	−0·7	77·6	−2·0	11·6	89·9	days	69·3	11th & 12th.	20·6

* Mean of 29 days † Mean of 28 days.

I—*continued.*

in India, Burma, etc., in August 1893—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 1893.	Normal rainfall for period, 1st June to 31st August.	Variation from normal of period.	Heaviest rainfall during month.	Station	Meteorology Province or District.
6	...	1	1	14	...	1	1	7	1·6	?	?	83	·914	3·4	5	?	?	4·09	7·75	− 3·66	16·81	22·44	− 5·63	1·80	Umballa .	Punjab (Submontane).
19	...	1	3	1	4	...	3	...	1·2	1·4	− 14	71	·847	4·8	2	7·82	− 5·82	2·35	7·18	− 4·83	15·31	20·85	− 5·54	1·39	Ludhiana .	
15	1	...	14	1	...	...	...	...	1·8	2·3	− 22	70	·837	2·8	4	9·27	−5·27	2·66	8·81	− 6·15	26·13	19·99	+ 6·14	1·61	Sialkot .	Punjab (North).
13	1	6	4	5	...	1	1	...	0·6	1·6	− 63	81	·800	2·0	5	9·91	− 4·91	4·86	8·63	− 3·77	30·61	17·41	+13·20	3·11	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·10	2·41	−1·32	...	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
7	5	3	1	1	1	...	4	9	4·0	4·0	0	62	·720	1·7	1	1·82	−0·82	0·31	1·82	− 1·51	7·26	3·73	+ 3·53	0·14	Peshawar	Punjab (West).
			Not	reco	rded.				?	?	?	?	?	?	4	?	?	1·31	?	?	14·08	?	?	0·58	Mardan.	
4	1	14	6	4	...	1	...	1	3·4†	?	?	64	·793	2·2	3	2·7	+0·3	2·43	2·01	+ 0·42	3·80	5·57	− 1·77	1·42	Khushab.	
4	...	1	1	4	9	10	2	...	6·7	?	?	55	·772	2·1	2	3·2	−1·2	0·31	2·34	− 2·03	3·76	6·69	− 2·93	0·18	Montgomery	
15	...	5	9	1	...	1	...	...	2·0	2·1	− 5	69	·873	0·8	0	2·27	−2·27	0·09	1·54	− 1·45	3·48	4·67	− 1·19	0·09	D. I. Khan.	
2	...	1	...	19	...	8	...	1	2·1	3·2	− 34	65	·855	0·7	0	2·00	−2·00	0	1·33	− 1·33	6·04	4·18	+ 1·86	0	Mooltan.	
2	...	...	2	6	1	6	13	1	6·2	4·6	+ 35	65	·809	3·3	2	5·55	−3·55	0·87	4·25	− 3·38	10·15	10·19	− 0·04	0·50	Sirsa.	
9	...	...	1	14	7	...	...	...	4·5	4·0	+ 13	68	·865	0·9	0	1·64	−1·64	0·07	1·26	− 1·19	1·53	2·81	− 1·28	0·07	Jacobabad .	Sind and Cutch.
...	...	...	...	...	9	22	...	...	26·4	13·8	+ 91	68	·742	2·4	0	3·36	−3·36	0	2·88	− 2·88	2·04	5·88	− 3·84	0	Hyderabad.	
...	...	...	...	...	...	14	17	...	15·3	17·2	− 11	85	·923	7·7	0	2·36	− 2·36	0	1·81	− 1·81	7·26	5·57	+ 1·69	0	Kurrachee.	
1	...	...	...	...	...	11	16	3	17·1	14·9	+ 15	79	·835	7·4	1	?	?	0·22	2·60	− 2·38	11·36	11·01	+ 0·35	0·13	Bhuj.	
1	...	...	1	...	9	17	3	...	7·2	6·2	+ 16	67	·814	4·3	4	?	?	3·10	3·24	− 0·14	8·60	8·54	+ 0·06	1·75	Bickaneer .	Rajputana (West).
21	...	...	...	1	3	4	1	...	6·1	9·7	− 37	73	·800	8·4*	6	?	?	5·60	3·78	+ 1·82	27·01	7·11	+19·90	1·90	Pachpadra.**	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·39	9·43	−3·43	...	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
5	2	2	...	...	1	10	8	3	4·0	5·5	− 27	76	·803	6·8	10	11·50	−1·50	6·08	10·10	− 4·02	20·01	22·02	− 2·01	1·39	Jeypore .	Rajputana (East).
...	1	1	2	1	...	...	15	11	7·7‡	8·1	− 5	75	·797	5·2	6	10·50	−4·50	6·65	8·45	− 1·80	19·26	17·72	+ 1·54	2·73	Sambhar.	
2	...	2	...	...	...	1	25	1	7·6	5·5	+ 38	80	·791	5·3	8	9·82	−1·82	8·21	7·91	+ 0·30	20·80	18·47	+ 2·33	2·16	Ajmere.	
...	1	...	...	...	2	19	9	...	9·5*	12·0	− 21	82	·827	7·6	7	10·09	−3·09	2·93	9·05	− 6·12	25·60	21·57	+ 4·03	0·91	Deesa.	
...	...	...	...	...	...	6	22	3	12·1	11·6	+ 4	77	·795	8·0	1	7·82	− 6·82	0·43	5·65	− 5·22	20·51	24·59	− 4·08	0·21	Rajkot .	Kattywar.
6	...	...	.	..	...	...	23	2	7·8	?	?	87	·893	7·8	1	?	?	0·53	?	?	10·75	?	?	0·11	Veraval.	
...	...	...	...	...	3	28	...	...	17·8	?	?	83	·903	7·1	10	?	?	4·51	?	?	11·33	?	?	0·73	Bhavnagar.	
5	1	1	7	...	6	3	7	1	3·6	3·4	+ 6	83	·867	6·9	8	14·09	− 6·09	4·73	15·43	−10·70	24·88	36·18	−11·30	1·62	Nowgong .	Central India.
...	1	...	...	...	...	9	12	9	5·6	6·1	− 8	92	·785	7·4	12	10·45	+1·55	8·40	7·46	+ 0·94	26·43	24·14	+ 2·29	1·74	Indore.	
...	1	2	1	...	...	4	21	2	9·7‡	11·9	− 18	86	·781	7·2	16	11·00	+5·00	14·14	10·14	+ 5·00	29·83	24·71	+ 5·12	2·90	Neemuch.	
...	...	...	...	...	...	14	12	5	?	13·6	?	85	·877	7·0	9	12·82	−3·82	6·69	8·41	− 1·72	40·85	33·06	+ 7·79	4·50	Surat . .	Guzerat.
4	1	...	...	...	...	10	4	6	3·8‖	?	?	84¶	·866¶	8·3¶	10	?	?	4·40	?	?	32·89	?	?	1·51	Ahmedabad. §	
1	...	6	..	9	...	6	...	9	4·8	4·4	+ 9	79	·900	5·1	7	10·73	− 3·73	3·89	8·54	− 4·65	17.75	23·12	− 5·37	1·76	Agra . .	N.-W. P. (West).
4	2	3	4	1	4	7	2	4	3·8	3·9	− 3	76	·855	5·0	7	14·45	−7·45	3·84	12·61	− 8·77	21·29	30·69	− 9·40	1·98	Jhansi .	
...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	10·81	8·62	+2·08	...	...	...	...	**IX.—Deccan.**	
...	...	...	...	...	...	6	21	4	?	20·7	?	92	·656	8·6	18	17·64	+0·36	9·43	8·67	+ 0·76	25·62	31·87	− 6·25	1·50	Belgaum .	Bombay (Deccan).
...	1	...	...	...	...	12	11	7	14·8	11·0	+ 35	79	·682	7·7	7	11·27	− 4·27	3·28	8·03	− 4·75	12·42	18·10	− 5·68	1·13	Sholapur.	
...	...	...	...	...	...	5	24	2	12·1	14·0	− 14	84	·689	8·3	10	7·82	+2·18	3·34	3·11	+ 0·23	20·60	14·43	+ 6·17	0·89	Poona.	
...	...	...	...	...	...	13	14	4	11·3	?	?	82	·671	8·9	4	7·00	−3·00	1·91	4·49	− 2·58	6·99	10·35	− 3·36	0·55	Bijapur.	
5	...	...	...	...	...	9	14	3	13·4	10·0	+ 34	81	·717	7·2	7	6·91	+0·09	2·40	4·16	− 1·76	7·93	14·59	− 6·66	0·57	Malegaon .	Khandesh.
1	4	...	...	...	...	9	12	5	16·6	?	?	89	·723	8·4	9	?	?	4·40	4·36	+ 0·04	11·12	12·60	− 1·48	1·55	Ahmednagar.	
...	...	...	...	...	...	3	24	4	9·0	7·9	+ 14	85	·760	7·8	18	9·73	+8·27	10·35	6·84	+ 3·51	17·58	23·87	− 6·29	2·38	Akola . .	Berar.
1	...	...	...	...	...	7	17	6	6·5	6·1	+ 7	92	·774	7·5	21	9·73	+11·27	10·59	6·71	+ 3·88	22·21	25·09	− 2·88	1·50	Amraoti.	

* Mean of 30 days.
† „ „ 24 „
‡ „ „ 15 „

** Wind direction of 30 days.
§ „ „ „ 25 „

‖ Mean of 27 days.
¶ „ „ 29 „

Table

Abstract of Observations taken at 8A.M. at 200 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 Provinces (West).	Khandwa	1,044	28·659	+·010	29·663	28·753	15th	28·520	8th	·233	75·8	84·2	−1·7	73·1	−0·7	78·7	−1·2	11·1	93·2	20th	70·6	14th	22·6
	Hoshangabad	1,020	28·618	−·018	29·627	28·775	13th	28·502	8th	·273	76·4	85·0	−0·3	73·6	−0·2	79·3	−0·3	11·4	94·4	21st	70·3	15th	24·1
	Nagpur	1,025	28·655	+·003	29·634	28·784	13th	28·539	8th	·245	77·7	85·8	−1·7	73·9	−0·6	79·9	−1·2	11·9	95·3	28th	70·6	12th	24·7
Central Provinces (Central).	Chanda	634	29·071	?	29·653	29·198	13th	28·976	24th	·222	77·4	85·8	?	74·0	?	79·9	?	11·8	93·9	18th	70·0	28th	23·9
	Seoni	2,030	27·654	−·002	29·640	27·762	16th	27·493	8th	·269	75·4	82·7	−0·7	71·0	−0·8	76·9	−0·8	11·7	89·2	3 days	68·1	3 days	21·1
	Jubbulpore	1,327	28·329	+·008	29·607	28·447	13th	28·196	8th	·251	77·2	85·1	+0·3	73·5	−0·5	79·3	−0·1	11·6	92·0	20th & 21st.	70·1	4th & 14th.	21·9
	Saugor	1,762	27·900	+·002	29·606	28·020	13th	27·760	8th	·260	75·7	84·8	+1·4	72·5	−0·1	78·7	+0·7	12·3	93·4	22nd	67·7	14th	25·7
Central Provinces (East).	Raipur	970	28·700	+·010	29·618	28·826	13th	28·584	8th	·242	77·8	85·3	−1·0	74·5	−0·5	79·9	−0·8	10·8	92·8	21st	70·1	3rd	22·7
	Sutna	1,040	28·579	−·006	29·573	28·679	16th	28·449	8th	·230	80·3	87·6	+2·0	76·1	+0·3	81·9	+1·2	11·5	93·1	19th	72·6	10th	20·5
	Sambalpur	463	29·171	−·007	29·582	29·286	13th	29·039	2nd	·247	80·4	87·9	+0·3	77·2	−0·1	82·6	+0·1	10·7	93·5	18th	74·2	3rd & 5th.	19·3
Hyderabad (North).	Aurangabad	?	27·916	?	?	27·991	15th	27·806	8th	·185	74·5	83·8	?	69·4	?	76·6	?	14·4	92·0	2nd	65·8	14th	26·2
	Indur	?	?	?	?	?	...	?	...	?	75·3	83·1	?	72·3	?	77·7	?	10·8	88·7	16th	68·2	28th	20·5
	Bidar	?	27·618	?	?	27·719	13th	27·540	8th	·179	71·9	80·9	?	68·8	?	74·9	?	12·1	87·4	15th & 16th.	66·2	11th	21·2
Hyderabad (South).	Gulburga	?	28·278	?	?	28·364	13th	28·187	8th	·177	73·9	84·9	?	69·9	?	77·5	?	15·0	92·7	16th	67·7	11th	25·0
	Raichur	?	28·406	?	?	28·486	14th	28·300	8th	·186	75·2	85·5	?	71·9	?	78·7	?	13·6	92·1	3 days	69·6	3 days	22·5
	Hyderabad (Deccan).	1,690	28·080	?	29·719	28·197	13th	28·006	7th	·191	73·7	83·1	?	71·5	?	77·3	?	11·6	89·4	18th	68·2	21st	21·2
	Secunderabad	1,787	28·007	+·019	29·742	28·109	13th	27·939	8th	170	73·5	84·2	−2·1	70·6	−0·1	77·4	−1·1	13·6	90·1	16th	67·4	21st	22·7
	Khamamet	369	29·376	?	29·614	29·487	13th	29·301	23rd	·186	79·0	88·0	?	75·5	?	81·8	?	12·5	95·0	17th	72·3	24th	22·7
X.—West Coast		...	...	+·016	...	...	...	...	...	...	...	82·9	+0·6	75·0	+0·6	78·9	+0·6	7·9	...	...	...	...	12·8
Konkan	Bombay	37	29·771	+·021	29·748	29·854	13th	29·644	8th	·210	79·5	84·1	+0·3	76·9	+0·2	80·5	+0·3	7·2	86·0	7 days	75·0	5 days	11·0
	Ratnagiri	110	29·721	+·023	29·770	29·800	13th	29·609	8th	·191	78·9	83·4	0	75·5	+0·6	79·5	+0·3	7·9	85·9	19th	72·9	24th & 29th	13·0
	Mormugoa	60	29·813	?	29·808	29·891	13th	29·720	8th	·171	78·3	83·8	?	75·0	?	79·4	?	8·8	86·0	13th	71·4	25th	14·6
	Goa	23	29·857	+·012	29·794	29·916	13th	29·779	8th	·137	77·0	80·0	?	74·4	?	77·2	?	5·6	81·5	3 days	70·0	18th	11·5
	Karwar	44	29·825	+·013	29·801	29·894	13th	29·748	8th	·146	77·2	82·2	+0·1	74·9	+0·9	78·6	+0·5	7·3	84·2	3 days	73·2	4 days	11·0
Malabar	Cochin	10	29·919	+·019	29·857	29·969	28th	29·873	18th	·096	78·4	84·8	+1·7	75·0	+1·0	79·9	+1·4	9·8	86·7	3 days.	72·2	3rd	14·5
	Calicut	27	29·886	+·009	29·843	29·938	28th	29·842	18th	·096	77·2	82·8	?	74·0	?	78·4	?	8·8	85·3	3 days	71·6	3rd & 25th.	13·7
	Mangalore	26 / 65†	29·869	+·015	29·839	29·921	13th	29·823	8th	·098	77·4	83·2	+0·8	74·2	+0·4	78·7	+0·6	9·0	85·8	14th & 16th.	70·9	24th & 25th.	14·9
	Trivandrum	198	29·727	?	29·855	29·806	4th	29·667	18th	·139	77·0	81·5	?	75·1	?	78·3	?	6·4	83·5	12th & 21st.	72·5	2nd	11·0
XI.—South India		...	...	+·012	...	...	...	...	...	...	...	88·1	−0·6	73·4	−0·3	80·9	−0·5	14·7	...	...	...	...	23·3
Madras (South)	Pamban	37	29·827	?	29·791	29·901	4th	29·771	18th	·130	82·2	87·6	?	78·7	?	83·2	?	8·9	91·3	27th	74·7	5th	16·6
	Tinnevelly	168	29·696	?	29·792	29·753	3rd	29·638	18th	·115	83·7	95·8	?	75·6	?	87·4	?	20·2	100·3	15th	73·9	4th	26·4
	Madura	447	29·403	+·016	29·781	29·456	4th	29·346	18th	·110	82·4	95·9	−1·0	75·5	−0·1	85·7	−0·6	20·4	99·5	3 days	72·5	3rd	27·0
Madras (South Central).	Salem	940	28·936	+·011	29·816	28·978	13th	28·897	20th	·081	78·1	91·2	−0·2	72·3	+0·6	81·8	+0·2	18·9	95·4	31st	69·5	11th	25·9
	Coimbatore	1,348	28·509	+·009	29·801	28·594	16th	28·459	8th	·135	75·3	90·6*	+2·3	69·5	−1·2	80·1*	+0·6	21·1	92·3	14th	64·6	2nd	27·7
Coorg	Mercara	3,781	26·197	+·017	29·850	26·245	13th	26·158	18th	·087	63·9	69·3	−1·2	62·5	+0·9	65·9	−0·2	6·8	74·5	14th	60·7	18th	13·8
	Chitaldroog	2,405	27·453	?	29·793	27·517	13th	27·382	8th	·135	71·2	79·9	?	66·7	?	73·3	?	13·2	86·6	14th & 15th.	64·9	23rd	21·7
Mysore	Bangalore Bazar	2,982	26·920	+·015	29·802	26·962	13th	26·856	8th	·106	69·6	80·2	−1·7	65·8	+0·4	73·0	−0·7	14·4	85·7	13th	64·0	3 days	21·7
	Bangalore Fort	3,019	26·882	+·009	29·806	26·935	13th	26·839	8th	·096	69·0	80·3*	−1·7	65·9*	+0·4	73·1*	−0·7	14·4	84·8	14th	63·8	3 days	21·0
	Hassan	3,091	26·834	?	29·832	26·866	13th	26·779	8th	·107	69·3	78·0	?	63·5	?	70·8	?	14·5	83·7	15th	61·3	11th	22·4
	Mysore	2,518	27·381	?	29·832	27·428	28th	27·305	17th	·123	71·2	83·8	?	66·4*	?	75·2*	?	17·4	88·4	13th & 15th.	65·0	3 days	23·4
Madras (East Coast, South).	Negapatam	31	29·823	+·028	29·783	29·887	4th	29·767	18th	·120	82·6	93·9	+0·9	77·0	0	85·5	+0·5	16·9	99·2	28th	69·7	16th	29·5
	Cuddalore	12	29·818	?	29·759	29·872	10th	29·763	21st	·109	83·1	94·2	?	77·0	?	85·6	?	17·2	99·8	29th	72·7	11th	27·1
	Trichinopoly	255	29·594	+·014	29·782	29·647	4th	29·545	18th	·102	82·5	98·0	+1·9	77·3	+1·1	87·6	+1·5	20·7	102·1	10th	74·4	17th	27·7
	Madras	22	29·802	+·022	29·755	29·887	10th	29·746	20th	·141	82·0	94·1	+0·6	77·2	0	85·7	+0·3	16·9	99·5	30th	74·0	13th&14th	25·5

* Mean of 30 days.
† 65 feet elevation from 22nd August 1893.

I—*continued.*

in India, Burma, etc., in August 1893—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 1893.	Normal rainfall for period from 1st June to 31st August.	Variation from normal of period, 1st June to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	...	...	...	3	16	12	10·2	7·6	+ 34	86	·764	6·8	14	9·91	+4·09	8·67	6·09	+ 2·58	19·19	22·21	− 3·02	1·51	Khandwa	Central Provinces (West).
4	1	...	...	...	2	15	8	1	3·4	3·4	0	93	·845	8·5	15	15·09	−0·09	11·10	13·95	− 2·85	29·97	41·91	−11·94	3·51	Hoshangabad	
1	3	...	...	...	...	9	11	7	8·3	6·0	+ 38	85	·801	8·2	19	12·82	+6·18	15·75	9·88	+ 5·87	33·18	35·05	− 1·87	2·86	Nagpur.	
...	...	...	...	...	1	11	15	4	5·9	5·4	+9	83	·780	8·2	19	?	?	12·36	?	?	30·06	?	?	2·74	Chanda	Central Provinces (Central).
1	1	7	2	...	...	16	1	3	10·3	4·8	+115	91	·803	3·8	17	17·73	−0·73	16·68	12·19	+ 4·49	35·93	41·09	− 5·16	3·96	Seoni.	
5	...	...	1	1	3	6	13	2	2·7	4·6	− 41	87	·819	7·7	17	16·00	+1·00	22·54	14·39	+ 8·15	53·11	46·10	+ 7·01	7·32	Jubbulpore.	
5	1	1	...	1	1	12	7	3	5·8	4·3	+ 35	91	·814	6·8	16	14·55	+1·45	19·49	12·32	+ 7·17	44·79	33·50	+11·29	3·21	Saugor.	
2	1	...	1	...	...	13	12	2	8·0	7·3	+ 10	90	·847	8·6	15	14·45	+0·55	19·18	11·25	+ 7·93	35·91	39·71	− 3·80	4·50	Raipur	Central Provinces (East).
2	3	2	5	...	5	...	10	4	7·1	7·9	− 10	83	·859	5·5	9	13·45	− 4·45	9·21	11·80	− 2·61	32·01	32·28	− 0·27	3·18	Sutna.	
...	...	4	1	2	8	11	2	3	5·5	3·0	+ 83	86	·895	7·4	20	?	?	12·07	17·97	− 5·90	43·20	49·51	− 6·31	2·71	Sambalpur.	
1	...	...	...	...	...	16	11	3	6·7	?	?	83	·710	8·4	15	?	?	8·17	5·56	+ 2·61	16·44	19·27	− 2·83	1·42	Aurangabad	Hyderabad (North).
...	...	...	...	...	...	5	15	11	13·2	?	?	87	·764	8·8	20	?	?	22·00	10·19	+11·81	38·98	25·43	+13·55	3·92	Indur.	
...	2	...	...	...	...	8	13	8	13·2	?	?	90	·703	7·0	18	?	?	12·69	9·85	+ 2·84	40·29	25·44	+14·85	3·50	Bidar.	
...	5	...	...	...	...	5	9	11	14·6	?	?	84	·700	8·3	11	?	?	7·97	6·43	+ 1·54	24·81	16·14	+ 8·67	1·06	Gulburga	Hyderabad (South).
...	...	...	...	...	...	9	12	10	12·2	?	?	79	·690	6·5	6	?	?	8·27	5·31	+2·96	23·21	13·23	+ 9·98	4·91	Raichur.	
...	...	...	...	...	...	1	24	6	9·2	?	?	84	·699	8·7	14	?	?	10·13	7·47	+ 2·66	26·38	18·40	+ 7·98	2·57	Hyderabad (Deccan).	
...	...	...	...	...	...	5	15	11	11·8	10·0	+ 18	80	·764	8·1	13	?	?	9·21	7·19	+ 2·02	28·46	19·02	+ 9·44	1·90	Secunderabad	
12	...	...	...	...	...	5	10	4	7·1	?	?	84	·842	5·0	16	?	?	11·87	?	?	31·75	?	?	3·53	Khamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·96	19·18	−5·37	...	...	...	...	**X.—West Coast.**	
...	...	...	1	1	...	8	17	4	14·4	15·8	− 9	86	·871	9·1	20	19·64	+0·36	13·75	13·64	+ 0·11	50·93	61·42	−10·49	1·96	Bombay	Konkan.
2	1	1	1	1	1	11	7	6	6·0	10·3	− 42	89	·870	9·0	23	24·36	−1·36	17·49	24·42	− 6·93	74·39	89·18	−14·79	2·91	Ratnagiri.	
1	1	1	...	...	1	6	6	15	9·6	?	?	90	·881	6·3	24	?	?	14·69	?	?	68·28	?	?	2·29	Mormugoa.	
7	1	...	...	1	2	11	5	4	8·7	?	?	92	·858	8·9	27	?	?	16·43	18·99	− 2·56	66·35	82·18	−15·83	3·25	Goa.	
10	7	...	...	...	...	...	14	...	2·5	?	?	89	·836	7·7	27	23·36	+3·64	19·31	25·02	− 5·71	77·17	100·78	−23·61	2·65	Karwar.	
4	8	5	1	...	...	...	7	6	7·1	?	?	85	·841	6·0	10	17·91	−7·91	6·06	14·40	− 8·34	44·93	66·26	−21·33	1·19	Cochin	Malabar.
9	5	3	...	...	...	...	...	14	10·3	?	?	89	·832	6·1	22	17·88	+4·12	10·83	15·27	−4·44	72·72	79·03	− 6·31	1·73	Calicut.	
14	1	2	...	...	1	2	7	4	1·9	2·9	− 34	91	·861	7·9	25	33·90	−8·90	12·79	22·52	− 9·73	80·02	95·07	−15·05	2·23	Mangalore.	
1	21	1	...	...	...	...	...	8	8·7	?	?	89	·829	6·7	8	?	?	5·28	?	?	18·81	?	?	1·47	Trivandrum.	
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·95	5·81	−1·44	...	...	...	...	**XI.—South India.**	
...	1	...	1	4	5	16	4	...	9·9	?	?	78	·861	3·6	0	0·30	−0·30	0·02	0·23	− 0·21	0·71	0·98	− 0·27	0·02	Pamban	Madras (South).
...	...	...	...	...	...	7	12	12	9·7	?	?	58 *	·660*	6·2	0	1·0	− 1·0	0	0·40	− 0·40	2·54	1·35	+ 1·19	0	Tinnevelly	
2	6	...	...	...	...	2	3	18	1·5	3·7	− 59	68	·757	3·4	3	5·36	−2·36	1·84	3·97	− 2·13	14·85	6·20	+ 8·65	1·40	Madura.	
5	...	...	...	...	19	17	...	...	3·8	4·2	− 10	77	·747	6·6	7	11·78	−4·78	5·83	8·21	− 2·38	14·75	15·34	− 0·59	3·07	Salem	Madras (South Central).
...	...	...	...	...	18	9	4	...	5·2	7·4	− 30	83	·733	4·7	2	2·91	−0·91	0·68	1·30	− 0·62	3·44	4·20	− 0·76	0·29	Coimbatore.	
...	1	...	...	...	...	2	11	17	12·2	8·9	+ 37	95	·573	9·5	28	26·30	+1·70	24·11	26·24	− 2·13	66·72	96·07	− 29·35	2·80	Mercara	Coorg.
...	...	...	...	...	...	9	17	5	11·3	?	?	83	·639	8·7	10	?	?	2·72	?	?	13·29	?	?	0·35	Chitaldroog.	
...	...	...	...	...	1	10	20	...	11·6	7·6	+ 53	85	·618	8·6	8	10·73	−2·73	2·68	5·97	− 3·29	15·20	13·38	+ 1·82	0·64	Bangalore Bazar.	Mysore.
...	...	...	...	...	...	11	18	2	8·1	?	?	86	·618	8·1	6	?	?	1·96	?	?	13·69	?	?	0·47	Bangalore Fort	
...	...	...	...	...	...	9	15	7	5·1	?	?	85	·609	8·6	6	?	?	2·04	?	?	9·88	?	?	0·68	Hassan.	
...	...	...	...	...	...	12	18	1	15·8	?	?	81	·618	7·2	2	?	?	0·41	?	?	11·89	?	?	0·13	Mysore.	
4	...	...	...	...	3	8	15	1	5·2	5·7	− 9	69	·782	4·9	4	5·91	−1·91	3·16	4·06	− 0·90	12·90	7·41	+ 5·49	1·28	Negapatam	Madras (East Coast, South).
...	2	...	...	...	6	7	11	5	6·1	?	?	82	·935	5·6	4	8·0	− 4·0	1·14	6·17	− 5·03	9·25	11·16	− 1·91	0·40	Cuddalore.	
...	...	...	...	...	...	8	17		8·4	8·2	+ 2	63	·705	5·6	3	5·36	−2·36	0·68	4·29	− 3·61	5·16	7·32	− 2·16	0·26	Trichinopoly.	
1	...	...	...	...	2	13	15	...	6·5	7·3	− 11	75	·824	7·3	7	8·27	−1·27	2·61	4·88	− 2·27	7·85	11·24	− 3·39	0·90	Madras.	

* Mean of 18 days.

Table

Abstract of Observations taken at 8 A.M. at 200 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras (East Coast, Central).	Nellore	71	29·716	?	29·720	29·803	10th	29·659	23rd	·144	84·0	95·5	?	79·7	?	87·6	?	15·8	101·8	14th & 16th.	77·1	24th	24·7
	Masulipatam	15	29·745	+·008	29·695	29·841	10th	29·654	23rd	·187	81·2	90·3	−1·2	76·9	−0·7	83·6	−1·0	13·4	97·7	15th	74·1	2nd	23·6
Madras (Central)	Cuddapah	433	29·390	−·009	29·763	29·453	13th	29·331	8th	·122	8.·9	92·2	−1·1	76·5	−0·3	84·4	−0·7	15·7	99·2	14th	71·7	24th	27·5
	Kurnool	923	28·882	−·006	29·749	28·978	13th	28·820	8th	·158	77·5	88·0	−1·6	73·1	−0·5	80·5	−1·1	14·9	94·5	15th	69·9	18th	24·6
	Bellary	1,475	28·356	+·032	29·778	28·438	13th	28·286	8th	·152	76·2	86·9	−4·2	72·3	−1·1	79·6	−2·7	14·6	93·9	14th	68·5	24th	25·4
Madras (East Coast, North).	Rajahmundry	112	29·620	+·007	29·669	29·725	10th	29·522	23rd	·203	80·2	88·3	−1·4	76·8	−0·5	82·6	−1·0	11·5	94·0	15th & 16th	71·0	4th	23·0
	Cocanada	26	29·703	+·017	29·666	29·829	13th	29·596	23rd	·233	80·2	*87·6	−0·9	*77·6	−1·1	†82·6	−1·0	10·0	95·2	17th	73·0	4th	22·2
	Vizagapatam	31	29·667	0	29·636	29·790	13th	29·551	2nd	·239	83·5	85·9	−1·7	80·9	+0·5	83·4	−0·6	5·0	89·4	15th	79·4	11th	10·0
	Gopalpur	21	29·644	?	29·605	29·760	13th	29·500	2nd	·260	81·2	87·4	+1·5	77·5	−2·9	82·5	−0·7	9·9	93·2	15th	72·3	12th	20·9
XII.—Hill Stations.																							
Baluchistan	Kuch Fort*	?	23·865	?	?	24·000	19th	23·780	12th	·220	78·9	*86·4	?	53·9	?	*70·2	?	32·5	92·0	2nd & 3rd	46·0	12th	46·0
	Quetta	5,502	24·520	+·060	?	24·651	19th	24·432	11th	·219	71·1	89·1	−1·6	55·8	−6·4	72·5	−4·0	33·5	94·1	3rd & 4th	51·9	11th & 25th	42·2
	Shirino	?	?	?	?	?	...	?	...	?	*76·4	*93·8	?	§73·0	?	§83·5	?	20·8	98·4	3rd	63·2	15th	35·2
	Kalat	?	?	?	?	?	...	?	...	?	72·7	86·5	?	49·6	?	68·1	?	36·9	91·3	6th	42·8	12th	48·5
	Chaman	5,488	?	?	?	?	...	?	...	?	81·3	95·7	?	67·2	?	81·5	?	28·5	102·5	3rd	61·1	13th & 24th	41·4
Northern India	Srinagar	5,204	24·730	?	?	24·855	19th	24·606	2nd	·249	a66·6	a81·4	?	‡59·7	?	‡70·6	?	21·7	87·3	6th	54·2	3 days	33·1
	Gilgit	?	25·313	?	?	25·580	28th	25·060	6th	·520	76·4	91·8	?	68·9	?	80·4	?	22·9	106·6	7th	58·3	14th	48·3
	Cherat	?	25·548	?	?	25·669	19th	25·430	11th	·239	76·4	89·7	?	70·3	?	80·0	?	19·4	97·4	28th	60·7	13th	36·7
	Murree	6,344	23·744	+·006	?	23·846	19th	23·633	11th	·213	65·4	75·6	+1·3	61·1	−0·2	68·4	+0·6	14·5	79·6	4 days	52·8	12th	26·8
	Simla	7,224	23·028	+·011	?	23·130	19th	22·908	11th	·222	61·7	68·0	−2·1	58·5	−1·3	63·3	−1·7	9·5	71·7	23rd	54·6	14th	17·1
	Chakrata	7,052	23·150	+·001	?	23·246	19th	23·042	11th	·204	62·6	69·5	+0·1	59·2	−0·3	64·4	−0·1	10·3	73·3	8th & 26th	55·8	13th	17·5
	Mussoorie	?	23·449	?	?	23·552	19th	23·322	11th	·230	65·5	68·5	−0·1	60·0	0	64·3	−0·1	8·5	73·3	24th	57·4	13th	15·9
	Ranikhet	6,069	23·979	+·003	?	24·094	19th	23·854	11th	·240	65·8	72·6	0	62·1	+0·1	67·4	+0·1	10·5	77·0	15th	59·5	14th	17·5
	Gnatong	?	18·851	?	?	19·107	27th	18·965	17th	·142	48·9	*54·1	?	38·1	?	*46·2	?	16·0	57·9	2 days	34·1	2 days	23·8
	Darjeeling	7,421	22·923	+·012	?	23·026	19th	22·821	11th	·205	60·5	65·7	−0·5	57·2	+0·4	61·4	−0·1	8·5	73·6	14th	54·1	15th	19·5
	Gantok	?	*24·369	?	?	24·496	18th	24·267	11th	·229	*64·9	*74·5	?	*61·3	?	*68·0	?	13·2	81·2	23rd & 24th	58·9	3 days	22·3
Central India	Mount Abu	3,945	25·885	+·016	?	25·968	18th	25·768	8th	·200	66·6	71·7	−0·3	64·1	−0·4	67·9	−0·4	7·6	76·6	20th	60·4	13th & 14th	16·2
	Pachmarhi	3,528	26·285	+·018	?	26·392	13th	26·159	8th	·233	69·3	75·1	+0·4	66·9	0	71·0	+0·2	8·2	82·7	20th & 21st	64·2	5th & 11th	18·5
South India	Wellington	6,200	24·220	+·026	?	24·267	16th	24·177	23rd	·090	64·1	71·5	+0·7	56·5	−0·8	64·0	−0·1	15·0	76·2	27th	50·7	14th	25·5
	Kodaikanal	?	?	?	?	?	...	?	...	?	60·2	65·7	?	53·6	?	59·7	?	12·1	70·0	13th	50·6	29th	19·4
	Kottagiri	?	23·816	?	?	23·830	22nd	23·797	12th	·033	62·0	70·6	?	55·9	?	63·3	?	14·7	72·4	31st	53·5	7th	18·9
XIII.—Extra India.																							
Ceylon	Colombo	40	29·905	+·024	29·870	29·987	4th	29·841	18th	·146	81·8	84·7	?	77·0	?	80·9	?	7·7	86·0	5 days	73·0	5th	13·0
Persia	Meshed	?	?	?	?	?	...	?	...	?	74·2	86·1	?	57·3	?	71·7	?	28·8	91·5	19th & 21st.	50·9	7th & 23rd.	40·6
	Isphahan	?	?	?	?	?	...	?	...	?	74·2	93·2	?	59·7	?	76·5	?	33·5	98·0	2nd	54·2	13th	43·8
	Bushire	14	29·586	?	29·555	29·687	20th	29·400	1st	·287	92·8	98·8	?	84·6	?	91·7	?	14·2	108·5	1st	80·5	30th	28·0
Arabia	Muskat	?	29·617	?	?	29·766	19th	29·487	2nd	·279	87·3	89·4	?	86·0	?	87·8	?	3·4	97·1	2nd	82·4	31st	14·7
	Baghdad	?	29·266	?	?	29·505	4th	29·071	1st	·434	87·1	107·6	?	79·4		93·5	?	28·2	114·9	20th	71·7	30th	43·2
	Aden	91	29·673	?	29·697	29·731	15th	29·622	7th	·109	85·5	91·9	?	82·5	?	87·2	?	9·4	94·7	13th	78·6	10th	16·1
	Perim	?	?	?	?	?	?	?	?	?	88·7	?	?	83·8	?	?	?	?	?	?	80·2	28th	?
Arabian Sea Islands.	Minicoy	10	29·946	?	29·881	30·036	12th	29·899	18th	·137	80·4	85·3	?	‡79·0	?	‡82·1	?	6·3	86·7	28th	75·9	31st	10·8
Africa	Zanzibar	73	30·129	?	30·131	30·177	22nd	30·083	31st	·094	73·2	79·5	?	71·3	?	75·4	?	8·2	81·3	2nd	69·0	13th	12·3

* Mean of 30 days.
† " " 29 "
* " " 24 "

‡ Mean of 27 days.
§ " " 18 "

I—*concluded.*

in India, Burma, etc., in August 1893—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 June to 31st August 1893.	Normal rainfall for period, 1st June to 31st August.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
1	...	...	...	...	2	2	15	11	10·4	?	?	67	·786	9·5	0	5·5	−5·5	0	3·05	−3·05	9·21	6·86	+ 2·35	0	Nellore .	Madras (East Coast, Central).
...	...	...	..	...	1	4	12	14	7·5	7·8	− 4	83	·882	7·9	7	9·00	−2·00	3·00	7·01	−4·01	17·11	17·92	− 0·81	0·81	Masulipatam	
...	...	...	...	...	...	15	9	7	?	?	?	72	·754	8·5	4	7·90	−3·90	2·28	5·99	−3·71	21·16	12·80	+ 8·36	1·53	Cuddapah .	Madras (Central).
14	...	...	...	...	...	1	16	...	?	?	?	75	·707	8·5	7	9·33	−2·33	7·51	5·62	+1·89	20·04	13·91	+ 6·13	3·25	Kurnool.	
2	...	...	...	...	...	7	16	6	11·1	10·7	+ 4	4	·662	7·5	7	4·55	+2·45	3·98	2·39	+1·59	12·11	5·94	+ 6·17	1·48	Bellary.	
6	1	...	...	...	...	1	14	9	?	?	?	83	·867	8·2	19	9·10	+9·90	9·38	6·52	+2·86	19·06	19·57	− 0·51	1·84	Rajahmundry	Madras (East Coast, North).
...	...	1	...	1	...	13	14	2	8·8	?	?	86	·889	7·3	13	9·1	+3·9	6·65	5·79	+0·86	18·53	18·58	− 0·05	1·45	Cocanada.	
...	...	...	...	...	...	3	27	1	1·8	2·9	− 38	77	·880	8·5	9	10·64	−1·64	2·89	5·99	−3·10	11·44	14·68	− 3·24	0·50	Vizagapatam.	
1	4	...	...	...	2	15	3	6	13·6	9·1	+ 49	87	·915	4·2	13	11·44	+1·56	9·12	8·18	+0·94	21·55	23·21	− 1·66	1·80	Gopalpur.	
																									XII.—Hill Stations.	
			Not recorded						?	?	?	23	·222	0	0	?	?	0	?	?	0·07	?	?	0	Kuch Fort .	Baluchistan.
31	...	...	...	...	...	...	...	...	2·4	4·5	− 47	54	·423	0·5	0	0·91	−0·91	0	0·47	−0·47	0·04	1·20	− 1·16	0	Quetta.	
...	1	3	2	9	2	5	5	3	+3·9	?	?	35*	·320*	0	0	?	?	0	?	?	?	?	?	0	Shirlno.§	
			Not recorded				...	...	?	?	?	?	?	?	0	?	?	0	?	?	0·84	?	?	0	Kalat.	
5	...	...	...	...	2	20	3	1	7·4	?	?	26†	·286†	0	0	?	?	0	?	?	0	?	?	0	Chaman.	
17	2	2	1	5	2	2	...	...	0·8	?	?	82‡	·538‡	3·2	0	?	?	0·28	?	?	8·14	?	?	0·07	Srinagar .	Northern India.
			Not recorded						?	?	?	47	·427	3·6	1	?	?	0·14	?	?	2·45	?	?	0·10	Gilgit.	
11	4	4	...	3	7	1	1	...	4·4	?	?	61	·555	2·6	6	?	?	3·38	?	?	12·03	?	?	1·68	Cherat.	
6	1	1	2	1	2	4	3	11	6·7	4·8	+ 40	73	·465	2·8	7	15·64	−8·64	6·12	14·07	−7·95	37·73	26·23	+11·50	1·95	Murree.	
7	20	2	...	...	2	...	...	...	?	1·6	?	87	·478	6·5	14	19·45	−5·45	5·56	17·54	−11·98	25·88	42·10	−16·22	1·13	Simla.	
14	...	...	7	1	...	1	8	...	7·4	4·3	+ 72	92	·525	6·4	19	?	?	14·58	17·24	−2·66	45·43	42·38	+ 3·05	2·90	Chakrata.	
...	5	...	7	4	1	...	3	11	?	8·1	?	93	·522	7·9	18	22·18	−4·18	21·69	28·91	− 7·22	65·64	68·02	− 2·38	3·10	Mussoorie.	
24	1	...	2	...	...	1	2	1	2·5	1·9	+ 32	86	·543	8·1	17	17·82	−0·82	11·45	12·73	−1·28	31·25	31·62	− 0·37	1·76	Ranikhet.	
1	...	2	5	11	1	...	3	8	3·3	?	?	91	·318	9·1	30	?	?	31·26	?	?	81·96	?	?	3·08	Gnatong.	
7	...	6	10	2	...	2	4	...	3·5	3·4	+ 3	96	·507	9·3	29	24·43	+4·57	26·98	29·74	−2·76	79·97	78·50	+ 1·47	5·50	Darjeeling.	
			Not recorded				...	?	?	?	?	96	·593	8·2	26	?	?	25·99	?	?	69·11	?	?	2·24	Gantok.	
...	...	1	...	...	1	11	9	9	8·6	10·8	− 20	93	·607	7·3	13	18·50	−5·50	8·47	23·40	−14·93	71·92	51·36	+20·56	1·68	Mount Abu.	Central India.
2	1	...	...	...	...	4	19	5	10·7	7·5	+ 43	91	·653	8·1	23	21·18	+1·82	22·48	18·61	+3·87	50·98	56·83	− 5·85	4·59	Pachmarhi.	
3	..	3	...	5	...	8	9	3	3·6	3·8	− 5	71	·432	5·0	3	10·89	−7·89	1·31	3·65	−2·34	16·60	9·96	+ 6·64	0·62	Wellington .	South India.
2	4	1	1	2	1	2	4	14	11·0	?	?	74	·383	6·5	7	12·00	−5·00	4·25	6·39	−2·14	26·03	15·21	+10·82	0·93	Kodaikanal.	
6	...	...	...	...	...	2	14	9	4·1	?	?	75	·416	5·2	4	8·80	−4·80	1·71	4·33	−2·62	11·71	11·34	+ 0·37	0·76	Kottagiri.	
																									XIII.—Extra India.	
...	...	...	...	1	6	17	7	...	8·8	8·7	+ 1	73	·799	3·9	2	?	?	0·69	5·22	−4·53	13·92	19·65	− 5·73	0·37	Colombo .	Ceylon.
21	...	...	1	...	...	4	3	2	?	?	?	?	?	0·3	0	?	?	0·07	?	?	0·14	?	?	0·07	Meshed .	Persia.
...	5	11	1	...	...	1	2	11	2·6	?	?	43	·368	0·4	0	?	?	0	?	?	?	?	?	0	Isphahan.	
...	1	5	1	18	1	1	1	3	4·0	7·8	− 49	64	·983	?	0	?	?	0	?	?	0	?	?	0	Bushire.	
...	2	6	11	2	2	3	1	4	?	?	?	78	1·005	1·3	0	?	?	0	?	?	0	?	?	0	Muskat .	Arabia.
5	11	5	1	...	...	...	...	9	?	?	?	35	·452	0	0	?	?	0	?	?	0	?	?	0	Baghdad.	
9	..	...	5	2	9	5	1	...	9·9	10·8	− 8	70	·864	2·6	0	?	?	0·02	0·30	−0·28	0·02	0·31	− 0·29	0·02	Aden.	
...	2	7	5	2	..	2	7	6	11·3	?	?	63	·852	1·4	0	?	?	0·04	?	?	0·04	?	?	0·04	Perim.	
...	...	...	...	...	...	1	11	19	18·6	?	?	81	·839	5·0	4	?	?	1·25	?	?	19·99	?	?	0·27	Minicoy .	Arabian Sea Islands.
...	...	...	...	1	21	9	...	...	9·8	?	?	84	·688	7·0	6	?	?	3·13	?	?	4·72	?	?	1·24	Zanzibar .	Africa.

* Mean of 30 days.
† „ „ 29 „
‡ Mean of 27 days.
§ Wind direction of 30 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

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 to 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	...	29·794	29·707	·087	29·747	−·001	29·738	84·1	76·7	7·4	88·5	73·2	15·3	81·9	82·1	79·5	− 0·4	74·4	78·5	78·2	77·0
	Rangoon	...	·777	·684	·093	·737	−·020	·715	85·4	76·2	9·2	89·3	73·9	15·4	80·8	80·4	79·0	+ 0·7	74·4	77·9	77·2	76·5
	Diamond Island	...	·783	·695	·088	·735	−·014	·711	83·2	75·1	8·1	86·3	71·5	14·8	80·9	80·6	78·1	− 0·4	74·6	77·4	77·0	76·4
	Cocos Island	111	·747	·672	·075	·705	?	·747	85·0	76·7	8·3	90·3	72·1	18·2	81·8	81·6	79·7	?	74·3	78·2	78·3	77·1
	Akyab	...	·744	·648	·096	·700	−·008	·663	85·0	77·2	7·8	88·2	75·2	13·0	82·2	82·8	80·2	− 0·1	75·0	80·3	80·5	78·6
Assam.	Silchar	...	630	·504	·126	·576	+·001	·631	87·8	76·7	11·1	98·8	74·3	24·5	82·5	86·0	82·0	− 0·4	75·7	78·9	80·3	78·3
	Sibsagar	...	·396	·267	·129	·332	0	·617	87·4	77·9	9·5	95·1	73·5	21·6	83·1	86·5	81·6	− 0·9	76·5	80·0	81·6	79·4
	Dhubri	...	·579	·464	·115	·527	−·006	·594	85·2	77·8	7·4	90·1	73·8	16·3	81·6	83·6	80·2	− 0·4	76·1	79·0	79·6	78·2
Bengal and Orissa.	Chittagong	...	·654	·550	·104	·609	+·004	·644	86·0	76·6	9·4	89·8	74·3	15·5	83·1	83·2	80·2	+ 0·5	75·6	79·2	79·7	78·2
	Dacca	...	·668	·559	·109	·620	−·002	·589	87·7	79·3	8·4	91·2	75·9	15·3	83·6	85·3	83·1	+ 0·4	77·1	80·2	80·2	79·2
	Calcutta (Alipore)	...	·647	·546	·101	·602	+·006	·569	87·7	78·7	9·0	91·6	76·4	15·2	84·6	84·6	83·0	+ 0·6	77·2	80·1	79·9	79·1
	Calcutta (Chowringhee).	?	·648	?	?	?	?	?	89·5	78·8	10·7	93·0	75·8	17·2	85·9	?	84·2	?	77·9	81·5	?	?
	Saugor Island	...	·640	·545	·095	·598	+·007	·566	87·9	80·1	7·8	91·7	77·5	14·2	84·9	85·2	82·9	+ 0·5	78·0	81·3	80·9	80·1
	Burdwan	...	·576	·467	·109	·529	+·014	·573	89·4	79·7	9·7	92·3	77·2	15·1	84·5	86·8	83·5	+ 0·1	78·2	79·2	80·2	79·2
	Berhampore	...	·607	·496	·111	·559	+·009	·573	88·2	79·5	8·7	91·7	76·1	15·6	83·9	85·1	82·7	− 0·5	77·4	80·3	80·6	79·5
	False Point	...	·650	·556	·094	·608	−·014	·571	88·0	78·9	9·1	92·5	74·7	17·8	85·1	86·2	82·6	+ 1·1	77·1	79·9	80·1	79·0
	Cuttack	...	·576	·478	·098	·534	−·017	·556	89·0	78·3	10·7	93·0	75·8	17·2	85·8	85·4	82·3	− 0·3	76·3	78·6	78·9	77·9
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·667	27·581	·086	27·626	+·006	·546	84·9	72·4	12·5	89·2	70·4	18·8	80·1	82·1	77·6	+ 0·4	70·6	74·6	75·5	73·6
	Patna	...	29·459	29·349	·110	29·409	−·008	·543	89·4	79·6	9·8	92·6	75·7	16·9	85·6	87·2	83·5	− 0·1	77·4	80·0	80·4	79·3
	Darbhanga	...	·495	·388	·107	·447	+·010	·564	88·2	80·0	8·2	92·0	76·4	15·6	84·7	87·1	83·3	+ 0·5	78·3	80·4	81·1	79·9
	Allahabad	...	·317	·218	·099	·272	−·003	·533	91·3	78·4	12·9	97·4	75·3	22·1	86·2	88·2	83·5	+ 0·2	76·2	80·2	79·9	78·8
	Ghazipur	220	·396	·299	·097	·352	−·002	·522	91·4	79·9	11·5	96·6	76·3	20·3	86·6	88·2	84·4	+ 1·8	77·1	80·3	80·3	79·2
	Lucknow	...	·262	·148	·114	·206	−·017	·527	91·2	78·0	13·2	96·3	74·1	22·2	86·4	87·7	83·6	− 1·3	75·5	80·0	79·7	78·4
Upper Sub-Himalayas.	Dehra Dun	...	27·452	27·366	·086	27·402	−·004	·553	84·0	72·9	11·1	89·3	70·0	19·3	78·3	82·1	77·4	− 1·0	70·5	73·8	75·5	73·3
	Roorkee	...	28·743	28·642	·101	28·689	+·001	·523	91·1	76·5	14·6	97·4	71·1	26·3	83·9	89·4	82·8	− 0·5	74·0	77·8	79·0	76·9
	Meerut	...	·898	·798	·100	·841	+·008	·528	93·1	77·4	15·7	98·6	74·7	23·9	87·0	90·5	84·5	+ 0·5	75·8	77·8	78·8	77·4
	Lahore	...	·897	·809	·088	·846	0	·499	99·9	79·6	20·3	105·1	73·1	32·0	91·2	97·5	88·9	+ 2·5	74·0	78·5	79·7	77·4
	Ludhiana	...	·802	·711	·091	·751	+·003	·506	96·5	78·6	17·9	101·4	73·0	28·4	89·5	94·7	86·7	+ 0·6	74·9	78·3	78·7	77·3
Indus Valley and N.W. Rajputana.	Peshawar	...	·519	·414	·105	·460	+·030	·516	99·4	75·0	24·4	106·0	66·0	40·0	89·8	95·8	86·0	− 1·3	68·5	75·7	75·4	73·2
	Mooltan	...	29·162	29·076	·086	29·112	+·015	·486	103·1	82·6	20·5	109·4	76·1	33·3	92·6	102·0	92·3	+ 2·6	76·0	80·7	83·1	80·0
	Jacobabad	...	·410	·296	·114	·346	+·024	·483	106·6	80·6	26·0	111·9	76·7	35·2	94·8	104·4	92·7	+ 1·3	74·7	80·5	80·8	78·7
	Kurrachee	...	·612	·535	·077	·577	+·006	·577	88·9	78·4	10·5	90·3	77·1	13·2	84·6	86·2	82·7	+ 0·8	75·4	79·8	80·7	78·6
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·251	28·154	·097	28·202	+·016	·570	93·6	75·6	18·0	102·1	70·0	32·1	86·0	89·9	83·0	+ 1·7	72·0	76·5	76·9	75·1
	Ajmere	...	·095	·004	·091	·047	+·027	·591	88·7	76·0	12·7	94·5	71·6	22·9	82·1	87·1	81·5	+ 1·8	73·3	76·0	78·0	75·7
	Deesa	...	29·240	29·137	·103	29·187	+·014	·602	89·0	75·4	13·6	96·3	70·6	25·7	83·2	87·5	81·6	+ 0·1	73·5	76·3	76·5	75·4
	Nowgong	...	28·879	28·789	·090	28·835	−·005	·535	89·9	75·4	14·5	95·0	69·9	25·1	84·6	86·1	81·4	− 0·4	75·0	78·1	78·2	77·1
	Agra	...	29·092	29·000	·092	29·043	+·016	·546	93·3	78·9	14·4	98·4	74·7	23·7	88·1	89·5	85·7	+ 0·7	75·7	79·7	79·8	78·4
Deccan.	Belgaum	...	27·324	27·246	·078	27·285	+·010	·732	75·1	65·7	9·4	80·2	63·6	16·6	71·7	71·5	68·9	− 0·7	65·1	68·8	68·7	67·5
	Sholapur	...	28·216	28·098	·118	28·164	+·008	·681	86·8	69·7	17·1	93·0	67·1	25·9	79·3	83·3	76·9	− 1·3	68·0	71·5	72·5	70·7
	Poona	...	27·972	27·896	·076	27·935	+·020	·712	80·6	69·0	11·6	84·8	66·1	18·7	76·2	76·0	72·6	− 1·0	67·2	71·0	70·8	69·7
	Akola	...	28·807	28·696	·111	28·750	+·008	625	85·2	72·7	12·5	92·8	69·7	23·1	80·1	82·3	78·5	− 1·1	71·1	74·5	74·8	73·5
	Buldana	2,132	27·632	27·544	·088	27·586	+·012	·643	80·2	68·8	11·4	85·1	66·7	18·4	75·0	77·4	74·1	− 1·3	67·4	70·6	71·6	69·9
	Khandwa	...	28·664	28·567	·097	28·614	−·002	·608	84·0	73·1	10·9	93·4	70·6	22·8	78·1	81·9	77·4	−1·0	70·9	73·9	74·7	73·2

II.

Stations in India, Burma, etc., for August 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.						
														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.	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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·820	·931	·915	·889	− ·005	89	86	84	86	0	8·9	8·8	8·9	+ 1·8	1	...	...	...	1	4	26	28	2	S. 65° W.	S. 43° W.	84	82	181	228	...	...	Port Blair	Burma Coast and Bay Islands.
·829	·920	·897	·882	− ·007	91	87	86	88	− 3	8·0	8·8	8·4	− 0·5	...	10	3	...	...	...	6	19	14	N. 61° W.	S. 34° W.	58	66	130	113	...	...	Rangoon	
·842	·897	·881	·873	− ·003	92	85	85	87	− 1	9·3	9·4	9·4	+ 1·9	1	...	...	...	...	5	33	20	3	S. 60° W.	S. 44° W.	84	78	220*	164	...	...	Diamond Island.	
·822	·921	·925	·891	?	90	85	86	87	?	8·5	8·9	8·8	?	...	...	...	...	...	1	42	15	...	S. 55° W.	?	94	?	601*	?	20·44	3·32	Cocos Island	
·840	1·013	1·011	·955	+ ·049	90	92	90	90	+ 2	8·4	8·3	8·4	+ 0·3	...	...	3	7	10	32	2	7	1	S 11° E.	S. 1° E.	61	62	86	81	...	...	Akyab	
·876	·942	·961	·926	+ ·005	95	85	78	86	+ 1	8·9	8·7	8·8	+ 0·9	59	...	...	...	...	...	...	2	1	N. 13° W.	S. 63° W.	5	7	12*	69	...	...	Silchar	Assam.
·899	·987	1·015	·967	+ ·024	94	87	81	87	+ 3	7·9	7·0	7·5	− 1·0	12	1	8	...	8	1	27	4	1	S. 34° W.	S. 30° W.	35	12	36	63	..	...	Sibsagar	
·880	·958	·959	·932	+ ·006	92	89	84	88	+ 1	7·9	7·6	7·8	+ 0·4	8	2	16	7	6	4	16	1	2	S. 61° E.	S. 57° E.	16	20	118	78	...	...	Dhubri	
·877	·949	·971	·932	+ ·028	96	84	85	88	0	8·0	9·0	8·5	+ 1·1	...	1	3	6	14	15	18	4	1	S. 1° E.	S. 32° E.	55	55	114	146	...	...	Chittagong.	Bengal and Orissa.
·907	·985	·965	·952	− ·019	90	85	82	85	− 2	8·7	7·5	8·1	+ 0·3	...	...	1	9	16	22	12	2	...	S. 14° E.	S. 14° E.	69	72	167	151	...	...	Dacca	
·918	·967	·960	·948	− ·020	94	81	81	85	− 3	8·6	8·5	8·6	+0·4	...	2	1	18	16	5	12	7	1	S. 33° E.	S. 17° E	40	57	107	122	...	...	Calcutta (Alipore).	
·946	1·020	?	?	?	96	83	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	7·49	1·15	Do. (Chowringhee).	
·934	1·021	1·001	·985	− ·008	91	85	82	86	− 1	9·2	9·3	9·3	+ 1·7	...	5	2	5	15	10	19	5	1	S. 4° W.	S. 17° W.	43	54	312	299	...	...	Saugor Island.	
·947	·930	·912	·940	− ·007	93	78	74	82	− 2	8·5	8·4	8·5	+ 0·2	7	2	6	10	16	6	10	4	1	S. 39° E.	S. 27° E.	35	48	106*	84	...	...	Burdwan	
·916	·989	·988	·964	+ ·012	91	85	82	86	− 1	8·6	8·2	8·4	− 0·4	6	1	3	22	11	6	9	2	2	S. 55° E.	S. 40° E	43	45	85	101	...	...	Berhampore	
·906	·954	·947	·936	+ ·004	92	79	76	82	− 3	8·0	8·2	8·1	+ 0·3	...	2	...	5	11	11	15	16	2	S. 30° W.	S. 57° W.	48	53	252*	238	...	...	False Point	
·883	·882	·902	·889	− ·018	91	72	74	79	− 2	6·4	7·9	7·2	− 0·1	2	1	6	5	5	7	21	11	4	S. 42° W.	S. 44° W.	37	45	79	62	...	...	Cuttack	
·728	·797	·800	·775	− ·027	91	77	73	81	− 4	9·8	9·8	9·8	+ 1·0	1	5	8	13	10	7	6	3	9	S. 84° E.	S. 50° W.	19	7	209	180	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·915	·950	·947	·938	− ·017	90	78	73	80	− 3	8·6	8·3	8·5	+ 0·4	2	...	7	27	4	5	4	13	...	S. 73° E.	S. 19° E.	32	34	144	83	..	...	Patna	
·948	·981	·985	·971	+ ·010	92	82	77	84	0	6·4	5·5	6·0	− 0·1	5	...	3	20	19	4	4	6	1	S. 68° E.	S. 82° E.	74	60	120	110	...	...	Darbhanga	
·877	·953	·906	·912	− ·035	90	76	69	78	− 5	8·0	8·3	8·2	+ 0·7	1	4	9	16	7	2	5	8	10	N. 52° E.	N. 40° E.	18	4	157	93	...	...	Allahabad	
·896	·953	·928	·926	+ ·010	88	75	70	78	− 1	6·3	6·2	6·3	− 0·4	15	..	...	17	14	...	7	8	1	S. 43° E.	S. 50° E.	32	19	74	57	8·92	1·93	Ghazipur	
·852	·938	·909	·900	− ·012	89	75	70	78	− 1	7·0	7·1	7·1	− 0·4	41	...	...	8	2	...	1	7	...	S. 39° E.	S. 77° E.	5	12	26	72	...	...	Lucknow	
·719	·780	·801	·767	?	88	81	74	81	?	7·0	6·4	6·7	− 0·8	16	3	2	4	8	6	5	12	6	N. 53° W.	S. 43° W.	18	10	19	26	...	...	Dehra Dun.	Upper Sub-Himalaya.
·808	·872	·855	·846	− 015	88	76	63	76	− 1	6·3	5·5	5·9	− 0·3	23	2	1	15	7	4	5	3	2	S. 56° E.	S. 36° E.	24	27	?	60	...	...	Roorkee	
·871	·834	·827	·844	− ·030	92	66	59	72	− 4	5·5	5·6	5·6	− 0·8	21	1	3	10	7	1	2	15	2	S. 16° W.	N. 80° E.	5	5	45	50	...	...	Meerut	
·772	·805	·776	·784	− ·083	76	55	44	58	− 6	2·4	3·1	2·8	− 0·9	6	7	6	5	8	5	2	16	7	N. 60° W.	S. 83° E.	14	27	67	69	...	...	Lahore	
·821	·819	·769	·803	− ·069	84	60	49	65	− 7	5·0	4·9	5·0	− 0·6	30	2	...	1	3	5	...	17	4	S. 82° W.	S. 66° E.	27	10	28	34	...	...	Ludhiana	
·624	·715	·629	·656	− ·120	71	51	38	53	− 8	1·1	4·1	2·6	− 0·2	4	11	16	15	3	3	3	3	4	N. 49° E.	N. 40° E.	43	55	94*	94	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·813	·880	·880	·858	− ·025	73	58	43	58	− 5	0·5	1·1	0·8	− 1·4	5	...	2	..	26	...	26	...	3	S. 1° W.	S. 19° W.	53	22	54*	70	...	...	Mooltan	
·782	·849	·735	·789	− ·026	75	52	33	53	− 4	0·7	0·7	0·7	− 1·6	15	...	1	10	26	9	1	...	.	S. 46° E.	S. 50° E.	64	54	13*	94	..	...	Jacobabad	
·842	·956	·973	·924	+ ·071	87	80	78	82	+ 4	6·1	5·2	5·6	− 1·1	...	...	...	...	...	...	25	37	...	S. 72° W.	S. 63° W.	92	84	370	409	...	...	Kurrachee	
·744	·798	·765	·769	− ·045	83	64	56	68	− 10	6·4	7·2	6·8	− 0·4	3	6	6	...	1	3	23	15	5	S. 78° W.	N. 58° W.	48	40	96	127	...	...	Jeypore	E. Rajputana, Central India and Guzerat.
·788	·824	·846	·819	+ ·040	88	75	67	76	0	4·6	5·5	5·1	− 1·1	3	...	6	...	1	...	4	41	7	N. 83° W.	S. 70° W.	71	56	202	138	...	...	Ajmere	
·802	·813	·766	·794	− ·003	91	72	60	74	− 1	7·9	7·6	7·8	− 0·2	...	...	...	...	...	5	32	21	3	S. 61° W.	S. 47° W.	84	72	223	288	..	...	Deesa	
·864	·877	·862	·868	+ ·011	98	74	70	80	0	6·9	8·4	7·7	− 0·7	3	3	2	15	1	1	6	25	6	N. 82° W	S. 82° W.	27	38	82*	81	...	...	Nowgong	
·847	·903	·888	·879	− ·017	85	68	65	73	− 3	5·3	6·1	5·7	− 0·7	...	...	12	1	19	...	8	...	22	N. 18° E.	S. 22° E.	8	10	114	157	...	...	Agra	
·613	·667	·668	·649	− ·006	97	86	87	90	+ 1	9·4	9·3	9·4	+ 0·9	...	..	...	...	...	...	34	25	3	S. 67° W.	S. 79° W.	90	89	532	497	...	...	Belgaum	Deccan.
·665	·674	·664	·668	+ ·012	91	68	60	73	+ 4	8·4	8·8	8·6	+ 0·3	1	1	...	1	...	1	14	28	16	N. 88° W.	N. 89° W.	77	79	355*	279	...	...	Sholapur	
·647	·694	·690	·677	− ·005	91	77	78	82	+ 3	8·1	8·7	8·4	− 0·3	...	...	...	...	...	...	8	50	3	S. 87° W.	S. 84° W.	95	82	290	340	...	...	Poona.	
·742	·782	·769	·764	+ ·017	93	77	71	80	+ 5	8·0	8·3	8·2	0	..	4	2	...	...	...	8	38	10	N. 82° W.	N. 71° W.	81	80	214	194	...	...	Akola.	
·654	·695	·704	·681	− ·017	93	80	76	83	+ 2	8·1	8·0	8·1	+ 0·5	...	1	...	...	...	...	11	24	26	N. 85° W.	N. 65° W.	82	72	223*	199	11·93	2·60	Buldana	
·730	·777	·770	·759	− ·004	90	82	72	81	+ 3	7·8	7·9	7·9	+0·5	...	1	...	...	...	...	2	38	21	N. 75° W.	N. 80° W.	90	80	246	192	...	...	Khandwa.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

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 to 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—*contd.*	Hoshangabad	...	28·658	28·562	·096	28·608	—·027	29·578	84·9	73·5	11·4	94·4	70·3	24·1	79·6	82·6	78·0	−0·4	72·6	76·5	77·6	75·6
	Nagpur	...	·665	·562	·103	·612	0	·583	85·9	74·2	11·7	95·4	70·9	24·5	80·6	81·7	79·3	−1·0	71·4	75·5	75·8	74·2
	Jubbulpore	...	·339	·239	·100	·287	—·007	·553	85·1	73·5	11·6	92·0	70·1	21·9	80·2	82·0	77·9	−0·1	72·5	75·6	76·2	74·8
	Saugor	...	27·913	27·819	·094	27·864	+·004	·551	84·8	72·4	12·4	92·8	67·7	25·1	79·1	82·8	77·5	+1·0	71·5	75·4	76·5	74·5
	Raipur	...	28·712	28·597	·115	28·653	+·001	·550	85·6	74·5	11·1	92·8	69·9	22·9	80·9	83·1	79·7	−0·3	72·7	76·1	76·5	75·1
	Sutna	...	·590	·494	·096	·543	−·007	·528	87·7	76·0	11·7	93·1	72·6	20·5	83·7	84·8	80·6	0	73·6	77·7	77·7	76·3
	Secunderabad	...	27·998	27·906	·092	27·961	+·013	·673	84·3	70·6	13·7	90·2	67·3	22·9	77·3	81·1	76·1	−1·3	68·9	70·7	72·5	70·7
	Hyderabad (Deccan).	...	28·091	·979	·112	28·039	?	·658	83·2	71·5	11·7	89·6	68·2	21·4	77·0	81·2	76·9	?	69·4	71·5	73·4	71·4
West Coast.	Bombay	...	29·781	29·705	·076	29·740	+·013	·717	84·2	76·8	7·4	86·2	74·8	11·4	80·8	81·1	79·8	−0·1	73·9	77·0	76·8	75·9
	Ratnagiri	...	·735	·659	·076	·694	+·014	·741	83·3	75·4	7·9	85·7	72·8	12·9	80·6	79·7	78·6	−0·2	73·2	77·2	76·4	75·6
	Karwar	...	·840	·768	·072	·801	+·017	·777	82·1	74·9	7·2	84·4	73·0	11·4	78·8	79·6	77·9	+0·1	72·3	75·4	75·7	74·5
	Cochin	...	·929	·851	·078	·887	+·011	·824	84·9	75·0	9·9	86·9	72·0	14·9	81·3	82·5	79·4	+0·7	73·4	76·4	77·1	75·7
South India.	Salem	...	28·937	28·806	·131	28·886	—·010	·748	91·3	72·3	19·0	95·2	69·4	25·8	83·0	89·0	80·1	+0·5	70·2	73·9	74·3	72·8
	Mysore	...	27·393	27·296	·097	27·345	?	·756	83·8	66·4	17·4	88·7	64·8	23·9	76·6	79·5	74·0	?	65·3	68·4	69·5	67·8
	Mercara	...	26·212	26·138	·074	26·189	+·017	·847	69·3	62·5	6·8	74·3	60·8	13·5	65·7	66·2	65·1	−0·4	61·5	64·3	64·8	63·5
	Bangalore (Fort)	...	·890	·794	·096	·854	—·007	·740	80·6	65·9	14·7	85·4	63·6	21·8	73·4	78·6	72·8	−0·1	64·7	68·1	69·6	67·5
	Hassan	...	·842	·759	·083	·813	?	·782	78·1	63·5	14·6	83·7	61·3	22·4	73·1	73·6	69·7	?	62·1	67·3	67·9	65·8
	Chitaldroog	...	27·461	27·365	·096	27·422	?	·737	80·2	66·7	13·5	86·6	64·9	21·7	74·3	77·6	72·8	?	64·7	69·0	69·9	67·9
	Trichinopoly	...	29·596	29·464	·132	29·544	0	·726	98·1	77·3	20·8	102·3	74·5	27·8	90·0	95·1	85·7	+1·9	71·4	74·9	76·5	74·3
	Madras	...	·800	·681	·119	·750	+·003	·700	94·4	77·5	16·9	100·1	74·0	26·1	87·3	89·5	84·4	+0·2	?	77·4	79·3	77·7
	Bellary	...	28·362	28·247	·115	28·314	+·015	·715	87·2	72·3	14·9	94·2	68·6	25·6	80·5	84·9	78·7	−2·3	68·5	71·6	73·0	71·0
	Vizagapatam	...	29·679	29·572	·107	29·631	—·003	·600	85·9	80·8	5·1	89·3	79·5	9·8	84·8	86·1	84·7	−0·7	73·3	78·3	78·9	76·8
	Cocanada	...	·709	·622	·087	·666	?	·628	87·8	77·6	10·2	95·2	73·0	22·2	82·7	85·7	82·2	?	75·8	77·7	78·5	77·3
Hill Station, Baluchistan.	Quetta	...	24·523	24·446	·077	24·483	+·046	?	89·1	55·9	33·2	94·2	52·0	42·2	80·3	88·1	72·3	−3·2	51·1	60·7	63·0	58·3
Hill Stations, Northern India.	Leh	11,503	19·645	19·534	·111	19·600	−·025	?	78·5	48·7	29·8	84·8	41·7	43·1	65·7	73·3	62·0	+1·1	40·8	50·6	53·1	48·2
	Srinagar	...	24·738	24·654	·084	24·694	?	?	81·2	59·6	21·6	86·6	54·2	32·4	70·6	80·4	70·1	?	58·2	65·1	68·1	63·7
	Murree	...	23·764	23·735	·029	23·748	+·007	?	75·4	61·1	14·3	79·9	52·6	27·3	69·8	73·0	67·8	+0·9	56·3	63·0	65·8	61·7
	Chamba	3,005	26·710	26·632	·078	26·673	+·013	?	85·7	69·3	16·4	91·4	63·0	28·4	78·8	82·6	76·2	+0·2	67·5	71·8	74·2	71·1
	Kailang	10,087	20·731	20·667	·064	20·701	+·036	?	73·4	49·2	24·2	80·9	41·4	39·5	64·9	68·7	59·5	−1·1	46·6	56·4	55·6	52·9
	Simla (Ridge)	...	23·044	22·994	·050	23·017	+·010	?	67·9	58·5	9·4	71·7	54·6	17·1	64·1	65·8	62·8	−0·9	56·0	61·0	62·4	59·8
	Simla (Chapslee)	?	?	?	?	?	?	?	71·0	58·7	12·3	74·8	54·6	20·2	65·6	?	?	?	56·3	61·9	?	?
	Chakrata	...	·165	23·131	·034	·146	0	?	69·5	59·3	10·2	73·2	55·9	17·3	64·5	65·4	63·5	+0·1	58·5	62·6	63·6	61·6
	Ranikhet	...	·998	·940	·058	·954	−·002	?	72·7	62·1	10·6	77·0	59·5	17·5	68·4	70·0	66·8	−0·1	60·8	64·5	66·0	63·7
	Katmandu	4,388	25·494	25·414	·080	25·457	+·019		82·0	68·2	13·8	86·8	65·3	21·5	75·0	76·6	73·8	−1·7	66·4	70·6	71·4	69·4
	Darjeeling	...	22·935	22·865	·070	22·903	+·004	?	65·6	57·1	8·5	73·4	54·1	19·3	62·6	63·0	60·7	+0·1	56·9	61·6	61·6	60·0
	Demagiri	?	?	?	?	?	?	?	86·2	75·8	10·4	88·9	74·2	14·7	83·4	83·6	80·4	+1·0	?	?	?	?
	Tura	3,943	?	?	?	?	?	?	82·5	74·4	8·1	89·7	71·8	17·9	79·4	80·1	77·9	?	?	76·2	76·3	?
Hill Stations, Central India.	Mount Abu	...	25·900	25·839	·061	25·868	+·004	?	71·7	64·0	7·7	76·5	60·4	16·1	68·3	70·4	67·5	−0·5	63·2	66·5	67·9	65·9
	Pachmarhi	...	26·299	26·220	·079	26·258	+·014	?	75·1	66·9	8·2	82·7	64·2	18·5	71·1	72·2	69·6	0	65·8	68·4	68·8	67·7
	Chikalda	3·642	·178	·101	·077	138	—·003	?	72·0	64·6	7·4	78·2	62·9	15·3	68·0	70·5	67·2	−0·5	64·3	66·9	68·3	66·5

II—*continued.*

Stations in India, Burma, etc., for August 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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.	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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·790	·876	·888	·851	+·041	96	87	81	88	+4	8·7	8·9	8·8	+1·2	13	...	2	...	1	3	21	22	...	S. 64° W.	S. 79° W.	63	73	80	85	...	...	Hoshangabad.	Deccan—*contd.*
·738	·820	·821	·793	—·002	87	79	77	81	+2	8·4	9·1	8·8	+0·3	..	7	4	...	...	2	14	20	15	N. 77° W.	N. 76° W.	61	62	202	144	...	...	Nagpur.	
·791	·831	·831	·818	+·010	96	81	77	85	+3	7·5	8·5	8·0	−0·3	10	2	4	1	2	3	7	25	8	N. 88° W.	N. 84° W.	49	64	66	107	...	...	Jubbulpore.	
·766	·835	·838	·813	+·028	96	84	76	85	+2	6·9	7·3	7·1	+1·0	...	...	2	2	2	5	28	16	7	S. 61° W.	S. 78° W.	66	66	135	104	...	...	Saugor.	
·781	·837	·828	·815	—·011	92	80	74	82	0	8·9	8·5	8·7	+0·8	6	3	2	2	...	2	21	20	6	S. 77° W.	S. 76° W.	58	64	188*	187	...	...	Raipur.	
·801	·877	·858	·846	+·017	89	76	73	79	0	5·9	7·1	6·5	−0·4	1	11	3	11	2	6	2	17	9	N. 44° W.	N. 70° W.	24	39	169*	191	...	...	Sutna.	
·689	·671	·691	·684	0	92	72	66	77	+3	7·6	8·9	8·3	+1·8	3	2	...	...	...	...	10	25	22	N. 78° W.	S. 87° W.	79	83	280	244	...	...	Secunderabad.	
·693	·706	·727	·710	?	90	76	69	79	?	7·9	8·4	8·2	?	2	...	...	1	...	...	1	47	10	N. 83° W.	?	87	?	218*	?	...	...	Hyderabad (Deccan).	
·799	·877	·865	·847	—·034	87	83	82	84	−3	8·6	8·8	8·7	−0·1	...	...	..	1	1	1	14	41	4	S. 81° W.	S. 81° W.	85	81	324	384	...	...	Bombay.	West Coast.
·790	·890	·870	·849	+·002	90	85	86	87	+2	8·5	9·2	8·9	+1·9	2	3	...	...	...	...	17	29	11	S. 85° W.	S. 63° W.	79	61	229*	242	...	...	Ratnagiri.	
·758	·839	·837	·811	—·022	88	85	83	85	−3	7·5	8·0	7·8	+0·7	9	23	...	...	...	...	...	25	5	N. 47° W.	W	63	79	60	?	...	...	Karwar.	
·809	·844	·858	·838	+·007	93	80	78	83	−4	3·9	4·8	4·4	−2·0	5	...	..	...	...	...	...	33	24	N. 71° W.	N. 85° W.	85	59	171	?	...	...	Cochin.	
·712	·714	·654	·693	—·069	90	63	49	67	−7	7·0	8·0	7·5	+1·5	14	...	1	...	1	9	23	11	3	S. 51° W.	S. 60° W.	58	80	91	94	...	...	Salem.	South India.
·612	·596	·598	·655	?	94	65	60	73	?	8·1	8·4	8·3	?	...	...	...	...	...	...	16	40	6	S. 83° W.	?	90	?	378*	?	...	...	Mysore.	
·537	·589	·597	·574	—·006	94	92	93	93	−1	9·1	9·3	9·2	−0·2	...	9	...	...	...	...	...	16	37	N. 50° W	N. 73° W.	89	88	290	199	...	...	Mercara.	
·598	·626	·621	·615	+·007	94	77	64	79	+2	7·8	7·1	7·5	+1·2	...	...	...	...	...	...	19	38	5	S. 80° W.	S. 78° W.	90	91	194*	181	...	...	Bangalore (Fort).	
·545	·602	·617	·588	?	93	74	75	81	?	8·4	8·5	8·5	?	...	...	...	...	...	...	21	31	10	S. 82° W	?	85	?	122*	?	...	...	Hassan.	
·588	·645	·637	·623	?	90	76	68	78	?	8·3	8·2	8·3	?	...	...	...	...	...	...	18	32	12	S. 85° W.	?	86	?	273*	?	...	...	Chitaldroog.	
·692	·664	·662	·673	—·043	74	47	40	54	−7	4·8	5·7	5·3	−2·3	...	...	1	...	...	...	12	38	11	W	N. 80° W.	87	82	200	198	...	...	Trichinopoly.	
?	·812	·867	·863	+·057	?	63	63	73	+2	6·8	7·4	7·1	+0·6	...	1	2	6	5	4	12	27	5	S. 70° W.	S. 40° W.	48	58	157	172	...	...	Madras.	
·653	·664	·666	·661	—·006	82	64	57	68	+4	7·0	7·2	7·1	−0·5	1	2	...	...	...	...	19	32	8	S. 84° W.	N. 86° W.	84	87	268	262	...	...	Bellary.	
·715	·897	·901	·838	—·006	67	75	72	71	−1	8·1	8·7	8·4	+1·9	...	...	...	...	2	6	17	36	1	S. 69° W.	S. 74° W.	82	64	42	70	...	...	Vizagapatam.	
·871	·881	·882	·878	?	52	80	73	81	?	7·5	7·4	7·5	?	...	...	4	1	...	...	6	38	13	N. 81° W.	?	77	?	198*	?	...	...	Cocanada.	
·330	·328	·322	·327	—·067	73	31	24	42	−4	0·4	1·2	0·8	−0·6	26	1	...	...	1	1	...	15	18	N. 66° W.	N. 78° W.	48	42	63*	97	...	...	Quetta.	Hill Stations, Baluchistan.
·191	·239	·230	·220	—·044	55	38	29	41	−8	4·9	5·3	5·1	0	2	1	3	3	1	5	15	29	2	S. 71° W.	S. 72° W.	61	31	52	38	0·35	0·35	Leh.	Hill Stations, Northern India.
·477	·561	·547	·525	?	93	75	53	73	?	2·7	3·2	3·0	?	53	...	...	...	2	2	2	2	1	S. 33° W.	?	8	?	22*	?	...	...	Srinagar.	
·409	·511	·563	·494	—·061	76	70	69	72	−10	4·0	4·7	4·4	−2·1	4	3	...	3	15	9	12	6	10	S. 24° W.	S. 4° E.	32	12	161*	119	...	...	Murree.	
·658	·700	·756	·704	—·038	91	71	67	76	−7	5·7	6·6	6·2	−0·8	22	8	...	...	...	1	...	4	27	N. 42° W.	N. 33° W.	56	33	95*	81	4·97	1·93	Chamba.	
·300	·388	·330	·339	—·023	85	63	48	65	−3	6·2	6·2	6·2	−0·2	...	2		1	4	10	17	10	18	S. 71° W.	S. 80° W.	52	61	42	35	0·50	0·13	Kailang.	
·426	·506	·532	·487	—·048	86	84	84	85	−6	7·8	8·1	8·0	−0·7	24	25	2	1	1	3	2	2	2	N. 4° W.	S. 77° W.	37	28	?	?	...	...	Simla (Ridge).	
·432	·516	?	?	?	87	82	?	?	?	7·7	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	6·04	0·92	Simla (Chapslee).	
·486	·550	·570	·535	—·006	96	91	91	92	0	6·5	8·1	7·3	−1·5	8	...	...	...	1	...	...	53	...	S. 89° W.	S. 73° W.	84	43	171*	103	...	...	Chakrata.	
·524	·568	·601	·561	—·009	93	82	82	86	−1	8·4	8·3	8·4	−0·2	27	2	1	1	1	2	4	18	6	N. 86° W.	S. 59° W.	37	33	60	51	...	...	Ranikhet.	
·626	·697	·710	·679	+·005	91	80	7	82	+2	7·8	8·2	8·0	+1·2	...	2	...	26	2	2	5	24	3	S. 35° W.	S. 79° W.	3	26	14	?	17·44	2·48	Katmandu.	
·461	·540	·537	·512	+·007	98	94	93	95	+1	9·6	9·5	9·6	+0·9	9	2	13	14	4	1	10	8	...	N. 88° E.	N. 84° E.	17	32	8	81	...	...	Darjeeling.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	...	...	32	...	1	1	27	...	S. 82° E.	S. 23° E.	8	30	?	?	23·09	3·09	Demagiri.	
?	·868	·866	?	?	?	86	84	?	?	7·0	6·9	7·0	0	...	3	2	...	4	38	11	3	1	S. 9° W.	S. 3° W.	71	59	?	?	19·64	6·30	Tura.	
·574	·632	·655	·621	+·018	96	91	88	92	+2	7·5	7·7	7·6	−1·0	1	2	..	2	3	...	21	18	15	S. 83° W.	S. 58° W.	64	72	206	254	...	...	Mount Abu.	Hill Stations, Central India.
·624	·665	·668	·652	—·010	94	88	86	89	−1	8·3	8·5	8·4	−0·1	4	...	...	2	...	...	6	39	11	N. 86° W.	N. 80° W.	79	72	256*	179	...	...	Pachmarhi.	
·600	·651	·667	·639	—·004	98	95	90	94		9·3	8·7	9·0	+0·1	2	11	...	...	...	...	...	18	31	N. 51° W.	N. 41° W.	84	72	302	25	23·12	4·15	Chikalda.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

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 to 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 Stations, S. India.	Wellington . .	...	24·228	24·162	·066	24 195	+·020	?	71·8	56·1	15·7	76·4	49·5	26·9	67·4	66·9	62·8	+0·2	53·8	59 9	61·0	58·2
	Muscat . .	...	29·626	29·558	·068	29·592	?	?	89·1	86·0	3·1	94·9	82·4	12·5	8·1	88·3	87·4	?	77·6	82·3	82·0	80·6
Extra India.	Aden . . .	...	·682	·539	·143	·60	+·019	29·632	90·8	82·5	8·3	94·3	78·6	15·7	87·5	89·9	86·5	+1·5	73·7	78·3	76·6	76·2
	Perim . . .	...	·592	·478	·114	·532	?	?	?	83·8	?	?	80·2	?	91·0	93·0	?	?	77·0	79·9	80·3	79·1
	Minicoy . .	...	·954	·874	·080	·909	?	·844	85·3	79·0	6·3	86·7	75·9	10·8	82·3	83·0	81·6	?	74·5	76·8	76·8	76·0
	Zanzibar . .	...	30 148	30·050	·098	·099	?	·100	79·5	71·3	8·2	81·3	69·0	12·3	74·9	78·0	75·0	?	68·1	70·6	70·1	69·7

II—*concluded.*

Stations in India, Burma, etc., for August 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·391	·440	·478	·436	—·003	87	66	72	75	— 2	5·7	7·5	6·6	—1·0	...	3	3	1	9	6	27	8	5	S. 43° W.	S. 81° W.	50	46	86	87	...	...	Wellington.	Hill Stations, S. India.
·839	1·030	1·011	·960	?	68	78	76	74	?	0·7	0·3	0·5	?	...	2	17	31	1	2	...	1	8	N. 65° E.	?	66	?	92	?	...	...	Muscat.	Extra India.
·716	·849	·737	·767	—·030	65	65	53	61	— 5	1·2	0·6	0·9	—0·8	4	...	...	1	13	31	10	2	...	S. 1° E.	S. 12° E.	76	69	235	268	...	...	Aden.	
·837	·872	·867	·859	?	72	60	57	63	?	0·9	0·2	0·6	?	...	1	13	8	8	3	1	5	23	N. 17° E.	?	27	?	271	?	...	...	Perim.	
·790	·848	·843	·827	?	80	77	75	77	?	4·9	5·4	5·2	?	...	...	...	...	...	..	...	23	39	N. 62° W.	?	93	?	447	?	...	...	Minicoy.	
·646	·692	·634	·659	?	85	79	66	77	?	4·6	5·4	5·3	?	...	1	...	1	23	24	6	...	...	S. 16° E.	S. 6° W.	86	59	234*	153	...	...	Zanzibar.	

* Corrected.

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Explanation

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

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

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93 —5,500.

Explanation.

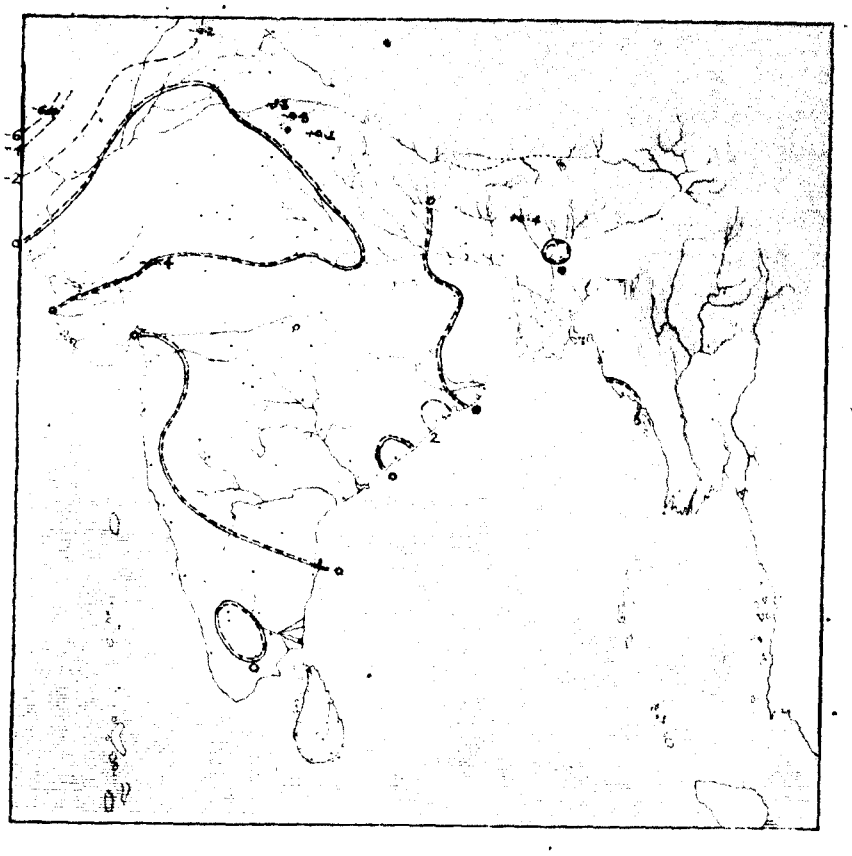
The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines 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.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93 — 5,500.

Litho., S. I. O., Calcutta.

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.

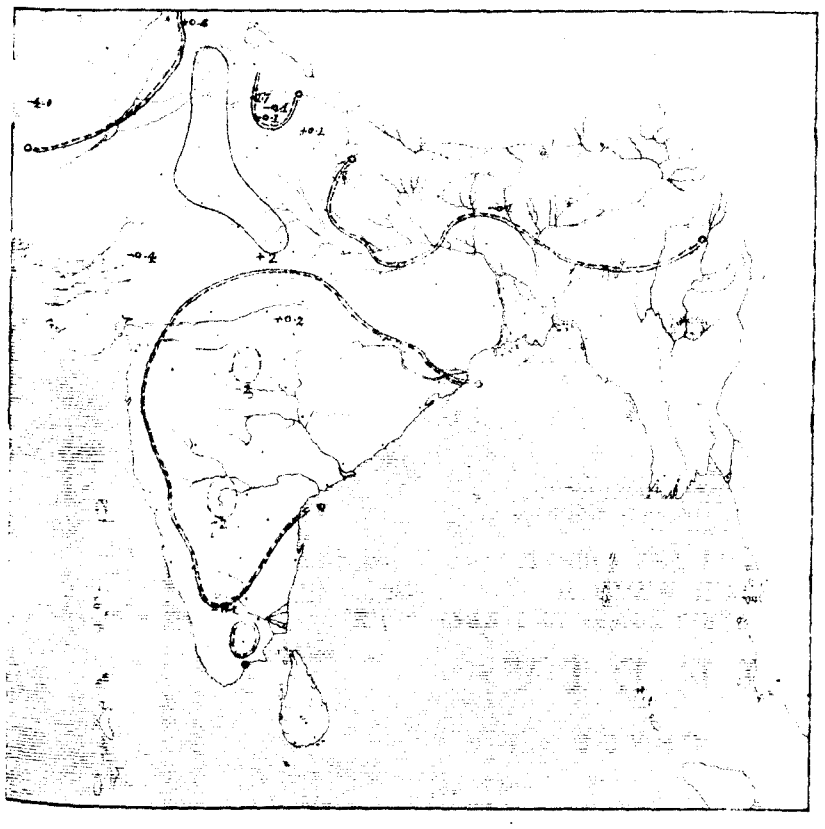
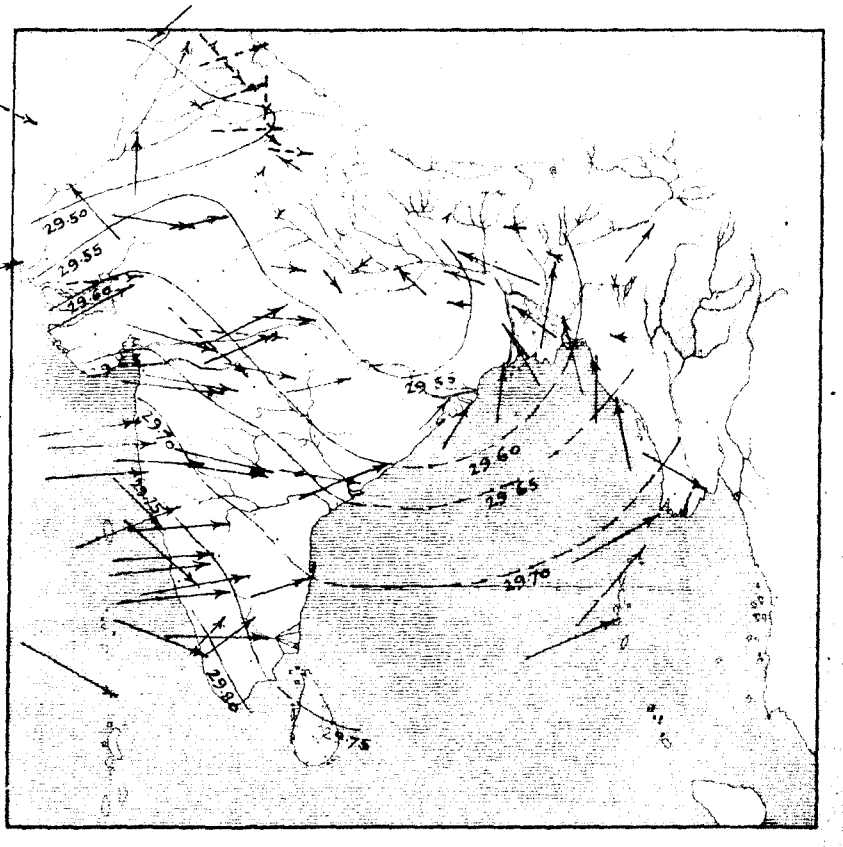


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF AUGUST 1893.



Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India, 182 in number. 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. 199, Wr., I.—April 03.—500.—199 R., May 93.—5,500.

Litho., S. I. O. Calcutta

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

Reg. No. 199, Wr., I.—April 93—500.—199 R. May 93—5,500.

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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INTRODUCTION

THIS Review of the weather in India during the month of September 1893 is based on observations taken daily at 8 A.M. at 203 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 88 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 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 September 1893.

The principal meteorological features of the month of September in normal years are the retreat of the south-west monsoon from Upper India and the appearance of more or less severe cyclonic storms over the Bay of Bengal. The date of the occurrence of the former phenomenon 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 frequently 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 chief features of the weather in India during September 1893 were due to the passage of three cyclonic storms from the Bay of Bengal across Northern India. They were well developed cyclonic storms of the rains and were especially remarkable for the abundant rainfall they gave during their progress.

All these storms formed in the north of the Bay at the eastern extremity of the trough of low pressure, which is one of the prominent and important features of the pressure distribution in India during the rains. They also marched along a path approximately coincident with the position of the trough of low pressure when they were forming.

The first storm formed on the 30th and 31st August in the north-west of the Bay. It intensified on the 1st and 2nd and began to advance north-westwards on the afternoon of the 2nd towards the North Orissa coast. The centre crossed that coast a little to the south-east of Balasore about noon of the 3rd and advanced with an average velocity of 23 miles during the next 24 hours. The storm was in Baghelkhand, Bundelkhand and the neighbouring districts of the North-Western Provinces on the morning of the 4th. It continued to advance in the same direction during the day and was in the South-East Punjab and the north-western districts of the North-Western Provinces on the morning of the 5th. It filled up rapidly during the day and disappeared before the morning of the 6th. The indraught of humid winds to the storm area from the Bay gave a general burst of rain to the whole of Bengal and the Gangetic plain. The rainfall was very heavy in the central belt over which it passed during its progress. It was exceptionally heavy in the districts of Rae Bareli, Lucknow, Mirzapur, Allahabad, Cawnpore, Umballa, Almora, Naini Tal, Pilibhit, and Saharanpur.

Temperature at the commencement of the month was generally above the average to a slight extent. The advance of the storm caused a moderate reduction of temperature in North-Eastern India and the Gangetic plain, and temperature was in moderate defect in that area and in slight to moderate excess in Upper India at the end of the storm on the 6th and 7th.

The second storm began to form in the north of the Bay on the 7th and 8th almost immediately after the disappearance of the first storm. It increased steadily but somewhat slowly in intensity on the 9th and 10th, on which day it was a cyclonic storm of considerable magnitude and strength. It now began to move in a west-north-west direction, and was giving very heavy rain to the coast districts of Orissa and South-West Bengal. The centre crossed the coast of Orissa between Balasore and False Point on the morning of the 11th. It advanced slowly westwards and was near Sambalpur at 8 A.M. of the 12th and between Jubbulpur and Sutna at the same hour of the 13th. Very strong easterly winds prevailed in Bihar and the eastern districts of the North-Western Provinces and very heavy rain was received during this period over the whole of that area. The storm marched through Central India on the 14th into South-West Rajputana on the 15th when it received a considerable local development accompanying a very heavy downpour in the Palanpur, Sirohi Oodeypur, and Jodhpur States. The storm now began to recurve from west through north-west to north and north-east and advanced more slowly than it had done during the previous four days. The centre was to the north-west of Deesa on the morning of the 16th and near Bikanir on the 18th, when it was moving north-eastwards. It advanced more rapidly during the next 24 hours and was near Ludhiana on the morning of the 19th. It broke up during the next 24 hours over the Simla Hills. It gave a heavy downpour to the sub-montane districts of the South-East Punjab on the 18th and 19th. The Punjab Himalayas received a moderately heavy and general fall of snow from the disturbance on the 20th and 21st.

The storm was of exceptionally long duration and passed along a curved track which carried it through the driest parts of India during the last four days of its existence. It gave very heavy rain to the whole area over which it passed. This rainfall was exceptionally heavy in West Rajputana and the sub-montane districts of the Punjab, and more especially in the Palanpur, Sirohi, and Jodhpur States. The following gives data for six stations in that area of the rainfall due to the storm.

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of							
		14th	15th	16th	17th	18th	19th	Total	Average annual rainfall.
		"	"	"	"	"	"	"	"
Sirohi .	Mt. Abu.	0·03	8·17	15·51	9·20	9·20	2·18	46·29	62·84
Palanpur	Palanpur .	...	2·74	16·13	1·58	2·30	...	22·75	31·31
	Deesa .	0·77	0·76	13·76	3·07	1·49	0·43	20·28	24·49
Jodhpur .	Sauchore .	0·30	16·35	20·15	1·87	0·10	...	38·77	?
	Jaswantpura	0·68	10·50	7·25	3·25	0·76	...	22·44	?
	Gudha .	0·26	3·50	6·04	2·07	0·75	...	12·62	?
	Pachpadra .	0·21	0·30	0·90	8·30	6·40	1·40	17·51	10·02

As the storm gave a general and heavy burst of rain to nearly the whole of the driest part of North-Western India and a general, moderate fall of snow (down to a level of 11,000 feet) in the Western Himalayas, it caused a large reduction of temperature, and hence temperature was largely below the normal over the whole of Northern and Central India during the latter half of the storm period and for some days afterwards.

The breaking up of the storm was followed by a rapid and large rise of pressure in North-Western India, which displaced the trough of low pressure to an unusual position on the 21st and following days when it stretched from the Orissa coast to the foot of the hills in Bihar.

The third storm began to form on the 20th in the north-west of the Bay, and was of moderate intensity on the 22nd, when it commenced to move in a west-north-west direction towards the coast of Orissa. It increased rapidly in strength during the day and the centre crossed the coast between False Point and Pooree about 4 A.M. of the 23rd. It advanced by a curved path through the Sambalpur district of the Central Provinces on the 24th, into the Shahabad district of South Bihar on the morning of the 25th, and into the Motihari district of North Bihar on the morning of the 26th. This storm, like the preceding, gave rise to a very strong influx of humid winds from the

Bay. This influx was, from the line of advance of the storm, directed chiefly to Bengal, Bihar, and Assam, and hence these areas obtained a heavy burst of rain for a period of five days, from the 22nd to the 27th. The Malda, Dinagepur, and Darjeeling districts received some excessively heavy downpours on the 26th and 27th, when the storm was breaking up at the foot of the hills.

After the disappearance of the second storm, skies cleared on the 21st and 22nd in Upper India and fine dry weather prevailed in the Punjab, Rajputana, Sind, and the western districts of Central India during the remainder of the month. Pressure increased locally in North-Western India, more especially on the 25th and 26th, and the distribution of pressure was completely modified before the end of the month. Pressure was then highest in Western and Upper India, and lowest in Burma and the north-east of the Bay. This change accompanied the withdrawal of the monsoon currents from Upper India and the termination of the rains in that area which hence dates from the 23rd of September in the present year.

Pressure.—The mean pressure of the month was on the average of all stations ·022″ below the normal in India. It was locally in excess in the Peninsula and in defect in Northern India. The deficiency was very marked in Orissa and the adjacent districts, *i.e.*, in the land area common to all the three storms of the month. This deficiency was hence in part a condition determining the origin and track of the storms and in part a result of actions accompanying the storms. The local deficiency as measured by the pressure anomalies exceeded ·04″ at False Point (—·043″), Cuttack (—·048″), Balasore (—·043″), and Sambalpur (—·041″). The local excess in the peninsula was greatest in the Deccan at Bellary (+·037″) and Secunderabad (+·032″).

Pressure was more largely in defect at the hill stations in Northern India than at the neighbouring stations, or there was a deficiency of pressure in the middle relative to the lower atmospheric strata in Northern India. It was, however, not large in amount, averaging ·024″.

The following statement gives the chief features of the pressure variations of September 1893 in eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	Variation of mean pressure from normal.	Pressure Anomaly.
	″	″
Burma Coast and Bay Islands	—·023	—·001
Burma Inland	—·024	—·002
Assam	—·012	+·010
Bengal and Orissa	—·034	—·012
Gangetic Plain and Chota Nagpur	—·035	—·013
Upper Sub-Himalayas	—·024	—·002
Indus Valley and North-West Rajputana	—·030	—·008
East Rajputana, Central India, and Guzerat	—·024	—·002
Deccan	—·019	+·003
West Coast	—·005	+·017
South India	—·0.8	+·014

Temperature.—The temperature conditions of the month were directly related to the rainfall distribution. The large changes which were produced during the month by the passage of the storms have been briefly stated above. The mean maximum temperature was below the normal except in South Madras and a portion of Sind. The deficiency ranged from 2° to 5° over the Deccan, Central Provinces, Central India, Rajputana, the Punjab, and the North-Western Provinces, and was greatest at the Punjab sub-montane stations. The mean minimum or night temperature was in slight excess in Upper India and South Madras, and below the normal over the remainder of India. The variations were small and less than 2° except at Peshawar (+2·5°) and perhaps Lahore (+2·4°). The mean temperature of the month was above the normal in South Madras and Sind. In a small area including Salem and Trichinopoly the excess was 2·2°. This area was also marked by unusual dryness of the air and by diminished cloud amount. The monthly mean temperature was in defect over the remainder of India. The variations were small and less than 2° except in a narrow belt at the foot of the hills between Patna and Ludhiana, in which they ranged between, 2° and 3°, and also locally at Deesa (—2·5°).

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

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

Winds.—The mean air movement in the Arabian Sea and Bay of Bengal was slightly greater than usual, so far as can be judged from the ship data collected at Bombay and Calcutta. The mean air movement in the coast districts of Bengal and Burma was about 25 per cent. greater than usual, and in the west coast districts and the West Deccan about 15 per cent. above the normal. There was hence a larger influx than usual from the neighbouring seas into India in the lower atmospheric strata and the monsoon currents were stronger than the normal. This infer-

ence, it may be noted, is also in accordance with the character of the rainfall of the month over nearly the whole of India. Winds were more westerly than usual in the south-east of the Bay. At the head of the Bay the easterly element was unusually strong and hence the current was diverted from Assam and East Bengal to an abnormal extent. The easterly winds of the month in Bihar and the eastern districts of the North-Western Provinces were much stronger than usual. South-west winds extended across Rajputana into the western districts of the North-Western Provinces, and were very steady. Hence the area of lightest and most unsteady winds for the month occupied an area further to the north and west than usual and included Lucknow, Meerut, Ludhiana, Lahore and Multan. The westerly winds of the month in the Central Provinces and the Deccan were considerably stronger and steadier than usual.

Humidity and cloud.—The air was slightly drier in Assam and Bengal. It was unusually damp in Bihar, the North-Western Provinces, the Punjab, Rajputana and Central India and also in the Himalayan districts. The increased humidity was most largely shown at Lahore, Ludhiana and Jeypore and at the hill stations of Murree, Kailang, Chamba and Mount Abu where the relative humidity of the month was from 10 to 14 above the normal. The mean humidity of the month was in slight excess in the Deccan and in slight to moderate defect in the west coast districts and South India. The deficiency was most marked at Salem and Trichinopoly.

There was more cloud than usual in all parts of India with the exceptions of Assam and South Madras. The mean cloud amount was considerably above the normal in the Gangetic plain, the Punjab, Rajputana and Central India, more especially in the area represented by the station of Lahore. Skies were most serene in the South-West Punjab, Sind, and Baluchistan where the mean cloud amount was less than 1·6. The following table gives comparative data of aqueous vapour pressure, humidity and cloud for ten meteorological provinces :—

Meteorological Province.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	Inches.		
Burma Coast and Bay Islands	−·002	0	+1·2
Assam	−·019	−2	−0·6
Bengal and Orissa	−·023	−1	+0·5
Gangetic Plain and Chota Nagpur	−·013	+3	+1·0
Upper Sub-Himalayas	+·042	+9	+1·4
Indus Valley and North-West Rajputana	+·027	+3	+0·8
East Rajputana, Central India and Guzerat	+·045	+8	+1·3
Deccan	+·002	+3	+0·7
West Coast	−·015	−2	+0·1
South India	−·029	−2	+0·4

Rainfall.—The distribution of the rainfall of the month was in part determined by the prevalence of slightly stronger monsoon currents than usual in September in the Indian monsoon area and in part by the tracks and character of the three cyclonic storms of the month. The Bombay current gave frequent moderate showers to the west coast district during the first three weeks of the month and occasional showers for some days afterwards until the 26th, when fine dry weather set in over the western and northern half of the Peninsula for a short period. The unusually large indraught to Upper India diminished the rainfall in the Peninsula to some extent and hence it was in slight defect over the greater part of it, *i.e.*, over all except those parts which received moderate to heavy rain during the passage of the second storm across India. The distribution of the rainfall due to the Bay current was determined almost entirely by the storms. They diverted the aqueous vapour supplies from Assam and East Bengal to the Gangetic plain, and hence gave unusually heavy rain during their passage to nearly the whole of Northern and Central India. The rainfall of the month was hence considerably in defect in Assam and in excess over the remainder of Northern and Central India, the excess being on the whole largest and most marked in Rajputana, Central India, the greater part of the North-Western Provinces, Bihar, Orissa, the eastern districts of the Central Provinces, and North Madras. The periods of most general rainfall during the month were the 1st to 5th, the 12th to the 21st, and the 23rd to the 26th. The Sirohi, Jodhpur, and Palanpur States received cyclonic downpours on the 15th, 16th, and 17th, the Rae-Bareli and adjacent districts in Oudh on the 3rd, and the Maldah and Dinajpur districts in Bengal on the 26th. Falls of 10 to 20 inches in 24 hours were registered in these districts.

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

Meteorological Province.	Rainfall.		
	Mean actual for September 1893.	Mean normal for September.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	22·76	20·91	+1·84
Burma Inland	8·85	9·60	+0·30
Assam	7·59	13·44	−5·85
Bengal and Orissa	13·40	11·24	+1·51
Gangetic Plain and Chota Nagpur	11·61	7·66	+3·85
Upper Sub-Himalayas	8·69	5·48	+3·22
Indus Valley and North-West Rajputana	2·53	1·08	+1·49
East Rajputana, Central India, and Guzerat	7·09	4·94	+3·24
Deccan	7·64	7·22	+0·29
West Coast	7·46	10·90	−2·59
South India	5·01	4·95	+0·61

Atmospheric Pressure.

The mean pressure of the whole of India for the month was ·022″ below the normal pressure of the period. Relatively to this general feature of the pressure conditions pressure was in defect over nearly the whole of Northern India and in excess in the Peninsula. The local excess or positive pressure anomalies exceeded ·02″ over the greater part of the Deccan, South Madras, and Ceylon, and were more than ·025″ in those portions of that area represented by the following stations :—

DISTRICT.	Station.	Variation of the mean pressure of the month from the normal.	Anomaly.
		″	″
DECCAN	Secunderabad	+·010	+·032
SOUTH INDIA	Bellary	+ 015	+·037
,,	Bangalore Bazar	+·006	+·028
,,	Madras	+·006	+·028
,,	Negapatam	+·014	+·030
CEYLON	Colombo	+ 008	+·030

The local deficiency in Northern India was large in Orissa and the Sambalpur District of the Central Provinces and the adjacent districts of Chota Nagpur, over the greater part of which it exceeded ·04″. The following gives data for this area :—

DISTRICT.	Station.	Variation of the mean pressure of the month from the normal.	Anomaly.
		″	″
ORISSA	False Point	—·065	—·043
,,	Balasore	—·065	—·043
,,	Cuttack	—·070	—·048
CENTRAL PROVINCES (EAST)	Sambalpore	—·063	—·041

The barometric data of Sibsagar, Julpaiguri, and Bogra for the month are of very doubtful accuracy, and hence the anomalies of these stations are probably incorrect and less in amount than the actual figures given in Table I

The chief abnormal features of the mean distribution of pressure of the month were —

(1) General deficiency of pressure.

(2) Local deficiency of pressure in Northern India, greatest in amount in the area, including Orissa and Chata Nagpur, most largely influenced by the three cyclonic storms of the month.

(3) Slight local excess of pressure in the Peninsula, largest in amount in the Deccan.

The following table gives data showing the oscillations in the range of pressure over the Indian land area during the month: —

DATE.	STATION.	Lowest pressure.	Station.	Highest pressure.	Range.
		″		″	″
1st	Mooltan	29·464	Colombo	29·918	·454
3rd	Balasore	29·255	Do.	29·903	·648
6th	Khamamet	29·627	Mercara	29·873	·240
11th	Saugor Island	29·287	Trivandrum	29·867	·580
20th	Iacobabad	29·633	Colombo	29·896	·263
23rd	Cuttack	29·186	Tavoy	29·901	·715
26th	Khushab	29·616	Mercara	29·902	·286
27th	Deralsmail Khan	29·610	Bangalore (Fort)	29·916	·306
30th	Toungoo	29·703	Malegaon	29·888	·185

The data indicate clearly the dates on which the indraught across the coasts into India during the three cyclonic storms of the month was greatest in amount.

Barometric depressions and cyclonic storms of the month.

It was stated in last month's report that a depression was in process of formation at the Head of the Bay during the last two days of the month. It formed in the way in which depressions are usually generated during the rains at the Head of the Bay. The trough of low pressure extended from Sind to Orissa on the 27th and 28th, and was a well marked feature of the pressure distribution. On the 29th and 30th of August the trough extended eastwards across the north-west coast of the Bay and weather became unsettled and squally in that area. Winds were generally unchanged in direction in the north of the Bay on these days, but shifted round at

the Head of the Bay on the night of the 30th to east, and a shallow depression and feeble cyclonic circulation was in existence in the north-west of the Bay on the 31st. This developed during the day into a storm which was the chief feature of the weather in India during the next five days.

Cyclonic storm of the 1st to the 5th September.—The depression, the origin of which is described above, covered the north-west of the Bay on the morning of the 1st. Pressure was about two-tenths of an inch below the normal in the centre of the area, and was more or less considerably in defect over the whole of Northern India. The following observations taken on board ships in the north-west of the Bay indicate the character of the weather in the depression at this stage :—

Name of Vessel.	8 A. M. Position.		Barometer.	Wind.		Sea.	Weather remarks.
	Lat. N.	Long. E.		Direction.	Force		
	° ′	° ′	″				
S.S. *Pentakota*	20 12	89 47	29·491	SW	4	Heavy S.W. sea	4 A. M. heavy rain squalls.
S. *Silver Craig*	20 2	87 0	·466	WSW	?	?	Nasty squalls and heavy rain.
S.S. *Kasara*	Akyab		·417	?		?	Noon squally and rainy.
S.S. *Maharani*	19 34	87 52	·510	S	4	?	Fine; noon squally.

The preceding data when charted show that there was as yet no single centre of wind convergence, and it is hence evident that the storm was in the initial stage. Weather was squally with strong south-west winds in the centre and east of the Bay. Thus the S S. *Shahzada*, in Lat. 18° 27′ N. and Long. 90° 46′ E., had westerly winds force 9, and the S.S. *Palamcotta*, in Lat. 14° 58′ N. and Long. 96° 28′ E., had west-south-west winds, force 9, and violent squalls at frequent intervals.

The 8 A. M. observations hence show that a cyclonic storm was forming in the depression area in the north of the Bay, that it was in the initial stage at that hour, and that strong squally winds were blowing in the centre and south of the Bay favourable to the development of the storm.

2nd September.—Pressure had given way generally to a slight extent in the Indian land area A brisk to rapid fall had occurred in the north of the Bay and South Bengal, and the depression was hence considerably deeper than on the 1st, and steep gradients favouring strong monsoon winds obtained in the Bay. The 8 A.M. observations at Saugor Island and False Point indicate that the centre was in about Lat. 20° N. and Long. 88¼° E. The following observations recorded on board vessels in the north of the Bay illustrate the character of the weather now obtaining over the storm area :—

Name of Vessel.	8 A.M. Position.		Barometer	Wind.		Weather and sea remarks.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′				
S.S. *Pentakota*	Saugor.		29·401	NE	2	Cloudy.
S.S. *St. Marnock*	20 0	87 28	·585	N by E	4	Cloudy.
S. *Silver Craig*	20 9	88 8	·381	E	?	Unsteady winds.
S.S. *Maharani*	17 28	91 48	·500	S	8	Heavy sea.
S.S. *Katho*	15 38	85 49	·612	SW	?	Heavy sea. Furious squalls and torrents of rain.
S. *County of Selkirk*	15 26	87 53	·555	WSW	8	Rain.
S.S. *Akbar*	15 6 (Noon.)	82 8	·665	WNW	9	Very high sea, 4 A.M. terrific squalls.

These observations indicate that a fairly well marked cyclonic circulation, the centre of which was near the position of the S. *Silver Craig* (which reported light and unsteady easterly winds) was in existence. Weather was stormy with strong winds and furious and terrific squalls in the southern and eastern quadrants, and was cloudy with light to moderate winds in the north-western quadrant. In the south-west of the Bay winds were normal in direction, but stronger than usual. and weather fine and clear.

The additional observation recorded at the coast stations during the day establish that the storm continued to develop during the day, and that it commenced to move very slowly in a west-north-west direction.

3rd September —The barometric changes of the previous 24 hours were generally small and unimportant, except in the north-west of the Bay, Orissa, and Chota Nagpur, where pressure gave way briskly to rapidly. The central disturbance was now in the north-west angle of the Bay, and the centrewas approaching the Orissa coast between False Point and Balasore and near the latter station. Heavy rain was falling in Orissa and South-West Bengal and moderate rain in the Gangetic plain, the Central Provinces, Burma, and the west-coast districts. The weather in the early morning at Saugor Island is thus described by the observer: "Sea slight ; fine weather : gentle breeze from east-north-east with occasional puffs of strong wind. Rain squalls all round" The available data when charted indicate that the centre of the depression at 8 A.M. was in about Lat. 21° N. and Long. 87¼° E. The following gives an

abstract of the 8 A.M. observations taken on board three vessels in the north-west of the Bay on this day :—

NAME OF VESSEL.	8 A.M. POSITION		Barometer	WIND.		Weather and sea remarks.
	Lat N.	Long. E.		Direction.	Force	
	° ′	° ′	″			
S.S. *Kohinur* .	Gas	per.	29·193	SE	5	Moderate sea. Heavy rain squalls.
S.S. *Kasara* -	22 13	91 30	·497	ESE	4	Overcast and threatening.
S.S. *Katoria* .	21 56	91 42	·566	SSE	6	Overcast. Noon; squally with thick rain.

The data appear to establish that the winds near the centre of the depression in the eastern quadrant were not so strong as might have been expected, as however is occasionally the case in these feeble storms of the rains. Very strong winds were experienced at considerable distances from the centre in the southern quadrant. Winds of force 7 to 9 were recorded by several vessels.

Additional observations taken at the coast stations during the day establish that the centre crossed the North Orissa coast about noon and that it drifted in a west-north-west direction across Orissa during the afternoon and night.

4th September.—Pressure had increased generally in the Indian area during the previous 24 hours. The changes due to the advance of the low pressure and storm area were large; pressure had increased very rapidly in Orissa, and had fallen rather rapidly in Baghelkhand and the adjacent districts, to which area the storm was now transferred. The centre of the storm area was in about Lat. 25½° N. and Long. 80° E., or about 550 miles to the west-north-west of its position on the morning of the 3rd. It had hence advanced very quickly along the trough of low pressure. The following observations define its position at 8 A.M. :—

STATION.	PRESSURE.			WIND AT 8 A.M.		Cloud.	Rainfall.	REMARKS.
	Reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in miles.			
	″	″	″				″	
Sutna .	29·424	—·092	—·225	SW	7	10	0·49	Continous rain.
Allahabad	29·426	—·090	—·226	S	8	10	3·91	
Cawnpore	29·425	—·109	?	ESE	5	10	6·00	Ditto for upwards of 12 hours.
Nowgong .	29·461	—·073	—·193	W	2	10	1·63	

Pressure was about a quarter of an inch below the normal in the centre of the depression area.

Moderate rain had fallen in Burma, Bengal, and the Peninsula, and heavy rain in the area over which the storm had advanced during the previous 24 hours. The following gives a few of the most noteworthy rainfalls :—

DISTRICT.	Station.	Rainfall in 24 hours preceding 8 A.M. of 4th.
		″
RAE BARELI . .	Rae Bareli . .	12·10
,, . . .	Digbijaiganj . .	11·25
,, . . .	Salon . . .	12·52
LUCKNOW . . .	Mohanlalganj . .	6·55
MIRZAPUR . . .	Mirzapur . . .	7·09
ALLAHABAD . .	Meja . . .	8·60
,, . . .	Karchana . . .	7·75
CAWNPORE . . .	Cawnpore . . .	5·30

5th September.—The barometric changes of the previous 24 hours were due to a general rise of pressure in the Indian area, the partial filling up of the storm and its transfer to the South-East Punjab. The storm centre at 8 A.M. was between Delhi and Meerut, where pressure was about a fifth of an inch below the normal. The following observations indicate the character of the storm at this period:—

STATION.	PRESSURE.			WIND AT 8 A.M.		Cloud.	Rainfall.	REMARKS.
	Reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in miles.			
							″	
Sirsa .	29·586	+·015	—·059	NNE	4	9	0·12	Showery.
Agra .	29·617	+·091	—·047	SW	7	9	0·76	
Delhi .	29·474	—·097	—·175	W	3	10	1·55	
Meerut .	29·498	—·075	—·153	E	3	10	1·37	
Roorkee .	29·575	—·027	—·094	NE	3	10	2·44	
Ludhiana .	29·642	+·025	—·024	N	2	10	1·26	

Moderate cyclonic winds obtained in the storm area. Moderately heavy rain had fallen in the South-East Punjab and adjacent districts of the North-West Provinces in front of the advancing storm during the preceding 24 hours. The following gives the most noteworthy rainfalls in the area affected by the storm :—

DISTRICT.	Station.	Rainfall in 24 hours preceding 8 A.M. of 5th.
		″
UMBALLA . .	Pipli . . .	5·47
ALMORA . . .	Champawat . .	7·00
NAINITAL . . .	Nainital . . .	9·70
,, . . .	Kilpuri . . .	8·40
,, . . .	Satarganj . . .	8·40
PHILIBIT . . .	Puranpur . . .	7·80
SAHARANPUR . .	Nakur . . .	4·50

The precipitation was hence very heavy but somewhat smaller in the storm area than during the previous 24 hours. Very heavy rain had been received in the hill districts of the North-Western Provinces.

The depression filled up very rapidly during the day and there was no trace of its existence shown by the observations of the 6th.

The storm was generated on the 1st and 2nd under what may be termed the most common type of storm formation during the rains proper at the head of the Bay. It advanced at first slowly until it crossed the Orissa coast about midday of the 3rd, and thence marched rapidly along the trough of low pressure to the South-East Punjab, where it broke up on the evening of the 5th. It gave a heavy burst of rain to Orissa, Chota Nagpur, the North-Western Provinces, and South-East Punjab. The following gives data of the storm :—

Date.	Position of centre.		Distance passed over.	Average hourly velocity.
	Lat. N.	Long. E.		
	° ′	° ′		
2nd . . .	20 0	88 15	Miles.	Miles.
3rd . . .	21 0	87 15	95	4·0
4th . . .	25 30	80 0	550	22·9
5th . . .	28 45	77 30	280	11·7

The pressure distribution on the 7th and 8th, after the first storm of the month had disappeared, was similar to that which obtained in the last week of August. Moderately steep gradients obtained in the Peninsula and the Bay, and a well marked trough of low pressure stretched from Orissa north-westwards to the foot of the Punjab Himalayas. The trough extended eastwards over the north of the Bay on the 8th, and on the morning of the 9th a very shallow depression covered that area. A cyclonic storm formed during the next 24 hours. It was the most important feature of the meteorology of India during the next ten days.

Cyclonic storm of the 9th to 19th September—As stated above the south-west monsoon trough of low pressure extended across Orissa into the north-west of the Bay on the 7th and 8th. Winds shifted round to east at the head of the Bay on the 8th, and a shallow depression formed in that area during the next 24 hours. Strong south-west monsoon winds were blowing in the south and centre of the Bay, and light to moderate winds in the north of the Bay, where weather was showery and slightly unsettled. The following observations indicate the character of the weather at the time :—

Name of Vessel.	8 A.M. Position.		Barometer.	Wind.		Sea and weather remarks.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Shahzada* .	21 10	90 9	29·579	SE	2	Fine and clear.
S.S. *Kasara* . .	21 57	90 35	·568	E	3	Passing clouds.
S.S. *Nairung* .	19 41	86 28	·567	Variable	2	Showery. 4 A.M.; squally with heavy rain.
S.S. *City of London*	18 50	87 29	·553	WSW	4	Rough sea. Cloudy.

These observations show that south-west winds obtained to the south of Lat 20° N. and variable or easterly winds to the north. The depression intensified during the day, and on the morning of the 9th a cyclonic storm of slight intensity was in existence in the north of the Bay.

9th September.—Pressure had given way during the previous 24 hours. The fall was large in amount in the north of the Bay, where pressure was from two-tenths to a quarter of an inch below the normal. Moderately strong monsoon winds were blowing across the west coast, and light to moderate showers had fallen generally in the Peninsula and Central India during the previous day. The following observations taken on board ships indicate the character of the weather in the Bay :—

Name of Vessel.	8 A.M. Position.		Barometer.	Wind.		Sea and weather remarks.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Chusan* . .	21 17	88 0	29·445	NE	4	Passing showers.
S.S. *Palamcotta* .	21 38	88 20	·467	NE	5	Light rain.
S.S. *Colaba* . .	19 48	87 45	?	NW	2	Overcast.
S.S. *Khandalla* .	18 52	84 13	·518	Variable	4	Heavy rain squalls.
S.S. *Shahjehan* .	16 47	91 23	·456	SW	7	Hard squalls and heavy rain.
S.S. *Bancoora* .	8 54	82 59	·744	WSW	8 to 7	Heavy following sea. Weather fine.

Strong monsoon winds were hence blowing in the south-east of the Bay, and a feeble cyclonic circulation was established in the north of the Bay, the centre of which was in about Lat 20¼° N. and Long 88°E.

10th September.—Pressure had increased rapidly in Upper India, but elsewhere the changes were small and hence the pressure conditions in the Bay were practically identical with those of the previous day. A depression covered the north of the Bay and steep gradients prevailed over the centre and south of the Bay. The

character of the weather in the depression is shewn by the following:—

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer.	Wind. Direction.	Force.	Sea and weather remarks.
	° ′	° ′	″			
S.S. *Colaba* .	21 13	88 5	?	NNE	6	Strong sea; 4 A.M. continuous heavy rain and violent squalls.
S.S. *Shahjehan*	20 3	89 7	29·316	E	2	Noon to 8 P.M. squally and rainy; midnight terrific squalls.
S.S. *Khandalla.*	19 46	86 9	·458	NW	4	Rainy.
S.S. *Nizam* .	18 31?	84 43?	·394	WNW	3	Overcast; 4 A.M. drizzling.
S.S. *Ethiopia* .	16 59	92 33	·469	SW	7	Heavy sea; dull and cloudy.
S.S. *Kasara* .	Chittagong.		·543	...	...	Cloudy.

These observations establish that the north-east winds in the north-west quadrant were strengthening. Strong south-west winds, force 5 to 7, prevailed in the south and centre of the Bay. Skies had cleared to a large extent in the Gangetic plain and in North and Central Bengal. Rain had fallen in Burma, the peninsula and the coast districts of Bengal during the previous 24 hours. The centre of the depression was apparently in the same position as on the 9th, *viz.*, Lat. 20¼° N. and Long. 88° E.

11th September.—During the previous 24 hours pressure had decreased rapidly in South-West Bengal and the north-west angle of the Bay. The depression had further intensified and was now moving slowly in a north-west direction. The centre at 8 A.M. was approaching the coast nearly midway between Saugor Island and Balasore. The following give 8 A.M. observations taken at the nearest 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 at 8 A.M. Direction.	Average hourly velocity in miles.	Cloud.	Rainfall.	Remarks.
	″	″	″				″	
Saugor Island.	29·287	—·158	—·381	ESE	17	10	6·01	Sea very rough.
Balasore .	·298	—·164	?	NW	10	10	3·98	
Shortt'sIsland	?	?	?	W	23	10	3·10	Squally.
False Point.	·400	—·034	—·267	WSW	15	10	3·69	Continuous rain.

The advance of the storm had accompanied the occurrence of heavy rain in North Orissa and South-West Bengal. The following give the most noteworthy rainfalls of the previous 24 hours:—

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of 11th.
		″
Balasore	Balasore	4·52
	Bhadruck	5·58
Midnapore	Saugor Island	6·01

The character of the weather in the Bay is indicated by the following observations:—

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer.	Wind. Direction.	Force.	Sea and weather remarks.
	° ′	° ′	″			
S.S. *Shahjehan.*	Near	Saugor	29·226	E	...	Very heavy squalls and heavy rain.
S.S. *Pindari*	21 4	88 10	·431	SSW	5	Squalls and heavy constant rain.
S.S. *Shahzada*	20 6	91 55	·554	SSW	6	Thick and squally.
S.S. *Ethiopia*	19 32	89 50	·427	SSW	6	Moderate sea. Dull cloudy.
S.S. *Ailsa Craig.*	17 35	86 44	·503	?	?	Noon overcast.
S.S. *Bancoora*	13 48	85 23	·639	SW	7	Heavy swell.

Dull cloudy weather with moderate to strong winds obtained over the greater part of the Bay, and strong cyclonic winds with heavy squalls in the north-west of the Bay.

12th September.—The only important pressure changes of the previous 24 hours were due to the advance of the storm into Chota Nagpur and the eastern districts of the Central Provinces. 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 at 8 A.M. Direction.	Average hourly velocity in miles.	Cloud.	Rainfall.	Remarks.
	″	″	″				″	
Raipur .	29·494	—·063	—·169	WSW	6	10	1·35	
Sambalpur .	·437	—·042	—·223	S	8	10	1·22	
Chyebassa .	·466	+·046	?	ESE	7	10	2·91	Continuous rain.
Hazaribagh .	·489	—·046	—·183	ESE	29	10	1·69	Severe gall of wind.
Daltongunj .	·443	?	?	ENE	10	10	0·96	

The centre of the depression was a little to the north-west of Sambalpur in about Lat. 22½° N. and Long. 83½° E.

Strong southerly winds were blowing across the Bengal coast and were giving general and heavy rain to nearly the whole of Bengal. Falls exceeding 5 inches were registered at several stations in the Midnapur, Howrah and Bankura districts.

13th September.—During the previous 24 hours the changes of pressure due to the advance of the storm had been supplemented by a moderately large general rise. Hence pressure had increased everywhere except in a small area in Baghelkhand and the Allahabad, Saugor and Jubbulpore districts, occupied by the central area of the disturbance. Very strong easterly winds were blowing in Bihar and the North-Western Provinces, and the majority of stations in that area reported "squalls and gales." The westerly winds blowing across the peninsula had increased slightly in force but were still of moderate intensity. Skies were heavily clouded over nearly the whole of Northern and Central India, and moderate to heavy rain had fallen in the area covered by the advancing storm during the past 24 hours. The largest amounts were recorded at 8 A.M. at stations in Baghelkhand and the adjacent districts of the Central Provinces, but they did not exceed 5 inches in any case.

The following observations indicate the position and character of the storm at 8 A.M. :—

Station.	Pressure.			Wind at 8 A.M.		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.	Average hourly velocity in miles.			
	"	"	"				Inches	
Jubbulpore.	29·479	—·064	—·203	WSW	8	10	0·25	
Dehree .	·655	+·112	?	E	13	6	0·57	Dust storm.
Allahabad	·585	+·015	—·083	ENE	27	10	0·93	Gale of wind.
Sutna .	·472	—·093	—·199	E	18	10	3·00	Ditto.
Nowgong .	·568	—·047	—·108	NE	9	10	0·89	Ditto.

The centre was nearly midway between Jubbulpore and Sutna in Lat. 24° N. and Long. 80¾° E. The storm was well marked and of considerable intensity and was remarkable at this stage for the unusual strength of the easterly winds feeding into it in the northerly quadrant. The Bombay current was (judging from the winds at the coast stations) not strong and was as yet little influenced by the storm cressing the Head of the Peninsula.

14th September.—Pressure had continued to increase over the whole Indian area. A small local decrease had occurred in Central India and South-East Rajputana, to which the storm had advanced at 8 A.M. Strong easterly winds continued to blow in the Gangetic Plain, but they were less vigorous than on the previous day. Winds were strengthening in North Bombay and Berar, and were also strong in Central India. The strongest winds, however, continued to be experienced in the northerly and north-easterly quadrants at considerable distances from the centre. General rain had fallen in the storm area and in Bengal during the previous 24 hours, and the largest amounts were registered in front of the advancing storm, but were in no case excessive. The following gives the most noteworthy rainfalls recorded at 8 A.M. :—

	Inches.
Nagode	6·92
Bhopal	5·34
Pertabgarh	5·33

The centre was in about. Lat. 24¼°N. and Long. 76¼° E. at 8 A.M. The following gives 8 A.M. observations at stations nearest to the centre at that hour :—

Station.	Pressure.			Wind a 8 A.M.		Cloud.	Rainfall.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in miles.		
	"	"	"				Inches.
Hoshangabad . . .	29·608	+·025	—·108	S	9	10	0·06
Saugor	·637	+·090	—·052	SE	6	6	2·48
Jhansi	·662	—·008	—·020	SSE	13	8	2·05
Ajmere	·710	—·076	—·007	N	4	9	0·07
Neemuch . . .	·653	—·077	—·080	NW	15	10	1·31
Indore	·643	—·036	—·084	WSW	10	10	0·61

The depression at the centre was hence less in amount, but the cyclonic circulation was very clearly marked, and the storm was influencing the weather over by far the greater part of Northern and Central India.

15th September.—The pressure changes of the previous 24 hours were small in amount except in those districts directly affected by the advance of the cyclone. Pressure had increased rapidly in Central India and had fallen as largely in South-West Rajputana over which the central depression now lay. The centre was near and to the north-east of Mount Abu (in Lat. 24¾°N. and Long. 72¾° E.), and it had hence advanced almost due west about 250 miles during the preceding 24 hours. Winds had fallen off rapidly in strength in the Gangetic Plain and Bengal. They were increasing on the Sind and North Bombay coasts, and very strong westerly winds were now blowing at Bhuj, Rajkot and Deesa. The most remarkable feature of the storm at this stage was the excessively heavy rainfall which

occurred in a portion of South-West Rajputana, immediately in front of the position of the storm centre during the previous 24 hours. The following gives the most noteworthy examples :—

DISTRICT.	Station.	Rainfall of 24 hours preceding 8 A.M. of 15th.
		Inches.
SEROHI	Mount Abu	8·17
JODHPUR	Sanchore	16·35
	Jaswantpura	10·50
	Gudha	3·52

The excessive rainfall in the southern districts of Jodhpur, one of the driest areas in Rajputana, accompanied a considerable intensification of the storm for a short period. Very steep gradients prevailed on the 15th in the southern quadrant, steeper than at any other stage of its advance across India.

Light local showers only had been received in Bengal, the Gangetic Plain, and the Central Provinces during the previous 24 hours, and the only important rainfall of the previous 24 hours was the excessive precipitation in a portion of the central storm area in South-West Rajputana.

The following gives 8 A.M. observations at stations in the storm area:—

STATION.	PRESSURE.			WIND AT 8 A.M.			RAINFALL.	REMARKS.
	8 A.M. reduced to Sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in miles.	Cloud.		
	"	"	"				Inches.	
Bhuj	29·727	—·041	—·007	WNW	21	10	0·05	
Rajkot	·753	—·030	—·003	W	15	10	0·55	
Neemuch	.605	—·048	—·126	SW	16	10	3·37	
Deesa	.489	—·238	—·247	WNW	15	10	0·76	
Mount Abu	?	—·215	—·222	NW	29	10	8·17	
Bickaneer	·659	—·029	?	NE	11	4	*Nil.*	
Jacobabad	·689	—·026	+·052	Calm	3	3	"	Dust storm.

16th September.—Pressure now began to give way over the whole Indian area. It had risen slightly in the depression area, and hence the depression was now filling up. The storm had been nearly stationary during the previous 24 hours, the centre having advanced less than 80 miles between 8 A.M. of the 15th and of the 16th. It was now to the north-west of Deesa in about Lat. 24½° N. and Long. 71¾° or 72°.

Winds had fallen off very rapidly in strength in the Gangetic Plain, and many stations in Bengal and the North-West Provinces reported calms at 8 A.M. Very strong winds prevailed in Kutch, Kathiawar and Guzerat, and the cyclonic circulation during the previous 24 hours had been very vigorous. Excessively heavy rain had been received in a portion of the storm area during the previous 24 hours. The following table gives examples of the cyclonic downpour in South-West Rajputana due to the storm at this stage :—

STATE.	Station.	Rainfall of 24 hours, preceding 8 A.M. of 16th
		Inches.
PALANPUR	Palanpur	16·13
BOMBAY	Thana	9·45
MAHIKANTHA	Idar	9·56
SIROHI	Mount Abu	15·51
JODHPUR	Sachor	20·15
	Jaswantpura	7·25
	Jaloro	5·32
	Godha	6·04
GUZERAT	Deesa	13·76

The heavy rainfall had caused a great reduction of temperature in South-West Rajputana. Thus, the mean temperature of the previous 24 hours at Deesa was 8·5° below the normal.

The following gives 8 A.M. observations at stations in the storm area:—

STATION.	PRESSURE.			WIND AT 8 A.M.			RAINFALL.	REMARKS.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in miles.	Cloud.		
	"	"	"				Inches.	
Ahmedabad	29·699	+·045	?	WSW	8	10	·37	
Deesa	·568	+·079	—·174	SW	33	10	13·76	Heavy rain.
Mount Abu	?	+·015	—·206	SW	27	10	15·51	
Ajmere	·665	+·004	—·056	SE	12	8	0·32	Gale of wind.
Pachpadra	·444	—·133	—·250	NE	14	10	0·90	
Jacobabad	·642	—·047	+·004	Calm	2	8	*Nil.*	
Kurrachee	·689	—·038	—·027	WSW	20	10	"	

The cyclonic storm had hence increased in intensity to some extent during the previous 48 hours due to local actions and had given an unusually heavy downpour in South-West Rajputana and Guzerat. The advance of the storm had been retarded, and it was now recurring slowly through north-west and north.

17th September.—The pressure changes of the previous 24 hours were everywhere small. The depression had filled up slightly, and the centre continued to recurve and was now advancing slowly northwards. It was in about

Lat. 26¼° N. and Long. 72° E. The following data show the character of the storm at 8 A.M. :—

STATION.	PRESSURE.			WIND AT 8 A.M.		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.	Average velocity in miles.			
	"	"	"				Inches	
Mount Abu	?	+·083	—·121	SW	29	10	9·20	Severe gale of wind.
Deesa . .	29·652	+·084	—·092	SW	?	10	3·07	Continuous rain.
Ajmere	·689	+·024	—·035	SE	9	8	0·10	
Pachpadra .	·399	—·045	?	SSE	2	10	8·30	
Bickaneer .	·573	—·010	?	ENE	12	8	0·21	Gale of wind.
Jacobabad .	·654	+·012	+·010	N W	3	8	...	

The observations establish that the depression, although it had partially filled up, was still well marked, and that cyclonic winds of considerable intensity were blowing into it from the Head of the Arabian Sea. Heavy rain had fallen over a part of West Rajputana in front of the advancing storm. The following gives the more important rainfalls of the previous 24 hours in that area :—

DISTRICT.	Station.	Rainfall in 24 hours preceding 8 A.M. of 17th.
		Inches
SIROHI .	Mount Abu .	9·20
JODHPUR .	Pachpadra .	8·70
	Jasol .	3·00
	Balmer .	4·00
	Jalon .	4·65
PALANPUR . .	Deesa .	3·07

18th September.—Pressure had continued to give way over the whole of India. The fall was slightly greater in Upper India than elsewhere. The depression had advanced in a north-easterly direction during the previous 24 hours and at 8 A.M. covered the area included between the stations of Bickaneer, Sirsa, Montgomery and Mooltan. The following table gives 8 A.M. observations at those stations :—

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.	Average hourly velocity in miles.			
	"	"	"				Inch.	
Bickaneer .	29·522	—·051	?	SW(?)	11	10	0·22	
Sirsa .	·591	—·098	—·081	SE	4	3	0·02	
Montgomery	·592	—·073	?	E	7	3	,,	
Mooltan .	·606	—·069	—·057	NE	5	6	,,	
Jacobabad .	·602	—·052	—·047	Calm	4	4	,,	

The disturbance was now feebly marked, but strong winds still continued to blow at Mount Abu, Deesa, Bhuj and Veraval, indicating the continuance of a large influx of humid winds from the north of the Arakan Sea. The rainfall of the past 24 hours in the storm area was smaller in amount than during the previous 48 hours, but heavy local falls continued to occur. The following large falls were recorded at 8 A.M. in West Rajputana :—

STATION.	Rainfall in inches.
Mount Abu . . .	9·20
Pachpadra . . .	6·40
Jodhpur	3 28

The number of rain-gauge stations in this part of India is very small, and hence the data probably give a very imperfect view of the character of the precipitation at this stage.

Rain had fallen generally on the 17th in the East and South-East Punjab. It continued to fall in increasing amounts and over a larger area on the 18th. The following falls in 24 hours were registered at 8 A.M. of the 18th :—

DISTRICT.	STATION.	Rainfall in 24 hours preceding 8 A.M. of 18th.
		Inches.
JALLUNDER	Jallunder . . .	9·00
HOSHIARPUR	Dasuya . . .	3·05
GURDASPUR	Mudhupur . .	7·50
	Gurdaspur . .	4·50
KANGRA	Narpi . . .	4·86
SIALKOT	Sialkot . . .	4·54

19th September.—Pressure had again decreased generally in India, but the larger changes were due to the advance of the storm in a north-easterly direction during the previous 24 hours. It was at 8 A.M. in the South-East Punjab and approaching the hills between Roorkee and Sialkot. The following observations show the position and character of the storm 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.	Average hourly velocity in miles.			
	"	"	"				Inch.	
Sirsa . .	29·523	—·068	—·159	W	?	4	2·52	Strong wind.
Umballa .	·556	—·133	?	S E	5	10	1·32	
Ludhiana .	·509	—·145	—·196	S	4	10	3·38	Dust storm with rain.
Lahore .	·602	—·040	—·087	N	5	10	0·66	
Montgomery	·580	—·012	?	N	8	9	0·66	
Simla .	?	—·088	—·133	S	8	10	1·55	

The observations indicate that the centre of the disturbance was in Lat. 31° N. and Long. 75¼° E., a little to the west of Ludhiana.

Strong winds continued to blow across the Sind and Katthiawar coast, but they were feebler than on the 18th. Winds were of moderate strength in thedepression area'and light to moderate easterly winds prevailed in the Gangetic Plain. Unusually heavy rain had fallen in the south-eastern districts of the Punjab during the previous 24 hours. The following gives a summary of the rainfall data for the previous 24 hours of the districts through which the storm area passed during the day:—

District.	Average rainfall of district during the 24 hours preceding 8 A.M. of the 19th.	Heaviest rainfall in the district during 24 hours preceding 8 A.M. of the 19th.
	Inches.	Inches.
Ferozepore	3·79	9·24
Hissar	2·00	3·08
Kurnul	0·98	1·80
Lahore	0·98	2·84
Umballa	2·08	3·38
Patiala State	2·73	3·76
Jullunder	5·82	10·55
Ludhiana	4·90	10·20
Hoshiarpur	5·50	7·10
Gurdaspur	3·96	8·47
Kangra	3·72	6·52

The rainfall of the previous 24 hours was hence most excessive in the districts of Ludhiana, Jullunder, Hoshiarpur, Gurdaspur, Ferozepore and Kangra.

The disturbance broke up in the Simla hills during the afternoon and night of the 19th, and on the morning of the 20th there was no trace of its existence shown by the observations. Rain continued to fall in the submontane districts of the South-East Punjab during the day, and moderate amounts were registered on the morning of the 21st. Kangra, Hoshiarpur and Umballa received the largest falls. Skies cleared during the day, and on the morning of the 22nd fine clear weather obtained in Upper India.

The storm was of unusually prolonged duration. It was generated on the 7th and 8th in the eastern extremity of the trough of low pressure under the usual conditions of storm formation in the rains. It advanced along the trough of low pressure in a general westerly direction as far as South-West Rajputana, and then recurved through north to north-east, and marched to the foot of the hills in the South-East Punjab, where it broke up. The following table gives the position of the centre at 8 A.M., on each day of its existence:—

Date.	Position of Centre.		Distance passed over.	Average hourly velocity.
	Lat. N.	Long. E.		
			Miles.	Miles.
10th	20° 15′	88° 0′		
11th	21° 30′	87° 30′	100	4·2
12th	22° 30′	83° 30′	270	11·3
13th	24° 0′	80° 45′	210	8·8
14th	24° 15′	76° 15′	280	11·7
15th	24° 45′	72° 45′	230	19·6
16th	24° 30′	71° 45′	65	2·7
17th	26° 15′	72° 0′	115	4·8
18th	29° 0′	73° 15′	210	8·8
19th	31° 0′	75° 15′	183	7·6

The storm gave excessively heavy rain to a large part of the country which it traversed. Orissa and South-West Bengal obtained a heavy burst on the 10th and 11th. The rainfall in the storm area, when it was passing through Chuta Nagpur, the Central Provinces, and Central India, was on the whole less excessive than in Orissa. When the storm entered South-West Rajputana, the indraught from the Arabian Sea increased rapidly in amount, and the precipitation was excessive at this stage. It was also unusually heavy in the districts at the foot of the Punjab hills during the last 48 hours before it broke up. The following giving the total rainfall due to the storm at five stations shows the character of the cyclonic downpour which occasionally accompanies the small storms of the rains in India:—

District.	Station.	Rainfall in 24 hours preceding 8 A. M. of						Total of the period.
		14th.	15th.	16th.	17th.	18th.	19th.	
		"	"	"	"	"	"	"
Sirohi	Mount Abu	0·03	8·17	15·51	9·20	9·20	4·18	46·29
Jodhpur	Sanchore	0·30	16·35	20·15	1·87	0·10	0	33·77
	Pachpadra	0·21	0·30	0·90	8·30	6·40	1·40	17·51
	Jaswantapura	0·68	10·50	7·25	3·25	0·76	0	22·44
	Gudha	0·26	3·50	6·04	2·075	0·7	0	12·62

The average annual rainfall in the Jodhpur state ranges between nine and fifteen inches.

A noteworthy feature of the storm was the heavy rainfall which occurred at Leh on the 18th, 19th and 20th. The barometric changes at that station were small in amount, pressure decreasing less than one-tenth of an inch from the 16th to the 19th, and rising slowly through the same

amount until the 23rd. The following gives a statement of the rainfall at that station during the storm :—

Date.	Rainfall.
17th	. 0·05 inches
18th	. 0·27 „
19th	. 1·02 „
20th	. 0·83 „
TOTAL	. 2·17 inches.

The average rainfall of the month at Leh is only 0·10 inch. Snow fell on the higher elevations, which brought the snow line down to 12,000 feet, 6,000 feet lower than its normal height in September. In consequence of this snowfall many of the passes were temporarily closed.

When the previous storm was breaking up on the 20th pressure was giving way in North-Eastern India and the Bay. Pressure at the same time was increasing with unusual rapidity in North-Western India. Hence, on the morning of the 21st, the trough of low pressure ran north-north-westwards from the north of the Bay to the foot of the Nepalese hills, and occupied an unusual position. Winds were very light and variable in the north of the Bay on the 19th and 20th. Thus, nine out of eleven vessels in this area on the 19th reported winds of force 1 or 2 and a smooth sea. Winds were light to moderate in the south and centre of the Bay on the 19th, but were increasing in force, and on the morning of the 21st south-west to west winds of force 4 to 6 were blowing in the centre of the Bay. Winds were shifting round to north-east at the head of the Bay, and on the morning of the 21st a cyclonic circulation of slight intensity was established. The following 8 A.M. observations were taken on board vessels in this area on this day :—

Name of Vessel.	8 A.M. Position.		Barometer.	Wind.		Sea and Weather Remarks.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Cape Clear* .	14-5	87-11	29·563	SW	6	Squally with thunder and lightning: moderate confused sea.
S.S. *Kasara* . .	19-7	93-25	·659	SS E	6	Heavy rain.
S.S. *Ellora* . .	20-16	87-31	·543	NE	4	Moderate rain; squally.
S.S. *City of Cambridge* . .	19-27	87-44	·506	NW	5	Squally, with heavy rain.

Weather was hence disturbed in this area and a cyclonic storm in process of formation. It developed rather quickly during the day and formed the chief feature of the weather of the next four days in North-Eastern India and the Bay. The following gives a brief account of it :—

Cyclonic storm of the 21st to the 26th September.—It has been stated above that the pressure changes which accompanied the disappearance of the second storm of the month displaced the trough of low pressure into a very unusual position, and that weather became unsettled in the Bay of Bengal at the south-eastern extremity of this trough on the 21st. Light local showers were falling in North-Eastern and Central India, and also in the west coast districts; but the amounts were almost in all cases small. Pressure had continued to rise during the previous 24 hours in Upper India and fallen briskly in North-Eastern India, and hence the belt or trough of low pressure continued to occupy the same position as on the 19th and 20th.

22nd September.—The pressure changes of the previous 24 hours were generally small in amount except in Assam and Burmah where pressure had increased briskly and in the north-west of the Bay where it had given way briskly to rapidly. A well-defined depression now covered this part of the Bay. The following observations show the character of the weather at 8 A.M. in that area :—

Name of Vessel.	8 A.M. Position.		Barometer.	Wind.		Sea and Weather Remarks.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Pongola* . .	17-48	86-54	29·338	S.W.	7	High confused sea, heavy rain.
S.S. *Goa* . .	19-28	90-13	·717	S.W.	4 to 6	Squally with heavy rain.
S.S. *Kistna* . .	21-43	89-23	·518	S.E.	6	Frequent hard rain squalls.
S.S. *Moharani* .	21-10	90-01	·580	E.N.E.	5	Squally.
S.S. *Ellora* . .	18-19	85-23	·538	N.W.	5	Hard squalls and heavy rain.

The observations show that the cyclonic circulation was strengthening, and that weather was very squally with heavy rain in the greater part of the area of depression. Strong south-west winds continued in the centre of the Bay. The centre of the cyclonic circulation was probably in about Lat. 19¼ N. and Long. 89° E. Light winds obtained in Bengal and fine clear weather in North-Western India. Cloud was increasing in Bengal, more especially in the coast districts. Showers had fallen in Burma and Bengal and the Central Provinces during the previous 24 hours, but the rainfall was light and sporadic, and a break in the rains obtained over nearly the whole of India.

23rd September.—The barometric changes were small and unimportant over the greater part of India. Pressure

had given way very rapidly in the north-west of the Bay and Orissa, and the storm in the Bay had developed considerably during the previous 24 hours and marched into Orissa. The weather in the north-west of the Bay was very stormy with hard gales.

The storm centre crossed the coast about 4 A.M. of the 23rd, a little to the south of False Point. The following gives series of observations taken during the storm at Pooree and at the Port Office, False Point:—

Pooree.

Date.	Hour.	Barometer. Actual uncorrected.	Barometer. Actual reduced.	Wind.	Weather.
Sep. 21st.	2 P.M.	29·684	29·542	N	Heavy banks of cloud low down the horizon chiefly towards NE,S and SW.
,,	8 ,,	·712	·575	N	Lightning to S.S.W.
Sept. 22nd	2 A. M.	29·674	29·540	N	Moderate breeze with passing clouds and light squalls at intervals of 15 to 20 minutes.
,,	8 ,,	·694	·560	N	
,,	noon	·628	·486	N	Slight drizzling rain.
,,	2 P.M.	·544	·403	N	Passing clouds, weather looking stormy towards S and NE.
,,	4 ,,	·512	·374	N	From 3-25 P.M. weather squally and appearance of distant heavy rain towards N and NE, also strong wind blowing in puffs up to 4-11 P.M.
,,	8 ,,	·536	·400	N	
,,	Mid-night	·454	·321	N	Strong wind again from 11-30 P.M. accompanied with drizzling rain. Sky overcast.
Do. 23rd	2 A.M.	·388	·259	N	Increasing wind with squalls.
,,	3 ,,	·372	·245	N	Wind increased to a gale. Squalls with drizzling rain. Threatening clouds towards NNE and S.S.W.
,,	4 ,,	·376	·249	N	Wind decreasing.
,,	5 ,,	·394	·267	W	Light wind from 4-45 up to 5-35 A.M. Here the wind direction changed to W and began to blow a hard gale with moderate rain. Wind increasing.
,,	7 ,,	·480	·352	W	
,,	8 ,,	·536	·406	WSW	
,,	noon	·620	·481	WSW	Cumulus moving from WSW to NE and NNE, also heavy rain cloud extending from N to ESE. Wind decreasing. Squalls decreasing in force and frequency.
,,	2 P.M.	·570	·429	SW	
,,	4 ,,	·572	·431	SW	Again strong wind.
,,	8 ,,	·676	·5 9	SW	Squalls blowing heavily.
,,	Mid-night	·698	·554	SW	
Do. 24th	2 A.M.	·680	·536	SW	
,,	4 ,,	·698	·551	SW	
,,	8 ,,	·756	·612	SW	

False Point (Port Office).

Date.	Hour.	Barometer. Actual uncorrected.	Barometer. Actual reduced.	Wind.	Weather.
		Aneroid actual	Corrected to S L.		
Sept. 22nd	10 A.M.	29·45	29·49	E	Strong breeze, cloudy, passing showers and squally weather.
	4 P.M.	·29	·33	E	Ditto.
	8 ,,	·38	·42	E	Blowing a heavy gale with terrific squalls and torrents of rain.
	Mid night	·35	·39	ESE	Ditto wind and weather.
Do. 23rd	4 A.M.	·20	·24	SE	Squalls much fiercer and much rain.
	8 ,,	·31	·35	South	Ditto weather.
	10 ,,	·40	·44	South	Ditto.
	noon	...	...	...	Weather moderated a little.

Strong squally south-west to south-east winds prevailed over the north of the Bay at 8 A.M. The following give observations taken on board five vessels in that area:—

Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer.	Wind. Direction.	Wind. Force.	Sea and Weather Remarks.
	° ′	° ′	″			
S.S. *Pongola* . .	11-33	84-6	29·681	WNW	2	
S.S. *Landaura* .	15-15	81-7	731	W	5	Very squally with heavy showers.
S.S. *Aurora* . .	10-59	84-6	719	WbyS	4 to 5	Sea getting up fast. 4 A.M. squally.
S.S. *Lightning* .	15-59	92-6	651	SW	5	Sea rising. Continued heavy squalls
S. *Cape Clear* .	10-28	86-24	763	SW	6	Clear.

The following gives 8 A.M. observations at the observatories in the storm area:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity in miles.	Cloud.	Rainfall.	Remarks.
	″	″	″				Inches.	
Gopalpore .	29·459	—·087	?	WSW	12	10	0·37	Wid variable.
Pooree .	·352	—·155	?	WSW	33	10	2·13	Squally.
False Point .	·340	—·165	—·364	S	34	10	1·29	Gale of wind.
Balasore .	·456	—·100	?	ESE	11	8	2·03	
Cuttack .	·186	—·351	—·508	NNE	10	10	1·42	
Sambalpore .	·483	—·121	—·220	N	7	10	...	

The centre of the storm was a few miles to the south-east of Cuttack in Lat. 20° 25′ N. and Long. 86° E. Pressure at the centre was upwards of a half of an inch below the normal. Very strong cyclonic winds were blowing in Orissa, and strong cyclonic winds in Chota Nagpur, South-West Bengal and the eastern districts of the Central Provinces. The highest wind velocity recorded at False Point was 52 miles per hour at 5 A.M. Fine clear weather continued in North-Western India. Skies were densely clouded in the storm area and heavy rain had fallen in Orissa during the previous 24 hours. The following gives the largest amounts recorded :—

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of 23rd.
		Inches.
Puri	Khurda	4·25
	Pipli	4·95
	Banki	4·45
Mahals	Narsingpur	7·00
	Dhenkanal	4·18

The rainfall, although large in amount, was by no means so heavy as occasionally occurs in cyclonic storms of the rains.

The trough of low pressure at this time ran in a north-western direction from the Orissa coast. The storm advanced slowly along this trough during the day, and at 4 P.M. the centre was crossing the Orissa hills.

24th September.—The only important pressure changes of the previous 24 hours were due to the transfer of the storm area from Orissa to Chota Nagpur and the adjacent districts of the Central Provinces. The following observations 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.	Average hourly velocity in miles.			
	"	"	"					
Sambalpore	29·465	—·018	—·248	S	10	10	2·93	
Cuttack	·540	+·354	—·168	SW	10	10	1·25	
Chaibassa	·465	—·055	?	SE	4	10	0·73	
Hazaribagh	·489	—·136	—·233	ESE	20	10	1·87	Gale of wind.
Daltanganj	·493	—·099	?	NE	8	10	1·18	Squally.
Raipur	·568	—·026	—153	SW	8	10	0·73	

The depression had filled up to some extent during the previous 24 hours and was probably less than three tenths of an inch in amount at the centre at 8 A.M. The position of the centre at that time was a little to the north-west of Sambalpore in Lat. 22° N. and Long. 83½° E. Weather was unchanged in North-Western India. Very strong southerly winds were blowing across the Bengal coast, and general rain had fallen over the whole province during the previous 24 hours. The falls were in no case exceptionally heavy. The following gives those exceeding four inches :—

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of 24th.
		Inches.
Midnapore	Midnapore	4·70
	Ghatal	4·52
	Garbheta	4·75
Hooghly	Jehanabad	4·85
Saran	Sewan	4·02

25th September.—The storm had recurved to some extent during the previous day and advanced in a mean northerly direction into Central Behar, the centre being a little to the east of Buxar. In addition to the pressure changes due to the progress of the storm, pressure had begun to give way slightly in Upper India, where skies were, however, generally, free from cloud.

The following gives 8 A.M. observations at stations in the storm area on this day :—

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.	Average hourly velocity in miles.			
	"	"	"					
Daltongunj	29·562	x ·069	?	SW	11	10	2·69	
Dehree	·418	—·081	?	SW	31	10	1·88	Strong wind.
Arrah	·407	—·144	—·310	SE	13	10	2·88	Heavy rain.
Muzafferpur	·543	—·072	?	ESE	24	10	1·32	
Buxar	·319	—·252	—·410	NE	18	10	3·62	
Benares	·462	—·094	—·267	NW	12	10	3·85	

The depression at the centre was hence slightly greater than on the previous day. Steep gradients obtained in Bengal. Unusually strong winds hence continued over the whole of that area bringing up large quantities of vapour from the head of the Bay. Skies were overcast over nearly the whole of the province, and heavy rain had again fallen over by far the greater part of it. Large amounts were recorded at 8 A.M. at many stations in North Bengal

and Bihar. The following gives the most noteworthy falls of the previous 24 hours :—

DISTRICT.	STATION.	Rainfall in 24 hours preceding 8 A.M. OF 25TH.
		Inches.
SHAHABAD	Ageaon	7·89
GAYA	Arwal	8·60
DINAJPUR	Thakurgaon	5·76
KUTCH-BEHAR	Kutch-Behar	5·60
PURNEA	Purnea	5·16
	Kishangunj	5·50

Weather was fine with little or no rain over the remainder of India.

26th September.—The following observations indicate the position and character of the depression at 8 A.M of the 26th :—

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.	Average hourly velocity in miles.			
	"	"	"				Inches	
Chapra	29·656	+219	—·073	SW	12	10	2·37	Threatening weather.
Muzafferpur	·659	+116	?	SSW	8	10	1·75	Threatening weather.
Motihari	·590	+074	—·160	ESE	21	10	6·19	
Gorakhpur	·690	+152	—·059	Calm	9	6	2·22	
Benares	·713	+251	—·026	Calm	8	7	0·70	

The depression had hence marched slowly in a north-easterly direction into North Bihar and had filled up very considerably. The depression at the centre (near Motihari) was less than two-tenths of an inch. Winds had fallen off very rapidly in strength in the Bengal coast, and the cyclonic circulation was becoming feeble and irregular in the area of depression. Skies were still heavily clouded in Bihar and North and Central Bengal, but were lightly clouded in other districts. General rain had again fallen over the whole of Bengal, Bihar and Assam ; but the chief feature was the excessive precipitation of the previous 24 hours in North Bengal at the foot of the hills. The following heavy downpours were recorded at 8 A.M. :—

DISTRICT.	STATION.	Rainfall in 24 hours. preceding 8 A.M. of 26th.
		Inches.
MALDA	Gajul	15·50
	Chanchal	9·50
DINAJPUR	Churamon	11·08

The depression filled up during the day, and an area of almost uniform pressure covered Bengal on the morning of the 27th.

The present storm hence formed at the south-eastern extremity of the monsoon trough of low pressure immediately after the disappearance of the preceding storm. Its advance coincided practically with the position of the axis of the trough which had been displaced from its usual position by the changes of pressure in North-Western India accompanying the filling up of that storm. The following gives the position of the storm centre at 8 A.M. of each day from the 22nd to the 26th :—

DATE.	POSITION OF CENTRE.				Distance passed over.	Average hourly velocity.
	Lat. N.		Long. E.			
	°	′	°	″	Miles.	Miles.
22nd	19	15	89	0	...	...
23rd	20	25	86	0	210	8·8
24th	22	0	83	30	200	8·3
25th	25	30	84	30	250	10·4
26th	26	30	85	30	95	4·0

It developed rapidly on the 22nd and was a storm of considerable intensity on the 23rd and following days. The chief feature of the storm was the very strong indraught on the 24th and 25th from the Bay towards the eastern quadrant. These humid winds gave a general heavy burst of rain to the whole of Bengal, Bihar, Chota Nagpur and Assam. The following gives some of the more noteworthy rainfalls during the storm :—

DISTRICT.	STATION.	RAINFALL IN 24 HOURS PRECEDING 8 A.M. OF					Total rainfall of period of storm.
		22nd.	23rd.	24th.	25th.	26th.	
		In.	In.	In.	In.	In.	In.
MALDA	Gajul	0·48	0·73	1·70	1·10	15·50	19·15
	Chanchal	0	0·78	0·91	1·76	9·50	12·95
DINAJPUR	Churamon	0	0·44	1·32	2·42	11·08	15·26
CHAMPARAN	Bettia	0	0	0·21	2·26	7·10	9·57
	Bagaha	0	0·46	0	2·77	7·15	10·38
SHAHABAD	Ageaon	0·67	0·05	1·21	7·89	0·05	9·87
GAYA	Arwal	0	0	0	8·60	0·23	8·83

During the remainder of the month the barometric changes were moderate in amount. Pressure increased slowly and steadily in North-Western India and was steady or fell slightly in Burma. In consequence of these changes, pressure was highest in North-Western and Western India on the 29th and 30th, and a shallow low pressure area covered Central Burma. Fine weather with clear skies and slight cloud prevailed in Northern and Central India and weather was showery in Burma and the southern parts of the Peninsula.

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

I.—PUNJAB HIMALAYAS.

Upper Sutlej Valley.—The following report respecting the snowfall and weather in this region has been received from the Rev. Mr. Schreve: "On the first two days of September the weather was fine, but on the 3rd snow commenced to fall and continued on the 4th and 5th. The snow line came down to about 14,000 feet during this fall: 0·48 inch of rain fell in the valley during this period of three days. There was again a rather heavy fall of snow on the 19th and 20th down to about 11,000 feet. The depth of the fall was estimated to be about 1½ feet on the higher passes. The rainfall in the valley, however, measured only 0·70 inch. As in the previous month, the falls, though not heavy, were widespread and extended all over the hills of Upper Kunawar and into Thibet. Except when raining or snowing the air was dry and warm."

Bushahr.—Mr. Minniken, Deputy Conservator of Forests, reports that on the hills opposite Kilba snow was lying on the 20th at an elevation of 11,000 feet, and that it was lying deep at elevations of 17,500 feet and upwards.

II.—LITTLE THIBET.

Tashgarkhan.—A brief report of the weather for the first eleven days of the month has been received. Rain fell on the 1st and 10th, but the amount was small. During the remaining nine days weather was generally clear with easterly winds.

Summary of special storm Reports.

The number of local storms during the month was exceptionally small. This was of course chiefly due to the prevalence throughout the month of strongly marked south-west monsoon conditions over the whole of India. Dust storms 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 only local storm of importance reported in September 1893 was the following:—

14th.—Severe dust storm at Jacobabad at 4-50 P.M. The storm came down from north-west and lasted 12 minutes.

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

Arabian Sea.—The increase in the strength of this branch of the monsoon current, which had commenced on the 30th of August, continued during the first two days of the present month, and on the morning of the 3rd the mean wind force for the whole area had increased to 4·7 as compared with 3·6 on the 1st and 3·8 on the 2nd. Weather was fine over the north, west and south-east, while over the centre and east it was unsettled with frequent squalls and heavy showers of rain. Winds began to take off in all parts of the sea area, except the centre, on the afternoon of the 3rd and the weather to improve, more especially over the centre, where, notwithstanding that the winds remained almost unchanged both in direction and force, squalls decreased in number and intensity.

The average force of the winds for the whole sea area had fallen to 4·3 on the morning of the 4th. Winds continued to decrease in strength during the next 48 hours, and the weather conditions improved rapidly. Thus on the morning of the 6th out of 18 vessels in this sea area, only one reported showery or rainy weather. The mean wind force on this day was 2·9 as compared with 4·3 on the 4th. No change of importance occurred during the next 24 hours, except that the winds, which had previously been from the north-westward in the south-east of the sea, shifted round to west-south-west, and weather began to be showery over that region. This tendency towards unsettled weather developed to some extent during the next two days, so that on the morning of the 9th heavy rain was falling over the area lying between the Maldives and Travancore. Thus the S.S. *Clan MacGregor* in Lat. 7°52′ N. and Long. 73°40′ E. at 8 A.M. of that day experienced west-south-west winds of force 4 and frequent rain showers. Elsewhere fine weather continued. A rather rapid recovery in the wind force had occurred during the previous day, more especially over the

centre, and the average wind force at 8 A. M. of the 9th, as deduced from the wind data of 21 vessels, amounted to 3·8 as compared with 2·9 on the 7th and 3·3 on the 8th. This increase in the strength of the winds was however, only temporary, as the winds again diminished to an average force of 3·3 on the morning of the 10th and 2·9 at 8 A.M. of the 11th. The unsettled weather which on the 9th was confined to the south-east of the sea, had however extended northwards to the Lat. of 14° N. on the morning of the 10th and to Lat. 16° N. at 8 A. M. of the 11th. The second cyclonic storm of the month, which was now advancing in a westerly direction through the eastern districts of the Central Provinces, caused the winds in the north-east of the Arabian Sea to rise in strength, and the mean force for the whole Arabian Sea increased to 3·6 on the morning of the 12th as compared with 2·9 on the previous day. The storm continued its westerly march until the 15th, on the morning of which day it covered the south-western districts of Rajputana; and winds increased steadily on the Konkan and Kathiawar coasts during this period (*viz.*, from the 12th to the 15th), and rainy weather extended northwards from the Konkan to the Kathiawar coast. Fresh to strong westerly winds now prevailed on the Kathiawar, Cutch, and Konkan coasts. Over the greater part of the sea area light to moderate monsoon winds obtained with fine cloudy weather and moderate sea. Conditions continued unaltered during the next 24 hours, except that the winds veered round to their normal north-westerly direction on the Malabar coast. Strong westerly winds and squally weather were experienced off the Cutch and Kathiawar coast on the 17th. Thus the S.S. *Pachumba* in Lat. 22° 54′N. and Long. 68° 51′ E. at noon had south-west winds of force 6 and squally weather. The average wind force for all parts of the Arabian Sea had risen to 4·0 on the 17th from 3·4 on the 16th. The indraught to the storm area from the Arabian Sea across the Cutch and Kathiawar coasts diminished rapidly during the day, and on the morning of the 18th light to moderate breezes were experienced off these coasts. Thus the S S. *Pachumba*, lying off Porbunder, had variable south-westerly winds. On the Konkan and Malabar coasts also there had occurred a rather rapid decrease in the strength of the winds. On the other hand, winds had increased very considerably in force at the entrance to the Gulf of Oman, where the S.S. *Calder* (Lat. 22° 34′ N. and Long. 62° 38′ E.) experienced southerly winds of force 9 and cloudy weather. On the whole there was a slight decrease in the mean force of winds, which averaged 3·6 at 8 A. M. of this day. Winds continued to fall off in strength in the north-west of the Arabian Sea and increased in the south-east. Weather was generally fine over the whole Arabian Sea. The mean force on the morning of the 20th, as determined from the data of 16 vessels, was 3·1. Easterly winds set in on the 21st over the Gulf of Aden and the west of the Arabian Sea, and fine weather prevailed generally, except off the North Malabar coast, where weather was showery. The mean wind force on this day was 2·5. Winds continued very steady until the 24th, on which day the average strength, as deduced from the data of 16 vessels, was 2·8. Weather was fine during the whole of this period, except along the North Malabar and Konkan coasts, where light showers continued to be received. A considerable decrease in the strength of the current took place during the next 24 hours, more especially in the centre of the sea, and on the morning of the 25th the mean force, as determined from the wind data of 18 vessels navigating the Arabian Sea, was only 1·8. The air motion on this day was especially feeble in the Gulf of Aden, where very light airs and calms prevailed. No change occurred during the following three days, except that the winds increased in strength, more especially over the Gulf of Aden and in the south-east of the Arabian Sea, and on the morning of the 28 averaged 3·0 in force. Fine weather with light to moderate cloud prevailed generally. Winds decreased in strength during the remainder of the month, and were light and very variable in direction at the end of the month. The mean wind force on the morning of the 30th was only 1·9.

So far as can be judged, the weather over the Arabian Sea during the month was normal in character, except perhaps in the central region of the sea, where it was less disturbed than usual. It is also clear from the following statement, giving the mean wind force for the whole of the Arabian Sea on each day of the month and also the mean for the whole month, that the monsoon current over the Arabian Sea was on the whole slightly stronger than usual :—

Day of month.	Number of vessels furnishing data.	Mean wind force.	Day of month.	Number of vessels furnishing data.	Mean wind force.
1st	25	3·6	16th	21	3·4
2nd	27	3·8	17th	22	4·0
3rd	29	4·7	18th	21	3·6
4th	24	4·3	19th	24	3·4
5th	22	3·3	20th	16	3·1
6th	18	2·9	21st	22	2·5
7th	21	2·9	22nd	20	2·6
8th	21	3·3	23rd	16	2·5
9th	21	3·8	24th	16	2·8
10th	23	3·3	25th	18	1·8
11th	17	2·9	26th	17	2·6
12th	17	3·6	27th	17	2·8
13th	13	3·3	28th	16	3·0
14th	17	3·2	29th	16	2·1
15th	17	3·6	30th	10	1·9

Mean wind force for the month . 3·2
Normal wind force for the month . 3·0

Bay of Bengal.—As described in the review for August, the south-west monsoon winds in the Bay, after having

been weak for a short period, extending from the 24th to to the 27th August, strengthened very considerably during the last three days of August. On the morning of the 1st September a well-defined depression covered the north-west of the Bay. Strong south-westerly winds prevailed generally over the centre, east and west of the Bay, and the weather was very unsettled with heavy rain and hard squalls. Over the depression area itself the winds were very strong in the southern and eastern quadrants and light to moderate in force in the northern and western quadrants. Thus the S.S. *Shahzada* in Lat. 18° 27′ N. and Long. 90° 46′ E. experienced a westerly gale of force 9 and the S.S. *Emir* off Saugor easterly winds of force 3. In the extreme south of the Bay the winds were of moderate force and weather fine and clear. The depression developed slightly during the next 24 hours and marched slowly in a westerly direction. Winds fell off rapidly in force on the 2nd and 3rd in the south of the Bay, but continued steady over the centre and north. The mean wind force for the whole sea area, as determined from the wind data of 18 vessels on the 2nd, was 4·2 as compared with 5·2 on the previous day. The depression developed considerably during the next 24 hours, and on the morning of the 3rd was a storm of considerable intensity. Winds had shifted round to south-east at the head of the Bay, but were almost unchanged over the remainder of the area. They had also increased in strength in the centre and north of the Bay, and the wind force averaged 4·9.

Weather was very disturbed on the 3rd and 4th over the whole of the Bay, except in the extreme south, where it continued fine. After the passage inland of the storm, winds fell off rapidly in force, more especially in the centre of the Bay, and the weather began to improve; and on the morning of the 4th fine cloudy weather with light to moderate winds prevailed at the head of the Bay, except in the north-west angle, where south-easterly winds continued. No change of importance occurred during the next 24 hours, beyond a slight decrease in the wind force, which on the morning of the 5th averaged 3·2. A further decrease in the strength of the winds took place during the next 24 hours, more especially over the north, centre and east of the Bay, and on the 6th the average strength of the winds was 2·3.

During the next 24 hours the winds rose rapidly in force, and the weather became again squally and rainy over the east and centre of the Bay. Thus the S.S. *Goa* in Lat. 16° 30′ N. and Long. 93° 13′ E. at 8 A.M. of the 7th experienced south-west-by-west winds of force 5 and squally weather with rain. Elsewhere fine weather continued. The average wind force on this day was 4·5. Winds decreased slightly in force during the next 24 hours in the south of the Bay, but increased in the east and north, where weather was more unsettled and squally than on the previous day. Thus the S.S. *Palamcotta* in Lat. 19° 11′ N. and Long. 90° 12′ E. at 8 A.M. of the 8th experienced south-west winds of force 9, a high sea, violent squalls and heavy rain.

A low pressure area was now forming in the north of the Bay, and on the morning of the 9th a well-defined depression covered that area. Very squally weather now prevailed in the centre and east of the Bay. Over the south and west of the Bay fine weather still continued. The mean wind force in the Bay had increased to 4·4 as compared with 3·9 on the 8th. The storm developed during the next 24 hour, and the average wind force increased to 5·1 on the 10th. Except in the extreme south-west, where weather continued settled, and in the north-west angle, where it was showery, it was very squally and rainy. The storm marched north-westward during the next 24 hours, developing considerably at the same time, and crossed the coast at 8 A.M. of the 11th. Very squally and rainy weather now prevailed in the north, centre and east of the Bay, but over the south and west the weather was fine with moderate winds. The mean wind force for the whole of the Bay area on this day was 5·1. As the storm advanced further inland, its influence over the weather in the Bay diminished rapidly, and on the morning of the 12th moderate to fresh winds prevailed generally. Winds averaged 4·5 in force on the 12th. They decreased further in force during the next 24 hours, and light northerly or westerly winds with fine weather prevailed in the northern half of the Bay. No change of importance occurred until the 15th, except that the winds continued to fall off steadily in strength. The mean wind force on the morning of the 15th was only 2·2 as compared with 4·5 on the 12th. During the next 24 hours, however, the south-west monsoon winds began to strengthen in the southern half of the Bay and to advance up the Bay; and on the morning of the 19th light to fresh south-west winds prevailed up to Lat. 20° N. Very light and variable winds obtained off the Ganjam coast on the morning of this day, and the mean wind force for the whole of the Bay was 2·6. Wind continued to strengthen, and a depression formed off the Orissa coast on the 20th. In consequence the winds shifted round to north-east at the head of the Bay and to south-east in the east of it. The air movement increased further in strength during the next 24 hours, more especially in the west, centre and east of the Bay, and the weather became very unsettled over those areas. The storm developed, and on the morning of the 22nd had become a moderately deep and well-defined depression. Very strong westerly winds and heavy rain squalls now prevailed in the southern and eastern quadrants of the storm area. Thus the S.S. *Pongola* in Lat. 17° 48′ N. and Long. 86° 54′ E. at 8 A.M. of this day experienced south-west winds of force 7, a high confused sea and heavy rain. The storm intensified still further during the day, and marched slowly westwards towards the Orissa coast, which

it crossed near False Point on the morning of the 23rd. As on the previous day, its influence on the weather in the Bay was mainly confined to the north of Lat. 10° N., and hence fine weather continued to the south of this parallel of latitude. To the north of this line, on the other hand, the weather was very squally. Thus the S.S. *Arora* in Lat. 19° 45′ N. and Long. 88° 5′ E. at 8 A.M. experienced south-by-west winds of force 8, a heavy sea, terrific squalls and heavy rain. The average wind force on this day had increased to 4·6. Weather continued unsettled with strong winds near the Orissa coast during the next 24 hours, but improved elsewhere. The mean wind force decreased to 4·3 on the morning of the 24th. No important change in the weather occurred until the 27th, except that the winds decreased in strength. The mean wind force on the morning of that day was 3·2. The distribution of pressure over the Indian region and Burma now began to alter, and a low pressure area to form over Lower Burma and the adjacent sea area. North-westerly winds hence set in over the north and west of the Bay, and at the end of the month north-westerly winds prevailed over nearly the whole of the north and centre of the Bay, and fine, clear weather obtained generally. The mean wind force on the morning of the 30th averaged only 2·6.

The following statement, giving mean wind data for the Bay similar to those already given for the Arabian Sea, indicates that the monsoon current over the Bay was on the average slightly above its normal strength during the month :—

Date.	Number of vessels furnishing data.	Mean wind force.	Date.	Number of vessels furnishing data.	Mean wind force.
1st	17	5·2	16th	11	2·8
2nd	18	4·2	17th	10	3·0
3rd	18	4·9	18th	14	3·1
4th	19	3·5	19th	19	2·6
5th	18	3·2	20th	21	3·3
6th	18	2·3	21st	17	4·2
7th	10	4·5	22nd	14	4·2
8th	14	3·9	23rd	13	4·6
9th	18	4·4	24th	15	4·3
10th	15	5·1	25th	13	3·5
11th	18	5·1	26th	12	3·1
12th	17	4·5	27th	16	3·2
13th	22	3·2	28th	14	2·8
14th	18	2·7	29th	14	2·9
15th	16	2·2	30th	13	2·6

Mean wind force for the month—3·5
Normal wind force for the month—3·0.

Temperature of the air.

The mean maximum or day temperature of the month was below the normal over nearly the whole Indian area. It was in slight excess in Sind and South Madras, more especially in the area represented by the two stations of Salem and Trichinopoly, where it was 2 2° in excess. The deficiency in the remainder of India exceeded 2° in a belt of country stretching from the South Deccan to the Western Himalayas and was more than 4° in two areas, for which data are given below :—

Province.	Station.	Mean temperature. Actual, September 1893.	Normal, September 1893.	Variation from normal.
		°	°	°
South-West Rajputana.	Deesa	87·9	92·0	−4·1
	Ajmere	85·3	90·2	−4·9
East Punjab	Rawal Pindi	88·9	93·6	−4·7
	Lahore	92·8	96·9	−4·1
	Ludhiana	90·2	95·0	−4·8
	Murree	70·1	74·1	−4·0
	Simla	65·5	71·0	−5·5

The decreased day temperature of the month was due to the prevalence of more strongly marked south-west monsoon conditions than usual, more especially of heavier and more general rainfall and of larger cloud amount.

As is usual in the rains, the mean minimum or night temperature differed less from the normal than the day temperature, and the variations were the same in character as those of the maximum over nearly the whole of India. The mean minimum temperature of the month was in slight excess in South Madras, Sind, the Punjab and North-West Rajputana, and below it over the remainder of India. The variations from the normal were less than 2°, except locally at Gorakhpur (—2·0°) and Peshawar (+2·5°) and perhaps Lahore (+2·4°).

The mean temperature of the month was in slight to moderate defect over the whole of India with the exception of South Madras and Sind. The deficiency was small in amount, except in two areas over which it exceeded 2°. The following gives mean temperature data for the meteorological stations in these areas :—

Province.	Station.	Actual, September 1893.	Normal, September 1893.	Variation from normal.
		°	°	°
South-West Rajputana.	Ajmere	79·4	81·4	−2·0
	Deesa	80·3	82·8	−2·5
South-East Punjab and N.-W. Provinces Sub-montane.	Ludhiana	82·2	85·1	−2·9
	Lucknow	82·0	84·2	−2·2
	Gorakhpur	81·6	84·4	−2·8
	Patna	82·6	84·9	−2·3
	Benares	81·9	84·4	−2·5
	Nowgong	80·5	82·8	−2·3
	Delhi	82·5	84·8	−2·3

The variation data for the last three stations are somewhat doubtful, as the exposure of the instruments has been

altered during the past two or three years. The variations of the mean temperature of the month from the normal also exceeded 2° locally at Rajamundry (—2·5°), Masulipatam (—2·4°), Salem (+2·3°), and Trichinopoly (+2·1°).

The chief features of the mean temperature conditions of the month were—

1st—Increased day and night temperature in South Madras and Sind. The excess was most marked in the area represented by the stations of Salem and Trichinopoly.

2nd—Lower mean day and night temperatures over nearly the whole of India with the exception of South Madras and Sind. The reduction of temperature was most marked in South-West Rajputana and in the hill and sub-montane districts of the Punjab and North-Western Provinces, where the mean temperature of the month was from 2° to 3° lower than usual.

As already stated, these abnormal features were due to the prevalence of stronger and steadier south-west monsoon conditions over the whole of India during the month.

The following table gives complete mean temperature data of the month for the 51 meteorological areas into which India is divided :—

Province.	Division.	Temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean daily.	Mean Daily range.	Absolute range.	Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	84·6	73·9	79·3	10·7	18·1	−0·9	−0·2	−0·7
	Lower Burma	84·3	76·0	80·1	8·3	14·3	−0·9	+0·2	−0·1
	Central do.	90·2	75·1	82·7	15·1	23·7	−0·9	−0·2	−0·7
	Upper do.	88·6	72·7	80·7	16·0	24·9	?	?	?
	Arakan	84·9	77·1	81·0	7·8	13·5	−1·7	−0·8	−0·9
Bengal and Assam	Eastern Bengal	87·3	77·2	82·2	10·1	17·0	−0·1	−0·4	+0·3
	Assam (Surma)	91·2	76·2	83·7	15·0	23·3	+1·6	−0·1	+1·7
	Do. (Brahmaputra)	85·9	76·0	81·0	10·0	19·6	−1·5	−0·8	−0·7
	Deltaic Bengal	87·4	77·9	82·6	9·4	17·4	−0·7	−0·3	−0·4
	Central do.	87·6	76·9	82·3	10·7	19·4	−1·7	−0·5	−1·2
	North do.	87·0	76·2	81·7	10·8	21·8	?	?	?
	Orissa	87·2	78·1	82·7	9·1	19·9	−1·5	−0·1	−1·4
	Chota Nagpur	85·0	73·3	79·2	11·7	21·8	−1·5	−1·2	−0·3
	Bihar (South)	87·7	77·1	82·4	10·6	21·5	−2·6	−1·2	−1·4
	Do. (North)	87·2	76·9	82·1	10·4	22·4	−1·8	−0·7	−1·1
	North-Western Provinces (East)	87·9	76·3	82·1	11·7	22·7	−3·0	−1·1	−1·9
North-Western Provinces and Oudh.	Oudh (South)	88·8	75·1	82·0	13·7	22·7	−3·1	−1·3	−1·8
	Do. (North)	88·3	75·7	82·0	12·6	23·4	?	?	?
	North-Western Provinces (Central)	89·6	75·7	82·6	13·9	24·5	?	?	?
	Do. do. (West)	89·1	75·3	82·2	13·9	24·3	−2·4	−0·5	−1·9
	Do. do. (Submontane)	86·9	72·8	79·9	14·1	25·2	−2·6	−0·9	−1·7
Punjab	Punjab (South)	92·5	76·1	84·3	16·4	29·1	−3·1	+0·4	−3·5
	Do. (Central)	92·8	75·1	84·0	17·7	37·2	−4·1	+2·4	−6·5
	Do. (Submontane)	90·2	74·0	82·1	16·2	31·0	−4·8	−0·0	−3·9
	Do. (Hill Districts)	70·8	57·2	64·0	13·7	27·7	−4·8	−0·8	−4·0
	Do. (North-West)	91·5	72·2	81·9	19·3	36·9	−3·4	+1·6	−5·0
	Do. (West)	98·4	76·8	87·7	21·6	38·0	−1·2	+1·3	−2·5
Bombay and Malabar Coast Districts (Madras).	Malabar	83·4	74·2	78·9	9·2	14·3	+0·6	+0·3	+0·3
	Madras (South Central)	91·7	71·4	81·5	20·3	27·1	+1·4	+0·6	+0·8
	Coorg	75·9	64·0	70·0	11·9	19·3	−2·9	+0·4	−3·3
	Mysore	81·9	64·2	73·1	17·7	20·2	−0·2	−0·2	0
	Konkan	82·8	74·9	78·8	7·9	12·3	−0·2	+0·4	−0·6
	Bombay Deccan	83·4	67·6	75·5	15·8	23·9	−0·7	−0·7	0
	Hyderabad (North)	83·4	69·5	76·5	13·9	21·7	?	?	?
	Khandesh	84·8	69·1	77·0	15·8	25·7	−0·7	+0·2	−0·9
Central Provinces and Berar.	Berar	85·4	71·8	78·6	13·6	24·9	−2·7	−0·3	−2·4
	Central Provinces (West)	85·7	72·7	79·2	13·0	19·9	−2·5	−0·5	−2·0
	Do. (Central)	84·6	71·5	78·1	13·2	20·7	−2·1	−0·6	−1·5
	Do. (East)	86·9	75·2	81·1	11·7	19·8	−1·5	−0·8	−0·7
Bombay (North)	Guzerat	87·4	75·2	81·3	12·2	18·6	−1·1	−0·2	−0·9
	Kathiawar	86·6	73·8	80·2	12·8	19·5	−0·2	−0·5	+0·3
	Sind and Cutch	95·0	76·2	85·6	18·8	27·1	+0·2	+0·3	−0·1
Rajputana and Central India.	Central India (East)	86·7	73·8	80·3	13·0	22·3	−2·3	−0·9	−1·4
	Rajputana (East), Central India (West)	86·6	71·9	79·3	14·7	24·2	−3·1	−0·3	−2·8
	Do. (West)	93·3	76·2	84·7	17·1	33·8	−2·3	+0·1	−2·4
Madras	East Coast (North)	86·5	77·5	82·0	9·0	17·0	−2·2	−1·4	−0·8
	Hyderabad (South)	84·9	71·4	78·2	13·5	20·9	−2·7	−0·5	−2·2
	Madras (Central)	89·7	73·3	81·5	16·3	23·6	−1·5	−0·8	−0·7
	East Coast (Central)	91·5	77·1	84·4	14·4	23·7	−3·3	−1·4	−1·9
	Do. (South)	94·8	76·7	85·7	18·2	27·2	+1·5	+0·5	+0·1
	Madras (South)	94·0	77·1	85·6	16·9	26·2	+0·6	0	+0·6

As usual during the rains, the changes in the temperature conditions from day to day were not large, and were determined mainly by the occurrence and distribution of rainfall during the month. Temperature at the commencement of the month was normal or slightly in defect in Burma, Bombay and the Central Provinces, and above it to a slight or moderate extent over the remainder of India. The advance of the first cyclonic storm of the month from the 2nd to the 5th caused a general reduction of temperature, which was most marked on the 5th. Temperature increased rather rapidly in the interval between the disappearance of the first storm and the formation of the second storm, and was above the normal over nearly the whole of India on the 7th. The heavy rainfall accompanying the second storm caused a large reduction of temperature. This was very marked in Upper India on the 17th and following days. The following gives the largest variations during this period:—

Date.	Station.	Variation from normal of		
		Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
		°	°	°
17th	Mount Abu	— 8·9	—2·5	— 5·7
"	Deesa	—16·5	—2·0	— 9·3
18th	Deesa	—13·7	—1·4	— 7·6
19th	Ajmere	—13·4	— 0·9	—7·2
"	Bickaneer	—19·5	—3·0	—11·3
"	Sialkot	—20·8	—5·2	—13·0
20th	Sialkot	—17·7	—5·5	—11·6
"	Lahore	—17·2	—3·2	—10·2
"	Ludhiana	—15·7	—6·5	—11·1

Temperature was below the normal over the whole of India, except Assam during the later stages of this storm, and for some days after the storm filled up. This was chiefly due to the very heavy rainfall over the whole of North-Western Indiafrom the 15th to the 20th. The third storm which followed shortly afterwards produced a moderate reduction of temperature on the 23rd and following days, chiefly in North-Eastern India. Temperature began to increase again on the 26th after the disappearance of this storm, but was still generally below the normal at the end of the month, the deficiency being however nowhere large in amount.

The following table gives variation data for six days of the month, and illustrates the larger changes of the temperature conditions due to the cyclonic storms and rainfall of the month:—

Meteorological Province.	Variation from normal of mean temperature in 24 hours preceding 8 A.M. of					
	1st.	5th.	7th.	21st.	25th.	30th.
	°	°	°	°	°	°
Burma	—0·9	+1·6	+0·9	—1·4	+0·4	—0·7
Bengal and Assam	+2·1	+0·8	+1·4	—0·7	—3·6	—0·4
North-West Provinces and Oudh	+1·3	—4·9	+0·3	—3·3	—3·6	—2·3
Punjab	+4·0	—3·5	—1·0	—6·8	—1·1	—1·6
Bombay	—0·4	—0·4	+0·9	—0·5	—0·9	0
Berar and Central Provinces	—1·0	—5·6	+2·1	—2·5	—2·2	—0·7
Guzerat and Central India	+0·7	—0·6	+1·4	—2·7	—2·1	—3·4
Sind and Rajputana	+1·6	0	+1·6	—2·5	—1·1	—1·6
Madras	+0·1	+0·3	+1·4	—1·3	—1·0	—0·9

The following average data for each week of the month are taken from the weekly weather reports published in the *Gazette of India*:—

Meteorological Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. for week ending September				For month.
	9th.	16th.	23rd.	30th.	
	°	°	°	°	°
Burma	—0·1	—1·5	—0·7	+0·3	—0·6
Bengal and Assam	+0·5	—1·5	—1·3	—2·1	—0·9
N.-W. Provinces and Oudh	—1·7	—1·2	—2·5	—2·5	—1·8
Punjab	—1·0	+0·8	—4·0	—0·9	—1·0
Bombay	—0·4	+0·1	—0·4	—0·2	—0·2
Central Provinces and Berar	—1·5	—1·8	—1·4	—1·2	—1·5
Central India and Guzerat	+0·2	—1·2	—2·2	—2·5	—1·4
Sind and Rajputana	+0·2	+0·5	—2·6	—1·7	—0·8
Madras	—0·6	—0·7	—0·7	—0·4	—0·6
Mean for whole of India	—0·5	—0·7	—1·8	—1·2	—1·0

Winds.

The discussion of the marine data has established that the lower air circulation over the Arabian Sea and Bay of Bengal was slightly stronger than usual during the month. The anemometric observations at the coast stations show this even more clearly. The following gives comparative data for typical stations on the coast of the Bay of Bengal:—

Station.	Velocity in miles per diem.			
	Mean actual, September 1893.	Normal, September 1893.	Variation from normal.	Percentage variation.
Port Blair	252	214	+38	+18
Diamond Island	242	155	+87	+56
Saugor Island	294	241	+53	+22
False Point	242	198	+44	+22
Calcutta	115	101	+14	+14
Dacca	142	112	+30	+27

Diamond Island has been recently supplied with a new anemometer, and hence the comparison of its data with the means of the readings of the previous anemometer gave an exaggerated estimate of the increased air velocity in September. The wind data of the preceding table indicate that the lower air movement over the centre and north of the Bay and across the Bengal and Burma coasts was from 20 to 25 per cent. greater than usual.

The following table gives similar data for west coast stations:—

Station.	Velocity in miles per diem.			
	Mean actual, September 1893.	Normal September 1893.	Variation from normal.	Percentage variation.
Ratnagiri	197	188	+ 9	+ 5
Bombay	280	273	+ 7	+ 3
Kurrachee	402	360	+42	+12
Belgaum	440	374	+66	+18
Deesa	253	203	+50	+25

The mean velocity of the air movement across the west coast was above the normal by amounts averaging about 10 per cent., and hence the increased inflow was less marked in the Bombay than the Bay current.

The mean air motion over India was characterized by large deviations from the normal, which were in most cases in strict accordance with the pressures anomalies and the distribution of rainfall during the month.

Winds were on the average of the month more westerly than ususal in the south-east of the Bay, indicating probably a stronger influx of the current into Burma and hence increased rainfall. The following gives data for three stations:—

Station.	Mean wind direction.		Steadiness.	
	Actual, September 1893.	Normal, September 1893.	Actual percentage, September 1893.	Normal percentage, September 1893.
Port Blair	S 75° W	S 43° W	83	73
Rangoon	S 87° W	S 18° W	54	49
Diamond Island	S 63° W	S 39° W	72	58

Winds were stronger than usual, and of normal steadiness in Bengal and Orissa; but as might be expected from the large local deficiency of pressure in Orissa and Chota Nagpur, the mean wind directions of the month contained an abnormally large easterly component, as is shown by the following data:—

Station.	Mean wind direction.		Steadiness.	
	Actual, September 1893.	Normal, September. 1893.	Actual percentage September 1893.	Normal percentage, September 1893.
False Point	S 8° E	S 25° W	40	36
Saugor Island	S 27° E	S 4° W	38	48
Dacca	S 21° E	S 11 E	50	57
Calcutta	S 59° E	S 27 E	43	43
Berhampur	S 78° E	S 41 E	37	36

Winds were variable and unsteady at stations in the mean position of the trough of low pressure, and more especially at the stations in the western half, including those for which data are given below:—

Station.	Mean wind direction.		Steadiness.	
	Actual, Sep tember 1893.	Normal, September 1893.	Actual percentage, September 1893.	Normal percentage, September.
Lucknow	S 30° W	N 1° E	3	14
Meerut	N 81° W	N 34° W	15	17
Roorkee	S 47° W	S 6° E	15	9
Lahore	S 59° E	N 60° E	12	13
Ludhiana	S 48° W	N 40° W	25	13
Mooltan	S 10° E	S 32° W	20	33

Winds were much stronger than usual in Chota Nagpur, Bihar and the eastern districts of the North-Western

Provinces. The increased velocity was very marked at Patna and Allahabad, for which data are given :—

STATION.	VELOCITY IN MILES PER DIEM.			
	Mean actual, September 1893.	Normal, September.	Variation from normal.	Percentage variation.
Patna	179	74	+105	+142
Allahabad . . .	157	79	+ 78	+ 99

Winds were also slightly less southerly or more northerly than usual in that area.

Unusually steady and strong south-west winds blew across Rajputana and influenced very considerably the wind directions at stations in the western districts of the North-Western Provinces. Thus at Jeypore the mean wind direction of the month was S 69° W, the normal being N 31° W, and at Lucknow it was S 30° W, the normal being N 1°E.

Winds were much stronger and steadier than usual in Central India, the Central Provinces and the Deccan, and were on the whole more directly from the west than usual.

The variations of the mean wind directions at the west coast stations from the normal were in no case large and apparently of little significance. Winds were slightly more northerly than usual at the southern coast stations and more southerly at the northern stations.

Winds were more or less unsteady at the Himalayan Hill stations. The mean winds at Simla and Ranikhet were south-west, but the southerly element was stronger than usual. The increased strength of the air currents from the Arabian Sea was very strongly shown at the hill stations directly under their influence. The following gives data in illustration :—

PROVINCE.	STATION.	VELOCITY IN MILES PER DIEM.			
		Mean actual, September 1893.	Normal, September.	Variation from normal.	Percentage variation.
RAJPUTANA .	Mount Abu .	248	173	+75	+43
CENTRAL PROVINCES . .	Pachmarhi .	241	134	+107	+80
BERAR . .	Chikalda . .	302	230	+72	+31

Humidity and Cloud.

The mean humidity conditions of the month varied little from the normal in Burma, Bengal and Bihar. The air was on the whole slightly drier and contained somewhat less aqueous vapour than usual. There was considerably more aqueous vapour present in the air on the average of the month in the North-Western Provinces, the Punjab and Rajputana, and in consequence of the temperature being lower than usual, the humidity was considerably above the average. This increased humidity was most marked at the stations for which data are given below :—

STATION.	MEAN AQUEOUS VAPOUR PRESSURE.			MEAN HUMIDITY.		
	Actual, September 1893.	Normal, September.	Variation from normal.	Actual, September 1893.	Normal, September.	Variation from normal.
	"	"	"	%	%	
Lahore . .	·774	·714	+·060	70	56	+14
Ludhiana . .	·796	·754	+·042	75	65	+10
Peshawar . .	·684	·589	+·095	63	54	+ 9
Ajmere . .	·783	·689	+·094	79	66	+13

The variations of the absolute humidity were small and unimportant in the Central Provinces, Deccan and the West Coast districts. Humidity was generally slightly above the normal in consequence of temperature being below the normal to a slight extent. The chief feature in the humidity conditions in Southern India was the abnormal dryness at the central stations of Salem and Trichinopoly for which data are given below :—

STATION.	MEAN AQUEOUS VAPOUR PRESSURE.			MEAN HUMIDITY.		
	Actual, September 1893.	Normal, September.	Variation from normal.	Actual, September 1893.	Normal, September.	Variation from normal.
	"	"	"	%	%	
Salem . .	·659	·758	—·099	62	73	—11
Trichinopoly .	·669	·726	—·057	59	64	— 5

This small area was also an area of moderate local excess of temperature (more especially of the day temperature).

The air was abnormally damp at the hill stations, more especially in the Western Himalayas and at Mount Abu. The relative humidity was upwards of 10 in excess at the stations for which data are given in the following table :—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	Actual, September 1893.	Normal, September.	Variation from normal.	Actual, September 1893.	Normal, September.	Variation from normal.
	"	"	"	%	%	
Murree	·484	·415	+·069	81	64	+17
Chamba	·629	·551	+·078	80	68	+12
Kailang	·270	·216	+·054	65	54	+11
Mount Abu	·579	·539	+·040	89	75	+14

The mean cloud amount of the month was slightly in excess in Burma, Bengal and Behar, but was below the normal in Assam. This was due to the actions of the three cyclonic storms of the month in diverting the monsoon humid current from that area. The deficiency was very marked at Sibsagar, where the cloud amount was 5·7 or 2·3 less than the normal. Skies were much more largely clouded than usual in the North-Western Provinces, Rajputana and the Punjab. The excess was absolutely largest at Allahabad (+2·1), Deesa (+2·1), Jeypore (+1·8), and Ludhiana (+2·0). Over the greater part of the West Punjab and Upper Sind the cloud amount was more than twice the normal amount.

The cloud amount was even more largely in excess, both absolutely and relatively to the normal, at the hill stations in the Western Himalayas than at the neighbouring plain stations, thus indicating the extension of the south-west monsoon circulation to a later date than usual over the whole of North-Western India. The following give data for several stations illustrating this feature :—

Station.	Mean cloud amount.		
	Actual, September 1893.	Normal, September.	Variation from normal.
Leh	5·9	3·9	+2·0
Murree	5·6	3·3	+2·3
Chamba	5·5	3·1	+2·4
Simla	8·0	5·4	+2·6

Skies were most serene and free from cloud in the areas represented by the following stations :—

Station.	Mean cloud amount.		
	Mean actual, September 1893.	Normal, September.	Variation from normal.
Jacobabad	1·2	0·6	+ 0·6
Mooltan	1·6	0·9	+ 0·7
Chaman	0	?	?
Quetta	0·4	0·4	0
Jask	0·1	?	?
Muscat	0·9	?	?
Baghdad	0·1	?	?
Aden	1·7	2·3	− 0·6

The mean cloud amount of the month was in slight to moderate excess in the Central Provinces, Berar, and Deccan. The excess in that area was most marked at the eastern stations, more especially Raipur (+1·6) and Secunderabad (+1·6).

The variations from the normal conditions were very irregular and generally small in amount in Southern India and the West Coast districts. There was a large deficiency at Trichinopoly (−1·8), and a moderate excess at Madras (+1·0) and, perhaps, Salem (+1·4) and a large excess at Vizagapatam (+2·3).

A table giving the mean variations in ten Meteorological Provinces will be found in page 346, and it is hence unnecessary to repeat it.

Rainfall.

The monsoon currents were on the whole stronger than usual and gave rainfall above the normal over by far the greater part of India.

The chief periods of large influx of humid winds from the Bay of Bengal and of general rainfall over Northern India were determined by the three cyclonic storms of the month and were as follows :—

1st.—From the 1st to the 6th, during which the whole of Northern and Central India received a general moderate to heavy burst of rain. It was on the whole heaviest in Orissa, Chota Nagpur, and the North-Western Provinces.

2nd.—From the 11th to the 20th or 21st. During this period the whole of Northern and Central India obtained a prolonged and heavy burst of rain. The fall was excessive in Rajputana and the Punjab, heavy in Orissa, Chota Nagpur, Central India and the North-Western Provinces, and moderate in Bengal and Bihar.

3rd.—From the 22nd to the 26th or 27th. North-Eastern India, more especially North Bengal and Bihar, obtained a heavy burst of rain during this period.

The rains ceased in Upper India, (*i.e.*, the Punjab, Rajputana and the western districts of the North-Western Provinces) on the 22nd at the termination of the second period given above.

The Bombay current gave moderate daily rain in the West Coast districts from the 1st to the 21st, and showers from the 22nd to the 25th. In the Deccan the rainfall occurred chiefly between the 1st and the 5th and the 12th and the 20th. South-West Rajputana received an excessive burst from the 15th to the 19th due to local indraught towards the storm centre in that area from the 15th to the 18th.

The rainfall exceeded 20 inches in the Arakan and Tenasserim coast districts, Orissa, the northern districts of North Bengal, and in a portion of the West Ghats and Assam Hills. It was less than 3 inches in the West Punjab, North-West Rajputana, Cutch and Kathiawar, a portion of the South Deccan between Bellary and Bangalore, and the Nellore district of Madras.

The rainfall of the month was in excess over the whole of India with the exception of the following areas:—

1st.—Assam and East Bengal. The deficiency was large in Assam, more especially Cachar and the Upper Brahmaputra Valley, and moderate in amount in East Bengal.

2nd.—Berar, the Western districts of the Central Provinces, Khandesh, the Bombay Deccan, Guzerat and the Konkan. The deficiency was somewhat more than 30 per cent. in Berar, the western districts of the Central Provinces, Khandesh and the Bombay Deccan.

3rd.—The South Deccan, Mysore and South Madras, in which the deficiency was small to moderate in amount.

The excess was large in—

1st.—The North-Western Provinces, more especially the northern and eastern districts.

2nd.—The East and South-East Punjab.

3rd.—Rajputana, more especially the south-west districts.

4th.—Central India, more especially Bundelkhand and Baghelkhand.

5th.—Orissa, Chota Nagpur and North Madras.

6th.—Tenasserim.

The following table gives a summary of the rainfall data of the month for the 52 meteorological divisions, based on the rainfall statements of the month of September published in the various Government Gazettes:—

Provinces.	Division.	Rainy days.		Rainfall.		
		Actual, September 1893.	Normal, September.	Actual September 1893.	Normal September.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	0	0	39·72	23·98	+15·74
	Lower Burma*	?	?	16·72	13·52	+3·20
	Central do.*	?	?	13·06	10·25	+2·81
	Upper do.*	?	?	6·66	?	?
	Arakan*	?	?	21·53	20·44	+1·09
Bengal and Assam	Eastern Bengal	13·7	13·8	10·46	12·48	—2·02
	Assam (Surma)*	?	?	12·52	24·65	—12·13
	Do. (Brahmaputra)*	?	?	8·51	10·74	—2·23
	Deltaic Bengal	13·7	11·8	11·63	8·92	+2·71
	Central do.	12·6	12·2	10·90	9·97	+0·93
	North do.	13·4	13·5	18·59	16·07	+2·52
	Orissa	14·7	12·5	15·89	10·26	+5·63
	Chota Nagpur	15·3	12·7	13·83	8·71	+5·12
	Behar (South)	11·8	9·5	9·97	7·15	+2·82
	Do. (North)	11·1	9·7	13·66	9·64	+4·02
North-Western Provinces and Oudh.	North-Western Provinces (East)	13·1	8·0	13·93	6·87	+7·06
	Oudh (South)	9·8	7·4	12·52	6·52	+6·00
	Do. (North)	8·7	7·2	9·80	7·22	+2·58
	North-Western Provinces (Central)	9·7	6·5	9·89	5·53	+4·36
	Do. do. (West)	6·6	5·3	5·93	4·79	+1·14
	Do. do. (Submontane)	10·2	6·7	11·97	7·42	+4·55
Punjab	Punjab (South)	5·0	2·5	5·87	1·99	+3·88
	Do. (Central)	6·4	3·3	6·47	3·54	+2·93
	Do. (Submontane)	8·0	3·8	11·14	3·93	+7·21
	Do. (Hill Districts)	12·0	7·4	14·20	6·51	+7·69
	Do. (North-West)	5·2	3·0	4·52	2·27	+2·25
	Do. (West)	2·4	1·1	1·49	0·79	+0·70

Province.	Division.	Rainy days. Actual.	Rainy days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	8·30	10·59	−2·29
	Madras (South Central)*	?	?	3·47	5·00	−2·13
	Coorg	15·9	?	8·98	?	?
	Mysore*	?	?	2·84	4·94	−2·10
	Konkan	17·8	16·8	13·14	14·97	−1·83
	Bombay Deccan	7·0	8·4	3·75	5·44	−1·69
	Khandeish	7·1	9·2	3·77	7·07	−3·30
Central Provinces and Berar.	Berar*	?	?	4·92	7·01	−2·09
	Central Provinces (West)*	?	?	5·29	8·41	−3·12
	Do. (Central)*	?	?	10·69	8·14	+2·55
	Do. (East)*	?	?	12·75	7·71	+5·04
Bombay (North)	Guzerat	8·6	8·3	6·12	8·03	−1·91
	Kathiawar	6·6	4·4	6·24	7·83	−1·59
	Sind	0·3	?	0·19	0·49	−0·30
Rajputana and Central India.	Central India (East)	11·1	?	10·98	6·69	+4·29
	Rajputana (East), Central India (West)	5·5	?	5·88	3·65	+2·23
	Do. (West)	4·1	?	7·02	1·35	+5·67
Madras	East Coast (North)*	?	?	8·71	7·18	+1·53
	Do. (Do. (*a*)*	?	?	17·65	8·63	+9·02
	Hyderabad (South)*	?	?	8·10	4·49	+3·61
	Madras (Central)*	?	?	3·39	5·41	−2·02
	East Coast (Central)*	?	?	3·60	4·69	−1·09
	Do. (South)*	?	?	3·17	4·89	−1·72
	Madras (South)*	?	?	1·46	2·29	−0·83

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

Burma received almost daily rain during the month, and the total rainfall was everywhere greater than usual. The excess was very large in Tenasserim, averaging 15·74 inches or 65 per cent. The rainfall of the month was 23 per cent. in excess in Lower Burma and 27 per cent. in Central Burma.

In Assam the periods of general rainfall were the 6th to the 8th, the 16th to the 20th, and the 22nd to the 28th. The rainfall was more or less below the normal in all districts. The deficiency was most marked in the Silchar, Cachar, Nowgong and Sibsagar districts and in the hill districts. Thus Cherrapunji received a total of only 22·43 inches, 32·53 inches less than its normal amount of 54·96 inches. The following gives a summary of the complete rainfall data f othe month published in the *Assam Gazette*:—

Division.	Number of rainy days. Actual, September 1893.	Number of rainy days. Normal, September.	Number of rainy days. Variation from normal.	Rainfall. Actual, September 1893.	Rainfall. Normal, September.	Rainfall. Variation from normal.	Rainfall. Percentage variation.
				In.	In.	In.	
Assam (Surma)	11·5	16·0	−4·5	9·73	16·46	−6·73	−41
,, (Brahmaputra)	10·8	12·6	−1·8	8·93	10·78	−1·85	−17

The chief periods of rainfall in Bengal were as follows:—

1st.—From the 2nd to the 4th.—Orissa received heavy rain on the 2nd and 3rd and Chota Nagpur on the 3rd and 4th. The rainfall was light to moderate in the remainder of the province, more especially in North and East Bengal.

2nd.—From the 10th to the 15th.—Orissa, South-West Bengal, and Chota Nagpur obtained heavy rain during this period. The rainfall was light and scattered in the remainder of the province.

3rd.—From the 22nd to the 27th.—This period gave the heaviest and most general burst of rain to the province. It was especially heavy in the northern districts of North Bengal and Bihar on the 25th and 26th, on which days falls of 5 inches and upwards were received at many stations. The largest falls were the following:—

District.	Station.	Date.	Rainfall in 24 hours preceding 8 A. M. of date.
			Inches.
Malda	Gajol	26th	15·50
Dinajpur	Raiganj	26th	11·08

The rainfall of the month was in excess in all divisions, except East Bengal. The excess was very large in Orissa (averaging nearly 55 per cent.), Chota Nagpur (averaging 59 per cent.), and the Chaibassa and Bhagalpur districts of Bihar.

The following gives data for the districts in East and Central Bengal in which the deficiency exceeded 20 per cent :—

District.	Number of rainy days.			Rainfall.			
	Average actual, September 1893.	Average normal, September 1893.	Variation.	Average actual, September 1893.	Average normal, September 1893.	Variation.	Percentage variation.
				Inches.	Inches.	Inches.	
Chittagong	15·66	14·13	+1·53	10·73	14·32	—3·59	—25
Noakhali	15·75	15·28	+0·47	12·56	16·76	—4·20	—25
Faridpur	14·00	11·26	+2·74	6·96	9·05	—2·09	—23
Dacca	13·00	11·59	+1·41	7·66	10·17	—2·51	—25
Mymensingh	11·63	13·68	—2·05	9·72	13·04	—3·32	—25
Rajshahi	13·00	11·87	+1·13	6·99	11·86	—4·87	—41

A summary of the rainfall data for each of the eight divisions of the province is given below :—

Division.	Number of rainy days.			Rainfall.		
	Actual average, September 1893.	Variation from normal.	Percentage variation.	Actual average, September 1893.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Eastern Bengal	13·7	—0·1	—1	10·46	—2·02	—16
Deltaic Bengal	13·7	+1·9	+16	11·63	+2·71	+30
Central Bengal	12·6	+0·4	+3	10·90	+0·93	+9
North Bengal	13·4	—0·1	—1	18·59	+2·52	+16
Orissa	14·7	+2·2	+18	15·89	+5·63	+55
Chota Nagpur	15·3	+2·6	+20	13·83	+5·12	+59
Bihar (South)	11·8	+2·3	+24	9·97	+2·82	+39
Bihar (North)	11·1	+1·4	+14	13·66	+4·02	+42

The North-Western Provinces obtained more or less general rain during the progress of the three cyclonic storms of the month across Northern India. The periods of general rainfall were the 1st to the 6th, the 15th to the 20th, and the 24th to the 27th. The whole of the province received heavy rain during the first period, and more especially on the 4th and 5th. The rainfall was exceptionally heavy in the central districts and in the hills, more especially in the Rai-Bareli, Lucknow, Allahabad, Cawnpore, and Naini Tal districts. The following gives data of an excessive local downpour in the Rai Bareli district on the 4th :—

Station.	Rainfall in 24 hours preceding 8 A. M. of the 4th September 1893.
	Inches.
Rai-Bareli	12·10
Digbijaiganj	11·25
Dalmau	5·49
Salon	12·52

The average rainfall of the month in that district is 4·55 inches, and hence it received more than double the average fall of the month within a period of 24 hours.

The rainfall during the second period was as general, but not as heavy, as during the first. The fall was least in amount in Agra, Muttra, Aligarh, and Bulandshahr. It was heaviest in the submontane and hill districts.

The third storm gave heavy rain to the eastern districts of the province and moderate rain to the central districts. Little or no rain was received in the western and hill districts during this disturbance. The Gorakhpur, Azamgarh, and Mirzapur districts obtained the largest amounts.

The rainfall of the month was hence irregularly distributed. It was in defect in the Basti, Muttra, Aligarh, and Bulandshahr districts. The following gives comparative data for these districts :—

District.	Average actual, September 1893.	Normal, September 1893.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Basti	7·84	8·54	—0·70	—8
Muttra	3·81	4·23	—0·42	—10
Aligarh	4·13	4·58	—0·45	—10
Bulandshahr	3·40	5·03	—1·63	—32

The total rainfall was more or less largely in excess in other districts, the excess being greatest in the southern and central districts, which received unusually heavy rain during the first storm. The following gives data for these plain districts :—

District.	Average actual, September 1893.	Normal, September 1893.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Pertabgarh	14·29	6·72	+7·57	+113
Rai-Bareli	18·34	7·13	+11·21	+157
Lucknow	13·11	6·40	+6·71	+105
Mirzapur	17·84	6·97	+10·87	+156
Allahabad	15·17	6·50	+8·67	+133
Hamirpur	13·23	5·37	+7·86	+146
Mainpuri	9·11	5·33	+3·78	+71
Jhansi	8·97	5·31	+3·66	+69

The following table is a comparative statement of the data for the six divisions of the province, based on the complete rainfall statement published in the Provincial Gazette :—

Division.	Number of rainy days.			Rainfall.		
	Actual, September 1893.	Normal, September 1893.	Variation from normal.	Actual, September 1893.	Normal, September 1893.	Variation from normal.
				In.	In.	In.
Oudh, North	8·7	7·2	+1·5	9·80	7·22	+2·58
Do., South	9·8	7·4	+2·4	12·52	6·52	+6·00
North Western Provinces—						
East	13·1	8·0	+5.1	13·93	6·87	+7·06
Central	9·7	6·5	+3·2	9·89	5·53	+4·36
West	6·6	5·3	+1·3	5·93	4·79	+1·14
Submontane	10·2	6·7	+3·5	11·97	7·42	+4·55

There were two rainy periods during the month in the Punjab. The first was from the 1st to the 6th and the second from the 17th to the 20th. The rainfall during both periods was light and scattered in the western districts. The Umballa, Gurgaon, Rohtak, and Kurnal districts had heavy and almost continuous rain during the first period. Thus Rohtak obtained a total fall of 15·15 inches from the 1st to the 5th, or more than four times the normal fall of the month, *viz.*, 3·5 inches. The rainfall during the second period was due to the passage of the second cyclonic storm of the month through the South-East Punjab. It occurred chiefly on the 18th, 19th and 20th, and was heaviest in the submontane districts, more especially in Ludhiana, Jullunder, Umballa, Ferozepore, Hoshiarpur, Gurdaspur, and Sialkot. The following give some of the remarkable total rainfalls during this period :—

District.	Station.	Total rainfall, 16th to 20th.
		Inches.
Gurdaspur	Madhopur	16·27
	Gurdasur	12·13
Hoshiarpur	Dasuya	14·05
	Hoshiarpur	12·02
Kangra	Nurpur	14·32
Sialkot	Daska	11·51
	Sialkot	8·94
Jullunder	Jullunder	15·75
	Nakodar	13·97
Ludhiana	Jagraon	11·69
Ferozepore	Moga	9·26

No rain with the exeeption of a few light local showers fell during the remainder of the month.

The total rainfall of the month was more or less largely in excess in all districts. The following give a summary of the data published in the Government Gazette :—

Division.	Rainy days.			Rainfall.		
	Actual, September 1893.	Normal, September 1893.	Variation.	Actual, September 1893.	Normal, September 1893.	Variation.
				In.	In.	In.
Punjab South	5·0	2·5	+2·5	5·87	1·99	+3·88
" Central	6·4	3·3	+3·1	6·47	3·54	+2·93
" Submontane	8·0	3.8	+4·2	11·14	3·93	+7·21
" Hills	12·0	7·4	+4·6	14·20	6·51	+7·69
" North-West	5·2	3·0	+2·2	4·52	2·27	+2·25
" West	2·4	1·1	+1·3	1·49	0·79	+0·70

The preceding data show that the rainfall was most largely in excess in the south and submontane divisions. The following give data for the districts in which the rainfall was most excessive :—

District.	Rainfall.		
	Actual.	Normal.	Variation.
	Inches.	Inches.	Inches.
Umballa	13·29	4·82	+ 8·37
Jullunder	15·17	3·85	+11·32
Hoshiarpur	15·86	4·25	+11·61
Gurdaspur	14·69	4·43	+10·26
Sialkot	9·25	2·64	+ 6·61

The eastern and central districts of Rajputana received a moderately heavy and general burst of rain from the 1st to the 5th. The largest amounts fell in Jeypore and Ajmere. The second cyclonic storm of the month gave rain to Rajputana from the 14th to the 20th. The fall was moderate in the eastern states, and was exceptionally heavy in the western states of Jodhpore, Partabgarh, Sirohi, and Oodeypore. The following gives examples of this cyclonic rainfall :—

District.	Station.	Rainfall in past 24 hours.						Total of period.
		14th.	15th.	16th.	17th.	18th.	19th.	
		In	In.	In.	In.	In.	In.	In.
Jodhpore	Sachor	0·30	16·35	20·15	1·87	0·10	0	38·77
	Jaswantpura	0·68	10·50	7·25	3·25	0·76	0	22·44
	Gudha	0·26	3·50	6·04	2·07	0·75	0	12·62
Sirohi	Mount Abu	0·03	8·17	15·51	9·20	9·20	4·18	46·29
Oodeypore	Kotra	6·19	7·48	0·98	1·12	0·40	0	16·17

The rainfall was hence above the normal over the whole of Rajputana. The excess was moderate in amount in the eastern states, large in the central states, more especially Jeypore and Ajmere, and abnormally large in the western

states of Sirohi, Jodhpore, and Oodeypore. The following gives comparative data for the larger states :—

STATE.	NUMBER OF RAINY DAYS.	RAINFALL.			
	Actual, September 1893.	Actual, September 1893.	Normal, September 1893.	Variation from normal.	Percentage variation.
Ulwar . .	5·2	4·70	4·94	− 0·24	− 5
Bhurtpore .	5·1	4·53	4·25	+ 0·28	+ 7
Dholepore .	6·8	6·81	?	...	?
Jeypore . .	6·2	4·23	2·04	+ 2·19	+ 107
Ajmere . .	7·0	4·10	2·88	+ 1·22	+ 42
Kotah .	8·5	6·66	4·77	+ 1·89	+ 39
Oodeypore .	9·0	13·30	5·16	+ 8·14	+ 158
Jodhpore .	4·2	7·47	1·47	+ 6·00	+ 408
Sirohi . .	9·0	22·68	4·23	+ 18·45	+ 436

The states of Bickaneer and Jeysulmere, so far as can be judged from the return of one station in each state, received slightly more than their normal amounts.

Central India received general rain during each of the large disturbances of the month. The rainfall was general and heavy from the 2nd to the 5th and the 9th to the 19th, and was light and scattered during the disturbance of the fourth week of the month. The 13th and 14th were days of heavy general rain in Bundelkhand and Baghelkhand, and falls of 3 and 4 inches in 24 hours were registered at the majority of stations in those areas. The rainfall of the month was more or less largely in excess over the whole area. The following gives comparative data for the larger states or divisions :—

DISTRICT.	RAINFALL.			
	Actual average, September 1893.	Normal average, September 1893.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	Inches.
Bundelkhand . . .	14·06	6·39	+ 7·67	+ 120
Rewah	16·68	6·43	+ 10·25	+ 159
Gwalior . . .	7·32	6·19	+ 1·13	+ 18
Bhopal	11·16	?	?	?

British Baluchistan received some light local showers on the 17th and 19th. They were of little importance.

Kashmir obtained moderate rain between the 1st and 9th and also the 17th and 20th. The rainfall during the second period was unusually heavy, and hence the total precipitation of the month was considerably greater than the normal.

The Central Provinces received more frequent rain than usual, and the number of rainy days was in excess over the whole province. Rain fell daily until the 24th, after which there was an almost complete break until the end of the month. The 1st and 2nd were the days of most general and heaviest rainfall. The northern districts also obtained heavy rain on the 9th, falls exceeding 4 inches being reported by several stations. The rainfall of the month was irregularly distributed, and was more or less in excess in the eastern and central districts and below the normal to a moderate extent in the western districts, as in Berar. The following gives a summary of the rainfall data published in the Central Provinces and Berar Gazettes, which differ to some extent from the means given in table in page 370, based on the district rainfall telegrams of the month :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.			
	Actual, September 1893.	Normal, September 1893.	Variation from normal.	Actual, September 1893.	Normal, September 1893.	Variation from normal.	Percentage variation.
				In.	In.	In.	
Central Provinces (West)	9·9	9·5	+ 0·4	6·41	8·80	−2·39	−27
" " (Central)	13·7	9·7	+ 4·0	12·23	7·95	+ 4·28	+ 54
" " (East)	13·5	9·5	+ 4·0	12·02	7·62	+ 4·40	+ 58
Berar . . .	7·7	?	?	4·01	6·89	−2·88	−42

The Bombay coast districts received moderate rain daily from the 1st to the 19th and light occasional showers from the 19th to the 27th, when fine weather set in. The chief periods of rainfall in the Deccan districts were the 1st, the 9th, the 16th to the 19th, and the 29th and 30th. In Khandesh, Gujerat, and Kathiawar there were two rainy periods, *viz.*, from the 1st to the 5th and the 12th to the 19th. The rainfall was excessive in amount on the 15th and 16th in a portion of that area, including Palanpur, Mahi Kantha, Rewa Kantha, Ahmedabad, and Kaira. The following gives the largest rainfalls of these two days :—

DISTRICT.	STATION.	RAINFALL IN PAST 24 HOURS.		Total of period.
		15th.	16th.	
		In.	In.	In.
PALANPUR . .	Palanpur . .	2·74	16·13	18·87
	Tharad . .	7·20	9·45	16·65
MAHI KANTHA . .	Idar . . .	5·00	9·16	14·16

This local heavy burst of rain accompanied the passag of the second cyclonic storm of the month through South-West Rajputana.

The total rainfall of the month was below the normal over the greater part of the Bombay Presidency. The

following gives a summary of the data published in the Bombay Government Gazette :—

Division.	Number of rainy days.	Rainfall.		
	Average actual, September 1893.	Average actual, September 1893.	Average normal, September 1893.	Variation from normal.
		Inches.	Inches.	Inches.
Konkan	17·8	13·14	14·97	−1.83
Bombay Deccan	7·0	3·75	5·44	−1·69
Khandesh	7·1	3·77	7·07	−3·30
Guzerat	8·6	6·12	8·03	−1·91
Kathiawar	6·6	6·24	7·83	+1·59
Sind	0·3	0·19	0·49	−0·30

The deficiency was not large in amount, except, in the North Deccan, where it exceeded 40 per cent. in the Ahmednagar and Nasik districts.

It was in considerable excess in the area of heavy rainfall on the 15th and 16th. The following gives data for that area :—

District.	Mean rainfall in past 24 hours.		Total of period.
	15th.	16th.	
	Inches.	Inches.	Inches.
Palanpur	5·14	12·79	17·93
Ahmedabad	2·35	1·59	3·94
Rewa Kantha	1·69	0·30	1·99
Mahi Kantha	4·26	3·45	7·71
Kaira	2·29	0·77	3·06

The northern coast districts of Madras received very heavy rain during the passage of the three cyclonic storms of the month across the Orissa coast, and the rainfall of the month was hence largely in excess. Central and South Madras obtained occasional rain, chiefly during the brief intervals between the storms of the month when the indraught from the adjacent seas to Northern India was comparatively feeble. The periods were shorter than usual in September, and hence the total rainfall of the month was in moderate defect over the whole of Madras. The following gives a summary of the information received from district officers by telegram :—

Division.	Rainfall.			
	Actual, September 1893.	Normal, September, 1893.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Madras Central	3·39	5·41	−2·02	−37
Madras East Coast, Central	3·60	4·69	−1·09	−23
Madras East Coast, South	3·17	4·89	−1·72	−35
Madras South	1·46	2·29	−0·83	−36
Madras South Central	3·47	5·60	−2·13	−38
Malabar	8·30	10·59	−2·29	−22

Table

Abstract of Observations taken at 8 A.M. at 203 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.
1. Burma Coast and Bay Islands.		...	...	−·023	...	...	...	...	...	...	...	84·4	−1·0	75·4	−0·2	80·0	−0·6	9·1	...	...	...	...	16·0
Bay Islands	Port Blair	61	29·802	?	29·794	29·915	15th	29·707	9th	·208	80·2	84·7	?	76·9	?	80·8	?	7·8	89·1	27th	73·0	15th	16·1
Tenasserim	Mergui	96	29·807	?	29·836	29·878	15th	29·729	29th	·149	77·1	83·1	?	?	?	?	?	?	87·5	23rd	?	?	?
	Tavoy	26	29·879	?	29·836	29·951	14th	29·803	5th	·148	76·3	82·6	?	72·7	?	77·7	?	9·9	86·2	2 days	71·2	2 days	15·0
	Moulmein	94	29·764	−·016	29·796	29·857	2 days	29·653	9th	·204	76·2	83·4	−1·1	74·0	0	78·7	−0·6	9·4	88·5	6th	71·8	2 days	16·7
	Toungoo	181	29·649*	−·016	29·773*	29·747	14th	29·511	9th	·236	76·6*	87·8	−0·7	75·0	−0·4	81·5	−0·6	12·8	92·7	7th	70·2	4th	22·5
Lower Burma	Rangoon	41	29·801	−·025	29·779	29·908	14th	29·669	9th	·239	77·9	84·5	−1·0	75·6	−0·4	80·1	−0·7	8·9	90·2	28th	73·9	4 days	16·3
	Bassein	27	29·806	−·024	29·769	29·915	14th	29·652	9th	·263	78·5	84·7	−0·3	75·2	−0·4	79·9	−0·4	9·5	88·7	30th	73·8	6 days	14·9
	Diamond Island	41	29·795	−·022	29·771	29·914	14th	29·641	9th	·273	80·0	83·6	−1·3	76·6	+0·9	80·1	−0·2	7·0	86·1	29th	73·3	8th	12·8
Arakan	Akyab	20	29·770	−·033	29·733	29·922	14th	29·556	9th	·366	79·6	84·9	−1·7	77·1†	−0·8	81·0†	−1·3	7·8	88·2	4 days	74·7	2 days	13·5
2. Burma Inland		...	...	−·024	...	...	...	...	...	...	...	88·6	−0·9	73·0	−0·2	80·8	−0·6	15·7	...	...	...	...	24·4
Central Burma	Thayetmyo	134	29·673	−·024	29·749	29·783	13th	29·520	9th	·263	80·1	88·8	−0·9	75·7	−0·2	82·3	−0·6	13·1	92·1	6th	73·0	25th	19·1
	Minbu	?	29·643	?	?	29·761	23rd	29·525	10th	·236	79·4	90·1	?	75·4	?	82·8	?	14·7	96·6	30th	71·6	25th	25·0
	Yamethin	?	29·172	?	?	29·296	23rd	29·056	1st	·240	79·4	91·8	?	74·2	?	83·0	?	17·6	99·1	9th	72·0	2 days	27·1
	Fort Stedman	?	26·903	?	?	27·005	14th	26·767	9th	·238	73·9	83·8	?	67·8	?	75·8	?	16·0	89·1	7th	65·0	2 days	24·1
Upper Burma	Mandalay	?	29·560	?	?	29·674	23rd	29·419	9th	·255	82·8	91·1	?	76·6	?	83·9	?	14·5	97·0	7th	74·1	3 days	22·9
	Kindat	?	29·434	?	?	29·564	13th	29·319	9th	·245	79·1	88·1	?	74·4	?	81·3	?	13·7	94·8	6th	71·5	2 days	23·3
	Lashio	?	27·032	?	?	27·133	23rd	26·961	9th & 16th	·172	71·6	84·7	?	66·4	?	75·6	?	18·3	89·0	2nd	61·0	12th	28·0
	Bhamo	?	29·412	?	?	29·544	23rd	29·306	1st	·238	79·2	90·6	?	73·3	?	82·0	?	17·3	95·1	2 days	69·8	10th	25·3
3. Assam		...	...	−·012	...	...	...	...	...	...	...	87·7	−0·4	76·0	−0·6	81·9	−0·5	11·6	...	...	...	...	20·8
Assam (Surma)	Silchar	104	29·675	−·022	29·730	29·834	14th	29·480	2nd	·354	80·4	91·2	+1·6	76·2	−0·1	83·7	+0·8	15·0	96·6	13th	73·3	3 days	23·3
Brahmaputra	Sibsagar	333	29·489?	+·012?	29·779?	29·615?	14th	29·319?	2nd	·296?	78·1	87·1	−1·9	75·5	−1·0	81·3	−1·5	11·6	93·1	13th	71·9	28th	21·2
	Dhubri	115	29·647	−·027	29·717	29·810	14th	29·465	2nd	·345	78·5	84·7	−1·0	76·4	−0·6	80·6	−0·8	8·3	91·2	22nd	73·3	27th	17·9
4. Bengal and Orissa		...	...	−·034	...	...	...	...	...	...	...	87·0	−1·0	77·0	−0·3	82·0	−0·7	9·9	...	...	...	...	18·8
East Bengal	Chittagong	87	29·689	−·029	29·723	29·858	14th	29·491	2nd	·367	80·5	86·6	+0·1	75·9	−0·3	81·3	−0·1	10·7	89·7	2 days	74·1	3 days	15·6
	Lungleh	?			Not re	corded					69·1	76·0	?	68·5	?	72·3	?	7·5	84·8	2nd	65·1	23rd & 25th	19·7
	Noakhali	43	29·701	?	29·691	29·878	14th	29·513	2nd	·365	81·1	86·2	?	77·1	?	81·7	?	9·1	90·5	28th	73·8	13th	16·7
	Comilla	36	29·723	?	29·706	29·896	14th	29·525	2nd	·371	80·5	88·2	?	76·4	?	82·3	?	11·8	91·8	2nd	73·8	24th	18·0
	Sirajganj	46	29·695	?	29·691	29·878	14th	29·503	2nd	·375	80·9	87·1	?	77·6	?	82·4	?	9·5	92·1	2nd	74·7	22nd, 23rd & 25th	17·4
	Dacca	22	29·717	−·032	29·687	29·897	14th	29·509	2nd	·388	81·3	88·2	−0·3	78·2	−0·5	83·2	−0·4	10·0	91·1	2 days	75·2	18th	15·9
	Barisal	13	29·718	−·036	29·676	29·902	14th	29·499	2nd	·403	81·6	87·7	?	77·7	?	82·6	?	10·0	91·8	7th	74·4	24th	17·4
	Mymensingh	59	29·695	−·025	29·705	29·866	14th	29·508	2nd	·358	81·0	87·1	?	77·3‡	?	82·2‡	?	9·8	91·7	2nd	73·6	22nd	18·1
Deltaic Bengal	Faridpur	46	29·710	?	29·704	29·897	14th	29·502	2nd	·395	81·4	85·8	?	78·1	?	81·9	?	7·7	89·0	2nd & 7th	72·9	28th	16·1
	Jessore	33	29·699	−·035	29·679	29·893	14th	29·471	2nd	·422	82·0	88·0	−1·1	78·1	−0·3	83·0	−0·7	9·9	93·0	7th	75·9	2 days	17·1
	Calcutta	21	29·690	−·039	29·657	29·885	14th	29·422	3rd	·463	81·6	86·7	−0·7	77·8	−0·1	82·2	−0·4	8·9	90·1	1st	73·7	13th	16·4
	Saugor Island	25	29·671	−·053	29·640	29·874	14th	29·318	11th	·556	82·0	87·4	−0·4	78·9	−0·5	83·2	−0·5	8·5	91·7	1st	75·0	14th	16·7
	Krishnagar	47	29·672	?	29·667	29·869	14th	29·443	3rd	·426	81·9	88·0	?	77·5	?	82·8	?	10·5	92·3	1st & 7th	72·2	24th	20·1
	Midnapore	149	29·555	?	29·650	29·743	14th	29·269	11th	·474	81·3	88·2	?	77·1	?	82·7	?	11·1	92·3	1st, 7th, 8th & 29th	74·1	30th	18·2
Central Bengal	Bankura	298	29·387	?	29·636	29·550	14th	29·161	3rd	·389	79·7	87·0	?	76·6	?	81·8	?	10·4	92·1	7th	73·6	12th	18·5
	Raniganj	334	29·382	?	29·666	29·560	14th	29·148	3rd	·412	80·0	89·9	?	76·2‖	?	83·1‖	?	13·7	95·7	2nd	72·9	12th & 13th	22·8
	Burdwan	99	29·626	−·031	29·671	29·818	14th	29·390	3rd	·428	80·9	87·6	−1·9	78·1	−0·6	82·9	−1·3	9·5	92·1	2 days	75·2	3 days	16·9

* Mean of 25 days. † Mean of 28 days. ‡ Mean of 24 days. ‖ Mean of 29 days.

I.

in India, Burma, etc., in September 1893.

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 30th September 1893.	Normal rainfall for period, 1st June to September.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	..	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	22·76	20·91	+1·84	...	...	...	...	**1. Burma Coast and Bay Islands.**	
1	...	1	...	...	2	11	12	3	10·5	?	?	88	·905	8·5	16	?	?	12·20	19·56	− 7·36	48·55	69·53	−20·98	2·78	Port Blair .	Bay Islands.
...	2	1	...	...	2	5	8	12	1·3	?	?	92	·857	8·2	24	?	?	23·58	26·24	− 2·66	91·84	118·52	−26·68	2·90	Mergui .	Tenasserim.
22	1	...	...	...	...	2	1	4	1·5	?	?	93	·842	8·2	25	?	?	33·81	32·84	+0·97	146·16	162·30	−16·14	2·98	Tavoy.	
...	1	1	5	2	10	3	8	...	2·3	2·8	−18	94	·857	7·7	22	22·36	−0·36	39·49	26·73	+12·76	146·89	151·19	− 4·30	7·00	Moulmein.	
9	...	...	...	11	5	...	...	...	2·9	2·8	+ 4	93†	·887†	9·2	19	17·55	+1·45	9·63	12·05	− 2·42	50·72	65·76	−15·04	1·17	Toungoo.	
...	2	3	1	1	2	5	10	6	3·9	3·8	+ 3	94	·900	8·4	22	19·55	+2·45	18·42	15·74	+ 2·68	70·88	74·39	− 3·51	3·25	Rangoon .	Lower Burma.
4	...	...	...	6	7	4	6	3	4·2	3·4	+24	93	·906	6·7	19	21·27	−2·27	17·68	15·68	+ 2·00	67·14	85·43	−18·29	2·59	Bassein.	
3	2	...	...	...	3	14	4	4	10·2	6·8	+50	86	·877	8·4	18	18·90	−0·90	18·56	19·31	− 0·75	82·92	90·75	− 7·83	3·28	Diamond Island.	
...	3	5	9	5	7	1	...	...	3·7	3·0	+23	93	·948	7·9	18	17·73	+0·27	31·43	20·08	+11·35	150·45	156·60	− 6·15	8·61	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	8·85	9·60	+0·30	...	...	...	...	**2. Burma Inland.**	
..	...	1	...	24	5	...	...	...	6·5	4·7	+38	85	·868	7·1	14	13·36	+0·64	7·78	6·38	+ 1·40	28·43	27·70	+ 0·73	1·70	Thayetmyo	Central Burma.
7	1	...	3	17	2	...	...	...	7·2	?	?	85	·861	2·2	13	?	?	8·59	?	?	22·48	?	?	2·06	Minbu.	
12	...	...	1	11	6	...	...	...	8·4	?	?	87	·872	0	9	?	?	5·55	?	?	16·65	?	?	1·80	Yamethin.	
21	...	2	...	...	...	6	1	...	?	?	?	84	·713	7·1	14	?	?	10·98	?	?	30·54	?	?	2·10	Fort Stedman.	
8	1	1	...	8	9	1	...	2	2·8	?	?	78	·876	6·7	9	?	?	8·17	6·33	+ 1·84	24·34	21·88	+ 2·46	2·28	Mandalay .	Upper Burma.
...	5	1	1	1	2	4	12	4	1·5	?	?	89	·883	5·2	15	?	?	13·53	14·79	− 1·26	54·69	54·63	+ 0·06	3·85	Kindat.	
...	14	15	...	...	...	1	...	...	?	?	?	91	·705	9·5	12	?	?	6·13	?	?	15·31	?	?	1·65	Lashio.	
27	...	...	...	...	1	...	1	1	0·4	?	?	86	·861	5·7	12	?	?	10·09	10·89	− 0·80	66·89	61·84	+ 5·05	1·76	Bhamo.	
...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	..	7·59	13·44	−5·85	...	...	...	...	**3. Assam.**	
30	...	...	...	...	...	...	...	...	0·9	2·7	−67	87	·901	8·1	9	15·40	−6·40	9·56	15·09	− 5·53	95·07	74·86	+20·21	2·44	Silchar .	Assam (Surma).
5	...	10	2	4	1	8	...	...	1·6	2·5	−36	94	·913	6·4	10	15·09	−5·09	5·37	12·64	− 7·27	50·62	55·37	− 4·75	1·83	Sibsagar .	Brahmaputra.
5	1	14	5	1	...	3	...	1	6·4	3·2	+100	90	·882	7·4	10	12·75	−2·75	7·85	12·59	− 4·74	69·56	61·43	+ 8·13	2·55	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13·40	11·24	+1·51	...	...	...	...	**4. Bengal and Orissa.**	
...	1	7	10	9	2	1	...	...	4·3	4·5	− 5	89	·922	7·0	12	12·73	−0·73	8·84	12·09	− 3·25	81·07	74·47	+ 6·60	1·57	Chittagong	East Bengal.
			Not recorded.				...	...	?	?	?	94	·673	?	21	?	?	18·65	?	?	84·32	?	?	2·75	Lungleh.	
...	2	1	9	14	...	3	...	1	6·2	?	?	91	·974	3·5	12	15·85	−3·85	9·99	17·80	− 7·81	87·57	93·17	− 5·60	2·24	Noakhali.	
2	1	...	18	1	5	3	...	...	4·4	?		90	·939	6·5	19	13·50	+5·50	11·65	11·40	+ 0·25	69·71	65·16	+ 4·55	2·95	Comilla.	
9	...	3	6	5	4	2	1	...	4·8*	?	?	91	·959	7·9	11	11·70	−0·70	7·33	9·87	− 2·54	55·28	43·47	+11·81	1·44	Sirajganj.	
1	2	2	9	2	9	4	...	1	5·8	4·6	+26	89	·946	8·0	15	12·09	+2·91	9·20	9·28	− 0·08	50·59	46·47	+ 4·12	1·43	Dacca.	
21	...	...	3	4	2	...	...	...	3·7	?	?	89	·962	9·0	14	14·85	−0·85	10·76	12·37	− 1·61	61·76	56·99	+ 4·77	2·07	Barisal.	
1	2	5	9	9	3	1	...	...	4·2	?	?	90	·949	7·2	15	15·35	−0·35	11·43	13·95	− 2·52	76·79	60·94	+15·85	2·80	Mymensingh.	
9	1	...	11	2	5	2	...	...	4·0	?	?	90	·962	6·9	16	11·75	+4·25	7·82	10·04	− 2·22	50·90	46·95	+ 3·95	1·03	Faridpur .	Deltaic Bengal.
3	2	3	5	11	3	3	...	...	5·1	3·4	+50	90	·985	7·8	10	9·50	+0·50	9·11	9·37	− 0·26	40·61	45·12	− 4·51	3·70	Jessore.	
2	...	2	8	8	4	2	3	1	4·6	4·5	+ 2	87	·936	7·0	13	14·18	−1·18	8·74	9·93	− 1·19	53·73	46·44	+ 7·29	2·59	Calcutta.	
...	1	7	4	4	7	6	1	...	13·0	10·1	+29	90	·987	8·6	15	14·45	+0·55	16·86	13·05	+ 3·81	60·12	57·44	+ 2·68	6·01	Saugor Island.	
...	...	2	11	5	4	2	5	1	5·5	?	?	86	·932	7·5	19	10·25	+8·75	9·42	7·90	+ 1·52	41·97	38·08	+ 3·89	1·35	Krishnagar.	
2	2	10	1	5	6	1	...	3	3·9	?	?	87	·932	4·8	14	12·05	+1·95	12·93	7·17	+ 5·76	49·83	41·06	+ 8·77	3·68	Midnapore.	
11	1	1	8	3	5	1	...	...	4·9	?	?	90	·912	6·3	17	12·55	+4·45	12·19	7·98	+ 4·21	52·98	44·15	+ 8·83	3·08	Bankura .	Central Bengal.
1	2	7	4	7	2	4	1	2	3·1	?	?	90	·891	4·0	12	11·40	+0·60	10·27	7·26	+ 3·01	40·99	42·96	− 1·97	3·62	Raniganj.	
...	2	5	7	6	2	3	2	3	4·0	3·1	+29	86	·905	7·6	14	12·09	+1·91	12·91	8·51	+ 4·40	43·23	41·62	+ 1·61	3·00	Burdwan.	

* Mean of 18 days. † Mean of 25 days.

Table

Abstract of Observations taken at 8 A.M. at 203 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 Bengal —*contd.*	Naya Dumka	489	29·220	?	29·665	29·393	14th	29·020	3rd	·373	80·2	86·5	?	76·2	?	81·4	?	10·3	92·6	2nd	73·8	28th	18·8
	Berhampore	67	29·660	−·031	29·676	29·849	14th	29·436	3rd	·413	80·3	87·4	−1·4	78·1	−0·3	82·8	−0·9	9·3	92·7	2nd	74·8	28th	17·9
	Rampur Boalia.	70	29·657	?	29·677	29·836	14th	29·468	3rd	·368	81·9	87·1	?	76·6	?	81·9	?	10·5	93·1	2nd	74·6	8 days	18·5
	Malda	80	29·646	?	29·678	29·837	14th	29·463	2nd	·374	81·2	87·7	?	77·4	?	82·6	?	10·3	93·6	2nd & 7th	71·5	12th	22·1
	Bogra	61	29·677*	+·007	29·690*	29·842	14th	29·489	9th	·353	81·3	87·7	?	76·2	?	81·9	?	11·5	93·2	2nd	73·2	2 days	20·0
North Bengal	Dinajpur	123	29·627	−·005	29·703	29·804	14th	29·443	2nd	·361	80·5	87·0	?	77·2	?	82·1	?	9·8	93·6	2nd	72·2	24th	21·4
	Rungpur	123	29·632	?	29·709	29·802	14th	29·444	2nd	·358	80·2	87·3	?	76·4	?	81·9	?	10·9	92·8	2nd & 3rd.	71·7	25th	21·1
	Jalpaiguri	284	29·487	+·006	29·725	29·657	14th	29·311	2nd	·346	78·9	86·8	?	75·1	?	81·0	?	11·7	92·9	2 days	70·1	2 days	22·8
Orissa	Balasore	56	29·621	−·065	29·623	29·819	14th	29·253	3rd	·566	81·6	86·8	?	77·1	?	82·0	?	9·7	92·4	28th	73·8	2 days	18·6
	False Point	21	29·664	−·065	29·627	29·860	15th	29·378	23rd	·482	82·2	86·8*	−1·1	77·8*	−0·3	82·4†	−0·7	9·0	91·0	28th	74·6	24th	16·4
	Cuttack	80	29·589	−·070	29·611	29·773	15th	29·165	23rd	·608	81·7	88·1	−1·8	78·0	+0·1	83·1	−0·9	10·1	92·7	28th	73·8	23rd	18·9
	Shortt's Island	?	29·635	?	?	29·861	15th	29·397	23rd	·464	83·1	86·9	?	79·0	?	83·0	?	7·9	91·7	27th	75·2	10th & 13th.	16·5
	Puri	15	29·663	?	29·618	29·847	15th	29·397	23rd	·450	81·8	87·4	?	78·6	?	83·0	?	8·8	91·7	30th	62·6	23rd	29·1
5. Gangetic Plain and Chota Nagpur.		...	...	−·035	...	...	...	...	...	...	...	87·4	−2·5	75·9	−1·2	81·7	−1·8	11·4	...	...	...	...	22·4
Chota Nagpur	Hazaribagh	2,007	27·704	−·042	29·652	27·862	30th	27·536	3rd	·326	75·0	82·9	−1·5	70·9	−1·2	76·9	−1·4	12·0	88·2	1st	66·8	27th	21·4
	Ranchi	2,128	27·577	?	29·640	27·737	30th	27·390	3rd	·347	74·5	81·7	?	70·8	?	76·2	?	10·9	87·0	7th	67·9	30th	19·1
	Daltongan	730?	28·931*	?	29·611*	29·098	30th	28·707	24th	·391	80·7*	87·1*	?	76·1*	?	81·6*	?	11·0	94·3	2nd	70·0	30th	24·3
	Chaibassa	760	28·917	−·046	29·624	29·094	15th	28·671	3rd	·423	79·3	88·3*	?	75·4	?	81·9*	?	12·9	92·4	7th	70·2	30th	22·2
Bihar, South	Gaya	375	29·321	−·040	29·650	29·473	30th	29·177	3rd	·296	79·4	88·8	−2·0	76·9	−1·0	82·8	−1·5	11·9	94·5	3rd	72·8	27th	21·7
	Dehri	351	29·346	?	29·650	29·520	30th	29·112	25th	·408	81·3	86·9*	?	76·7*	?	81·8*	?	10·2	93·8	1st	72·0	25th & 30th.	21·8
	Patna	183	29·523	−·041	29·658	29·684	14th	29·349	25th	·335	81·2	87·2	−3·2	77·9	−1·3	82·6	−2·3	9·3	93·5	3rd	71·2	27th	22·3
	Arrah	190	29·503	?	29·644	29·662	14th	29·264	25th	·398	77·7	88·3	?	77·6	?	82·9	?	10·7	93·9	1st	73·0	21st, 25th & 27th.	20·9
	Buxar	239	29·457	?	29·650	29·606	30th	29·126	25th	·480	80·8	87·5	?	76·4	?	81·9	?	11·1	92·5	3rd	71·8	25th & 26th.	20·7
Bihar, North	Purnea	125	29·610	−·017	29·688	29·796	14th	29·430	2nd	·366	80·2	87·3	−1·9	77·3	0	82·3	−1·0	10·0	94·2	2nd	71·2	26th	23·0
	Bhagalpur	160	29·552	?	29·665	29·732	14th	29·383	2nd	·349	81·2	87·4	?	76·5	?	82·0	?	10·9	92·7	2nd, 3rd & 7th	72·5	27th	20·2
	Darbhanga	166	29·556	−·029	29·676	29·734	14th	29·396	2nd	·338	80·0	86·5	−1·7	77·5	−1·4	82·0	−1·6	9·0	94·0	7th	70·7	27th	23·3
	Muzaffarpur	178	29·542	?	29·674	29·711	14th	29·383	2nd	·328	79·9	86·9	?	77·0	?	82·0	?	9·9	92·7	3rd, 7th & 11th	71·2	27th	21·5
	Motihari	224	29·463	?	29·665	29·660	14th	29·333	25th	·327	80·1	87·7	?	75·7	?	81·7	?	12·0	95·2	3rd	70·8	26th & 27th.	24·4
	Chupra	181	29·528	?	29·662	29·691	14th	29·303	25th	·388	81·2	87·6	?	77·1	?	82·3	?	10·5	94·3	3rd	72·1	25th & 27th	22·2
N.-W. Provinces (Eastern Districts).	Benares	267	29·423	−·038	29·646	29·597	30th	29·237	25th	·360	79·9	87·3	−3·9	76·4	−1·1	81·9	−2·5	11·1	93·3	1st	72·0	25th & 30th	21·3
	Allahabad	309	29·377	−·046	29·641	29·539	30th	29·160	4th	·379	80·6	89·2	−1·6	76·5	−0·3	82·9	−1·0	12·7	95·4	1st	70·8	29th & 30th	24·6
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·457	−·020	29·672	29·611	14th	29·320	25th	·291	80·5	87·2	−3·5	76·0	−2·0	81·6	−2·8	11·2	93·4	11th & 12th.	71·2	25th & 26th	22·2
Oudh, South	Lucknow	375	29·329	−·026	29·665	29·483	30th	29·160	4th	·323	79·3	88·8	−3·1	75·1	−1·3	82·0	−2·2	13·7	93·8	12th	71·1	30th	22·7
Oudh, North	Bahraich	403	29·308	?	29·674	29·435	14th	29·134	4th	·301	80·3	88·3	?	75·7	?	82·0	?	12·6	94·4	12th	71·0	30th	23·4
N.-W. Provinces (Central).	Cawnpore	416	29·283	?	29·658	29·437	30th	29·049	4th	·388	80·4	89·4	?	75·8	?	82·6	?	13·6	93·6	3 days	69·0	30th	24·6
	Mainpuri	516	29·166	?	29·640	29·310	30th	28·997	4th	·313	79·7	89·7	?	75·5	?	82·6	?	14·2	94·3	12th	70·0	29th	24·3
6. Upper—Sub-Himalayas		...	...	−·024	...	...	...	...	...	...	...	89·0	−3·5	73·5	0	81·3	−1·8	15·6	...	...	...	...	29·7
N.-W. Provinces (Sub-montane).	Bareilly	568	29·127	−·021	29·660	29·260	15th	28·987	4th	·273	79·2	88·4	2·1	74·6	−1·3	81·5	−1·7	13·8	94·3	3 days	68·7	30th	25·6
	Dehra Dun	2,233	27·510	−·020	29·689	27·656	15th	27·394	8th	·262	73·1	82·4	−2·0	69·8	−0·7	76·1	−1·4	12·6	88·5	12th	66·0	3 days	22·5
	Roorkee	887	28·805	−·032	29·661	28·940	15th	28·680	8th	·260	77·4	88·3	−3·0	73·1	−0·6	80·7	−1·8	15·2	94·2	12th	67·7	30th	26·5
	Meerut	738	28·960	−·020	29·664	29·100	30th	28·795	5th	·305	78·5	88·6	−3·1	73·8	−1·0	81·2	−2·1	14·8	94·8	12th	67·0	29th	27·8
Punjab, Central.	Delhi	718	28·975	−·032	29·655	29·129	30th	28·793	5th	·336	80·5	88·8	−4·1	76·2	−0·5	82·5	−2·3	12·6	95·1	13th	72·1	28th	23·0
	Lahore	702	28·979	−·025	29·648	29·111	15th	28·820	8th	·291	81·3	92·8	−4·1	75·1	+2·4	84·0	−0·9	17·7	105·3	1st	68·1	20th	37·2

* Mean of 29 days. † Mean of 28 days.

I—*continued.*

in India, Burma, etc., in September 1893—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 30th September 1893.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
6	1	2	7	7	3	1	1	2	6·7*	?	?	86	·883	4·7	16	13·00	+ 3·00	9·90	10·63	− 0·73	54·52	46·28	+ 8·24	1·79	Naya Dumka	Central Bengal—*contd.*
4	1	1	13	1	3	4	2	1	4·0	3·7	+ 9	93	·966	7·9	17	12·55	+ 4·45	9·99	10·30	− 0·31	56·50	41·30	+15·20	1·31	Berhampore.	
2	1	3	4	11	1	4	1	3	5·4	?	?	88	·958	5·8	14	12·15	+ 1·85	8·90	11·27	− 2·37	50·71	44·64	+ 6·07	1·59	Rampur Boalia.	
5	...	2	...	18	1	...	1	3	3·5	?	?	90	·957	6·1	14	11·80	+ 2·20	8·63	11·50	− 2·87	48·06	44·00	+ 4·06	2·12	Malda.	
5	...	1	5	14	4	...	...	1	3·3	?	?	88	·938	6·3	14	12·05	+ 1·95	9·81	10·74	− 0·93	57·39	50·43	+ 6·96	3·10	Bogra.	
...	2	7	12	5	2	...	...	2	3·1	?	?	89	·924	7·2	14	12·40	+ 1·60	16·77	11·21	+ 5·56	60·12	53·21	+ 6·91	4·61	Dinajpur	North Bengal.
1	...	3	13	9	2	1	...	1	2·5†	?	?	90	·930	5·5	15	13·05	+ 1·95	18·69	13·61	+ 5·08	72·01	61·66	+10·35	3·74	Rungpur.	
4	4	9	8	3	...	1	...	1	3·2	?	?	87	·863	7·4	11	15·35	− 4·35	21·07	24·41	− 0·34	104·04	102·91	+ 1·13	7·65	Jalpaiguri.	
5	4	5	1	2	6	2	...	5	4·9	?	?	92	·995	4·9	13	13·70	− 0·70	21·65	11·32	+10·33	59·85	46·69	+13·16	4·47	Balasore	Orissa.
...	6	...	1	4	9	8	1	1	11·4	7·9	+ 44	87	·956	6·9	16	12·82	+ 3·18	25·39	11·53	+13·86	43·17	44·12	− 0·95	3·59	False Point.	
12	...	3	1	...	2	5	4	3	3·3	2·4	+38	81	·874	5·8	14	11·73	+ 2·27	14·98	10·14	+ 4·84	44·27	45·67	− 1·40	3·67	Cuttack.	
...	2	3	4	...	8	8	3	2	13·6	?	?	84	·956	6·0	12	?	?	26·18	?	?	33·54	?	?	5·08	Shortt's Island.	
10	10	...	1	...	...	6	2	1	10·7	?	?	86	·934	6·2	16	13·35	+ 2·65	18·82	10·02	+ 8·80	37·47	37·63	− 0·16	6·57	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·61	7·66	+3·85	...	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
2	1	1	4	5	6	3	3	5	9·8	7·0	+ 40	89	·775	8·4	17	12·55	+ 4·45	20·88	8·22	+12·66	67·33	42·50	+24·83	4·31	Hazaribagh.	Chota Nagpur.
7	...	4	1	4	1	6	2	5	8·7	?	?	89	·765	5·9	15	14·50	+ 0·50	18·55	9·17	+ 9·38	58·02	45·85	+12·17	6·02	Ranchi.	
...	...	4	4	2	5	9	1	4	5·0†	?	?	85†	·891†	6·6†	13	?	?	13·66	?	?	45·94	?	?	2·69	Daltonganj.	
13	2	1	4	4	3	1	2	...	1·3†	?	?	87	·871	7·8	14	12·25	+1·75	9·92	8·30	+ 1·62	44·37	44·72	− 0·35	2·91	Chaibassa.	
...	...	3	18	3	4	...	1	1	6·3	2·3	+174	90	·903	6·1	12	9·82	+ 2·18	8·63	7·71	+ 0·92	37·15	40·72	− 3·57	1·78	Gaya	Bihar, South.
3	1	2	13	1	...	6	4	...	7·6	?	?	87	·927	4·1	14	10·38	+ 3·62	9·56	7·67	+ 1·89	35·63	36·35	− 0·72	2·57	Dehri.	
...	...	4	17	2	2	1	4	...	7·5	2·9	+159	86	·912	7·7	9	9·18	− 0·18	7·04	6·12	+ 0·92	40·63	37·96	+ 2·67	1·73	Patna	
1	3	6	6	5	2	3	4	..	3·8	?	?	87	·928	4·2	10	9·80	+ 0·20	11·56	6·87	+ 4·69	43·36	34·78	+ 8·58	3·04	Arrah.	
...	1	4	16	1	1	1	5	1	6·7	?	?	85	·894	6·6	14	9·20	+ 4·80	10·24	7·19	+ 3·05	36·41	33·44	+ 2·97	3·62	Buxar.	
9	1	5	7	5	1	...	1	1	3·2	2·0	+ 60	91	·937	5·6	15	11·00	+ 4·00	15·31	14·97	+ 0·34	57·51	54·53	+ 2·98	5·16	Purnea	Bihar, North.
9	1	5	7	2	3	3	...	...	2·4	?	?	88	·939	7·6	17	9·65	+ 7·35	14·71	7·60	+ 7·11	49·68	36·62	+13·06	3·35	Bhagalpur.	
6	...	5	10	6	2	1	...	...	5·6	3·6	+ 56	88	·903	6·2	10	9·73	+ 0·27	10·49	8·39	+ 2·10	46·19	41·57	+ 4·62	2·63	Darbhanga.	
3	1	4	10	7	1	1	1	2	6·6	?	?	90	·918	5·8	11	9·20	+ 1·80	10·22	9·97	+ 0·25	38·83	39·65	− 0·82	2·31	Muzaffarpur.	
6	...	8	11	2	...	...	1	2	5·9	?	?	86	·887	6·1	15	8·67	+ 6·33	17·27	9·16	+ 8·11	70·91	39·03	+31·88	6·19	Motihari.	
...	3	6	10	4	1	3	1	2	6·3	?	?	85	·909	6·0	11	8·30	+ 2·70	11·18	6·90	+ 4·28	35·20	35·13	+ 0·07	2·37	Chapra.	
4	1	5	5	2	2	3	6	2	4·9	3·9	+ 26	90	·928	7·0	11	8·91	+ 2·09	10·95	5·54	+ 5·41	37·07	32·85	+ 4·22	3·85	Benares	N.-W. Provinces (Eastern Districts).
1	2	5	4	3	2	2	6	5	6·6	2·9	+128	86	·898	7·2	10	7·73	+ 2·27	11·51	5·29	+ 6·22	42·76	31·80	+10·96	3·91	Allahabad	
7	2	5	9	2	1	...	4	...	2·2	2·1	+ 5	84	·882	4·3	14	8·55	+ 5·45	11·68	8·14	+ 3·54	39·72	40·35	− 0·63	2·27	Gorakhpur	N.-W. Provinces (East Sub-montane).
20	1	...	5	...	...	...	4	...	1·6	2·8	− 43	87	·872	6·6	7	7·55	− 0·55	11·69	5·61	+ 6·08	43·44	31·83	+11·61	5·55	Lucknow	Oudh, South.
2	3	2	8	8	2	1	1	3	2·4	?	?	87	·907	4·2	9	?	?	6·93	7·45	− 0·52	41·77	35·08	+ 6·69	2·00	Bahraich	Oudh, North.
3	1	4	6	4	2	1	5	4	4·3	?	?	87	·905	5·9	8	6·8	+ 1·2	9·50	4·57	+ 4·93	50·76	27·87	+22·89	6·00	Cawnpore	N.-W. Provinces (Central).
2	...		1	2	1	...	1	2	1·2	?	?	85	·868	5·8	7	?	?	3·97	6·09	− 2·12	25·06	30·00	− 4·94	1·25	Mainpuri	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·69	5·48	+3·22	...	...	...	..	**6. Upper—Sub-Himalayas.**	
15	1	...	...	5	1	1	2	5	1·5	3·0	− 50	85	·857	4·6	9	6·73	+ 2·27	8·72	7·65	+ 1·07	42·96	43·15	− 0·19	1·92	Bareilly	N.-W. Provinces (Sub-montane).
30	...	...	...	...	...	...	...	...	1·0	1·1	− 9	87	·716	6·3	14	10·30	+ 3·70	13·78	10·51	+ 3·27	89·33	73·50	+15·83	2·91	Dehra Dun.	
19	1	1	1	3	3	...	1	1	1·8†	2·0	− 10	87	·817	5·2	9	5·55	+ 3·45	9·47	7·22	+ 2·25	30·41	37·55	− 7·14	2·44	Roorkee.	
15	1	1	2	4	...	3	3	1	1·6	2·1	− 24	82	·796	4·7	11	4·55	+ 6·45	8·17	5·82	+ 2·35	24·34	27·89	− 3·55	1·69	Meerut.	
13	1	...	1	4	...	4	6	1	2·9	3·8	− 24	77	·803	4·4	5	4·09	+ 0·91	3·14	4·59	− 1·45	25·83	26·22	− 0·39	1·55	Delhi	Punjab, Central.
10	4	...	4	6	2	1	2	1	2·1	2·0	+ 5	76	·805	3·4	8	2·55	+ 5·45	6·85	2·84	+ 4·01	17·43	16·66	+ 0·77	2·05	Lahore.	

* Mean of 24 days. † Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Sub-montane).	Umballa	962?	28·809	?	29·678	28·954	15th	28·683	2nd	·271	78·1	90·1	?	73·8	?	82·0	?	16·3	96·5	16th	68·0	30th	28·5
	Ludhiana	812	28·888	−·025	29·666	29·045	15th	28·724	19th	·321	79·4	90·2	−4·8	74·1	−0·9	82·2	−2·9	16·1	100·5	1st	67·0	20th	33·5
Punjab, North	Sialkot	830	28·859	−·015	29·660	29·002	15th	28·717	8th	·285	79·1	91·7	−3·7	74·1	+0·9	82·9	−1·4	17·6	103·1	1st	65·3	21st	37·8
	Rawalpindi	1,649	28·060	−·028	29·648	28·202	14th	27·914	8th	·288	74·4	88·9	−4·7	70·0	+1·3	79·5	−1·7	16·9	96·5	1st	61·6	20th	34·9
7. Indus Valley and North-West Rajputana.		...	...	−·030	...	...	...	...	...	...	...	96·5	−0·9	76·2	+0·8	86·4	0	20·2	...	...	...	...	33·5
Punjab, West	Peshawar	1,110	28·612	−·014	29·652	28·780	30th	28·419	9th	·361	78·9	93·9	−1·7	72·5	+2·5	83·2	+0·4	21·4	102·0	1st	64·0	30th	38·0
	Mardan	?	?	?	?	?	...	?	...	?	80·6	103·9	?	78·4	?	91·2	?	25·5	108·2	2nd	73·0	30th	35·2
	Khushab	612	29·056	?	29·634	29·187	14th & 30th	28·885	8th	·302	82·1	96·3	?	76·4	?	86·4	?	19·9	107·0	1st	69·0	21st	38·0
	Montgomery	558	29·108	?	29·630	29·261	30th	28·943	2nd	·318	84·0	99·6	?	76·0	?	87·8	?	23·6	108·4	4th	68·2	29th	40·2
	D. I. Khan	573	29·082	−·039	29·623	29·218	30th	28·887	2nd	·331	81·5	98·8	−1·8	76·3	+1·2	87·6	−0·3	22·5	106·1	1st	66·8	29th	39·3
	Mooltan	420	29·240	−·035	29·627	29·403	30th	29·068	2nd	·335	83·6	98·9	−0·5	78·6	+1·3	88·8	+0·4	20·3	105·9	14th	71·6	29th	34·3
	Sirsa	662	29·014	−·038	29·639	29·168	30th	28·887	2nd	·281	81·1	96·1	−2·1	76·0	+1·2	86·1	−0·5	20·1	105·4	13th	70·3	28th	35·1
Sind and Cutch	Jacobabad	186	29·487	−·019	29·633	29·657	30th	29·316	2nd	·341	83·4	103·4	+0·6	76·7	+0·8	90·1	+0·7	26·7	107·9	13th & 15th	68·3	28th	39·6
	Hyderabad	117	29·570	−·029	29·640	29·741	30th	29·393	2nd	·348	80·8	97·5	+0·4	76·6	+0·4	87·1	+0·4	20·9	103·7	16th	73·1	29th	30·6
	Kurrachee	49	29·690	−·036	29·691	29·819	30th	29·535	3rd	·284	79·8	87·7	−0·4	76·4	−0·5	82·1	−0·5	11·3	89·0	7 days	74·8	5 days	14·2
	Bhuj	395	29·364	−·031	29·713	29·498	30th	29·229	3rd	·269	80·3	91·3	0	75·0	+0·3	83·1	+0·2	16·3	96·0	14th	71·9	28th	24·1
Rajputana, West	Bickaneer	753	28·933	?	29·642	29·104	30th	28·804	2nd	·300	82·3	95·2†	−2·3	79·2	+0·1	87·2†	−1·1	16·0	104·1	13th	74·3	28th	29·8
	Pachpadra	380	29·334	?	29·670	29·504	30th	29·063	17th	·441	79·9	91·3	?	73·1	?	82·2	?	18·2	99·5	13th & 14th,	61·8	30th	37·7
8. East Rajputana, Central India and Guzerat.		...	...	−·024	...	...	...	...	...	...	...	87·6	−2·5	73·6	−0·4	80·6	−1·5	14·0	...	...	...	...	23·1
Rajputana, East	Jeypore	1,431	28·306	−·033	29·696	28·466	30th	28·184	2nd & 4th.	·282	77·6	90·3	−2·3	72·6	+0·2	81·5	−1·1	17·7	94·1	3 days	65·5	28th	28·6
	Sambhar	1,254	28·455	−·036	29·676	28·604	30th	28·256	19th	·348	78·5	88·9	−2·5	73·6	−0·2	81·3	−1·4	15·3	93·4	13th	67·9	28th	25·5
	Ajmere	1,611	28·136	−·024	29·710	28·259	30th	28·017	2nd & 3rd.	·242	76·3	85·3	−4·9	73·4	+1·0	79·4	−2·0	11·9	91·4	13th	67·6	23rd	23·8
	Deesa	466	29·282	−·046	29·706	29·437	30th	29·067	15th	·370	77·9	87·9	−4·1	72·7	−0·9	80·3	−2·5	15·2	95·8	13th	70·0	27th & 30th.	25·8
Kattywar	Rajkot	429	29·361	−·019	29·745	29·488	30th	29·239	3rd	·249	79·2	90·6	−0·2	72·1	−0·5	81·3	−0·4	18·5	94·9	7th	67·8	27th	27·1
	Veraval	?	29·807	?	29·767	29·911	30th	29·693	2nd	·218	78·1	82·6	?	75·5	?	79·1	?	7·1	84·6	8th & 26th.	72·8	23rd	11·8
	Bhabnagar	?	29·782	?	29·767	29·904	30th	29·677	3rd	·227	80·9	92·3*	?	76·7	?	84·5*	?	15·6	97·9	14th & 27th.	73·0	30th	24·9
Central India	Nowgong	757	28·952	−·029	29·667	29·126	30th	28·749	4th	·377	78·2	87·8	−2·9	73·2	−1·6	80·5	−2·3	14·6	93·0	1st	68·5	29th	24·5
	Indore	1,823	27·953	−·012	29·733	28·096	30th	27·842	3rd	·254	73·0	82·7	−2·1	68·9	−1·3	75·8	−1·7	13·8	87·5	7th & 26th.	65·4	29th	22·1
	Neemuch	1,630	28·128	−·023	29·718	28·282	30th	28·014	15th	·268	74·8	84·4	−2·8	70·1	−0·4	77·3	−1·6	14·3	89·8	13th	66·7	29th	23·1
Guzerat	Surat	36	29·793	−·008	29·772	29·891	30th	29·703	3rd	·188	79·3	87·0	−1·1	75·2	−0·2	81·1	−0·7	11·8	90·1	6th & 12th.	72·0	23rd	18·1
	Ahmedabad	176	29·621	?	29·747	29·761	30th	29·504	3rd	·257	79·1	87·8	?	75·2	?	81·5	?	12·6	92·2	9th	73·1	3 days	19·1
N.-W. P., West	Agra	555	29·168	−·018	29·682	29·321	30th	29·010	4th	·311	80·5	89·8	−2·5	75·8	−0·6	82·8	−1·6	14·0	95·0	1st	69·0	30th	26·0
	Jhansi	858	28·864	−·021	29·678	29·039	30th	28·657	4th	·382	79·3	88·4	−2·3	74·7	−0·3	81·6	−1·3	13·7	94·0	8th	71·4	28th & 30th.	22·6
9. Deccan		...	...	−·019	...	...	...	...	...	...	...	84·7	−1·8	71·0	−0·5	77·9	−1·2	13·7	...	...	...	...	21·9
Bombay, Deccan	Belgaum	2,524	27·353	+·002	29·820	27·431	17th	27·275	10th	·156	69·2	77·4	−1·2	64·4	−0·8	70·9	−1·0	13·0	83·8	29th	60·9	20th	22·9
	Sholapur	1,590	28·253	+·003	29·796	28·332	27th	28·166	3rd & 12th.	·166	74·6	87·3	−0·8	69·6	−0·6	78·5	−0·7	17·7	91·7	6th	67·1	10th & 19th.	24·6
	Poona	1,840	28·010	−·003	29·803	28·085	17th & 27th.	27·906	3rd	·179	72·8	83·5	−0·1	68·0	−0·7	75·8	−0·4	15·5	88·5	29th & 30th.	63·9	22nd	24·6
	Bijapur	1,946	27·909	?	29·803	27·984	27th	27·828	3rd	·156	72·7	85·3	?	68·2	?	76·8	?	17·1	89·3	27th	66·0	10th & 20th.	23·3
Khandesh	Malegaon	1,430	28·389	−·001	29·775	28·495	30th	28·287	3rd	·208	75·8	86·3	−0·7	70·1	+0·2	78·2	−0·3	16·2	90·9	21st	65·3	21st & 28th.	25·6
	Ahmednagar	2,152	27·691	?	29·787	27·770	26th & 30th.	27·595	3rd	·175	73·0	83·3	?	68·0	?	75·7	?	15·3	87·3	22nd	61·5	21st	25·8
Berar	Akola	930	28·855	−·001	29·739	28·974	30th	28·743	12th	·231	76·1	86·0	−2·3	72·2	−0·2	79·1	−1·3	13·8	92·4	30th	69·7	30th	22·7
	Amraoti	1,215	28·546	−·010	29·722	28·657	30th	28·434	12th	·223	74·8	84·7	−3·0	71·4	−0·3	78·1	−1·7	13·3	89·9	26th & 30th.	62·8	2nd	27·1

* Mean of 29 days. † Mean of 28 days.

I—*continued.*

in India, Burma, etc., in September 1893—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 30th September 1893.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
3	...	...	...	12	...	2	...	13	1·8	?	?	87	·838	4·1	6	?	?	10·47	5·31	+5·16	27·28	27·75	−0·47	3·43	Umballa .	Punjab (Sub-montane).
20	2	...	...	2	5	...	1	...	1·2	1·1	+9	81	·812	5·2	7	3·36	+3·64	10·33	3·73	+6·60	25·64	24·58	+1·06	3·38	Ludhiana.	
16	3	1	8	2	...	...	...	...	1·3	1·6	−19	81	·800	3·4	7	2·82	+4·18	9·66	3·38	+6·28	35·79	23·37	+12·42	2·89	Sialkot .	Punjab, North.
17	...	4	3	2	...	...	1	3	0·6	1·3	−54	87	·755	3·6	6	4·27	+1·73	6·35	3·72	+2·63	36·96	21·13	+15·83	3·19	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·53	1·08	+1·49	...	...	...	...	7. Indus Valley and North-West Rajputana.	
6	5	4	...	...	1	4	3	7	3·1	3·1	0	74	·736	2·6	3	1·82	+1·18	1·23	0·78	+0·45	8·49	4·51	+3·98	0·72	Peshawar .	Punjab, West.
			Not recorded						?	?	?	?	?	?	4	?	?	2·15	?	?	16·23	?	?	0·99	Mardan.	
9	...	13	6	2	...	...	...	...	4·5	?	?	69	·758	2·6	2	1·6	+0·4	0·54	1·41	−0·87	4·34	6·98	−2·64	0·43	Khushab.	
5	1	1	5	4	9	5	...	...	5·3	?	?	68	·790	2·2	4	1·4	+2·6	3·74	1·03	+2·71	7·50	7·72	−0·22	2·70	Montgomery	
11	...	10	7	...	1	...	1	...	2·0	1·7	+18	73	·791	1·8	0	0·73	−0·73	0	0·32	−0·32	3·48	4·99	−1·51	0	D. I. Khan.	
5	1	4	2	5	1	12	...	...	3·2	2·8	+14	71	·801	1·8	4	0·55	+3·45	2·29	0·37	+1·92	8·33	4·55	+3·78	0·90	Mooltan.	
4	...	1	2	9	1	2	11	...	6·3*	3·6	+75	76	·800	2·8	5	2·73	+2·27	3·79	1·54	+2·25	13·94	11·73	+2·21	2·52	Sirsa.	
8	...	...	2	16	3	...	...	1	3·8*	3·1	+23	67	·770	1·3	0	0·18	−0·18	0	0·07	−0·07	1·53	2·88	−1·35	0	Jacobabad .	Sind and Cutch.
1	...	...	...	...	10	18	1	...	23·4	12·5	+87	68	·705	1·1	0	0·80	−0·80	0	0·89	−0·89	2·04	6·77	−4·73	0	Hyderabad.	
...	...	...	...	...	...	15	15	...	16·9	14·9	+13	82	·844	6·0	0	0·82	−0·82	0	0·75	−0·75	7·26	6·32	+0·94	0	Kurrachee.	
1	...	...	...	...	1	4	16	8	17·6	11·3	+56	75	·780	6·7	3	?	?	0·49	3·05	−2·56	11·85	14·06	−2·21	0·20	Bhuj.	
...	...	3	1	...	4	20	1	1	8·3	5·6	+48	66	·731	2·7	3	?	?	1·15	0·98	+0·17	9·75	9·52	+0·23	0·56	Bickaneer .	Rajputana, West.
7	1	1	...	2	6	10	1	2	4·4*	6·1	−28	83	·842	6·6	6	?	?	17·51	1·72	+15·79	44·52	8·83	+35·69	8·30	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·09	4·94	+3·24	...	...	...	...	8. East Rajputana, Central India and Guzerat.	
...	3	1	2	2	...	10	10	2	4·4	5·2	−15	79	·749	4·8	7	5·00	+2·00	4·51	3·73	+0·78	24·52	25·75	−1·23	1·30	Jeypore .	Rajputana, East.
...	4	...	1	1	2	1	18	3	9·8	7·2	+36	77	·758	3·4	6	3·50	+2·50	3·83	2·69	+1·14	23·09	20·41	+2·68	1·68	Sambhar.	
...	1	...	2	2	2	...	22	1	8·0	5·0	+60	84	·757	4·2	11	3·18	+7·82	7·15	2·28	+4·87	27·95	20·75	+7·20	1·90	Ajmere.	
...	1	2	...	...	4	17	4	2	9·7‡	8·5	+14	84	·797	6·5	8	3·73	+4·27	21·91	3·17	+18·74	47·51	24·74	+22·77	13·76	Deesa.	
...	1	...	...	...	...	4	19	6	10·5	8·5	+23	77	·774	6·2	6	5·73	+0·27	1·79	4·63	−2·84	22·30	29·22	−6·92	0·55	Rajkot .	Kattywar.
10	1	...	...	1	1	1	13	3	4·5	?	?	88	·849	7·6	3	?	?	1·00	?	?	11·75	?	?	0·35	Veraval.	
...	...	...	...	...	...	30	...	...	16·9	?	?	82	·866	5·9	3	?	?	0·85	?	?	12·18	?	?	0·39	Bhavnagar.	
1	3	2	2	2	2	1	13	4	3·4	2·4	+42	84	·823	6·0	14	6·91	+7·09	16·11	5·41	+10·70	40·99	41·59	−0·60	3·89	Nowgong .	Central India.
...	6	...	...	...	...	4	12	8	4·6	4·8	−4	90	·735	6·5	11	8·91	+2·09	7·92	8·48	−0·56	34·35	32·62	+1·73	2·50	Indore.	
...	...	4	1	...	...	4	20	1	11·4	10·2	+12	85	·740	4·8	9	6·91	+2·09	9·39	5·20	+4·19	39·22	29·91	+9·31	3·27	Neemuch.	
...	1	...	...	...	...	13	10	6	?	9·2	?	84	·856	5·9	7	7·55	−0·55	3·86	7·99	−4·13	44·71	41·05	+3·66	1·58	Surat .	Guzerat.
2	4	1	...	...	...	7	4	3	4·8	?	?	84	·842	7·6	8	?	?	74·5	?	?	40·34	?	?	3·13	Ahmedabad†	
...	...	5	...	6	...	8	...	11	4·7	4·1	+15	80	·831	3·9	5	5·45	−0·45	3·72	4·86	−1·14	21·47	27·98	−6·51	1·28	Agra . .	N.-W. P., West.
3	4	3	1	1	2	6	3	7	3·5	3·2	+9	81	·822	3·4	11	7·00	+4·00	9·74	5·89	+3·85	31·03	36·58	−5·55	2·50	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·64	7·22	+0·29	...	...	...	...	9. Deccan.	
5	...	...	...	...	...	4	19	2	?	16·7	?	93	·637	6·4	8	10·18	−2·18	3·86	4·31	−0·45	29·23	36·18	−6·95	1·50	Belgaum .	Bombay, Deccan.
...	2	1	...	...	...	3	16	8	12·5	9·9	+26	78	·668	7·3	6	9·73	−3·73	2·56	9·09	−6·53	14·98	27·19	−12·21	0·94	Sholapur.	
...	...	...	...	...	...	4	23	3	11·6	11·4	+2	82	·661	7·0	6	8·18	−2·18	1·98	5·41	−3·43	22·58	19·84	+2·74	0·49	Poona.	
1	...	...	...	...	...	5	14	10	7·4	?	?	84	·682	7·8	7	8·60	−1·60	5·22	5·76	−0·54	12·21	16·11	−3·90	1·46	Bijapur.	
3	...	...	...	...	...	7	16	4	13·3	7·6	+75	81	·717	5·8	5	8·64	−3·64	4·10	6·92	−2·82	12·03	21·51	−9·48	1·77	Malegaon .	Khandesh.
2	3	3	...	...	3	...	13	6	15·0	?	?	86	·699	6·9	6	?	?	4·87	7·86	−2·99	15·99	20·46	−4·47	1·70	Ahmednagar.	
1	...	...	...	...	...	3	24	2	8·5	5·8	+47	84	·754	5·9	6	10·18	−4·18	4·60	6·93	−2·33	22·18	30·80	−8·62	1·62	Akola .	Berar.
2	...	...	...	...	...	8	16	4	6·8	4·4	+55	89	·767	6·7	9	8·27	+0·73	3·75	5·68	−1·93	25·96	30·77	−4·81	0·90	Amraoti.	

* Mean of 29 days. † Wind directions of 21 days. ‡ Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Provinces, West.	Khandwa	1,044	28·725	−·009	29·731	28·855	30th	28·606	3rd & 11th	·249	75·6	85·3	−2·1	72·7	0	79·0	−1·1	12·6	89·2	4 days	70·1	28th	19·1
	Hoshangabad	1,020	28·715	−·041	29·697	28·867	30th	28·577	4th	·290	76·1	84·7	−3·4	72·6	−0·6	78·7	−2·0	12·1	89·8	8th	70·3	3 days	19·5
	Nagpur	1,025	28·714	−·015	29·694	28·852	30th	28·572	12th	·280	78·1	87·0	−2·0	72·7	−0·9	79·9	−1·5	14·3	91·5	26th	69·6	29th	22·2
Central Provinces, Central.	Chanda	634	29·122	?	29·706	29·246	30th	28·983	12th	·263	76·8	86·4	?	73·3	?	79·9	?	13·1	91·0	28th & 30th	71·0	28th & 30th	20·0
	Seoni	2,030	27·696	−·045	29·691	27·862	30th	27·521	12th	·341	73·9	82·8	−2·6	69·8	−0·9	76·3	−1·8	13·0	86·6	30th	66·1	30th	20·5
	Jubbulpore	1,327	28·395	−·031	29·680	28·564	30th	28·199	13th	·365	76·1	85·0	−2·0	72·3	−0·5	78·7	−1·3	12·7	88·9	7th & 8th	68·2	28th	20·7
	Saugor	1,762	27·973	−·030	29·688	28·134	30th	27·789	4th	·345	74·3	84·2	−1·8	70·5	−0·4	77·4	−1·1	13·7	88·3	8th & 30th	66·7	29th & 30th	21·6
Central Provinces, East.	Raipur	970	28·747	−·025	29·664	28·913	30th	28·577	12th	·336	78·3	86·0	−1·6	74·1	−0·5	80·1	−1·1	11·9	89·3	7th & 28th.	69·7	22nd	19·7
	Sutna	1,040	28·649	−·045	29·648	28·834	30th	28·430	4th	·404	78·3	85·6	−1·7	74·3	−0·2	80 0	−1·0	11·3	90·6	1st	70·6	30th	20·0
	Sambalpur	463	29·213	−·063	29·623	29·394	30th	28·997	3rd	·397	80·1	87·7	−1·3	76·2	−1·0	82·0	−1·2	11·5	93·5	7th	73·7	24th	19·8
Hyderabad, North.	Aurangabad	?	27·967	?	?	28·073	26th	27·867	3rd	·206	75·8	85·5	?	68·4	?	77·0	?	17·1	89·8	24th	65·2	7th	24·6
	Indur	?	...	Not	recorded.			...	...	...	75·7	83·5	?	71·7	?	77·6	?	11·8	89·8	30th	70·0	13th	19·8
	Bidar	?	27·663	?	?	27·749	15th	27·570	12th	·179	72·2	81·3	?	68·5	?	74·9	?	12·8	86·0	30th	65·4	20th	20·6
Hyderabad, South.	Gulburga	?	28·322	?	?	28·404	17th	28·236	12th	·168	75·0	85·6	?	69·9	?	77·8	?	15·7	90·7	15th	67·3	10th	23·4
	Raichur	?	28·436	?	?	28·515	27th	28·379	1st	·136	75·2	85·5	?	71·5	?	78·5	?	14·0	89·1	30th	69·6	9th	19·5
	Hyderabad (Deccan).	1,690	28·122	?	29·765	28·214	15th	28·021	12th	·193	73·6	82·6	?	70·8	?	76·7	?	11·8	88·4	30th	68·2	18th	20·2
	Secunderabad	1,787	28·048	+·010	29·787	28·135	15th	27·955	12th	·180	73·3	83·8	−2·7	69·9	−0·5	76·9	−1·6	13·9	89·1	7th	66·9	18th	22·2
	Khamamet	369	29·418	?	29·657	29·522	15th	29·313	12th	·209	78·4	86·8	?	74·9	?	80·9	?	11·9	92·0	3 days	72·8	8th	19·2
10. West Coast		...	...	**−·005**	...	...	...	...	...	...	...	**83·1**	**+0·1**	**74·6**	**+0·3**	**78·8**	**+0·2**	**8·5**	...	...	...	...	**13·2**
Konkan	Bombay	37	29·826	−·008	29·803	29·909	27th	29·736	3rd	·173	79·1	84·5	+0·2	76·2	−0·1	80·4	+0·1	8·3	86·5	3 days	74·0	19th & 23rd	12·5
	Ratnagiri	110	29·765	+·003	29·813	29·851	17th	29·685	12th	·166	78·7	83·8	−0·1	74·7	+0·5	79·3	+0·2	9·1	85·9	30th	71·9	22nd & 23rd	14·0
	Mormugao	60	29·848	?	29·843	29·942	17th	29·762	10th	·180	78·5	83·5	?	74·6	?	79·0	?	8·9	86 0	30th	72·4	23rd	13·6
	Goa	23	29·891	−·016	29·828	29·974	17th	29·799	10th	·175	77·2	80·2	?	74·8	?	77·5	?	5·4	82·5	30th	72·5	8th	10·0
	Karwar	44	29·860	−·006	29·837	29·942	17th	29·782	11th	·160	76·5	81·9	−0·7	74·1	+0·7	78·0	0	7·8	84·2	30th	72·7	9th & 24th.	11·5
Malabar	Cochin	10	29·941	+·003	29·879	30·015	17th	29·892	10th	·123	78·4	85·0	+0·9	74·5	+0·5	79·8	+0·7	10·5	88·2	30th	72·7	6 days	15·5
	Calicut	27	29·912	−·008	29·869	29·988	15th	29·866	10th	·122	77·2	83·7	?	73·6	?	78·6	?	10·1	86·8	26th & 30th	71·6	10th & 25th.	15·2
	Mangalore	65	29·866	−·006	29·863	29·943	17th	29·808	11th	·135	79·3	83·4	+0·2	73·9	+0·1	78·7	+0·2	9·5	85·8	3 days	70·9	16th	14·9
	Trivandrum	198?	29·745	?	29·875	29·812	15th	29·690	10th & 22nd	·122	77·3	81·6	?	74·9	?	78·3	?	6·7	84·5	30th	73·0	1st & 13th.	11·5
11. South India		...	...	**−·008**	...	...	...	...	...	...	...	**88·4**	**−0·7**	**72·9**	**−0·4**	**80·7**	**−0·6**	**15·5**	...	...	...	...	**23·8**
Madras, South.	Pamban	37	29·850	?	29·814	29·930	15th	29·787	22nd	·143	81·9	87·6	?	77·2	?	82·5	?	10·4	91·3	22nd	73·2	1st & 4th	18·1
	Tinnevelly	168?	29·724	?	29·820	29·803	15th	29·656	22nd	·147	84·1	97·8	?	78·9	?	88·4	?	18·9	101·4	22nd & 23rd	72·9	29th	28·5
	Madura	447	29·428	+·001	29·810	29·503	15th	29·362	10th	·141	81·9	96·5	+0·6	75·1	0	85·8	+0·3	21·4	101·0	1st	69·1	28th	31·9
Madras, South, Central.	Salem	940	28·969	−·001	29·850	29·052	15th	28·904	10th	·148	78·5	93·9	+2·8	72·7	+1·7	83·3	+2·3	21·2	98·9	27th	70·0	8th & 29th	28·9
	Coimbatore	1,348	28·534	−·009	29·831	28·608	15th	28·444	10th	·164	75·4	89·4	0	70·1	−0·5	79·7	−0·3	19·3	91·8	20th	66·6	25th	25·2
Coorg	Mercara	3,781	26·220	+·010	29·878	26·298	15th	26·162	10th	·136	63·8	69·8	−2·9	61·8	+0·4	65·8	−1·3	8·0	76·0	29th	59·7	25th	16·3
	Chitaldroog	2,405	27·490	?	29·835	27·564	15th	27·418	10th	·146	70·8	82·0	?	66·2	?	74·1	?	15·8	86·6	27th & 29th.	64·4	19th & 25th.	22·2
Mysore	Bangalore Bazar	2,982	26·955	+·006	29·855	27·040	17th	26·887	10th	·153	69·2	81·7	−0·2	64·7	−0·2	73·2	−0·2	17·0	86·2	26th	62·0	21st & 25th.	24·2
	Bangalore Fort	3,019	26·914	−·003	29·844	27·008	17th	26·845	9th	·163	68·6	81·8	−0·2	64·7	−0·2	73·3	−0·2	17·1	86·3	26th	61·9	21st & 25th.	24·4
	Hassan	3,091	26·865	?	29·866	26·936	17th	26·804	9th	·132	69·3	79·6	?	62·2	?	70·9	?	17·4	86·1	29th	59·3	19th & 21st.	26·8
	Mysore	2,518	27·418	?	29·874	27·502	15th	27·354	10th	·148	70·4	84·5	?	65·2	?	74·9	?	19·3	90·9	27th	61·4	25th	29·5
Madras, East Coast, South.	Negapatam	31	29·853	+·014	29·813	29·925	16th	29·787	10th	·138	82·8	94·0	+1·9	76·6	+0·4	85·3	+1·2	17·4	97·2	3 days	71·7	19th	25·5
	Cuddalore	12	29·852	?	29·793	29·927	15th	29·780	10th	·147	82·4	93·9	?	76·5	?	85·2	?	17·4	98·3	7th	72·2	30th	26·1
	Trichinopoly	255	29·622	−·002	29·810	29·706	15th	29·554	10th	·152	81·6	98·0	+2·9	76·7	+1·3	87·4	+2·1	21·3	102·0	1st	72·4	28th	29·7
	Madras	22	29·831	+·006	29·784	29·921	15th	29·752	9th	·169	81·3	93·4	−0·3	76·9	−0·1	85·0	−0·2	16·5	100·0	1st	72·5	15th	27·5

I—*continued.*

in India, Burma, etc., in September 1893—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 30th September 1893.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Provinces or District.
...	...	...	...	...	...	2	8	20	9·0	6·2	+ 45	86	·753	5·6	6	7·55	−1·55	3·23	7·63	− 4·40	22·42	29·84	− 7·42	0·82	Khandwa	Central Provinces, West.
10	...	...	...	...	2	14	4	...	2·6	2·5	+ 4	89	·807	7·6	13	10·18	+2·82	7·86	12·00	− 4·14	37·83	53·91	−16·08	2·00	Hoshangabad.	
1	4	...	...	...	...	8	9	8	7·0	4·9	+ 43	80	·778	6·9	12	10·64	+1·36	8·04	8·89	− 0·85	41·22	43·94	− 2·72	1·80	Nagpur.	
3	2	...	...	...	...	6	13	6	5·6	4·1	+ 37	83	·770	7·5	15	?	?	11·00	?	?	41·06	?	?	2·45	Chanda	Central Provinces, Central.
...	2	7	...	1	2	8	5	4	12·0	3·9	+208	92	·782	3·9	12	11·73	+0·27	5·73	9·75	− 4·02	41·66	50·84	− 9·18	1·08	Seoni.	
6	2	..	...	1	1	6	7	7	2·1	3·4	− 38	88	·793	7·0	15	9·36	+5·64	6·36	6·87	− 0·51	69·47	52·97	+16·50	5·22	Jubbulpore.	
12	1	1	...	1	...	9	4	2	2·9	3·3	− 12	91	·774	4·6	13	8·64	+4·36	14·62	5·79	+ 8·83	59·41	39·29	+20·12	3·68	Saugor.	
5	1	...	...	1	1	10	9	3	6·8	5·9	− 15	87	·842	8·0	15	10·45	+4·55	10·75	8·31	+ 2·44	46·66	48·02	− 1·36	1·85	Raipur	Central Provinces, East.
...	6	2	2	1	4	2	7	6	6·9	6·5	+ 6	87	·837	5·9	17	8·36	+8·64	19·72	5·12	+14·60	51·73	37·40	+14·33	3·00	Sutna.	
...	6	3	1	5	5	6	1	3	5·8	2·2	+164	86	·886	7·2	15	?	?	13·14	10·05	+ 3·09	56·34	59·56	− 3·22	3·12	Sambalpur.	
4	...	1	...	...	...	6	13	6	5·3*	?	?	77	·685	7·0	6	?	?	2·45	7·44	− 4·99	18·89	26·71	− 7·82	0·88	Aurangabad	Hyderabad, North.
2	...	1	1	...	...	3	10	13	10·1	?	?	87	·772	7·7	14	?	?	14·46	6·91	+ 7·55	53·44	32·34	+21·10	2·84	Indur.	
...	2	1	...	1	...	3	11	12	8·0	?	?	91	·718	5·3	16	?	?	11·70	8·94	+ 2·76	51·99	34·38	+17·61	1·85	Bidar.	
2	5	...	1	...	...	2	8	12	13·6	?	?	80	·700	7·6	12	?	?	5·00	6·44	− 1·44	29·81	22·58	+ 7·23	1·08	Gulburga	Hyderabad, South.
...	1	...	...	...	...	6	14	9	9·4	?	?	80	·707	5·7	10	?	?	7·48	4·97	+ 2·51	30·69	18·20	+12·49	1·85	Raichur.	
4	...	...	...	...	...	...	23	3	7·4	?	?	86	·711	7·7	16	?	?	8·74	6·74	+ 2·00	35·12	25·14	+ 9·98	1·80	Hyderabad (Deccan).	
1	..	1	1	...	...	1	13	13	9·5	7·0	+ 36	82	·681	6·8	15	?	?	10·05	5·44	+ 4·61	38·51	24·46	+14·05	1·71	Secunderabad.	
11	1	...	...	...	...	...	11	7	6·5	?	?	86	·839	4·7	13	?	?	7·35	?	?	39·10	?	?	1·20	Khamamet.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·46	10·90	−2·59	...	...	...	...	**10. West Coast.**	
...	1	1	2	6	...	5	12	3	11·8	11·7	+ 1	86	·861	7·4	16	14·18	+1·82	7·76	12·16	− 4·40	58·69	73·58	−14·89	1·42	Bombay.	Konkan.
7	1	3	1	3	1	4	4	6	5·6	8·2	− 32	88	·863	7·4	18	16·09	+1·91	9·18	14·54	− 5·36	83·57	103·72	−20·15	1·35	Ratnagiri.	
2	1	2	...	2	1	2	13	6	8·5*	?	?	89	·868	5·4	18	?	?	7·02	?	?	75·30	?	?	2·24	Mormugao.	
12	...	3	...	...	1	7	6	1	6·0	?	?	90	·839	5·9	16	?	?	5·93	9·04	− 3·11	72·28	91·22	−18·94	1·50	Goa.	
9	3	4	2	...	...	3	7	1	2·0	?	?	91	·823	5·5	19	16·09	+2·91	15·41	13·09	+ 2·32	92·58	113·87	−21·29	4·21	Karwar.	
9	2	7	2	...	...	1	4	5	5·9	?	?	84	·825	5·5	10	13·73	−3·73	5·64	10·58	− 4·94	50·57	76·84	−26·27	1·28	Cochin	Malabar.
9	6	2	...	2	1	...	1	9	10·7	?	?	89	·817	6·6	13	10·13	+2·87	6·08	5·86	+ 0·22	78·80	84·89	− 6·09	2·14	Calicut.	
7	3	5	3	1	1	1	5	4	2·4	2·4	0	90	·839	6·3	12	16·60	−4·60	8·17	11·05	− 2·88	88·19	106·12	−17·93	2·25	Mangalore.	
...	18	...	...	...	...	...	...	12	7·9	?	?	84	·786	5·5	5	?	?	1·91	?	?	20·72	?	?	0·77	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·01	4·95	+0·61	...	...	...	...	**11. South India.**	
...	1	...	...	4	6	13	2	4	12·6	?	?	76	·835	3·4	0	1·80	−1·80	0	1·44	− 1·44	0·71	2·42	− 1·71	0	Pamban	Madras, South.
...	1	...	...	...	...	6	13	10	7·3	?	?	61	·727	6·8	3	1·9	+1·1	2·48	0·97	+ 1·51	5·02	2·32	+ 2·70	1·90	Tinnevelly.	
3	9	1	...	...	...	3	2	12	1·9	3·4	− 44	66	·717	4·2	5	6·09	−1·09	6·04	4·60	+ 1·44	20·89	10·80	+10·09	3·13	Mduara	
2	...	1	...	2	7	11	6	1	4·3	3·7	+ 16	71	·707	6·9	6	6·91	−0·91	3·24	6·41	− 3·17	17·99	21·75	− 3·76	1·95	Salem	Madras, South, Central.
...	...	...	...	...	20	6	4	...	4·7	6·6	− 29	84	·738	4·4	1	2·18	−1·18	0·20	1·04	− 0·84	3·64	5·24	− 1·60	0·13	Coimbatore.	
...	4	...	...	...	...	1	9	16	10·2	7·9	+ 29	94	·567	8·5	20	17·10	+2·90	13·90	10·98	+ 2·92	80·62	107·05	−26·43	2·36	Mercara	Coorg.
...	..	...	...	...	...	15	14	1	10·6	?	?	82	·624	7·8	3	?	?	1·18	?	?	14·44	?	?	0·33	Chitaldroog	
...	...	...	...	..	1	12	17	...	10·7	6·7	+ 60	85	·604	8·3	7	8·36	−1·36	5·40	5·08	+ 0·32	20·45	18·46	+ 1·99	3·65	Bangalore Bazar.	Mysore.
...	...	...	...	...	...	7	21	2	7·6	?	?	85	·681	8·2	7	?	?	5·32	?	?	19·01	?	?	3·23	Bangalore Fort.	
3	...	...	...	...	...	7	13	7	4·8	?	?	81	·580	8·1	2	?	?	0·82	?	?	10·70	?	?	0·18	Hassan.	
...	...	1	...	...	...	11	18	...	14·3	?	?	81	·600	7·4	5	?	?	1·90	?	?	13·77	?	?	0·83	Mysore	
6	...	...	...	...	4	7	12	1	5·2	5·2	0	71	·797	5·7	3	6·36	−3·36	1·44	3·46	− 2·02	14·34	10·87	+ 3·47	0·62	Negapatam	Madras, East Coast, South.
...	...	...	...	...	3	10	9	8	2·8	7·1	− 61	80	·889	5·6	6	6·4	−0·4	7·99	5·04	+ 2·95	17·24	16·20	+ 1·04	2·79	Cuddalore.	
...	...	...	...	...	...	6	10	9	6·8	7·1	− 4	65	·695	6·4	6	4·91	+1·09	1·70	3·44	− 1·74	6·86	10·76	− 3·90	0·78	Trichinopoly.	
4	...	...	..	...	4	10	11	1	5·7	6·5	− 12	78	·829	7·5	7	6·45	+0·55	3·64	4·53	− 0·89	11·49	15·77	− 4·28	0·98	Madras.	

* Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras, East Coast, Central.	Nellore	71	29·754	?	29·758	29·843	17th	29·671	10th	·172	83·1	94·7	?	78·1	?	86·5	?	16·6	100·3	14th	75·0	22nd	25·3
	Masulipatam	15	29·783	−·007	29·733	29·892	15th	29·676	10th	·216	79·9	88·2	− 3·3	76·0	−1·4	82·2	−2·4	12·2	95·1	7th	73·1	9th	22·0
Madras, Central	Cuddapah	433	29·430	−·012	29·804	29·519	15th	29·352	10th & 11th	·167	81·1	92·7	− 0·1	75·9	−0·2	84·3	−0·2	16·8	97·1	17th	71·7	18th	25·4
	Kurnool	923	28·921	−·013	29·790	29·015	15th	28·839	12th	·176	77·2	87·6	− 2·3	72·2	−1·3	79·9	−1·8	15·4	91·5	27th	69·9	9th	21·6
	Bellary	1,475	28·389	+·015	29·811	28·473	15th	28·311	10th	·162	76·8	88·7	− 2·2	71·9	−1·0	80·3	−1·6	16·8	93·4	28th	69·5	26th & 27th	23·9
Madras, East Coast, North.	Rajahmundry	112	29·646	−·022	29·695	29·765	15th	29·540	10th	·225	79·4	87·0	− 4·0	76·2	−1·0	81·6	−2·5	10·8	93·0	26th & 29th	73·1	2nd	19·9
	Cocanada	26	29·727	−·015	29·688	29·854	15th	29·606	10th	·248	80·1	87·0	− 1·8	77·0	−1·4	82·0	−1·6	10·0	92·7	28th	73·5	2nd	19·2
	Vizagapatam	31	29·698	−·042	29·667	29·852	15th	29·560	3rd	·292	81·9	84·7	− 2·8	79·7	0	82·3	−1·4	5·0	87·9	18th	75·9	15th	12·0
	Gopalpur	21	29·677	−·035	29·638	29·858	15th	29·498	23rd	·360	80·5	87·2	− 0·2	76·9	−3·3	82·1	−1·8	10·3	90·7	7th & 29th	73·8	10th	16·9
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Kuch	?	23·919	?	?	24·000	30th	23·800	3rd	·200	72·1	83·4	?	49·5	?	66·5	?	33·9	91·0	3rd	40·0	28th & 30th	51·0
	Quetta	5,502	24·564	−·019	...	24·677	30th	24·436	3rd	·241	66·3	87·0	+1·5	50·9	+0·1	69·0	+0·8	36·1	92·1	1st & 2nd	39·8	28th	52·3
	Shirinao	?		Not	recorded		...	...	...	...	69·4	90·3	?	?	?	?	?	?	96·4	2nd	?	?	?
	Kalat	?	...	Not	recorded	...	...	...	...	...	69·1	?	?	46·0	?	?	?	?	?	?	37·2	28th	?
	Chaman	5,488	...	Not	recorded	...	...	...	...	...	79·1	93·0	?	63·9	?	78·5	?	29·1	100·0	2nd	57·1	28th	42·9
Northern India	Srinagar	5,204	24·790	?	...	24·941	30th	24·637	2nd	·304	62·0	76·9	?	56·7	?	66·8	?	20·2	86·3	9th	48·2	30th	38·1
	Gilgit	?	25·456	?	?	25·680	30th	25·160	2nd	·520	71·1	90·7	?	65·2	?	77·9	?	25·5	104·2	7th	59·2	20th	45·0
	Cherat	?	25·610	?	...	25·754	14th	25·472	3rd	·282	70·6	83·2	?	66·1	?	74·7	?	17·1	92·4	1st	58·7	20th	33·7
	Murree	6,344	23·786	−·042	...	23·921	14th	23·671	3rd	·250	60·8	70·1	− 4·0	58·3	−0·8	64·3	−2·4	11·8	75·6	1st	50·4	20th	25·2
	Poo	?	...	Not	recorded	...	...	...	...	...	?	77·2	?	58·8	?	68·0	?	18·4	85·6	8th	52·7	20th	32·9
	Simla	7,224	23·063	−·040	...	23·187	14th	22·962	19th	·225	59·4	65·5	− 5·5	56·5	−0·7	61·0	−3·1	9·0	71·9	12th	52·2	30th	19·7
	Chakrata	7,052	23·198	−·029	...	23·329	14th	23·108	2nd	·221	60·6	67·6	− 1·5	57·0	−0·2	62·3	−0·9	10·6	74·3	11th	52·3	20th	22·0
	Mussoorie	?	23·497	?	...	23·623	15th	23·408	2nd	·215	61·0	67·1	− 0·8	57·5	−0·3	62·3	−0·6	9·6	73·8	12th	53·0	20th	20·8
	Ranikhet	6,069	24·036	−·017	...	24·153	15th	23·940	2nd	·213	63·2	71·1	− 1·4	59·4	−0·6	65·3	−1·0	11·7	77·0	12th	55·0	30th	22·0
	Gnatong	...	...	Not	recorded	...	...	...	...	...	46·3	51·7	?	38·1	?	44·9	?	13·6	56·9	12th	31·6	10th	25·3
	Darjeeling	7,421	22·974	−·028	?	23·096	14th	22·890	2nd	·206	58·1	62·4	− 2·5	54·4	−0·8	58·4	−1·7	8·0	69·1	6th	49·6	26th	19·5
	Gantok	...	24·429	?	...	24·568	14th	24·335	2nd	·233	64·3	73·4	?	59·4	?	66·5	?	14·0	80·2	6th	53·0	26th	27·2
Central India	Mount Abu	3,945	25·927	−·060	...	26·077	30th	25·757	15th	·320	65·1	70·9	− 4·6	62·6	−2·4	66·7	−3·5	8·3	78·1	13th	59·9	30th	18·2
	Pachmarhi	3,528	26·350	−·003	...	26·499	30th	26·208	4th	·291	68·7	74·9	− 2·2	65·6	−0·6	70·3	−1·4	9·3	79·7	7th	62·2	29th & 30th	17·5
South India	Wellington	6,200	24·237	+·010	...	24·315	15th	24·190	10th	·125	64·3	71·1	+ 0·1	55·0	−0·8	63·1	−0·4	16·1	74·2	26th	49·7	22nd & 25th	24·5
	Kodaikanal	...		Not	recorded		...	?	...	?	60·5	66·2	?	52·8	?	59·5	?	13·4	70·4	27th	50·6	25th	19·8
	Kottagiri	...	23·839	?	..	23·888	17th & 19th	23·790	7th	·098	62·0	70·4	?	55·1	?	62·8	?	15·3	73·3	19th	51·8	23rd	21·5
13. Extra India	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ceylon	Colombo	40	29·923	+·008	29·889	29·988	15th	29·870	10th	·118	81·8	84·6	?	76·0	?	80·3	?	8·6	86·5	30th	73·0	25th	13·5
Persia	Meshed	?	...	...		Not	recorded		...	...	67·6	83·5	?	53·7	?	68·6	?	29·8	90·5	1st	44·9	20th	45·6
	Teheran (c)	?	25·941	?	?	26·450	14th	25·800	4th	·650	79·2	92·5	?	64·7	?	78·6	?	27·8	99·7	7th	56·4	28th	43·3
	Isphahan (a)	?	?	?	?	?	...	?	...	?	70·7	90·7		54·8	?	72·7	?	35·9	99·0	3rd	51·1	28th	47·9
	Bushire	14	29·683	?	29·652	29·794	14th	29·523	3rd	·271	86·3	92·7	?	78·4	?	85·6	?	14·3	98·3	4th	72·0	24th & 27th	26·3
	Jask (b)	?	29·514	?	?	29·821	22nd	29·326	9th & 27th	·495	89·3	95·9	?	82·1	?	89·0	?	13·8	101·2	14th	74·2	22nd & 23rd	27·0
Arabia	Muscat	?	29·705	?	?	29·812	30th	29·545	3rd	·267	83·7	85·6	?	82·3	?	84·0	?	3·3	91·7	19th	80·1	3 days	11·6
	Baghdad	?	29·337	?	?	29·421	19th	29·202	4th	·219	77·4	100·2	?	71·1	?	85·7	?	29·1	108·0	2nd	62·9	23rd	45·1
	Aden	94	29·730	?	29·755	29·805	17th & 18th	29·634	1st	·171	85·7	92·9	?	81·5	?	87·3	?	11·4	97·1	25th	72·3	9th	24·8
	Perim	?	29·615	?	?	29·699	28th	29·467	12th	·232	87·2	95·1	?	83·8	?	89·5	?	11·3	99·3	2nd & 6th	78·2	15th	21·1
Central Asia	Kashgar	?	25·701	?	?	26·140	15th	25·370	9th	·770	(b) 65·2	83·6	?	58·7	?	71·2	?	24·9	93·3	9th	51·0	28th	42·3
Arabian Sea Islands.	Minicoy	10	29·965	?	29·900	30·032	15th	29·903	10th	·129	79·9	85·1	?	† 78·9	?	(b) 81·9	?	6·2	88·9	16th	74·8	11th	14·1
Africa	Zanzibar	73	30·043	?	30·043	30·140	3rd	29·988	19th	·152	75·2	80·6	?	72·5	?	76·6	?	8·1	84·2	9th	71·2	3rd	13·0

(a) Mean of 27 days' observations.
(b) Do. „ 29 „ „
(c) Do. „ 28 „ „

* Mean of 20 days.

I —*concluded.*

in India, Burma, etc., in September 1893—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 30th September 1893.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
2	1	...	...	...	4	...	13	10	8·5	?	?	73	·815	9·3	5	5·3	— 0·3	1·31	3·53	— 2·22	10·52	10·39	+ 0·13	0·56	Nellore	Madras, East Coast, Central.
3	..	...	...	...	...	2	9	16	7·0	6·4	+ 9	86	·876	8·8	13	8·80	+ 4·20	4·68	5·08	— 0·40	21·79	23·00	— 1·21	0·75	Masulipatam.	
...	1	...	...	...	...	9	11	9	?	?	?	69	·731	7·6	7	6·70	+ 0·30	3·42	5·58	— 2·16	24·58	18·38	+ 6·20	1·08	Cuddapah.	Madras, Central.
22	...	...	...	...	...	...	8	...	?	?	?	77	·713	7·4	12	7·83	+ 4·17	8·15	6·12	+ 2·03	28·19	20·03	+ 8·16	1·66	Kurnool.	
2	...	...	...	...	...	6	19	3	9·9	9·3	+ 6	72	·667	6·5	3	6·27	— 3·27	1·44	3·76	— 2·32	13·55	9·70	+ 3·85	0·96	Bellary.	
1	3	...	...	...	...	...	17	9	?	?	?	82	·839	7·2	12	8·60	+ 3·40	7·33	7·37	— 0·04	26·39	26·94	— 0·55	1·35	Rajahmundry	Madras, East Coast, North.
...	3	...	...	.	...	14	11	2	9·2	?	?	83	·849	6·5	8	9·1	— 1·1	6·38	5·74	+ 0·64	24·91	24·32	+ 0·59	1·70	Cocanada.	
...	...	..	...	...	...	1	28	1	1·1	2·2	— 50	80	·879	7·7	8	10·91	— 2·91	22·01	7·00	+15·01	33·45	21·68	+11·77	7·63	Vizagapatam.	
...	11	...	...	...	1	8	2	8	11·4	7·2	+58	88	·902	3·5	12	9·33	+ 2·67	10·27	7·74	+ 2·53	31·82	30·95	+ 0·87	3·16	Gopalpur.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
...	2	...	4	3	...	...	21	...	?	?	?	27	·203	0·6	0	?	?	0	?	?	0·07	?	?	0	Kuch	Baluchistan.
30	...	...	...	...	...	...	...	...	1·5	3·5	— 57	57	·375	3·7	0	0·55	— 0·55	0	0·14	— 0·14	0·04	1·34	— 1·30	0	Quetta.	
...	...	...	4	13	3	7	1	2	3·3	?	?	42	·297	?	0	?	?	0	?	?	?	?	?	0	Shirinao.	
...	...	...	...	...	11	14	...	5	?	?	?	?	?	?	0	?	?	0	?	?	0·84	?	?	0	Kalat.	
11	...	...	1	2	2	8	4	2	8·4	?	?	22	·223	0	0	?	?	0	?	?	0	?	?	0	Chaman.	
17	2	2	...	3	3	1	1	1	2·0	?	?	91	·514	4·9	5	?	?	1·52	?	?	9·66	?	?	0·54	Srinagar.	Northern India.
				Not	recorded				(?	?	?	56	·428	3·9	1	?	?	0·21	?	?	2·66	?	?	0·10	Gilgit.	
10	...	4	2	5	5	2	1	1	4·8	?	?	77	·574	3·7	5	?	?	3·48	?	?	15·51	?	?	1·30	Cherat.	
4	4	1	2	6	...	..	1	12	7·2	5·4	+ 33	83	·448	4·8	16	6·55	+ 9·45	12·43	5·70	+ 6·73	50·16	31·93	+18·23	3·17	Murree.	
...	1	2	10	3	3	3	5	3	?	?	?	?	?	4·8	3	?	?	1·19	?	?	?	?	?	0·64	Poo.	
14	9	1	1	1	3	1	...	...	4·2*	1·7	+147	86	·436	6·0	12	8·36	+ 3·64	10·19	5·83	+ 4·36	36·07	47·93	—11·86	1·55	Simla.	
17	...	...	12	...	...	...	1	...	6·1†	4·7	+ 30	89	·471	4·9	13	?	?	17·97	5·66	+12·31	63·40	48·04	+15·36	5·40	Chakrata.	
...	1	3	13	5	...	...	1	7	?	8·1	?	92	·495	6·0	15	10·09	+ 4·91	20·14	9·72	+10·42	85·78	77·74	+ 8·04	3·27	Mussoorie.	
20	...	...	4	...	1	...	4	1	2·0	1·9	+ 5	86	·495	5·4	13	7·73	+ 5·27	20·18	6·82	+13·36	51·43	38·44	+12·99	6·36	Ranikhet.	
...	...	1	7	9	2	...	6	5	3·9	?	?	82	·256	7·1	22	?	?	26·29	?	?	108·25	?	?	4·60	Gnatong.	
4	1	5	10	...	1	5	4	...	4·4	3·0	+ 47	92	·446	8·9	16	17·29	— 1·92	30·87	16·21	+14·66	110·23	99·95	+10·28	6·18	Darjeeling.	
?	?	?	?	?	?	?	?	?	?	?	?	93	·560	8·0	17	?	?	22·17	?	?	91·28	?	?	3·36	Gantok.	
...	1	2	2	...	1	12	9	3	10·2	7·3	+ 40	92	·571	6·7	13	7·40	+ 5·60	50·31	6·55	+43·76	122·66	57·91	+64·75	15·51	Mount Abu	Central India.
...	4	...	..	...	1	2	19	4	10·1	5·6	+ 80	89	·627	7·8	16	12·55	+3·45	12·49	13·31	— 0·82	63·47	70·14	— 6·67	2·10	Pachmarhi.	
12	1	1	...	2	3	9	2	...	3·2	3·5	— 9	68	·418	5·8	6	9·22	— 3·22	3·68	4·90	— 1·22	20·28	14·86	+ 5·42	1·05	Wellington.	South India.
2	1	8	1	5	1	2	2	8	9·5	?	?	71	·370	6·8	7	13·80	— 6·80	5·28	6·70	— 1·42	31·31	21·91	+ 9·40	1·55	Kodaikanal.	
7	3	1	...	2	5	1	2	9	3·9	?	?	75	·419	5·2	6	11·00	— 5·00	7·51	6·99	+ 0·52	19·22	18·33	+ 0·89	3·70	Kottagiri .	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
...	...	...	...	...	3	16	11	...	8·2	8·7	— 6	72	·786	5·4	6	?	?	2·25	4·67	— 2·42	16·17	24·32	— 8·15	0·95	Colombo .	Ceylon.
24	1	...	...	...	...	1	2	2	?	?	?	?	?	0·1	0	?	?	0	?	?	0·14	?	?	0	Meshed .	Persia.
6	1	10	3	2	4	1	1	...	?	?	?	32	·302	1·1	0	?	?	0	?	?	?	?	?	0	Teheran (c)	
...	2	2	1	1	...	1	11	9	3·3	?	?	39	·295	0·3	0	?	?	0	?	?	?	?	?	0	Isphahan (a)	
...	4	6	5	7	...	1	...	7	4·9	?	?	59	·743	?	0	?	?	0	?	?	0	?	?	0	Bushire.	
...	...	2	3	8	3	4	5	2	12·6†	?	?	72	·987	0·1	0	?	?	0	?	?	?	?	?	0	Jask. (b)	
...	1	8	15	2	...	...	2	2	?	?	?	83	·956	1·3	0	?	?	0	?	?	0	?	?	0	Muscat .	Arabia.
9	7	4	...	...	...	...	2	8	?	?	?	44	·410	0·1	0	?	?	0	?	?	0	?	?	0	Baghdad.	
14	...	...	8	1	3	2	...	1	9·8	8·5	+ 15	76	·939	2·4	1	?	?	1·36	0·08	+ 1·28	1·38	0·39	+ 0·99	1·30	Aden.	
...	3	13	3	1	1	...	3	6	10·8	?	?	71	·920	1·7	0	?	?	0·01	?	?	?	?	?	0·01	Perim.	
...	2	4	4	...	...	...	2	5	2·3	?	?	73‡	·445‡	3·0	0	?	?	0	?	?	?	?	?	0	Kashgarh (d)	Central Asia.
...	3	...	...	...	...	...	10	17	13·9‡	?	?	80	·814	5·1	10	?	?	3·90	?	?	23·89	?	?	1·22	Minicoy .	Arabian Sea Islands.
...	...	...	3	17	5	4	...	...	7·4	?	?	84	·735	5·6	3	?	?	1·45	?	?	6·17	?	?	0·76	Zanzibar (e)	Africa.

* Mean of 24 days.
† Do. „ 29 „
‡ Do. „ 28 „

(a) Mean of 27 days' observations.
(b) Do. „ 29 „ „

(c) Mean of 28 days observations.
(d) Wind observations of 17 days.
(e) Do. „ „ 29 „

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 to 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	...	29·810	29·715	·095	29·765	−·016	29·756	84·8	76·9	7·9	89·1	73·0	16·1	82·2	82·3	79·8	+0·3	74·9	78·2	77·9	77·0
	Rangoon	...	·813	·701	·112	·758	−·028	·736	84·7	75·6	9·1	90·2	73·9	16·3	80·1	80·5	78·4	−0·3	73·9	77·6	77·3	76·3
	Diamond Island	...	·811	·709	·102	·762	−·025	·738	83·4	76·6	6·8	85·9	73·3	12·6	80·9	80·6	78·9	+0·2	74·5	77·3	76·8	76·2
	Cocos Island	111	·719	.639	·080	·681	?	·722	84·8	76·4	8·4	87·6	72·9	14·7	82·3	81·4	79·4	?	72·2	79·2	78·1	76·6
	Akyab	...	·778	·672	·106	·729	−·035	·692	85·0	77·1	7·9	88·2	74·5	13·7	82·3	83·0	80·3	−1·2	75·0	80·0	80·1	78·3
Assam.	Silchar	...	·676	·543	·133	·615	−·043	·668	91·2	76·2	15·0	96·6	73·3	23·3	84·8	88·1	82·5	+1·0	74·7	79·1	79·8	78·0
	Sibsagar	...	·479	·335	·144	·408	−·021	·695	87·2	75·6	11·6	93·0	71·7	21·3	81·9	86·5	80·2	−0·6	74·6	78·6	80·9	78·0
	Dhubri	...	·662	·535	·127	·603	−·030	·673	84·5	76·4	8·1	91·2	73·1	18·1	80·5	82·9	78·9	−0·2	74·8	77·1	77·7	76·5
Bengal and Orissa.	Chittagong	...	·697	·585	·112	·645	−·037	·679	86·7	75·8	10·9	89·7	74·0	15·7	80·2	83·9	80·4	−0·1	74·7	78·9	79·1	77·6
	Dacca	...	·725	·612	·113	·674	−·038	·643	88·2	78·2	10·0	91·1	75·4	15·7	83·5	84·7	82·6	−0·3	76·2	79·2	79·6	78·3
	Calcutta (Alipore)	...	·695	·595	·100	·647	−·039	·614	86·6	77·7	8·9	89·6	73·7	15·9	83·6	83·8	82·0	−0·3	76·7	79·0	78·5	78·1
	Ditto (Chowringhee).	...	·701	?	?	?	...	?	88·1	77·7	10·4	92·0	74·0	18·0	84·7	?	?	?	77·0	80·2	?	?
	Saugor Island	...	·677	·581	·096	·631	−·052	·600	87·2	78·8	8·4	90·2	75·2	15·0	84·5	83·7	81·7	−0·9	77·1	80·6	80·0	79·2
	Burdwan	...	·633	·519	·114	·579	−·036	·625	87·6	78·1	9·5	92·1	75·2	16·9	83·3	85·0	81·9	−1·6	76·8	78·5	78·2	77·8
	Berhampore	...	·673	·555	·118	·617	−·029	·632	87·3	78·1	9·2	92·7	74·8	17·9	82·7	84·4	81·7	−1·3	75·8	79·3	79·5	78·2
	False Point	...	·676	·573	·103	·627	−·073	·589	86·6	77·6	9·0	91·4	74·9	16·5	84·3	84·5	81·3	−0·5	76·7	79·6	79·3	78·6
	Cuttack	...	·601	·498	·103	·554	−·081	·576	88·2	77·9	10·3	92·8	74·0	18·8	85·0	86·0	82·2	−0·3	76·0	78·2	78·4	77·5
Gangetic Plain and Chota Naopur.	Hazaribagh	...	27·715	27·622	·093	27·673	−·038	·605	82·8	70·9	11·9	87·2	67·0	20·2	78·4	78·6	75·5	−1·4	68·8	73·7	73·5	72·0
	Patna	...	29·531	29·415	·116	29·478	−·039	·613	87·0	78·0	9·0	93·5	71·2	22·3	83·0	84·8	81·5	−2·0	75·9	78·3	78·3	77·5
	Darbhanga	...	·574	·454	·120	.519	−·024	·638	86·4	77·5	8·9	93·8	70·7	23·1	82·5	85·4	81·2	−1·5	76·2	78·2	78·6	77·7
	Allahabad	...	·392	·289	·103	·344	−·037	·607	89·1	76·5	12·6	94·2	70·7	23·5	83·6	85·6	81·4	−1·7	74·6	78·4	78·4	77·1
	Ghazipur	220	·451?	·348?	·103	·404?	−·060	·576?	89·1	77·5	11·6	94·6	73·5	21·1	84·3	85·5	82·0	−0·9	75·4	79·1	78·8	77·7
	Lucknow	...	·344	·239	·105	·295	−·034	·619	88·8	75·1	13·7	93·8	71·1	22·7	83·7	85·2	81·1	−2·8	73·2	77·3	77·2	75·9
Upper Sub-Himalayas.	Debra Dun	...	27·522	27·444	·078	27·475	−·032	·640	82·5	69·8	12·7	88·7	65·9	22·8	77·1	79·2	75·0	−2·1	67·7	72·1	73·5	71·1
	Roorkee	...	28·822	28·723	·099	28·766	−·031	·608	88·2	73·2	15·0	94·3	67·9	26·4	81·9	86·1	79·8	−2·2	71·2	76·1	76·9	74·7
	Meerut	...	·978	·884	·094	·922	−·018	·620	88·4	73·9	14·5	95·0	67·0	28·0	82·8	86·5	80·5	−2·4	73·2	75·7	76·7	75·2
	Lahore	...	·990	·903	·087	·941	−·028	·606	92·4	75·1	17·3	104·3	68·1	36·2	85·1	90·0	83·0	−0·5	72·3	76·3	77·3	75·3
	Ludhiana	...	·891	·800	·091	·840	−·035	·608	89·9	74·1	15·8	96·1	67·1	29·0	84·0	87·8	81·3	−2·3	72·8	76·5	76·9	75·4
Indus Valley and N.-W. Rajputana.	Peshawar	...	·613	·496	·117	·549	−·034	·618	93·5	72·6	20·9	100·5	64·0	36·5	85·0	91·1	82·3	+0·5	68·7	74·5	74·9	73·4
	Mooltan	...	29·255	29·164	·091	29·204	−·031	·582	98·6	78·6	20·0	106·2	71·6	34·6	89·1	96·5	87·9	+0·9	73·6	78·1	80·0	77·2
	Jacobabad	...	·499	·378	·121	·433	−·034	·572	103·2	76·7	26·5	107·8	68·3	39·5	91·5	100·8	89·1	+0·8	71·2	77·1	78·0	75·4
	Kurrachee	...	·695	·624	·071	·662	−·038	·663	87·9	76·5	11·4	89·0	74·8	14·2	84·2	84·7	81·2	−0·2	73·7	77·5	77·4	76·2
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·319	28·223	·096	28·267	−·028	·645	90·3	72·6	17·7	94·1	65·3	28·8	82·9	86·8	80·0	−2·0	69·4	74·5	74·9	72·9
	Ajmere	...	·156	·065	·091	·104	−·021	·661	85·1	73·4	11·7	91·6	67·6	24·0	79·5	84·4	78·7	−2·9	71·2	74·5	76·4	74·1
	Deesa	...	29·290	29·192	·098	29·240	−·043	·658	87·9	72·7	15·2	95·6	69·9	25·7	82·3	86·1	79·3	−2·5	71·3	75·0	75·2	73·8
	Agra	...	29·184	29·073	·111	29·123	−·018	·630	89·8	75·8	14·0	94·7	69·1	25·6	83·7	87·9	82·6	−0·8	72·9	77·2	77·4	75·8
Deccan.	Belgaum	...	27·360	27·268	·092	27·316	+·001	·758	77·7	64·4	13·3	83·7	61·1	22·6	73·1	73·2	69·5	−0·9	64·1	68·5	68·9	67·2
	Sholapur	...	28·256	28·123	·133	28·201	−·006	·718	87·5	69·5	18·0	91·8	67·1	24·7	79·1	84·3	77·0	−0·6	67·9	70·9	72·0	70·2
	Poona	...	·015	27·923	·092	27·969	−·005	·748	83·7	67·9	15·8	90·0	63·9	26·1	78·0	77·9	73·5	−0·9	66·2	70·6	70·5	69·1
	Akola	...	·870	28·744	·126	28·808	−·004	·683	86·5	72·2	14·3	92·6	69·7	22·9	80·3	84·3	78·8	−1·0	70·7	74·2	75·2	73·4
	Buldana	2,132	27·674	27·577	·097	27·627	−·017	29·683	80·6	68·2	12·4	84·4	64·9	19·5	75·1	79·0	74·0	−1·7	66·9	70·5	71·7	69·7

II.

at 88 Stations in India, Burma, etc., for September 1893.

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.	Total rainfall of the month.	Heaviest rainfall during the month.	Station.	Meteorological Province.
·838	·911	·898	·882	—·010	91	83	82	85	− 3	8·6	8·7	8·7	+1·7	...	...	1	...	...	1	24	27	6	S 75° W	S 43° W	83	73	252	214	...	...	Port Blair	Burma Coast and Bay Islands.
·816	·916	·896	·876	−·019	92	89	86	89	0	8·8	8·5	8·7	+0·6	...	4	3	...	3	5	11	19	10	S 87° W	S 18° W	54	49	96	91	...	...	Rangoon	
·827	·889	·870	·862	—·012	90	84	84	86	− 1	8·1	9·1	8·6	+1·7	1	1	...	...	1	6	30	11	10	S 63° W	S 39° W	72	58	242*	155	...	...	Diamond Island	
·734	·954	·917	·868	?	80	86	86	83	?	7·2	8·0	7·6	?	...	...	...	...	...	7	27	18	7	S 63° W	?	80	?	486*	?	11·55	3·70	Cocos Island.	
·840	·994	991	·942	+·034	90	90	88	89	+ 4	8·0	7·8	7·9	+0·9	...	...	3	11	9	21	2	10	4	S 12° E	S 9° E	40	41	88	72	...	...	Akyab	
·846	·919	·911	·893	−·010	94	78	69	80	− 4	7·7	7·7	7·7	+0·6	44	1	3	5	...	...	2	4	1	N 26° E	S 89° W	5	2	19*	61	...	...	Silchar	Assam.
·844	·937	·980	·921	+·004	95	86	78	86	0	6·1	5·3	5·7	−2·3	7	1	23	1	9	...	19	...	...	S 76° E	N 73° E	18	18	39	58	...	...	Sibsagar	
·844	·886	·883	·871	—·022	93	85	79	86	− 1	6·9	5·9	6·4	−0·1	7	3	27	8	1	2	11	1	...	N 59° E	S 66° E	37	28	155	77	...	...	Dhubri	
·848	·927	·934	·903	—·011	95	80	80	85	− 6	7·0	5·9	6·5	−0·1	4	1	5	4	17	10	8	4	7	S 15° E	S 29° E	32	31	112*	109	...	...	Chittagong	Bengal and Orissa.
·876	·940	·943	·920	−·044	93	84	81	86	0	8·5	7·2	7·9	+1·1	...	2	5	7	13	20	9	1	3	S 21° E	S 11° E	50	57	142	112	...	...	Dacca	
·906	·930	·904	·913	—·043	95	81	79	85	− 2	7·7	8·0	7·9	+0·7	...	3	6	15	16	10	3	3	4	S 59° E	S 27° E	43	43	115	101	...	...	Calcutta (Alipore).	
·922	·975	?	?	?	97	82	?	?	?	?	?	...	...	?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	8·51	1·82	,, (Chowringhee).	
·909	·995	·980	·9.1	—·018	92	84	84	87	+ 1	8·7	8·7	8·7	+1·9	...	2	13	5	6	24	6	3	1	S 27° E	S 4° W	38	48	294	241	...	...	Saugor Island.	
·905	·914	·878	·899	—·031	94	80	73	82	0	7·4	7·4	7·4	0	1	6	5	16	14	8	5	1	4	S 67° E	S 31° E	40	38	106*	72	...	...	Burdwan	
·862	·957	·943	·921	—·014	89	85	80	85	− 1	7·8	7·8	7·8	—0·3	7	3	2	24	6	7	5	2	4	S 78° E	S 41° E	37	36	91	88	...	...	Berhampore	
·908	·950	·935	·932	+·005	96	81	79	85	+ 1	7·1	7·1	7·1	+0·3	...	5	1	7	11	19	10	1	6	S 8° E	S 25° W	40	36	242*	198	...	...	False Point	
·877	·874	·874	·875	—·024	92	73	71	78	− 3	6·4	7·1	6·8	+0·3	9	3	9	7	3	7	11	7	4	S 23° W	S 10° W	8	20	79	56	...	...	Cuttack	
·683	·774	·764	·740	—·020	90	80	79	83	+ 2	8·8	8·9	8·9	+1·0	6	6	7	13	8	10	2	2	6	S 83° E	S 64° E	27	21	237	169	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·870	·912	·890	·890	—·024	90	81	75	82	+ 2	7·5	7·4	7·5	+0·5	2	...	10	29	5	4	1	7	2	N 88° E	S 77° E	50	42	179	74	...	...	Patna	
·888	·911	·899	·900	−·036	94	82	74	83	0	6·6	5·6	6·1	+0·7	6	1	8	18	14	4	3	5	1	S 71° E	S 86° E	45	54	135	93	...	...	Darbhanga	
·836	·902	·879	·872	−·020	91	79	73	81	+ 1	7·3	7·3	7·3	+2·1	1	3	10	12	5	1	3	9	16	N 1° E	N 42° E	24	11	157	79	...	...	Allahabad	
·857	·925	·894	·892	+·035	90	79	74	81	+ 7	6·9	5·8	6·4	+1·3	26	...	4	10	7	...	...	10	3	E	S 28° E	10	7	72	58	7·26	3·05	Ghazipur	
·794	·852	·828	·825	—·010	91	74	69	78	+ 5	6·1	5·5	5·8	+0·4	41	2	...	8	...	...	...	9	...	S 30° W	N 1° E	3	14	34	68	...	...	Lucknow	
·656	·728	·760	·715	?	90	78	77	82	?	6·1	6·2	6·2	+1·5	12	...	2	2	4	8	9	22	1	S 57° W	N 80° W	45	18	23	27	...	...	Dehra Dun	Upper Sub-Himalayas.
·740	·827	·805	·791	+·025	90	76	65	77	+ 5	5·1	4·3	4·7	+0·9	16	4	2	8	3	5	10	8	4	S 47° W	S 6° E	15	9	?	49	...	...	Roorkee	
·815	·797	·784	·796	+·040	97	71	63	77	+ 8	5·0	4·2	4·6	+0·9	13	5	...	8	9	...	1	19	5	N 81° W	N 34° W	15	17	39	49	...	...	Meerut	
·761	·794	·767	·774	+·060	87	66	56	70	+14	3·3	2·5	2·9	+1·5	12	7	5	7	9	8	2	8	2	S 59° E	N 60° E	12	13	54	50	...	...	Lahore	
·794	·814	·781	·796	+·042	94	70	60	75	+10	4·5	5·0	4·8	+2·0	26	3	2	...	2	13	...	14	...	S 48° W	N 40° W	25	13	29	29	...	...	Ludhiana	
·661	·726	·666	·684	+·095	82	61	47	63	+ 9	2·2	3·5	2·9	+1·3	9	8	18	11	2	2	4	...	6	N 44° E	N 39° E	43	55	75*	75	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·768	·818	·804	·798	+·003	79	60	47	62	+ 1	1·3	1·9	1·6	+0·7	8	1	13	2	10	3	20	...	3	S 10° E	S 32° W	20	33	78*	61	...	...	Mooltan	
·695	·740	·657	·697	+·003	75	50	33	53	0	1·2	1·2	1·2	+0·6	27	1	...	5	22	4	...	...	1	S 48° E	S 36° E	43	41	90*	69	...	...	Jacobabad	
·795	·855	·845	·832	+·005	87	73	71	77	+ 1	5·1	4·1	4·6	+0·7	...	...	...	...	...	...	30	30	...	S 67° W	S 62° W	94	83	402	360	...	...	Kurrachee	
·682	·749	·717	·716	+·041	84	66	57	69	+ 5	4·9	5·7	5·3	+1·8	...	6	4	3	4	3	22	13	5	S 69° W	N 31° W	42	45	104	118	...	...	Jeypore	E. Rajputana, C. India and Guzerat.
·739	·798	·813	·783	+·094	90	79	70	79	+13	3·9	3·7	3·8	+0·6	...	4	2	2	5	2	5	36	4	S 89° W	S 80° W	59	44	193	120	...	...	Ajmere	
·748	·774	·727	·750	+·024	93	70	59	74	+ 8	6·7	6·9	6·8	+2·1	...	2	1	1	...	25	33	13	5	S 60° W	S 65° W	73	50	253	203	...	...	Deesa	
·776	·836	·803	·805	+·020	86	71	62	73	+ 6	4·4	4·4	4·4	+0·7	...	...	14	...	7	...	13	...	26	N 42° W	N 26° W	32	13	112	99	...	...	Agra	
·596	·642	·633	·631	—·015	98	79	80	86	+ 1	8·1	6·4	7·3	−0·2	...	1	2	1	...	...	27	26	3	S 72° W	N 84° W	78	82	440	374	...	...	Belgaum	Deccan.
·662	·656	·631	·650	—·013	92	66	55	71	+ 1	7·6	8·2	7·9	−0·2	...	5	2	...	...	...	3	26	24	N 64° W	N 73° W	82	68	293*	238	...	...	Sholapur	
·626	·657	·655	·645	—·027	92	68	69	76	− 1	7·2	7·0	7·1	−0·6	...	...	...	...	...	...	8	44	7	S 89° W	N 89° W	91	70	274	260	...	...	Poona	
·734	·763	·755	·751	+·016	93	74	65	77	+ 4	6·8	6·7	6·8	+0·3	1	7	...	1	...	...	2	36	13	N 72° W	N 66° W	80	66	205	144	...	...	Akola	
·646	·689	·688	·674	—·009	94	79	70	81	+3	7·6	6·3	7·0	+0·7	...	2	...	...	...	1	6	27	24	N. 74° W.	N. 48° W.	84	64	278*	195	5·12	1·71	Buldana	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88 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 to 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—*continued.*	Khandwa	...	28·733	28·619	·114	28·677	−·020	·670	85·7	72·7	13·0	91·7	70·3	21·4	78·9	83·9	78·0	−1·1	70·5	73·7	74·8	73·0
	Hoshangabad	...	·722	·618	·104	·671	−·042	·641	84·8	72·6	12·2	89·8	70·3	19·5	80·1	83·7	77·8	−1·8	71·5	75·6	76·1	74·4
	Nagpur	...	·721	·599	·122	·661	−·017	·630	87·2	72·8	14·4	91·8	69·4	22·4	81·5	83·8	79·1	−1·3	70·2	75·0	75·4	73·6
	Jubbulpore	...	28·403	·292	·111	·349	−·030	·618	85·1	72·4	12·7	89·1	68·4	20·7	79·4	82·6	77·4	−1·2	71·6	74·6	75·2	73·8
	Saugor	...	27·983	27·883	·100	27·934	−·016	·628	84·3	70·6	13·7	88·7	66·5	22·2	78·8	81·8	76·1	−1·1	69·7	74·5	75·0	73·0
	Raipur	...	28·756	28·638	·118	28·698	−·034	·608	86·1	74·1	12·0	89·4	69·6	19·8	81·3	83·5	79·5	−1·0	72·4	76·0	76·8	75·1
	Sutna	...	·659	·560	·099	·612	−·043	·601	85·4	74·3	11·1	90·1	70·6	19·5	81·3	82·9	78·6	−1·7	72·3	76·1	76·2	74·9
	Secunderabad	...	·040	27·940	·100	27·999	+·005	·714	84·1	69·9	14·2	89·1	66·9	22·2	77·6	80·8	75·5	−1·7	68·7	71·2	72·5	70·8
	Hyderabad (Deccan).	...	·137	28·019	·118	28·083	?	·704	82·6	70·8	11·8	88·7	68·2	20·5	77·3	80·3	76·1	?	69·2	71·9	73·1	71·4
West Coast.	Bombay	...	29·832	29·746	·086	29·786	+·001	·763	84·5	76·1	8·4	86·7	73·9	12·8	80·9	81·7	79·6	−0·1	73·3	76·7	76·3	75·4
	Ratnagiri	...	·775	·687	·088	·728	+·004	·775	83·8	74·6	9·2	85·7	72·0	13·7	81·0	81·2	78·5	−0·1	72·8	77·0	77·1	75·6
	Karwar	...	·871	·788	·083	·827	+·009	·803	82·2	74·1	8·1	85·2	72·4	12·8	79·2	80·0	77·6	−0·1	71·8	75·2	75·4	74·2
	Cochin	...	·949	·856	·093	·900	+·008	·837	85·1	74·6	10·5	83·4	72·5	15·9	81·5	81·8	79·0	+0·1	73·2	76·4	76·3	75·3
South India.	Salem	...	28·963	28·811	·152	28·900	−·022	·761	93·8	72·7	21·1	99·0	69·9	29·1	84·6	89·9	80·9	+1·8	69·8	73·3	73·8	72·3
	Mysore	...	27·416	27·303	·113	27·360	?	·770	84·4	65·4	19·0	90·8	61·5	29·3	76·8	80·1	73·8	?	64·2	68·3	69·2	67·2
	Mercara	...	26·229	26·144	·085	26·200	+·007	·857	70·0	61·8	8·2	76·8	59·6	17·2	66·1	66·6	65·1	−0·9	60·9	64·0	64·6	63·1
	Bangalore (Fort)	...	·921	·809	·112	·876	−·013	·762	81·8	64·7	17·1	86·4	62·1	24·3	74·2	79·0	72·7	0	63·5	67·9	69·0	66·8
	Hassan	...	·869	·774	·095	·833	?	·800	79·7	62·2	17·5	86·1	59·3	26·8	73·7	74·8	69·7	?	60·9	66·7	67·7	65·1
	Chitaldroog	...	27·493	27·379	·114	27·445	?	·755	82·2	66·2	16·0	86·6	64·6	22·0	75·1	79·8	73·6	?	64·0	68·5	69·6	67·4
	Trichinopoly	...	29·623	29·468	·155	29·559	−·008	·742	97·3	76·6	21·2	101·8	72·2	29·6	88·5	93·6	84·8	+1·9	70·4	74·0	75·3	73·2
	Madras	...	·827	·702	·125	·772	−·002	·723	93·3	76·9	16·4	99·6	72·3	27·3	86·2	87·9	83·7	−0·1	?	77·5	78·4	77·4
	Bellary	...	28·394	28·254	·140	28·333	−·001	·733	88·8	71·9	16·9	93·4	69·5	23·9	81·5	86·2	79·0	−1·1	67·6	71·6	72·9	70·7
	Vizagapatam	...	29·709	29·597	·112	29·655	−·042	·624	84·7	79·7	5·0	88·0	76·0	12·0	83·6	85·0	83·5	−1·5	73·3	77·9	78·6	76·6
	Cocanada	...	·738	·624	·114	·681	?	·643	87·2	77·0	10·2	92·5	73·5	19·0	83·0	84·7	81·5	?	74·9	76·9	77·4	76·4
Hill Station, Baluchistan.	Quetta	...	24·568	24·486	·082	24·519	−·034	?	86·6	51·0	35·6	92·2	39·6	52·6	77·4	85·3	68·5	+1·6	46·4	58·4	59·7	54·8
Hill Stations, Northern India.	Leh	11,503	19·710	19·619	·091	19·673	−·013	?	68·4	43·6	24·8	80·9	34·0	46·9	58·6	62·3	55·0	+1·8	38·0	46·5	47·8	44·1
	Srinagar	...	24·807	24·709	·098	24·750	?	?	76·5	56·7	19·8	86·3	48·0	38·3	65·7	75·4	66·3	?	55·9	62·4	66·0	61·4
	Murree	...	23·808	23·760	·048	23·776	−·050	?	70·3	58·3	12·0	75·2	50·6	24·6	64·4	66·9	63·4	−2·1	55·4	60·9	62·9	59·8
	Chamba	3,005	26·785	26·710	·075	26·756	−·044	?	80·1	65·1	15·0	87·2	57·1	30·1	74·0	76·9	70·9	−2·1	63·8	68·0	70·7	67·5
	Kailang	10,087	20·757	20·716	·051	20·750	+·002	?	67·1	43·6	23·5	80·7	33·4	47·3	58·9	62·2	53·2	−0·7	41·5	50·1	50·3	47·3
	Simla (Ridge)	...	23·078	23·028	·050	23·045	−·040	?	65·4	56·4	9·0	71·9	52·2	19·7	61·1	62·8	60·1	−1·7	54·2	58·2	60·0	57·5
	Simla (Chapslee)	...	?	?	...	?	...	?	67·8	56·7	11·1	74·9	52·5	22·4	62·6	?	?	?	54·2	59·1	?	?
	Chakrata	...	·213	·175	·038	23·186	−·037	?	67·7	56·9	10·8	74·3	52·2	22·1	63·2	63·8	61·1	−0·6	55·6	60·7	61·5	59·2
	Ranikhet	...	24·048	·987	·061	24·004	−·026	?	71·0	59·4	11·6	77·2	55·1	22·1	67·2	67·7	64·2	−1·4	57·8	62·4	63·0	60·9
	Katmandu	4,388	25·532	25·447	·085	25·493	−·048	?	79·3	65·6	13·7	86·8	60·9	25·9	73·3	74·6	71·3	−2·6	64·5	68·1	69·6	67·4
	Darjeeling	...	22·986	22·911	·075	22·952	−·007	?	62·4	54·4	8·0	69·1	49·7	19·4	59·9	59·9	57·7	−0·8	53·5	58·2	57·9	56·5
	Demagiri	...			Not recorded				86·4	75·0	11·4	88·9	72·2	16·7	83·3	84·1	80·2	+0·5	Not recorded			
	Tura	3,943			Ditto.				83·5	73·3	10·2	88·7	70·3	18·4	79·7	80·5	77·7	?	?	75·4	76·4	?
Hill Stations, Central India	Mount Abu	...	25·941	25·874	·067	25·907	−·063	?	70·7	62·5	8·2	78·1	59·9	18·2	67·7	69·2	66·2	−3·2	61·5	65·1	66·0	64·2
	Pachmarhi	...	26·364	26·273	·091	26·320	0	?	75·0	65·6	9·4	79·5	62·0	17·5	70·5	72·7	69·3	−1·2	64·1	67·3	68·2	66·5
	Chikalda	3,642	·232	·150	·082	·192	−·027	?	73·0	64·4	8·6	78·3	62·0	16·3	68·2	70·7	67·6	−1·4	63·8	66·9	67·9	66·2
	Makhia		Temporarily closed.																			

II—*continued.*

in India, Burma, etc., for September 1893—continued.

Vapour tension.					Humidity.					Cloud.				Wind direction. Number of winds from											Wind steadiness.		Wind velocity.					
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 of the month.	Heaviest rainfall during the month.	Station.	Meteorological Province.
·721	·766	·748	·745	+·007	90	78	65	77	+3	6·1	6·1	6·1	+0·8	...	...	...	...	...	...	4	28	28	N. 71° W.	N. 69° W.	89	66	213	148	...	...	Khandwa	Deccan—*continued.*
·757	·829	·807	·798	+·012	94	81	71	82	+4	7·3	7·1	7·2	+1·4	14	1	1	1	2	3	15	21	2	S. 69° W.	N. 86° W.	53	50	64	59	...	...	Hoshangabad	
·710	·790	·779	·760	—·008	88	74	68	77	+2	7·3	8·3	7·8	+0·6	3	9	3	1	1	...	8	21	14	N. 66° W.	N. 54° W.	60	37	163	116	...	...	Nagpur	
·768	·800	·785	·784	+·013	96	80	71	83	+6	6·6	7·1	6·9	+0·8	8	4	4	...	2	1	9	20	12	N. 78° W.	N. 69° W.	52	34	52	78	...	...	Jubbulpore	
·716	·800	·764	·767	+·042	95	82	73	83	+7	5·8	6·1	5·9	+1·5	...	3	...	...	1	...	28	11	17	S. 82° W.	N. 77° W.	72	43	76	80	...	...	Saugor	
·773	·831	·832	·812	+·008	91	78	73	81	+3	8·2	8·3	8·3	+1·6	7	6	3	1	...	1	16	19	7	N. 89° W.	S. 69° W.	53	29	154*	141	...	...	Raipur	
·774	·837	·822	·811	+·045	91	79	74	81	+8	6·1	6·7	6·4	+1·4	...	16	3	2	1	6	3	12	17	N. 45° W.	N. 55° W.	50	31	150*	155	...	...	Sutna	
·689	·687	·697	·691	—·002	94	73	67	78	+3	6·8	8·4	7·6	+1·6	8	2	4	1	...	...	2	22	21	N. 62° W.	N. 78° W.	65	67	224	158	...	...	Secunderabad	
·696	·718	·727	·713	?	92	77	71	80	?	7·7	8·0	7·9	?	2	1	3	2	...	...	...	43	9	N. 78° W.	?	77	?	175*	?	...	...	Hyderabad (Deccan,)	
·784	·863	·836	·828	—·040	87	82	78	82	−4	7·0	7·4	7·2	−0·2	...	2	1	5	6	4	8	32	2	S. 71° W.	S. 89° W.	52	55	280	273	...	...	Bombay	West Coast.
·784	·874	·877	·845	+·010	91	83	83	86	+2	6·9	7·1	7·0	+1·3	3	2	1	...	...	2	17	26	9	S. 84° W.	S. 88° W.	73	55	197*	188	...	...	Ratnagiri	
·751	·824	·821	·799	—·022	89	82	80	84	−2	5·7	6·2	6·0	+0·1	3	10	...	...	...	...	4	33	10	N. 72° W.	N. 86° W.	75	78	49	?	...	...	Karwar	
·800	·843	·836	·826	—·006	94	79	77	83	−2	3·3	5·2	4·3	−1·0	5	2	...	...	...	...	1	33	19	N. 73° W.	N. 82° W.	82	61	143	?	...	...	Cochin	
·691	·668	·617	·659	—·099	86	56	45	62	+11	6·0	7·5	6·8	+1·4	4	2	1	1	6	13	20	9	4	S. 38° W.	S. 68° W.	55	77	102	84	...	...	Salem	South India.
·590	·586	·579	·585	?	94	64	57	72	?	7·3	7·3	7·3	?	...	1	1	2	1	...	9	32	14	N. 84° W.	?	75	?	336*	?	...	...	Mysore	
·525	·573	·586	·561	—·013	94	89	90	91	0	8·2	8·4	8·3	−0·3	...	6	1	...	...	...	2	24	27	N. 62° W.	N. 72° W.	89	84	240	173	...	...	Mercara	
·574	·612	·598	·594	—·005	93	72	61	76	0	7·7	6·3	7·0	+1·0	1	...	...	1	...	...	17	32	9	S. 83° W.	S. 82° W.	82	88	178*	161	...	...	Bangalore (Fort)	
·523	·575	·597	·565	?	93	70	70	78	?	7·7	7·9	7·8	?	2	...	1	...	...	...	11	33	13	N. 88° W.	?	82	?	114*	?	...	...	Hassan	
·571	·617	·600	·596	?	88	71	60	73	?	7·4	7·0	7·2	?	2	...	...	1	...	...	18	30	9	S. 82° W.	?	82	?	253*	?	...	...	Chitaldroog	
·660	·718	·631	·669	—·057	72	64	41	59	−5	4·4	6·0	5·2	−1·8	...	...	1	1	1	2	9	31	15	N. 87° W.	N. 78° W.	77	77	161	168	...	...	Trichinopoly	
?	·821	·843	·856	+·044	?	67	65	75	+2	6·6	7·6	7·1	+1·0	...	1	3	7	7	5	11	20	5	S. 57° W.	S. 36° W.	35	53	131	154	...	...	Madras	
·623	·658	·642	·640	—·029	79	61	52	66	+1	6·8	6·8	6·8	−0·6	3	2	1	1	...	1	10	31	11	N. 87° W.	N. 78° W.	73	74	238	219	...	...	Bellary	
·728	·891	·904	·841	—·011	71	77	75	74	+1	8·1	7·8	8·0	+2·3	...	...	...	...	1	9	17	30	3	S. 66° W.	S. 60° W.	80	48	28	50	...	...	Vizagapatam	
·837	·845	·844	·842	?	90	75	71	79	?	6·3	7·4	6·9	?	...	2	1	2	3	...	17	26	9	N. 77° W.	?	68	?	216*	?	...	...	Cocanada	
·274	·295	·248	·272	+·018	72	31	20	41	+2	0·2	0·5	0·4	0	32	1	...	...	...	...	...	13	14	N. 65° W.	N. 56° W.	42	50	33*	76	...	...	Quetta	Hill Stations, Baluchistan.
·185	·214	·211	·203	+·038	65	45	40	50	+9	5·3	6·5	5·9	+2·0	1	3	5	2	1	19	14	14	1	S. 39° W.	S. 59° W.	48	32	50	40	2·70	1·02	Leh	Hill Stations, Northern India.
·445	·531	·536	·504	?	95	84	62	80	?	4·5	4·2	4·4	?	49	...	1	...	2	2	3	1	2	S. 35° W.	?	7	?	24*	?	...	...	Srinagar	
·414	·491	·538	·484	+·069	84	78	81	81	+17	5·2	5·9	5·6	+2·3	3	4	2	3	15	6	9	3	14	S. 31° W.	S. 52° E.	15	8	174*	130	...	...	Murree	
·578	·656	·687	·629	+·078	92	74	74	80	+12	4·8	6·1	5·5	+2·4	28	5	...	...	3	...	...	7	17	N. 49° W.	N. 11° W.	37	13	83*	105	12·00	3·20	Chamba	
·250	·291	·267	·270	+·054	86	58	50	65	+11	4·7	5·7	5·2	+0·8	...	1	1	2	4	15	18	10	9	S. 46° W.	S. 57° W.	55	63	31	36	6·27	2·07	Kailang	
·401	·459	·491	·451	+·005	87	85	86	86	+8	7·4	8·5	8·0	+2·6	22	9	4	1	...	14	1	3	2	S. 42° W.	S. 78° W.	3	30	102	?	...	...	Simla (Ridge)	
·397	·469	?	?	?	86	82	?	?	?	7·6	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	9·28	2·05	Simla (Chapslee)	
·431	·507	·524	·488	+·020	92	87	88	89	+6	6·9	7·7	7·3	+0·9	14	...	...	12	...	...	1	31	2	N. 88° W.	S. 74° W.	35	36	152*	113	...	...	Chakrata	
·466	·517	·531	·500	—·008	92	78	79	82	+2	7·1	7·1	7·1	+1·2	19	1	1	11	...	1	27	...	...	S. 22° W.	S. 52° W.	33	39	50	51	...	...	Ranikhet	
·593	·630	·666	·629	+·004	93	77	78	83	+5	7·4	7·9	7·7	+1·6	4	4	...	17	4	...	4	21	6	N. 75° W.	S. 88° W.	15	32	13	?	11·81	5·28	Katmandu	
·403	·470	·466	·445	—·032	94	91	90	92	−2	9·3	9·4	9·4	+1·2	7	2	7	20	3	1	9	8	2	S. 85° E.	S. 72° E.	18	12	106	73	...	...	Darjeeling	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	52	1	...	1	6	..	S. 88° E.	N. 83° W.	77	5	?	?	25·50	5·51	Demagiri	
?	·833	·864	?	?	?	82	82	?	?	6·9	6·8	6·9	+0·6	...	5	6	2	8	21	14	1	3	S. 3° W.	S. 4° W.	42	56	?	?	12·78	2·30	Tura	
·538	·591	·607	·579	+·040	95	87	85	89	+14	6·6	6·8	6·7	+1·3	1	1	5	2	1	5	26	15	4	S. 62° W.	S. 67° W.	57	27	248	173	...	...	Mount Abu	Hill Stations, Central India.
·583	·634	·641	·620	—·008	92	85	80	86	+4	7·7	7·1	7·4	+0·2	1	7	1	1	...	...	7	34	9	N. 78° W.	N. 58° W.	73	45	241*	134	...	...	Pachmarhi	
·587	·647	·651	·628	—·002	97	94	87	93	+5	8·6	7·7	8·2	+0·9	6	14	...	1	...	...	...	8	31	N. 39° W.	N. 22° W.	77	65	302	230	13·18	3·92	Chikalda	
																															Makhla	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 88 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 to 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	...	24·240	24·159	·081	24·200	+·005	?	71·0	55·0	16·0	74·0	49·7	24·3	66·5	65·9	61·7	−0·4	52·5	59·7	59·2	57·2
Extra India.	Muscat	...	29·711	29·638	·073	29·675	?	?	85·6	82·3	3·3	91·8	80·1	11·7	84·6	84·6	83·7	?	76·4	79·9	79·7	78·6
	Aden	...	·732	·592	·140	·655	−·027	29·679	92·3	81·5	10·8	97·1	72·3	24·8	87·9	90·1	86·4	−0·6	75·1	79·8	78·9	77·9
	Perim	...	·634	·526	·108	·573	?	?	94·9	83·8	11·1	99·3	78·2	21·1	89·8	91·0	88·4	?	77·7	80·8	80·8	79·8
	Minicoy	...	·974	·877	·097	·928	?	?	85·2	79·0	6·2	88·9	74·8	14·1	82·0	82·8	81·4	?	74·0	76·4	76·6	75·7
	Zanzibar	...	30·043	·964	·079	30·004	?	30·002	80·6	72·5	8·1	84·2	71·2	13·0	76·5	79·7	76·3	?	69·3	71·6	72·9	71·3

II—*concluded.*

in India, Burma, etc., for September 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from										Wind Steadiness.		Wind Velocity.				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 of the month.	Heaviest rainfall during the month.		
·373	·445	·439	·419	−·009	86	68	68	74	−3	6·8	7·9	7·4	+0·5	4	6	1	...	9	8	20	2	10	S 48° W	S 79° W	37	33	77	72	...	...	Wellington .	Hill Station, South India,
·832	·955	·945	·911	?	76	80	80	79	?	1·0	0·8	0·9	?	...	1	17	34	...	1	...	1	6	N 68° E	?	73	?	89	?	...	...	Muscat . .	Extra India,
·786	·913	·838	·845	−·009	73	69	58	67	0	2·1	1·2	1·7	−0·6	7	...	3	7	14	21	6	...	2	S 23° E	S 31° E	57	51	232	214	...	...	Aden . .	
·874	·935	·918	·909	?	75	66	63	68	?	0·9	1·7	1·3	?	...	2	23	9	6	1	1	1	17	N. 33° E.	?	45	?	266	?	...	...	Perim . .	
·763	·835	·833	·806	?	77	76	75	76	?	4·8	5·3	5·1	?	...	6	...	...	...	...	...	22	32	N. 57° W.	?	89	?	334	?	...	...	Minicoy . .	
·677	·713	·723	·709	?	85	78	71	78	?	5·7	5·7	5·8	?	...	3	2	7	20	9	10	3	1	S. 25° E.	S 12° W	51	46	168	118	...	...	Zanzibar .	

* Corrected.

G. I. C. P. O.—No. 70 and 71 Meteor.—27-1-94.—400.

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.

Reg No. 199, Wr., I.—April 93.—500.—199 R., May 93 —6,500.

Litho., S I O., Calcutta.

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.

Reg. No. 189, Wr., I.—April 93.—500.—190 R., May 93.—8,500.

Litho., S. I. O., Calcutta.

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

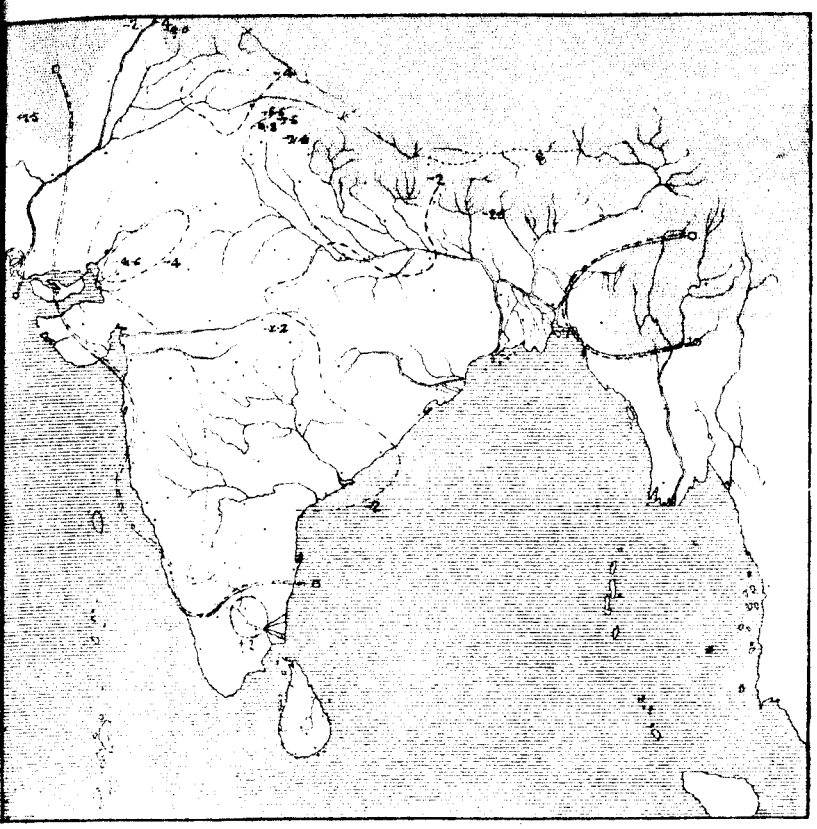
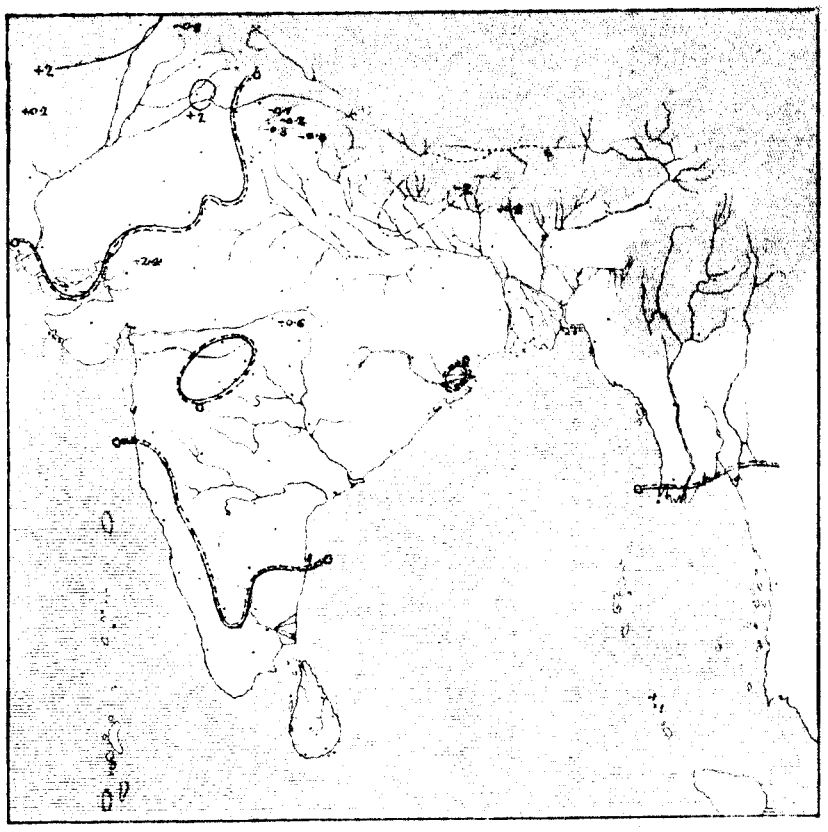


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

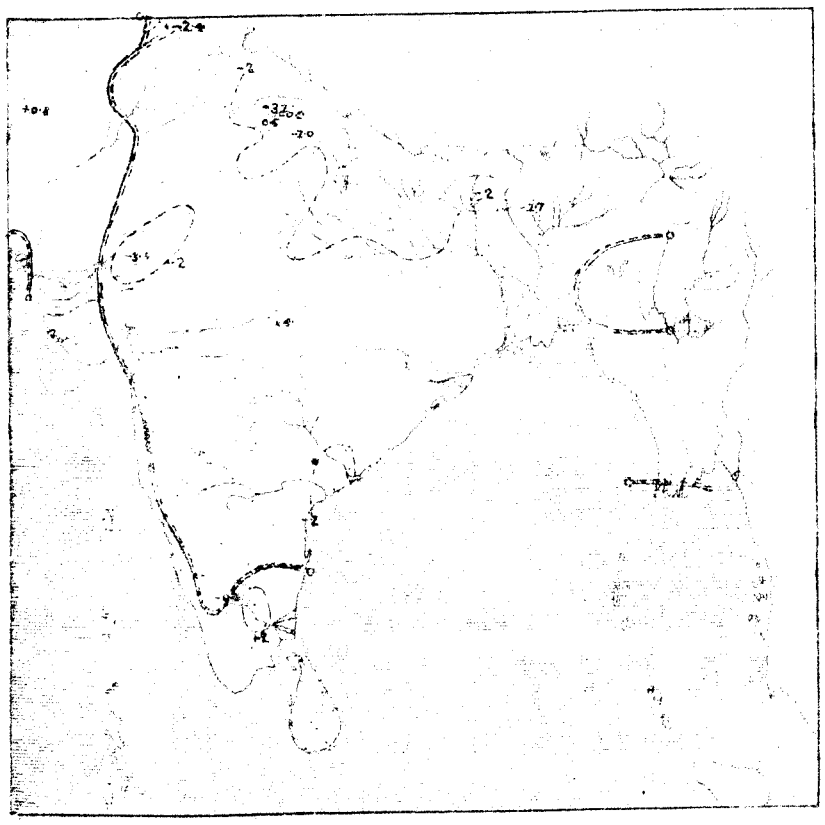
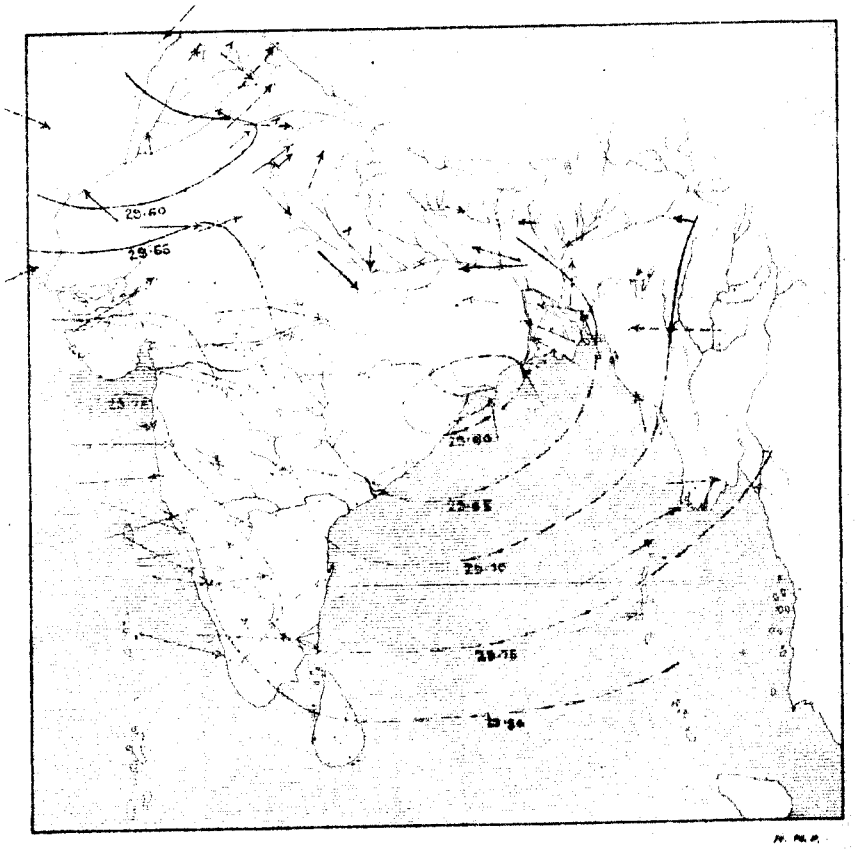


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF SEPTEMBER 1893.



Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India, 182 in number. 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. S. I. O. Calcutta

Reg. No. 199, Wr., I.—April 93—500—199 R., May 93—5,500.

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 51 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 districts 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 figures.

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

Reg. No. 199, Wr. I.—April 93—500—199 R. May 93—5,500

Litho. S. I. O., Calcutta.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, OCTOBER, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of October 1893 is based on observations taken daily at 8 A.M. at 206 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 89 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 have 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 1893.

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 portion 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 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 75° (in the North Punjab) and 85° (in Central Rajputana), and the daily range of temperature varies from 28° 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 uniform conditions of 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.

The following is a brief account of the chief features of the meteorology of India during the month of October 1893:—

As stated in last month's review, the monsoon currents withdrew from the Punjab, Sind, and Rajputana on the 22nd and 23rd of September. Fine clear weather prevailed in that area almost without exception in the month of October. This withdrawal of the monsoon currents from Upper India was followed by a considerable local increase of pressure in North-Western India, in consequence of which the permanent low pressure area of the south-west monsoon in Northern India was transferred eastwards on the 29th and 30th September from Upper India to Bengal and Burma. Fine weather hence prevailed in the beginning of October over Northern and Central India. Weather was showery in Burma and the southern half of the Peninsula and the West coast districts. No important change of conditions occurred during the next week. Temperature was from 1° to 3° below the normal in the North-Western Provinces, Rajputana, and Central India, and was unusually low in Baluchistan. It was normal in other districts.

On the 7th pressure began to rise locally in Burma and to fall in the Peninsula. These relative changes continued on the 8th and 9th, and on the morning of the 10th the low pressure area which on the morning of the 7th covered Lower Burma was off the Coromandel and Circars Coasts. General moderate rain began to fall in the Madras coast districts on the 10th. Moderate to fresh humid winds with squally weather obtained in the south and centre of the Bay. The pressure changes of the next 48 hours were small in amount, and the distribution of pressure on the morning of the 12th was practically identical with that of the 10th. Rain had continued to fall steadily in Madras and the Deccan, the whole of which area received favourable rain at this period. The only changes of importance which occurred during the next 48 hours were the slight strengthening of the winds in the Bay, and the advance of southerly winds up the Bay. The indraught to the low pressure area accompanying these changes gave overcast skies and showery weather to the Central Provinces on the 13th and 14th. Pressure continued to increase in Burma relative to the Peninsula, and the depression hence concentrated slightly on the 15th and 16th and moved very slowly northwards. On the morning of the 16th the central depression lay over the Circars. It was, as hitherto, a large shallow depression, the cyclonic circulation in which was somewhat irregular in character. Steepish gradients prevailed in the eastern quadrant in the Bay, and winds were strengthening rapidly at the head of the Bay. The increased indraught was now giving rain to Bengal, Bihar and the eastern districts of the North-Western Provinces. The depression intensified slightly on the 16th and began to move northwards. It was in the central districts of the Central Provinces on the morning of the 17th and in the eastern districts of the North-Western Provinces on the morning of the 18th. It filled up during the day at the foot of the hills. With the advance of the storm, rain diminished in the Peninsula and increased in Northern India. The submontane districts of Bihar and the North-Western Provinces received a very heavy fall on the 17th and 18th.

Skies cleared in Central India, the Central Provinces and North-Western Provinces on the 19th and 20th, and showery weather continued in Bengal. Meanwhile a storm of small extent was initiated on the 19th to the east of Diamond Island. It developed with unusual rapidity on the 20th, and began to move in a north-north-west direction. It advanced with increased rapidity on the 21st, and was on the afternoon of that day a cyclone of small extent, but great intensity, with an inner area of hurricane winds of 60 to 80 miles in diameter. It recurved slightly towards east during the day and on the early morning of the 22nd was moving in a north-north-east direction towards the mouth of the Megna. The centre was due east of Chittagong about 10 A.M. and passed over or near to Noakhali about 11-30 A.M., and near to Comilla about 1-30 P.M. or 2 P.M. It filled up rapidly during the evening, and there was no trace of its existence on the morning of the 23rd. The storm was accompanied by a storm wave at the mouth of the Megna. This and the hurricane winds

caused much destruction of property in the Noakhali district.

This storm gave a moderately heavy burst of rain to East Bengal, Assam and Upper Burma.

Temperature had been considerably reduced in the Peninsula and North-Eastern India by the rainfall accompanying the first disturbance of the month, and was more or less considerably in defect over nearly the whole of India from the 14th to the 24th. The deficiency averaged 2½° during the third week of the month for the whole of India.

Weather on the 23rd and 24th was fine with clear or lightly clouded skies over the whole of India with the exception of South Madras (where local showers were falling) and Burma. Moderate to fresh humid winds were blowing in the south and centre of the Andaman Sea and weather was squally. A feeble depression appears to have crossed the Malayan Peninsula south of Mergui on the 24th. It developed rapidly in the Andaman Sea on the 24th and 25th, and was a cyclonic storm of considerable intensity on the 25th. The centre followed a curved path, advancing westwards to the neighbourhood of Port Blair on the 26th, then recurving to north-west and passing almost due northwards through the Coco channel on the 27th. It was to the west of Diamond Island on the morning of the 28th. It continued to recurve and crossed the Arakan Coast in the evening, and broke up as a cyclonic storm before the morning of the 29th. The storm gave a heavy burst of rain to Lower and Central Burma, falls of 3 inches and upwards being recorded at many stations.

Fine dry weather prevailed in India and Burma generally at the end of the month. Temperature increased to some extent during the last week of the month in India and was in slight excess over the greater part of that area, but was considerably below the normal in Burma, the reduction being due to the heavy rainfall in that area on the 27th and 28th.

Pressure.—The mean pressure of the Indian land area for the month was ·011″ below the normal. The pressure anomalies were small for all stations and the mean distribution of pressure agreed very approximately with the normal. Pressure was in defect at the hill stations to a slight extent when compared with the neighbouring plain stations.

Temperature.—The mean temperature conditions of the month differed to a moderate extent from the normal. The day temperature was below the normal, but the deficiency was small and less than 2° except in the Central Deccan and the North-Western Provinces in which it ranged between 2° and 3°.

The mean night temperature was slightly above the normal in North-Eastern India, and was normal or below it in the remainder of India. The deficiency varied between 2° and 3° over the greater part of Rajputana, Central India, Khandesh, Guzerat and Kattywar.

The mean daily temperature of the month was below the normal in Burma and India except the Madras coast districts. The variations were small and less than 2° except in the area represented by the stations of Agra, Deesa, Indore and Jhansi in which they averaged 2½°.

The following gives comparative temperature data for eleven meteorological provinces :—

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

Winds.—The air movement over the whole of the interior of Northern and Central India was, as is usual during the October transition, very feeble and unsteady. Winds were more northerly than usual on the North Madras coast and more westerly than usual at Port Blair, where the mean wind direction of the month was S. 45° W., the normal being S. 5° W. Winds in the Deccan and Central Provinces were somewhat feeble and less steady than usual.

Humidity.—The air was on the whole slightly damper in Northern India and Burma, and drier in the Peninsula. The variations of the mean relative humidity of the month were in almost all cases small in amount and only exceeded 5 at Sutna (+8), Ajmere (+8), Deesa (+7) and Roorki (+6), and at the hill stations of Chakrata (+11), Mount Abu (+8) and Ranikhet (+7). The air was drier than usual at Quetta and Leh.

Cloud.—The mean amount of cloud was above the normal in Burma and Northern India, but the excess was small except at the coast stations of Burma and Bengal and at Port Blair. It was more than 2 above the average at Port Blair (+2·3), Diamond Island (+2·9) and Saugor Island (+2·7). The cloud amount was on the whole slightly below the normal in the Peninsula, but the variations were small, except at Bombay where the deficiency averaged 2·6, and in the West Deccan where it averaged 1·3. Skies were practically free from cloud throughout the month in Baluchistan, Upper Sind, and the South-West and South-East Punjab, in which areas the mean cloud amount ranged between 0 and 0·3.

The following table gives the variations from the normal of the mean aqueous vapour pressure, humidity and cloud amount in ten meteorological provinces :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"		
Burma Coast and Bay Islands	−·014	+1	+1·6
Assam	+·021	+2	+0·2
Bengal and Orissa	+·001	−1	+1·0
Gangetic Plain and Chota Nagpur.	+·034	+4	+0·6
Upper Sub-Himalayas	+·005	+3	+0·1
Indus Valley and North-West Rajputana.	−·021	−2	−0·3
East Rajputana, Central India and Guzerat.	−·004	+3	−0·1
Deccan	−·024	0	−0·2
West Coast	−·032	−2	−0·8
South India	+·002	0	+0·1

Rainfall.—The rainfall of the month occurred chiefly in connection with the three disturbances or storms of the month, *viz.*, from the 11th to the 19th, the 21st to the 24th, and the 27th to the 29th. During the first period a depression area was stationary for some days over the North Coromandel and Circars Coast districts, and then advanced northwards to the foot of the hills of the North-Western Provinces. The appearance of this depression on the 10th in the Peninsula and west of the Bay was associated with the commencement of the retreating south-west monsoon rains in Madras. The depression and disturbance gave general rain for some days to Madras, the Deccan, Central Provinces, Beror, Central India, Bengal, Bihar, Chota Nagpur and the North-Western Provinces. The rainfall was heaviest at the foot of the Central Himalayas, more especially in the districts of Bareilly and Moradabad. The second storm gave a moderately heavy burst of rain for three days from the 21st to the 23rd to East Bengal and Assam, and the last storm, heavy rain to Burma on the 27th and 28th.

The Punjab, Rajputana and Sind received practically no rain during the month. The rainfall of the month was in slight defect in the Bombay and South Madras coast districts, and was in moderate excess in Mysore, Hyderabad, Berar and the Central Provinces. It was in moderate to large excess in the northern and eastern districts of the North-Western Provinces, Bihar and Chota Nagpur, and in moderate excess in Bengal, Orissa and Assam. Lower and Central Burma received their normal amounts, and Upper Burma considerably more than its average rainfall. The following table gives comparative rainfall data for the eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Mean actual for October 1893.	Mean normal for October.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	13·18	9·53	+3·65
Burma Inland	8·78	4·44	+3·30
Assam	6·46	4·49	+1·97
Bengal and Orissa	6·12	5·04	+0·82
Gangetic plain and Chota Nagpur.	4·82	2·73	+2·18
Upper Sub-Himalayas	1·11	0·49	+0·62
Indus Valley and North-West Rajputana.	0	0·08	−0·08
East Rajputana, Central India and Guzerat.	0·52	0·75	−0·18
Deccan	3·74	3·12	+0·75
West Coast	7·50	7·56	−0·28
South India	6·93	7·92	−1·30

Atmospheric Pressure.

The mean pressure of the whole Indian area for the month averaged ·011″ below the normal pressure. Relatively to the general condition of deficient pressure, pressure was in excess in Assam, Upper Burma and the western half of the Peninsula. The pressure anomalies were in all cases small and exceeded ·02″ at three stations only, *viz.* :—

STATION.	Variation of mean 8 A.M. pressure of month from the normal.	Pressure anomaly of month.
	"	"
Kurnool	−·038	−·027
Cuddapah	−·045	−·034
Bangalore	−·039	−·028

The mean pressure of the month was very uniform over nearly the whole of India. It was slightly higher in Central Rajputana than elsewhere and was lowest in the north and centre of the Bay and the Madras coast districts. The mean range of pressure over the whole of India and the Bay was less than a tenth of an inch. The mean distribution of pressure of the month of October 1893 over the Indian area was hence characterized by great uniformity. It also agreed closely with the normal distribution, the only noteworthy difference being a small general deficiency of pressure averaging ·011″.

The mean pressure of the month at the Himalayan hill stations was in slight defect when compared with the neighbouring plain stations. Taking the difference of the pressure variations at the hill stations and at neighbouring plain stations as a rough measure of the vertical pressure anomalies, the following gives these anomalies for seven pairs of stations for October 1893 :—

HILL STATION.	Variation from normal pressure.	PLAIN STATION.	Variation from normal pressure.	Vertical pressure anomaly (Hill—Plain)
	″		″	″
Leh . . .	−·017	Lahore . .	−·019	+·002
Murree . .	−·019	Rawalpindi, Peshawar.	−·002	−·017
Simla . .	−·017	Ludhiana . .	−·007	−·010
Darjeeling .	+·002	Dhubri . .	−·017?	+·019
Quetta . .	+·004	Jacobabad . .	−·014	+·018
Mount Abu .	−·028	Deesa . .	−·017	−·011
Pachmarhi .	−·001	Nagpur . .	−·017	+·016

Barometric depressions and cyclonic storms of the month.

The distribution of pressure at the commencement of the month was abnormal. Pressure was considerably in defect in Burma and was in excess to a moderate extent in the centre and north of the Peninsula. A shallow low pressure area covered Burma and the north-east of the Bay. Weather was fine with clear skies in Northern and Central India and was showery in Burma and the south of the Peninsula. Pressure decreased considerably over the whole of India on the 1st and 2nd, but no change of importance occurred in the weather. Pressure increased during the next 72 hours, and the actual distribution of pressure on the morning of the 6th was almost identical with that which obtained on the 1st. The chief features in the relative distribution of pressure during this period were, local deficiency in the north-east of the Bay and Burma and local excess in the north-western and central districts of the Peninsula. Pressure gave way slightly on the 6th and 7th, but increased considerably in Burma and slightly elsewhere on the 8th. During the next 48 hours pressure continued to increase in Burma, and to give way in the Peninsula. These changes altered the distribution of pressure to that which usually accompanies a burst of rain on the Madras Coast in the month of October from the retreating south-west monsoon current. On the morning of the 10th pressure was uniform over the whole of North-West and Central India, and a shallow depression lay off the Coromandel Coast. Weather was fine, with light to moderate irregular winds on the 9th over the north and centre of the Bay, and was squally with much rain to the south of Lat. 9° N. The squally weather extended northwards as far as Lat. 16° N. on the 10th.

This disturbance, which developed into a feeble cyclonic storm, formed the chief feature of the meteorology of the next week. The following is a brief account of it :—

Depression and feeble cyclonic disturbance of the 11th to the 18th October.—The changes of pressure, which occurred on the 9th and 10th, transferred the shallow low pressure previously in existence in the north-east of the Bay to the neighbourhood of the Coromandel Coast. Pressure was below the normal on the 11th by amounts ranging from ·025″ in Central Burma to ·12″ in the low pressure area off the Madras Coast. Moderate general rain began to be received in the Peninsula south of Lat. 12° N. The following shows the character of the change :—

Date.	Area.	Rainfall in past 24 hours preceding 8 A.M.	Area.	Rainfall in past 24 hours preceding 8 A.M.
		Inch.		Inch.
8th	Burma .	0·12	Madras and Hyderabad	0·21
9th	Ditto .	0·08	Ditto .	0·21
			Ditto .	0·40
			Ditto .	0·66
			Ditto .	0·61

The rainfall of the 8th and 9th in the centre and south of the Peninsula was due to local storms in all parts, whereas on the 10th and 11th rainfall was general over the northern and central districts, and was showery in the southern districts.

12th October.—Pressure during the previous 24 hours had increased briskly in the Punjab. Elsewhere the changes were very small, and the distribution of pressure was unchanged. The low pressure area which was now defined by the isobar of 29·75″ lay off the coast between Vizagapatam and Negapatam, and also included the coast districts between these two stations. Moderate to fresh south-west winds (force 4 to 5) and squally weather obtained in the south of the Bay, and light to moderate south-east to east or variable winds in the centre. Squalls were experienced in some parts of this area. The weather in the depression area was hence slightly disturbed, but there was as yet no well-defined cyclonic circulation or storm.

13th October.—During the previous 24 hours pressure

had given way in Northern India and the north of the Peninsula and had increased in South Madras and the west of the Bay. The low pressure area, defined by the isobar of 29·75″, was by these pressure changes transferred westwards and lay over the Peninsula between Mysore and South Orissa. The heaviest rainfall was now experienced in the Deccan. The following amounts were recorded at 8 A.M.:—Sholapur 4·86 inches, Belgaum 2·58 inches and Hyderabad (Deccan) 2·38 inches. The weather conditions were unchanged in the Bay, except that winds were somewhat lighter and weather less disturbed with squalls in the centre of the Bay.

14th October.—Pressure had increased briskly in Upper India, but elsewhere the changes were small and of no significance. The low pressure area hence occupied the same part of the Peninsula as on the previous day. Rain had fallen over the whole of North and Central Madras, Hyderabad and the Bombay Deccan; and skies had clouded over in the Central Provinces, where local showers had been received. Conditions were unchanged in the Bay. Weather was fine in the north, and squally with rain off the Circars Coast. West to south-west winds ranging in force from 3 to 6 prevailed in the south of the Bay.

15th October.—Pressure had increased to a moderate extent in Burma and Upper India, but was practically unchanged in the Peninsula. The low pressure area was hence more strongly defined than on the 14th, and lay over Hyderabad and North and Central Madras. Moderate to fresh humid winds prevailed in the south and centre of the Bay and light to moderate winds in the north of the Bay. Rain had fallen over the greater part of Madras and the Deccan, and showers in the Central Provinces and Lower Burma. Skies were overcast in the greater part of the Peninsula, and cloud was extending northwards over Bengal, Central India and the North-Western Provinces.

16th October.—During the previous 24 hours pressure had increased moderately in Burma and had fallen in the Peninsula and North-Western India. The fall was slightly larger in the Circars coast districts than elsewhere. The central depression (now defined by the isobar of 29·70″) had hence been displaced slightly eastwards, whilst gradients favouring south-easterly and easterly winds in the centre and north of the Bay, were steeper than on the previous day. The area of rainfall was hence now extending over North-Eastern India and the head of the Peninsula. Rain had fallen generally in South-West Bengal, Orissa, Chota Nagpur, Bihar, the eastern districts of the North-Western Provinces and the Central Provinces and over the greater part of the Peninsula. The rainfall was nowhere excessive, but was on the whole largest in amount in the Central Provinces. Weather was now more or less squally over the north and centre of the Bay. Several vessels reported heavy rain off the coasts of the Circars and Ganjam. Winds had strengthened considerably during the previous 24 hours over the north of the Bay, and easterly winds (force 4 to 6) were experienced during the day at the head of the Bay. Four out of five vessels in that area reported squalls with much rain during the day.

It is hence clear that the disturbance was becoming more concentrated in character and that this change accompanied a considerable increase of winds in the north of the Bay. It was, however, as hitherto a diffused disturbance giving moderate rainfall over a large area including the Peninsula and North-Eastern India and the north-western half of the Bay. The cyclonic circulation was still very imperfectly developed and there was apparently no single centre of wind convergence at this stage.

17th October.—Pressure had risen briskly in the west of the Bay and had fallen briskly in the North-Western Provinces, Baghelkhand and Bundelkhand. In consequence of these changes the low pressure area as defined by the isobar of 29·70″ was now transferred to the central districts of the Central Provinces. The following observations show its position and character at 8 A.M.:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.
	8 A.M., reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction 8 A.M.	Average hourly velocity in miles.		
	″	″	″				″
Raipur . . .	29·704	−·044	−·166	ENE	5	10	0·11
Nagpur . . .	29·702	−·019	−·172	N	4	10	0·05
Chanda . . .	29·714	+·006	?	W	3	10	0·10

The cyclonic circulation was more clearly exhibited on this day than hitherto. The centre was probably a little to the south-west of Raipur. Light irregular winds prevailed in Central and South Madras. Winds had again strengthened on the Bengal and Orissa coasts and were blowing freshly at Saugor Island, False Point and Gopalpore. Rain had fallen over the same area as on the previous day, and had extended to the western districts of the North-Western Provinces. The rainfall was heaviest in Orissa, Chota Nagpur and the eastern districts of the North-Western Provinces.

18th October.—The barometric changes of the previous 24 hours were chiefly due to the movement of the low pressure area from the Central Provinces to the eastern districts of the North-Western Provinces. Pressure had increased briskly in the Central Provinces and had decreased slightly to briskly in North-Western India.

The following data show the position of the depression as defined by the isobar of 29·75″ :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction. 8 A.M.	Average hourly velocity in miles.		
	″	″	″				″
Allahabad . . .	29·750	+·014	—·143	WSW	6	10	1·50
Bahraich . . .	29·772	—·083	?	ESE	8	9	1·87
Lucknow . . .	22·719	—·093	—·169	Calm	6	10	0·91
Agra . . .	29·817	—·025	—·090	NW	6	10	0·10
Cawnpore . . .	29·730	—·029	?	WNW	5	10	0·71

The centre of the depression was hence near Lucknow where pressure was a sixth of an inch below the normal. The air movement in the central area was very feeble. Strong easterly winds were blowing in Bihar. Winds were falling off at the head of the Bay, but were still very largely above their normal strength. Moderate rain had fallen in Bengal, Orissa, Chota Nagpur and Bihar during the previous 24 hours, and local showers in the Central Provinces. Heavy general rain had been received in the North-Western Provinces, more especially in the eastern and northern districts.

The heaviest falls of the previous 24 hours were as follows :—

District.	Station.	Rainfall in past 24 hours.
		Inches.
Fyzabad . . .	Bikapur . . .	6·96
Gonda . . .	Tarabganj . . .	6·80
Sultanpur . .	Sultanpur . . .	8·31
	Amethi . . .	7·90
Partabgarh . . .	Patti . . .	8·51
Bareilly . . .	Baheri . . .	7·61
Moradabad . . .	Bilhari . . .	6·12
Naini Tal . .	Rudarpur . . .	9·92
	Kilpuri . . .	7·20
	Kashipur . . .	7·41
	Naini Tal . . .	12·30
	Haldwani . . .	8·50
	Ramnagar . . .	7·32
Basti . . .	Domariaganj . .	6·73

Rain had almost ceased in Madras and Hyderabad. Weather was now fine with light to moderate winds in the south and centre of the Bay. Southerly winds, force 3, obtained at the head of the Bay where weather was still cloudy and showery. It was, however, improving rapidly.

19th October.—A brisk increase of pressure had occurred during the previous 24 hours in the North-Western Provinces and the depression had almost completely filled up at 8 A.M. A shallow residual depression lay over North Oudh, which disappeared during the course of the day. Pressure was very uniform over the Bay and the greater part of India, and there were feeble indications of the commencement of a cyclonic storm to the north and north-west of the Andamans. General rain had fallen in Bengal and the North-Western Provinces, but the amounts were small except near the hills in North Bengal, Bihar and Oudh. Skies had almost cleared in the North-Western Provinces but Bengal and Bihar continued to receive moderate rain during the next 24 hours, when fine weather set in for a brief period, during which a cyclonic storm of considerable intensity developed rapidly in the north-east of the Bay.

The following gives an account of this storm :—

Cyclone of the 19th to the 22nd October.—The information respecting this storm is very meagre The first indications were given by the rapid increase of the wind at Diamond Island on the morning of the 19th. The following observations recorded at Port Blair show that the disturbance did not extend to that station :—

Date.	WIND.		Rainfall, previous 24 hours.	Weather.
	Direction 8 A.M.	Velocity during previous 24 hours in miles per hour.		
18th, 8 A.M. .	Calm	2	*Nil*	Cloudy.
19th ,, . .	WNW	4	0·34	Cloudy.
20th ,, . .	SSE	5	0·02	Fine.
21st ,, . .	W	5	*Nil*	Fine.
22nd ,, . .	W	3	*Nil*	Cloudy.

Weather was fine over the sea area to the south and west of Diamond Island on the morning of the 18th, as is shown by the following summary of observations taken on board ships in that area, but changed rapidly during the next 24 hours :—

DATE.	Name of Vessel.	8 A.M. POSITION.		WIND.		Weather and sea.
		Lat. N.	Long. E.	Direction.	Force.	
		° ′	° ′			
18th, 8 A.M.	S.S. *Kasara* .	17 22	9 47	NE	2	Fine and clear
	S.S. *Fazilka* .	16 57	92 53	E	4	Slight swell.
	S.S. *Baghdad*	19 10	93 36	E	...	Sea smooth and fine.
19th, 8 A.M.	S.S. *Goa* . .	16 58	92 41?	NNE	5	Noon. Raining.
	S.S. *Baghdad*	16 4	94 15	E	4	8 A.M. Fine. Midnight heavy wind and rain squalls.
	CatherineApcar	17 34	90 54	S	2	8 A.M. Fine and clear. 4 P.M. squally.

Weather was hence fine, and winds light to moderate on the 18th, and became squally on the afternoon and evening of the 19th. It was fine with light northerly and easterly winds in Burma and Arakan, where skies were clear except in the coast districts.

20th October.—Pressure increased almost without exception at all stations in India and Burma, the increase being greatest in Upper India. Pressure was slightly

lower in the centre of the Bay than elsewhere. Weather was showery in Bengal, and fine with clear or lightly clouded skies in other districts. A very rapid increase in the wind force had occurred at Diamond Island and winds had shifted from north-east to south-south-east. These facts indicated the existence of a small depression to the east of Diamond Island and also that it was advancing in a northerly direction. The following gives a summary of the observations taken on board ships in and near the storm area :—

Name of Vessel.	8 A.M. Position.		Wind.		Weather.
	Lat. N.	Long. E.	Direction.	Force.	
	° ′	° ′			
S.S. *Shahjehan* .	13 43	93 14	SSW	4	4 P.M. heavy rain.
S.S. *Nowshera* .	14 41	91 29	SW	4	Strong squalls with rain.
S.S. *Arratoon Apcar* . .	14 25	92 32	SW	2	Noon. Squally.
S.S. *Africa* .	16 10	93 29	SE	5	Squally.
S.S. *Sidra* .	18 39	87 47	E	...	1 P.M. heavy rain squalls.
S.S. *Capella* .	16 56	86 16	Var.	1	4 P.M. to midnight, squally.
S.S. *Goa* . .	19 52	89 29	ENE	4	Fine.

Weather was hence squally to the north of the Andamans and south-west of Diamond Island. Winds were moderate to fresh in force, and the conditions were, in fact, such as usually precede and accompany the development of a cyclonic whirl in the Bay.

Weather was fine and skies clear over the north and north-west of the Bay. The centre of the disturbance in the Bay was, as far as can be judged from the data, in about Lat. 16°N. and Long. 91°E. It is clear that it was as yet in the initial stage, and was of very slight extent. The experience of the S.S. *Capella* indicates that the disturbance was extending outwards, more especially to the north.

21st October.—Pressure had further increased over nearly the whole Indian area. It had fallen very slightly on the north-west coast of the Bay, but the largest change was only ·038″ at False Point. These changes at the land stations brought into slightly greater prominence the low pressure area in the north and centre of the Bay, but gave no indication of the intensity or position of the storm which was developing rapidly in that area. Northerly winds had set in over the greater part of Bengal, and skies were less clouded than on the previous day.

The following gives 8 A.M. meteorological data furnished by six ships near to the storm centre during the day :—

Name of Vessel.	8 A.M. Position.		Barometer.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	′	° ′	″			
S.S. *Tannadice* .	15 1	87 8	29·908	NNW	2	Fine.
S.S. *Chindwara*	14 16	93 23	29·882	SE by S	5	...
S.S. *Shahjehan* .	17 17	91 28	29·596	SSW	8	Sqully
S.S. *Arratoon Apcar* . .	18 15	89 56	29·626	ESE	6	Hard squalls and heavy rain.
S.S. *Capella* .	20 44	87 42	29·783	NE	5	Heavy squalls.

The observations establish that the disturbance had increased considerably in intensity. The S. S. *Shahjehan* and *Arratoon Apcar* were within the storm area and had winds force 6 to 8 during the day. The centre of the disturbance at 8 A.M., was in about Lat. 17½°N. and Long. 89¾°E, or 150 miles to the north-east of its position on the previous day, and less than 100 miles from the two steamers *Shahjehan* and *Arratoon Apcar*. Fine weather with light to moderate winds obtained over the southern half of the Bay, and also off the coast of the Circars. Squally weather extended northwards to the Bengal Coast during the day. This is most clearly shown by the following observations recorded by the observer at Saugor Island :—

Hour.	Wind.		Weather.
	Direction.	Velocity in miles per hour.	
4 A.M. .	E	7	Light breeze.
9 A.M. .	NE	...	Lightning to N and E. Gentle breeze with occasional swell.
Noon	NE	...	Sea slight, stormy all round. Rain squalls.
6 P. M. .	NE	...	Light breeze. Sea smooth. Ugly to south and south-west.
Midnight.	N.N.E.	...	Moderate breeze coming in hard squalls. Dim moonlight.

The experience of the S. *Woodburn* and the observations at the coast stations of the following morning show that the storm increased very rapidly in intensity during the day and that it advanced with increasing rapidity northwards, recurving slightly to the east. The S. *Woodburn* proceeding from Chittagong to Calcutta encountered the full force of the storm during the night of

the 21st. The following gives her log for the 21st and 22nd in full :—

Date.	Hour.	Weather remarks.
21st .	7 A.M.	Left Chittagong.
	Noon	Light unsteady breeze, but freshening.
	4 P.M.	Overcast sky and continual rain. Wind NE, gradually increasing.
	8 P.M.	Rising sea. Wind increasing ; heavy puffs.
	9 P.M.	Sea increasing. Wind increasing to a heavy gale.
	10 P.M.	Tremendous high sea. Blowing a hurricane with terrific squalls and heavy rain. Running dead before the wind with three lower topsails and fore topmast sails.
	Mid-night.	Wind still blowing with hurricane force and heavy seas breaking on board and carrying away everything.
22nd .	2 A.M.	Stay main lower topsail sheet carried away and sail blew to ribands. Shortly after fore topsail and fore topstay sail blew away and ship broached too ; with the wind port side carried the mizen mast away close to the decks, taking the poop rail and crushing the Captain underneath and injuring him internally. Ship lying on her beam ends. Cut away fore and main masts, which eased the ship greatly. All main deck ventilators and everything moveable washed away from the deck. Barometer inclined to rise. Crew trying their best to keep the mast holes, ventilators , etc., covered up, but still large quantities of water got into the hold, the deck being full all the time. The main mast went so close to the deck that it was not got securely lashed. Four hands had to hold the cover on all the time; ship lying in the trough of the sea and rolling terribly.
	6 A.M.	Daylight broke. The weather now began to moderate and clear up. Found all hands still on board, but all more or less bruised or injured; several lying unfit for work.
	Noon	Fresh breeze from N-E. Cloudy and fine.

The preceding information shows that the *Woodburn* was in the outskirts of the storm at 8 P.M., and that she had passed into the inner storm area of hurricane winds at 10 P.M. It is hence evident that the cyclone was of small dimensions, and, so far as can be judged from the data, the area, in which winds exceeded 8 in force, was probably not more than 100 or 120 miles in its greatest diameter.

The intensity of the storm is fully indicated by the damage inflicted upon the ship. It may be added that she drifted utterly helpless about the head of the Bay until the 29th, when she was taken in tow by the S.S. *Nevasa* near to False Point.

22nd October.—The barometric changes of the previous 24 hours were small in amount over the whole of Burma and India except in South-East Bengal, where the barometer had fallen with great rapidity. The cyclonic storm now covered the north-east angle of the Bay, the centre at 8 A.M. being about 70 miles to the south-south-west of Noakhali in about Lat. 22° N. and Long. 90¾° or 91° E. The storm was now affecting South and East Bengal and the north-east of the Bay. The following gives 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, 8 A.M.	Velocity in miles per hour.			
	"	"	"				Inches.	
Chittagong	29·699	—·262	—·199	E	7	10	2·77	
Noakhali .	29·659	—·272	—·211	NE	11	10	2·96	
Dacca .	29·815	—·110	—·075	NE	8	10	0·59	
Barisal .	29·686	—·213	?	NNE	11	10	2·37	
Jessore .	29·844	—·075	—·055	NNE	8	9	0·27	
Calcutta .	29·857	—·047	—·038	N	6	9	0·05	
Saugor Island .	29·867	—·013	—·026	N	18	10	...	

Moderately heavy rain had fallen in South-East Bengal and Arakan during the previous 24 hours. Weather was showery in Burma and fine over the remainder of India.

The storm centre had advanced about 340 miles during the previous 24 hours or at an average rate of 14 miles per hour. The velocity on the morning of the 22nd was considerably greater than this and probably exceeded 20 miles per hour.

The storm had during the previous 24 hours advanced along a track almost identical with the Backergunge cyclone of 29th October—1st November 1876, and, like that storm, it broke up with unusual rapidity after reaching land. The following gives a brief account of its progress during the day, as shown by observations recorded at the stations of Chittagong, Noakhali, Comilla and Dacca.

Chittagong.—The centre passed about 60 miles to the west of the station about 10 A.M. The following account of the weather at that station was sent by the Port Officer :—

DATE.	Hour.	WIND.		REMARKS.
		Direction.	Force.	
20th .	...	NE	3	The night of the 20th was beautifully fine. A clear blue sky with light soft cirrus clouds.
21st .	6 A.M.	NE	5	Heavy squall from S. with torrents of rain. Throughout the daylight NE winds, force 4, with overcast skies and passing showers.
	10 P.M.	NNE	4	Drizzling rain. Weather squally.
22nd .	5 A.M.	NE by E	5 to 6	Smart shower. Sky to east quite clear, but to SW and W it was overcast with dense compact black clouds.
	6 A.M.	E	7 to 8	Heavy rain.
	7 A.M.	E	9 to 10	Smart shower.
	10 A.M.	ESE	9 to 10	.....
	10 to 11 A.M.	SE	10 to 11	Storm heaviest at this time. As the wind shifted to west, the storm gradually abated.
	4 P.M.	WSW	4	.....

Noakhali.—No special observations have been received from this station. The storm centre either passed over or very near to that station, probably about 11 A.M. It is stated in the Calcutta newspapers that the storm lasted about twelve hours at that station, and that it brought up a storm wave which did much damage. 75 per cent. of the houses in Noakhali were blown away. Hardly a house was left standing in the Fenny subdivision, and large number of cattle were destroyed.

Comilla.—The observer states that the storm began at that station at 11-30 A.M. with a strong wind from N., and that in about half an hour's time the wind increased very rapidly in strength and blew with great violence during the next four hours. Great damage was done to the native huts, the majority of them being blown down. These observations indicate that the storm centre probably passed near to Comilla about 1-30 or 2 P.M.

Dacca.—Observations taken at this station show that the storm caused a moderate fall of the barometer, and that the wind shifted in such a way as to show that the centre was passing to the east of that station about 2 P.M., thus confirming the inferences from the information given by the Comilla observer.

The storm gave a moderately heavy burst of rain on the 21st and 22nd to East Bengal, Assam and Upper Burma. The following gives a brief summary of the rainfall.

Division.	Average rainfall of 24 hours preceding 8 A.M. of			Total.
	21st.	22nd.	23rd.	
	Inches.	Inches.	Inches.	Inches.
Assam	0·19	0·39	0·91	1·49
East Bengal . . .	0·50	1·21	1·15	2·92

The depression filled up completely during the day.

This cyclone was remarkable for its very small extent, and for the rapidity with which it developed. It formed on the 19th and 20th to the west of Diamond Island in a small area of squally weather and heavy rain. It advanced northwards curving slightly to east and struck the Bengal coast at the mouth of the Megna.

The following table gives the position and rate of advance of the centre at different dates:—

Date.	Hour.	Position of centre.		Distance passed over since previous day.	Mean rate of advance during interval.
		Lat. N.	Long. E.		
		° ′	° ′	Miles.	Miles.
20th . .	8 A.M.	16 0	91 0	...	...
21st . .	8 A.M.	17 30	89 45	150	6
22nd . .	8 A.M.	22 0	90 45	330	14
	11-20	Near Noakhali .		70	22
	2 P.M.	Near Comilla .		50	20

The preceding storm filled up on the 22nd, and on the morning of the 23rd fine weather with clear or lightly clouded skies prevailed over the whole of India. Pressure was very uniform over the whole of North-Western and Central India and also in the Bay. The only feature of importance was a very shallow depression which covered the south-east of the Bay and the Andaman Sea. Pressure was largely in excess over the whole of the Indian area.

Pressure gave way to a moderate extent over the whole of India during the next 48 hours. These changes intensified the shallow depression in the Andaman Sea and the adjacent portion ofthe Bay. Weather was squally with moderate winds and much rain in the southern half of the Andaman Sea on the 23rd and 24th, and was fine with light easterly winds, force 2, off the Lower Burma Coast.

The Port Blair observations of the 25th and 26th show that a storm of considerable intensity was in existence in the Andaman Sea. The observations at Mergui throw some light on the origin of this storm. The following gives 8 A.M. observations at that station from the 23rd to 25th:—

Date.	Pressure.		Wind.		Rainfall.
	Barometer reduced to sea-level.	Change in previous 24 hours.	Direction.	Amount, previous 24 hours.	
	"	"			Inches.
23rd . .	29·926	−·020	NNE	46	*Nil.*
24th . .	·771	−·155	NNE	27	*Nil.*
25th . .	·893	+·122	SSE	8	0·15

These observations indicate that a depression passed across the Malayan Peninsula to the south of Mergui. The winds were very light throughout and weather fine. The barometric changes were hence either due to a cyclonic storm of small extent forming to the south of that station and advancing north-westwards, or to a depression marching westwards across the Malayan Peninsula which had not yet developed into a cyclone or was breaking up. The last appears to be the most probable supposition, and if this be the case, the subsequent weather in the Andaman Sea indicates that this depression continued to advance westwards and re-developed during the next 36 hours into a storm of considerable intensity. The following gives a history of the storm:—

Cyclonic storm of the 24th to the 28th October.—The origin of this storm has been traced above to a depression which crossed the Malayan Peninsula south of Mergui on the 24th. Weather on that date was fine with clear or lightly clouded skies over the whole of Burma and India, with the exception of South Madras where it was showery. The pressure changes in the Indian

land area were generally small in amount, but the land observations showed that a depression covered the Andaman Sea.

The following data show the character of the weather in that area on the morning of the 25th :—

NAME OF VESSEL.	POSITION.		Barometer corrected.	WIND		REMARKS.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′				
Port Blair .	...	...	29·813	NNW	Light.	Cloudy.
S.S. *Baghdad* .	18 7	93 55	29·810	N	2	Fine.
S.S. *Nowshera*.	15 59	95 49	29·849	E	2	Fine.
S.S. *Landaura*.	13 12	97 17	29·811	ENE	4	4 P.M., squally with much rain.
S.S. *Maori* .	9 13	96 42	29·788	SW	5	Squally with passing showers.
S.S. *Mombassa*	6 36	92 36	29·831	W	4	11-45 A.M., heavy squalls of wind and rain.

Northerly to easterly winds were hence blowing in the north and centre of the Andaman Sea, and south-west to west winds in the south. The observations confirm the inference derived from the land observations that there was a depression lying over the Andaman Sea, but give little information respecting its character. The S.S. *Maori* was probably nearest to the centre, in the south quadrant, but her log gives no information which would throw any light on the position or characterof the disturbance at this period.

26th October.—The barometric changes during the previous 24 hours at the land observatories (except Port Blair) were almost without exception small in amount, and the distribution of pressure was hence apparently unchanged. The observations continued to indicate the existence of a depression in the Andaman Sea, but gave no information of its intensity or exact position. Winds were normal in direction in India, but were very light. The air motion of the previous 24 hours barely averaged 1 mile per hour in the North-Western Provinces. Skies were generally clear except in South Madras and Burma.

The following table gives 8 A.M. observations at Port Blair and on board ships in the Andaman Sea.

NAME OF VESSEL.	POSITION.		Barometer corrected.	WIND.		WEATHER AND SEA.
	Lat. N.	Long. E.		Direction.	Force.	
	°	°				
Port Blair .	...	...	29·617	WNW	Gale	Squally.
S. S. *Landaura*.	9·29	96·56	·814	SSE	2	Heavy squalls.
S. S. *Maori* .	12·31	95·17	·768	ESE	...	
S. S. *Kistna* .	16·22	93·56	·868	E by N	4	Smooth sea.
S. S. *Nowshera* .	17·42	92·10	·880	NW	2	Unsettled.

These observations establish that there was a deep depression in the Andaman Sea, the centre of which was to the north-east of Port Blair and between that station and the position of the S.S. *Maori*. The probable position of the centre was in about Lat. 12¼° N. and Long. 93½° E.

The S.S. *Maori* was the only vessel in the storm area during the day, and was at distances from the centre exceeding 100 miles during the day. The following extract from her log records the weather she experienced :—

Hour.	POSITION.		Barometer corrected.	WIND		SEA AND WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′				
4 A.M.	...	...	...	ESE	6	Heavy cross sea and blinding showers of rain.
6-50 A.M.	...	...	...	...	...	Weather having a very threatening appearance, and barometer falling. Brought steamer to the wind. Sea very cross.
8 A.M.	12 31	95 17	20·768	ESE	...	.....
Noon.	13 02	95 04	...	S	...	Weather moderating a little and sea very boisterous.
1 P.M.	...	...	...	...	...	Blinding showers of rain. Wind and sea again increasing, and barometer falling. Brought steamer head to wind.
4 P.M.	...	...	...	SE	...	Similar wind and weather.
8 P.M.	...	...	...	SE	8	Blinding showers, and sea cross and boisterous.
Midnight.	...	...	...	SE	8	Weather similar.

The Port Blair observer took a valuable series of observations during the storm on the 25th and 26th. The following is a summary of these observations :—

DATE.	Hour.	Barometer.	WIND		WEATHER.
			Direction.	Velocity in miles per hour.	
		"			
25th . .	8 A.M.	29·813	NNW	...	Gusty. Weather suspicious. Heavy sea swell.
	Noon.	·812	...	...	.....
	4 P.M.	·689	NNW	13	Weather suspicious-looking.
	9 P.M.	·749	...	...	Very heavy sea. Surf destroying seaface walls.
	Midnight.	·683	...	...	.....
26th . .	3 A.M.	·597	NNW	17	Heavy rain. Wind in strong gusts.
	4 A.M.	·587	NW	16	Force of wind increasing. Weather very squally.
	7 A.M.	·610	NW	22	Very squally.
	8 A.M.	·617	WNW	23·4	Wind coming in gusts.
	Noon.	·551	WNW	28	.....
	1 P.M.	·519	WNW	36	.....
	2 P.M.	·495	WNW	26	Wind coming in strong gusts. Weather squally. A cup of the anemometer was blown off between 1 P.M. and 2 P.M.
	3 P.M.	·494	WSW	32	.....
	6 P.M.	·542	WSW	30	.....
		·625	SW	8	.....

The observer in a letter describes the weather and effects of the storm in the following terms:—

"On the morning of the 25th instant we had all the appearances of bad weather in these islands, with an oscillating wind vane, the wind coming in strong gusts, a heavy sea swell, and a gloomy leaden sky with very heavy clouds to the north. It was not till about 9 P.M. on the 25th that we felt anything like alarm. There was a very high tide that night, but I have never yet seen (in 9 years) the results we had that night from an ordinary high tide. The surf rose very high indeed, the breakers washing far above the highest marks and destroying the sea-face walls almost to the same extent as on the 1st of November 1891. In the marine boat-making shed on Ross Island facing a sandy beach, the force of the sea strained the roof, smashed rafters, removed shingles (the verandah at its lowest slope towards the sea is about 8 or 9 feet from the ground) and the surf washed through the building, about 50 feet broad, and out through the windows on to the road behind. The under-wash must have been terrible, as nearly all the boats in the shed were almost filled with sand and some of them staved in. Fortunately the wind was not strong at the time. If we had had anything even like a moderate gale of wind at the time, I am sure the results would have been most disasterous to us."

The observations shew that the barometer was lowest between noon and 3 P.M., when the storm centre was very probably not more than 50 miles to the east-north-east of Port Blair. The long and slow fall of pressure at Port Blair was evidently due either to the intensification of the storm, or to its slow movement and recurvature near Port Blair. The latter appears for various reasons to be the most probable explanation.

If the storm was the development of the depression which crossed the Malayan Peninsula south of Mergui on the 24th, the position of its centre on the 25th was probably in Lat. 11½° N. and Long. 96° or 96½° E. It had hence moved about 200 miles during the 24 hours preceding 8 A.M. of the 25th. The storm recurved during the day from west-north-west to north-north-west. The depression at the centre certainly exceeded four-tenths of an inch in amount.

27th October.—Pressure had given way over the whole of India, but the changes were small except in Lower Burma. Winds had shifted to east at Diamond Island and had strengthened considerably. These facts indicated that the depression was advancing northwards or north-north-westwards. Skies were much clouded in Burma, but no rain had as yet fallen. Weather conditions were unchanged in India.

The following land and sea 8 A.M. observations indicate the position and character of the storm at that hour:—

Name of vessel.	Position.		Barometer corrected.	Wind		Weather and Sea.
	Lat. N.	Long. E.		Direction.	Force	
	° ′	° ′	″			
Port Blair .	...	...	29·746	WSW	Strong	Heavy rain.
Diamond Island .	...	...	·812	E	Very strong	Sea very rough.
S.S. *Mombasa* .	13 24	91 7	·680	NW by W	5	High sea, squally.
S.S. *Maori* .	13 41	94 39	·708	SSE	...	Very violent squalls with heavy rain.
S.S. *Canara* .	15 49	95 20	·809	E	9	High sea.

These observations when charted shew that the centre of the storm area was a little to the north of the North Andaman Island in Lat. 13¾° N. and Long. 93° E. It was hence passing from the Andaman Sea into the Bay of Bengal through the Coco Channel and had advanced about 120 miles during the previous 24 hours. It had hence marched at a rate barely half of that of the preceding day, this retardation of its motion accompanying a recurvature of its direction from west-north-west to north-north-west.

The S.S. *Maori* had proceeded in the eastern quadrant in a direction approximately parallel to the track of the storm centre. She consequently continued to experience stormy weather during the whole of the day. The following is her meteorological log for the day:—

Hour.	Position.		Barometer corrected.	Wind		Weather remarks.
	Lat. N	Long. E		Direction.	Force.	
	° ′	° ′	″			
4 A.M.	...	...	...	SE	6 to 7	Heavy cross sea. Engines going dead slow.
6 A.M.	...	...	...	...	...	Very violent squalls with heavy rain.
7 A.M.	...	...	...	...	...	Similar weather with a high cross sea.
8 A.M.	13 41	94 39	29·708	SSE	...	.....
Noon.	13 46	94 36	...	SSE	8	High cross sea with heavy rain squalls.
4 P.M.	...	...	...	SSE	8	Weather similar. Engines going dead slow.
8 P.M.	...	...	...	SSE	...	During the last four hours, squalls not so heavy and with longer intervals. Also better appearance of weather.
Mid-night.	...	...	...	SSE	4	Sea still high and cross.

She crossed into the western quadrant in the rear of the storm between 8 A.M. and 4 P.M. of the 28th and passed slowly into fine weather during that day.

28th October.—The barometric changes of the previous 24 hours were small and irregular, except in South-West Pegu, where pressure had given way briskly. Fine clear weather continued over the whole of Northern and Central India and the Deccan, and in the north-west of the Bay. Strong cyclonic winds were now blowing in Lower Burmah and rain was falling generally. The following land and sea observations indicate the position of the storm at 8 A.M. :—

	Position.		Barometer corrected.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Port Blair . .			29·836	SSW	Moderate	Showery
Diamond Island	...	...	·752	SSE	Hard gale	Sea very rough.
Akyab . .	...	...	·853	NE	3	Heavy rain
S.S. *Ashdown* .	13 32	94 50	...	S	8	Very heavy squalls.
S.S. *Oscarshal*.	14 30	93 59	...	SE	7	Heavy squalls.
S.S. *Momoassa*	14 50	91 10	·768	WNW	4	Squally.
S.S. *Baghdad* .		Akyab	·760	E	2	Squally.
S.S. *Maori* .	15 12	93 57	·758	S	7	High beam sea. Squally.

The storm centre was now to the west of Diamond Island in Lat. 15¾ or 16° N. and Long. 92½ E. It had advanced 160 miles in an almost due northerly direction during the previous 24 hours. The S.S. *Ashdown* and *Oscar shal*, which were both upwards of 150 miles from the centre, experienced winds of force 8 and 7, respectively. It is hence clear that the storm had increased very considerably in area during the previous 24 hours, and that its shortest diameter was upwards of 250 miles (in an east and west direction). The following observations were recorded at Diamond Island during the storm :—

Date.	Hour.	Barometer reduced to sea-level and constant gravity at Lat 45.°	Wind		Weather.
			Direction.	Average velocity in miles per hour.	
		″			
27th	8 P.M.	29·812	E	25	Sea very rough.
	8 P.M.	·754	ESE	42	Sea very rough ; squalls increasing in intensity.
	Midnight	·701	ESE	...	Sea very rough ; wind direction steady.
28th	2 A.M.	·679	ESE	48	Sea very rough ; wind steady in direction.
	3 A.M.	·683	FSE		
	4 A.M.	·679	ESE	...	Very high sea.
	8 A.M.	·752	SSE	73	Sea very rough.
	2 P.M.	·727	SSW	42	Sea high; squally.
	8 P M.	·825	SSW	26	Sea falling ; squalls decreasing in frequency and force.

The observer also notes that there was a comparative lull between 2 A.M. and 2-15 A.M., and that from 2-15 A.M. to 3 A.M. it blew with greater violence than before. There was again a comparative lull between 3 A.M. and 3-40 A.M, which was followed by an awful blast which lasted fully twenty minutes. The amount of wind recorded by the anemometer between 2 A.M. and 8 A.M. was 435 miles. The observer estimates that when the winds were strongest between 2 A.M. and 4 A.M., they must have been blowing at a rate of at least 130 miles an hour. The sea was higher than the observer had seen it during his 3½ years' residence at Diamond Island. A few flashes of lightning only were observed during the storm.

The following description of the appearance of the storm at a distance to the north is taken from an interesting account of the storm sent by the Captain of the S.S. *Baghdad* which was in the outskirts of the northern quadrant on the 28th :—"I left Akyab for Chittagong at 7 A.M. of the 28th. After passing out of the river I encountered a very heavy southerly swell. A bank of inky blackness to the south indicated the locality of the storm. Looking to southward the appearance of the sky was as threatening as has ever come under my observation. Though skies were overcast the clouds to northward were less heavy, and as I proceeded on my course a break in the horizon appeared to the north-west, and this break gradually widened, while the dense bank gradually sank and worked across to south-eastwards."

The observations at Akyab and Diamond Island suggest that the storm crossed the Arakan Coast south of Sandoway during the night of the 28th.

29th October.—Pressure had increased rapidly in Lower Burma and fallen briskly in Upper Burma. A shallow residual depression covered Upper Burma; winds were very irregular in that area, indicating that the cyclonic circulation of the depression had been broken up by its passage through the Arakan Hills.

Very heavy rain had fallen in Burma during the preceding 24 hours. The following gives some of the more noteworthy falls :—

	Inches.
Minbu	6·15
Yamethin	3·40
Bassein	3·70
Thayetmyo	3·17

The depression filled up during the day, but weather continued cloudy and showery in Burma until the 30th.

It appears to be on the whole most probable that the origin of the storm was due to the passage of a depression across the Malayan Peninsula into the Andaman Sea on the

24th. Conditions were favourable to its development in that area. It increased rapidly in intensity and marched during the next 36 hours along a west-north-west track towards Port Blair. It recurved before it reached that station, and passed through the Coco Channel into the Bay of Bengal in a northerly direction on the morning of the 27th. It continued to recurve and crossed the South Arakan coast during the evening of the 28th.

The following table gives the position and mean rate of advance of the centre of the storm from the 25th to the 28th :—

	Position of centre.		Distance passed over during interval.	Mean rate of advance during interval.
	Lat. N.	Long. E.		
	° ′	° ′		
25th	11 30	96 15	...	...
26th	12 15	93 30	200	8
27th	13 45	93 0	120	5
28th	16 0	92 30	160	...

The storm is of interest on account of its probable origin and of its peculiar path, and the rapid recurvature which occurred when it was approaching Port Blair on the 26th.

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

Upper Sutlej Valley.—A report from the Reverend T. Shreve, Poo, states that there were two snowstorms during the month. The first was on the 18th, when 6 inches fell at Poo (elevation 9050 feet); the snow line descended to 8,500 feet. The second was on the 27th, but the fall was slight. The depth of snow on the Ranang Pass (height 14,000 feet) at the end of the month was 16 inches.

Mr. Minniken, Deputy Conservator of Forests, writes that snow fell in small amounts on the hills opposite to Kilba on the 5th, 16th, 17th, 18th, 19th and 27th. The fall on the 17th was about 6 inches, and on the 27th 4 inches in depth. It fell down to an elevation of 10,000 feet.

Summary of special storm reports.

Cyclonic storms are of occasional occurrence in October and are sometimes of exceptional intensity. Two were generated in the Bay during the month. The first lasting from the 19th to the 22nd was a very severe cyclone of small extent and caused a large amount of destruction of property in the Noakhali district. The second storm was of moderate intensity. A considerably large number of reports of these storms were received, and the information they contained is incorporated in the pressure section. Some hailstorms occurred during the month in the north-western and hill districts of the Punjab. As no special reports of these storms have been received, it is probable they were not severe.

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

Arabian Sea.—At the commencement of the month easterly winds prevailed in the Gulf of Oman and along the Mekran coast; north-westerly breezes in the north, centre and east of the Arabian Sea; and south-westerly winds in the neighbourhood of Socotra. The force over the whole of this area was light and the weather fine and clear. In the south of the sea the winds, although north-westerly in direction, were fresh to moderate in force and the weather showery. The average wind force for the whole of the sea area was 2·2 at 8 A.M. of the 1st and 2·9 at 8 A.M. of the 3rd. Weather had improved in the south and was now fine over practically the whole of the area. No change occurred during the next 24 hours, except that light north-easterly winds appeared in the Gulf of Aden. Winds increased rapidly in strength in the south and south-east of the sea during the following 24 hours, and the weather in that area became again disturbed. Thus the S.S. *Tannadice*, in Latitude 6° 56′ N. and Longitude 69° 43′ at 8 A.M. of the 5th, experienced north-north-west winds of force 4 to 6, and the S.S. *Albion*, in Latitude 8° 9′ N. and Longitude 76° 59′ E. at the same hour, had north-north-west winds of force 4 and rain squalls. In the Gulf of Aden the winds had died down to calms. The average air movement for the whole of the Arabian

Sea had decreased to 2·5 on the 5th. The increase in the strength of the winds in the south and south-east of the sea was only temporary, as on the morning of the 6th winds fell off again in this area and the weather improved rapidly. Fine clear weather was re-established over the whole of the sea, except the neighbourhood of the North Malabar coast, where heavy rain showers were received. Thus the S.S. *Ellora*, in Latitude 14° 15′ N. and Longitude 73° 59′ E. at 8 A.M. of the 6th had heavy constant rain. Winds continued to fall off in strength during the next 24 hours, and the mean force decreased to 1·7 on the morning of the 7th, the lowest average force recorded during the month. Light to moderate north-easterly winds again set in over the Gulf of Aden during the next 24 hours, while north-westerly winds continued to prevail in the Arabian Sea. Winds shifted to north-east during the next 24 hours, except in the south-east, where north-westerly winds continued. The mean air movement had increased to 2·5 on the morning of the 8th. Weather was very settled in all parts of the sea except on the Travancore coast, where rain was falling. Rain had ceased near the Travancore coast on the 9th, and the weather was hence fine over the whole area. The winds increased in force and shifted back generally to north-west in the east, centre and north on the morning of the 10th, and rainy weather again set in over the south and south-east of the Arabian Sea. The average strength of the winds on the morning of the 10th had increased to 2·9. No change occurred until the 13th, on the morning of which day south-westerly winds of force 4 to 5 appeared in the south and south-east of the sea, and the weather became more unsettled in that region and along the Malabar and Konkan coasts. The average force of the winds for the whole of the sea increased to 3·0 on the morning of the 13th. During the next 24 hours the winds decreased slightly in strength, particularly in the south and south-east of the sea, where the weather also improved rapidly. Fine clear weather was thus re-established over the whole of the Arabian Sea on the morning of the 15th. The changes of pressure during the remainder of the month were such as favoured the establishment and extension of north-easterly winds, which hence prevailed more or less steadily during the last fortnight of the month over nearly the whole of the Arabian Sea, except in the extreme south-east, where westerly winds obtained until the 27th. As is usually the case during transition periods, there were large fluctuations in the strength of the winds from day to day. Weather was, however, fine throughout the period, except from the 27th to the 31st, when rainy, squally weather was experienced in the south-east of the sea. The mean wind force on the morning of the 31st was 3·4.

Bay of Bengal.—The monsoon low pressure area at the commencement of the month was displaced from its normal position in Northern India, and covered the north-east of the Bay and Burma. Winds were hence north-westerly over the north and west of the Bay, and south-westerly over the south and south-east of it. Their force was everywhere light, except in the north-east and south-west, where it was moderate. Fine weather prevailed over the area swept by the north-westerly winds, while in the region of southerly winds rain squalls were being experienced. The mean wind force for the whole of the Bay averaged 2·9 on the morning of the 1st. The changes of pressure in the Bay during the next five days were small in amount, and the low pressure area in the north of the Bay continued to occupy practically the same position as on the 1st. Hence light unsteady winds prevailed during this period in the north of the Bay and weather was fine. In the south of the Bay the south-westerly winds increased steadily until the 4th, on the morning of which day they were blowing freshly to strongly. The mean wind force on the morning of the 4th had increased to an average of 3·3. During the next 24 hours, however, a change took place over this area. Winds shifted round to north-west and fell off in strength, and the weather improved. Weather was now fine and clear over the whole of the Bay, except the south-east, where rain was falling and squalls were of frequent occurrence. The average wind force for the whole of the Bay on the morning of the 5th had decreased to 2·6. On the morning of the 6th pressure over the Bay was very uniform. Winds were hence light and irregular and weather fine, except in the Straits of Malacca, where it was squally with much rain. The mean wind force for the whole of the Bay had decreased to an average of 2·1 on the morning of the 6th. During the next 48 hours the distribution of pressure began to alter slowly, and the low pressure area on the 8th lay over the centre of the Bay. North-easterly winds had hence set in over the northern half of the Bay, and south-westerly winds were again extending in the south. Weather, however, remained fine over the whole of the Bay except in the south, where squally weather with much rain had again set in. Thus the S. *Loch Broom*, in Latitude 8° 22′ N. and Longitude 85° 23′ E., at 8 A.M. of the 8th experienced squally weather and heavy rain. Winds on the morning of the 8th averaged 2·8 in force as compared with 2·1 on the 6th and 7th. The low pressure area in the Bay was transferred slowly eastwards on the 8th and 9th, and was on the morning of the 10th in the south-west of the Bay near the Coromandel coast. Moderate to fresh south-westerly winds now prevailed in the south, easterly winds in the east, and northerly winds in the north-west of the Bay. The squally rainy weather which, on the 9th, was confined to the south of Latitude 9° extended rapidly northwards to the parallel of 16 N. during the next 24 hours. The mean wind force for the whole

of the Bay averaged 2·9 on the morning of the 10th. The southerly winds in the south of the Bay increased rapidly in force during the next 24 hours, and on the morning of the 11th the mean wind force for the whole of the Bay was 3·5. Very squally weather prevailed in the south of the Bay and showery weather in the centre, but fine clear weather still continued in the north. No change occurred during the next 24 hours, except that skies clouded over in the north of the Bay. During the next 24 hours the low pressure area was transferred westwards, and on the morning of the 13th lay over the central districts of the Peninsula. Winds fell off considerably in strength, and the mean wind force for the whole of the Bay was only 2·4 on the morning of the 13th. Conditions remained unchanged in the north-west of the Bay, but in the south and centre the winds increased again in force and the weather became more unsettled. The mean wind force on the morning of the 14th had increased to 3·1.

The gradients in the Bay increased in the north and centre of the Bay, and weather was now squally in nearly all parts of the Bay, particularly in the north. The depression in the Peninsula was at this time concentrating and at the same time advancing northwards. Winds were hence increasing in the north-west, and weather was now squally and stormy on the north of the Bay. Thus the S.S. *Narani*, in Latitude 18° 26' N. and Longitude 84° 37' E., at 8 A.M. of the 17th experienced a fresh south-south-west gale with terrific squalls of wind and rain.

The mean wind force on the 17th for all parts of the Bay was 3·5. The depression filled up on the 18th and winds fell off in strength in the north and west of the Bay during the next 24 hours, and the weather improved rapidly in the north of the Bay. Over the centre, east and south of the Bay weather was fine and clear. Pressure was very uniform over the Bay on the 19th, and in consequence light variable winds prevailed, except in the Andaman Sea. On the 20th a shallow but well-marked depression lay over the centre of the Bay. Winds had increased in the centre of the Bay, and the weather was unsettled with squalls and much rain. Over the remainder of the Bay fine weather continued. The storm developed rapidly during the next 24 hours and advanced by a curved path to the mouth of the Megna during the next 48 hours. The storm developed rapidly during its advance, and hurricane winds, force 11 and 12, were experiened near the centre. The storm on the 22nd gave winds of force 8 and upwards to an area upwards of 200 miles in diameter. The storm broke up on the 22nd and the weather improved rapidly on that day on the north of the Bay. In the remainder of the Bay fine weather continued, and on the morning of the 23rd fine clear weather prevailed over practically the whole of the Bay.

On the morning of the 24th a small depression crossed the Malay Peninsula south of Mergui and passed into the Andaman Sea, where it developed into a storm during the next two days. The storm gave squally to stormy weather in the Andaman Sea on the 25th and 26th and passed through the Coco Channel into the Bay on the 27th. The storm was now of considerable intensity. Its influence over the winds and weather had extended to almost all parts of the Bay. The S.S. *Maori*, which was not more than 100 miles to the east of the centre, experienced very violent squalls and heavy rain; and the S.S. *Canara*, about 200 miles to the north of the centre, had easterly gales, force 9, and a high sea. Winds were fresh to strong in force in the south-east of the Bay and moderate over the remainder of the Bay, and the mean wind force for the whole of the Bay was 3·5. The storm advanced by a curved path to the Arakan coast during the next 48 hours and broke up in crossing the Arakan Hills. Winds of force 8 to 10 were experienced in the storm area on the 28th. Winds decreased rapidly on the 29th in all parts of the Bay, and the mean wind force for the whole of the Bay was only 2·3. Weather was, however, still rainy and squally in the east of the Bay. Weather improved rapidly, and easterly and north-easterly winds again set in and were extending rapidly. On the morning of the 31st north-easterly winds prevailed over the whole of the Bay, and the weather was everywhere fine and clear. The mean wind force for the whole of the Bay was 2 5.

Temperature of the Air.

The mean temperature conditions did not differ largely from the normal. They were in part determined by the distribution of the rainfall of the preceding month, and in part by the character and tracks of the storms of the month and the distribution of the accompanying rainfall.

The mean maximum temperature of the month was below the normal over the whole of India, except Upper Sind, the South-West Punjab and Baluchistan and the Madras coast districts. The excess in these areas was small, nowhere exceeding 2° except at Madras (+ 2°·2). The deficiency was less than 2° in amount over the remainder of India, except in three areas, *viz.*, Upper Burma and Arakan, the Central Deccan and the North-

Western Provinces, Baghelkhand and Bundelkhand. The following gives data for these areas :—

Province.	Station.	Mean maximum temperature.		
		Actual, October 1893.	Normal, October.	Variation of actual from normal.
		°	°	°
North-Western Provinces	Roorkee	87·1	89·5	—2·4
	Bareilly	86·5	89·6	—3·1
	Lucknow	88·5	91·2	—2·7
	Gorakhpore	86·1	88·9	—2·8
	Benares	87·6	90·3	—2·7
	Agra	90·9	93·4	—2·5
Central Provinces	Jubbulpore	84·9	87·2	—2·3
Baghelkhand	Sutna	85·6	87·6	—2·0
Central Deccan	Sholapore	87·0	89·2	—2·2
	Bellary	86·8	89·8	—3·0
Upper Burma	Thayetmyo	87·2	90·2	—3·0
	Akyab	86·1	88·1	—2·0

The deficiency in the day temperature was hence most pronounced in the submontane districts of the North-Western Provinces and Oudh.

The mean minimum or night temperature of the month was above the normal to a slight extent in North-Eastern India and Madras and was below it over the remainder of India and in Burma. The deficiency exceeded 2° over the whole of the area including Central and South Rajputana, Central India, Kattywar, Guzerat, Khandesh, and the northern and western districts of the Central Provinces. The following gives comparative data for those stations in these areas, in which the mean night temperature of the month was 3° or more below the normal :—

Station.	Mean minimum temperature.		
	Actual, October 1893.	Normal, October.	Variation of actual from normal.
	°	°	°
Neemuch	61·2	64·9	—3·7
Deesa	64·0	67·1	—3·1
Surat	67·4	70·7	—3·3
Poona	63·6	66·7	—3·1
Indore	59·1	64·2	—5·1
Sambhar	62·1	65·1	—3·0

The mean temperature of the month was lower than usual over the whole of Burma and of India with the exception of the Madras coast districts in which it was very slightly in excess. The deficiency was not large and was less than 2° in amount over the whole of India with the exception of a portion of Rajputana and Central India, for which data are given in the following table :—

Station.	Mean daily temperature.		
	Actual, October 1893.	Normal, October.	Variation of actual from normal.
	°	°	°
Agra	78·3	80·9	—2·6
Ajmere	74·6	77·4	—2·8
Deesa	79·2	81·6	—2·4
Neemuch	75·2	77·4	—2·2
Indore	73·1	75·7	—2·6

Temperature was considerably below the normal at Quetta, Mount Abu and Pachmarhi. It was slightly in defect at the lower Himalayan hill stations, and was in moderate excess at the high level stations of Leh and Kyelong. The following table gives data illustrating the contrast of conditions at the hill stations :—

Station.	Mean daily temperature.		
	Actual, October 1893.	Normal, October.	Variation of actual from normal.
	°	°	°
Quetta	55·5	57·5	—2·0
Mount Abu	68·1	71·9	—3·8
Murree	60·7	61·6	—0·9
Simla	56·6	57·6	—1·0
Kyelong	44·3	42·4	+1·9
Leh	45·0	42·1	+2·9

The chief features of the temperature conditions of the month were :—

1st.—Decreased day temperature over the whole of India except the Madras coast districts. The deficiency was greatest in the North-Western Provinces.

2nd.—Lower night temperature than usual over the whole of India except North Eastern India and Central Madras. The deficiency was greatest in Rajputana and Central India.

3rd.—Lower mean temperature over the whole of India except the Madras coast districts. The deficiency was generally small in amount, but slightly exceeded 2° in the area including Agra, Ajmere, Deesa, Neemuch and perhaps Indore.

4th.—The decreased temperature appears to have been confined to the lower 10,000 feet of the atmosphere, as it was as marked at Mount Abu and Pachmarhi as at the neighbouring plain stations, but was small in amount at the elevation of stations of Murree and Simla, whilst at Leh and Kyelong the mean temperature of the month was in moderate excess.

The following table gives comparative data for fifty of the 52 meteorological areas or districts into which India is divided :—

Province.	Division.	Actual Temperature. Mean maximum.	Mean minimum.	Mean daily.	Mean daily range.	Absolute range.	Variation from normal of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	87·1	73·4	80·3	13·8	20·4	— 1·2	— 0·7	— 0·5
	Lower Burma	85·4	75·6	80·5	9·8	15·6	— 1·5	— 0·2	— 1·3
	Central do.	88·5	73·2	80·9	15·3	26·5	— 3·0	— 1·0	— 2·0
	Upper do.	85·7	69·8	77·8	15·9	29·6	?	?	?
	Arakan	86·1	75·8	81·0	10·3	18·5	— 2·0	— 0·9	— 1·1
Bengal and Assam	Eastern Bengal	86·4	74·3	80·4	12·1	21·1	— 0·9	— 0·4	— 0·5
	Assam (Surma)	88·3	72·7	80·5	15·6	29·3	— 0·6	+ 0·2	— 0·8
	Do. (Brahmaputra)	84·8	71·5	78·2	13·4	26·8	— 0·4	— 0·6	+ 0·2
	Deltaic Bengal	87·2	75·2	81·2	12·0	21·6	— 0·4	+ 0·6	— 1·0
	Central do.	86·8	73·9	80·4	12·8	23·1	— 1·3	+ 0·9	— 2·2
	North do.	87·0	72·8	79·9	14·2	27·1	?	?	?
	Orissa	88·1	75·9	82·1	12·2	23·5	— 0·3	+ 0·2	— 0·5
	Chota Nagpur	84·4	67·7	76·1	16·8	29·1	— 1·0	— 1·2	+ 0·2
	Bihar (South)	87·7	71·8	79·8	15·9	28·3	— 1·3	+ 0·7	— 2·0
	Do. (North)	86·6	72·6	79·6	14·1	25·9	— 0·6	+ 1·3	— 1·9
North-Western Provinces and Oudh.	North-Western Provinces (East)	87·6	69·0	78·4	18·6	30·9	— 2·1	+ 0·1	— 2·2
	Oudh (South)	88·5	66·1	77·3	22·4	34·3	— 2·7	+ 0·4	— 3·1
	North-Western Provinces (Central)	88·8	65·5	77·2	23·3	33·7	?	?	?
	Do. do. (West)	90·7	67·1	79·0	23·6	35·0	— 2·3	— 1·3?	— 1·0?
	Do. do. (Submontane)	85·8	62·9	74·4	23·0	33·7	— 2·0	+ 0·2	— 2·2
Punjab	Punjab (South)	92·8	65·2	79·1	27·6	39·1	— 1·5	— 0·3	— 1·2
	Do. (Central)	92·4	61·3	76·9	31·1	43·1	— 1·4	+ 1·2	— 2·6
	Do. (Submontane)	91·4	61·2	76·3	30·2	42·0	— 2·0	— 2·1	+ 0·1
	Do. (Hill Districts)	66·9	47·8	57·3	19·1	30·6	— 1·5	— 0·5	— 1·0
	Do. (North-West)	88·8	56·8	72·8	32·0	46·7	— 1·2	— 1·8	+ 0·6
	Do. (West)	95·2	62·2	78·7	33·0	47·6	+ 0·3	— 0·5	+ 0·8
Bombay and Malabar Coast Districts (Madras).	Malabar	84·0	74·4	79·2	9·6	16·1	— 0·8	— 0·3	— 0·5
	Madras (South Central)	88·3	70·9	79·6	17·5	23·6	— 0·4	+ 0·3	— 0·7
	Coorg	77·7	64·6	71·2	13·1	20·5	— 2·3	+ 1·1	— 3·4
	Mysore	80·7	64·7	72·7	16·0	24·7	— 1·0	+ 0·1	— 1·1
	Konkan	85·3	73·4	79·4	11·9	23·6	— 0·4	— 1·0	+ 0·6
	Bombay Deccan	85·6	64·6	75·1	21·0	33·7	— 0·4	— 2·2	+ 1·8
	Hyderabad (North)	85·8	66·6	76·2	19·2	30·9	?	?	?
	Khandesh	88·3	62·6	75·5	25·7	38·7	+ 0·9	— 2·5	+ 3·4
Central Provinces and Berar.	Berar	88·8	65·9	77·4	23·0	36·8	— 1·1	— 1·0	— 0·1
	Central Provinces (West)	89·0	65·2	77·2	23·8	36·4	— 0·6	— 2·1	+ 1·5
	Do. (Central)	86·0	64·0	75·0	21·9	34·0	— 1·7	— 2·0	+ 0·3
	Do. (East)	87·7	70·9	79·3	16·8	30·2	— 0·8	0	— 0·8
Bombay (North)	Guzerat	93·5	68·6	81·1	24·9	36·4	+ 0·3	— 3·3	+ 3·6
	Kattywar	92·1	69·6	80·9	22·5	35·9	— 0·4	— 2·4	+ 2·0
	Sind	94·7	68·2	81·6	26·6	42·1	— 1·0	— 1·5	+ 0·5
Rajputana and Central India.	Central India (East)	86·2	64·7	75·4	21·5	34·5	— 3·1	— 0·9	— 2·2
	Rajputana (East), Central India (West)	90·6	61·5	76·1	29·0	40·3	— 1·0	— 3·3	+ 2·3
	Do. (West)	95·0	67·3	81·2	27·7	40·5	— 0·8	— 1·0	+ 0·2
Madras	East Coast (North)	87·2	76·0	81·7	11·2	20·5	+ 0·2	— 0·2	+ 0·4
	Hyderabad (South)	86·4	69·1	77·8	17·4	29·8	— 1·6	— 0·5	— 1·1
	Madras (Central)	88·6	71·5	80·1	17·1	29·6	— 1·2	— 0·6	— 0·6
	East Coast (Central)	89·7	75·7	82·7	14·0	24·6	— 2·1	— 0·8	— 1·3
	East Coast (South)	89·9	75·5	82·7	14·4	23·4	+ 1·0	+ 0·6	+ 0·4
	Madras (South)	91·1	75·9	83·5	15·2	24·4	— 1·2	— 0·4	— 0·8

At the commencement of the month, temperature was in slight to moderate defect over nearly the whole of India. It increased slowly on the 2nd and 3rd and was practically normal on the 4th and following days over the whole of India, excepting Rajputana and Central India, where it was 2° to 4° below the normal. No change of

importance in the temperature conditions occurred for some days except in Beluchistan, where the temperature fell very considerably below the normal of the period. Thus the mean temperature of Quetta for the 24 hours preceding 8 A.M. of the 6th was 3·8° below the normal and of the 24 hours preceding 8 A.M., of the 8th it was 6·5° in defect. The following gives temperature variation data for the 24 hours preceding 8 A.M., of the 9th —

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

Temperature hence differed very little from the normal over the whole of India; but was largely in defect in Beluchistan. It, however, began to decrease slowly and steadily in North-Western India, and the area of deficient temperature also slowly extended across Northern India. The following gives the largest observed deficiency of temperature on each day of the period from the 10th to the 20th :—

DATE.	STATION.	Variation of mean temperature of 24 hours preceding 8 A.M. of date from the normal.
		°
10th	Quetta	—6·2
11th	Quetta	—7·4
12th	Quetta	—8·3
13th	Quetta	—7·2
14th	Quetta	—8·1
	Jacobabad	—7·2
15th	Quetta	—7·8
	Jacobabad	—6·0
16th	Quetta	—7·3
	Rawalpindi	—6·6
17th	Jacobabad	—7·4
	Hyderabad	—8·8
18th	Meerut	—7·6
	Agra	—11·0
19th	Agra	—8·1
	Jhansi	—7·9
20th	Durbhanga	—8·1
	Seoni	—7·1

This eastward extension of the cool area was due in part only to the slow advance of a dry cool air current across the North-West Frontier. Rain commenced to fall generally in the Madras coast districts on the 10th, and it extended slowly northwards and westwards, and on the 16th and two subsequent days rainfall was general over the whole of North-Eastern India and Central India as well as the north of the Peninsula. The rainfall caused a considerable reduction of temperature, and hence on the 16th and following days temperature was more or less considerably below the normal over nearly the whole of India.

The following table gives temperature variation data for the 19th, on which day the deficiency was on the whole most pronounced :—

PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	0	—0·5	—0·3
Bengal and Assam	— 2·6	+0·5	—1·1
N.-W. Provinces and Oudh	—10·6	+0·8	—4·9
Punjab	— 3·0	—6·4	—4·7
Sind and Rajputana	— 1·9	—7·3	—4·6
Central India and Guzerat	— 4·4	—6·4	—5·4
Central Provinces and Berar	— 4·4	—4·5	—4·5
Bombay	— 2·4	—5·9	—4·2
Madras	+ 0·1	+0·9	+0·5

Temperature continued considerably below the normal until the 23rd or 24th, when it began to increase rather rapidly, more especially in Beluchistan and Upper India. The rainfall in Burma accompanying the second cyclonic storm of the month on the 27th, 28th and 29th caused a large reduction of temperature in that area.

The temperature variation data of the 29th illustrate the effect of these changes :—

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

At the end of the month temperature was normal or in slight excess in India and was considerably below it in Burma.

The following table giving the variations of the mean temperature week by week in nine large divisions of India illustrates the larger changes described above in the temperature conditions of India during the month :—

Division.	Variation from normal of mean temperature.				
	1st to 7th.	8th to 14th.	15th to 21st.	22nd to 28th.	For whole month.
Burma	−0·9	0	−0·8	−1·7	−1·2
Bengal and Assam .	+0·5	+0·5	−0·5	−1·4	−0·2
North-Western Provinces and Oudh.	−1·1	−0·3	−3·0	−1·0	−1·2
Punjab	+0·1	−1·2	−4·3	+0·5	−1·0
Sind and Rajputana .	−1·2	−1·6	−3·6	−0·5	−1·5
Central India and Guzerat	−1·8	0	−3·6	−2·9	−2·0
Central Provinces and Berar.	−0·6	+0·4	−2·5	−2·4	−1·3
Bombay . . .	+0·2	0	−2·5	−1·6	−1·0
Madras	+0·4	−0·7	−0·7	−0·5	−0·1

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 characterised 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 on the whole even feebler than usual in October 1893.

Winds were on the average of the month steadier than usual at Port Blair and in Lower Burma. The westerly element was much stronger than usual at Port Blair, where the mean wind direction of the month was S. 45° W., the normal being S. 5° W.

Winds were very unsteady in East Bengal and Assam. They were steadier and stronger than usual in Orissa, West Bengal, Bihar and Chota Nagpur. The deviation of the mean wind directions from the normal in that area were very irregular. The only feature of importance was the unusual prevalence of westerly winds in Bihar during the greater part of the month. The following gives wind data for two stations in Bihar :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.	
	Actual, October 1893.	Normal, October.	Actual, October 1893.	Normal, October.
Patna	N 22° W	N 21° E	69	46
Durbhanga . . .	N 59° W	N 68° E	59	54

Winds were very light and unsteady over nearly the whole of the North-Western Provinces and the Punjab. The following gives data for three typical stations :—

Station.	Mean wind velocity in miles per diem.		Mean steadiness per cent.	
	Actual, October 1893.	Normal October.	Actual, October 1893.	Normal October.
Lucknow . . .	12	47	2	39
Roorkee . . .	?	34	14	11
Lahore . .	26	38	3	12

The mean air movement, as measured by Robinson's anemometer, was hence barely a mile per hour or 24 miles per diem over the North-Western Provinces and the Punjab,

The mean air movement was normal in character in Sind. Winds were much steadier than usual in Rajputana and Central India. They were weaker in the Central Provinces and Deccan, but the mean direction of the air movement was practically normal in that area.

Winds were more northerly than usual at Bombay (the mean wind direction was N. 2° E.) and also weaker and less steady. They were also below their normal strength in the Coromandel coast districts, and the Madras wind data show that the easterly element in the north-east winds of the month was more strongly marked than usual. The following gives data for that station :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.	
	Actual, October 1893.	Normal October.	Actual, October 1893.	Normal, October.
Madras . . .	N 78° E	N 35° E	10·6	12·1

At the Himalayan hill stations the mean direction of the air movement was between west and south-south-west. The velocity was considerably greater than at the neighbouring plain stations, ranging from 1 mile per hour at Ranikhet (where the anemometer is very badly exposed) to 7 miles per hour at Murree.

The following table gives the mean velocity of the lower air motion in different districts of the interior of India during the month :—

District.	Mean wind velocity in miles per diem.		
	Actual, October 1893.	Normal, October.	Percentage variation.
Punjab	32	42	−24
Rajputana	91	103	−12
North-Western Provinces	31	39	−21
Bihar	98	73	+34
Central Provinces	58	73	−21
Deccan	163	193	−16

Humidity and Cloud.

The mean humidity conditions of the month departed little from the normal. The absolute humidity or amount of moisture in the air was slightly less than the normal in Burma, but in consequence of decreased temperature the relative humidity was very slightly in excess. The amount of aqueous vapour was normal or in slight excess in Bengal, Bihar, Chota Nagpur and the North-Western Provinces. The increased humidity in this area was most marked at Hazaribagh (5 in excess) and Lucknow (4 in excess). The air was slightly drier than usual in October in the Punjab, Sind and North-West Rajputana, but was damper locally at Deesa and Ajmere.

In the Central Provinces and the Peninsula the mean humidity of the month was below the normal, but the variations were generally small and of little importance.

In the Punjab Himalayas the air was drier than usual. This was especially the case at Leh, where the mean humidity of the month was 5 below the normal. Humidity was in slight to moderate excess at stations in the Central and Eastern Himalayas.

The Quetta observations indicate that the air was abnormally dry in Baluchistan.

The variations of the mean cloud amount of the month follow closely those of the humidity conditions. There was more cloud than usual over nearly the whole of Northern India and Burma. The increase was large only in Burma and Bengal, and more especially at the coast stations for which data are given below :—

Station.	Mean cloud amount.		
	Actual, October 1893.	Normal, October.	Variation from normal.
Port Blair	8·1	5·8	+2·3
Diamond Island	8·2	5·3	+2·9
Saugor Island	7·3	4·6	+2·7
Chittagong	5·8	4·3	+1·5

There was somewhat less cloud than usual in the Peninsula, but the variations were generally small in amount, and irregular in character. The mean cloud amount at Bombay was only 1·6 or 2·6 below the normal. It was slightly in excess at Ratnagiri and normal at Karwar, and hence the deficiency at Bombay was local. There was a slight to moderate deficiency of cloud over the greater part of the Peninsula and the Bombay Deccan, greatest at Poona (−1·3) and Sholapur (−1·1).

There was slightly less cloud than usual in Baluchistan and the Punjab Himalayas, and somewhat more in the Central and Eastern Himalayas. The following gives comparative data for five stations in illustration :—

Station.	Mean cloud amount.		
	Actual, October 1893.	Normal, October.	Variation from normal.
Quetta	0·1	0·4	−0·3
Leh	3·3	3·8	−0·5
Kailang	2·2	3·4	−1·2
Ranikhet	3·3	1·6	+1·7
Darjeeling	6·2	5·5	+0·7

The mean cloud amount of the month was less than 0·5 (or skies were practically cloudless throughout the month at the following stations :—

Station.	Mean cloud amount.		
	Actual, October 1893.	Normal, October.	Variation from normal.
Muscat	0	?	?
Quetta	0·1	0·4	−0·3
Jacobabad	0	0·4	−0·4
Mooltan	0	0·3	−0·3
Lahore	0·1	0·7	−0·6
Ludhiana	0·3	0·9	−0·6

Hence skies were cloudless throughout the month in Baluchistan, Upper Sind and the South-West and South-East Punjab.

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 2 inches, and diminishes westwards to the Indus Valley, for which it is less than two-tenths of an inch. In the North and Central Deccan, Central Provinces, Bengal and the greater part of Burma the average rainfall ranges between 2 and 5 inches, whilst in Lower Burma and the Peninsula south of Lat. 13° N. it ranges between 5 and 13 inches, and is greatest in amount in the Madras coast districts from Vizagapatam to Cuddalore.

The rainfall of the month of October 1893 occurred chiefly during the following periods:—

1st.—From the 10th to the 19th. This was due to a feeble disturbance which initiated the so-called north-east monsoon rains in Madras. The disturbance and depression developed to some extent in the Deccan and advanced northwards to the foot of the hills in the North-Western Provinces. The indraught to this depression gave a general burst of rain to Madras, the Deccan, Central Provinces, North-Western Provinces and Bengal. The rainfall was heaviest at the foot of the hills in the North-Western Provinces and Bihar.

2nd.—From the 20th to the 23rd, during which Bengal and Assam received a moderately heavy burst of rain during the cyclone of that period.

3rd.—From the 26th to 29th, when Burma obtained heavy rain from the cyclonic storm of the last week of the month.

The chief features of the rainfall distribution of the month were as follows :—

(1) No rain fell over nearly the whole of the Punjab, Sind and Rajputana.

(2) The rainfall of the month was normal in Lower Burma and in large excess in Upper Burma.

(3) It was in moderate excess in Bengal, Orissa and in large excess (relative to the normal of the period) in Chota Nagpur, Bihar and the northern and eastern districts of the North-Western Provinces. The excess was largest in the submontane districts of Rohilkhand and Oudh, which obtained from three to six times their normal fall.

(4) The rainfall of the month was in moderate excess in the Central Provinces, Berar, the Bombay Deccan, Hyderabad, Madras Central and South Central, and Mysore, in which the excess ranged from 10 to 60 per cent. in amount.

(5) The rainfall was in moderate defect in the Madras coast districts and in South Madras. The deficiency was on the whole most marked in the Coromandel coast districts, where it averaged 25 per cent.

(6) The rainfall was in defect over the remainder of India, but the deficiency was small and of little importance.

The following table gives a summary of the rainfall data of the month for the 52 meteorological divisions of India, based so far as possible on the rainfall statements of the month published by the Provincial Governments and other authorities : —

Province.	Division.	Rainy Days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	11·81	10·73	+ 1·08
	Lower Burma*	?	?	8·18	9·00	− 0·82
	Central do.*	?	?	6·07	6·42	− 0·35
	Upper do.*	?	?	8·45	?	?
	Arakan	?	?	10·19	9·72	+ 0·47

NOTE.—The figures entered against divisions marked with asterisks have been obtained from the Weekly Telegraphic Reports.

Province.	Division.	Rainy Days. Actual.	Rainy Days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	8·8	6·1	7·96	5·48	+ 2·48
	Assam (Surma) *	?	?	8·89	7·30	+ 1·59
	Do. (Brahmaputra)	?	?	4·33	3·94	+ 0·39
	Deltaic Bengal	7·1	5·5	5·01	4·61	+ 0·40
	Central do.	6·2	4·7	4·55	3·90	+ 0·65
	North do.	4·9	4·5	4·43	4·88	− 0·45
	Orissa	6·5	6·8	6·20	6·16	+ 0·04
	Chota Nagpur	5·2	4·2	4·20	2·97	+ 1·23
	Bihar (South)	3·9	3·0	4·01	3·13	+ 0·88
	Do. (North)	3·8	2·9	4·85	3·58	+ 1·27
North-Western Provinces and Oudh.	North-Western Provinces (East)	4·1	2·0	4·14	2·23	+ 1·91
	Oudh (South)	2·8	1·6	3·80	1·60	+ 2·20
	Do. (North)	3·6	1·5	4·68	1·61	+ 3·07
	North-Western Provinces (Central)	2·4	1·1	1·98	1·09	+ 0·89
	Do. do. (West)	1·1	0·8	1·01	0·60	+ 0·41
	Do. do. (Sub-montane)	2·9	1·2	5·57	1·34	+ 4·23
Punjab	Punjab (South)	0	0·4	0·12	0·15	− 0·03
	Do. (Central)	0·1	0·5	0·03	0·34	− 0·31
	Do. (Sub-montane)	0	0·6	0·01	0·38	− 0·37
	Do. (Hill Districts)	0·6	1·3	0·30	0·96	− 0·66
	Do. (North-West)	0·4	0·9	0·14	0·47	− 0·33
	Do. (West)	0	0·3	0	0·11	− 0·11
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	9·69	10·37	− 0·68
	Madras (South Central)*	?	?	8·65	7·00	+ 1·65
	Coorg	15·7	?	11·52	?	?
	Mysore*	?	?	8·66	5·78	+ 2·88
	Konkan	5·4	7·6	4·53	5·52	− 0·99
	Bombay Deccan	8·3	7·5	6·58	5·02	+ 1·56
	Khandesh	1·7	5·6	0·94	3·61	− 2·67
Central Provinces and Berar.	Berar*	4·0	?	3·14	2·56	+ 0·58
	Central Provinces (West)*	?	?	2·47	2·18	+ 0·29
	Do. (Central)*	?	?	3·52	1·88	+ 1·64
	Do. (East)*	?	?	2·21	2·00	+ 0·21
Bombay (North)	Guzerat	0·6	2·3	0·28	1·36	− 1·08
	Kattywar	0·3	1·2	0·18	0·75	− 0·57
	Sind	0	0·4	0	0·35	− 0·35
Rajputana and Central India.	Central India (East)	1·3	?	1·16	1·67	− 0·51
	Rajputana (East), Central India (West)	0·4	?	0·14	0·49	− 0·35
	Do. (West)	0·1	?	0·02	0·08	− 0·06
Madras	East Coast (North)*	?	?	7·16	7·81	− 0·65
	Do. (do.) (a)	?	?	3·75	5·24	− 1·49
	Hyderabad (South)*	?	?	4·06	2·44	+ 1·62
	Madras (Central)*	?	?	6·90	5·73	+ 1·17
	East Coast (Central)*	?	?	5·96	8·04	− 2·08
	Do. (South)*	?	?	6·20	8·14	− 1·94
	Madras (South)*	?	?	4·98	5·80	− 0·82

NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the Weekly Telegraphic Reports.

There were two periods of rainfall during October in Burma. During the first period, from the 1st to the 16th, general moderate rain was received daily throughout the province. The rainfall was unusually well distributed, and was nearly as large in amount in the interior of Central and Upper Burma as in the coast districts. A partial break in the rains followed this period of rainfall, which lasted until the 27th. The second depression of the month gave on the 21st, 22nd and 23rd moderate rain to Arakan and some parts of Upper Burma. The whole of Burma, except Tenasserim, received moderately heavy rain on the 28th, 29th and 30th from the cyclonic storm of the fourth week of the month.

The rainfall accompanying this storm was not so excessive as might have been expected from the character of the storm. The only falls of over 5 inches reported during the storm were the following; 9·02 inches at Mindan in the Thayetmyo district, 6·15 inches at Minbu, 5·25 inches at Magwe, and 5·14 inches at Ramree on the Arakan coast. The following table gives comparative rainfall data of the month obtained from the provincial rainfall statement :—

Division.	Rainy days. Actual, October 1893.	Rainy days. Normal, October.	Rainfall. Actual, October 1893.	Rainfall. Normal, October.	Rainfall. Variation.
Tenasserim	14·5	?	14·94	10·73	+4·21
Lower Burma	14·0	?	8·82	9·00	−0·18
Central do.	11·1	?	8·76	6·42	+2·34
Upper do.	10·1	?	8·63	?	?
Arakan	13·5	?	10·51	9·72	+0·79

Orissa and South-West Bengal received frequent light to moderate showers between the 7th and the 23rd. North Bengal had light showers from the 8th to the 12th and moderately heavy general rain from the 15th to the 20th. In East Bengal there were three rainy periods, *viz.* 1st to the 13th, when light showers were received almost daily; the 16th to the 18th, when moderate rain fell; and the 21st to the 23rd, during which there was a moderately heavy burst of rain accompanying the first cyclonic storm of the month. Bihar and Chota Nagpur obtained rain between the 15th and the 20th from the first disturbance of the period. The rainfall was heaviest in the Durbhunga, Muzaffarpur and Champaran districts. The following falls in 24 hours exceeding 5 inches were recorded :—

Date.	District.	Station.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
18th	Muzaffarpur	Sinuhar	5·30
19th	Durbhanga	Durbhanga	5·44
,,	Muzaffarpur	Sitamarhi	5·39
,,	Ditto	Muzaffarpur	9·23
,,	Champaran	Motihari	6·23
,,	Ditto	Bagaha	5·00
,,	Ditto	Burhurwa	5·38

The following gives mean rainfall data of the six areas into which the province is divided :—

Division.	Number of Rainy Days.		Rainfall.		
	Mean actual, October 1893.	Variation from normal.	Actual, October 1893.	Variation of actual from normal.	Percentage variation from normal.
			Inches.	Inches.	Inches.
Bengal East	8·8	+2·7	7·96	+2·48	+45
,, North	4·9	+0·4	4·43	—0·45	— 9
,, Deltaic	7·1	+1·6	5·01	+0·40	+ 9
Orissa	6·5	—0·3	6·20	+0·04	+ 1
Chota Nagpur	5·2	+1·0	4·20	+1·23	+41
North Bihar	3·8	+0·9	4·85	+1·27	+35
South Bihar	3·9	+0·9	4·01	+0·88	+28

Assam received frequent local showers during the first three weeks of the month and a fairly general burst of rain between the 21st and 24th. The rainfall was heaviest in the Cachar, Sylhet, Sibsagar and Lakhimpur districts. The remainder of the month was practically rainless. The rainfall of the month was in slight to moderate excess over the whole province. The following statement shows that the excess was largest in amount in the Cachar and Sylhet Districts (*i.e.*, in the Surma division) :—

Division.	Number of Rainy Days		Rainfall.		
	Mean actual, October 1893.	Variation from normal.	Meanactual, October 1893.	Variation from normal.	Percentage variation from normal.
			Inches.	Inches.	Inches.
Surma	10·9	+4·7	8·87	+3·01	+51
Brahmaputra	6·9	+1·4	4·79	+1·04	+28

The first disturbance of the month gave moderate to heavy rain to the North-Western Provinces and Oudh from the 16th to the 19th. The only districts which received little or no rain during this period were Muttra, Bulandshahr, Meerut, Muzuffernaggar, and Saharanpur. The rainfall was exceptionally heavy on the 18th in the Naini Tal, Almora, Basti, Gorakhpur, Bareilly and Moradabad districts. The following table gives a statement of this rainfall :—

District.	Average rainfall of 24 hours preceding 8 A.M., in district.	Heaviest rainfall in district.
	Inches.	Inches.
Naini Tal	8·07	12·30
Almora	1·65	6·40
Basti	4·66	6·73
Gorakhpur	2·98	6·10
Bareilly	4·77	7·61
Moradabad	3·60	6·12

The total rainfall of the month was below the small average of the month in the Muttra, Bulandshahr, Meerut, Muzuffernaggar, and Saharanpur districts, and was more or less in excess in the remainder of the Province. The excess was very large in the districts, for which comparative data are given in the following table :—

District.	Rainfall.		
	Actual mean, October 1893.	Normal mean, October.	Percentage variation.
	Inches.	Inches.	Inches.
Basti	10·01	2·89	+246
Gorakhpur	8·78	3·01	+192
Fyzabad	7·08	1·92	+269
Gonda	8·94	1·83	+389
Sultanpur	7·24	2·09	+246
Partabgarh	6·19	1·77	+250
Jaunpur	6·33	2·81	+125
Budaon	4·73	0·99	+378
Bareilly	7·35	1·14	+545
Azamgurh	5·44	2·34	+132
Ballia	9·50	3·51	+171
Moradabad	5·90	0·97	+508
Almora	8·18	1·18	+593
Garhwal	6·38	0·72	+786
Naini Tal	12·93	1·58	+718

The following table gives data for the six divisions of the province :—

Division.	Number of Rainy Days.		Rainfall.		
	Actual, October 1893.	Variation.	Actual, October 1893.	Normal, October.	Percentage variation.
			Inches.	Inches.	Inches.
Oudh, North . . .	3·6	+2·1	4·68	+3·07	+191
Ditto, South . . .	2·8	+1·2	3·80	+2·20	+137
N.-W. P. (East) . .	4·1	+2·1	4·14	+1·91	+ 86
Ditto, Central . .	2·4	+1·3	1·98	+0·89	+ 82
Ditto, Submontane .	2·9	+1·7	5·57	+4·23	+316
Ditto, (West) . .	1·1	+0·3	1·01	+0·41	+ 68

No rain fell during the month in Baluchistan and Sind and over by far the greater part of the Punjab. Some local thunderstorms and hailstorms occurred in the Peshawar, Huzara and Rawalpindi districts and the Punjab Hill Districts, but the total fall was small in amount and less than the small normal average precipitation of the month.

No rain fell in Rajputana during the month, with the exception of a few local showers of no importance in Ajmere, Ulwar and Bhurtpur on the 4th and 5th.

The eastern states of Central India shared in the rainfall accompanying the advance of the shallow depression from the Deccan to the North-Western Provinces. This rainy period lasted in Central India from the 15th to the 18th. The following gives average data for the states to which the rainfall extended :—

State.	Rainfall.		
	Actual, October 1893.	Normal, October.	Variation from normal.
Rewa . . .	2·12	2·46	−0·34
Bundelkhand .	2·77	1·05	+1·72
Nagode . .	3·26	2·13	+1·13
Bhopal . .	0·10	1·33	−1·23

The Central Provinces received general rain between the 14th and 19th, during the disturbance which accompanied the first burst of the retreating south-west monsoon rains in the Peninsula. Rain fell daily during this period, but generally in moderate amounts. The total rainfall of the month was above the normal, the excess being slight in the eastern and western districts and moderately large in the central districts. The following comparative data are based on the rainfall statement of the month published in the Provincial Gazette :—

District.	Number of Rainy Days.		Rainfall.		
	Actual, October 1893.	Variation from normal.	Actual, October 1893.	Variation from normal.	Percentage variation.
Central Provinces (East) .	3·5	+0·9	2·66	+0·64	+ 32
Do. (Central)	4·1	+1·7	3·70	+1·88	+103
Do. (West) .	3·2	+0·6	2·41	+0·33	+ 16

Berar obtained a moderate burst of rain during the same period as in the Central Provinces. It received an average of 3·14 inches, 23 per cent. in excess of the normal fall of the month.

The rainfall of the Bombay Presidency during the month was more irregularly distributed than usual. The Konkan received occasional light showers from the 1st to the 13th, after which fine dry weather set in. North Kanara and the Karnatik districts (including Dharwar, Bijapur and Belgaum) and the South Deccan districts of Satara and Sholapur received rain daily from the 1st to the 17th, when dry weather set in and continued during the remainder of the month. The 13th was a day of heavy general rain over the whole of that area. Thus Sindgi, in the Bijapur district recorded 5·09 inches on that day and Sholapur 4·86 inches. The Poona, Ahmednagar, Nasik, and Khandesh districts obtained light showers during the first week of the month. Over the remainder of the Presidency, including Guzerat, Kattywar, Cutch and Sind, the month was practically or absolutely rainless.

The following gives a comparative statement of the rainfall of the six divisions of the Presidency :—

Division.	Number of Rainy Days.		Rainfall.		
	Actual, October 1893.	Variation.	Actual, October 1893.	Variation.	Percentage variation.
			Inches.	Inches.	
Konkan . . .	5·4	−2·2	4·53	−0·99	− 18
Bombay Deccan . .	8·3	+0·8	6·58	+1·56	+ 31
Khandesh . . .	1·7	−3·9	0·4	−2·67	− 74
Guzerat . . .	0·6	−1·7	0·28	−1·08	− 79
Kathiawar . . .	0·3	−0·9	0·18	−0·57	− 76
Sind	0	−0·4	*Nil.*	−0·35	−100

The rainfall of the month was hence slightly in defect in the Konkan, and largely in defect in the northern districts, including Khandesh, Guzerat, Kattywar and Sind, which received barely one-fourth of their normal fall. The rainfall was in excess over the greater part of the Deccan, more especially the central and southern districts, which received very favourable rain. Comparative data for each

of the districts in the Deccan are given in the following table:—

District.	Rainfall.		
	Actual, October 1893.	Normal, October.	Percentage variation.
	Inches.	Inches.	
Dharwar	8·58	5·74	+ 49
Belgaum	8·85	5·90	+ 50
Bijapur	8·46	4·81	+ 76
Sholapur	6·25	4·16	+ 50
Satara	5·35	4·54	+ 18
Poona	3·03	4·44	−32
Ahmednagar	1·87	3·50	- 47

The rainfall of the month was somewhat irregularly distributed in Madras. The southern and the Deccan districts and Malabar received frequent local showers from the 5th to the 8th, and the whole of Madras moderate general rain from the slight disturbance which initiated the retreating south-west monsoon (the so-called north-east monsoon rains) in the presidency. These rains commenced on the 11th, and the first burst continued until the 13th in the southern and central coast districts, the 17th in the Deccan districts, and the 21st in the northern coast districts.

The second general burst of rain occurred in the interval between the second and third disturbances of the month. The southern and central coast districts obtained moderate rain from the 24th to the 26th, the central coast districts between the 20th and 27th and the Deccan districts on the 20th and 21st. The daily rainfalls were, as a rule, light to moderate in amount. The following falls exceeding 6 inches were registered:—

District.	Station.	Date.	Fall in inches.
Ganjam	Purushottapur	16th	6·50
	Sompet	17th	6·90
Godavari	Sivakodu	14th	7·03
Chingleput	Cheyyur	11th	6·82
South Arcot	Chidambaram	11th	7·70
	Thittagudi	11th	6·50

The following table gives comparative rainfall data of the month for each district of the presidency, as published in the rainfall statement for the month in the *Madras Gazette*:—

District.	Rainy days.		Rainfall.			Percentage variation.
	Average actual, October 1893.	Normal, October.	Average actual, October 1893.	Normal, October.	Variation from normal.	
Ganjam	7·7	7·5	7·69	7·82	−0·13	− 2
Vizagapatam	8·4	7·4	5·57	6·33	−0·76	−12
Godavari	9·8	7·8	7·39	7·71	−0·32	− 4
Kistna	7·7	7·5	4·53	6·21	−1·68	−27
Nellore	7·5	8·4	6·15	9·75	−3·60	−37
Madras	5·0	10·0	5·52	10·99	−5·47	−50
Chingleput	6·4	9·3	5·19	9·89	−4·70	−48
North Arcot	8·6	8·4	7·56	7·39	+0·17	+ 2
South Arcot	6·1	9·4	6·61	8·79	−2·18	−25
Tanjore	6·0	10·1	4·81	8·92	−4·11	−46
Trichinopoly	7·7	9·3	8·27	6·91	+1·36	+20
Madura	8·6	8·0	5·50	6·34	−0·84	−13
Tinnevelly	7·2	7·5	4·60	5·62	−1·02	−18
Malabar	12·0	12·1	8·51	9·48	−0·97	−10
South Canara	12·7	11·8	9·39	10·84	−1·45	−13
Salem	10·4	8·6	8·37	6·26	+2·11	+34
Combatore	10·2	7·8	6·78	5·50	+1·28	+23
Nilgiris	17·5	12·1	11·83	9·24	+2·59	+28
Cuddapah	9·1	7·0	6·36	6·53	−0·17	− 3
Anantapur	9·7	6·3	6·23	5·46	+0·77	+14
Bellary	9·7	6·3	7·37	4·76	+2·61	+55
Kurnool	5·8	6·0	5·65	5·26	+0·39	+ 7

The statement shows that the rainfall of the month was considerably in defect (over 33 per cent.) in the coast districts of Nellore, Madras, Chingleput and Tanjore, and that it was in moderate excess (over 20 per cent.) in the western districts of Bellary, Coimbatore and Salem. The variations were small in other districts.

The following table is a summary of the data for the eight meteorological divisions of the Madras presidency:—

Division.	Rainy days.		Rainfall.		Variation.
	Actual, October 1893.	Normal, October.	Actual, October 1893.	Normal, October.	
East Coast (North)	8·5	7·6	6·47	7·12	−0·65
Ditto (a)	7·5	6·7	3·78	4·76	−0·98
Ditto (Central)	7·5	8·4	6·15	9·75	−3·60
Ditto (South)	6·8	9·3	6·30	8·37	−2·07
Madras (South)	7·9	7·7	5·06	6·02	−0·96
Malabar (Coast)	12·3	12·0	8·84	10·04	−1·20
Madras (South Central)	10·3	8·2	7·62	5·92	+1·70
Madras (Central)	8·6	6·6	6·39	5·55	+0·84

Table

Abstract of Observations taken at 8 A.M. at 206

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.		...	...	−·015	...	...	...	...	...	...	...	86·0	−1·5	74·8	−0·5	80·5	−1·0	11·2	...	...	...	...	17·7
Bay Islands	Port Blair	61	29·829	?	29·821	29·951	23rd	29·625	26th	·326	79·0	84·8	?	75·9	?	80·8	?	8·9	89·0	24th	73·9	26th	15·1
Tenasserim	Mergui	96	29·839	?	29·867	29·921	29th	29·743	24th	·178	77·9	85·3	?	?	?	?	?	?	89·7	24th	?	...	?
	Tavoy	26	29·913	?	29·870	30·007	22nd	29·825	3rd	·182	78·5	85·9	?	72·9	?	79·3	?	13·3	89·2	2 days	68·7	31st	20·5
	Moulmein	94	29·834	−·020	29·866	29·957	22nd	29·691	3rd	·263	77·3	87·4	−0·7	73·9	−0·4	80·7	−0·6	13·5	90·5	9th	70·8	23rd	19·7
	Toungoo	131	29·736	−·008	29·862	29·859	30th	29·573	3rd	·286	77·6	88·1	−1·7	73·6	−1·0	80·9	−1·4	14·5	91·2	21st	70·2	31st	21·0
Lower Burma	Rangoon	41	29·877	−·016	29·855	30·010	23rd	29·721	3rd	·289	77·6	86·3	−1·1	74·9	−0·9	80·6	−1·0	11·4	88·7	26th	71·9	17th	16·8
	Bassein	27	29·892	−·011	29·855	30·028	23rd	29·746	3rd	·282	78·1	85·7	−1·2	74·6	−0·5	80·2	−0·9	11·1	88·7	2 days	71·9	23rd	16·8
	Diamond Island.	41	29·866	−·019	29·842	30·004	23rd	29·743	3rd	·261	80·3	84·2	−2·3	77·4	+0·9	80·8	−0·7	6·8	87·6	26th	74·4	2 days	13·2
Arakan	Akyab	20	29·885	−·015	29·848	30·022	30th	29·734	3rd	·288	79·0	86·1	−2·0	75·8	−0·9	81·0	−1·5	10·3	89·2	3 days	70·7	29th	18·5
II.—Burma Inland		...	...	+·002	...	...	...	...	...	...	...	86·4	−3·0	70·5	−1·0	78·5	−2·0	15·9	...	...	...	...	28·4
Central Burma	Thayetmyo	134	29·784	+·002	29·861	29·922	30th	29·602	3rd	·320	77·8	87·2	−3·0	73·3	−1·0	80·3	−2·0	13·9	90·1	2 days	68·1	31st	22·0
	Minbu	?	29·765	?	?	29·908	30th	29·574	3rd	·334	78·0	89·5	?	73·5	?	81·5	?	16·0	98·6	1st	68·1	2 days	30·5
	Yamethin	?	29·264	?	?	29·413	30th	29·096	3rd	·317	77·6	88·9	?	72·8	?	80·9	?	16·1	95·1	2 days	68·0	2 days	27·1
	Fort Stedman.	?	26·998	?	?	27·099	26th	26·840	3rd	·259	70·9	82·5	?	64·8	?	73·6	?	17·7	86·7	14th	57·5	19th	29·2
Upper Burma	Mandalay	?	29·667	?	?	29·784	22nd	29·506	3rd	·278	81·0	88·5	?	74·5	?	81·6	?	14·0	94·0	1st	67·1	30th	26·9
	Kendat	?	29·569	?	?	29·736	30th	29·373	3rd	·363	75·4	85·2	?	72·0	?	78·6	?	13·2	91·8	1st	67·6	6 days	24·2
	Lashio	?	27·192	?	?	27·313	30th	26·980	3rd	·333	68·1	80·9	?	62·9	?	72·0	?	18·0	89·0	24th	54·0	31st	35·0
	Bhamo	?	29·541	?	?	29·686	30th	29·348	3rd	·338	76·6	88·2	?	69·9	?	79·1	?	18·3	93·1	8th	60·9	31st	32·2
III.—Assam		...	...	−·005	...	...	...	...	...	...	...	86·0	−0·5	71·9	−0·3	78·9	−0·4	14·1	...	...	...	...	27·6
Assam (Surma)	Silchar	104	29·814	−·001	29·870	29·947	24th	29·603	3rd	·344	76·7	88·3	−0·6	72·7	+0·2	80·5	−0·2	15·6	95·6	16th	66·3	28th	29·3
Brahmaputra	Sibsagar	333	29·623	+·002	29·916	29·789	22nd	29·389	3rd	·400	74·8	84·4	−0·9	71·2	+0·3	77·8	−0·3	13·2	92·1	2nd	63·8	29th	28·3
	Dhubri	115	29·797	−·017	29·867	29·932	24th	29·596	3rd	·336	75·7	85·2*	+0·1	71·7	−1·5	78·5*	−0·7	13·5	91·2	3rd	65·9	3 days	25·3
IV.—Bengal and Orissa		...	...	−·013	...	...	...	...	...	...	...	86·6	−0·7	74·3	+0·4	80·5	−0·1	12·3	...	...	...	...	22·7
East Bengal	Chittagong	87	29·817	−·015	29·852	29·962	23rd	29·659	2nd	·303	78·4	85·8	−0·7	73·8	+0·1	79·9	−0·3	12·0	90·7	16th	70·1	22nd	20·6
	Lungleh	?	?	?	?	?	...	?	...	?	68·5	75·0	?	67·7	?	71·3	?	7·3	83·8	16th	63·1	26th & 27th.	20·7
	Noakhali	43	29·836	?	29·826	29·978	23rd	29·667	3rd	·311	79·3	84·9	?	74·5	?	79·7	?	10·4	89·5	2nd	68·8	22nd	20·7
	Comilla	36	29·862	?	29·846	29·992	24th	29·668	3rd	·324	79·1	86·9	?	74·1	?	80·5	?	12·8	91·3	2nd & 16th.	69·8	22nd & 23rd	21·5
	Sirajganj	46	29·851	?	29·847	29·976	24th	29·657	3rd	·319	78·4	87·2	?	74·1	?	80·7	?	13·1	91·1	2nd & 4th.	68·2	31st	22·9
	Dacca	20(a)	29·904†	+·016	29·871†	29·997	23rd	29·753	1st	·244	79·0†	87·1‡	−1·0	74·5‡	−0·8	80·8‡	−0·9	12·6	90·6	16th	70·2	31st	20·4
	Barisal	13	29·864	−·021	29·822	29·993	24th	29·686	3rd	·307	80·7	87·2	?	75·1	?	81·2	?	12·1	90·8	2 days	70·9	2 days	19·9
	Mymensingh	59	29·838	−·008	29·849	29·964	30th	29·650	3rd	·314	77·8	85·9	?	74·0	?	79·9	?	11·9	90·2	2 days	68·6	29th	21·6
Deltaic Bengal	Faridpur	46	29·861	?	29·855?	29·990	30th	29·687	3rd	·303	80·0	86·0	?	75·8	?	80·9	?	10·2	89·5	2nd	70·9	24th	18·6
	Jessore	33	29·862	−·019	29·842	29·998	30th	29·686	3rd	·312	81·0	87·9	−0·9	75·6	+0·7	81·7	−0·1	12·3	92·5	2 days	70·4	31st	22·1
	Calcutta	21	29·874	−·015	29·841	30·016	30th	29·703	3rd	·313	79·3	86·4	−0·3	74·8	+0·3	80·7	+0·1	11·6	90·1	4 days	70·2	31st	19·9
	Saugor Island	25	29·865	−·016	29·834	30·020	30th	29·704	3rd	·316	80·0	87·0	+0·1	76·7	+0·7	81·8	+0·4	10·3	90·2	2 days	71·0	30th	19·2
	Krishnagar	47	29·847	?	29·843	29·990	30th	29·670	3rd	·320	80·7	87·5	?	74·8	?	81·1	?	12·7	91·8	4th & 5th	69·2	31st	22·6
	Midnapore	149	29·756	?	29·853?	29·898	23rd & 30th.	29·593	3rd	·305	79·0	88·5	?	73·6	?	81·1	?	14·9	93·3	11th	66·2	30th & 31st	27·1

(a) 22 feet previous to 9th Oct. 1893.
* Mean of 30 days.
† Mean of 24 days.
‡ Mean of 23 days.

I.

Stations in India, Burma, etc., in October 1893.

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 October 1893.	Normal rainfall for period 1st October to 31st October.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13·18	9·53	+3·65	...	...	...	...	**I.—Burma Coast and Bay Islands.**	
6	1	2	1	2	4	5	7	3	5·8	?	?	90	·896	7·5	17	?	?	19·85	12·17	+ 7·68	19·85	12·17	+ 7·68	5·97	Port Blair .	Bay Islands.
...	4	5	2	2	5	7	3	3	1·2	1·5	−20	88	·844	7·6	19	?	?	15·67	13·54	+ 2·13	15·67	13·54	+ 2·13	4·73	Mergui .	Tenasserim.
27	...	1	...	1	...	1	...	1	1·3	?	?	84	·819	4·1	12	?	?	16·61	10·51	+ 6·10	16·61	10·51	+ 6·10	4·43	Tavoy.	
...	3	...	9	7	8	1	2	1	3·8	1·7	+124	88	·825	4·2	10	11·55	−1·55	10·90	8·28	+ 2·62	10·90	8·28	+ 2·62	3·16	Moulmein.	
17	3	...	1	5	2	...	1	2	1·1	1·8	−39	91	·869	6·6	14	10·55	+3·45	7·87	7·01	+ 0·86	7·87	7·01	+ 0·86	2·45	Toungoo.	
...	...	4	4	6	7	6	3	1	3·5	3·2	+ 9	91	·863	6·1	14	9·09	+4·91	9·40	7·09	+ 2·31	9·40	7·09	+ 2·31	2·15	Rangoon .	Lower Burma.
4	...	6	7	11	2	1	...	...	4·1	2·5	+64	92	·884	5·9	19	12·18	+6·82	11·77	8·21	+ 3·56	11·77	8·21	+ 3·56	3·70	Bassein.	
2	...	9	5	8	3	1	2	1	9·6	6·4	+50	86	·881	7·7	18	11·60	+6·40	16·74	8·92	+ 7·82	16·74	8·92	+ 7·82	4·59	Diamond Island.	
...	5	18	4	1	2	...	...	1	2·8	2·3	+22	91	·904	6·4	12	8·64	+3·36	9·84	10·03	− 0·19	9·84	10·03	− 0·19	2·35	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·78	4·44	+3·30	...	...	...	...	**II.—Burma Inland.**	
...	10	8	...	12	...	...	1	...	5·4	3·1	+74	88	·831	7·2	15	7·91	+7·09	10·51	4·47	+ 6·04	10·51	4·47	+6·04	3·17	Thayetmyo .	Central Burma.
8	1	1	2	7	3	1	1	7	7·7	?	?	81	·832	2·9	11	?	?	11·15	?	?	11·15	?	?	6·15	Minbu.	
17	2	...	...	7	3	1	...	1	5·9	?	?	86	·816	1·0	15	?	?	16·37	?	?	16·37	?	?	3·40	Yamethin.	
23	3	1	...	...	...	2	...	2	?	?	?	88	·672	5·1	13	?	?	7·08	?	?	7·08	?	?	1·55	Fort Stedman	
13	1	2	...	1	14	...	...	...	1·2	?	?	79	·848	4·5	7	?	?	6·69	2·85	+ 3·84	6·69	2·85	+ 3·84	1·50	Mandalay .	Upper Burma.
...	6	...	2	...	4	2	7	10	1·6	?	?	92	·816	6·8	10	?	?	11·77	5·99	+ 5·78	11·77	5·99	+ 5·78	5·96	Kendat.	
...	13	14	...	...	...	...	...	4	?	?	?	91	·629	9·8	7	?	?	4·72	?	?	4·72	?	?	1·35	Lashio.	
12	2	5	...	1	..	5	2	4	0·3	?	?	85	·783	4·9	5	?	?	1·98	4·45	− 2·47	1·98	4·45	− 2·47	0·45	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·46	4·49	+1·97	...	...	...	...	**III.—Assam.**	
...	1	...	...	1	...	...	...	...	0·5	2·1	−76	91	·834	6·9	11	6·30	+4·70	11·42	4·87	+ 6·55	11·42	4·87	+ 6·55	2·66	Silchar .	Assam (Surma).
29	1	9	4	5	...	7	1	...	1·6*	2·0	−20	96	·832	5·4	6	7·45	−1·45	5·07	5·17	− 0·10	5·07	5·17	− 0·10	2·29	Sibsagar .	Brahmaputra.
4	2	12	8	1	2	1	...	1	4·9	2·9	+69	93	·829	4·5	3	3·50	−0·50	2·89	3·43	− 0·54	2·89	3·43	− 0·54	1·58	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·13	5·04	+0·83	...	...	...	...	**IV.—Bengal and Orissa.**	
2	...	12	8	5	2	1	1	...	3·8	3·0	+27	91	·883	6·6	13	6·64	+6·36	15·59	5·03	+10·56	15·59	5·03	+10·56	3·60	Chittagong .	East Bengal.
?	?	?	?	?	?	?	?	?	?	?	?	93	·653	?	19	?	?	15·89	?	?	15·89	?	?	3·40	Lungleh.	
...	3	6	8	7	2	2	...	3	3·6	?	?	92	·920	2·9	11	6·95	+4·05	16·55	6·86	+ 9·69	16·55	6·86	+ 9·69	3·90	Noakhali.	
7	6	4	6	1	5	2	...	...	2·7	?	?	88	·870	4·8	10	5·72	+4·28	11·70	4·23	+ 7·37	11·70	4·23	+ 7·37	2·84	Comilla.	
23	1	1	2	2	1	...	...	1	1·7	?	?	91	·878	4·6	8	5·05	+2·95	5·31	4·38	+ 0·93	5·31	4·38	+ 0·93	1·82	Sirajganj.	
1	3	7	3	3	1	2	2	2	3·6‡	2·3	+57	87‡	·868‡	4·5†	7	5·27	+1·73	5·03	4·71	+ 0·32	5·03	4·71	+ 0·32	1·33	Dacca.	
24	2	4	...	...	...	1	...	...	2·4	?	?	88	·930	5·5	13	5·90	+7·10	8·58	4·98	+ 3·60	8·58	4·98	+ 3·60	2·37	Barisal.	
1	3	8	11	4	1	...	...	3	2·7	?	?	91	·869	5·7	10	5·50	+4·50	7·14	5·69	+ 1·45	7·14	5·69	+ 1·45	1·86	Mymensingh.	
13	5	1	5	1	2	1	2	1	1·6	?	?	88	·905	3·7	3	5·30	−2·30	2·03	4·30	− 2·27	2·03	4·30	− 2·27	0·66	Faridpur .	Deltaic Bengal.
4	6	3	2	4	2	3	2	5	2·5	2·1	+19	88	·931	4·4	7	5·73	+1·27	4·99	3·75	+ 1·24	4·99	3·75	+ 1·24	1·65	Jessore.	
5	9	2	2	2	3	2	3	3	2·2	3·2	−31	84	·856	3·3	8	5·45	+2·55	7·34	3·79	+ 3·55	7·34	3·79	+ 3·55	2·12	Calcutta.	
...	7	3	3	3	2	3	5	5	9·0	6·5	+38	87	·891	7·1	7	7·82	−0·82	5·38	7·96	− 2·58	5·38	7·96	− 2·58	2·07	Saugor Island.	
...	5	1	7	5	2	3	4	4	3·7	?	?	81	·849	4·6	8	5·30	+2·70	5·12	4·19	+ 0·93	5·12	4·19	+ 0·93	1·20	Krishnagar.	
3	10	7	...	2	4	...	...	5	2·5	?	?	82	·816	2·8	3	5·25	−2·25	3·77	4·78	− 1·01	3·77	4·78	− 1·01	2·79	Midnapore.	

* Mean of 30 days. † Mean of 24 days. ‡ Mean of 23 days.

Table

Abstract of Observations taken at 8 A.M. at 206 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 Bengal.	Bankura	298	29·586	?	29·839	29·735	30th	29·401	3rd	·330	77·6	87·4	?	73·7*	?	80·6*	?	13·7	92·1	3 days	66·7	30th	25·4
	Raniganj	334	29·575	?	29·864	29·719	30th	29·410	3rd	·309	77·5	?	?	73·0	?	?	?	?	?	...	65·0	30th	?
	Burdwan	99	?	?	?	?	?	?	?	?	79·1	87·4	−1·3	75·1	+0·4	81·3	−0·5	12·3	91·1	3 days	70·2	2 days	20·9
	Naya Dumka	489	29·404	?	29·856	29·545	30th	29·229	3rd	·316	78·5	86·6	?	72·5	?	79·6	?	14·1	90·6	4 days	66·4	31st	24·2
	Berhampore	67	29·833	−·019	29·849	29·968	30th	29·649	3rd	·319	78·4	86·5	−1·3	75·9*	+1·4	81·2*	+0·1	10·6	90·6	2 days	69·7	31st	20·9
	Rampur Boalia.	70	29·820	?	29·840	29·956	30th	29·640	3rd	·316	80·0	86·5	?	74·4	?	80·5	?	12·1	90·1	4 days	67·7	31st	22·4
	Malda	80	29·818	?	29·850	29·959	25th	29·637	3rd	·322	78·7	86·7	?	73·6	?	80·2	?	13·1	91·6	3 days	66·0	31st	25·6
	Bogra	61	29·829?	−·045?	29·843	29·952	24th	29·613	3rd	·309	79·1	86·6	?	72·8	?	79·7	?	13·8	90·2	4 days	68·2	5 days	22·0
North Bengal	Dinajpur	123	29·787	+·002	29·865	29·917	24th	29·598	3rd	·319	78·4	87·1	?	73·8	?	80·5	?	13·3	91·6	2 days	66·3	31st	25·3
	Rangpur	123	29·786	?	29·865	29·918	30th	29·587	3rd	·331	78·1	87·0	?	73·2	?	80·1	?	13·8	91·3	3rd & 6th	64·7	31st	26·6
	Jalpaiguri	284	29·645	+·009	29·885	29·782	24th	29·446	3rd	·336	76·7	86·9	?	71·3	?	79·1	?	15·6	90·9	3 days	61·6	31st	29·3
Orissa	Balasore	56	29·835	−·016	29·838	29·988	23rd	29·675	3rd	·313	78·8	87·6	?	73·5	?	80·6	?	14·1	92·4	4th	66·8	31st	25·6
	False Point	21	29·872	−·016	29·835	30·028	23rd & 30th	29·726	3rd	·302	80·8	87·5	+0·1	75·2	+0·4	81·4	+0·3	12·3	93·5	4th	69·1	31st	24·4
	Cuttack	80	29·805	−·017	29·828	29·963	30th	29·670	3rd	·293	79·7	89·3*	−0·7	74·5	0	81·9*	−0·4	14·8	93·2	3 days	65·8	31st	27·4
	Shortt's Island	?	29·870	?	?	30·034	23rd	29·722	3rd	·312	82·7	87·3	?	79·0	?	83·2	?	8·3	92·2	4th & 5th	75·4	31st	16·8
	Puri	15	29·868	?	29·823	30·029	30th	29·733	3rd	·296	81·2	88·9	?	77·3	?	83·2	?	11·6	93·7	3 days	70·6	31st	23·1
V.—Gangetic Plain and Chota Nagpur.		...	...	−·016	...	...	...	...	...	...	...	86·9	−1·5	69·9	+0·4	78·4	−0·6	17·0	...	...	...	...	29·1
Chota Nagpur	Hazaribagh	2,007	27·832	−·019	29·853	28·015	23rd	27·735	3rd	·280	72·7	82·1	−1·0	65·7	−1·2	73·9	−1·1	16·4	86·7	10th	59·7	30th	27·0
	Ranchi	2,128	27·754	?	29·845	27·889	23rd	27·620	3rd	·269	72·2	80·9	?	66·1	?	73·5	?	14·8	85·5	9th & 10th.	60·5	29th & 31st.	25·0
	Daltonganj	730?	29·112?	?	29·812?	29·265	23rd	28·965	3rd	·300	76·5	86·7	?	68·0	?	77·4	?	18·7	90·3	5 days	57·0	31st	33·3
	Chaibassa	760	29·124	−·006	29·838	29·275	23rd	28·973	3rd	·302	77·0	88·0	?	70·9	?	79·5	?	17·1	92·4	14th	61·5	30th	30·9
Bihar (South)	Gaya	375	29·521	−·012	29·854	29·666	2 days	29·348	3rd	·318	76·8	88·6	−0·8	72·0	+1·1	80·3	+0·2	16·6	93·4	3 days	64·7	2 days	28·7
	Dehri	351	29·558	?	29·867	29·713	30th	29·389	3rd	·324	77·9	87·1	?	70·2	?	78·7	?	16·9	91·8	11th	62·5	31st	29·3
	Patna	183	29·717	−·020	29·854	29·864	24th	29·539	3rd	·325	79·3	86·6	−1·8	72·9	+0·3	79·8	−0·8	13·7	91·5	2 days	66·3	31st	25·2
	Arrah	190	29·702	?	29·846	29·848	23rd	29·522	3rd	·326	77·7	88·5	?	72·1	?	80·3	?	16·4	93·4	4 days	64·0	31st	29·4
	Buxar	239	29·655	?	29·852	29·803	25th	29·485	3rd	·318	77·6	87·6	?	72·0	?	79·8	?	15·6	93·0	11th & 12th.	63·9	31st	29·1
Bihar (North)	Purnea	125	29·778	−·009	29·858	29·920	30th	29·587	3rd	·333	77·7	86·9	−0·9	73·8	+2·5	80·3	+0·8	13·1	91·4	7th	65·3	31st	26·1
	Bhagalpur	160	29·731	?	29·846	29·874	25th	29·542	3rd	·332	79·0	87·5	?	72·5	?	80·0	?	15·0	91·7	3 days	65·0	30th	26·7
	Darbhanga	166	29·734	−·022	29·856	29·880	30th	29·543	3rd	·337	78·5	86·0	−0·2	73·8	+0·1	79·9	−0·1	12·2	91·0	3 days	68·2	3 days	22·8
	Muzaffarpur	178	29·722	?	29·855	29·862	25th	29·534	3rd	·328	78·1	85·8	?	72·3	?	79·1	?	13·5	90·7	6 days	65·3	31st	25·4
	Motihari	224	29·662	?	29·846	29·801	25th	29·466	3rd	·335	77·4	86·1	?	70·8	?	78·4	?	15·3	91·2	3 days	63·8	31st	27·4
	Chapra	181	29·714	?	29·850	29·854	24th	29·536	3rd	·318	79·5	87·5	?	72·3	?	79·9	?	15·2	92·8	11th	65·6	29th	27·2
N.-W. P. (Eastern Districts).	Benares	267	29·624	−·017	29·852	29·771	25th	29·445	3rd	·326	74·8	87·6	−2·7	68·7	0	78·2	−1·4	18·9	93·3	10th	60·8	31st	32·5
	Allahabad	309	29·572	−·030	29·841	29·725	23rd	29·395	3rd	·330	76·1	89·2	−0·9	68·1	+0·4	78·7	−0·3	21·1	94·4	5th & 11th.	61·9	29th & 31st.	32·5
N.-W. P. (East Submontane).	Gorakhpur	256	29·636	−·012	29·855	29·780	30th	29·450	3rd	·330	77·7	86·1	−2·8	70·2	−0·1	78·2	−1·5	15·9	91·9	10th	64·3	28th & 29th.	27·6
Oudh (South)	Lucknow	375	29·514	−·016	29·856	29·670	30th	29·319	3rd	·351	74·5	88·5	−2·7	66·1	+0·4	77·3	−1·2	22·4	94·3	11th	60·0	26th & 29th.	34·3
Oudh (North)	Bahraich	403	29·484	?	29·854	29·631	30th	29·291	3rd	·340	76·3	87·3	?	68·2	?	77·8	?	19·1	93·4	4th	62·0	30th	31·4
N.-W. Provinces (Central).	Cawnpore	416	29·470	?	29·853	29·629	23rd	29·284	3rd	·345	75·4	88·1	?	65·8	?	77·0	?	22·3	93·1	5 days	60·0	25th & 26th.	33·1
	Mainpuri	516	29·348	?	29·835	29·489	24th	29·173	3rd	·316	72·0	89·5	?	65·2	?	77·4	?	24·3	94·3	3 days	60·0	25th & 30th.	34·3

*Mean of 30 days.

I—*continued.*

in India, Burma, etc., in October 1893—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 31st Oct. 1893.	Normal rainfall for period 1st Oct. to 31st Oct.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
18	4	1	2	2	1	...	2	1	2·0	?	?	83	·787	4·5	6	5·50	+0·50	3·25	4·15	− 0·90	3·25	4·15	− 0·90	1·20	Bankura	Central Bengal.
5	6	4	1	4	1	...	1	9	1·7	?	?	85	·803	2·1	5	4·00	+1·00	2·94	3·41	− 0·47	2·94	3·41	− 0·47	1·23	Raniganj.	
3	7	7	2	3	2	...	1	6	2·6	2·1	+24	83	·831	4·0	6	4·64	+1·36	5·16	3·31	− 1·85	5·16	3·31	+ 1·85	2·23	Burdwan.	
5	5	2	4	3	1	1	2	8	?	?	?	80	·785	2·4	7	4·89	+2·11	4·50	4·08	+0·42	4·50	4·08	+ 0·42	1·55	Naya Dumka.	
7	7	...	7	1	2	1	1	5	2·0	2·1	− 5	91	·885	5·0	7	5·55	+1·45	3·09	4·57	− 1·48	3·09	4·57	− 1·48	0·91	Berhampore.	
6	8	7	1	5	...	3	...	1	3·6	?	?	81	·889	4·0	8	5·30	+2·70	4·56	4·44	+ 0·12	4·56	4·44	+ 0·12	1·40	Rampur Boalia.	
8	...	5	...	7	...	1	...	10	2·6	?	?	87	·856	3·0	6	4·35	+1·65	6·15	4·38	+ 1·77	6·15	4·38	+ 1·77	2·12	Malda.	
11	3	11	3	3	...	...	...	...	1·8	?	?	87	·867	2·4	10	4·70	+5·30	4·81	3·98	+ 0·83	4·81	3·98	+ 0·83	1·05	Bogra.	
...	4	7	6	1	2	2	6	3	1·2	?	?	86	·842	3·6	5	3·20	+1·80	3·38	5·13	− 1·75	3·38	5·13	− 1·75	1·27	Dinajpur	North Bengal.
3	4	5	7	6	3	1	1	1	1·4*	?	?	88	·849	2·5	5	3·95	+1·05	1·74	5·32	− 3·58	1·74	5·32	− 3·58	0·64	Rangpur.	
6	5	6	4	5	2	...	1	2	1·9	?	?	85	·783	5·1	4	4·80	−0·80	2·89	5·60	− 2·71	2·89	5·60	− 2·71	2·15	Jalpaiguri.	
2	6	7	3	...	1	3	1	8	3·1	?	?	89	·879	2·5	5	6·75	−1·75	5·08	6·41	− 1·33	5·08	6·41	− 1·33	1·92	Balasore	Orissa.
...	10	2	1	2	6	2	3	5	7·4	6·1	+21	84	·833	5·3	6	7·36	−1·36	4·61	8·82	− 4·21	4·61	8·82	− 4·21	1·76	False Point.	
16	...	4	1	1	...	1	6	2	1·8	1·9	− 5	77	·782	3·2	5	6·18	−1·18	5·47	4·18	+ 1·29	5·47	4·18	+ 1·29	2·22	Cuttack.	
...	6	4	2	2	2	2	8	5	11·6	?	?	78	·870	3·7	5	?	?	3·56	?	?	3·56	?	?	1·65	Shortt's Island	
11	15	1	...	...	2	2	...	...	8·1	?	?	78	·842	3·2	8	8·55	−0·55	8·32	8·81	− 0·49	8·32	8·81	− 0·49	3·98	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·91	2·73	+2·27	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
6	5	2	3	2	4	2	1	6	6·1	5·0	+ 22	78	·634	4·1	7	4·55	+2·45	6·18	3·1	+ 3·08	6·18	3·10	+ 3·08	2·79	Hazaribagh.	Chota Nagpur.
9	4	...	2	2	2	2	3	7	4·4	?	?	80	·634	3·6	7	4·55	+2·45	4·91	2·98	+ 1·93	4·91	2·98	+ 1·93	2·11	Ranchi.	
...	...	2	2	2	3	6	2	14	2·2	?	?	79	·724	2·8	4	?	?	2·94	?	?	2·94	?	?	0·96	Daltonganj.	
21	1	2	2	1	1	1	2	...	0·7	?	?	83	·779	5·7	2	4·60	−2·60	0·76	2·95	− 2·19	0·76	2·95	− 2·19	0·38	Chaibassa.	
2	1	...	8	8	6	1	4	1	5·2*	1·5	+247	82	·763	3·1	4	2·91	+1·09	1·67	2·37	− 0·70	1·67	2·37	− 0·70	0·96	Gaya	Bihar (South).
...	...	...	3	3	9	13	1	2	5·1	?	?	80	·769	2·0	4	2·75	+1·25	5·36	2·89	+ 2·47	5·36	2·89	+ 2·47	2·00	Dehri.	
2	...	2	8	1	4	3	9	2	2·9	1·9	+ 53	76	·761	3·5	5	3·55	+1·45	6·13	3·12	+ 3·01	6·13	3·12	+ 3·01	2·68	Patna.	
1	6	3	3	3	2	4	4	5	2·1	?	?	84	·800	2·7	4	3·70	+0·30	3·60	3·28	+ 0·32	3·60	3·28	+0·32	1·79	Arrah.	
3	1	...	6	1	1	6	10	3	2·9	?	?	80	·754	3·1	4	3·00	+1·00	8·47	3·35	+ 5·12	8·47	3·35	+5·12	3·49	Buxar.	
21	...	...	3	1	1	3	2	...	0·9	1·4	− 36	90	·861	3·0	5	3·64	+1·36	4·02	3·69	+ 0·33	4·02	3·69	+0·33	2·30	Purnea	Bihar (North).
23	...	...	4	1	1	1	1	...	0·8	?	?	85	·840	3·6	6	3·15	+2·85	4·57	3·20	+ 1·37	4·57	3·20	+1·37	1·65	Bhagalpur.	
9	1	4	4	2	...	1	4	6	2·5	2·2	+ 14	85	·834	2·2	6	2·91	+3·09	9·32	3·59	+ 5·73	9·32	3·59	+5·73	5·44	Darbhanga.	
14	...	1	3	3	...	2	5	3	2·3*	?	?	86	·836	2·1	4	2·95	+1·05	11·82	3·47	+ 8·35	11·82	3·47	+8·35	9·84	Muzaffarpur.	
13	...	1	3	4	3	...	3	4	3·0	?	?	85	·802	2·4	5	2·39	+2·61	8·40	3·49	+ 4·91	8·40	3·49	+ 4·91	6·23	Motihari.	
...	3	3	5	3	5	4	4	4	3·0	?	?	78	·782	2·6	4	2·90	+1·10	4·23	3·60	+ 0·63	4·23	3·60	+0·63	1·92	Chapra.	
17	1	1	3	1	...	4	3	1	2·6	2·6	0	84	·732	2·5	4	2·45	+1·55	3·39	2·45	+ 0·94	3·39	2·45	+0·94	1·80	Benares	N.-W. P. (Eastern Districts).
6	...	2	1	1	2	5	7	7	3·0	1·6	+ 88	77	·694	2·0	3	1·64	+1·36	3·18	1·63	+ 1·55	3·18	1·63	+1·55	1·50	Allahabad.	
7	8	1	3	1	4	...	3	4	1·5	1·3	+ 15	78	·742	1·8	4	2·64	+1·36	10·69	3·80	+ 6·89	10·69	3·80	+6·89	4·74	Gorakhpur	N.-W. P. (East Submontane).
28	...	...	2	...	...	...	1	...	0·4	1·9	− 79	81	·685	1·7	3	1·36	+1·64	1·75	0·73	+ 1·02	1·75	0·73	+1·02	0·91	Lucknow.	Oudh (South).
13	5	4	4	2	...	...	...	3	1·8	?	?	83	·758	1·7	3	?	?	3·25	1·69	+ 1·56	3·25	1·69	+1·56	1·87	Bahraich	Oudh (North).
5	1	4	1	1	1	5	9	4	2·3	?	?	76	·662	1·5	4	1·6	+2·4	1·38	1·08	+ 0·30	1·38	1·08	+0·30	0·71	Cawnpore	N.-W. Provinces (Central).
20	...	...	...	...	...	1	...	...	1·2	?	?	78	·621	1·3	2	?	?	1·95	0·82	+ 1·13	1·95	0·82	+1·13	1·10	Mainpuri.	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 206 Stations

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.
VI.—Upper Sub-Himalayas		...	...	−·014	...	...	...	...	...	...	...	88·6	−1·9	61·7	−0·5	75·2	−1·2	26·9	...	...	...	...	38·5
N.-W. Provinces (Submontane).	Bareilly	568	29·304	−·018	29·848	29·456	23rd	29·109	3rd	·347	72·9	86·5	−3·1	65·2	−0·2	76·1*	−1·7	21·3	94·3	2nd	61·7	6 days	32·6
	Dehra Dun	2,233	27·666	−·021	29·885	27·802	23rd	27·489	3rd	·313	67·0	81·1	−0·5	61·2	+0·3	71·2	−0·1	19·9	86·5	8th	56·0	31st	30·5
	Roorkee	887	28·996	−·021	29·863	29·135	23rd	28·792	3rd	·343	69·4	87·1	−2·4	62·9	+1·4	75·0	−0·5	24·2	91·3	4 days	56·4	29th	34·9
	Meerut	738	29·142	−·010	29·864	29·278	23rd	28·952	3rd	·326	69·8	88·6	−1·9	62·1	−0·8	75·4	−1·4	26·5	93·3	9th	56·5	23rd	36·8
Punjab (Central)	Delhi	718	29·157	−·016	29·849	29·301	23rd	28·972	3rd	·329	75·2	89·5	−2·9	67·9	−0·2	78·7	−1·6	21·6	93·6	3 days	61·6	25th	32·0
	Lahore	702	29·170	−·010	29·857	29·328	23rd	28·958	3rd	·370	72·3	92·4	−1·4	61·3	+1·2	76·9	−0·1	31·1	96·3	2nd & 3rd	53·2	31st	43·1
Punjab (Submontane).	Umballa	962?	28·995	?	29·886?	29·149	23rd	28·793	3rd	·356	69·9	92·3	?	60·5	?	76·4	?	31·8	101·0	6th	55·0	15th & 23rd.	46·0
	Ludhiana	812	29·072	−·003	29·872	29·226	23rd	28·880	3rd	·346	70·4	90·5	−2·0	61·9	−2·1	76·2	−2·1	28·6	94·1	3rd & 8th	56·2	15th	37·9
Punjab (North)	Sialkot	830	29·048	0	29·871	29·210	23rd	28·833	3rd	·377	69·4	92·1	−0·4	60·5	−1·5	76·4	−1·0	31·6	99·6	6th	52·2	31st	47·4
	Rawalpindi	1,649	28·235	−·024	29·878	28·393	30th	28·028	3rd	·365	61·4	85·8	−28	53·8	−2·5	69·8	−2·7	32·0	90·0	2nd & 3rd.	46·5	31st	43·5
VII.—Indus Valley and N.-W. Rajputana.		...	...	−·007	...	...	...	...	...	...	...	95·1	−0·3	64·6	−1·1	79·7	−0·8	30·1	...	...	...	...	44·7
Punjab (West)	Peshawar	1,110	28·812	−·002	29·884	28·958	23rd	28·578	3rd	·380	67·6	88·4	−0·5	56·2	−1·3	72·3	−0·9	32·2	94·5	3rd	47·0	17th	47·5
	Mardan	?	?	?	?	?	...	?	...	?	67·0	99·4	?	?	?	?	?	?	100·8	2nd	?	...	?
	Khushab	612	29·249	?	29·843	29·421	23rd	29·025	3rd	·396	72·2	94·2	?	62·1	?	78·2	?	32·1	99·0	3rd & 9th.	54·1	18th & 31st.	44·9
	Montgomery	558	29·310	?	29·847	29·486	23rd	29·093	3rd	·393	74·5	96·3	?	61·3	?	78·8	?	35·0	101·4	6th & 11th.	51·8	16th	49·6
	D. I. Khan	573	29·286	−·030	29·846	29·466	30th	29·053	3rd	·413	68·6	94·2	−0·2	60·2	−1·4	77·2	−0·8	34·0	101·1	3rd	50·8	18th	50·3
	Mooltan	420	29·455	−·012	29·855	29·643	23rd	29·220	3rd	·423	73·2	95·9	+0·8	65·2	+0·5	80·6	+0·7	30·7	101·9	7th	56·2	19th	45·7
	Sirsa	662	29·206	−·021	29·849	29·354	23rd	29·019	3rd	·335	71·4	96·1	−0·1	62·5	−0·3	79·4	−0·2	33·6	99·9	3 days	53·8	20th	46·1
Sind and Cutch	Jacobabad	186	29·704	+·001	29·856	29·894	23rd	29·494	3rd	·400	74·2	99·1	+1·0	62·0	−1·4	80·6	−0·2	37·1	103·0	9th & 11th.	50·5	17th	52·5
	Hyderabad	117	29·784	+·009	29·855	29·958	23rd	29·560	3rd	·398	76·8	95·9	−1·7	70·7†	−1·6	83·8†	−1·7	25·2	102·2	10th	58·1	17th	44·1
	Kurrachee	49	29·878	−·002	29·879	30·051	23rd	29·680	3rd	·371	76·2	90·7	−0·5	70·1	−1·5	80·4	−1·0	20·6	99·0	10th	62·0	17th	37·0
	Bhuj	395	29·531	−·002	29·883	29·700	23rd	29·378	3rd	·322	79·4	95·1	−0·6	69·8	−1·6	82·5	−1·1	25·3	100·5	10th	62·9	21st	37·6
Rajputana (West)	Bickaneer	753	29·139	?	29·860	29·305	23rd	28·962	3rd	·343	77·3	95·1	−0·8	71·9	−1·0	83·5	−0·9	23·2	98·1	3 days	63·8	19th	34·3
	Pachpadra	380	29·545	?	29·888	29·731	23rd	29·391	3rd	·340	76·1	94·8	?	62·7	?	78·8	?	32·1	99·5	10th	52·8	18th	46·7
VIII.—East Rajputana, Central India and Guzerat.		...	...	−·003	...	...	...	...	...	...	...	91·0	−1·3	65·2	−2·8	78·1	−2·1	25·8	...	...	...	...	37·7
Rajputana (East)	Jeypore	1,431	28·489	−·010	29·893	28·636	23rd	28·323	3rd	·313	75·5	93·2	0	62·4	−2·4	77·8	−1·2	30·8	96·6	11th & 12th.	56·1	19th	40·5
	Sambhar	1,254	28·642	−·017	29·878	28·792	23rd	28·480	3rd	·312	72·5	90·9	−0·7	62·1	−3·0	76·5	−1·9	28·8	95·5	9th	55·4	18th	40·1
	Ajmere	1,611	28·327	+·008	29·930	28·486	23rd	28·172	3rd	·314	71·0	88·7	−2·8	60·4	−2·7	74·6	−2·8	28·3	91·4	12th	50·3	18th	41·1
	Deesa	466	29·461	−·003	29·891	29·621	23rd	29·313	3rd	·308	75·7	94·3	−1·7	64·0	−3·1	79·2	−2·4	30·3	100·4	10th	55·1	18th	45·3
Kattywar	Rajkot	429	29·505	+·002	29·892	29·666	23rd	29·379	3rd	·287	78·7	94·9	−0·4	66·2	−2·4	80·6	−1·4	28·7	99·4	14th	60·4	21st	39·0
	Veraval	?	29·914	?	29·874	30·064	23rd	29·786	13th	·278	79·5	89·0	?	70·8	?	80·0	?	18·2	97·6	17th	64·3	18th	33·3
	Bhavnagar	?	29·911	?	29·897	30·072	23rd	29·779	13th	·293	77·5	92·3	?	71·7	?	82·0	?	20·6	98·4	3rd	63·0	18th	35·4
Central India	Nowgong	757	29·140	−·016	29·868	29·293	23rd	28·985	3rd	·308	72·5	86·8	−4·1	63·2	−2·3	75·0	−3·2	23·6	92·0	3rd & 10th.	57·0	20th & 28th.	35·0
	Indore	1,823	28·101	−·001	29·892	28·242	23rd	27·984	3rd	·258	72·6	87·0	−0·1	59·1	−5·1	73·1	−2·6	27·9	90·0	3 days	54·0	3 days	36·0
	Neemuch	1,630	28·303	+·004	29·907	28·440	23rd	28·168	3rd	·272	74·2	89·2	−0·7	61·2	−3·7	75·2	−2·2	28·0	92·8	13th	53·8	3 days	39·0
Guzerat	Surat	36	29·839	+·003	29·879	30·042	23rd	29·767	13th	·275	74·6	92·7	+0·3	67·4	−3·3	80·1	−1·5	25·3	96·2	9th & 10th.	58·0	18th & 20th.	38·2
	Ahmedabad	176	29·770	?	29·898	29·930	23rd	29·653	3rd	·277	77·5	94·2	?	69·8*	?	82·0*	?	24·4	98·2	9th & 11th.	63·6	18th	34·3
N.-W. P. (West)	Agra	555	29·355	−·006	29·882	29·498	23rd	29·175	3rd	·323	73·3	90·9	−2·5	65·6	−2·7	78·3	−2·6	25·3	96·5	3rd	60·6	28th	35·9
	Jhansi	858	29·049	−·002	29·875	29·206	23rd	28·883	3rd	·323	76·0	90·5	−2·0	68·6?	+0·1?	79·6?	−1·0	21·9	96·5	3 days	62·4	19th & 20th.	34·1

* Mean of 30 days. † Mean of 23 days.

I—*continued.*

in India, Burma, etc., in October 1893—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 October 1893.	Normal rainfall for period, 1st October to 31st October.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	..	1·11	0·49	+0·62	...	...	...	...	**VI.—Upper Sub-Himalayas.**	
27	...	1	...	1	...	...	...	2	0·2	1·9	−89	80	·658	1·6	3	0·91	+2·09	6·19	0·97	+5·22	6·19	0·97	+5·22	4·63	Bareilly	N.-W. Provinces (Submontane).
30	...	...	...	...	1	...	...	...	0·9	1·7	−47	76	·506	2·0	3	1·20	+1·80	2·80	1·07	+1·73	2·80	1·07	+1·73	2·20	Dehra Dun.	
27	1	1	...	2	...	...	...	...	0·4	1·4	−71	83	·596	1·6	1	0·55	+0·45	1·21	0·43	+0·78	1·21	0·43	+0·78	1·16	Roorkee.	
20	...	...	...	1	...	1	8	1	0·7	1·4	−50	73	·531	1·3	1	0·45	+0·55	0·28	0·60	−0·32	0·28	0·60	−0·32	0·23	Meerut.	
24	...	...	1	1	...	2	3	...	1·0	2·4	−58	55	·474	0·9	1	0·18	+0·82	0·16	0·17	−0·01	0·16	0·17	−0·01	0·11	Delhi	Punjab (Central).
22	1	...	1	4	1	...	2	...	1·1	1·6	−31	61	·489	0·2	0	0·45	−0·45	0	0·22	−0·22	0	0·22	−0·22	0	Lahore.	
9	...	5	...	...	...	1	...	16	1·2	?	?	76	·560	1·1	0	?	?	0	0·31	−0·31	0	0·31	−0·31	0	Umballa	Punjab (Submontane).
31	...	...	...	...	...	...	...	...	0·7	0·9	−22	69	·520	0·8	0	0·55	−0·55	0	0·42	−0·42	0	0·42	−0·42	0	Ludhiana	
26	1	...	4	...	...	...	...	...	0·8	1·4	−43	64	·459	0·2	0	0·82	−0·82	0	0·21	−0·21	0	0·21	−0·21	0	Sialkot	Punjab (North).
24	1	4	...	...	...	...	...		0·4	1·2	−67	73	·408	0·2	1	1·45	−0·45	0·42	0·52	−0·10	0·42	0·52	−0·10	0·42	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·08	−0·08	...	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
18	1	...	1	1	5	3	2	...	2·7	2·5	+8	58	·396	0·4	0	0·27	−0·27	0	0·12	−0·12	0	0·12	−0·12	0	Peshawar	Punjab (West).
Not recorded.									?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Mardan.	
10	2	13	5	...	...	...	...	1	2·5	?	?	48	·392	0·1	0	0·2	−0·2	0·02	0·07	−0·05	0·02	0·07	−0·05	0·02	Khushab.	
13	1	1	3	4	4	4	1	...	2·6	?	?	55	·475	0·1	0	0·1	−0·1	0	0·06	−0·06	0	0·06	−0·06	0	Montgomery.	
20	2	6	2	1	...	...	...	...	1·6	1·2	+33	57	·406	0	0	0·09	−0·09	0	0·04	−0·04	0	0·04	−0·04	0	D. I. Khan.	
16	...	...	...	4	...	11	...	...	1·0	2·0	−50	60	·501	0	0	0	0	0	0	0	0	0	0	0	Mooltan.	
16	...	1	...	1	1	2	9	1	4·1	2·5	+64	57	·443	0·3	0	0·64	−0·64	0	0·19	−0·19	0	0·19	−0·19	0	Sirsa.	
23	...	...	...	5	2	1	...	...	2·1	2·2	−5	53	·460	0	0	0	0	0	0	0	0	0	0	0	Jacobabad	Sind and Cutch.
8	2	...	...	...	7	13	...	1	22·7	7·8	+191	61	·542	0	0	0	0	0	0	0	0	0	0	0	Hyderabad.	
...	...	10	...	...	...	9	10	2	12·7	9·7	+31	79	·717	2·4	0	0	0	0	0	0	0	0	0	0	Kurrachee.	
6	7	...	...	...	...	1	7	10	8·2	6·0	+37	60	·595	1·4	0	?	?	0	0·42	−0·42	0	0·42	−0·42	0	Bhuj.	
...	1	1	...	...	4	17	6	2	5·0	4·0	+25	44	·416	0·8	0	?	?	0	0·05	−0·05	0	0·05	−0·05	0	Bickaneer	Rajputana (West).
23	...	1	...	2	2	1	...	2	0·4	3·7	−89	54	·493	1·0	0	?	?	0	0·05	−0·05	0	0·05	−0·05	0	Pachpadra.**	
...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·52	0·75	−0·18	...	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
8	3	...	...	...	...	2	13	5	2·5	3·7	−32	52	·466	0·6	0	0·90	−0·90	0·06	0·36	−0·30	0·06	0·36	−0·30	0·06	Jeypore	Rajputana (East).
9	4	1	1	...	...	...	14	2	4·5	4·7	−4	54	·437	0·3	0	0·50	−0·50	0·02	0·22	−0·20	0·02	0·22	−0·20	0·02	Sambhar.	
14	...	2	...	...	1	1	10	3	2·8	2·6	+8	67	·512	0·5	0	0·64	−0·64	0·07	0·25	−0·18	0·07	0·25	−0·18	0·05	Ajmere.	
...	4	8	5	4	2	2	5	1	5·9*	6·7	−12	59	·534	0·9	0	0·45	−0·45	0	0·40	−0·40	0	0·40	−0·40	0	Deesa.	
5	8	10	...	...	...	...	2	6	4·5	5·6	−20	60	·597	0·8	0	1·27	−1·27	0	0·39	−0·39	0	0·39	−0·39	0	Rajkot	Kattywar.
4	19	2	..	..	...	...	...	6	3·4	?	?	59	·592	2·1	0	?	?	0	?	?	0	?	?	0	Veraval.	
...	1	...	...	1	...	14	6	9	8·4	?	?	65	·625	1·2	0	?	?	0	?	?	0	?	?	0	Bhavnagar.	
10	2	1	1	...	3	8	6	...	2·0	1·5	+33	73	·587	1·8	2	1·82	+0·18	2·51	1·14	+1·37	2·51	1·14	+1·37	1·91	Nowgong	Central India.
20	5	2	1	...	...	...	2	1	1·6	2·3	−30	66	·529	0·5	0	3·09	−3·09	0	1·82	−1·82	0	1·82	−1·82	0	Indore.	
13	6	6	1	...	...	...	3	2	5·3	7·9	−33	52	·446	0·7	0	1·09	−1·09	0·05	0·73	−0·68	0·05	0·73	−0·68	0·05	Neemuch.	
...	7	10	8	1	...	4	...	1	?	5·1	?	70	·621	0·7	0	3·00	−3·00	0	1·75	−1·75	0	1·75	−1·75	0	Surat	Guzerat.
4	2	10	6	3	1	1	...	4	5·6	?	?	61	·582	1·8	2	?	?	0·94	?	?	0·94	?	?	0·76	Ahmedabad. §	
4	...	1	..	1	...	4	...	21	3·2	3·0	+7	63	·513	1·5	3	0·45	+2·55	1·43	0·45	+0·98	1·43	0·45	+0·98	1·20	Agra	N.-W. P. (West).
8	2	1	1	...	1	9	5	4	1·8	2·6	−31	57	·510	1·2	2	1·27	+0·73	2·14	0·79	+1·35	2·14	0·79	+1·35	1·12	Jhansi.	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 206 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.
IX.—Deccan	...	...	...	−·012	...	...	...	...	...	...	...	86·8	−0·9	66·2	−1·4	76·5	−1·2	20·7	...	...	...	...	33·3
Bombay (Deccan)	Belgaum	2,524	27·393	−·005	29·856	27·508	23rd	27·282	13th	·226	70·7	81·1	−1·4	63·2	−1·9	72·2	−1·7	17·9	83·3	4 days	55·9	19th	27·4
	Sholapur	1,590	28·321	−·007	29·866	28·460	23rd	28·176	14th	·284	75·2	87·0	−2·2	66·4*	−1·6	76·7*	−1·9	20·6	93·2	11th	58·6	22nd	34·6
	Poona	1,840	28·088	−·003	29·889	28·222	23rd	27·976	13th	·246	72·2	89·5	+2·3	63·6	−3·1	76·6	−0·4	25·9	93·0	11th	54·4	18th	38·6
	Bijapur	1,946	27·967	?	29·863	28·090	23rd	27·830	13th	·260	73·4	84·7	?	65·0	?	74·9	?	19·7	89·8	3rd	55·6	29th	34·2
Khandesh	Malegaon	1,430	28·504	+·002	29·901	28·646	23rd	28·381	14th	·265	73·9	90·4	+0·9	63·0	−2·5	76·7	−0·8	27·4	93·9	13th	54·5	19th & 20th.	39·4
	Ahmednagar	2,152	27·782	?	29·883	27·936	23rd	27·664	13th	·272	73·6	86·2	?	62·2	?	74·2	?	24·0	89·8	12th	51·9	26th	37·9
Berar	Akola	930	28·930	+·004	29·884	29·135	23rd	28·834	12th	·301	73·2	89·9	−0·2	64·5	−1·7	77·2	−1·0	25·4	96·5	5th	55·0	21st	41·5
	Amraoti	1,215	28·683	−·011	29·864	28·836	23rd	28·551	16th	·285	74·9	88·1	−1·5	67·2	−0·2	77·7	−0·9	20·9	92·9	11th	58·3	29th	34·6
Central Provinces (West).	Khandwa	1,044	28·863	−·006	29·882	29·006	23rd	28·744	3rd	·262	71·8	90·3	+0·4	63·6	−2·7	77·0	−1·2	26·7	94·2	12th	53·6	19th & 20th	40·6
	Hoshangabad	1,020	28·879	−·032	29·876	29·031	23rd	28·757	17th	·274	72·0	88·4	−1·0	65·3	−1·9	76·9	−1·5	23·1	91·4	9th & 16th.	55·8	21st	35·6
	Nagpur	1,025	28·867	−·012	29·857	29·022	23rd	28·719	17th	·303	75·9	88·4	−1·3	66·7	−1·6	77·6	−1·5	21·7	93·3	4th	60·2	3 days	33·1
Central Provinces (Central).	Chanda	634	29·262	?	29·851	29·426	23rd	29·124	16th	·302	74·7	88·4	?	67·9	?	78·2	?	20·5	92·9	4th	57·6	31st	35·3
	Seoni	2,030	27·865	−·028?	29·879	28·037	22nd	27·733	17th	·304	73·0	84·0	−2·3	62·5	−2·0	73·3	−2·3	21·5	87·6	3rd	54·4	25th	33·2
	Jubbulpore	1,327	28·575	−·013	29·382	28·725	23rd	28·436	17th	·289	70·9	84·9	−2·3	63·1	−1·1	74·0	−1·7	21·8	88·9	4th & 5th.	55·4	30th	33·5
	Saugor	1,762	28·142	−·026	29·880	28·289	23rd	28·011	3rd	·278	71·1	86·5	−0·4	62·6	−2·8	74·6	−1·6	23·9	90·3	11th & 12th.	56·3	19th	34·0
Central Provinces (East).	Raipur	970	28·929	−·006	29·858	29·088	23rd	28·781	17th	·307	76·5	87·1	−1·0	69·9	+0·2	78·5	−0·4	17·2	90·3	5th	61·7	3 days	29·1
	Sutna	1,040	28·843	−·024	29·861	28·992	23rd	28·694	3rd	·298	73·0	85·4	−2·2	66·2	+0·5	75·7	−0·9	19·2	89·1	5 days.	59·2	20th	29·9
	Sambalpur	463	29·415	−·015	29·831	29·578	23rd	29·289	3rd	·289	77·8	88·2	−0·6	71·9	−0·2	80·1	−0·4	16·3	92·5	10th	61·2	31st	31·3
Hyderabad (North).	Aurangabad	?	28·073	?	?	28·194	24th & 30th.	27·959	13th	·235	77·9	89·0	?	64·6	?	76·8	?	24·4	92·4	11th	57·4	21st & 22nd.	35·0
	Indur	?	?	?	?	?	...	?	...	?	75·8	85·9	?	67·4	?	76·7	?	18·5	90·4	5th	57·2	30th	33·2
	Bidar	?	27·744	?	?	27·880	23rd	27·597	14th	·283	74·1	82·5	?	67·7	?	75·1	?	14·8	87·6	10th	63·1	18th	24·5
Hyderabad (South).	Gulburga	1,502	28·389	?	?	28·522	23rd	28·204	14th	·318	75·0	86·4	?	67·1	?	76·8	?	19·3	91·4	10th	58·8	22nd	32·6
	Raichur	1,378	28·491	?	?	28·647	23rd	28·356	11th	·291	75·9	86·4	?	70·8	?	78·6	?	15·6	92·6	7th	65·1	29th	27·5
	Hyderabad (Deccan).	1,690	28·207	?	29·852?	28·346	30th	28·041	14th	·305	74·4	85·3	?	67·8	?	76·6	?	17·5	90·9	7th	60·2	22nd & 29th.	30·7
	Secunderabad	1,787	28·131	−·006	29·874	28·273	30th	27·973	14th	300	73·8	85·4	−1·6	67·2	−0·5	76·3	−1·1	18·2	89·6	7th	60·5	22nd & 29th	29·1
	Khamamet	369	29·519?	?	29·759?	29·667	23rd	29·386	12th	·281	78·6	88·7	?	72·5	?	80·7	?	16·2	93·0	5 days	63·7	29th	29·3
X.—West Coast	...	...	...	−·009	...	...	...	...	...	...	...	84·7	−0·6	73·8	−0·7	79·3	−0·7	10·9	...	...	...	...	20·3
Konkan	Bombay	37	29·893	+·001	29·870	30·031	23rd	29·777	14th	·254	78·3	87·0	−0·1	74·9	−1·4	81·0	−0·8	12·1	90·0	17th	71·5	20th	18·5
	Ratnagiri	110	29·801	+·008	29·850	29·918	23rd	29·697	12th	·221	79·4	87·5	−0·5	72·4	−1·2	80·0	−0·9	15·1	94·4	31st	64·9	31st	29·5
	Mormugoa	60	29·867	?	29·862	29·988	23rd	29·760	12th	·228	76·5	85·5	?	73·7	?	79·6	?	11·8	90·0	31st	68·8	31st	21·2
	Goa	23	29·901?	−·024?	29·838?	30·004	31st	29·822	13th	·182	77·0	82·2	?	73·1	?	77·7	?	9·1	93·5	27th	67·0	28th	26·5
	Karwar	44	29·872	−·011	29·848	29·977	23rd	29·759	12th	·218	75·2	84·4	−0·6	72·7	−0·4	78·6	−0·5	11·7	89·5	24th	66·3	23rd	23·2
Malabar	Cochin	10	29·928	−·004	29·866	30·021	23rd	29·846	11th	·175	78·7	85·8	+0·1	74·5	+0·1	80·2	+0·1	11·3	89·7	31st	71·7	20th	18·0
	Calicut	27	29·902	−·018	29·859	30·003	23rd	29·805	11th	·198	77·9	84·5	?	74·5	?	79·5	?	10·0	88·3	30th & 31st.	71·6	18th	16·7
	Mangalore	65	29·863	−·012	29·861	29·952	26th	29·774	12th	·178	76·9	83·3	−1·7	73·5	−0·7	78·5	−1·2	9·8	86·3	31st	70·0	5th	16·3
	Trivandrum	198	29·732	?	29·862	29·816	23rd	29·652	3rd	·164	77·7	82·3	?	75·0	?	78·7	?	7·3	85·0	2nd	71·5	28th	13·5
XI.—South India	...	...	...	−·018	...	...	...	...	...	...	...	86·7	−0·5	72·1	0	79·4	−0·3	14·7	...	...	...	...	23·9
Madras (South)	Pamban	37	29·870	?	29·834	29·966	23rd & 25th.	29·778	11th	·188	81·7	87·6	?	77·3	?	82·5	?	10·3	1·3	2nd	73·2	27th	18·1
	Tinnevelly	168	29·744	?	29·841	29·853	24th	29·646	11th	·207	81·6	94·7	?	76·9	?	85·8	?	17·8	99·3	19th	72·9	3rd & 29th.	26·4
	Madura	447	29·454	−·008	29·838	29·565	23rd	29·348	11th	·217	79·9	90·9	−1·2	73·4	−0·4	82·2	−0·8	17	94·9	1st	66·1	6th	28·8

* Mean of 30 days.
† 65 feet elevation from 22nd August 1893.

I—*continued.*

in India, Burma, etc., in October 1893—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 October 1893.	Normal rainfall for period from 1st October to 31st October.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
																									IX.—Deccan.	
...	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	...	3·98	3·14	+ 0·98	...	...	...	...		
10	4	3	4	3	...	...	3	4	?	10·5	?	80	·598	8·2	9	8·09	+0·91	8·00	5·30	+ 2·70	8·00	5·30	+ 2·70	2·58	Belgaum .	Bombay (Deccan).
9	3	5	3	2	...	...	1	8	9·3	7·4	+ 26	67	·590	4·2	6	5·91	+0·09	8·80	4·50	+ 4·30	8·80	4·50	+ 4·30	4·86	Sholapur.	
20	1	1	3	...	...	...	5	1	5·5	5·8	− 5	70	·561	2·8	2	6·18	−4·18	1·24	4·31	− 3·07	1·24	4·31	− 3·07	0·96	Poona.	
2	...	6	2	6	...	1	1	13	4·6	?	?	73	·606	5·3	9	7·70	+1·30	7·80	6·19	+ 1·61	7·80	6·19	+ 1·61	1·95	Bijapur.	
9	3	1	1	...	...	2	8	7	9·6	4·5	+113	64	·538	2·5	1	4·18	−3·18	1·42	3·52	− 2·10	1·42	3·52	− 2·10	1·38	Malegaon .	Khandesh.
8	9	6	1	2	...	...	...	5	17·9	?	?	69	·579	2·3	5	?	?	1·57	3·10	− 1·53	1·57	3·10	− 1·53	0·45	Ahmednagar.	
5	5	1	5	3	3	...	8	1	4·4	3·3	+ 33	71	·591	2·9	1	4·09	−3·09	1·14	3·63	− 2·49	1·14	3·63	− 2·49	0·94	Akola . .	Berar.
7	2	13	6	1	...	...	1	1	3·0	2·9	+ 3	68	·592	2·5	5	4·09	+0·91	3·14	2·94	+ 0·20	3·14	2·94	+ 0·20	1·23	Amraoti.	
6	3	2	...	...	1	4	8	7	3·4	2·9	+ 17	65	·520	2·0	2	3·27	−1·27	0·77	1·97	− 1·20	0·77	1·97	− 1·20	0·50	Khandwa .	Central Provinces (West).
16	...	5	5	...	1	2	2	...	0·5	1·5	− 7	73	·589	1·7	2	3·18	−1·18	0·50	2·08	− 1·58	0·50	2·08	− 1·58	0·32	Hoshangabad	
3	20	2	...	...	...	1	1	4	4·1	3·7	+ 11	67	·611	3·0	5	3·55	+1·45	5·83	3·02	+ 2·81	5·83	3·02	+ 2·81	2·85	Nagpur.	
17	1	4	1	...	2	1	1	4	1·9	2·3	− 17	79	·692	3·4	5	?	?	2·56	?	?	2·56	?	?	0·76	Chanda .	Central Provinces (Central).
...	...	20	2	1	...	4	3	1	3·0	3·1	− 3	79	·648	1·8	6	3·55	+2·45	3·97	1·98	+ 1·99	3·97	1·98	+ 1·99	1·16	Seoni.	
11	2	2	...	2	10	1	2	1	1·4	2·1	− 33	82	·624	2·1	5	2·45	+2·55	3·80	2·07	+ 1·73	3·80	2·07	+ 1·73	1·95	Jubbulpore.	
27	1	...	1	...	...	1	1	...	1·5	2·7	− 44	70	·540	1·4	2	2·91	−0·91	2·09	1·74	+ 0·35	2·09	1·74	+ 0·35	1·90	Saugor.	
11	4	4	4	1	1	2	1	3	3·2	3·8	− 16	76	·694	3·9	4	3·82	+0·18	1·01	2·47	− 1·46	1·01	2·47	− 1·46	0·46	Raipur .	Central Provinces (East).
4	10	2	2	...	2	1	5	5	4·8	4·3	+ 12	79	·643	1·5	3	2·09	+0·91	4·32	2·22	+ 2·10	4·32	2·22	+ 2·10	3·32	Sutna.	
...	8	12	4	2	1	1	1	2	4·9	2·0	+140	80	·768	2·7	5	?	?	2·41	2·22	+ 0·19	2·41	2·22	+ 0·19	1·14	Sambalpur.	
19	1	4	5	2	...	...	...	...	3·0	?	?	54	·513	2·6	2	?	?	1·02	2·96	− 1·94	1·02	2·96	− 1·94	0·65	Aurangabad	Hyderabad (North).
12	3	5	3	1	...	1	2	4	4·7	?	?	79	·711	3·7	6	?	?	5·19	2·63	+ 2·56	5·19	2·63	+ 2·56	2·21	Indur.	
...	6	11	9	...	...	2	1	2	5·4	?	?	72	·606	2·3	7	?	?	10·06	3·65	+ 6·41	10·06	3·65	+ 6·41	3·60	Bidar.	
17	4	4	4	...	...	...	...	2	5·6	?	?	72	·626	4·1	9	?	?	10·84	3·06	+ 7·78	10·84	3·06	+ 7·78	5·80	Gulburga .	Hyderabad (South).
...	1	6	5	4	3	3	4	5	5·5	?	?	75	·682	4·2	6	?	?	4·32	3·83	+ 0·49	4·32	3·83	+ 0·49	1·53	Raichur.	
22	...	2	2	2	2	...	1	...	3·1	?	?	80	·682	4·4	6	?	?	5·07	3·38	+ 1·69	5·07	3·38	+ 1·69	2·38	Hyderabad (Deccan).	
11	...	11	2	1	...	...	3	3	4·2	3·8	+ 11	74	·620	3·4	7	?	?	4·79	2·70	+ 2·09	4·79	2·70	+ 2·09	2·79	Secunderabad	
30	...	1	...	...	...	...	...	...	3·6	?	?	80	·790	2·0	5	?	?	1·88	?	?	1·88	?	?	0·54	Khamamet.	
																									X.—West Coast.	
...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	7·50	7·56	−0·28	...	...	...	...		
...	1	12	12	5	...	...	...	1	7·7	9·8	− 21	81	·805	2·2	1	3·45	−2·45	0·46	2·84	− 2·38	0·46	2·84	− 2·38	0·36	Bombay .	Konkan.
5	2	2	5	7	4	3	...	3	3·6	7·7	− 53	76	·763	4·3	2	5·91	−3·91	3·61	4·00	− 0·39	3·61	4·00	− 0·39	2·23	Ratnagiri.	
2	1	2	15	3	3	1	...	4	5·1	?	?	90	·831	4·1	9	?	?	9·29	?	?	9·29	?	?	6·37	Mormugoa.	
9	1	14	3	3	1	...	...	...	2·6	?	?	86*	·799*	5·0	8	?	?	7·81	4·86	+ 2·95	7·81	4·86	+ 2·95	5·80	Goa.	
8	1	17	1	1	...	1	1	1	2·1	?	?	89	·779	4·7	6	9·09	−3·09	6·08	7·66	− 1·58	6·08	7·66	− 1·58	2·17	Karwar.	
6	3	11	...	...	1	1	5	4	6·0	?	?	84	·831	5·6	15	15·09	−0·09	7·16	13·73	− 6·57	7·16	13·73	− 6·57	0·93	Cochin .	Malabar.
7	1	4	7	2	1	2	1	6	15·4	?	?	88	·831	6·1	10	10·44	−0·44	11·87	9·16	+2·71	11·87	9·16	+ 2·71	2·69	Calicut.	
6	4	3	10	2	1	1	1	3	2·2	2·7	− 18	91	·840	6·4	15	9·90	+5·10	11·36	7·48	+ 3·88	11·36	7·48	+ 3·88	1·62	Mangalore.	
5	11	2	1	...	...	...	3	9	5·0	?	?	82	·788	5·4	14	?	?	9·88	10·76	− 0·88	9·88	10·76	− 0·88	2·64	Trivandrum.	
																									XI.—South India.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·93	7·92	−1·30	...	...	...	...		
1	1	3	2	3	5	8	3	5	10·9	?	?	78	·849	4·0	4	7·50	−3·50	2·74	6·86	− 4·12	2·74	6·86	− 4·12	1·30	Pamban. .	Madras (South).
...	4	1	...	2	1	3	5	15	4·6	?	?	69	·752	6·9	3	7·3	− 4·3	2·08	5·52	− 3·44	2·08	5·52	− 3·44	1·24	Tinnevelly	
6	7	3	1	1	1	...	...	12	1·5	2·9	− 48	75	·776	4·6	12	9·73	+2·27	11·11	6·74	+ 4·37	11·11	6·74	+ 4·37	3·23	Madura.	

* Mean of 19 days.

Table

Abstract of Observations taken at 8 A.M. at 206 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras (South Central).	Salem	940	28·990	−·012	29·875	29·099	23rd	28·865	11th	·234	77·6	88·8	−0·5	71·7	+1·3	80·3	+0·4	17·1	93·9	3rd & 16th.	69·0	4 days	24·9
	Coimbatore	1,348	28·563	−·013	29·864	28·671	30th	28·456	12th	·215	74·5	87·8	−0·3	70·0	−0·8	78·9	−0·6	17·8	90·8	7th	68·6	4 days	22·2
Coorg	Mercara	3,781	26·222	−·012	29·866	26·292	24th & 25th.	26·128	12th	·164	65·7	73·3	−2·3	62·8	+1·1	68·1	−0·6	10·5	76·5	7th & 30th.	59·2	30th	17·3
	Chitaldroog	2,405	27·515	?	29·853	27·630	23rd	27·406	13th	·224	72·8	82·1	?	66·4	?	74·3	?	15·7	86·6	2nd & 3rd.	62·9	28th & 31st.	23·7
Mysore	Bangalore Bazar	2,982	26·982	−·020	29·879	27·090	23rd	26·875	12th	·215	70·1	80·1	−1·0	64·9	+0·1	72·6	−0·5	15·2	84·2	5th	62·0	29th	22·2
	Bangalore Fort	3,019	26·932	−·039	29·856	27·039	23rd	26·821	12th	·218	69·8	80·1	−1·0	64·7	+0·1	72·4	−0·5	15·4	83·8	1st	61·9	29th	21·9
	Hassan	3,091	26·877	?	29·875	26·965	30th	26·778	12th	·187	70·0	80·3	?	62·6	?	71·4	?	17·7	84·6	4th	56·3	28th	28·3
	Mysore	2,518	27·423	?	29·876	27·515	23rd	27·324	12th	·191	71·2	82·3	?	66·5	?	74·5	?	15·8	87·4	4th	60·9	29th	26·5
Madras (East Coast, South).	Negapatam	31	29·879	−·001	29·839	29·987	25th	29·764	11th	·223	81·8	88·4	+0·4	76·7	+1·2	82·6	+0·8	11·7	93·2	3 days	73·7	11th & 25th.	19·5
	Cuddalore	12	29·889	?	29·830	30·021	23rd	29·788	12th	·233	80·9	88·4	?	75·5	?	81·9	?	12·9	92·7	4th	72·7	28th	20·0
	Trichinopoly	255	29·649	−·013	29·838	29·754	30th	29·541	11th	·213	80·6	91·5	+0·4	74·6	+0·6	83·1	+0·5	16·9	96·6	3rd	69·4	6th	27·2
	Madras	22	29·879	−·013	29·832	30·004	30th	29·760	11th	·244	81·8	91·1	+2·2	75·2	+0·1	83·2	+1·2	15·9	97·5	5th	70·5	28th & 29th	27·0
Madras (East Coast, Central).	Nellore	71	29·314	?	29·819	29·951	30th	29·685	12th	·266	81·8	92·0	?	76·4	?	84·2	?	15·6	100·3	4th	72·6	27th	27·7
	Masulipatam	15	29·877	−·016	29·827	30·023	30th	29·724	16th	·299	79·8	87·3	−2·1	75·0	−0·8	81·2	−1·5	12·3	93·6	3rd	72·1	3 days	21·5
Madras (Central)	Cuddapah	433	29·466	−·045	29·841	29·591	23rd	29·353	12th	·241	80·1	90·7	+0·7	73·9	−0·2	82·3	+0·3	16·8	96·1	3rd	69·6	28th	26·5
	Kurnool	923	28·967	−·038	29·838	29·107	23rd	28·834	13th	·273	77·1	88·3†	−1·4	70·9	−0·5	79·6†	−1·0	17·4	97·2	25th	63·8	23rd & 28th.	33·4
	Bellary	1,475	28·430	−·003?	29·856	28·568	23rd	28·306	13th	·262	75·9	86·8	−3·0	69·8	−1·1	78·3	−2·1	17·0	92·4	7th	63·6	23rd	28·8
Madras (East Coast, North).	Rajahmundry	112	29·767	−·021	29·817	29·908	30th	29·631	16th	·277	79·0	89·5	−0·1	74·8	+0·1	82·2	0	14·7	95·0	4th & 6th.	71·0	28th	24·0
	Cocanada	26	29·856	−·008	29·817	30·004	30th	29·713	16th	·291	79·6	86·5	+0·6	75·6	−0·2	81·1	+0·2	10·9	93·7	4th	72·0	27th	21·7
	Vizagapatam	31	29·851	−·023	29·820	29·995	30th	29·710	16th	·285	82·4	85·1	−0·8	79·7	+2·5	82·4	+0·9	5·4	87·9	6 days	76·9	31st	11·0
	Gopalpur	21	29·870	?	29·831	30·034	30th	29·725	16th	·309	78·5	87·8	+1·1	73·9	−3·2	80·9	−1·1	13·9	92·2	3 days	67·1	31st	25·1
XII.—Hill Stations.																							
Baluchistan	Kuch Fort	?	24·050	?	?	24·150	3 days	23·900	3rd	·250	56·9	76·0	?	32·3†	?	54·1†	?	43·7	78·5	13 days	22·0	15th	56·5
	Peshin	?	?	?	?	?	...	?	...	?	?	79·3	?	?	?	?	?	?	88·1	1st	?	...	?
	Quetta	5,502	24·728	+·023	?	24·824	23rd	24·564	3rd	·260	52·9	75·7	+0·4	35·3	−4·3	55·5	−2·0	40·4	82·7	2nd	28·8	31st	53·9
	Shirino	?	?	?	?	?	...	?	...	?	58·5	78·2	?	55·5	?	66·9	?	22·7	87·8	3rd	45·7	31st	42·1
	Kelat	?	?	?	?	?	...	?	...	?	52·2	?	?	31·3	?	?	?		?	...	23·2	30th	?
	Chaman	5,488	?	?	?	?	...	?	...	?	64·8	79·3	?	49·9	?	64·6	?	29·4	94·0	2nd	41·1	30th	52·9
Northern India	Srinagar	5,204	24·961	?	?	25·108	30th	24·862	18th	·246	46·0	70·4	?	39·1	?	54·7	?	31·3	76·3	3rd	33·1	31st	43·2
	Gilgit	?	25·837	?	?	26·280	22nd	25·540	3rd	·740	‡59·4	77·4	?	52·3	?	64·8	?	25·1	87·9	3rd	44·1	31st	43·8
	Cherat	?	25·752	?	?	25·887	30th	25·581	3rd	·306	65·8	78·4	?	56·3	?	67·4	?	22·1	86·4	3rd	49·7	20th	36·7
	Murree	6,344	23·891	−·028	?	23·998	23rd	23·758	3rd	·240	57·4	67·9	−1·9	53·5	+0·1	60·7	−0·9	14·4	71·6	2nd & 10th.	45·9	29th	25·7
	Poo	?	?	?	?	?	...	?	...	?	?	?	?	?	?	?	?	?	?	...	?	...	?
	Simla	7,224	23·158	−·027	?	23·253	23rd	23·042	3rd	·211	55·6	62·3	−1·0	50·8	−1·0	56·6	−1·0	11·5	67·6	3rd	44·8	31st	22·8
	Chakrata	7,052	23·276	−·037	?	23·375	23rd	23·182	3rd	·193	56·8	65·3	−0·9	51·0	+0·1	58·1	−0·4	14·3	71·3	3rd	44·7	31st	26·6
	Mussoorie	?	23·598	?	?	23·710	23rd	23·474	3rd	·236	57·2	64·4	0	51·8	−0·2	58·1	−0·1	12·6	71·3	9th	46·0	31st	25·3
	Ranikhet	6,069	24·141	−·004	?	24·244	23rd	24·025	3rd	·219	58·0	68·2	−1·4	53·8	−0·4	61·0	−0·9	14·4	75·0	1st & 2nd.	47·5	28th	27·5
	Gnatong	?	18·913	?	?	19·049	18th	18·799	14th	·250	41·2	47·7	?	‡32·4	?	‡40·0	?	15·3	52·9	3 days	23·1	31st	29·8
	Darjeeling	7,421	23·050	−·003	?	23·138	18th	22·938	3rd	·200	56·0	*61·6	+0·8	‡49·8	+0·8	‡55·9	+0·8	11·8	68·6	2nd	42·7	31st	25·9
	Gantok	?	24·520	?	?	24·619	30th	24·383	3rd	·236	60·1	71·6	?	55·2	?	63·4	?	16·4	80·2	2nd	48·2	31st	32·0

* Mean of 29 days.
† „ „ 30 „

I—*continued.*

in India, Burma, etc., in October 1893—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 October 1893.	Normal rainfall for period, 1st October to 31st October.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
10	2	4	1	1	6	5	2	...	2·4	2·8	− 14	80	·762	6·5	14	11·36	+2·64	9·88	7·42	+ 2·46	9·88	7·42	+ 2·46	2·24	Salem	Madras (South Central).
...	3	1	6	4	10	3	4	...	1·8	3·5	− 49	90	·775	6·2	11	8·91	+2·09	4·89	5·72	− 0·83	4·89	5·72	− 0·83	1·06	Coimbatore.	
...	5	9	5	1	...	2	4	5	6·1	3·6	+ 69	90	·576	6·8	10	13·50	−3·50	6·09	9·69	− 3·60	6·09	9·69	− 3·60	1·60	Mercara	Coorg.
2	...	4	6	2	...	9	7	1	5·5	?	?	77	·626	5·7	9	?	?	3·85	?	?	3·85	?	?	0·75	Chitaldroog.	
...	2	4	3	2	2	7	9	2	6·4	4·0	+ 60	87	·639	7·3	11	10·00	+1·00	8·70	7·69	+ 1·01	8·70	7·69	+ 1·01	2·04	Bangalore Bazar.	Mysore.
1	...	4	7	1	1	8	7	2	3·9	?	?	87	·641	6·7	10	?	?	9·82	?	?	9·82	?	?	1·62	Bangalore Fort	
10	2	4	5	2	...	1	4	3	2·5	?	?	84	·613	7·2	12	?	?	8·60	?	?	8·60	?	?	2·08	Hassan.	
...	3	5	4	2	2	5	8	2	9·3	?	?	86	·653	6·9	15	?	?	11·59	?	?	11·59	?	?	1·84	Mysore.	
6	1	1	1	1	5	3	8	5	5·2	3·7	+41	78	·845	6·0	5	10·82	−5·82	3·89	11·69	− 7·80	3·89	11·69	− 7·80	1·75	Negapatam.	Madras (East Coast, South).
...	6	1	...	...	4	6	7	7	1·9	?	?	86	·908	5·0	7	9·4	−2·45	5·81	9·11	− 3·30	5·81	9·11	− 3·30	2·00	Cuddalore.	
11	1	1	1	1	...	5	8	3	2·5	3·8	−31	76	·788	5·7	8	10·00	−2·00	11·43	6·21	+ 5·22	11·43	6·21	+ 5·22	4·05	Trichinopoly.	
...	5	1	...	...	5	7	8	5	4·4	5·0	− 12	80	·878	4·9	4	12·09	−8·09	4·81	12·62	− 7·81	4·81	12·62	− 7·81	2·76	Madras.	
9	3	...	...	...	7	...	7	5	4·1	?	?	83	·890	8·3	11	8·9	+2·1	5·33	10·25	−4·92	5·33	10·25	− 4·92	1·85	Nellore	Madras (East Coast, Central).
10	13	1	...	1	1	1	2	2	2·5	4·4	− 43	87	·879	5·7	13	9·91	+3·09	12·65	8·44	+4·21	12·65	8·44	+ 4·21	2·50	Masulipatam	
...	5	3	1	4	2	2	5	9	?	?	?	79	·807	5·5	11	6·80	+4·20	4·33	6·27	−1·94	4·33	6·27	− 1·94	1·26	Cuddapah	Madras (Central).
29	...	...	...	...	...	...	1	1	?	?	?	78	·723	4·3	5	7·00	−2·00	6·69	4·53	+2·16	6·69	4·53	+ 2·16	1·85	Kurnool.	
9	1	2	4	...	...	5	5	5	4·0	4·3	− 7	76	·689	5·5	12	6·73	+5·27	6·40	4·06	+2·34	6·40	4·06	+ 2·34	2·55	Bellary.	
6	18	1	...	...	...	...	1	5	?	?	?	80	·805	4·8	10	7·80	+2·20	2·87	5·93	−3·06	2·87	5·93	− 3·06	0·90	Rajahmundry	Madras (East Coast, North).
...	18	2	...	1	...	...	...	10	6·2	?	?	83	·829	3·5	13	10·0	+3·0	10·56	8·89	+1·67	10·56	8·89	+ 1·67	3·82	Cocanada.	
...	3	1	...	...	2	1	18	6	0·6	2·0	− 70	76	·849	5·1	9	10·36	−1·36	5·12	10·30	−5·18	5·12	10·30	− 5·18	1·46	Vizagapatam.	
...	16	...	...	...	2	1	...	12	8·6	6·3	+ 37	84	·817	1·8	8	9·44	−1·44	7·03	10·39	−3·36	7·03	10·39	− 3·36	3·30	Gopalpur.	
																									XII.—Hill Stations.	
...	3	...	15	...	...	...	10	...	?	?	?	32	·142	0	0	?	?	0	?	?	0	?	?	0	Kuch Fort	Baluchistan.
Not recorded.									?	?	?	?	?	0	0	?	?	0	?	?	0	?	?	0	Peshin.	
31	...	...	...	...	...	...	...	...	2·4	3·0	− 20	41	·171	0	0	0·18	−0·18	0	0·07	−0·07	0	0·07	− 0·07	0	Quetta.	
...	...	...	...	19	8	3	1	...	3·4	?	?	27	·124	0	0	?	?	0	?	?	0	?	?	0	Shirino.	
...	...	...	...	...	8	1	...	22	?	?	?	?	?	0	0	?	?	0	?	?	0	?	?	0	Kelat.	
14	...	1	1	2	7	5	1	..	9·7	?	?	26	·160	0	0	?	?	0	?	?	0	?	?	0	Chaman.	
20	6	3	...	1	1	...	...	...	1·8	?	?	91	·284	1·1	0	?	?	0·09	?	?	0·09	?	?	0·09	Srinagar	Northern India.
Not recorded									?	?	?	42*	·215*	2·3	0	?	?	0	?	?	0	?	?	0	Gilgit.	
4	12	3	...	7	1	2	...	2	10·9	?	?	39	·254	0·5	0	?	?	0	?	?	0	?	?	0	Cherat.	
5	3	1	2	4	1	1	1	13	8·0	5·7	+ 40	40	·189	0·6	3	2·45	+0·55	1·22	1·11	+0·11	1·22	1·11	+ 0·11	0·80	Murree.	
4	4	7	6	3	3	2	1	1	?	?	?	?	?	2·2	2	?	?	1·58	?	?	1·58	?	?	1·25	Poo.	
8	13	3	1	1	4	...	...	1	4·6	2·5	+ 84	49	·216	1·0	2	1·27	+0·73	1·44	0·83	+0·61	1·44	0·83	+ 0·61	1·06	Simla.	
5	1	7	17	...	...	...	1	...	5·0	5·1	− 2	68	·312	1·8	2	?	?	2·12	0·58	+1·54	2·12	0·58	+ 1·54	1·76	Chakrata.	
3	1	3	7	9	1	1	1	5	?	8·5	?	69	·323	2·4	4	1·4	+2·6	4·72	0·74	+3·98	4·72	0·74	+ 3·98	2·90	Mussoorie.	
24	2	...	3	...	...	...	1	1	1·4	1·7	− 18	75	·359	2·1	5	1·09	+3·91	9·27	1·04	+8·23	9·27	1·04	+ 8·23	5·64	Ranikhet.	
...	1	5	5	7	2	4	3	4	3·6	?	?	74	·195	2·0	5	?	?	8·13	?	?	8·13	?	?	3·80	Gnatong.	
5	...	13	8	1	...	3	...	1	3·2	2·6	+ 23	85	·388	4·8	3	3·75	−0·75	5·49	5·04	+0·45	5·49	5·04	+ 0·45	3·19	Darjeeling.	
...	11	1	2	1	2	7	5	2	2·7	?	?	86	·449	3·8	5	?	?	5·18	?	?	5·18	?	?	2·07	Gantok.	

* Mean of 30 days.
† ,, ,, 29 ,,

Table

Abstract of Observations taken at 8 A. M. at 206 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	26·098	—·021	?	26·231	23rd	25·955	3rd	·276	69·8	74·7	—4·6	61·4	—2·9	68·1	—3·8	13·3	78·1	10th	58·9	5 days	19·2
	Pachmarhi	3,528	26·491	+·004	?	26·622	23rd	26·362	17th	·260	70·9	76·6	—0·8	57·1	—3·0	66·9	—1·9	19·5	79·7	3 days	49·2	20th	30·5
South India	Wellington	6,200	24·243	—·005	?	24·331	23rd	24·164	11th & 12th.	·167	62·0	69·1	+0·6	54·6	—0·6	61·9	0	14·5	72·2	9th & 15th	49·2	29th	23·0
	Kodaikanal	?	?	?	?	?	?	?	...	?	59·0	65·2	?	52·6	?	58·9	?	12·6	71·0	14th	50·6	19th	20·4
	Kottagiri	?	23·855	?	?	23·908	23rd	23·713	11th	·195	59·6	66·9	?	54·7	?	60·8	?	12·2	73·3	15th	51·0	31st	22·3
XIII.—Extra India.																							
Ceylon	Colombo	40	29·908	—·005	29·874	29·986	23rd	29·827	3rd	·159	82·5	85·5	?	75·0	?	80·2	?	10·5	88·0	28th & 29th.	72·5	8th	15·5
Persia	Meshed	?	...	Not	recorded	...	...	...	...	...	51·8	69·3	?	41·9	?	55·6	?	27·4	81·6	18th	33·0	30th	48·6
	Teharan	?	26·133	?	?	26·270	13th	26·005	16th	·265	66·6	79·5	?	55·0	?	67·3	?	24·5	87·8	3rd	49·0	31st	38·8
	Isphahan	?	?	?	?	?	...	?	...	?	57·7	77·4	?	44·1	?	60·7	?	33·3	83·6	3rd	39·6	21st	44·0
	Bushire	14	29·953	?	29·924	30·089	24th	29·747	4th	·342	78·7	87·0	?	71·7	?	79·3	?	15·3	91·1	2nd	65·5	26th	25·6
	Jask	?	29·818	?	?	30·119	24th	29·435	1st	·684	84·2	91·3	?	77·3	?	84·3	?	14·0	96·1	4th	66·2	25th	29·9
Arabia	Muskat	?	29·951	?	?	30·079	23rd	29·743	3rd	·336	81·5	84·0	?	79·0	?	81·5	?	5·0	89·3	4th	75·1	18th	14·2
	Baghdad	?	29·515	?	?	29·644	24th	29·369	4th	·275	69·5	91·5	?	63·9	?	77·7	?	27·6	101·0	6th	54·9	29th	46·1
	Aden	94	29·879	?	29·905	29·969	25th	29·762	5th	·207	81·4	88·9	?	77·1	?	83·0	?	11·8	93·8	7th	71·5	20th	22·3
	Perim	?	29·740	?	?	29·832	24th	29·592	13th	·240	84·1	90·6	?	80·6	?	85·6	?	10·0	94·1	8th	77·4	30th	16·7
Afghanistan	Kabul	?	?	?	?	?	...	?	...	?	56·5	60·5	?	§52·5	?	56·5	?	8·0	61·4	6th	51·4	5th	10·0
	Kashgar	?	25·810	?	?	26·120	17th	25·460	13th	·660	45·0	68·3	?	40·3	?	54·4	?	28·0	77·3	4th	31·3	31st	46·0
Arabian Sea Islands.	Amini Divi	15	29·919	?	29·862	30·053	29th	29·823	12th	·230	82·0	87·3	?	76·7	?	82·0	?	10·6	89·8	9th	72·4	30th	17·4
	Minicoy	10	29·947	?	29·882	30·017	23rd	29·867	3rd	·150	80·2	85·6	?	**78·3	?	**81·5	?	7·3	88·9	26th	74·8	30th	14·1
Africa	Zanzibar	73	29·995	?	29·995	30·022	29th	29·898	9th	·124	77·5	82·5	?	74·8	?	78·7	?	7·7	85·1	27th & 30th.	72·5	31st	12·6

** Mean of 22 days. § Mean of 24 days.
‡ „ „ 2 „

I—*concluded.*

in India, Burma, etc., in October 1893.—concluded.

Wind direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	SW.	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 October 1893.	Normal rainfall for period from 1st October to 31st October.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
11	1	10	1	1	2	4	1	...	5·5	4·0	+ 38	50	·365	0·4	1	0·60	+0·40	0·76	0·87	−0·11	0·76	0·87	− 0·11	0·76	Mount Abu.	CENTRAL INDIA.
6	3	6	7	...	...	...	7	2	4·1	2·9	+ 41	54	·410	1·9	3	4·27	−1·27	1·78	2·87	−1·09	1·78	2·87	− 1·09	0·85	Pachmarhi.	
18	1	1	...	4	1	4	...	2	2·1	2·6	− 19	80	·444	6·3	16	15·89	+0·11	10·50	11·35	−0·85	10·50	11·35	− 0·85	2·29	Wellington .	SOUTH INDIA.
1	1	14	...	5	1	1	2	6	8·3	?	?	80	·396	6·8	19	15·00	+4·00	9·06	10·87	−1·81	9·06	10·87	− 1·81	1·23	Kodaikanal.	
...	3	4	6	3	4	1	3	7	3·1	?	?	87	443	6·8	17	16·30	+0·70	15·32	10·22	+5·10	15·32	10·22	+ 5·10	3·85	Kottagiri.	
																									XIII.—Extra India.	
...	...	2	...	...	...	16	11	2	8·3	7·3	+ 14	71	·798	4·9	11	?	?	5·52	12·09	−6·57	5·52	12·09	− 6·57	1·27	Colombo .	CEYLON.
19	...	...	1	...	...	...	3	8	?	?	?	?	?	1·4	1	?	?	0·17	?	?	0·17	?	?	0·17	Meshed .	PERSIA.
11	...	3	2	1	1	1	1	2	3·0	?	?	32	·209	2·6	0	?	?	0	?	?	0	?	?	0	Teheran.§	
...	4	6	2	1	...	2	10	5	2·6*	?	?	50	·235	0·6	0	?	?	0	?	?	0	?	?	0	Isphahan.‡	
...	6	11	7	6	...	...	...	1	3·7	?	?	65	·632	?	0	?	?	0	?	?	0	?	?	0	Bushire.	
...	1	1	2	7	4	6	2	6	17·9	?	?	68	·810	0·1	0	?	?	0	?	?	0	?	?	0	Jask.	
...	...	1	4	1	3	2	13	7	3·2	?	?	68	·727	0	0	?	?	0	?	?	0	?	?	0	Muskat .	ARABIA.
7	7	3	3	2	3	...	2	4	?	?	?	52	·373	2·0	0	?	?	0·06	?	?	0·06	?	?	0·06	Baghdad.	
7	1	10	12	1	...	...	...	...	14·5	12·2	+ 19	72	·769	1·6	0	?	?	0	0	0	0	0	0	0	Aden.	
...	...	2	12	15	1	1	...	...	19·6	?	?	67	·786	2·2	0	?	?	0	?	?	0	?	?	0	Perim .	
...	...	...	13	...	...	9	7	2	?	?	?	?	?	3·0	0	?	?	0	?	?	0	?	?	0	Kabul . .	AFGHANISTAN.
13	5	3	2	...	...	...	4	4	3·3	?	?	62†	·183†	1·4	1	?	?	0·19	?	?	0·19	?	?	0·19	Kashgar	
5	4	...	...	...	1	1	15	5	?	?	?	80	·868	6·1	5	?	?	6·16	?	?	6·16	?	?	2·55	Amini Divi .	ARABIAN SEA ISLANDS.
1	5	...	1	...	...	1	13	10	10·1	?	?	79	·810	4·5	7	?	?	5·19	?	?	5·10	?	?	2·12	Minicoy.	
...	...	2	2	9	8	10	...	...	6·3	?	?	82	·773	2·6	3	?	?	3·77	?	?	3·77	?	?	3·26	Zanzibar .	AFRICA.

* Mean of 29 days.
† " " 26 "
‡ Wind directions for 30 days.
§ Mean of 22 days observations.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

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 to 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	...	29·842	29·748	·094	29·793	−·015	29·785	84·7	75·9	8·8	89·0	73·9	15·1	81·4	81·0	78·9	− 1·2	74·4	78·1	77·4	76·6
	Rangoon	...	·891	·781	·110	·841	−·006	·819	86·4	74·9	11·5	88·6	72·1	16·5	81·2	82·5	78·8	− 0·9	72·9	77·5	76·8	75·7
	Diamond Island	...	·878	·778	·100	·826	−·018	·802	84·1	77·4	6·7	87·5	74·6	12·9	81·7	81·6	79·7	0	75·0	77·4	76·5	76·3
	Cocos Island	111	·776	·648	·128	·710	?	·771	85·2	76·4	8·8	88·8	73·9	14·9	82·4	80·7	79·4	?	72·1	77·8	77·3	75·7
	Akyab	...	·899	·785	·114	·843	−·010	·806	85·9	75·8	10·1	89·2	71·3	17·9	82·6	83·6	80·3	− 1·2	73·4	79·4	79·9	77·6
Assam.	Silchar	...	815	·690	·125	·757	−·018	·812	88·1	72·7	15·4	95·4	66·3	29·1	81·6	85·3	79·2	+ 0·1	71·5	76·6	77·9	75·3
	Sibsagar	...	·612	·480	·132	·545	−·022	·836	84·0	71·2	12·8	92·0	63·9	28·1	78·8	82·8	76·6	+ 0·4	70·3	75·7	77·3	74·5
	Dhubri	...	·808	·670	·138	·735	−·032	·804	85·1	?	?	91·1	?	?	78·8	83·8	?	?	72·4	75·7	79·1	75·7
Bengal and Orissa.	Chittagong	...	·827	·713	·114	·770	−·016	·895	86·0	73·8	12·2	90·6	69·9	20·7	82·7	83·0	79·2	+ 0·1	73·2	78·1	78·4	76·6
	Dacca†	...	·923	·806	·117	·863	+·024	·831	86·9	74·6	12·3	90·8	70·1	20·7	82·2	83·9	80·1	− 0·2	72·7	76·8	76·7	75·2
	Calcutta (Alipore)	...	·882	·770	·112	·821	−·014	·788	86·3	74·8	11·5	90·2	70·2	20·0	82·3	83·8	80·1	+ 0·2	73·7	76·6	76·5	75·6
	Do. (Chowringhee).	...	·888	?	?	?	?	?	88·0	74·8	13·2	92·5	70·0	22·5	84·1	?	81·4	?	74·0	77·8	?	?
	Saugor Island	...	·877	·765	·112	·816	−·012	·785	86·8	76·7	10·1	90·2	70·9	19·3	83·6	84·5	80·7	+ 0·7	74·2	78·4	77·7	76·8
	Burdwan	...			Imperfect.				87·2	75·1	12·1	91·3	70·2	21·1	82·2	85·5	80·6	− 0·7	73·4	76·3	76·2	75·3
	Berhampore	...	·843	·727	·116	·780	−·013	·795	86·3	76·0	10·3	90·6	69·7	20·9	81·8	84·2	80·5	− 0·1	73·5	77·3	77·1	76·0
	False Point	...	·884	·779	·105	·830	−·015	·792	87·4	75·3	12·1	93·3	69·1	24·2	84·7	85·1	80·3	+ 0·5	73·9	77·4	76·7	76·0
	Cuttack	...	·814	·701	·113	·756	−·027	·778	88·7	74·5	14·2	93·2	65·8	27·4	81·5	86·7	80·8	+ 0·1	72·5	75·6	75·3	74·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·898	27·794	·104	27·848	−·019	·797	81·8	65·7	16·1	86·9	59·7	27·2	76·3	79·2	72·7	− 0·6	62·5	68·7	69·0	66·7
	Patna	...	29·723	29·613	·110	29·664	−·020	·800	86·3	72·9	13·4	91·5	66·3	25·2	82·7	84·7	78·9	− 0·3	70·6	74·7	74·4	73·2
	Darbhanga	...	·750	·635	·115	·683	−·017	·813	85·9	73·9	12·0	91·2	68·0	23·2	82·6	84·8	79·3	− 0·1	72·9	76·0	75·5	74·8
	Allahabad	...	·588	·484	·104	·530	−·028	·798	89·0	68·1	20·9	94·3	61·7	32·6	82·5	87·2	77·5	− 1·2	66·1	72·7	72·2	70·3
	Ghazipur	220	·626	·519	·107	·568	−·067	·742	88·4	70·9	17·5	94·2	64·1	30·1	82·9	85·4	78·7	+ 0·5	69·0	73·9	74·3	72·4
	Lucknow	...	·530	·423	·107	·471	−·029	·803	88·3	66·5	21·8	94·3	60·0	34·3	83·2	86·3	76·8	− 1·0	64·7	72·1	71·9	69·6
Upper Sub-Himalayan.	Dehra Dun	...	27·675	27·604	·071	27·628	−·026	·816	81·0	61·1	19·9	86·4	55·8	30·6	74·4	76·7	69·6	− 1·2	57·8	65·4	66·9	63·4
	Roorkee	...	29·001	28·902	·099	28·941	−·025	·793	87·0	62·9	24·1	91·5	56·6	34·9	78·3	84·5	73·9	− 0·3	60·9	68·7	69·5	66·4
	Meerut	...	·158	29·060	·098	29·102	−·016	·804	88·4	62·1	26·3	93·3	56·3	37·0	79·0	86·7	74·5	− 1·2	60·9	67·6	67·5	65·3
	Lahore	...	·182	·097	·085	·133	−·019	·813	92·2	61·3	30·9	96·3	53·2	43·1	81·9	89·6	75·4	+ 1·2	57·8	66·8	69·5	64·7
	Ludhiana	...	·080	28·993	·087	·029	−·015	·805	90·2	61·9	28·3	94·1	56·1	38·0	81·3	88·1	74·9	− 0·3	59·5	67·5	67·2	64·5
Indus Valley and N.W. Rajputana.	Peshawar	...	28·815	·709	·106	28·755	−·025	·845	88·1	56·3	31·8	94·5	47·4	47·1	77·9	86·2	71·0	+ 0·1	50·4	61·8	64·7	59·0
	Mooltan	...	29·465	29·375	·090	29·413	−·022	·799	95·5	65·2	30·3	101·8	56·2	45·6	80·9	93·8	79·2	+ 2·0	59·6	68·3	72·2	66·7
	Jacobabad	...	·717	·601	·116	·652	−·014	·795	98·9	62·0	36·9	103·0	50·4	52·6	87·6	96·0	79·0	+ 0·8	55·6	67·7	69·3	64·2
	Kurrachee	...	·878	·799	·079	·840	−·013	·841	88·8	70·0	18·8	99·0	62·0	37·0	83·9	85·2	78·5	− 1·0	65·8	74·2	75·0	71·7
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·502	28·405	·097	28·448	−·011	·847	93·2	62·4	30·8	96·8	56·2	40·6	85·7	90·4	76·1	+ 0·1	55·4	66·5	66·6	62·8
	Ajmere	...	·338	·248	·090	·289	−·003	·848	88·5	60·7	27·8	91·4	50·3	41·1	81·2	87·5	73·8	− 1·2	57·9	67·2	69·6	64·9
	Deesa	...	29·460	29·355	·105	29·400	−·017	·817	94·4	64·0	30·4	100·6	55·1	45·5	87·1	92·2	78·8	− 1·8	60·6	69·7	69·3	66·6
	Nowgong	...	·142	·045	·097	·089	−·019	·801	86·7	63·2	23·5	92·0	57·0	35·0	79·4	84·2	74·1	− 2·8	62·4	69·4	69·3	67·0
	Agra	...	·368	·262	·106	·304	−·010	·816	90·8	65·6	25·2	96·5	60·5	36·0	82·6	88·8	77·4	− 0·4	60·3	68·4	68·9	65·9
Deccan.	Belgaum	...	27·398	27·293	·105	27·345	−·011	·774	81·1	63·2	17·9	83·4	55·9	27·5	76·0	76·4	70·7	− 1·5	62·2	67·4	67·8	65·9
	Sholapur	...	28·328	28·202	·126	28·268	−·011	·790	86·6	66·4	20·2	93·0	58·5	34·5	81·0	84·3	75·3	− 1·7	63·2	68·5	68·0	66·6
	Poona	...	·087	27·965	·122	·030	−·015	·786	89·4	63·5	25·9	92·8	54·2	38·6	81·7	85·7	75·4	− 0·4	61·7	66·9	67·2	65·3
	Akola	...	29·005	28·870	·135	·934	−·002	808	90·1	64·4	25·7	96·3	54·7	41·6	82·7	88·2	77·6	− 0·4	62·3	70·9	70·2	67·8
	Buldana	2,132	27·793	27·688	·105	27·737	−·019	·787	84·3	66·5	17·8	87·9	61·7	26·2	79·5	82·0	75·6	− 0·9	60·3	66·1	65·7	64·0
	Khandwa	...	28·866	28·753	·113	28·806	−·020	·796	90·3	63·6	26·7	94·2	53·8	40·4	82·2	87·9	75·8	− 0·9	59·5	67·5	69·5	65·5

† Observations recorded only on 23 days during the month.

II.

Stations in India, Burma, etc., for October 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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.	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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·833	·917	·895	·882	− ·026	93	86	85	88	+ 2	8·1	8·1	8·1	+ 2·3	...	3	5	4	7	12	11	13	7	S. 45° W.	S. 5° W.	31	24	144	152	...	...	Port Blair	Burma Coast and Bay Islands.
·788	·896	·847	·844	− ·047	91	84	76	84	− 1	6·3	5·5	5·9	− 0·2	...	...	4	14	12	17	9	4	2	S. 26° E.	S. 37° E.	50	28	89	77	...	...	Rangoon	
·836	·886	·845	·856	− ·015	89	82	79	83	− 1	7·7	8·7	8·2	+ 2·9	5	1	5	10	17	8	11	3	2	S. 32° E.	S. 59° E.	40	21	214*	159	...	...	Diamond Island.	
·729	·901	·884	·838	?	80	83	83	82	?	5·6	6·2	5·9	?	...	...	13	3	8	14	10	7	3	S. 6° E.	?	27	?	520*	?	14·48	3·04	Cocos Island	
·794	·967	·973	·911	+ ·033	89	87	84	87	+ 5	6·2	5·9	6·1	+ 1·2	...	1	19	4	3	18	5	9	3	S. 35° E.	S. 35° E.	14	12	66	58	...	...	Akyab	
·763	·852	·861	·825	+ ·014	94	79	71	81	+ 1	6·0	5·4	5·7	+ 0·9	50	2	...	4	...	...	...	5	1	N. 29° W.	S. 56° E	5	9	14*	47	...	...	Silchar	Assam.
·734	·855	·871	·820	+ ·028	95	87	78	87	+ 2	5·7	4·8	5·3	− 1·2	12	...	22	3	7	2	16	...	...	S. 76° E.	N. 66° E.	21	53	39	47	...	...	Sibsagar	
?	·855	·944	?	?	?	86	81	?	?	4·3	2·6	3·5	+ 0·8	5	5	24	13	1	4	9	...	1	N. 64° E.	N 47° E.	42	20	116	69	...	...	Dhubri	
·798	·917	·913	·882	+ ·028	97	82	81	86	+ 3	6·2	5·3	5·8	+ 1·5	3	3	13	7	5	5	9	7	8	N. 14° E.	N. 10° W.	5	14	77*	71	...	...	Chittagong.	Bengal and Orissa.
·782	·853	·824	·816	− ·034	91	77	71	80	0	5·1	4·5	4·8	+ 0·7	2	6	7	6	8	3	4	5	5	N. 60° E.	S. 55° E.	10	4	85	58	...	...	Dacca†	
·819	·840	·819	·826	− ·016	95	76	71	81	− 3	4·9	5·6	5·3	+ 1·1	...	15	8	5	5	4	4	10	11	N. 19° W.	N. 48° W.	31	11	54	70	...	...	Calcutta (Alipore).	
·834	·876	?	?	?	96	75	?	?	?	?	?	?	?	Not recorded.									?	?	?	?	?	?	8·55	2·64	Do. (Chowringhee).	
·816	·905	·862	·861	− ·001	89	78	73	80	− 2	7·4	7·2	7·3	+ 2·7	...	15	6	3	5	12	2	8	11	N. 12° W.	N. 10° E.	52	13	218	156	...	...	Saugor Island.	
·806	·830	·782	·806	+ ·012	92	75	64	77	+ 2	4·2	4·7	4·5	+ 0·3	1	10	13	7	6	5	2	4	14	N. 16° E.	N. 19° E.	31	29	52*	47	...	...	Burdwan	
·797	·881	·839	·839	+ ·046	88	81	72	80	+ 1	5·8	4·8	5·3	+ 0·6	8	14	4	12	2	2	2	3	15	N. 3° E.	N. 12° W.	35	16	65	51	...	...	Berhampore	
·822	·847	·810	·826	− ·003	94	71	67	77	− 3	5·7	5·6	5·7	+ 1·1	...	15	6	7	10	13	1	4	6	N. 74° E.	N. 40° E.	16	25	187*	142	...	...	False Point	
·776	·769	·730	·758	− ·027	90	65	58	71	− 4	3·7	5·0	4·4	0	10	6	16	8	6	2	4	6	4	N. 46° E.	N. 32° E.	26	25	43	43	...	...	Cuttack	
·533	·614	·586	·578	+ ·033	83	68	59	70	+ 5	5·2	5·7	5·5	+ 1·2	3	23	7	5	4	6	2	1	11	N. 6° E.	N. 42° W.	42	34	165	119	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·724	·758	·717	·732	+ ·032	89	68	61	73	+ 3	3·7	3·0	3·4	− 0·1	3	5	7	15	1	2	4	16	9	N. 22° W.	N. 21° E.	19	4	69	46	...	...	Patna	
·800	·807	·764	·788	+ ·023	95	73	64	77	+ 1	2·8	1·9	2·4	− 0·4	6	4	5	8	7	...	6	15	11	N. 59° W.	N. 68° E.	19	3	59	54	...	...	Darbhanga	
·620	·677	·594	·630	0	90	61	47	66	− 2	2·0	2·7	2·4	+ 0·7	5	7	4	4	2	4	6	10	20	N. 55° W.	N. 42° W.	40	13	71	43	...	...	Allahabad	
·685	·720	·702	·702	+ ·082	90	64	58	71	+ 12	2·8	3·0	2·9	+ 0·7	44	...	1	3	4	...	1	6	3	S. 73° W.	S. 71° W.	4	23	30	33	4·37	1·57	Ghazipur	
·594	·641	·587	·607	+ ·033	91	57	48	65	+ 4	1·6	2·1	1·9	+ 0·2	59	...	...	1	...	...	...	2	...	W.	N. 30° W.	2	39	12	47	...	...	Lucknow	
·440	·518	·540	·499	?	81	61	59	67	?	1·7	2·4	2·1	+ 1·0	19	12	...	...	3	12	2	9	5	W.	N. 38° W.	19	19	23	40	...	...	Dehra Dun.	Upper Sub-Himalayas.
·517	·577	·525	·540	+ 047	89	60	45	65	+ 6	1·5	1·1	1·3	+ 0·5	35	3	3	10	1	2	3	...	5	N. 62° E.	S. 27° E.	14	11	10	34	...	...	Roorkee	
·523	·526	·417	·489	− ·009	93	54	34	60	+ 3	1·2	0·6	0·9	+ 0·2	32	...	1	...	...	...	1	18	10	N. 74° W.	N. 48° W.	42	40	18	34	...	...	Meerut	
·442	·458	·459	·453	+ ·002	80	41	33	51	+ 4	0·1	0·1	0·1	− 0·6	32	4	4	4	4	4	2	4	4	N. 45° E.	N. 3° W.	3	12	26	38	...	...	Lahore	
·483	·493	·391	·452	− ·022	86	46	30	54	0	0·1	0·4	0·3	− 0·6	49	7	...	...	...	—	...	6	...	N. 41° W.	N. 40° W.	14	24	18	25	...	...	Ludhiana	
·303	·359	·349	·337	− ·031	64	37	27	43	− 4	0·4	1·4	0·9	− 0·5	16	6	12	11	3	2	1	5	6	N. 40° E.	N. 54° E.	29	35	58*	59	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·444	·526	·504	·492	− ·040	71	50	32	51	− 3	0	0	0	− 0·3	18	...	...	...	8	1	35	...	...	S. 31° W.	S. 70° W.	60	21	27*	45	...	...	Mooltan	
·370	·422	·363	·385	− ·053	64	33	21	39	− 4	0	0	0	− 0·4	43	...	4	1	12	1	1	...	...	S. 57° E.	S. 47° E.	23	11	46*	52	..	...	Jacobabad	
·585	·720	·733	·680	+ ·040	79	63	61	68	+ 5	1·2	0·5	0·9	0	...	...	6	...	...	...	26	27	3	S. 74° W.	S. 67° W.	72	64	306	235	...	...	Kurrachee	
·359	·414	·360	·378	− ·044	62	33	25	40	− 5	0·5	1·9	1·2	− 0·6	2	5	...	...	...	...	9	39	7	N. 86° W	N. 4° W.	82	37	60	86	...	...	Jeypore	E. Rajputana, Central India and Guzerat.
·455	·496	·503	·485	+ ·023	84	46	39	57	+ 8	0·3	1·2	0·8	− 0·3	4	1	7	1	4	2	1	30	12	N. 74° W.	N. 76° W.	52	23	70	61	...	...	Ajmere	
·496	·500	·418	·471	+ ·027	81	39	28	49	+ 7	1·0	2·5	1·8	− 0·1	...	11	12	8	7	5	5	9	3	N. 40° E.	N. 62° W.	18	16	142	161	...	...	Deesa	
·559	·583	·519	·555	+ ·019	95	59	45	66	+ 8	1·8	3·2	2·5	− 0·2	9	8	1	2	1	...	7	19	15	N. 80° W.	N. 42° W.	52	35	35	35	...	...	Nowgong	
·459	·507	·442	·469	− ·023	72	47	34	51	+ 2	1·3	1·4	1·4	+ 0·5	...	3	13	...	2	...	5	...	39	N. 30° W.	N. 78° W.	64	40	76	72	...	...	Agra	
·553	·571	·577	·567	− ·022	94	64	66	74	+ 2	5·0	5·9	5·5	− 0·1	...	8	16	10	3	3	10	8	2	N. 39° E.	N. 88° E.	18	72	186	251	...	...	Belgaum	Deccan.
·561	·550	·483	·532	− ·043	85	53	43	60	− 1	4·2	5·6	4·9	− 1·1	5	9	17	8	7	1	...	1	14	N. 29° E.	N. 50° E.	47	30	170*	190	...	...	Sholapur	
·538	·482	·443	·488	− ·065	90	46	37	58	− 1	2·7	4·5	3·6	− 1·3	7	3	14	13	6	...	1	9	9	N. 38° E.	N. 38° E.	29	17	132	139	...	...	Poona.	
·547	·606	·503	·552	− ·022	89	55	39	61	0	3·1	4·9	4·0	+ 0·9	9	10	7	13	...	7	...	5	11	N. 20° E.	N. 2° E.	27	32	95	82	...	...	Akola.	
·456	·481	·435	·457	− ·082	69	48	41	53	− 7	1·7	1·2	1·5	− 2·5	...	10	22	2	3	1	2	1	21	N. 4° E.	N. 29° E.	58	52	141*	117	1·62	0·68	Buldana	
·473	·496	·497	·489	− ·054	78	45	38	53	− 5	2·4	3·0	2·7	+ 0·4	2	26	7	1	2	2	3	9	10	N. 18° W.	N. 24° E.	55	28	82	68	...	...	Khandwa.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

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 to 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	...	28·883	28·767	·116	28·821	—·039	29·793	88·3	65·3	23·0	91·1	56·0	35·1	80·5	87·0	75·9	—1·0	61·0	69·8	69·6	67·0
	Nagpur	...	·872	·752	·120	·804	—·017	·780	88·2	67·0	21·2	93·1	60·2	32·9	82·2	85·6	77·8	—0·9	63·4	70·8	69·7	67·9
	Jubbulpore	...	·580	·473	·107	·523	—·015	·801	84·9	63·1	21·8	88·9	55·5	33·4	76·2	83·2	73·0	—0·9	62·3	69·5	69·4	67·1
	Saugor	...	·152	·049	·103	·097	—·011	·793	86·6	62·4	24·2	90·5	56·3	34·2	80·4	84·9	73·5	—1·6	59·3	67·7	68·1	65·0
	Raipur	...	·931	·817	·114	·870	—·019	·785	87·1	69·9	17·2	90·8	61·7	29·1	81·2	84·1	78·5	—0·1	67·2	72·2	71·0	70·1
	Sutna	...	·853	·752	·101	·798	—·025	·797	85·3	66·1	19·2	89·3	59·2	30·1	80·2	83·1	74·5	—1·0	63·7	70·2	69·2	67·7
	Secunderabad	...	·122	·010	·112	·068	—·007	·782	85·3	67·1	18·2	89·8	60·4	29·4	79·9	82·1	74·8	—1·7	65·6	69·6	69·3	68·2
	Hyderabad (Deccan).	...	·216	·105	·111	·159	?	·779	85·2	67·8	17·4	90·7	60·1	30·6	80·4	82·2	75·7	?	66·5	70·7	73·8	70·3
West Coast.	Bombay	...	29·897	29·785	·112	29·837	—·005	·814	87·2	74·9	12·3	90·1	71·4	18·7	81·8	84·3	80·2	—0·9	71·2	75·3	76·7	74·4
	Ratnagir	...	·810	·704	·106	·753	—·002	·800	87·9	72·3	15·6	94·6	65·1	29·5	84·9	84·0	79·0	—0·8	69·7	75·8	77·5	74·3
	Karwar	...	·883	·732	·101	·829	—·003	·804	84·5	72·7	11·3	89·5	66·3	23·2	80·4	81·6	77·8	—0·4	70·6	74·9	75·7	73·8
	Cochin	...	·933	·830	·103	·878	—·010	·814	85·9	74·5	11·4	90·0	71·6	18·4	82·4	83·1	79·4	—0·1	73·1	76·7	76·6	75·5
South India.	Salem	...	28·993	28·858	·135	28·932	—·012	·803	88·4	71·7	16·7	93·7	69·1	24·6	81·5	84·2	77·9	0	70·2	74·2	74·4	73·0
	Mysore	...	27·428	27·313	·115	27·371	?	·786	82·3	66·6	15·7	87·4	61·0	26·4	76·0	79·7	73·8	?	65·5	69·5	69·7	68·3
	Mercara	...	26·230	26·137	·093	26·190	—·013	·828	73·3	62·8	10·5	76·1	59·3	17·1	68·7	69·0	67·6	—0·6	61·6	65·4	65·5	64·1
	Bangalore (Fort)	...	·937	·827	·110	·886	—·038	·778	79·9	64·8	15·1	83·1	62·0	21·1	74·8	76·5	71·5	—0·8	64·2	69·0	68·9	67·3
	Hassan	...	·882	·775	·107	·833	?	·796	80·2	62·6	17·6	84·6	56·3	28·3	74·5	75·4	70·2	?	61·1	67·9	67·7	65·6
	Chitaldroog	...	27·520	27·402	·118	27·463	?	·771	82·1	66·3	15·8	86·8	63·0	23·8	76·5	80·1	73·7	?	62·8	69·9	69·9	66·9
	Trichinopoly	...	29·652	29·510	·142	29·587	—·014	·772	91·5	74·8	16·7	96·4	69·6	26·8	84·0	88·1	81·2	+0·9	72·2	75·4	76·0	74·5
	Madras	...	·882	·772	·110	·830	—·009	·781	90·8	75·0	15·8	97·3	70·5	26·8	85·7	85·9	81·8	+0·7	?	77·1	77·9	76·7
	Bellary	...	28·437	28·308	·129	28·375	—·007	·782	86·8	69·9	16·9	92·2	63·5	28·7	80·9	82·9	76·8	—1·9	66·8	71·7	71·4	70·0
	Vizagapatam	...	29·865	29·729	·116	29·802	—·016	·771	84·9	79·8	5·1	88·0	77·0	11·0	84·0	85·3	83·8	+0·5	72·8	77·2	77·7	75·9
	Cocanada	...	·868	·754	·114	·811	?	·774	86·4	75·6	10·8	93·7	72·0	21·7	82·9	84·3	80·5	?	74·2	76·4	76·4	75·6
Hill Station, Baluchistan.	Quetta	...	24·730	24·651	·079	24·682	+·004	?	75·2	35·3	39·9	82·7	28·6	54·1	64·7	73·1	54·8	—1·1	32·5	47·6	51·4	43·8
Hill Stations, Northern India.	Leh	11,503	19·757	19·655	·102	19·715	—·017	?	59·4	30·7	28·7	66·9	23·4	43·5	48·1	55·0	45·0	+2·9	26·2	34·7	37·5	32·8
	Srinagar	...	24·964	24·849	·115	24·898	?	?	70·0	39·1	30·9	76·3	33·1	43·2	50·0	69·1	54·3	?	38·5	46·8	61·5	48·9
	Murree	...	23·919	23·886	·033	23·894	—·019	?	67·7	53·5	14·2	71·8	45·8	26·0	63·1	62·7	59·2	—0·1	42·7	50·2	50·6	47·8
	Chamba	3,005	26·948	26·862	·086	26·913	—·036	?	80·2	54·1	26·1	85·1	49·7	35·4	67·7	74·5	64·3	—0·9	50·5	57·3	62·2	56·7
	Kailang	10,037	20·825	20·758	·067	20·800	—·008	?	62·8	32·2	30·6	67·9	26·5	41·4	51·7	55·8	44·3	+1·9	28·3	40·2	40·8	36·6
	Simla (Ridge)	...	23·175	23·133	·042	23·145	—·017	?	62·1	50·7	11·4	67·6	44·8	22·8	57·7	58·3	55·2	—1·4	42·7	48·2	49·6	46·9
	Simla (Chapslee)	...		Not recorded.					68·4	50·5	17·9	73·0	45·2	27·8	61·0	?	?	?	43·7	50·6	?	?
	Chakrata	...	·307	·252	·055	·270	—·034	?	65·0	50·9	14·1	71·2	44·7	26·5	61·5	61·2	56·8	0	47·4	54·2	54·2	51·9
	Ranikhet	...	24·154	24·097	·057	24·111	—·005	?	67·7	53·8	13·9	75·0	47·5	27·5	64·3	65·2	59·9	—1·0	50·3	56·0	57·3	54·5
	Katmandu	4,388	25·679	25·585	·094	25·631	—·019	?	75·9	57·2	18·7	84·1	50·0	34·1	68·2	71·7	65·4	—2·2	55·8	62·9	64·1	60·9
	Darjeeling	...	23·062	22·983	·079	23·021	+·002	?	61·0	49·8	11·2	68·8	42·7	26·1	57·9	59·1	55·3	+0·8	48·0	54·7	56·0	53·1
	Demagiri	?		Not recorded.					85·4	73·0	12·4	89·9	68·2	21·7	81·2	82·6	78·5	—0·1	Not recorded.			
	Tura	3,913		Ditto.					82·7	70·1	12·6	87·8	65·1	22·7	77·9	78·9	75·5	?	?	73·0	74·1	?
Hill Stations, Central India.	Mount Abu	...	26·111	26·040	·071	26·070	—·028	?	74·6	61·3	13·3	78·1	58·7	19·4	72·7	72·4	67·4	—3·4	53·8	59·1	60·4	57·8
	Pachmarhi	...	·504	·412	·092	·454	—·001	?	75·5	57·1	19·4	79·7	49·2	30·5	73·6	74·6	66·3	—1·2	53·9	60·9	61·3	59·7
	Chikalda	3·642	·373	·278	·094	322	—·018	?	76·4	63·3	13·1	80·9	59·0	21·9	73·5	74·0	69·3	—0·5	57·1	62·1	62·6	60·6

II—*continued.*

Stations in India, Burma, etc., for October 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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.	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 of the month.	Heaviest rainfall during month.	Station.	Meteorological Province.
·514	·603	·511	·543	−·054	81	57	40	59	− 4	1·7	2·7	2·2	−0·3	37	3	8	6	...	...	2	5	1	N. 29° E.	N. 12° E.	14	25	14	38	...	...	Hoshangabad.	Deccan—*concld.*
·548	·616	·532	·565	−·017	81	56	44	61	+ 1	2·6	3·9	3·3	−0·7	6	16	22	5	1	3	2	1	6	N. 26° E.	N. 37° E.	55	51	98	89	...	...	Nagpur.	
·561	·616	·551	·576	+·008	96	64	48	69	+ 4	2·1	2·9	2·5	−0·3	20	11	10	2	1	3	4	6	5	N. 10° W.	N. 3° E.	24	17	31	49	...	...	Jubbulpore.	
·475	·524	·481	·493	−·014	83	51	41	58	+ 1	1·9	2·3	2·1	+0·4	...	14	10	...	1	...	11	6	20	N. 37° W.	N. 28° W.	53	45	31	64	...	...	Saugor.	
·639	·677	·593	·636	−·005	86	64	52	67	+ 1	3·8	4·8	4·3	+0·8	20	9	16	5	2	...	3	4	3	N. 27° E.	N. 28° E.	34	37	59*	95	...	...	Raipur.	
·567	·615	·546	·576	+·061	87	60	49	65	+ 8	1·4	2·5	2·0	−0·2	5	22	2	3	...	3	2	11	14	N. 32° W.	N. 34° W.	55	47	91*	105	...	...	Sutna.	
·621	·601	·563	·595	−·003	92	59	52	68	+ 2	3·6	4·7	4·2	−0·1	2	4	30	12	2	2	1	3	6	N. 46° E.	N. 37° E.	60	42	102	94	...	...	Secunderabad.	
·641	·638	·755	·678	?	93	62	67	74	?	3·7	4·7	4·2	?	18	4	14	11	8	3	2	1	1	N. 79° E.	?	39	?	81*	?	...	...	Hyderabad (Deccan).	
·720	·796	·819	·778	−·065	83	73	69	75	− 5	1·6	1·5	1·6	−2·6	...	2	7	13	6	1	1	10	22	N. 14° W.	N. 15° E.	27	38	186	231	...	...	Bombay.	West Coast.
·699	·773	·860	·777	−·014	87	66	74	76	0	3·2	4·5	3·9	+0·8	...	6	1	3	6	2	11	14	19	N. 77° W.	S. 81° W.	45	17	159*	168	...	...	Ratnagiri.	
·725	·794	·813	·778	−·010	90	77	76	81	− 3	3·6	5·3	4·5	0	3	3	8	...	...	...	6	23	19	N. 63° W.	N. 82° W.	63	56	52	?	...	...	Karwar.	
·797	·845	·829	·823	−·008	98	76	73	81	− 2	3·6	5·6	4·6	−1·2	4	1	2	...	...	...	1	35	19	N. 72° W.	S. 76° W.	81	40	146	?	...	...	Cochin.	
·721	·750	·723	·731	−·027	33	70	63	75	− 2	6·9	7·8	7·4	+1·8	16	5	8	2	2	7	16	4	2	S. 45° W.	S. 52° W.	13	39	60	63	...	...	Salem.	South India.
·616	·644	·608	·622	?	94	72	60	75	?	7·3	7·1	7·2	?	...	6	10	13	3	2	10	13	5	N. 16° W.	?	10	?	205*	?	...	...	Mysore.	
·537	·589	·589	·572	−·010	93	84	84	87	+ 1	6·5	7·3	6·9	−0·9	...	4	14	6	3	...	4	12	19	N. 24° W	N. 36° W.	40	24	146	82	...	...	Mercara.	
·598	·643	·619	·620	+·029	97	75	69	80	+ 4	6·6	6·3	6·5	+0·7	1	3	14	9	5	2	13	13	2	S. 75° W.	N. 16° W.	2	9	109*	95	...	...	Bangalore (Fort).	
·526	·610	·596	·577	?	92	72	68	77	?	7·2	7·5	7·4	?	4	4	21	7	...	...	9	8	9	N. 3° E.	?	31	?	61*	?	...	...	Hassan.	
·533	·614	·570	·572	?	82	68	56	69	?	6·2	6·2	6·2	?	4	7	13	11	3	1	7	9	7	N. 15° E.	?	23	?	134*	?	...	...	Chitaldroog.	
·758	·766	·735	·753	−·011	88	66	56	70	− 3	5·5	6·9	6·2	−1·3	21	4	7	2	1	3	7	15	2	N. 83° W.	N. 44° W.	23	33	57	93	...	...	Trichinopoly.	
?	·816	·851	·853	+·033	?	67	69	79	0	5·9	5·7	5·8	−0·3	...	2	22	28	9	1	...	...	...	N. 78° E.	N. 35° E.	82	10	106	121	...	...	Madras.	
·622	·665	·629	·639	+·010	85	64	57	68	+ 4	6·5	6·3	6·7	+0·3	1	6	4	14	6	...	10	8	13	N. 27° W.	N. 24° E.	11	14	95	104	...	...	Bellary.	
·709	·853	·857	·806	−·010	69	73	70	71	− 1	4·8	5·0	4·9	+0·3	...	9	11	2	3	17	6	9	5	S. 58° W.	S. 65° E.	10	18	14	44	...	...	Vizagapatam.	
·830	·823	·805	·819	?	94	74	68	79	?	3·8	4·4	4·1	?	...	5	18	15	14	...	2	3	5	N. 72° E.	?	50	?	161*	?	...	...	Cocanada.	
·158	·155	·157	·157	−·036	75	25	19	40	− 2	0	0·1	0·1	−0·3	29	1	...	1	...	...	...	12	19	N. 60° W.	N. 56° W.	45	50	43*	63	...	...	Quetta.	Hill Station, Baluchistan.
·109	·088	·075	·091	−·008	64	27	18	36	− 5	2·4	4·1	3·3	−0·5	...	...	2	...	3	14	23	19	1	S. 47° W.	S. 56° W.	71	24	68	45	Nil	0	Leh.	Hill Stations, Northern India.
·229	·287	·462	·326	?	95	79	66	80	?	0·8	1·8	1·3	?	54	1	2	...	1	1	1	1	1	N. 23° W.	?	1	?	53*	?	...	...	Srinagar.	
·165	·231	·251	·215	−·018	41	40	43	41	− 4	0·5	0·3	0·7	−1·4	6	2	...	...	25	6	5	5	2	S. 2° E.	S. 30° E.	27	10	172*	145	...	...	Murree.	
·328	·354	·424	·339	−·028	77	52	49	59	+ 5	1·2	1·8	1·5	−0·3	37	4	...	...	...	1	2	4	14	N. 53° W.	N. 11° E.	31	7	114*	107	0·46	0·47	Chamba.	
·133	·155	·132	·140	+·014	72	40	29	47	0	1·1	3·3	2·2	−1·2	...	...	...	1	6	21	21	7	6	S. 30° W.	S. 49° W.	66	68	37	37	0·03	0·03	Kailang.	
·194	·213	·269	·235	−·021	53	51	55	53	+ 1	1·5	2·0	1·8	+0·4	16	16	4	...	...	18	5	1	2	S. 64° W.	N. 87° W.	6	35	110	?	...	...	Simla (Ridge).	
·218	·263	?	?	?	59	49	?	?	?	1·3	?	1·3	?			Not	recorded.						?	?	?	?	?	?	1·44	0·98	Simla (Chapslee).	
·292	·347	·351	·330	+·053	79	64	65	69	+11	1·9	2·2	2·1	+0·4	10	...	2	9	4	...	5	28	2	S. 30° W.	S. 64° W.	33	30	135	120	...	...	Chakrata.	
·330	·366	·391	·362	+·034	80	61	63	68	+ 7	2·4	4·1	3·3	+1·7	29	4	...	5	...	...	1	22	1	N. 73° W.	S. 54° W.	31	55	32	42	...	...	Ranikhet.	
·431	·516	·517	·485	+·009	91	75	67	76	+ 5	4·4	4·9	4·7	+0·9	3	2	...	19	3	2	2	27	4	S. 86° W.	W.	16	52	15	?	8·81	6·70	Katmandu.	
·320	·400	·421	·383	+·013	37	83	83	84	+ 2	5·9	6·5	6·2	+0·7	12	...	13	4	...	...	10	16	3	N. 71° W.	S. 3° E.	22	5	79	62	...	...	Darjeeling.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	1	35	1	...	...	24	1	N. 86° E.	N. 54° W.	19	15	?	?	11·31	2·22	Demagiri.	
?	·758	·769	?	?	?	79	80	?	?	5·1	5·5	5·3	+0·9	...	4	7	5	7	19	17	1	2	S. 1° E.	S. 15° E.	41	43	?	?	8·28	1·60	Tura.	
·332	·351	·392	·359	+·021	61	44	49	52	+ 8	0·4	2·1	1·3	−0·8	...	7	13	5	7	7	12	2	9	N. 49° E.	N. 14° E.	5	6	130*	98	...	...	Mount Abu.	Hill Stations, Central India.
·386	·394	·392	·391	−·057	81	48	47	59	− 4	2·5	2·9	2·7	−0·5	15	9	12	14	...	...	...	7	5	N. 29° E.	N. 17° E.	39	37	72*	70	...	...	Pachmarhi.	
·403	·434	·442	·426	−·047	68	53	53	58	− 6	3·5	4·0	3·8	+0·3	24	23	3	3	...	...	...	...	9	N. 2° W.	N. 3° E.	50	42	141	135	2·34	1·33	Chikalda.	

Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

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 to 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 Stations, S. India.	Wellington	...	24·249	24·166	·083	24·208	—·009	P	69·1	54·6	14·5	72·4	49·0	23·4	64·7	63·9	60·6	—0·2	54·0	59·9	59·9	57·9
Extra India.	Muscat	...	29·959	29·884	·075	29·921	P	P	83·9	79·0	4·9	89·3	75·1	14·2	83·0	83·4	81·3	P	69·8	74·6	75·3	73·2
	Aden	...	·890	·764	·126	·827	—·006	29·852	88·9	77·1	11·8	93·5	71·5	22·0	84·9	86·3	82·3	—0·5	72·7	75·8	75·1	74·5
	Perim	...	·772	·646	·126	·709	P	P	90·4	80·6	9·8	94·1	77·4	16·7	87·0	87·0	84·7	P	73·9	76·3	76·2	75·5
	Minicoy	...	·957	·859	·098	·906	P	·841	85·	78·3	7·3	88·9	74·8	14·1	82·4	83·1	80·9	P	73·4	76·1	76·2	75·2
	Zanzibar	...	·991	·903	·088	·947	P	·946	82·7	74·9	7·8	85·1	72·9	12·2	79·0	82·2	78·7	P	72·2	73·9	73·5	73·2

II—*concluded.*

Stations in India, Burma, etc., for October 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.										Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	Heaviest rainfall during month.	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.				
·413	·468	·476	·452	+·011	95	77	80	84	+ 1	7·5	8·3	7·9	+0·6	5	4	4	...	16	15	14	...	4	S. 3° E.	S. 32° E.	42	27	53	56	...	...	Wellington.	Hill Station, S. India.
·614	·751	·773	·713	?	62	67	67	65	?	0	0	0	?	...	3	6	18	1	...	...	4	30	N. 5° W.	?	45	?	78	?	...	...	Muscat.	Extra India.
·751	·772	·723	·749	+·026	81	64	58	68	+ 3	1·7	1·0	1·4	—0·3	8	...	8	25	7	10	3	...	1	S. 72° E.	S. 88° E.	55	55	352	307	...	...	Aden.	
·756	·766	·760	·761	?	72	59	59	63	?	0·9	0·9	0·9	?	...	...	3	23	36	...	...	...	...	S. 65° E.	?	90	?	479	?	...	...	Perim.	
·753	·819	·814	·793	?	78	75	72	76	?	4·4	5·1	4·8	?	2	8	1	1	...	...	...	27	23	N. 59° W.	?	77	?	242	?	...	...	Minicoy.	
·757	·767	·710	·746	?	88	77	65	77	?	6·2	3·0	4·6	?	...	...	5	5	14	20	13	2	0	S. 12° E.	S. 9° W.	61	38	144*	109	...	...	Zanzibar.	

* Corrected.

G. I. C. P. O.—No. 80 Meteor.—1-3-94.—400.

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.

Reg No. 189, Wr., I.—April 93.—500.—199 R., May 93 —5,500.

Litho., S. I. O., Calcutta.

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.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93 — 5,500.

Litho., S. I. O., Calcutta.

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

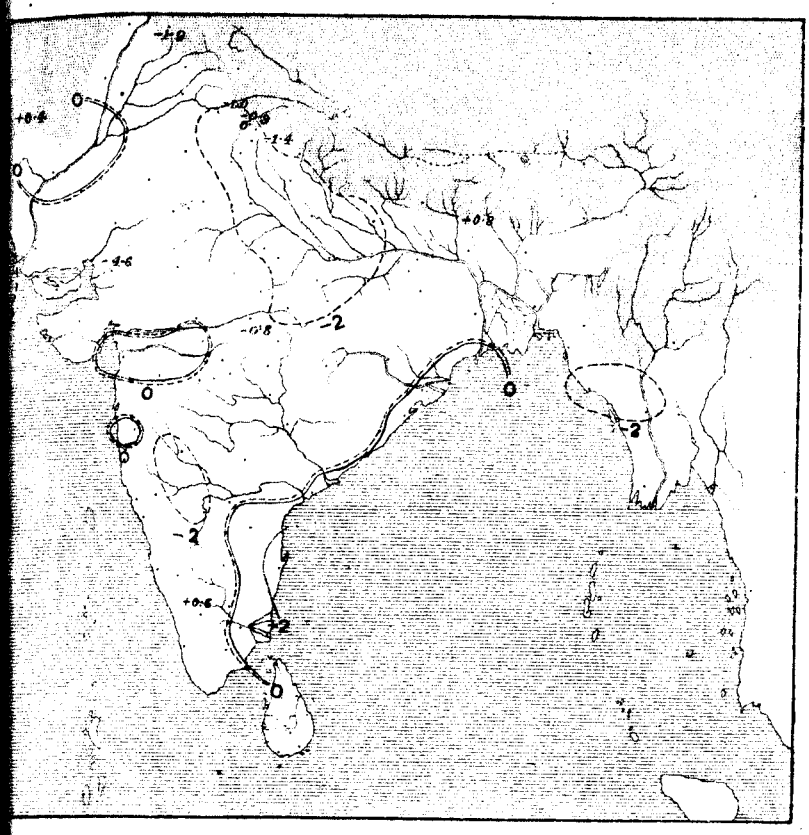
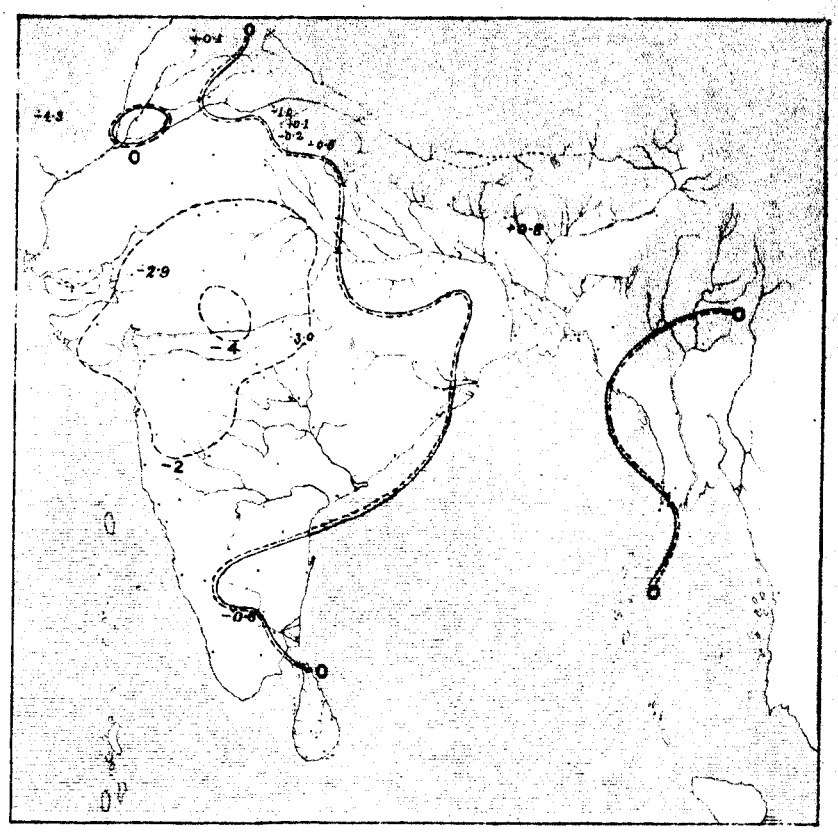


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

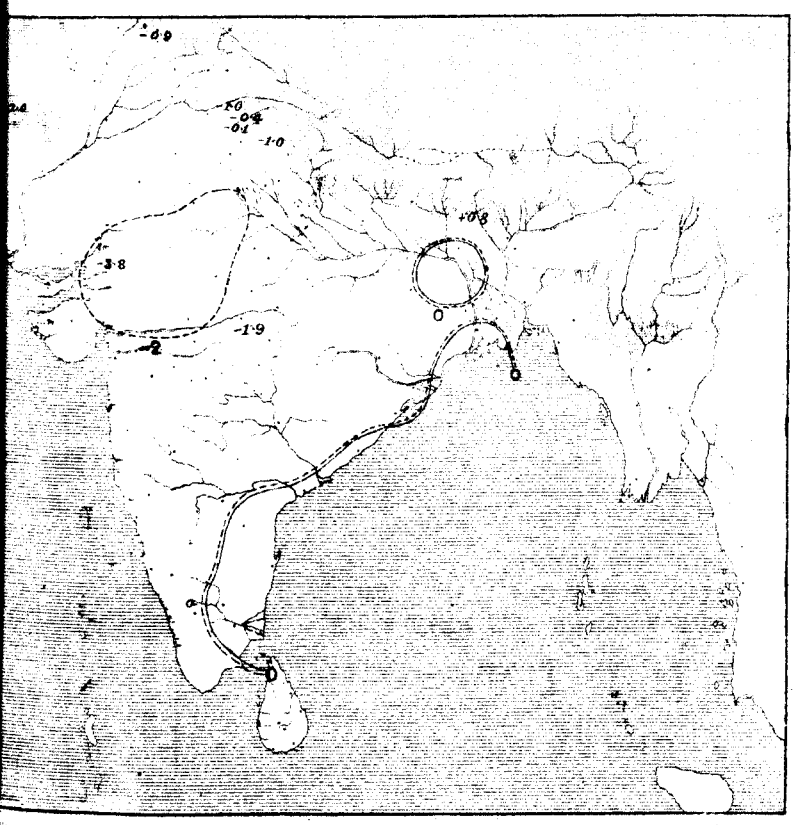
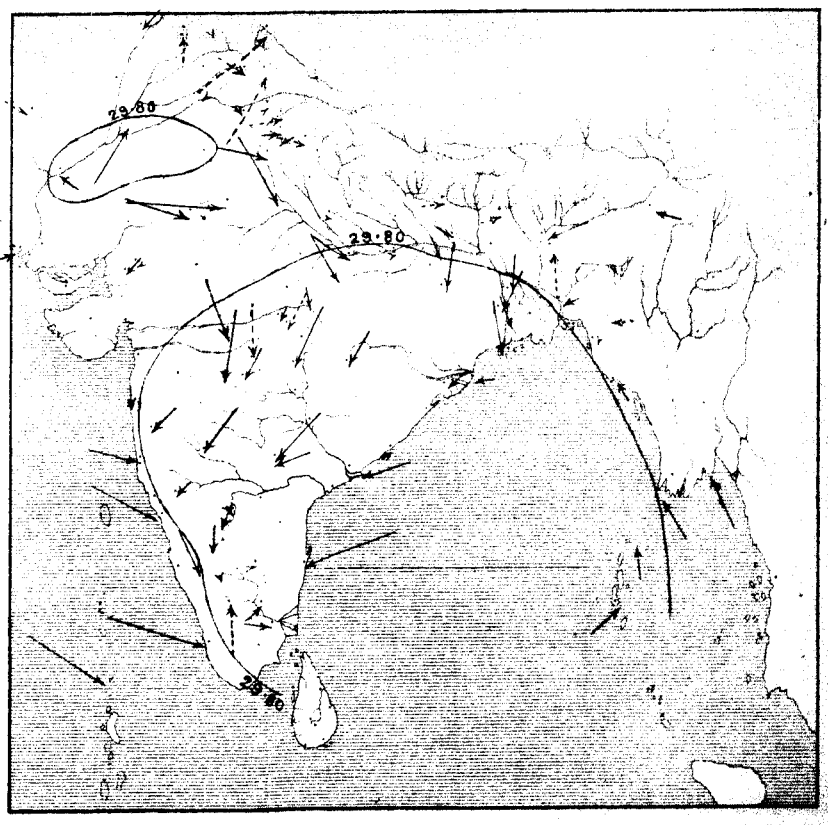


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF OCTOBER 1893.



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. 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. 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. 199. Wr., I.—April 93—500—199 R., May 93—5,500.

Litho. S. [illegible] Calcutta

LITHO. BY J. N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

1. Tenasserim
2. Lower Burma
3. Central do.
4. Upper do.
5. Arakan
6. Eastern Bengal
7. Assam (Surma)
8. Do. (Brahmaputra)
9. Deltaic Bengal
10. Central do.
11. North do.
12. Orissa
17. Chota Nagpore
18. Behar (South)
15. Behar (North)
16. North Western Provinces (East)
17. Oudh (South)
18. Do. (North)
19. North Western Provinces (Central)
20. Do. do. (West)
21. Do. do. (Submontane)
22. Punjab (South)
23. Do. (Central)
24. Do. (Submontane)
25. Do. (Hill Districts)
26. Do. (North West)
27. Punjab (West)
28. Malabar
29. Madras (South Central)
30. Coorg
31. Mysore
32. Konkan
33. Bombay Deccan
34. Hyderabad (North)
35. Khandeish
36. Berar
37. Central Provinces (West)
38. Do. (Central)
39. Do. (East)
40. Guzerat
41. Kattiawar
42. Sind
43. Central India (East)
43(a.) Do. do. (a)
44. Rajputana (East) Central India (West)
45. Rajputana (West))
46. East Coast (North)
46(a.) Do. do. (a)
47. Hyderabad (South)
48. Madras (Central)
49. East Coast (Central)
50. East Coast (South)
51. Madras (South)

Litho., S. I. O., Calcutta.

Reg. No. 199. Wr. I.—April 93—500.—199 R. May 93—5,500.

GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

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INTRODUCTION.

THIS Review of the weather in India during the month of November 1893 is based on observations taken daily at 8 A.M at 203 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 89 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 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, drawn up 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 1893.

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 area.

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 29·90″ in the Punjab and 29·80″ in the centre and south of the Bay, and at the end of the month between 30·00″ in the Punjab and Central Rajputana and 29·80″ in the south of the Bay.

The total range of pressure hence usually increases from an average of one to an average of two-tenths of an inch during the month.

The most important feature in the 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 westward 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, West Mysore, and the Nilgherries, Palnis and other hills of Southern India.

The following is a brief statement of the chief features of the meteorology of India during the month :—

Fine dry weather prevailed over India at the commencement of the month. During the last fortnight of the previous month pressure had been slightly lower in the eastern than in the western half of the low-pressure belt which lay across the centre and south of the Bay. The barometric changes of the first three days of the month were nowhere large. Pressure, however, increased in Burma and the Andaman Sea relatively to the south of the Peninsula, and on the morning of the 4th pressure was slightly lower over the western half of the low-pressure belt which now covered the south of the Bay. Weather was squally in this area to the east of the South Coromandel Coast, and there was a strong tendency to the formation of a cyclonic storm. It developed rapidly during the day, and on the morning of the 5th a storm of considerable intensity, the centre of which was in about Lat. 11¾° N. and Long. 81½° E., was in existence. It continued to increase in violence, and began to advance in a west-north-west direction towards the coast between Madras and Cuddalore. It was a cyclone of small extent with a calm central area and (probably) an inner area of hurricane winds on the early morning of the 6th. The centre crossed the coast near the Seven Pagodas and advanced at a rate of about 6 miles per hour in a west-north-west direction immediately to the north of Chingleput and Walajabad. The depression filled up during the day, but the strong humid current which it introduced into the Peninsula gave heavy and general rain to Madras and the Deccan from the 4th to the 10th and showery weather to the Central Provinces on the 8th, 9th and 10th.

During the first five days of the month temperature was in slight to moderate excess in North-Western India and was more or less below the normal elsewhere, the deficiency on the whole being most marked in the Deccan, Berar and the Central Provinces. A rapid decrease of temperature occurred in Upper India on the 5th and 6th, and temperature from the 6th to the 11th was generally below the normal, the deficiency being most marked in the Madras coast districts and the Deccan.

The pressure conditions on the 11th in the south of the Bay were very similar to those of the 4th. A broad low-pressure belt stretched across the south of the Bay, and pressure was slightly lower near the western extremity of this belt, where weather was squally with much rain. A very shallow depression was shown in that area on the 11th and 12th, but it did not develop beyond the initial stages of a cyclonic storm, and it filled up on the 13th. It apparently determined a strong influx of humid winds across the Coromandel and Circars coasts until the 16th, and the whole of the Peninsula and the Central Provinces received more or less general rain during this period from the 12th to the 16th. Very heavy rain fell during this period in the Madras coast districts between Vizagapatam and Cuddalore. A considerable change occurred in the temperature conditions during this period. The continuance of damp, cloudy weather in the north of the Peninsula and the Central Provinces had caused a very large increase in the night temperature, and the mean daily temperature was more or less above the normal in that area from the 12th. Thus it averaged 3° above the normal on the 13th and following three days in Berar and the Central Provinces. It also increased in other districts and was slightly above the normal over the whole of India except South Madras.

During the period from the 13th to the 15th a cyclonic storm had formed in the south-east of the Arabian Sea. For some days previously winds had been light and unsteady and weather showery and squally off the Malabar Coast. On the 13th and 14th the area of squally weather extended northwards and westwards and lay between the 8th and 16th parallels of latitude and the 65th meridian and the west coast. Winds were cyclonic on the 15th and had increased very considerably in intensity, and on the morning of the 16th a cyclonic storm of moderate extent and intensity, the centre of which was in Lat. 14°N. and Long. 67¼°E., covered the south-east of the Arabian Sea. It advanced by a curved path during the next three days at an average rate of about 7 miles per hour to the Kathiawar coast. Winds of force 8 to 11 were experienced by ships at distances of upwards of 200 miles from the centre on the 17th and 18th, but there is no direct evidence that the storm developed so far as to have a calm central area. The storm began to diminish in intensity and area on the 19th. The centre crossed the Kathiawar coast to the west of Verawal on the morning of the 20th about 8 A.M. The storm

filled up rapidly during the day, and on the morning of the 21st a residual diffused disturbance lay over Guzerat, Kathiawar and South-West Rajputana, which disappeared during the day. The west coast districts received moderate rain from the 17th to the 20th, and the humid winds introduced into North-Western India by the storm on the 20th and 21st gave moderate but fairly general rain during the next 72 hours to the greater part of Central India, Rajputana and the North-Western Provinces.

On the 22nd and 23rd, after the previous disturbance had dispersed, conditions became favourable for another advance of humid easterly winds across the Coromandel coast. The influx of this humid currrent gave general and moderately heavy rain to Central and South Madras and Mysore from the 23rd to the 28th, when the winds shifted to north and dry weather set in.

Temperature at the commencement of the second fortnight of the month was considerably above the normal in Central India, the Central Provinces and the North Deccan. In consequence of the unusually large amount of cloud and abnormally high humidity, the day temperature was slightly below the normal, and the night temperature largely above it. These conditions continued unchanged during the remainder of the month, and the high temperature at the head of the Peninsula during the last three weeks of the month was one of the more important features of the meteorology of the month.

Pressure.—The mean pressure of the whole Indian area in November was ·039″ above the normal. Relatively to this general condition, pressure was locally in defect in the Peninsula. The local deficiency exceeded ·03″ in Malabar, South Madras and Ceylon. Pressure was relatively in excess in Northern India and Burma. The excess was small in amount, except in Burma, Assam and the North Punjab, where it ranged between ·02″ and ·03″.

The distribution of pressure in November, indicated by these anomalies, is such as is almost invariably associated with favourable rain in the south and centre of the Peninsula in that month.

The more important changes of pressure during the month were those connected with the cyclonic storms of the month, and have been fully described above.

Temperature.—The mean maximum or day temperature was below the normal, except in the west coast districts, where it was very slightly in excess. The deficiency was largest in Cutch, Kattywar, Guzerat, Rajputana, Central India and the North-Western Provinces, in which it ranged between 2° and 4.° It was absolutely greatest at Ajmere (—4·2°), Deesa (—4·2°) and Rajkot (—4·0°).

The minimum or night temperature was on the contrary in excess over the whole of India and below the normal to a small amount in Burma. The increase was very marked in the interior, and exceeded 4° in the area defined by the following stations: Rajkot, Ajmere, Allahabad, Raipur and Poona. It exceeded 6° at the stations for which data are given below :—

STATION.	Variation of mean minimum temperature of month from normal.
	°
Jubbulpore	+6·9
Hoshangabad	+6·7
Khandwa	+6·4
Akola	+7·0
Malegaon	+6·3

As the variations of the day and night temperature were opposite in character, the mean daily temperature varied from the normal to a comparatively small extent. It was in slight defect in Burma, South Madras and the sub-montane districts of Northern India, and was in excess elsewhere. The excess was more than 2° over the greater part of the Central Provinces, Central India, Berar, Khandesh and Guzerat, and was absolutely greatest at Khandwa and Malegaon (+3·8°). The variations at the hill stations were similar in all cases to those at the neighbouring plain stations.

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

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

Winds.—Winds were exceedingly light and unsteady in the East Punjab and North-Western Provinces; they were stronger than usual over the remainder of India. The most important feature was the increased easting in the north-easterly winds of the month in the Peninsula, Bengal and the north of the Bay. This was evidently due to a stronger set westwards of the recurving and retreating south-west monsoon current in the Bay, and is in accordance with the pressure anomalies. This is further confirmed by the increased strength of the winds at the Coromandel coast stations and the deviation of the mean winds of the month at Port Blair, where the mean direction was east, the normal being N. 63° E.

Humidity and cloud.—The air was slightly drier at Port Blair and in Burma. The mean humidity conditions of the month were practically normal in Bengal and Assam. The air was drier in Sind, the West Punjab, Baluchistan, the hill stations in the Western Himalayas and also at Aden and Bushire; but the variations were not large. Over the remainder of India the humidity was very considerably in excess. The relative humidity was most largely above the normal in Central India and the Central Provinces, at several stations in which areas it was more than 20 above the normal, *viz.*, Saugor (+21), Sutna (+21) and Mount Abu (+22).

The variations of the amount of cloud from the normal were similar to those of the humidity conditions. There was less cloud than usual in Burma, the Punjab, Sind, Baluchistan, and at the hill stations in the Punjab Himalayas. Cloud was in excess over the remainder of India, more especially in the Deccan, Central Provinces and Central India.

Skies were most serene at Perim, Aden, Muscat, Jacobabad, Mooltan and Lahore, at which the mean cloud amount ranged between 0·3 and 0·7. They were most heavily clouded in South and Central Madras, Mysore and Malabar, where the cloud amount for the month averaged 7·5.

The following table gives variation data for the month of November 1893 of the mean aqueous vapour pressure, humidity, and cloud amount:—

Meteorological Province.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	"		
Burma Coast and Bay Islands	−·052	−4	−0·4
Assam	+·005	+2	+0·1
Bengal and Orissa	+·006	−1	+1·0
Gangetic Plain and Chota Nagpur	+·056	+7	+1·6
Upper Sub-Himalayas	+·014	+5	+0·4
Indus Valley and North West Rajputana	−·017	−4	−0·3
East Rajputana, Central India and Guzerat	+·083	+13	+2·2
Deccan	+·115	+14	+2.0
West Coast	+·018	*Nil.*	+1·1
South India	+·052	+6	+1.7

Rainfall.—The rainfall of the month was on the whole very favourably distributed. The first cyclonic storm in the month (*viz.*, that of the 5th to 7th) gave moderately heavy rain to Madras from the 5th to 7th. The influx of humid winds to the Peninsula continued for some time after the breaking up of the storm, and the whole of the Peninsula, the Central Provinces, and Central India received more or less general rain from the 8th to 11th. A shallow depression which formed in the southwest of the Bay on the 11th and 12th determined a second large influx of humid winds to the Peninsula and the Central Provinces. This influx continued until the 16th, and during this period the rainfall was especially heavy in the Madras coast districts from Vizagapatam to Cuddalore. The second cyclonic storm which formed in the Arabian Sea on the 14th and 15th, and advanced across the Kathiawar coast on the 20th give a moderate to heavy burst of rain from the 17th to the 23rd over the greater part of the Bombay Presidency, Rajputana, Central India and the North-Western Provinces. South Madras received fairly steady and general rain from the 24th to the 28th, after which fine dry weather prevailed over the whole of India until the end of the month.

The rainfall of the month was more or less largely in excess over the areas affected by the indraught of humid winds accompanying and following the depressions of the month, or over the whole of the Peninsula, the Central Provinces, Central India, Guzerat, Kathiawar, Rajputana and the North-Western Provinces. It was, on the other hand, in moderate defect in Burma, Assam and Bengal. No rain fell in the Punjab, Kashmir, Sind and Baluchistan. The following gives a comparative statement of the rainfall of the month in eleven meteorological provinces:—

Meteorological Province.	Rainfall.		
	Mean actual for November 1893.	Mean normal for November.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	1·38	4·82	−3·44
Burma Inland	0·50	1·80	−1·32
Assam	0·32	0·73	−0·40
Bengal and Orissa	0·12	0·67	−0·57
Gangectic Plain and Chota Nagpur	0·30	0·18	+0·13
Upper Sub-Himalayas	0·20	0·19	+0·01
Indus Valley and North-West Rajputana	0·07	0·11	−0·04
East Rajputana, Central India and Guzerat	1·77	0·15	+1·43
Deccan	2·00	0·90	+1·04
West Coast	4·76	3·48	+1·37
South India	12·36	7·19	+6·50

Atmospheric Pressure.

The mean pressure of the Indian land area for the month of November 1893 was ·039″ in excess of the normal mean pressure. It hence differed to a larger extent from the normal than has been the case since January last when the mean pressure was ·043″ in defect.

Pressure was relatively to the general condition in defect in the Peninsula. The deficiency exceeded ·02″ in the west coast districts and South Madras. It was more than ·03″ in amount at the stations for which data are given below :—

STATION.	Variation of the mean (8 A.M.) pressure of month from normal.	Pressure anomaly.
	″	″
Mangalore	—·005	—·044
Calicut	—·004	—·043
Mercara	+·002	—·037
Cochin	+·006	—·033
Trichinopoly	+·009	—·03[illegible]
Colombo	+·004	—·035

Pressure was in relative excess in Northern India and Burma. The excess was generally small in amount, but was more than ·02″ in the North Punjab and in Burma and Assam.

The most important features of the pressure conditions of the month were as follows :—

(1) General excess of pressure in the Indian area.

(2) A relative deficiency of pressure in the Peninsula, most marked in Malabar, South Madras and Ceylon.

(3) A relative excess of pressure in Northern India and Burma, largest in Burma and Assam.

The combination of relative excess of pressure in Burma and of relative deficiency in Southern India in November usually accompanies the occurrence of general and heavy rain from the retreating south-west monsoon over the whole of the Deccan and Southern India, and the month of November 1893 is another example of this relation.

Barometric depressions and cyclonic storms of the month.

At the commencement of the month pressure was above the normal over the whole of India. The excess was greatest in the Deccan, where it was upwards of a tenth of an inch. Pressure was normal at the entrance to the Bay and the south of the Arabian Sea. Pressure increased slightly on the 1st. Weather was fine with light winds and clear skies over the whole of India, except the south of the Peninsula, where there was much cloud and weather was showery. The barometric changes of the next three days were small in amount in the land area. Pressure gave way in Southern India relatively to the remainder of India, and on the morning of the 5th steepish gradients favouring north-easterly winds obtained in India and the north of the Bay, and a broad belt of low pressure stretched across the south of the Bay between the Andamans and South Coromandel coast. Weather was generally fine in that area on the 1st, but began to be unsettled with frequent rain squalls on the 2nd and 3rd. The following gives (8 A.M.) observations taken on board-ships on the 4th in this area of squally, unsettled weather to the east of the South Coromandel coast:—

NAME OF VESSEL.	POSITION. Lat. N.	POSITION. Long. E.	Barometer corrected.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S.S. *Byculla*	9 15	85 37	29·845	SW	4	Occasional squalls.
S. *Caradoc*	11 41	85 30	...	SE	...	4 A.M., heavy gale, hard squalls and torrents of rain.
S.S. *Colaba*	11 27	83 56	29·821	NE	5	Hard squalls and heavy rain.
S.S. *City of Calcutta*	13 39	85 2	29·935	NE	6	Hard squalls with rain.
S. *Glencaird*	14 59	90 5	...	E	...	Overcast.
S. *Craigend*	15 34	89 39	...	NE by E	6	8 P.M., squally.

These observations indicate that the usual changes preceding and accompanying the formation of a cyclonic storm in the Bay were in progress. Moderate to fresh steady south-west winds prevailed in the extreme south of the Bay. This air current recurved over the centre of the Bay, and strong north-east winds with very squally weather obtained in the south-west angle off the Coromandel coast. Pressure was slightly lower in that area than elsewhere, but the depression (below the normal) was as yet feebly marked. Weather was fine and clear in the north of the Bay with light to moderate winds.

The depression in the south-west of the Bay developed rapidly during the day, and on the morning of the 5th it had become a cyclonic storm of considerable intensity. The following gives a history of the storm:—

Cyclonic storm of the 5th to the 8th November.—As already stated, this storm formed in the usual manner in the south-west of the Bay on the 4th. It developed even more rapidly than usual.

5th November.—Pressure had increased slightly to briskly in the Indian area, except locally in the south-west of the Bay, where it had given way briskly to rapidly.

Steeper gradients favouring north-east winds hence prevailed there than hitherto, and a well-marked depression had formed in the south-west of the Bay. Skies were heavily clouded in Madras, but rain had fallen in smaller amounts than on the previous day.

Weather was fine and clear in the north of the Bay, but was squally over nearly the whole of the centre and south of the Bay. The following gives 8 A.M. observation data

taken on board ships in and near the depression area in the south of the Bay :—

NAME OF VESSEL.	POSITION. Lat. N.	POSITION. Long. E.	Barometer, corrected.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S.S. *Rajputana* .	8 49	81 48	29·775	SW	4	Heavy squalls of wind and rain with N.-E. swell.
S.S. *Husara* .	9 23	80 54	29·828	NW	2	Heavy rain squalls.
S.S. *Clan Macintyre* . .	10 14	83 39	29·860	SSE	4	Squally and rainy.
S. *Caradoc* . .	12 20	87 14	...	SE	3	Showery.
S.S. *Colaba* .	13 21	84 28	29·870	ENE	4 to 5	Squalls and continuous rain.
S.S. *Raventhaler*	Mad	ras	29·805	NNE	9?	...
S.S. *Dunera* .	14 59	82 29	29·899	NE by E	6	Fierce squalls at times.
S. *Craigend* .	17 12	89 44	...	E by N	5	Cloudy squalls during night.

The observations show that there was now an area of cyclonic winds and stormy weather off the South Coromandel coast. The centre of this area of disturbance was in about latitude 11¾° N. and longitude 81½° E. As is generally the case in the cyclonic storms of the retreating south-west monsoon, the strongest winds were experienced to the north and north-east of the centre. Weather was showery in the south of the Peninsula, and steady continuous rain had begun to fall in the Central and North Coromandel coast districts. Winds continued steady in strength and direction on the Coromandel coast during the day, while the barometer fell slightly until late in the evening. It is hence very probable that the storm on the 5th steadily developed and that it advanced slowly towards the Coromandel coast. On the evening of the 5th pressure began to give way rapidly after 5 P.M., and the storm advanced with increasing velocity during the night towards the coast between Madras and Cuddalore.

6th November.—Pressure had given way over the whole Indian area, but the changes were generally small in amount. Pressure had fallen very rapidly at Madras, and the observations indicate that a storm of considerable intensity was advancing across the Madras coast districts. The following gives 8 A. M. observations at stations in the storm area in Southern India at that hour :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity Lat at 45°	PRESSURE. Change in previous 24 hours.	PRESSURE. Variation from normal.	WIND Direction.	WIND Average hourly velocity in miles.	Cloud.	Rainfall in past 24 hours.	WEATHER.
	″	″	″				Inches	
Madras .	29·665	—·202	—196	E	21	10	6 30	Severe gale of wind.
Bangalore .	·877	—·044	—034	NNW	9	10	...	Gale of wind.
Salem .	·860	—·038	—031	Calm	2	10	...	...
Trichinopoly	·814	—·051	—047	Calm	1	10	...	...
Cuddalore .	·770	—·065	?	SSW	12	10	2·78	...
Negapatam	·815	—·004	—033	SW	5	7	...	Sea-slight.

The observations show that the depression was of considerable intensity, and that the centre was to the south-south-west of Madras. Strong winds prevailed at stations in the northern quadrant, but in the south-west quadrant light winds and calms obtained at 8 A.M.

A very valuable series of observations taken at the Madras astronomical observatory have been received from the Government Astronomer, Mr. Michie Smith. They are given in full below :—

DATE.	Hour.	BAROMETER. Reduced to 32° and sea-level.	BAROMETER. Corrected for daily tide and gravity.	WIND Direction.	WIND Velocity in miles during last hour.	Rain since preceding observation.
	H. M.	″	″			Inches.
5th . .	7 0	29·901	29·810	NNE	21	0·31
	8 0	·915	·800	NNE	21	0·51
	9 0	·923	·797	N by E	18	0·62
	10 0	·933	·811	N by E	21	0·63
	11 0	·907	·804	NNE	17	0·58
	Noon	·873	·798	N by E	24	0·24
	1 0	·850	·804	N by E	23	0·23
	2 0	·804	·778	N	22	0·29
	3 0	·798	·782	N	25	0·28
	4 0	·797	·777	N by E	21	0·49
	5 0	·811	·781	NNE	23	0·39
	6 0	·809	·763	NNE	19	0·49
	7 0	·825	·757	NE by N	25	0·36
	8 0	·855	·762	NE by N	24	0·65
	9 0	·860	·757	NNE	25	0·13
	10 0	·851	·749	N by E	24	...
	11 0	·837	·745	NNE	24	0·01
	Midnight	·830	·751	N by E	21	0·01
6th .	1 0	·805	·742	NNE	12	0·03
	2 0	·775	·727	NE	17	0·01
	3 0	·765	·727	NE	18	0·39
	4 0	·741	·703	ENE	14	0·07
	5 0	·743	·693	ENE	21	0·12
	6 0	·738	·670	ENE	21	0·01
	7 0	·739	·649	E by N	26	0·07
	8 0	·721	·607	E by S	28	0·20
	8 30	·721	·601	ESE	...	...
	9 0	·732	·607	SE	34	...
	10 0	·766	·645	SE	26	0·01
	11 0	·773	·671	SE by S	27	...
	Noon	·769	·695	SSE	22	...
	1 0	·767	·721	SE by S	21	0·03
	2 0	·760	·734	SE by S	17	0·01
	3 0	·762	·746	SE by S	19	...
	4 0	·769	·749	SE	14	...
	5 0	·770	·740	SE	14	...
	6 0	·780	·734	SE	14	...
	7 0	·825	·757	SSE	14	0·23

Pressure was lowest at Madras between 8 and 9 A. M., during which period winds blew most strongly and shifted from east by south to south-east. The observations are interesting, as they show—

1st—that the heaviest rain at Madras occurred some hours before the centre struck the coast,

2nd—that there was a marked decrease in the strength of winds in the early morning of the 6th, apparently indicating a slight decrease in the cyclonic motion and action at that time.

Mr. Michie Smith also writes that, from information he has received, it is certain that the storm had a calm central area which passed over the coast to the south of Mahabalipuram (Seven Pagodas). He states that an officer who was staying at the rest-house there says that there was a well-marked calm at 6·30 A.M., and that after the calm the wind was reversed in direction.

The weather at the Seven Pagodas during the storm is more fully described as follows by the lighthouse keeper :— "From Saturday night, the 4th instant, there were indications of the approach of bad weather. It was squally and rainy all night, and the rainfall during the night according to the rain-gauge at the P. W. rest-house was 2·60 inches. On Sunday, the 5th instant, the weather grew worse. It blew in strong squalls from the north-east and north, accompanied by heavy rain ; the quantity guaged in the evening was 2·70 inches. During the early part of the night the wind slightly moderated, but the rain continued till near midnight. After midnight the wind increased, and it blew a storm till the morning of the 6th instant. There was very little rain after midnight. The rainfall during the night of the 5th was 2 inches. At 7 A.M. of the 6th the wind veered to the south-west, and soon afterwards to the south, with squalls and light rain. After this the barometer rose rapidly and weather assumed its normal aspect."

The observations taken at the Lighthouse, Seven Pagodas, show that the wind changed from north, north-east through east to south-west at 7 A.M. At Chingleput, on the other hand, the wind changed from north-east through west to south-west.

This information hence establishes that the calm centre of the storm crossed the coast immediately to the south of the Seven Pagodas Lighthouse at 6·30 A.M., and that it passed in a west-north-westward direction to the north of Chingleput.

Mr. Michie Smith has also ascertained that the storm reached its maximum strength at Walajabad (30 miles to the west-north-west of the Seven Pagodas) at 11·30 A.M. The wind was from north-west at 8 A.M., west at 9·30 A.M. and shifted to south between 11 and 11·30 A.M., at which time an aneroid barometer (corrected) read 29·50." The storm centre hence probably passed immediately to the north of that station, and its average rate of advance from 6·30 A.M. to 11·30 A.M. was only 6 miles an hour.

The observer at Cuddalore took a brief series of observations, which are given below :—

Date.	Hour.	Pressure. Reduced to sea-level and gravity Lat. 45°.	Pressure. Change since last observation.	Wind. Direction.	Wind. Velocity.	Cloud.	Rain since preceding observation.	Weather.
		Inches					Inches	
5th	8 A. M.	29·835	—065	NNW	5	10	1·61	
	2 P. M.	29·675		N	13	10	1·41	Weather looks stormy. Wind increasing, overcast with rain.
	8 P. M.	29·725		N	14	10	1·15	Sky overcast. Raining. Lower clouds moving very rapidly from north to south. Lightning to east.
6th	2 A. M.	29·665		W	17	10	0·07	Drizzling. Winds beginning to abate. No lightning.
	8 A. M.	29·770		SSW	...	10	0·15	
	2 P. M.	29·715		SSW	...	10	...	Skies clearing.

The rainfall from 8 A. M. to 8 P. M. of the 5th was 2·56 inches and from the latter hour to 2 P. M. of the 6th was only 0·22 inches.

The observations discussed above hence show that the storm was of small magnitude, but of considerable intensity, having a well-defined calm area. Winds were strongest in the northern quadrant. The rainfall accompanying occurred chiefly in the advancing quadrant at some distance in front of the centre. The centre crossed the coast at 6·30 A. M. near the Seven Pagodas, and advanced in a west-north-west direction immediately to the north of Chingleput, and at a rate averaging 6 miles an hour.

The observations of the 7th show that the cyclonic storm had been completely broken up by the action of the hills in Mysore and Southern India. Moderate to fresh north-east winds obtained over the greater part of the Bay, and more or less general rain was falling in Madras and the Deccan.

The storm had hence a very brief existence. In all its more important features it resembled the storms which originate in the south-west of the Bay during the later stages of the retreating south-west monsoon in the Bay.

The following extract from a letter giving a reportof the storm at Madras, by the Port Officer furnishes some interesting details of the effects of the storm on the harbour and harbour piers :—

"The weather on the 4th instant was somewhat stormy and wet. During the night the same conditions prevailed, but there was a heavy sea and squalls of wind and rain some of which were times very heavy. The morning of the 5th was just as stormy. As the day advanced, the winds, which had been blowing from the north-east, exhibited a tendency to veer towards the north and the sea became heavier and heavier. As it dashed against the wave 'breaker screen' at the outer ends of the groynes, it seemed to be completely broken up into showers of spray, which rising to some considerable height fell over into the harbour. Although the arms of the harbour were at times almost hidden from view by sea and spray, and that large quantities of water at times poured over them into the harbour, the water space between the arms was comparatively smooth, especially on the north side, where the lighters which were moored there rode out the gale in safety. No great change took place in the barometer till about the midnight on the 5th, when it commenced to fall, and it fell gradually till 8 A.M. on the 6th instant. Between 5 and 6 A. M. the wind changed from north-east to east and blew with great violence at about 65 miles an hour, from that quarter for about an hour and then veered gradually to the south-east, lessening in force at the same time. At noon normal conditions prevailed. The arms of the harbour appear to have suffered no damage, but the rails on top were torn from the fastenings and bent considerably out of shape. A few lighters and masulah

boats which were at anchor on the south side of the harbour were driven on shore and injured."

On the morning of the 7th pressure was slightly lower to the south-west of the Travancore coast than elsewhere. Weather was however generally fine off the west coast, and was fine and cloudy with light variable winds to the west and south of Travancore.

The indraught of humid winds into the Peninsula extended as far north as the Central Provinces during the day, and that area hence had a short spell of showery weather. The barometric changes of the next three days, 8th to 10th, were generally small in amount and of no significance. Rain continued in the Peninsula. Ganjam and the Circars received largish amounts on the 8th and 9th and the South Coromandel districts on the 11th.

Pressure changed somewhat irregularly on the 11th and 12th; but the only important result of the changes was the re-establishment of a belt of low pressure across the south of the Bay, which was slightly deeper at its western extremity near the South Coromandel coast. A very shallow depression lay over the coast districts south of Madras, and weather was squally with heavy rain. The chief effect of this depression was to give an increased flow of humid winds across the North Coromandel and the Circars coasts, which hence received very heavy rain on these days. The shallow depression apparently filled up on the 13th, but the broad belt of relatively low pressure was unchanged in position from the 13th to the 16th. Hence the whole of the Peninsula continued to receive general rain, and the showery weather again extended northwards into the Central Provinces. Important changes were now in progress in the Arabian Sea, which were followed by the generation of a cyclonic storm that formed the chief feature of the meteorology of the Indian area until the 21st or 22nd.

Cyclonic storm of the 15th to the 21st November.—The causes of the origin of this storm are somewhat obscure. On the 13th moderate to fresh north east winds obtained over the greater part of the Arabian sea area. Winds were light and unsteady off the Malabar coast and weather was squally. A very shallow depression lay between the coast and the Laccadives, 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.	Force.			
	"	"					Inch.	
Minicoy .	29·831	−·029	...	WNW	18	9	0·42	Squally.
Calicut .	·815	−·040	−·074	E	8	7	0·06	
Mangalore .	·817	−·030	−·076	ESE	2	10	0·27	
Karwar	·809	−·054	−·087	Calm	2	6	0·21	

During the next 24 hours pressure gave way generally, but the fall was largest in amount in Upper India. The shallow depression in the Arabian Sea was practically unchanged in character but lay somewhat further north than on the 13th. The following gives 8 A.M. observations of the 14th for the same stations as in the preceding table and for Ratnagiri:—

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.	Force.			
	"	"					Inch.	
Minicoy .	29·836	+005	...	W	18	6	0·70	Squally.
Calicut .	·851	+036	−·043	S	13	10	0·98	Sea smooth.
Mangalore .	·780	−037	−·120	SE	3	6	0·01	
Karwar .	·773	−036	−·131	Calm	1	7	0·72	
Ratnagiri .	·799	−054	−·102	ENE	6	10	0·18	

Winds were generally stronger and indicated a tendency to the establishment of a cyclonic circulation. This is confirmed by the observations of vessels in the south-east of the Arabian Sea on this day, of which the following is a summary:—

Name of Vessel.	Position.		Barometer corrected.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′				
S. *Hutton Hall*	9·23	69·08	...	NW	5	Midnight, terrific squalls and torrents of rain.
S. S. *Hochheimer* .	7·47	74·07	29·788	W	4	...
R. I. M. S. *Investigator* .	11·16	75·40	...	SSW	4	Squally and rainy.
S. S. *Virawa* .	11·50	75·08	29·770	S	6	Hard squalls and rain.
S. *Ladakh*	15·15	73·34	...	ENE	2	Squally with rain.
S. S. *Safari* .	14·32	64·54	...	NE by N	3	Cloudy.

These observations establish that weather was disturbed in an area between the 8th and 16th parallels of latitude and the 68th meridian and the Malabar coast. A shallow depression covered a portion of the area. Winds were slightly above their normal strength, and there was already a strongly marked tendency to the establishment of a cyclonic circulation.

Pressure increased slightly in the Peninsula during the next 24 hours, and the indications of the existence of the storm given by the observations at the west coast stations were hence feebler than on the preceding day. Weather was disturbed in the same area of the Arabian Sea as on the 14th, and squalls were increasing in force and

extending northwards. The following gives 8 A.M. observations taken on boardships in the depression area :—

Name of Vessel.	Position.		Barometer corrected.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Clan Matheson*	9·11	68·53	29·798	WSW	5	Overcast.
R. I. M. S. *Investigator*	11·18	74·06	...	S	4	Passing clouds.
S. *Hutton Hall*	11·28	69·48	...	W	9	Terrific rain squalls.
H M. S. *Marathon*	14·58	73·32	29·837	ESE	6	Squally.
S S. *Safari*	16·16	67·46	...	NNE	7 to 8	Heavy squalls; sea rough.
S. *Ladakh*	16·36	73·28	...	SE	4	Squally with heavy rain.
S. S. *Purulia*	18 28	71·01	29·790	E	4	Overcast.

These observations, more especially those of the S. S. *Safari* and *Hutton Hall*, prove that the storm was increasing rapidly in intensity. They do not enable the position of the storm centre to be ascertained with approximate exactness, but it was very probably near the position assigned to the *Hutton Hall*, *i.e.*, in about Lat. 12° N. and Long. 69¼ E (?).

Weather was fine and clear over the north-west and centre of the Arabian Sea, but the north-east winds in the centre of the Bay were increasing steadily in force at this time.

16th November.—Pressure had increased slightly in North-Eastern India and briskly to rapidly in North-Western India and the Peninsula. Fine dry weather set in for a short period in Madras. Weather was fine but cloudy, and winds light in the west coast districts at 8 A. M. Temperature was considerably in excess in the northern half of the Peninsula, and elsewhere conditions were approximately normal.

The marine data show that weather was squally with strong winds in the area of disturbance in the Arabian Sea. The following gives a summary of the data :—

Name of Vessel.	Position.		Barometer corrected.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *St. Regulus*	9·27	64·44	29·886	W	2	Cloudy with NE swell.
S.S. *Fallodon Hall*	8·58	68·10		SW	2	Passing clouds.
S.S. *Taif*	11·26	70·47		SSW	4	Showery.
R.I.M.S. *Investigator*	10·18	73·13		SE	2	Light rain squalls.
S. *Hutton Hall*	14·47	69·40		SE	10	Terrific squalls.
S.S. *Safari*	17·58	70·25	29·772	ENE	8	Squally.
S.S. *Rheinfels*	17·53	66·37	29·699	E	8 to 9	Rain squalls and high sea.
S.S. *City of Khios*	17·9	64·56	29·781	N by E	7	4 P.M. Heavy rain squalls.
S.S. *Imperator*	16·47	63·15	29·828	N	7 to 8	Heavy rain and very heavy sea.

The area of winds of force 8 or upwards now lay between Lat. 12° N and 19° N and to the east of the meridian of 64°. The centre cannot be determined with certainty from the data, but was probably in Lat. 14° N and Long. 67° or 67½° E. The *Hutton Hall* was at least 150 miles from the centre, and she had terrific squalls with winds of force 10 according to the estimation given in the log. Skies were now clouding over in the north-east of the Arabian Sea and weather was showery off the Kathiawar coast. A very noteworthy feature of the storm at this stage was the strength of the north-east winds in the northern quadrant of the storm at considerable distances from the centre, more especially as compared with the feebleness of the south-west winds at similar distances from the centre in the southern quadrant. Thus the S.S. *Safari*, about 300 miles north-north-east of the centre, had winds force 8 to 9, and the S.S. *Taif*, 200 to 250 miles to the south-east, had south-south-west winds force 4.

17th November.—Pressure had given way generally, but had increased slightly in Kathiawar and Guzerat. The weather conditions were unchanged, fine dry weather obtaining over nearly the whole of India. Local showers were received in the west coast districts ; but they were very light, and the coast observations gave no certain indications of the storm in the Arabian Sea.

The area of squally weather in the Arabian Sea had extended northwards and westwards during the previous 24 hours, and now included the greater part of the north and the centre of that sea area. The central area of stormy winds had advanced some distance northwards. The following 8 A.M. observations define its position at that hour:—

Name of Vessel.	Position.		Barometer corrected.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *St. Regulus*	8 48	68·25	29·902	S	4	Fine and clear.
S. *Hutton Hall*	17 38	71 00		SE	10	Passing squalls.
S.S. *Lawada*	17·33	72·54	29·949	SE	4	Fine and clear.
S.S. *City of Khios*	17 16	66·38	671 29·	SE by E	6 to 8	Hard squalls.
S.S. *Imperator*	17.46	65·26	29·592	E by N	10	Furious heavy rain.
S.S. *Assam*	15·36	63 23	29·563	WNW	7	Squally.

The barometric and wind observations as recorded on board the vessels are not quite satisfactory. Selecting those which appear to be most reliable, they indicate that the position of the centre was probably in Lat. 16½° or 17° N

and Long. 66° or 66¼° E. Winds of force 8 to 10 were experienced at distances of at least 150 to 200 miles from the centre in the northern and eastern quadrants. The wind estimates given in the log of the *Hutton Hall*, it may be noted, appear to be exaggerated.

The observations hence suggest that the storm area was extending, and that cyclonic winds of force 10 and 11 at least were now blowing near the centre. There was no ship near the centre, and hence there is no direct evidence of the existence of a calm central area; but it appears to be most probable that one had formed. The centre of the storm was probably advancing in a north-north-westerly direction, and had travelled with an average velocity of 9 miles per hour during the previous 24 hours.

18th November.—Pressure had given way over the whole Indian area, but the fall was largest in amount in Northern India. It was small on the Bombay and Kathiawar coasts. Skies were clouding over in Kathiawar, West Rajputana, Central India and Khandesh, and local showers had fallen in these areas and in the Konkan. Winds were also shifting and strengthening in Kathiawar and Cutch. Hence the storm in the Arabian Sea was now influencing the weather in these areas.

The following table gives 8 A.M. observations at stations on the west coast. Winds were light at all stations from Bombay southwards :—

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.	Wind. Velocity in miles per hour.	Cloud.	Rainfall.	Weather.
	"	"	"				Inch.	
Calicut	29·911	−·008	+·018	Calm	7	5	...	Sea smooth.
Mangalore	·910	−·002	+·011	E	2	0	...	
Karwar	·919	−·012	+·016	NE	2	1	0·64	Thunder storm.
Mormagao	·941	+·012	?	E	3	2	0·87	
Ratnagiri	·921	−·016	+·018	SSW	3	7	...	Sea slight.
Bombay	·940	·022	−·005	E	6	2	0·01	
Verawal	·911	−·027	?	SE	8	7	.	Sea rough.
Karachi	·969	−·012	−·051	NE	13	10	...	

The following observations indicate the position and character of the storm on the morning of the 18th :—

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	"			
S.S. *Assam*	10 57	68·22	29·798	S	6	Rain squalls.
S.S. *City of Khios*	17 57	68·23	·841	SSE	6	Squally.
S.S. *Imperator*	18·42	67·23	·710	SE	11 to 9	Terrific squalls.
S.S. *Manilla*	17·59	65·33	·979	NNE	7	Rainy.
S.S. *Naseri*	17 3	65·12	·493	SSW	11	Terrific gale and squalls.

It is not possible to reconcile the barometric observations of these vessels as they stand. The corrections applied to the readings were determined by a comparison of the instruments with a secondary standard at Bombay. It is also probable that the positions of the S.S. *Naseri* and others, which were deduced by dead reckoning and in which no allowance was made for current, are not absolutely correct. So far as can be judged from the observations, the centre of the storm was nearly midway between the assigned positions of the S.S. *Naseri* and *Manilla* and in about Lat. 17½° N and Long. 65½° E. The storm had hence advanced less than 100 miles during the preceding 24 hours. This decrease in the rate of motion of the centre accompanied, as is shown by the data of the 19th, a considerable recurvature in its line of advancee.

Winds of force 6 were now experienced off the coast of Cutch and the S.S. Amara in Lat. 22° 32′ N and Long. 62°46′ E had NNE winds of force 8 to 9 during the day.

Weather was fine and clear, with light to moderate winds, in the south-east of the Arabian Sea.

19th November.—Pressure had increased in North-Eastern India and fallen in North-Western India. The fall was brisk in Kathiawar, where winds had increased considerably in force and were now blowing strongly. The following gives 8 A.M. observations :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction.	Wind. Velocity in miles per hour.	Cloud.	Rainfall in past 24 hours.	Weather.
	"	"	"				Inch.	
Verawal	29·776	−·135	?	SE	15	10	...	Sea rough.
Rajkot	·852	−·110	−·138	SSE	5	10	...	
Bhuj	·838	−·118	−·169	ESE	10	10	0·09	
Karachi	·906	−·063	−·121	NE	12	10	0·02	

These observations evidently indicate that a cyclonic storm of some intensity was approaching the Kathiawar coast. Cloud was spreading in North-Western India. Rain had fallen as local showers in the same areas as on the previous day, but the amounts were small.

The following gives 8 A.M. observations taken in the storm area in the Arabian Sea :—

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	"			
S.S. *Carthage*	17·27	67·3	29·793	SW	4	Cloudy.
S.S. *Rome*	18·0	68·28	29·662	S by W	7	Hard gusts at times.
S.S. *Aston Hall*	17·46	67·22	...	WSW	6	4 A.M. squally.
S.S. *Manilla*	19·46	67·19	29·703	ENE	6	Heavy rain; very high sea.
S.S. *Naseri*	16·34	63·5	29·698	NW	2	

These observations suggest that the storm area was of smaller extent and the cyclonic winds not so strong as on the 17th or 18th. They also indicate that the position of the centre was in about Lat. 18¾°N. and Long. 67¼°E. The *Carthage*, *Aston Hall* and *Rome* which were in the southern quadrant at distances of less than 100 miles from the assigned position of the centre, had winds of force 4 to 7 only during the day.

Weather was now squally only in the north-east of the Arabian Sea and was showery off the Sind coast.

20th November.—Pressure had risen generally, except on the Kathiawar coast, where it had fallen moderately. The observations indicate that the storm centre was now crossing the coast near Verawal. Hence the pressure changes of the previous 24 hours confirm the inference based on the marine observations of the previous day, that the storm was filling up and was much less extensive and influential than on the 17th or 18th.

The following gives 8 A.M. observations at the land stations in the storm area :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Remarks.
	8 A.M. reduced to sea-level and constant gravity of at Lat 45.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in miles.			
	"	"					Inches	
Verawal .	29·640	—·136	?	S	36	8	2·28	Sea tremendous.
Surat .	29·828	—·062	—·141	SE	...	5	0·05	
Rajkot .	29·817	—·035	—·185	ENE	10	10	0·55	
Bhuj . .	29·845	+·007	—·171	ENE	18	7	0·01	Severe gale of wind.
Kurrachee .	29·929	+·023	—·107	NE	13	7	...	
Deesa .	29·919	—·010	—·104	ENE	14	10	0·73	

The storm at 8 A.M. was giving violent winds to Cutch and Kattywar. Rain had fallen generally during the previous day in Kattywar, Cutch and Guzerat, Rajputana, Central India and Khandesh. The largest amounts were registered in Kattywar, but they in no case exceeded 3 inches, and the rainfall was hence moderate in amount.

The following gives observations taken on board ships off the Kattywar and Sind coasts :—

Name of Vessel.	Position.		Barometer corrected.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Karagola* .	20 30	70 6	29·639	SSW	8	2-30 A.M. heavy rain squalls.
R. I. M. S. *Mayo*	22 14	69 11	29·609	NE	8	4 A.M. Rainy.
S. S. *Pachumba*.	Gulf of	Cutch	29·779	NE by E	6	Heavy clouds.

These observations confirm the position of the centre assigned from the Verawal observations (*viz.*, Lat. 21° 0′ N and Long 70° E). The S.S. *Karagola* and *Mayo* were not more than 70 or 80 miles from the centre at 8 A.M. and had winds of force 8 only. The storm was hence now of comparatively small extent, and was probably filling up rapidly.

A shallow residual depression lay over Kattywar, Guzerat and the Gulf of Cambay on the morning of the 21st. It filled up during the day. Showery weather continued in North-Western India on the 21st and 22nd and Rajputana, Central India, Kathiawar and Guzerat received moderate rain on these days. Pressure increased rapidly in North-Western India on the 22nd, and skies cleared slowly during that and the following two days. Fine clear weather obtained in Northern and Central India and the Central Provinces on the morning of the 25th.

The storm under discussion presents many points of similarity to the storm of November 1886, when the coasting steamer *Vaitarna* was lost.

It is possible that the storm may have been the continuation of a shallow depression which gave heavy rain to Madras on the 11th and 12th. The observations, however appear to indicate that it was an independent disturbance generated in the Arabian Sea. Weather was unsettled and squally with light variable winds to the west of the Malabar coast on the 11th and 12th, and the area of squally weather extended northward on the 13th and 14th, and at the same time a central depression formed and intensified. There was on the morning of the 15th a cyclonic storm of moderate extent and intensity in existence. It moved in a general northerly direction during the next three days by a curved path and continued to intensify during that period. Winds of force 8 to 11 were actually experienced by ships in the storm area during this period, and one steamer at least which was proceeding from Bombay to Aden was so damaged that she had to return to Bombay. The storm was at its greatest intensity on the 18th. It then decreased in area and strength and recurved towards north-east, and struck the Kathiawar coast on the morning of the 20th, at which stage it was of comparatively small extent and intensity. It broke up shortly afterwards, but the residual disturbance gave a short period of rainfall to the greater part of North-Western India during the next three or four days.

The following table gives the position of the centre at 8 A.M. of each day from the 15th to the 20th, and the average motion on each day during that period :—

Date.	Position of the centre of storm.		Distance made in past 24 hours.	Rate in miles per hour.
	Lat. N.	Long. E.		
	° ′	° ′	miles.	
15th	12 0	69 15	...	...
16th	14 0	67 15	185	8
17th	17 0	66 15	215	9
18th	17 30	65 30	60	2½
19th	18 45	67 15	140	6
20th	21 0	70 0	240	10

The rate of motion was hence fairly steady throughout its existence, except on the 18th when it began to recurve from north-west to north-east, averaging 6½ miles per hour. It was hence a slow moving storm, and was a typical storm of the period in the Arabian Sea.

Weather had been fine from the 16th to the 21st in Southern India and little or no rain had fallen. Weather became squally on the 22nd in the south-west of the Bay, and strong northerly to easterly humid winds set in on the 22nd at the Coromandel coast stations; they gave a general and heavy burst of rain to South and Central Madras and Mysore. Trichinopoly and Negapatam registered falls exceeding 6 inches on the 23rd. The rainfall diminished in amount and area, and was confined to the southern districts of Madras and to Travancore on the 27th and 28th. Northerly winds giving dry weather and clear or lightly clouded skies set in on the 29th and prevailed for some days.

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

The following gives a summary of the information relating to snowfall during the month of November in the mountain districts to the north and north-west of India:—

I.—BRITISH BALUCHISTAN.

Kurram.—The officer on special duty writes that a fall of snow occurred on the Safed Koh on the 4th November. Snow fell down to a level of about 8,000 feet.

II.—PUNJAB HIMALAYAS.

Upper Sutlej Valley.—The Deputy Conservator of Forests, Bushahr Division, reports that snow was lying on the 3rd at an elevation of 8,500 feet on the hills opposite to Kilba. On the 21st the snow line had descended to 7,800 feet, and snow was lying deep at and above an elevation of 8,000 feet. The snow line retreated to a height of 8,500 feet at the end of the month.

III.—NORTH-WESTERN PROVINCES HIMALAYAS.

Almora District.—The following is a summary of a report for the period 15th October to 15th November received from the Deputy Commissioner:—

Malla Danpur.—Snow fell to a depth of 1¼ feet during the month on the peaks Pankua, Kantola and Pindari. It occurred during two periods, *viz.*, from the 16th to 18th October and the 20th to the 23rd October.

Malla Johar.—Snow fell 6 feet deep from the 16th to the 18th October on the Ralamdhura and Utadhura passes and 2 feet deep in Milam.

Malla Byans Chaudans and Darma.—Snow fell on the following occasions:—

16th October	12	inches in depth.
17th "	6	"
18th "	18	"
19th "	6	"
27th "	6	"
4th November	24	"

giving a total of six feet.

The weather is stated to have been colder and more cloudy than usual, and the snowfall was larger in amount than generally occurs in November.

Summary of Special Storm Reports.

The following is a statement of the only local storm of importance during the month of which a report was received from the observer:—

18th.—Thunderstorm at Poona, lasting from 9·45 P.M. to 10·20 P.M.

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

Arabian Sea.—At the beginning of the month fine weather with moderate north-easterly winds prevailed generally over the Arabian Sea. In the Gulf of Aden the winds were easterly and fresh in force. In the Persian Gulf light variable winds were blowing. In these areas also the weather was fine and dry. The average strength of the winds for the whole of the Arabian Sea as determined from the wind data of 32 vessels was 3·4. Winds decreased in force in the Gulf of Aden during the next 24 hours, and on the morning of the 2nd were of force 4. The air movement for the whole sea area averaged 3·2 in force. The decrease in the strength of the winds in the Gulf of Aden was however only temporary, as on the morning of the 3rd fresh to strong easterly winds again prevailed in that area. Over the Arabian Sea itself also the winds had increased and were blowing freshly over the greater part of it. The

mean air movement for all parts of the sea had increased to 3·8. Weather was still fine and dry over the whole area, except in the south-east, where it had become showery. Winds decreased in force in that area during the next 24 hours; but the weather continued rainy. Over the remainder of the sea winds and weather continued unchanged. The mean force of the winds for the whole of the Arabian Sea had decreased to 3·5. During the next 24 hours rain ceased to fall in the south-east, and on the morning of the 5th weather was again generally fine. Winds decreased steadily in force during the next 48 hours, particularly in the Gulf of Aden, where on the morning of the 7th light airs and calms prevailed. The average strength of the winds on the morning of the 7th was only 2·9 and fine weather prevailed generally. On the 9th the winds became very unsteady in the extreme south-east of the Arabian Sea, and weather was again showery. It became more unsettled in that area during the next two days, and at the same time the area of unsettled conditions extended northwards. On the morning of the 11th weather was squally with much rain along the Malabar coast as far north as Lat. 14° N. Winds were, however, still very unsteady over this area. In other parts of the Arabian Sea conditions were unchanged. In the Gulf of Aden the winds had increased in force and were blowing freshly. The mean force for the Arabian Sea had increased to 3·4. No change occurred in the area of unsteady winds and squally weather off the Malabar coast or over the remainder of the sea on the 12th. In the Gulf of Aden, however, the air movement decreased rapidly, and on the morning of the 13th light airs and calms again prevailed. The average wind force for the whole sea area on the morning of the 13th was 2·9. An important change occurred during the next 24 hours in the area of squally weather off the Malabar coast. Strong southerly and south-easterly winds set in over the southern portion of that area, and the weather became further unsettled. The S.S. *Nurani* in Lat. 12°12′N and Long. 75°5′E had SSE gales of force 8 and heavy squalls of rain. The squalls increased in force during the next 24 hours, and the area of disturbed conditions extended northwards and westwards, so that on the morning of the 15th weather was unsettled over a large tract lying between the meridian of 67° E, and the Malabar coast and the parallels of 8° and 17° N. Strong south-easterly winds prevailed in the eastern portion of this area, and northerly gales in the north and west. Thus the S.S. *Hutton Hall* in Lat. 11°28′ N and Long. 69°48′ E had westerly gales of force 9 and terrific rain squalls; and the ship *Marathon* in Lat. 14°58′ N and Long. 73°32′ E had east-south-east winds of force 6, a moderate sea and squally weather. Weather was fine in the north, west and centre of the sea. The mean force of the winds on this day was 3·9. The disturbed weather had hence developed into a cyclonic storm. It intensified during the next 24 hours, and the area of strong winds and squally weather extended northwards to Lat. 19° N and westwards to Long. 63° E. Winds were now very strong (force 7 to 10) in the northern and north-eastern quadrants of the storm, *i.e.*, between Lat. 14° and 17° N and Long. 63° and 70° E. Weather had improved to the south of Lat. 12° N, and was still unaffected in the west and north-west of the sea. The mean wind force for the whole of the sea was again 3·9. The storm continued to develop during the next 24 hours, and the area of squally weather extended northwards on the morning of the 18th to the parallel of 21° N latitude and westwards to the meridian of 56° E. Winds were moderate in force, except in the storm area, where the strongest winds actually experienced by vessels were of force 8 to 10. The mean force for the whole area was 4·0. The influence of the storm over the winds and weather had extended to Lat. 23° N on the morning of the 18th. Northerly winds of force 6 to 9 prevailed in the north of the storm and of force 11 near the centre of it. Along the Konkan and Malabar coasts and in the south and west of the sea area they were light in force (1 to 3). Weather was rainy and squally in the centre and showery in the north of the sea and fine in the west, south and south-east. During the next 24 hours the winds strengthened on the Kathiawar coast; but the winds and weather moderated somewhat in the storm area itself, and on the morning of the 19th the highest wind force reported in the Arabian Sea was 7. Weather was showery on the Cutch and Kathiawar coasts, rainy over the north-east of the centre, and squally only near the centre of the storm. In the west of the sea winds were falling off in strength and becoming unsteady. Weather continued fine over this area. In the south and south-east the winds were light to moderate in force and weather cloudy or showery. The mean air movement for all parts of the sea had decreased to 3·1. The storm passed inland on the morning of the following day, and its influence on the weather in the Arabian Sea diminished rapidly. The strongest reported winds on the morning of the 20th, when the storm was passing inland, were of force 8. Squally weather prevailed on and near the Kathiawar and Cutch coasts, cloudy weather in the centre, and fine clear weather over the remainder of the Arabian Sea with the exception of the south-east, where showers continued to fall. The winds decreased rapidly in force during the day in the north-east of the sea, and the mean wind force for the whole of the sea had diminished to 2·5 on the morning of the 21st. Normal north-easterly winds set in during the next 24 hours, and continued to extend steadily during the next three days. On the morning of the 25th conditions were very similar to those prevailing on the 1st. Fresh north-easterly winds obtained in the west and centre of

the sea, light to moderate easterly winds in the Gulf of Aden, and moderate north-easterly winds in other parts of the Arabian Sea. The mean wind force for the whole area was 3·9. These conditions lasted through the remaining days of the month, fine weather with clear or lightly clouded skies prevailing generally.

Bay of Bengal.—At the commencement of the month light to moderate north-easterly winds prevailed generally over the Bay (except on the extreme south), and the weather was fine and settled over the whole area. The average force of the winds for the whole of the Bay amounted to 3 1. Weather became unsettled on the 2nd with squalls and rain in the south and south-west of the Bay. Thus the S. S. *City of Calcutta* in Lat 5°47′ N. and Long. 81°14 E, and proceeding northward, experienced fine clear weather at 8 A.M. but heavy showers at noon; and the ship *Chacma* in Lat. 2° 16″ N and Long. 85°49′ E at the same hour had rain squalls in the afternoon. Over the remainder of the Bay fine weather continued. During the next 24 hours weather became further unsettled, more especially in the neighbourhood of the South Coromandel coast, where on the morning of the 3rd heavy rain was falling and squalls were occurring. The S. S. *City of Calcutta* in Lat. 9°32′ N. and Long. 83° 14′ E at 8 A.M. experienced hard squalls and heavy rain. The disturbance in the south-west of the Bay continued to increase in intensity during the next 24 hours, and on the morning of the 4th very squally and stormy weather prevailed in that area. Moderate to fresh south-west winds were blowing in the extreme south of the Bay. In the north of the Bay fine weather with light to moderate north-easterly winds still obtained. The low pressure area over the south-west of the Bay intensified rapidly during the day, and on the morning of the 5th it had developed into a storm of considerable intensity. Winds had strengthened very considerably over the centre and west of the Bay, and were strongest (force 7 to 9) in the northern quadrant of the storm. In the south-west quadrant, on the other hand, they were only light to moderate in force. Weather was squally over almost the whole of the centre and south of the Bay and stormy over the south-west. In the north of the Bay weather was still very quiet. The air movement over the whole of the Bay averaged 3·6 in force compared with 2·8 on the 4th. The storm marched slowly west-north-westwards during the next 24 hours, developing at the same time, and crossed the coast on the morning of the 6th. As it moved westwards, its influence over the weather in the centre of the Bay diminished rapidly, and on the evening of the 6th weather had become fine with moderate winds over that area. On the morning of the 7th fresh to moderate north-easterly winds were blowing over the north and centre of the Bay. The mean force of the winds over the Bay was 3·8. The winds however fell off in strength during the next 24 hours, more especially in the south-west of the Bay, and the mean force on the morning of the 8th was 3·0. Winds continued fairly steady during the next two days; but weather began to be unsettled on the afternoon of the 9th in the south and centre of the Bay, and on the morning of the 10th unsettled conditions had extended to the south-west of the Bay. Weather was now rainy and squally in parts of the centre and the south-west of the Bay. Weather became further disturbed in this area during the next 48 hours, and on the morning of the 12th several vessels in this area experienced heavy rain and hard squalls. At the same time southerly winds had advanced northwards over the south of the Bay, and there was a tendency to the formation of a storm. It however failed to develop, but it determined strong humid winds to the North Madras coast as far north as Vizagapatam during the next three days. During the whole of this period, from the 9th to the 16th, weather was fine and settled in the north of the Bay. Weather improved rapidly off the Madras coast and in the south of the Bay on the afternoon of the 16th, and was fine generally over the Bay on the morning of the 17th. Fine clear weather, with light to moderate north-easterly winds, prevailed generally during the next five days; but on the morning of the 23rd the winds increased in force off the Coromandel coast, and weather became again squally with heavy rain. Thus the S. S. *Persia* in Lat. 8° 40′ N and Long. 82° 44′ E at 8 A.M. had easterly winds of force 5, a rough sea, and continuous rain. Moderate to fresh north-easterly winds continued to blow across the Coromandel coast during the next four days, and weather was unsettled with squalls and much rain. The winds shifted to north and the indraught ceased on the afternoon of the 27th, and on the morning of the 28th fine weather was re-established over the Bay. The mean wind force for all parts of the Bay was 2·8, or almost the same as on the 24th. During the remaining two days of the month fine dry weather was experienced in all parts of the Bay, except off the South-East Ceylon coast, where fresh north-north-west winds and rainy weather prevailed. The mean wind force at the end of the month was 3·3.

From the preceding account of the weather changes in the Bay it is evident that the weather was fine throughout the month in the north and east of the Bay, while in the south, south-west, and centre there were three well-defined periods of unsettled weather, *viz.*, from the 3rd to the 7th, 10th to the 16th, and 23rd to the 27th.

Temperature of the Air.

The mean maximum or day temperature was below the normal over nearly the whole of India, except the Malabar, Konkan and Bombay coast districts and Khandesh. The variations were small and less than 2°, except in two areas. The first included the greater part of South Madras, and the second the greater part of the North-Western Provinces, Rajputana, Cutch, Kathiawar and Central India. The following gives data for these two areas :—

District.	Station.	Mean maximum temperature.		
		Actual, November 1893.	Normal, Novembr.	Variation from normal.
		°	°	°
South Madras and Berar.	Salem	84·7	86·7	—2·0
	Trichinopoly	84·3	86·6	—2·3
	Coimbatore	83·1	85·6	—2·5
	Madura	84·7	87·5	—2·8
North-Western Provinces, Rajputana and Central India.	Rajkot	86·1	90·1	—4·0
	Deesa	86·2	90·4	—4·2
	Ajmere	79·1	83·3	—4·2
	Neemuch	80·3	83·5	—3·2
	Jeypore	81·0	84·5	—3·5
	Bareilly	78·1	81·3	—3·2
	Gorakhpore	78·8	82·0	—3·2
	Sutna	77·2	80·4	—3·2

The deficiency in the first area averaged 2½°. It was larger in amount in the second area, and was absolutely greatest at Ajmere and Deesa, where it was 4°·2.

The mean minimum temperature of the month was above the normal over the whole of the land area, except Burma and the North Punjab. The excess averaged 1° in the coast districts of the Bay of Bengal and Arabian Sea, and increased thence towards a central area, including the Central Provinces, Central India, South-West Rajputana, East Kathiawar and Guzerat, in which it ranged from 4° to 7° in amount. The following give comparative data for the stations at which the excess was more than 5° in amount :—

Station.	Mean minimum temperature.		
	Actual, November 1893.	Normal, November.	Variation from normal.
	°	°	°
Ajmere	54·8	49·0	+5·8
Deesa	61·8	56·7	+5·1
Malegaon	63·2	56·9	+6·3
Khandwa	62·2	55·8	+6·4
Akola	64·0	57·0	+7·0
Seoni	60·5	55·2	+5·3
Hoshangabad	63·2	56·5	+6·7
Jubbulpore	59·2	52·3	+6·9
Sutna	58·6	52·8	+5·8

The mean temperature of the month was in slight defect in Burma and the Peninsula south of Lat. 16° (excluding Malabar) and along the foot of the hills in Northern India, and was in slight to moderate excess over the remainder of India. The excess was above 2° in amount in the greater part of the Central Provinces, Central India, Guzerat and Khandesh, for which areas data are given in the following table :—

District.	Station.	Mean temperature.		
		Actual, November 1893.	Normal, November.	Variation from normal.
Central Provinces and Berar.	Sambalpore	74·9	72·8	+2·1
	Raipur	73·5	71·2	+2·3
	Jubbulpore	69·5	66·7	+2·8
	Hoshangabad	72·3	70·1	+2·2
	Akola	74·6	71·5	+3·1
	Khandwa	74·4	70·6	+3·8
Central India	Indore	70·3	67·8	+2·5
Bombay	Malegaon	75·1	71·3	+3·8
	Surat	78·7	76·3	+2·4
	Poona	74·8	72·6	+2·2

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

(1) Lower day temperature than usual, more especially in the North-Western Provinces, Rajputana, Central India and Guzerat.

(2) Higher night temperature than usual. This was very marked in the Central Provinces, Central India and South-West Rajputana, where the mean minimum temperature of the month was from 5° to 7° above the normal.

(3) Slightly lower mean temperature in Burma, Southern India and the Himalayan area, and higher temperature in other districts. The excess ranged between 2° and 4° over the Central Provinces, the greater part of Central India, Guzerat and Khandesh.

These variations from the normal temperature conditions were due to the unusual amount of disturbed weather in Northern and Central India and the north of the Peninsula, and more especially to the increased amount of cloud and the abnormally high humidity during the last three weeks of the month in these areas.

At the Himalayan hill stations the mean maximum temperature and mean minimum and the mean daily temperatures were all below the normal to a slight extent, a result also of the increased amount of cloud and slightly disturbed weather in Northern India.

The following table gives comparative temperature data of November 1893 for the 51 meteorological districts into which India is divided :—

Province.	Division.	Actual temperature.					Variation from normal of		
		Mean maximum.	Mean minimum.	Mean daily.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	87·6	67·8	77·7	19·8	29·9	−0·1	−1·7	+1·6
	Lower Burma	85·7	72·2	79·0	13·5	21·4	−0·5	−1·1	+0·6
	Central do.	87·2	68·0	77·6	19·2	27·5	−1·4	−1·0	−0·4
	Upper do.	81·2	62·8	72·0	18·5	28·1	?	?	?
	Arakan	84·7	71·1	77·9	13·6	22·0	−1·0	−0·7	−0·3
Bengal and Assam	Eastern Bengal	82·5	65·5	74·1	17·0	26·2	0	+0·5	−0·5
	Assam (Surma)	84·8	65·2	75·0	19·6	29·6	+0·2	+1·5	−1·3
	Do. (Brahmaputra)	77·8	61·8	69·8	16·0	25·8	−1·5	+0·5	−2·0
	Deltaic Bengal	81·6	65·5	73·6	16·1	28·0	−0·9	+0·9	−1·8
	Central do.	81·3	63·8	72·6	17·5	28·0	−1·1	+2·0	−3·1
	North do.	81·4	61·9	71·7	19·5	27·1	?	?	?
	Orissa	82·8	68·7	75·8	14·1	25·1	−0·3	+1·6	−1·9
	Chota Nagpur	79·3	60·3	69·8	19·1	30·6	+0·4	+2·6	−2·2
	Bihar (South)	81·0	61·3	71·1	19·7	32·9	−0·8	+2·7	−3·5
	Do. (North)	80·3	61·3	70·8	19·0	30·4	−1·1	+2·6	−3·7
North-Western Provinces and Oudh.	North-Western Provinces (East)	79·5	59·1	69·3	20·4	35·9	−2·8	+3·4	−6·2
	Oudh (South)	80·7	55·2	67·9	25·5	41·3	−2·5	+3·7	−6·2
	Do. (North)	80·6	57·0	68·8	23·6	37·9	?	?	?
	North-Western Provinces (Central)	80·8	55·2	68·1	25·7	39·9	?	?	?
	Do. do. (West)	81·4	58·7	70·1	22·7	41·0	−2·9	+3·1	−6·0
	Do. do. (Submontane)	77·2	51·5	64·4	25·8	40·4	−2·1	+1·0	−3·1
Punjab	Punjab (South)	80·7	53·4	67·1	27·3	47·9	−3·5	+2·1	−5·6
	Do. (Central)	80·8	49·0	64·9	31·8	48·6	−0·9	+3·1	−4·0
	Do. (Submontane)	80·0	48·9	64·5	31·1	47·3	−1·8	+0·5	−2·3
	Do. (Hill Districts)	58·1	38·3	48·2	19·8	31·5	−1·5	−0·6	−0·9
	Do. (North-West)	77·7	44·5	61·1	33·2	50·1	−0·8	−0·1	−0·7
	Do. (West)	82·6	48·5	65·5	34·1	52·5	−0·6	+0·4	−1·0
Bombay and Malabar Coast Districts (Madras).	Malabar	85·9	74·0	80·0	11·9	18·6	+1·2	+0·8	+0·4
	Madras (South Central)	83·9	69·1	76·6	14·9	26·9	−2·3	+0·5	−2·8
	Coorg	76·7	63·0	69·9	13·7	21·5	−1·7	+1·8	−3·5
	Mysore	78·4	63·5	71·0	14·9	24·4	−1·1	+1·3	−2·4
	Konkan	87·7	73·3	80·5	14·4	22·0	+0·6	+2·1	−1·5
	Bombay Deccan	83·7	63·5	73·7	20·2	30·7	−0·7	+2·0	−2·7
	Hyderabad (North)	83·9	64·0	74·0	19·9	32·3	?	?	?
	Khandesh	85·2	62·1	73·8	23·1	38·2	+1·2	+6·3	−5·1
Central Provinces and Berar.	Berar	84·1	64·8	74·5	19·4	32·3	−1·6	+6·1	−7·7
	Central Provinces (West)	83·7	63·1	73·4	20·6	33·2	−0·7	+5·8	−6·5
	Do. (Central)	80·5	60·9	70·7	19·6	32·6	−1·5	+5·1	−6·6
	Do. (East)	83·2	65·1	74·2	18·1	28·0	+0·5	+3·9	−3·4
Bombay (North)	Guzerat	88·5	66·8	77·7	21·8	33·7	+0·2	+1·6	−4·4
	Kathiawar	86·5	67·7	77·2	18·8	32·9	−4·0	+5·0	−9·0
	Sind and Cutch	86·0	58·4	72·1	27·6	42·0	−1·3	+0·8	−2·1
Rajputana and Central India.	Central India (East)	78·0	57·4	67·7	20·7	36·6	−3·5	+5·1	−8·6
	Rajputana (East), Central India (West)	81·3	57·4	69·4	23·9	40·7	−3·0	+4·3	−7·3
	Do. (West)	84·1	58·0	71·1	26·1	43·0	−1·2	+0·5	−1·7
Madras	East Coast (North)	82·0	71·5	76·8	10·5	18·9	−0·8	+1·1	−1·9
	Hyderabad (South)	83·2	66·6	74·9	16·6	26·3	−1·7	+2·9	−4·6
	Madras (Central)	85·3	68·2	76·8	17·1	25·9	−1·4	+1·6	−3·0
	East Coast (Central)	83·2	72·6	77·9	10·6	17·0	−1·5	+0·6	−2·1
	Do. (South)	83·8	73·1	78·5	10·7	18·8	−1·1	+0·5	−1·6
	Madras (South)	84·9	73·8	79·3	11·1	21·6	−2·8	−0·2	−2·6

The following is a statement of the larger changes of the temperature conditions of India during the month of November.

Temperature at the beginning of the month was in slight excess in North-Western India and Madras and below the normal in other districts. The following table gives variation data for the 24 hours preceding 8 A.M. of the 1st.

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
	°	°	°
Burma	−1.4	−1.4	−1.4
Bengal and Assam	−0.8	−1.3	−1.1
North-Western Provinces and Oudh	−0.9	+1.3	+0.2
Punjab	−0.5	+1.5	+0.5
Sind and Rajputana	+0.2	+3.9	+2.1
Guzerat and Central India	−0.4	−0.4	−0.4
Central Provinces and Berar	+0.2	−3.9	−1.9
Bombay	+1.6	−2.6	−0.5
Madras	+1.9	−1.7	+0.1

During the next three days temperature decreased more rapidly than usual. Showery weather set in over South India on the 3rd. Temperature on the 5th hence fell below the normal over the whole of India. A small cyclonic storm, which formed in the south-west of the Bay on the 4th and 5th, gave a heavy fall of rain to Southern India on the 5th and 6th. Strong humid winds continued to blow across the Madras coast for some days afterwards, and the area of rainfall hence extended northwards. The North Deccan and Central Provinces had numerous showers on the 8th and 9th. This rainfall, which occurred after a period of dry weather in that area, was followed by a large reduction of temperature, which was most marked on the 9th. The following gives variation data for the 24 hour period preceding 8 A.M. of that date :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
	°	°	°
Burma	−0.6	−0.5	−0.6
Bengal and Assam	−3.0	+2.6	−0.2
North-Western Provinces and Oudh	−8.5	+2.5	−3.0
Punjab	−3.4	+1.6	−0.9
Sind and Rajputana	−2.8	+0.3	−1.3
Guzerat and Central India	−6.7	−0.9	−3.8
Central Provinces and Berar	−12.4	+2.4	−5.0
Bombay	−0.8	+0.3	−0.3
Madras	−0.9	−0.3	−0.6

The second disturbance of the month which formed in the south-west of the Bay on the 11th gave heavy rain to the southern half of the peninsula on the 11th and following days. The showery weather extended northwards into the Central Provinces on the 14th and 15th.

During this period the mean daily temperature rose above the normal over the greater part of India. This increase was due almost entirely to the high night temperature, as is shown by the following variation data for the 24 hours preceding 8 A.M. of the 17th. It was hence a direct result of the increased dampness of the air and unusually large cloud amount in the Peninsula and Central India :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
	°	°	°
Burma	−1.5	−1.5	−1.5
Bengal and Assam	−0.6	+0.3	−0.2
North-Western Provinces and Oudh	−1.0	+0.5	−0.3
Punjab	+0.6	+0.6	+0.6
Sind and Rajputana	+1.5	+4.1	+2.8
Guzerat and Central India	−2.8	+6.9	+2.1
Central Provinces and Berar	+0.5	+5.9	+3.2
Bombay	−0.3	+5.0	+2.4
Madras	−0.5	+3.3	+1.4

A small cyclonic storm which crossed the Kathiawar coast on the 20th, and gave rain on that and the following three days to North-Western India, was followed by a large temporary reduction of temperature in Rajputana, Central India and the North-Western Provinces on the 20th and 21st. Temperature continued as largely above the normal in the north of the Peninsula as it had been during the previous four or five days. It increased rapidly in the cool area in North-Western India on the 23rd and 24th, and was considerably in excess over the whole of India, except the Punjab and South India, during the next five days.

The following gives temperature variation data for the 24 hour period preceding 8 A.M. of the 28th, a day typical of this period of excessive temperature :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
	°	°	°
Burma	−2.0	−2.6	−2.3
Bengal and Assam	−0.6	+0.6	0
North-Western Provinces and Oudh	+0.7	+3.4	+2.1
Punjab	−0.7	+0.6	−0.1
Sind and Rajputana	−0.5	+2.7	+1.1
Guzerat and Central India	+2.2	+11.5	+6.9
Central Provinces and Berar	+4.8	+10.7	+7.8
Bombay	+2.2	+5.2	+3.7
Madras	−0.6	+0.7	+0.1

The area of greatest excess of temperature at this time included Central India, the Central Provinces, Berar, and the Bombay Deccan. The day temperature was in slight to moderate excess, and the night temperature was in very large excess. These conditions accompanied the prevalence of very light winds and calms, unusually high

humidity and an abnormally large amount of aqueous vapour in the lowest air strata, and the presence of thin cirrus clouds.

No change of importance occurred until the 29th and 30th, when temperature fell rapidly in North-Western India. This was, as is usual in the cold weather, preceded by a large fall of temperature in Baluchistan. Thus, temperature which was normal on the 24th and 25th at Quetta was 8° below the normal on the 28th.

The following shows the amount of the change of temperature produced by the advance of this cool wave on the 28th and 29th across North-Western India.

PROVINCE.	Variation from normal of mean daily temperature of 24 hours preceding 8 A.M. of	
	28th.	30th.
	°	°
Punjab	—0·1	—2·8
North-Western Provinces	+2·1	—2·4
Sind and Rajputana	+1·1	—0·9
Guzerat and Central India	+6·9	+3·0

Skies were clear at this time in Northern and Central India. A large reduction of humidity occurred during the 72 hours preceding 8 A.M. of the 30th in North-Western India, and the fall of temperature was directly related to that change. Both were probably due to an influx of dry air across the North-West Frontier.

The following table gives the variation 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 :—

METEOROLOGICAL PROVINCE.	Difference of Mean Temperature from normal for week ending November					Difference of mean temperature from normal for the month.
	4th	11th	18th	25th	Dec. 2nd	
	°	°	°	°	°	°
Burma	—2·2	—0·6	—0·1	—1·3	—2·5	—0·9
Bengal and Assam	—0·7	—0·6	+0·2	+1·6	+0·3	+0·4
North-Western Provinces and Oudh	+0·3	—1·1	—0·4	+0·7	+0·4	—0·1
Punjab	+1·0	—1·0	+0·4	—0·5	—0·7	—0·3
Sind and Rajputana	+1·1	—1·4	+0·3	—0·8	+1·3	—0·2
Guzerat and Central India	—0·4	—2·2	+1·1	+0·7	+4·6	+0·8
Central Provinces and Berar	—2·0	—2·2	+2·9	+5·7	+5·3	+2·2
Bombay	—0·7	—0·1	+1·9	+2·0	+3·8	+1·4
Madras	+0·2	—1·3	—0·1	+0·3	+0·8	—0·2

Winds.

The most important feature of the air motion in the Indian area during the month was the stronger set than usual of the retreating south-west monsoon to the Peninsula, and it was hence diverted to a larger extent than usual from Burma and the east of the Bay.

The mean strength of this current in the southern half of the Bay was considerably above the normal, as is shown by the following data :—

STATION.	MEAN DAILY AIR MOTION.		
	Actual, November 1893.	Normal November.	Percentage Variation.
	Miles.	Miles.	Miles.
Port Blair	182	165	+10
Madras	168	159	+ 6
Bellary	94	78	+21
Salem	76	74	+ 3

The anemometric returns of Vizagapatam, Bangalore, and Trichinopoly are doubtful, and are hence not given. Winds were much steadier, and more easterly than usual in Lower Burma and at Port Blair, and also in the Peninsula generally. The following gives comparative data for six representative stations :—

STATION.	MEAN WIND DIRECTION.			STEADINESS.	
	Actual, November 1893.	Normal, November.	Increased Easting.	Actual, November 1893.	Normal.
Port Blair	E	N63E	27°	63	53
Diamond Island	N78°E	N59E	19°	75	64
Madras	N30°E	N24E	6°	68	59
Bangalore	N73 E	N60E	13°	82	63
Secunderabad	N86 E	N53E	33°	87	75
Nagpur	N66 E	N60E	6°	59	60

Hence there was a stronger and steadier flow of humid winds, more directly across the Coromandel coast districts in November than usual, and this influenced the winds over the whole of the Peninsula, excepting the west coast districts, where they were somewhat more northerly than usual, and were normal in strength but very unsteady. Winds in Bengal, as in the Peninsula, were more easterly than usual. They were very steady and were normal in

intensity. The following data for four stations illustrate these features :—

Station.	Mean Wind Direction.		Mean Steadiness.		
	Actual, November 1893.	Increased Easting.	Actual, November 1893.	Normal.	Percentage variation.
False Point	N41°E	+19°	77	57	+35
Saugor Island	N80°E	+75°	75	58	+29
Calcutta	N 4°E	+21°	72	58	+24
Burdwan	N12°E	+19°	73	69	+ 6

Winds were steadier than usual, and of normal strength in Rajputana and Central India, and were more easterly than usual. Thus the mean wind direction of the month for Ajmere was S. 68°E., the normal being N. 32° E, and for Nowgong the mean was N. 33° E, the normal being N. 10° W.

Winds were very light and unsteady in Upper Sind, the Punjab, and the North-Western Provinces. They were most unsteady at the stations, for which data are given in the following table :—

Station.	Mean steadiness.		Mean velocity.	
	Actual, November 1893.	Normal November.	Actual, November 1893.	Normal November.
			Miles.	Miles.
Roorkee	5	28	?	27
Lahore	15	22	19	33
Peshawar	10	15	36	51
Jacobabad	5	16	21	38

The mean velocity of the lower air movement in the Punjab, Upper Sind and North-Western Provinces is given below :—

Division.	Mean wind velocity (miles per diem).		
	Actual, November 1893.	Normal November.	Percentage variation.
Upper Sind	21	38	—45
Punjab	23	35	—34
North-Western Provinces	20	31	—35

This shows that the lower air movement in Upper India in November 1893 was barely half its normal amount.

The winds at the hill stations in Northern India were, on the other hand, slightly stronger than usual, and showed very considerable local irregularities in direction.

Humidity and Cloud.

The amount of aqueous vapour present in the air was much less than usual at Port Blair and in Lower Burma. The deficiency was very marked at Port Blair. The following gives comparative data for Port Blair and Diamond Island :—

Station.	Mean aqueous vapour pressure.		Mean humidity.	
	Actual, November 1893.	Variation from normal.	Actual, November 1893.	Variation from normal.
Port Blair	·839	—·108	77	—7
Diamond Island	·771	—·035	75	—5

The mean humidity conditions of the month were approximately normal in character in Bengal and Assam.

There was a moderate excess of vapour in the air over Bihar, the North-Western Provinces, and the East Punjab. Comparative data are given below for five typical stations in that area of increased humidity in November 1893 :—

Division.	District.	Mean aqueous vapour pressure.		Mean humidity.	
		Actual, November 1893.	Variation from normal.	Actual, November 1893.	Variation from normal.
Bihar	Patna	·502	+·043	66	+4
Chota Nagpur	Hazaribagh	·410	+·057	61	+7
North-Western Provinces	Lucknow	·420	+·065	63	+9
	Roorkee	·355	+·019	62	+5
East Punjab	Lahore	·313	*Nil*	54	+5

The increased humidity in that area was hence most strongly exhibited in Chota Nagpur and the eastern and central districts of the North-Western Provinces.

The mean absolute and relative humidity of the month were both in defect to a slight extent in the West Punjab and Baluchistan (as represented by Quetta), and Sind, but the deficiency was small in amount and unimportant. One of the more striking and significant features of the meteorology of the month was the very large excess of moisture in the air in South-West Rajputana, Central India, the Central Provinces, Berar and the Deccan. The following gives comparative data for these districts:—

Province.	Mean aqueous vapour pressure.		Mean humidity.	
	Actual, November 1893.	Variation from normal.	Actual, November 1893.	Variation from normal.
South Rajputana	·393	+ ·114	50	+ 16
Central India	·451	+ ·138	68	+ 19
Central Provinces	·515	+ ·136	67	+ 14
Berar	·542	+ 140	67	+ 6
Deccan	·538	+ ·061	67	+ 10

The relative humidity was more than 16 above the normal at the stations for which data are given below:—

Station.	Mean aqueous vapour pressure.		Mean humidity.	
	Actual, November. 1893.	Variation from normal.	Actual, November. 1893.	Variation from normal.
Ajmere	·405	+ 097	64	+ 18
Nowgong	·446	+ 118	69	+ 17
Sutna	·455	+ 157	67	+ 21
Akola	·579	+ 179	69	+ 17
Khandwa	·538	+ 170	65	+ 17
Saugor	·453	+ 157	64	+ 21

The excess was as marked at the hill stations in Rajputana and the Central Provinces as at the plain stations:—

Station.	Mean aqueous vapour pressure.		Mean humidity.	
	Actual, November 1893.	Variation from normal.	Actual, November 1893.	Variation from normal.
Mount Abu	·338	+ 107	59	+ 22
Pachmarhi	·435	+ 134	73	+ 19
Chikalda	·468	+ 100	73	+ 17

The mean humidity of the month was also in excess in Madras and Mysore, but not to so large an extent as in the centre and north of the Peninsula. The mean relative humidity was 9 above the normal at Bangalore, 8 at Madras, and 6 at Trichinopoly.

The humidity conditions were practically normal in the west coast districts of India.

The increased dryness of the air which characterized the hill stations of Upper India, the West Punjab, Sind and Baluchistan apparently extended westwards as far as Aden and Bushire. At the former station the absolute humidity was 12 per cent. in defect, and the relative humidity 8 below the normal.

As the variations in the humidity were due almost entirely to the set of the lower atmospheric currents and the distribution of rainfall during the month, the variations in the mean amount of cloud were almost, without exception, similar to those of the humidity already described.

The mean cloud amount of the month was in slight excess at Port Blair and Diamond Island, and largely in defect in Lower Burma (as represented by Rangoon), and probably over the whole of the interior of that province. It was normal in Assam and in slight excess in Bengal. It was considerably in excess in Chota Nagpur, Bihar and the North-Western Provinces, more especially at the following stations:—

Station.	Mean cloud amount.		
	Actual, November 1893.	Normal, November.	Variation.
Hazaribagh	4·6	2·4	+ 2·2
Allahaba	3·4	1·1	+ 2·3

There was on the whole less cloud than usual in the Punjab, Sind and Baluchistan, and also at Aden.

The deficiency was even greater at the hill stations in the Western Himalayas than in Baluchistan, and was most marked at the stations, for which data are given below:—

Station.	Mean cloud amount.		
	Actual, November 1893.	Normal, November.	Variation from normal.
Murree	1·3	2·9	— 1·6
Kailang	2·3	3·6	— 1·3
Leh	3·0	3·9	— 0·9

The amount of cloud was, on the other hand, above the normal in the Himalayas of the North-Western Provinces, Nepal, and Sikkim.

The cloud amount was very largely in excess in the area of greatest increase of humidity or in Rajputana, Central India, the Central Provinces, Berar and the Deccan.

The following table gives comparative data for these areas :—

Division.	Mean cloud amount.		
	Actual, November 1893.	Normal, November.	Variation from normal.
Rajputana	3·5	1·1	+2·4
Central India	3·5	1·3	+2·2
Central Provinces	4·0	1·8	+2·2
Berar	3·9	2·0	+1·9
Deccan	5·1	3·6	+1·5

Hence over the greater part of this area the cloud amount of the month was three times the normal amount.

It was also in excess, but to a less extent in Mysore and Madras. The excess averaged 1·7, or about 33 per cent. of the normal amount.

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

	Station.	Mean cloud amount.	
		Actual, November 1893.	Normal, November.
India	Lahore	0·6	1·2
	Mooltan	0·6	0·8
	Jacobabad	0·7	1·1
Extra India	Aden	0·6	2·1
	Perim	0·3	?
	Muscat	0·6	?

These stations hence define the areas in which skies were practically clear and free from cloud during the month.

Rainfall.

Rainfall in November is generally due solely to the retreating south-west monsoon current in the Bay of Bengal. Under normal conditions the air current recurves in the Bay and advances as a current from the north-east to the Madras coast districts, the Deccan and Southern India, to which it usually gives frequent moderate rain. The retreating current is however necessarily a weak and unsteady current. Hence the rainfall due to it is subject to even greater irregularities than the ordinary south-west monsoon rainfall in Northern and Central India.

In consequence of the weakness and irregularity of the current and the conditions of the air movement in the Bay, there is a strong tendency to the formation of severe cyclonic storms. These storms in the majority of cases advance westwards to the Madras Coast, but occasionally march along a northerly track into Orissa, or a north-east track into Burma and Arakan. Hence Burma and Orissa, in addition to the light rainfall they almost invariably receive when cyclonic storms are forming in the Bay during the month, occasionally obtain heavy cyclonic falls. Bengal also usually receives light rain during the existence of these cyclonic storms in the Bay.

The average rainfall of the whole of North-Western and Central India, including the Punjab, Sind, Rajputana, North Bombay, Central India, the North-Western Provinces and Bihar, is small in amount, not exceeding two or three-tenths of an inch. Bengal, Assam, Berar and the Central Provinces, which receive rain in the outskirts of the cyclonic storms of the month, have slightly larger rainfalls. In Bengal the average rainfall decreases from an average of two inches in the coast districts of Orissa and East Bengal to two-tenths of an inch in North Bengal and Bihar. Similarly in Burma the average rainfall of the month decreases from four inches in the coast districts to half an inch in the central districts of Upper Burma.

The rainfall in Madras and the Deccan is of great importance. In the South Coromandel districts the average rainfall of the month slightly exceeds 15 inches. The amount decreases rapidly into the interior to an inch in the South Deccan and slowly northwards along the coast districts to Ganjam, where the average is nearly three inches.

The rainfall of November 1893 was due chiefly to larger and more frequent influx of humid winds from the Bay into the Peninsula. The humid current extended further north into the Central Provinces and Central India than usual, and the whole of the Peninsula and Central India received more frequent and abundant rain than usual. The chief periods of general rainfall in the Peninsula were—

1st.—From the 4th to the 9th, when the burst of rain was initiated by a cyclonic storm of considerable intensity. The rainfall was heaviest in Central Madras and extended over the whole of the Peninsula and the Central Provinces.

2nd.—From the 11th to the 16th when Madras, Hyderabad, Mysore and the Central Provinces obtained moderate to heavy rain. It was especially heavy in the Circars on the 12th and 13th.

3rd.—From the 23rd to the 28th, during which South-Madras, Travancore and Mysore received moderate rain.

The second cyclonic storm of the month which advanced across the Kathiawar coast on the 20th gave moderate but very abnormal rainfall to Kathiawar, Rajputana, Guzerat, Central India and the North-Western Provinces.

The chief features of the rainfall of the month were as follows :

(1) Rainfall more or less largely in excess of the normal over the whole of Madras. The excess was most marked in the coast districts between Kistna and Tanjore, which received two to four times their normal amounts.

(2) Abnormal rainfall in the Central Provinces, Central India, Rajputana, Guzerat and Kathiawar. The actual amounts were not large, but the excess relatively to the normal was very large and the rainfall was very inopportune over the greater part of the area.

(3) Rainfall in slight to moderate defect in Bengal and Burma. The deficiency was of little importance.

(4) Slight excess in the North-Western Provinces.

(5) Practically no rain fell in the Punjab, Kashmir and Baluchistan, where the rainfall of the month was hence less than the small normal amount.

The following table gives comparative rainfall data of the month for the 51 meteorological districts or areas into which India is divided. In the majority of districts the data are based on the published monthly rainfall statements; but in the case of Madras, Burma and the Central Provinces, for which the monthly statements were not received in time, the data are derived from the weekly telegrams received from district officers in those provinces.

Provinces.	Division.	Rainy days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0·15	1·40	−1·25
	Lower Burma*	?	?	2·15	3·54	−1·39
	Central do. *	?	?	3·15	1·90	+1·25
	Upper do. *	?	?	1·76	?	?
	Arakan*	?	?	1·95	3·61	−1·66
Bengal and Assam	Eastern Bengal	0·2	1·4	0·08	1·11	−1·03
	Assam (Surma)*	?	?	0·34	0·78	−0·44
	Do. (Brahmaputra)*	?	?	0·25	0·58	−0·33
	Deltaic Bengal	0·2	1·0	0·08	0·36	−0·28
	Central do.	0·1	0·7	0·02	0·25	−0·23
	North do.	0·8	0·4	0·35	0·14	+0·21
	Orissa	0·6	2·1	0·21	1·38	−1·17
	Chota Nagpur	0·5	0·9	0·13	0·34	−0·21
	Bihar (South)	0·6	0·4	0·22	0·22	0
	Do. (North)	0·3	0·3	0·11	0·09	+0·02
North-Western Provinces and Oudh.	North-Western Provinces (East)	1·9	0·2	0·97	0·11	+0·86
	Oudh (South)	0·9	0·1	0·24	0·02	+0·22
	Do. (North)	0·3	0·1	0·06	0·04	+0·02
	North-Western Provinces (Central)	1·4	0·1	0·36	0·03	+0·33
	Do. do. (West)	1·3	0·1	0·50	0·04	+0·46
	Do. do. (Submontane)	0·8	0·2	0·28	0·11	+0·17
Punjab	Punjab (South)	0	0·1	0·01	0·07	−0·06
	Do. (Central)	0·5	0·2	0·13	0·06	+0·07
	Do. (Submontane)	0·1	0·3	0·08	0·16	−0·08
	Do. (Hill Districts)	0·7	0·9	0·15	0·84	−0·69
	Do. (North-West)	0	0·5	0	0·53	−0·53
	Do. (West)	0	0·3	0	0·17	−0·17
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	7·35	3·78	+3·57
	Madras (South Central)*	?	?	9·91	4·32	+5·59
	Coorg	7·7	?	5·88	?	?
	Mysore*	?	?	3·03	2·43	+0·60
	Konkan	2·2	1·7	1·29	1·10	+0·19
	Bombay Deccan	3·1	2·4	1·58	1·46	+0·12
	Khandesh	2·7	1·4	1·47	0·92	+0·55
Central Provinces and Berar.	Berar*	?	?	2·67	0·52	+2·15
	Central Provinces (West)*	?	?	2·46	0·36	+2·10
	Do. (Central)*	?	?	2·29	0·31	+1·98
	Do. (East)*	?	?	0·81	0·48	+0·33
Bombay (North)	Guzerat	2·5	0·4	1·44	0·18	+1·26
	Kathiawar	2·9	0·1	1·93	0·21	+1·72
	Sind	0·1	..	0·03	0·07	−0·04
Rajputana and Central India.	Central India (East)	3·1	...	1·41	0·35	+1·06
	Rajputana (East), Central India (West)	1·9	...	1·32	0·08	+1·24
	Do. (West)	2·3	...	1·51	0·02	+1·49
Madras	East Coast (North)*	?	?	7·15	3·40	+3·75
	Do. do. (a)*	?	?	2·60	2·58	+0·02
	Hyderabad (South)*	?	?	2·24	0·42	+1·82
	Madras (Central)*	?	?	3·47	2·20	+1·27
	East Coast (Central)*	?	?	17·57	6·21	+11·36
	Do. (South)*	?	?	18·84	8·89	+9·95
	Madras (South)*	?	?	9·38	5·96	+3·42

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

Assam and Burma received occasional showers, but no general rain during the month. In Central and Upper Burma frequent local showers occurred between the 13th and 16th and again on the 29th and 30th. The rainfall of the month in these two provinces was hence unusually small in amount and was considerably below the normal, except in some parts of Upper Burma and in Central Burma. The following gives comparative data:—

Province.	Division.	Rainy days.		Rainfall.		
		Actual, November 1893.	Normal, November.	Actual, November 1893.	Normal, November.	Variation.
				Inches.	Inches.	Inches.
Assam	Surma	0·5	1·5	0·20	0·86	—0·66
	Brahmaputra	1·1	1·2	0·51	0·52	—0·01
Burma	Tenasserim	0·8	?	0·51	1·40	—0·89
	Lower Burma	0·5	?	0·28	3·54	—3·26
	Central Burma	0·5	?	0·41	1·90	—1·49
	Upper Burma	1·6	?	0·63	?	?
	Arakan	1·7	?	1·01	3·61	—2·60

The rainfall in Assam and Bengal was very small in amount. Orissa, Chota Nagpur, and Bengal obtained some light local showers, chiefly during the first week of the month. The total rainfall of the month was less than a tenth of an inch in amount over the greater part of West and South Bengal, Chota Nagpur and East Bihar. West Bihar received light general rain on the 9th and showers on the 21st and 22nd, which gave an average total of about half an inch. The following gives a summary of the rainfall data of the month published in the *Provincial Government Gazette*:—

Division.	Number of rainy days.			Rainfall.		
	Actual, November 1893.	Normal, November.	Variation from normal.	Actual, November 1893.	Normal, November.	Variation from normal.
				Inches.	Inches.	Inches.
Eastern Bengal	0·2	1·4	—1·2	0·08	1·11	—1·03
Deltaic ,,	0·2	1·0	—0·8	0·08	0·36	—0·28
Central ,,	0·1	0·7	—0·6	0·02	0·25	—0·23
North ,,	0·8	0·4	+0·4	0·35	0·14	+0·21
Orissa	0·6	2·1	—1·5	0·21	1·38	—1·17
Chota Nagpur	0·5	0·9	—0·4	0·13	0·34	—0·21
Bihar, South	0·6	0·4	+0·2	0·22	0·22	0
,, North	0·3	0·3	0	0·11	0·09	+0·02

No rain fell in Baluchistan, Kashmir and by far the greater part of the Punjab. The Delhi, Rohtak, Gurgaon, Karnal, Umballa and Simla districts received some showers between the 20th and 23rd, but the total amounts in these districts were small, and the rainfall was hence of little importance.

In the North-Western Provinces the eastern districts obtained light to moderate local showers on the 8th and 9th. Moderate general rain fell during the period 20th to the 23rd over the greater part of the Province. The rainfall was heaviest in the trans-Jumna districts and was light in the sub-montane and western districts. Comparative rainfall data for six divisions of the province are given in the following table:—

Division.	Number of rainy days.			Rainfall.		
	Actual, November 1893.	Normal, November.	Variation from normal.	Actual, November 1893.	Normal, November.	Variation from normal.
				Inches.	Inches.	Inches.
North-Western Provinces (East)	1·9	0·2	+1·7	0·97	0·11	+0·86
Oudh (South)	0·9	0·1	+0·8	0·24	0·02	+0·22
,, (North)	0·3	0·1	+0·2	0·06	0·04	+0·02
North-Western Provinces (Central).	1·4	0·1	+1·3	0·36	0·03	+0·33
North-Western Provinces (West)	1·3	0·1	+1·2	0·50	0·04	+0·46
North-Western Provinces (Sub-montane).	0·8	0·2	+0·6	0·28	0·11	+0·17

Rajputana received frequent light to moderate showers from the 17th to the 23rd during the second cyclonic storm of the month. Falls of one to three inches in 24 hours occurred at a large number of stations in Ajmere and the adjacent districts on the 20th. The following table gives comparative rainfall data of the month for the larger states in Rajputana:—

District or State.	Average total rainfall.		
	Actual, November 1893.	Normal, November.	Variation from normal.
	Inches.	Inches.	Inches.
Jodhpore	1·61	0·01	+1·60
Jeypore	1·06	0·04	+1·02
Bhurtpore	0·73	0·02	+0·71
Ulwar	0·86	0·12	+0·74
Dholpur	0·64	?	?
Ajmere	2·04	0·12	+1·92
Kotah	1·68	0·03	+1·65

There were two periods of showery weather in Central India. The first was on the 8th and 9th, when the influx of humid winds to the Peninsula after the first cyclonic storm extended northwards across the Central Provinces into Central India and gave a short period of light rain to these two areas. The second period of rainfall was from the 19th to the 23rd, when it was due to and followed the advance of the second cyclonic storm of the month into North-Western India from the Arabian Sea. The rainfall of the month was in large excess over the whole area, as is shown by the following return for the more important states:—

District or State.	Rainfall.		
	Actual, November 1893.	Normal, November.	Variation.
	Inches.	Inches.	Inches.
Gwalior	1·18	0·16	+1·02
Bhopal	2·59	0·41	+2·18
Rewah	1·74	0·54	+1·20
Bundelkhand	1·06	0·13	+0·93

The Central Provinces and Berar received unusually frequent rain during the month. There were three periods of rainfall, *viz.*, the 8th to the 11th, the 14th and 15th, and the 20th to the 24th. The rainfall was chiefly due to the occasional abnormal extension of the inflow of humid winds from the Bay of Bengal over the north of the Peninsula into Central India. It occurred as frequent light to moderate showers and gave a total precipitation very largely in excess of the small normal fall of the month. The following table gives comparative data, and shows that the excess was greatest in the western districts and decreased in amount northwards and eastwards :—

Meteorological.	Rainfall.		
	Mean actual, November. 1893.	Mean normal, November.	Variation from normal, November 1893.
	Inches.	Inches.	Inches.
Central Provinces, East	0·81	0·48	+0·33
Ditto, Central	2·29	0·31	+1·98
Ditto, West	2·46	0·36	+2·10
Berar	2·48	0·56	+1·92

Bombay received rainfall during the month solely in connection with the second cyclonic storm of the month which formed in the south-east of the Arabian Sea on the 14th and 15th and advanced by a curved path into Kathiawar. Canara and the Konkan had moderate daily rain from the 13th to the 19th. The Karnatak districts of Belgaum, Dharwar and Bijapur received general and favourable rain between the 13th and the 16th. Poona, Sholapur and Ahmednagar obtained light showers from the 13th to the 16th and again on the 19th and 20th, but the total fall in these districts was small in amount. The Nasik and Khandesh districts had moderately heavy rain from the 18th to the 20th, and falls of over 2 inches in 24 hours were registered at many stations. In Guzerat and Kathiawar there were light showers on the 17th and 18th and moderately heavy rain on the 20th and two following days.

The following gives a summary of the rainfall data of the month published in the *Provincial Gazette.*

Division.	Number of rainy days.		Rainfall.		
	Actual, November 1893.	Normal, November.	Actual, November 1893.	Normal	Variation.
			Inches.	Inches.	Inches.
Konkan	2·2	1·7	1·29	1·10	+0·19
Bombay Deccan	3·1	2·4	1·58	1·46	+0·12
Khandesh	2·7	1·4	1·47	0·92	+0·55
Guzerat	2·5	0·4	1·44	0·18	+1·26
Kathiawar	2·9	0·1	1·93	0·21	+1·72
Sind	0·1	0	0·03	0·07	−0·04

The rainfall during the month of November in the Madras Presidency was unusually heavy. It occurred chiefly during two well defined periods. The first period of general rainfall lasted from the 2nd to the 14th or 15th. The influx of humid winds determining this rainfall accompanied and followed the cyclonic storm of the first week of the month, the centre of which crossed the Madras coast on the morning of the 6th. The storm itself gave very heavy cyclonic rain on the 5th, 6th, and 7th to the Nellore, Chingleput, North Arcot, and south-west districts. The following gives some of the more remarkable rainfalls due to the storm and which occurred almost entirely to the north of the line of advance of the storm :—

District.	Station.	Heaviest rainfall received on the			Total.
		5th.	6th.	7th.	
Nellore	Tada	1·90	5·10	9·53	16·53
	Monapalayam	1·97	5·10	6·73	13·80
	Rapur	1·10	2·60	10·15	13·85
	Gudur	0·90	2·30	12·00	15·20
Madras	Madras	6·30	3·77	0·72	10·79
Chingleput	Conjeeveram	1·11	10·42	4·28	15·81
	Trivellore	2·47	9·58	1·83	13·88
	Sathiavedu	3·27	7·15	6·24	16·66
North Arcot	Wandiwash	0·85	11·00	0·50	12·35
	Kalahasti	2·35	4·00	7·00	13·35
South Arcot	Merkanam	3·00	11·19	0·19	14·38

The average fall in those districts, in which the cyclonic downpour was heaviest, is given below :—

District.	Average fall of district during 24 hours preceding 8 A.M. of the			Average total fall of period.
	5th.	6th.	7th.	
	Inches.	Inches.	Inches.	Inches.
Nellore	1·03	2·52	5·07	8·62
Madras	6·30	3·77	0·72	10·79
Chingleput	2·61	6·80	2·27	11·68
North Arcot	0·87	3·70	2·55	7·12
South Arcot	0·63	2·60	0·18	3·41

The rainfall was hence heaviest in the district of Chingleput, through which the storm centre advanced, and in the district of Nellore to the north of the track of the centre.

The breaking up of the storm on the 6th was followed by the extension of rainfall over nearly the whole of the Peninsula. The precipitation was hence general, but moderate in amount on the 8th and 9th. A feeble depression and cyclonic disturbance (as measured by the barometric depression), which appeared in the south-west of the Bay off the South Coromandel coast on the 10th, was followed by a large increase in the strength of the humid winds blowing across the Central and North Madras coast districts. The rainfall due to these winds was exceptionally heavy in the Godavari district on the 12th

and 13th. The following gives the more remarkable falls in this district due to this influx:—

Station.	Rainfall of 24 hours preceding 8 A.M. of the 12th.	Rainfall of 24 hours preceding 8 A.M. of the 13th.	Total rainfall of period.
	Inches.	Inches.	Inches.
Coconada	8·53	6·47	15·00
Coringa	10·42	6·50	16·92
Alamur	10·20	3·65	13·85
Ramachandrapuram	10·35	6·98	17·33
Kottapetta	10·83	5·50	16·33
Amalapuram	13·80	4·29	18·09
Sivakodu	10·60	3·27	13·87
Narsapuram	11·20	3·50	14·70

The average rainfall for the whole district for these two days was 9·03 inches. The average for the same period in the Vizagapatam district to the north was 1·27 inches and the Kistna district to the south was 2·51 inches. This excessive rainfall was hence confined to the Godavari district, and was heaviest at the stations near the coast. It occurred at a considerable distance to the north of the feeble disturbance in the south-west of the Bay, and is an example of the localized downpours which occasionally occur, under favourable conditions, during the advance of a very strong inrush of south-west monsoon humid winds.

A complete break in the retreating south-west monsoon rains set in over the northern coast districts and a partial break in the southern and central districts during the advance of the cyclonic storm of the third week of the month in the Arabian Sea. This storm broke up on the 20th and 21st in North-Western India. A slight disturbance in the south-west of the Bay, which formed on the 21st when the preceding storm was breaking up, was followed by a strong influx of moist winds to South and Central Madras and Mysore, which hence had general rain from the 22nd to the 28th. The rainfall was excessively heavy in the Tanjore and Trichinopoly districts on the 23rd. The former received an average of 6·82 inches and the latter of 6·09 inches on that day. The following gives the more remarkable falls:—

District.	Station.	Rainfall for 24 hours preceding 8 A.M. of the 23rd.
		Inches.
South Arcot	Mannargudi	11·54
Tanjore	Tiruturaipundi	10·62
	Kattumavadi	12·10
	Arantangi	13·74
Trichinopoly	Ilappur	10·07

The downpour was hence similar in character to that which occurred in the Godavari district on the 12th and 13th.

The following gives comparative rainfall data for each of the 22 collectorates in the Madras Presidency:—

District.	No. of rainy days. Actual, November 1893.	No. of rainy days. Normal, November.	Rainfall. Actual, November 1893.	Rainfall. Normal, November.	Rainfall. Variation from normal.	Percentage variation.
			Inches.	Inches.	Inches.	Inches.
Ganjam	3·7	3·3	1·99	3·37	− 1·38	− 41
Vizagapatam	5·0	4·3	3·25	3·20	+ 0·05	+ 2
Godavari	8·5	3·2	16·28	3·29	+ 12·99	+ 395
Kistna	7·8	3·3	8·63	3·15	+ 5·48	+ 174
Nellore	15·4	7·6	25·19	9·22	+ 15·97	+ 173
Chingleput	17·1	9·9	24·11	11·46	+ 12·65	+ 110
Madras	19·0	11·0	23·47	13·75	+ 9·72	+ 71
North Arcot	12·8	7·5	14·17	8·01	+ 6·16	+ 77
South Arcot	16·8	9·2	21·29	8·72	+ 12·57	+ 144
Tanjore	18·6	10·2	24·63	10·42	+ 14·21	+ 136
Trichinopoly	14·5	7·1	15·03	4·53	+ 10·50	+ 232
Madura	13·3	7·7	11·63	5·53	+ 6·10	+ 110
Tinnevelley	11·6	9·2	9·88	7·19	+ 2·69	+ 37
Malabar	8·5	6·6	5·31	4·66	+ 0·65	+ 14
South Canara	6·4	4·3	6·07	3·07	+ 3·00	+ 98
Salem	10·0	5·9	7·46	3·80	+ 3·66	+ 96
Coimbatore	10·7	5·9	9·30	3·64	+ 5·66	+ 155
Nilgiri	14·9	8·6	12·57	5·62	+ 6·95	+ 124
Cuddapah	11·4	4·8	8·98	3·85	+ 5·13	+ 133
Anantapur	5·9	3·1	2·10	2·12	− 0·02	− 1
Bellary	4·5	2·3	1·70	1·30	+ 0·40	+ 31
Kurnool	5·3	2·9	2·99	1·50	+ 1·49	+ 99

The statement shows that rainfall was more or less in excess, except in the districts of Ganjam and Anantapur. The excess was very large over the coast and central districts, and was excessive in those districts which received the heavy downpours described above. Thus the Godavari received nearly five times its normal amount, Trichinopoly over three times, and Kistna and Nellore nearly three times the normal fall of the month

A summary of the preceding data, showing the chief features of the distribution of the rainfall in the eight meteorological divisions of the Presidency, is given below:—

Division.	Rainy days. Actual, November 1893.	Rainy days. Normal, November.	Rainfall. Actual, November 1893.	Rainfall. Normal, November.	Variation.
			Inches.	Inches.	Inches.
East Coast (North)	6·2	3·5	7·53	3·27	+ 4·26
Ditto (ditto) (a)	4·5	4·6	2·83	2·80	+ 0·03
Ditto (Central)	15·4	7·6	25·19	9·22	+ 15·97
Ditto (South)	16·2	8·8	20·32	8·74	+ 11·58
Madras (South)	12·5	8·4	10·78	6·27	+ 4·51
Malabar (Coast)	7·8	5·6	5·58	4·01	+ 1·57
Madras (South Central)	10·3	5·9	8·33	3·73	+ 4·60
Madras (Central)	7·0	3·3	4·24	2·27	+ 1·97

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1. Burma Coast and Bay Islands.		...	...	+·057	...	...	...	...	...	...	...	86·5	−0·5	70·8	−1·2	78·7	−0·9	15·7	...	...	...	...	24·4
Bay Islands	Port Blair	61	29·908	?	29·900	29·950	28th	29·854	3rd	·096	80·7	86·0	?	77·9	?	81·9	?	8·1	88·0	12th	72·9	23rd	15·1
Tenasserim	Mergui	96	29·915	?	29·943	29·976	27th	29·860	1st	·116	80·1	87·5	?	68·2	?	77·9	?	19·3	90·6	12th	62·1	28th	28·5
	Tavoy	26	29·991	?	29·948	30·057	28th	29·931	9th	·126	77·5	87·7	?	65·3	?	76·5	?	22·4	90·2	2 days	57·7	3 days	32·5
	Moulmein	94	29·944	+·061	29·977	29·997	28th	29·873	1st	·124	73·8	88·5	+0·1	69·4	−1·6	79·0	−0·8	19·1	91·5	11th	60·9	20th	30·6
	Toungoo	181	29·852	+·057	29·980	29·912	27th	29·797	9th	·115	72·3	86·7	−0·3	68·7	−1·7	77·7	−1·0	18·0	89·7	12th	63·2	30th	26·5
Lower Burma	Rangoon	41	29·990	+·052	29·968	30·046	27th	29·933	9th	·113	74·8	86·7	−0·4	70·4	−2·6	78·6	−1·5	16·3	89·2	11th	64·3	30th	24·9
	Bassein	27	30·010	+·062	29·973	30·068	28th	29·960	9th	·108	74·4	86·1	+0·2	70·3	−1·5	78·2	−0·7	15·8	87·7	6 days	63·0	30th	24·7
	Diamond Island	41	29·981	+·052	29·957	30·034	28th	29·939	1st	·095	78·8	84·4	−1·3	76·0	+0·9	80·2	−0·2	8·4	87·6	2 days	72·9	21st	14·7
Arakan	Akyab	20	30·020	+·055	29·983	30·062	28th	29·983	18th	·079	74·3	84·7	−1·0	71·1	−0·7	77·9	−0·9	13·6	87·2	3 days	65·2	26th	22·0
2. Burma Inland		...	...	+·065	...	...	...	...	...	...	...	83·3	−1·4	64·1	−1·0	73·7	−1·2	19·2	...	...	...	...	28·1
Central Burma	Thayetmyo	134	29·911	+·065	29·990	29·956	30th	29·863	10th	·093	73·4	86·0	−1·4	67·2	−1·0	76·6	−1·2	18·8	88·1	3 days	60·7	29th	27·4
	Minbu	?	29·896	?	?	29·933	16th	29·858	18th	·075	74·8	88·5	?	68·6	?	78·6	?	19·9	92·1	2 days	64·1	25th	28·0
	Yamethin	?	29·390	?	?	29·437	17th	29·348	10th	·089	74·2	87·1	?	68·2	?	77·7	?	18·9	91·1	10th	64·0	4 days	27·1
	Fort Stedman	?	27·098	?	?	27·118	25th	27·021	13th	·097	64·8	80·0	?	57·7	?	68·9	?	22·3	83·2	2 days	53·5	24th	29·7
Upper Burma	Mandalay	?	29·787	?	?	29·870	15th	29·688	1st	·182	76·9	85·4	?	68·7	?	77·1	?	16·7	89·0	2 days	65·1	24th	23·9
	Kindat	?	29·716	?	?	29·764	4th	29·659	10th	·105	68·3	80·7	?	65·3	?	73·0	?	15·4	84·6	3rd	60·7	20th	24·1
	Lashio	?	27·289*	?	?	27·356	5th	27·253	2 days	·103	60·9	76·6	?	55·9	?	66·3	?	20·7	81·1	2 days	49·0	17th	32·1
	Bhamo	?	29·687	?	?	29·736	15th	29·634	9th	·102	68·0	82·1	?	61·1	?	71·6	?	21·0	87·0	8th	54·8	17th	32·2
3. Assam		...	...	+·068	...	...	...	...	...	...	...	80·1	−0·9	63·1	+0·8	71·5	0	17·0	...	...	...	...	27·1
Assam (Surma)	Silchar	104	29·962	+·060	30·021	30·004	25th	29·910	18th	·094	70·4	84·8	+0·2	65·2	+1·5	75·0	+0·9	19·6	89·5	2 days	59·9	26th	29·6
Brahmaputra	Sibsagar	333	29·797	+·075	30·101	29·854	7th	29·738	21st	·116	63·0	77·0	−1·5	60·0	+0·3	68·5	−0·6	17·0	81·1	4th	52·7	20th	28·4
	Dhubri	115	29·956	+·039?	30·030	30·004	25th	29·902	9th	·102	66·9	78·5	−1·5	63·4?	−0·1?	71·0	−0·8	15·1	83·1	11th	59·9	30th	23·2
4. Bengal and Orissa		...	...	+·058	...	...	...	...	...	...	...	82·0	−0·6	65·2	+1·2	73·6	+0·3	16·7	...	...	...	...	26·7
East Bengal	Chittagong	87	29·964	+·057	30·001	30·015	25th	29·914	18th	·101	71·4	83·3	+0·5	66·9	+0·7	75·1	+0·6	16·4	86·7	2 days	61·1	30th	20·6
	Noakhali	43	29·992	?	29·982	30·049	6th	29·938	18th	·111	72·7	81·9	?	66·6	?	74·3	?	15·3	85·5	5th	59·5	29th	26·0
	Comilla	36	30·011	?	29·996	30·077	25th	29·950	9th	·127	72·4	83·4	?	65·2	?	74·3	?	18·2	87·4	4th	59·4	29th	28·0
	Sirajganj	46	30·010	?	30·007	30·066	25th	29·948	9th	·118	69·6	81·8	?	63·2	?	72·5	?	18·6	85·2	3rd & 4th	57·8	30th	27·4
	Dacca	20	30·027	+·047?	29·995	30·089	25th	29·977	18th	·112	71·6	83·3	−0·5	66·3	+0·3	74·8	−0·1	17·0	88·1	4th	62·3	2 days	25·8
	Barisal	13	30·028	+·060	29·987	30·087	25th	29·973	9th	·114	73·5	83·0	?	66·6	?	74·8	?	16·4	85·8	6th	60·0	2 days	25·8
	Mymensingh	59	29·991	+·051	30·004	30·056	25th	29·928	9th	·128	69·3	81·1	?	64·0	?	72·6	?	17·1	84·2	3 days	59·6	2 days	24·6
Deltaic Bengal	Faridpur	46	30·021	?	30·016	30·048	2nd & 6th	29·969	18th	·079	71·6	80·6	?	65·5	?	73·0	?	15·1	85·5	1st	58·0	20th	27·5
	Jessore	33	30·033	+·056	30·014	30·085	25th	29·979	18th	·106	71·4	82·3	−1·3	65·3	+1·3	73·9	0	17·0	86·0	1st	58·5	30th	27·5
	Calcutta	21	30·049	+·051	30·016	30·103	25th	30·002	18th	·101	71·0	80·7	−1·0	65·6	+0·9	73·1	−0·1	15·1	84·2	2nd	58·7	30th	25·5
	Saugor Island	25	30·044	+·056	30·014	30·090	2 days	30·001	18th	·089	72·2	81·1	−0·5	67·5	+0·5	74·3	0	13·6	85·7	2nd	60·9	30th	24·8
	Krishnagar	47	30·022	?	30·019	30·086	25th	29·975	18th	·111	71·0	81·8	?	64·5	?	73·1	?	17·3	85·8	2nd	55·5	30th	30·3
	Midnapore	149	29·933	?	30·033	29·981	16th	29·902	21st	·079	70·7	83·0	?	64·6	?	73·8	?	18·4	87·3	1st & 23rd	57·2	29th	30·1
Central Bengal	Bankura	298	29·769	?	30·031	29·821	25th	29·729	18th	·092	69·5	82·5	?	64·5	?	73·5	?	18·0	85·1	5th & 22nd	57·1	29th	28·0
	Raniganj	334	29·751	?	30·048	29·806	25th	29·711	29th	·095	68·6	?	?	63·3	?	?	?	?	?	...	56·0	29th	?
	Burdwan	99	?	?	?	?	...	?	?	?	70·3	81·7?	−1·0	65·8	+1·8	73·8	+0·4	15·9	84·6	2 days	57·6	30th	27·0

* Mean of 28 days.

I.

in India, Burma, etc., in November 1893.

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 Oct. to 30th November 1893.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·38	4·82	−3·44	...	...	...	...	**1. Burma Coast and Bay Islands.**	
...	3	6	8	9	3	...	...	1	7·6	7·1	+ 7	80	·840	5·7	8	?	?	4·90	8·97	− 4·07	24·75	21·14	+ 3·61	1·77	Port Blair .	BAY ISLANDS.
..	11	14	4	...	...	...	...	1	1·0	1·6	−38	60	·740	4·3	1	?	?	0·10	3·63	− 3·53	15·77	17·17	− 1·40	0·10	Mergui .	TENASSERIM.
25	...	3	...	...	...	...	...	2	1·1	?	?	67	·630	0	0	?	?	0	2·33	−2·33	16·61	12·84	+ 3·77	0	Tavoy.	
...	3	2	17	6	...	...	1	1	3·8	2·4	+58	77	·647	1·4	0	2·18	−2·18	0	2·56	− 2·56	10·90	10·84	+ 0·06	0	Moulmein.	
17	10	...	1	1	...	...	...	1	0·4	1·7	−76	91	·729	5·5	2	2·36	−0·36	2·47	1·25	+1·22	10·34	8·26	+ 2·08	1·43	Toungoo.	
...	...	6	16	7	1	...	...	...	3·3	4·4	−25	86	·743	1·9	0	3·18	−3·18	0	3·09	− 3·09	9·40	10·18	− 0·78	0	Rangoon .	LOWER BURMA.
...	1	19	9	1	...	...	...	...	3·7	3·1	+19	88	·759	2·8	1	5·55	−4·55	1·84	4·88	− 3·04	13·61	13·09	+ 0·52	1·79	Bassein.	
..	1	18	11	...	...	...	...	...	9·8	8·6	+14	79	·779	4·4	3	7·10	−4·10	3·03	13·78	−10·75	19·77	22·70	− 2·93	1·32	Diamond Island.	
...	16	11	2	...	1	...	...	...	2·1	2·2	− 5	89	·759	4·3	0	3·09	− 3·09	0·12	2·93	− 2·81	9·96	12·96	− 3·00	0·05	Akyab .	ARAKAN.
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·50	1·80	−1·32	...	...	...	...	**2. Burma Inland.**	
...	17	4	1	3	1	1	...	3	3·1	3·5	−11	86	·609	1·0	0	3·45	−3·45	0	2·40	− 2·40	10·51	6·87	+ 3·64	0	Thayetmyo	CENTRAL BURMA.
2	1	...	...	...	...	1	2	24	5·2	?	?	82	·714	0·8	1	?	?	0·49	?	?	11·64	?	?	0·41	Minbu.	
12	7	1	...	3	1	1	...	5	3·7	?	?	88	·741	0·1	2	?	?	0·89	?	?	17·26	?	?	0·50	Yamethin.	
28	...	...	...	...	...	2	...	...	?	?	?	88	·539	3·5	0	?	?	0	?	?	7·08	?	?	0	Fort Stedman.	
12	5	3	3	2	2	2	1	...	1·5	?	?	78	·721	3·7	2	?	?	0·46	1·16	− 0·70	7·15	4·01	+ 3·14	0·22	Mandalay .	UPPER BURMA.
4	3	...	...	...	...	...	7	16	1·4	?	?	91	·653	7·3	2	?	?	0·61	2·91	− 2·30	12·38	8·90	+ 3·48	0·29	Kindat.	
1	11	15	...	...	...	...	...	1	?	?	?	91	·488	9·6	3	?	?	0·70	?	?	5·42	?	?	0·30	Lashio.	
8	7	10	...	...	1	...	...	4	0·8	?	?	85	·583	4·5	3	?	?	0·88	0·74	+ 0·14	2·86	5·19	− 2·33	0·37	Bhamo.	
...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	0·32	0·73	−0·40	...	...	...	...	**3. Assam.**	
28	...	...	1	1	...	...	...	...	0·2	2·1	− 90	87	·619	6·3	1	2·18	−1·18	0·26	1·25	− 0·99	11·68	6·12	+ 5·56	0·15	Silchar .	ASSAM (SURMA)
13	...	7	4	6	...	...	...	...	1·3	1·7	− 24	99	·585	2·3	3	1·18	+1·82	0·40	0·66	− 0·26	5·47	5·83	− 0·36	0·15	Sibsagar .	BRAHMAPUTRA.
2	1	20	6	1	...	...	...	...	6·0	4·9	+22	90	·594	2·4	2	0·38	+1·62	0·31	0·27	+ 0·04	3·20	3·70	− 0·50	0·21	Dhubri.	
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·12	0·67	−0·57	...	...	...	...	**4. Bengal and Orissa.**	
1	7	18	1	2	...	...	...	1	2·4	3·0	−20	92	·711	4·8	0	1·73	−1·73	0·02	1·70	− 1·68	15·57	6·73	+ 8·84	0·02	Chittagong	EAST BENGAL.
...	11	13	4	1	...	1	...	...	3·2	?	?	90	·721	1·9	0	1·55	−1·55	0·05	1·82	− 1·77	16·60	8·68	+ 7·92	0·05	Noakhali.	
14	11	3	2	...	...	...	...	...	1·2	?	?	86	·681	2·5	1	1·89	−0·89	0·22	0·94	− 0·72	11·92	5·17	+ 6·75	0·20	Comilla.	
23	3	...	...	2	...	...	...	2	0·7	?	?	91	·625	2·3	0	0·80	−0·80	0·16	0·38	− 0·22	5·47	4·76	+ 0·71	0·09	Sirajganj.	
5	8	4	3	2	...	...	...	8	2·6	1·9	+37	85	·655	3·0	0	0·82	−0·82	0·06	0·32	− 0·26	4·87	5·03	− 0·16	0·04	Dacca.	
22	4	3	...	...	...	...	...	1	1·7	?	?	84	·696	2·3	0	1·45	−1·45	0	1·25	− 1·25	8·58	6·23	+ 2·35	0	Barisal.	
8	6	7	5	2	...	...	...	2	1·6	?	?	89	·639	3·1	1	0·80	+0·20	0·23	0·30	− 0·07	7·37	5·99	+ 1·38	0·16	Mymensingh.	
20	8	2	...	...	...	...	...	...	0·7	?	?	88	·683	2·2	0	1·10	−1·10	0·09	0·39	− 0·30	2·12	4·69	− 2·57	0·05	Faridpur .	DELTAIC BENGAL.
13	10	2	...	...	...	...	...	5	1·6	1·8	− 11	86	·664	2·9	0	0·73	−0·73	0·04	0·53	− 0·49	5·03	4·28	+ 0·75	0·02	Jessore.	
13	9	6	...	1	...	...	...	1	1·5	3·0	−50	80	·616	2·5	0	0·82	−0·82	0·03	0·51	− 0·48	7·37	4·30	+ 3·07	0·03	Calcutta.	
...	12	16	1	...	...	...	...	1	7·7	6·4	+20	87	·692	4·3	0	1·55	−1·55	0·04	0·97	− 0·93	5·42	8·93	− 3·51	0·04	Saugor Island.	
2	7	4	3	1	...	...	5	8	2·5	?	?	79	·605	3·8	1	0·70	+0·30	0·26	0·34	− 0·08	5·38	4·53	+ 0·85	0·21	Krishnagar.	
2	13	11	...	...	...	...	...	4	2·3	?	?	76	·570	2·7	0	0·90	−0·90	0·09	0·23	− 0·14	3·86	5·01	− 1·15	0·09	Midnapore.	
16	5	...	...	...	...	...	6	3	1·5	?	?	75	·548	3·6	1	0·75	+0·25	0·18	0·25	− 0·07	3·43	4·40	− 0·97	0·16	Bankura .	CENTRAL BENGAL.
6	4	1	...	...	...	2	2	15	1·3	?	?	79	·561	1·6	0	0·60	−0·60	0·02	0·20	− 0·18	2·96	3·61	− 0·65	0·01	Raniganj.	
2	16	7	1	...	1	...	...	3	1·6	1·9	−16	76	·565	3·6	1	0·82	+0·18	0·18	0·68	− 0·50	5·34	3·99	+ 1·35	0·14	Burdwan.	

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Bengal—*contd.*	Naya Dumka	489	29·573	?	30·039	29·637	25th	29·531	29th	·106	68·7	80·5	?	61·7	?	71·1	?	18·8	84·6	5th	54·9	30th	29·7
	Berhampore	67	30·004	+·043	30·022	30·061	16th	29·960	18th	·101	68·7	80·7	−1·2	66·1	+2·2	73·4	+0·5	14·6	84·6	5th	60·2	30th	24·4
	Rampur Boalia	70	29·987	?	30·008	30·041	25th	29·944	9th	·097	71·0	80·8	?	63·9	?	72·4	?	16·9	85·1	5th	57·1	30th	28·0
	Malda	80	29·994	?	30·028	30·047	25th	29·950	18th	·097	69·2	81·2	?	62·6	?	71·9	?	18·6	85·6	1st	54·8	30th	30·8
	Bogra	61	29·996	+·085	30·013	30·058	25th	29·958	18th	·100	69·8	81·8	?	62·0	?	71·9	?	19·8	85·2	5th	57·2	30th	28·0
North Bengal	Dinajpur	123	29·948	+·063	30·030	29·995	25th	29·899	9th	·096	69·1	81·6	?	62·8	?	72·2	?	18·8	85·1	3 days	57·8	29th	27·3
	Rungpur	123	29·948	?	30·029	30·000	25th	29·900	9th & 18th	·100	68·1	81·3	?	61·7	?	71·6	?	19·6	85·8	4th	57·6	28th	28·2
	Jalpaiguri	284	29·804	+·075	30·052	29·856	16th	29·762	21st	·094	68·1	81·2	?	61·1†	?	71·2†	?	20·1	84·4	2 days	58·6	3 days	25·8
Orissa	Balasore	56	30·013	+·048	30·017	30·068	16th	29·977	18th	·091	69·5	82·5	?	64·4	?	73·5	?	18·1	85·4	4 days	55·5	29th	29·9
	False Point	21	30·045	+·051	30·008	30·094	25th	30·007	19th	·087	73·7	82·3	+0·3	67·0	+1·2	74·6	+0·8	15·3	85·4	4th	58·0	2 days	27·4
	Cuttack	80	29·980	+·048	30·005	30·029	28th	29·941	2 days	·088	73·3	84·4	−0·8	68·2	+2·0	76·3	+0·6	16·2	87·7	25th	59·8	28th	27·9
	Shortt's Island	?	30·048	?	?	30·104	25th	29·995	1st	·109	77·6	81·4	?	73·6	?	77·5	?	7·8	84·6	13th	68·4	29th	16·2
	Puri	15	30·039	?	29·994	30·093	28th	29·998	9th	·095	73·8	83·5	?	70·2	?	76·9	?	13·3	87·7	4th	63·6	29th	24·1
5. Gangetic Plain and Chota Nagpur.		...	...	+·046	...	...	...	...	...	...	...	80·2	−1·6	59·8	+3·0	70·0	+0·7	20·5	...	...	...	...	33·5
Chota Nagpur	Hazaribagh	2,007	28·030	+·040	30·042	28·083	25th	27·981	18th & 29th	·102	65·1	76·7	+0·4	58·0	+2·6	67·4	+1·5	18·7	79·2	3 days	50·2	30th	29·0
	Ranchi	2,128	27·903	?	30·067?	27·964	25th	27·860	18th & 29th	·104	65·0	78·3	?	60·8	?	69·6	?	17·5	79·0	13th	51·4	28th	27·6
	Daltonganj	730?	29·316†	?	30·025†	29·404	16th	29·237	1st	·167	68·8	80·1	?	59·7	?	69·9	?	20·4	83·4	3rd	48·0	30th	35·4
	Chaibassa	760	29·292	+·060	30·025	29·353	16th	29·253	18th	·100	67·8	82·2	?	62·5	?	72·3	?	19·7	85·2	25th	55·0	25th	30·2
Bihar, South	Gaya	375	29·710	+·052	30·053	29·758	25th	29·669	18th	·089	67·9	82·2	−0·1	61·9	+2·9	72·1	+1·4	20·3	85·4	2 days	54·8	30th	30·6
	Dehri	351	29·749	?	30·068	29·813	25th	29·673	29th	·140	69·4	80·7	?	60·8	?	70·8	?	19·9	84·3	2nd	54·4	30th.	29·9
	Patna	183	29·902	+·035	30·045	29·963	16th	29·849	29th	·114	68·8	79·9	−1·5	62·3	+2·5	71·1	+0·5	17·6	84·0	5th	51·4	30th	32·6
	Arrah	190	29·891	?	30·041	29·948	25th	29·836	29th	·112	66·9	81·5	?	60·2	?	70·9	?	21·3	85·8	2nd	49·0	30th	36·8
	Buxar	239	29·850	?	30·053	29·913	25th	29·793	29th	·120	68·1	80·6	?	61·2	?	70·9	?	19·4	84·6	1st & 2nd	49·9	30th	34·7
Bihar, North	Purnea	125	29·952	+·052	30·036	30·004	25th	29·912	18th	·092	66·3	80·3	−1·7	62·6	+3·8	71·5	+1·1	17·7	83·2	3 days	56·3	30th	26·9
	Bhagalpur	160	29·909	?	30·027	29·965	16th	29·863	29th	·102	69·0	81·4	?	61·0	?	71·2	?	20·4	84·7	4th & 5th	53·0	30th	31·7
	Darbhanga	166	29·912	+·039	30·038	29·972	25th	29·856	29th	·116	67·3	80·2	−0·4	63·6	+1·4	71·9	+0·5	16·6	83·9	2 days	56·4	30th	27·5
	Muzaffarpur	178	29·907	?	30·046	29·964	16th	29·854	18th	·110	67·0	79·4	?	61·3	?	70·4	?	18·1	82·7	3 days	52·3	30th	30·4
	Motihari	224	29·841†	?	30·032†	29·901	16th	29·784	29th	·117	65·8	80·2	?	58·1	?	69·2	?	22·1	83·7	5th	49·9	30th	33·8
	Chapra	181	29·911	?	30·052	29·968	16th & 25th	29·818	29th	·120	68·7	80·2	?	61·3‡	?	70·7‡	?	18·9	84·8	6th	52·6	30th	32·2
N.-W. Provinces (Eastern Districts).	Benares	267	29·818	+·044	30·054	29·876	25th	29·770	29th	·106	65·2	78·9	−3·7	58·8	+3·4	68·9	−0·2	20·1	84·1	2nd	49·0	30th	35·1
	Allahabad	309	29·766?	+·032?	30·044?	29·826	25th	29·710	18th	·116	66·2	80·8	−1·4	58·9	+4·5	69·8	+1·6	21·9	88·0	2nd	47·4	30th	40·6
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·819	+·044	30·045	29·879	25th	29·745	29th	·134	67·6	78·8	−3·2	59·5	+2·2	69·2	−0·5	19·3	82·4	6 days	50·3	30th	32·1
Oudh, South	Lucknow	370*	29·708	+·048	30·062	29·752	16th	29·631	18th	·121	63·4	80·7	−2·5	55·0	+3·5	67·8	+0·5	25·7	87·3	1st	44·5	30th	42·8
Oudh, North	Bahraich	403	29·667	?	30·051	29·717	5th	29·602	18th & 29th	·115	64·7	80·6	?	57·0	?	68·8	?	23·6	84·4	3 days	46·5	30th	37·9
N.-W. Provinces (Central).	Cawnpore	416	29·666	?	30·061	29·722	26th	29·597	18th	·125	65·8	80·6	?	56·0	?	68·4	?	24·6	88·1	1st	50·0	4 days	38·1
	Mainpuri	516	29·546?	?	30·047?	29·596	25th	29·480	18th	·116	61·2	81·0	?	54·3	?	67·7	?	26·7	88·8	1st	47·1	29th	41·7
6. Upper—Sub-Himalayas		...	...	−·054	...	...	...	...	...	...	...	78·4	−2·1	49·9	+1·0	64·2	−0·6	28·4	...	...	...	...	44·6
N.-W. Provinces (Sub-montane).	Bareilly	568	29·492	+·047	30·056	29·549	3rd	29·416	18th	·133	59·4	78·1	−3·2	53·9	+1·7	66·1	−0·8	24·2	83·8	1st	42·2	30th	41·6
	Dehra Dun	2,233	27·814	+·038	30·096	27·897	5th	27·717	29th	·180	55·8	73·0	−0·8	51·1	−0·2	62·1	−0·5	21·9	77·5	4th	45·0	30th	32·5
	Roorkee	887	29·169	+·046	30·077	29·239	5th	29·084	29th	·155	55·9	78·7	−2·0	50·2	+1·1	64·5	−0·5	28·5	84·8	1st & 7th	40·0	30th	44·8
	Meerut	738	29·327	+·052?	30·076	29·392	5th	29·258	18th	·134	56·5	79·1	−2·4	50·7	+1·3	64·9	−0·6	28·4	85·7	2nd	43·1	30th	42·6
Punjab, Central.	Delhi	718	29·342	+·042	30·060	29·402	5th	29·280	19th	·122	61·2	77·9	−5·8	56·6	+1·5	67·2	−2·2	21·3	86·1	1st	44·6	30th	41·5
	Lahore	702	29·374	+·062	30·091	29·461	5th	29·286	19th	·175	56·7	80·8	−0·9	49·0	+3·1	64·9	+1·1	31·8	87·3	2nd	38·7	30th	48·6

* 375 feet previous to 21st November 1893. † Mean of 29 days. ‡ Mean of 28 days.

I—*continued.*

in India, Burma, etc., in November 1893—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 to 30th November 1893.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
3	5	1	3	1	...	1	5	11	1·8*	?	?	76	·539	1·8	0	0·42	− 0·42	0	0·18	− 0·18	4·50	4·26	+ 0·24	0	Naya Dumka	Central Bengal —*contd.*
3	12	2	3	...	...	2	1	7	1·5	1·7	−12	88	·621	4·5	0	0·55	− 0·55	0	0·51	− 0·51	3·09	5·08	− 1·99	0	Berhampore.	
6	16	7	...	...	...	1	...	...	3·8	?	?	82	·622	2·9	0	0·45	− 0·45	0	0·14	− 0·14	4·56	4·58	− 0·02	0	Rampur Boalia.	
3	..	3	...	..	...	1	1	22	2·4	?	?	84	·598	1·3	0	0·35	− 0·35	0	0·16	− 0·16	6·15	4·54	+ 1·61	0	Malda.	
5	2	20	1	...	...	1	1	...	1·3	?	?	85	·618	1·2	0	0·50	− 0·50	0	0·27	− 0·27	4·81	4·25	+ 0·56	0	Bogra.	
...	3	19	3	...	...	...	...	5	1·4	?	?	84	·598	1·4	0	0·30	− 0·30	0	0·09	− 0·09	3·38	5·22	− 1·84	0	Dinajpur .	North Bengal.
2	4	9	11	2	...	...	1	1	1·4	?	?	88	·602	0·8	0	0·10	− 0·10	0	0·10	− 0·10	1·74	5·42	− 3·68	0	Rungpur.	
5	11	6	2	2	1	...	...	3	1·9	?	?	80	·550	3·2	2	0·15	+ 1·85	0·32	0·10	+ 0·22	3·21	5·70	− 2·49	0·17	Jalpaiguri.	
...	15	4	3	...	...	1	1	6	2·8	6·5	−57	88	·635	1·9	0	1·70	− 1·70	0·07	0·91	− 0·84	5·15	7·32	− 2·17	0·07	Balasore .	Orissa.
...	25	2	1	...	...	...	...	2	6·1	?	?	83	·699	4·4	1	3·00	− 2·00	0·78	2·09	− 1·31	5·39	10·91	− 5·52	0·73	False Point.	
17	3	6	1	...	...	2	1	...	1·8	1·7	+ 6	73	·600	3·5	0	2·45	− 2·45	0	1·22	− 1·22	5·47	5·40	+ 0·07	0	Cuttack.	
...	6	17	1	...	...	...	...	6	12·2	?	?	71	·677	3·4	1	?	?	0·40	?	?	3·96	?	?	0·27	Shortt's Island.	
6	13	10	1	...	...	...	...	...	5·8	?	?	79	·662	3·4	1	2·95	− 1·95	0·20	2·30	− 2·10	8·52	11·11	− 2·59	0·10	Puri.	
...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	0·30	0·18	+ 0·13	...	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
5	6	3	5	1	...	2	3	5	5·0	4·3	+ 16	73	·458	4·4	0	1·09	−1·09	0·09	0·33	− 0·24	6·27	3·43	+2·84	0·04	Hazaribagh.	Chota Nagpur.
16	2	...	3	1	...	2	1	4	4·3*	?	?	73	·465	3·3	0	0·85	−0·85	0·12	0·40	− 0·28	5·03	3·38	+1·65	0·07	Ranchi.	
...	2	3	3	1	3	9	...	9	2·5	?	?	79	·554	4·3	2	?	?	0·25	?	?	3·19	?	?	0·13	Daltonganj.	
30	...	...	...	...	...	...	...	...	0·1	?	?	82	·561	4·2	0	1·00	− 1·00	0·11	0·24	− 0·13	0·87	3·19	− 2·32	0·06	Chaibassa.	
...	1	...	6	4	6	3	8	2	5·4	1·2	+350	77	·530	3·7	0	0·91	− 0·91	0·09	0·49	− 0·40	1·76	2·86	− 1·10	0·09	Gaya .	Bihar, South.
...	...	...	5	...	5	15	2	3	3·7	?	?	84	·607	2·1	2	0·57	+ 1·43	0·56	0·25	+ 0·31	5·92	3·14	+ 2·78	0·32	Dehri.	
4	1	3	2	...	2	7	8	3	2·2	1·5	+ 47	76	·549	3·2	0	0·45	− 0·45	0·10	0·21	− 0·11	6·23	3·33	+ 2·90	0·05	Patna	
...	6	4	1	1	2	2	8	6	1·2	?	?	83	·551	2·5	1	0·40	+ 0·60	0·30	0·15	+ 0·15	3·90	3·43	+ 0·47	0·20	Arrah.	
4	1	2	2	3	1	4	9	4	1·9	?	?	78	·539	2·9	2	0·35	+ 1·65	0·78	0·17	+ 0·61	9·25	3·52	+ 5·73	0·38	Buxar.	
28	...	...	1	...	...	...	1	...	0·5	1·2	− 58	92	·595	0·9	0	0·27	− 0·27	0·02	0·14	− 0·12	4·04	3·83	+ 0·21	0·02	Purnea .	Bihar, North.
29	...	...	...	...	...	...	1	...	0·3	?	?	81	·578	2·5	0	0·30	− 0·30	0·03	0·27	− 0·24	4·60	3·47	+1·13	0·02	Bhagalpur.	
7	2	2	1	...	1	3	8	6	1·7	1·8	− 6	86	·580	1·6	0	0·27	− 0·27	0·07	0·07	0	9·39	3·66	+ 5·73	0·07	Darbhanga.	
9	...	...	...	...	...	5	11	5	1·7	?	?	87	·579	1·9	1	0·42	+ 0·58	0·21	0·09	+ 0·12	12·03	3·56	+ 8·47	0·10	Muzaffarpur.	
11	...	1	...	3	1	3	7	4	2·6	?	?	86	·551	1·5	0	0·17	− 0·17	0·10	0·02	+ 0·08	8·50	3·51	+ 4·99	0·06	Motihari.	
5	3	3	1	...	1	7	6	4	2·2	?	?	80	·545	3·1	1	0·40	+ 0·60	0·44	0·29	+ 0·15	4·67	3·89	+ 0·78	0·38	Chapra.	
19	1	...	...	1	2	3	3	1	1·7	2·1	− 19	88	·551	2·8	2	0·82	+ 1·18	1·71	0·39	+ 1·32	5·10	2·84	+ 2·26	1·50	Benares .	N.-W. Provinces (Eastern Districts).
14	2	2	4	1	...	1	3	3	1·8	1·3	+ 38	82	·533	3·3	2	0·45	+ 1·55	0·61	0·14	+ 0·47	3·79	1·79	+ 2·00	0·30	Allahabad .	
2	5	1	2	...	4	4	9	3	1·1	0·9	+ 22	76	·519	1·0	2	0·18	+ 1·82	0·29	0·06	+ 0·23	10·98	3·86	+ 7·12	0·18	Gorakhpur	N.-W. Provinces (East Sub-montane).
29	...	...	...	...	...	...	1	...	0·2	1·4	− 86	80	·470	2·0	1	0·09	+ 0·91	0·10	0	+ 0·10	1·85	0·73	+ 1·12	0·10	Lucknow .	Oudh, South.
13	1	1	1	1	...	1	...	12	1·7	?	?	83	·520	1·1	0	?	?	0·04	0	+ 0·04	3·29	1·69	+ 1·60	0·04	Bahraich .	Oudh, North.
9	4	4	3	1	...	2	5	2	1·7	?	?	74	·477	2·0	1	0	+ 1·0	0·31	0·02	+ 0·29	1·69	1·09	+ 0·60	0·31	Cawnpore .	N.-W. Provinces (Central).
21	...	...	...	...	...	...	1	8	1·1	?	?	80	·436	2·2	2	?	?	0·29	0	+ 0·29	2·24	0·82	+ 1·42	0·12	Mainpuri.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·20	0·19	+ 0·01	...	...	...	...	**6. Upper—Sub-Himalayas.**	
24	2	1	...	...	...	...	2	1	0·4	1·7	− 76	79	·411	1·3	1	0·27	+ 0·73	0·26	0·20	+ 0·06	6·45	1·17	+ 5·28	0·24	Bareilly .	N.-W. Provinces (Sub-montane).
30	...	...	...	...	...	...	...	...	0·6	1·7	− 65	80	·362	1·6	2	0·60	+ 1·40	0·93	0·42	+ 0·51	3·73	1·49	+ 2·24	0·63	Dehra Dun.	
25	1	1	1	...	1	...	1	...	0·3	1·1	− 73	81	·368	1·2	1	0·64	+ 0·36	0·12	0·21	− 0·09	1·33	0·64	+ 0·69	0·10	Roorkee.	
21	1		...	...	...	1	7	...	0·8	1·3	− 38	71	·328	1·1	0	0·36	− 0·36	0·12	0·08	+ 0·04	0·40	0·68	− 0·28	0·06	Meerut.	
21	...	...	1	...	...	3	5	...	0·9	2·3	− 61	60	·323	2·2	2	0·18	+ 1·82	0·39	0·07	+ 0·32	0·55	0·24	+ 0·31	0 21	Delhi .	Punjab, Central.
25	...	...	...	2	1	...	2	...	0·9	1·4	− 36	69	·319	0·7	0	0·27	− 0·27	0	0·07	− 0·07	0	0·29	− 0·29	0	Lahore.	

* Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Sub-montane).	Umballa	962?	29·168	?	30·093	29·265	5th	29·096	18th & 29th	·169	55·0	81·0	?	47·3	?	64·2	?	33·7	88·0	1st	39·0	30th	49·0
	Ludhiana	812	29·261	+·068	30·091	29·315	5th	29·175	1st	·170	56·7	79·0	−1·8	50·5	+0·5	64·8	−0·7	28·5	86·1	1st	40·5	30th	45·6
Punjab, North	Sialkot	830	29·242	+·075	30·095	29·324	5th	29·157	19th	·167	56·2	80·0	−1·0	49·0	+0·8	64·5	−0·1	31·0	88·6	1st	38·3	30th	50·3
	Rawalpindi	1,649	28·410	+·052	30·109	28·506	5th	28·317	19th	·189	48·0	76·1	−1·0	41·1	−0·8	58·6	−0·9	35·0	81·1	3 days	31·8	30th	49·3
7. Indus Valley and North-West Rajputana.		...	...	+·044	...	...	...	...	...	...	...	83·4	−1·0	52·9	+0·8	68·1	−0·1	30·5	...	...	...	...	47·5
Punjab, West	Peshawar	1,110	28·991	+·057	30·111	29·063	5th	28·885	19th	·178	50·4	77·0	−0·3	43·5	−0·3	60·3	−0·3	33·5	82·6	1st	31·9	30th	50·7
	Mardan	?	?	?	?	?	?	?	?	?	47·4	97·2	?	?	?	?	?	?	107·6	4th	?	...	?
	Khushab	612	29·458	?	30·081	29·553	5th	29·368	19th	·185	55·1	80·8	?	47·0	?	63·9	?	33·8	87·9	1st	35·1	30th	52·8
	Montgomery	558	29·523	?	30·087	29·607	5th	29·433	19th	·174	59·1	83·7	?	48·7	?	66·2	?	35·0	92·3	2nd	38·3	30th	54·0
	D. I. Khan	573	29·505	+·047	30·093	29·581	5th	29·403	19th	·178	51·0	81·6	−0·7	45·3	−0·6	63·5	−0·7	36·3	87·1	1st & 2nd	32·0	30th	55·1
	Mooltan	420	29·679	+·062	30·095	29·739	28th	29·582	19th	·157	60·3	84·1	−0·4	52·8	+1·4	68·5	+0·5	31·3	91·3	1st	43·2	30th	48·1
	Sirsa	662	29·409	+·055	30·077	29·483	5th	29·325	19th	·158	57·0	83·4	−1·1	50·2	+2·6	66·9	+0·8	33·2	91·9	2nd	37·7	30th	54·2
Sind and Cutch.	Jacobabad	186	29·910	+·052	30·069	29·989	5th	29·787	19th	·202	60·6	86·6	+0·4	49·2	0	67·9	+0·2	37·4	92·5	1st & 2nd	37·1	29th	55·4
	Hyderabad	117	29·966	+·039	30·042	30·055	28th	29·841	19th	·214	64·6	85·5	−2·1	58·6*	+0·1	71·6*	−1·0	26·9	91·7	1st	53·0	26th	41·7
	Kurrachee	49	30·034	+·031	30·036	30·109	28th	29·904	19th	·205	68·9	86·3	−1·0	61·3	+0·4	73·8	−0·3	25·0	90·5	6th	55·0	5 days	35·5
	Bhuj	395	29·636	+·008	29·695	29·712	28th	29·480	19th	·232	72·5	85·6	−2·6	64·6	+2·8	75·1	+0·1	21·0	94·0	4th	59·0	23rd	35·4
Rajputana, West	Bickaneer	753	29·312	?	30·060	29·393	28th	29·191	19th	·202	63·2	82·6	−1·2	60·2	+0·5	71·4	−0·4	22·4	92·2	1st	52·8	30th	39·4
	Pachpadra	380	29·692	?	30·046	29·765	11th	29·570	2nd	·195	66·4	85·6	?	55·8	?	70·7	?	29·8	95·5	4th	48·9	13th	46·6
8. East Rajputana, Central India and Guzerat.		...	...	+·032	...	...	...	...	...	...	...	83·3	−2·8	61·1	+4·2	72·2	+0·7	22·2	...	...	...	...	38·0
Rajputana, East	Jeypore	1,431	28·645	+·048	30·090	28·721	5th	28·573	20th	·148	64·3	81·0	−3·5	56·0	+3·1	68·5	−0·2	25·0	92·1	1st	47·2	30th	44·9
	Sambhar	1,254	28·800	+·037?	30·073	28·877	5th	28·714	19th	·163	61·0	79·7	−2·7	54·4	+2·4	67·1	−0·2	25·3	89·4	2nd	46·9	30th	42·5
	Ajmere	1,611	28·472	+·057?	30·118	28·549	5th	28·381	19th	·168	60·4	79·1	−4·2	54·8	+5·8	67·0	+0·8	24·3	88·4	1st	45·8	30th	42·6
	Deesa	466	29·579	+·019	30·016	29·646	5th	29·481	20th	·165	70·4	86·2	−4·2	61·8	+5·1	74·0	+0·5	24·4	93·3	3 days	54·1	8th	39·2
Kathiawar	Rajkot	429	29·596	+·013	29·989	29·683	28th	29·421	20th	·262	73·1	86·1	−4·0	63·4	+5·0	74·8	+0·5	22·7	93·9	3 days	55·0	8th	38·9
	Veraval	?	29·986	?	29·946	30·062	5th & 28th.	29·680	20th	·382	76·9	87·1	?	70·4	?	78·8	?	16·7	93·6	15th	63·3	7th	30·3
	Bhabnagar	?	30·003	?	29·989	30·083	6th	29·867	21st	·216	73·1	86·3	?	69·4	?	77·9	?	16·9	91·9	1st	62·5	7th	29·4
Central India	Nowgong	757	29·314	+·038	30·060	29·375	5th	29·256	19th	·117	64·4	78·8	−3·7	56·1	+4·3	67·5	+0·3	22·7	87·0	1st	47·5	15th & 16th	39·5
	Indore	1,823	28·210	+·032	30·028	28·280	5th	28·112	20th	·168	67·3	81·7	+0·1	58·8	+4·8	70·3	+2·5	22·9	86·0	1st	48·0	5th	38·0
	Neemuch	1,630	28·434	+·043	30·072	28·506	5th	28·360	19th	·146	65·8	80·3	−3·2	58·7	+4·5	69·5	+0·7	21·6	88·8	3rd	51·8	7th	37·0
Guzerat	Surat	36	29·989	+·021	29·969	30·071	7th	29·849	20th	·222	74·0	90·2	+0·2	67·1	+4·6	78·7	+2·4	23·1	94·2	13th	59·0	7th	35·2
	Ahmedabad	176	29·880	?	30·010	29·969	5th	29·777	19th	·192	72·0	86·8	?	66·4	?	76·6	?	20·4	93·2	3 days	61·1	7th & 8th	32·1
N.-W. P., West	Agra	555	29·534	+·045	30·077	29·590	5th	29·461	19th	·129	62·9	81·5	−2·9	57·2	+2·3	69·4	−0·3	24·3	90·6	1st	47·1	30th	43·5
	Jhansi	858	29·229	+·062?	30·076	29·290	5th	29·177	1st	·113	67·0	81·3	−2·8	60·2	+3·9	70·8	+0·6	21·1	91·4	1st	52·9	30th	38·5
9. Deccan		...	...	+·031	...	...	...	...	...	...	...	82·8	−0·9	63·6	+4·6	73·2	+1·9	19·1	...	...	...	...	30·9
Bombay, Deccan	Belgaum	2,524	27·454	+·018	29·932	27·526	28th	27·347	14th	·179	68·8	79·6	−2·1	63·0	+1·1	71·3	−0·5	16·6	83·3	1st	58·5	3rd	24·8
	Sholapur	1,590	28·416	+·030	29·972	28·488	27th & 28th.	28·306	14th	·182	73·5	85·9	−1·0	64·2	+1·6	75·1	+0·3	21·7	89·2	30th	58·1	3rd	31·1
	Poona	1,840	28·163	+·016	29·976	28·226	5th	28·082	14th	·144	70·4	86·1	+1·1	63·4	+3·3	74·8	+2·2	22·7	90·0	30th	53·9	5th	36·1
	Bijapur	1,946	28·053	?	29·966	28·130	28th	27·973	8th	·157	70·7	83·1	?	63·4	?	73·3	?	19·7	86·3	30th	54·6	2nd	31·7
Khandesh	Malegaon	1,430	28·599	+·023	30·008	28·664	5th	28·504	20th	·160	71·4	86·8	+1·2	63·2	+6·3	75·1	+3·8	23·6	90·9	18th	52·0	5th	38·9
	Ahmednagar	2,152	29·868	?	29·989	27·929	28th	27·790	20th	·139	70·6	83·6	?	61·0	?	72·3	?	22·6	87·3	30th	49·9	5th	37·4
Berar	Akola	930	29·107	+·034	30·009	29·180	3rd	29·017	20th	·163	70·8	85·1	−0·9	64·0	+7·0	74·6	+3·1	21·1	89·0	3 days	51·1	5th	37·9
	Amraoti	1,215	28·812	+·031	30·007	28·874	2nd	28·745	19th	·129	71·4	83·1	−2·2	65·5	+5·1	74·4	+1·5	17·6	87·9	29th	61·3	4th	26·6

* Mean of 26 days.

I—*continued.*

in India, Burma, etc., in November 1893—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 to 30th November, 1893.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
25	...	...	...	...	...	...	...	5	1·3	?	?	78	·337	0·6	1	?	?	0·18	0·18	0	0·18	0·49	−0·31	0·18	Umballa .	Punjab (Sub-montane).
26	1	1	...	...	1	...	...	1	0·7	0·8	−13	72	·333	1·3	0	0·36	−0·36	0	0·16	−0·16	0	0·58	−0·58	0	Ludhiana.	
28	...	...	1	...	...	...	...	1	0·5	1·0	−50	71	·319	0·1	0	0·18	−0·18	0	0·10	−0·10	0	0·31	−0·31	0	Sialkot .	Punjab, North.
27	...	...	...	...	...	2	...	1	0·4	1·1	−64	74	·251	0·4	0	0·36	−0·36	0	0·40	−0·40	0·42	0·92	−0·50	0	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·07	0·11	−0·04	...	...	...	...	7. Indus Valley and North-West Rajputana.	
25	...	1	...	...	1	3	...	...	1·4	2·1	−33	70	·261	1·3	0	0·64	−0·64	0	0·38	−0·38	0	0·50	−0·50	0	Peshawar .	Punjab, West.
				Not	recor	ded.			?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Mardan.	
24	1	5	...	...	...	...	...	...	1·2	?.	?	48	·216	0·3	0	0·4	−0·4	0	0·33	−0·33	0·02	0·40	−0·38	0	Khushab.	
20	...	1	1	4	3	1	...	...	1·6	?	?	61	·313	0·9	0	0·2	−0·2	0	0·07	−0·07	0	0·13	−0·13	0	Montgomery	
27	...	...	1	1	...	1	...	...	1·2	0·7	+71	67	·259	0·1	0	0·45	−0·45	0	0·14	−0·14	0	0·18	−0·18	0	D. I. Khan.	
15	...	1	...	9	1	4	...	...	1·0	1·5	−33	64	·342	0·6	0	0·09	−0·09	0	0·07	−0·07	0	0·07	−0·07	0	Mooltan.	
23	1	...	1	1	...	1	2	1	1·9	2·0	−5	66	·308	1·4	0	0·09	−0·09	0	0·03	−0·03	0	0·22	−0·22	0	Sirsa.	
28	1	1	...	...	...	...	...	...	0·9	1·6	−44	54	·288	0·6	0	0	0	0	0	0	0	0	0	0	Jacobabad .	Sind and Cutch.
6	12	7	...	...	...	...	1	4	7·8	6·1	+28	51	·305	1·5	0	0·20	−0·20	0·01	0·06	−0·05	0·01	0·06	−0·05	0·01	Hyderabad.	
...	...	28	...	...	...	1	1	...	12·0	7·9	+52	56	·404	1·9	0	0·09	−0·09	0·02	0	+0·02	0·02	0	+0·02	0·02	Kurrachee.	
10	6	6	6	1	...	...	...	1	10·2	4·7	+117	56	·429	3·0	1	?	?	0·27	0	+0·27	0·27	0·42	−0·15	0·17	Bhuj.	
2	8	6	4	4	...	1	...	5	3·1	2·4	+29	52	·239	2·3	1	?	?	0·51	0·14	+0·37	0·51	0·19	+0·32	0·45	Bickaneer .	Rajputana, West.
16	3	8	...	3	...	...	...	...	?	2·1	?	62	·397	4·6	4	?	?	1·32	0	+1·32	1·32	0·05	+1·27	0·70	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·77	0·15	+1·43	...	...	...	...	8. East Rajputana, Central India and Guzerat.	
16	1	10	1	...	1	...	...	1	1·5	3·0	−50	62	·372	3·5	2	0·20	+1·80	2·40	0·08	+2·32	2·46	0·44	+2·02	1·27	Jeypore .	Rajputana, East.
10	9	1	5	2	1	...	2	...	3·5†	3·4	+3	63	·338	2·8	2	0·30	+1·70	1·75	0·08	+1·67	1·77	0·30	+1·47	1·10	Sambhar.	
18	...	5	1	3	1	...	1	1	2·0	1·4	+43	77	·403	2·9	2	0·27	+1·73	1·86	0·07	+1·79	1·93	0·32	+1·61	1·30	Ajmere.	
...	1	14	10	4	1	...	...	...	7·9	7·5	+5	58	·422	3·8	3	0·18	+2·82	1·55	0·08	+1·47	1·55	0·48	+1·07	0·73	Deesa.	
1	4	11	12	1	1	...	...	...	6·3	4·9	+29	60	·487	3·7	4	0·18	+3·82	1·54	0·35	+1·19	1·54	0·74	+0·80	0·55	Rajkot .	Kathiawar.
1	11	13	1	3	1	...	...	...	5·3	?	?	59	·544	3·7	1	?	?	2·28	?	?	2·28	?	?	2·28	Veraval.	
...	8	3	1	1	1	7	...	9	8·8	?	?	85	·721	4·1	3	?	?	3·33	?	?	3·33	?	?	1·98	Bhavnagar.	
13	5	4	3	...	1	2	1	1	1·4	1·0	+40	78	·472	3·8	5	0·55	+4·45	1·07	0·28	+0·79	3·58	1·42	+2·16	0·29	Nowgong .	Central India.
6	7	2	9	2	3	...	1	...	2·3	2·0	+15	76	·502	4·1	2	0·73	+1·27	2·76	0·36	+2·40	2·76	2·18	+0·58	2·21	Indore.	
3	...	5	20	2	...	...	...	...	5·7	7·5	−24	64	·403	3·8	3	0·18	+2·82	2·41	0·10	+2·31	2·46	0·83	+1·63	1·21	Neemuch.	
...	7	10	5	2	1	2	1	2	?	5·9	?	75	·642	1·8	1	0·55	+0·45	0·47	0·18	+0·29	0·47	1·93	−1·46	0·30	Surat .	Guzerat.
...	...	10	10	3	...	1	...	2	7·5	?	?	63	·490	4·2	4	?	?	1·73	?	?	2·67	?	?	0·90	Ahmedabad†	
5	...	7	...	1	...	...	...	17	2·6	2·5	+4	66	·379	2·1	3	0·18	+2·82	0·54	0	+0·54	1·97	0·45	+1·52	0·18	Agra . .	N.-W. P., West.
11	4	4	3	...	...	4	...	4	1·2	1·8	−33	63	·419	2·6	2	0·36	+1·64	1·07	0·08	+0·99	3·21	0·87	+2·34	0·61	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·00	0·90	+1·04	...	...	...	...	9. Deccan.	
4	...	6	14	6	...	...	...	...	?	11·7	?	79	·554	5·3	4	2·73	+1·27	4·96	1·86	+3·10	12·96	7·16	+5·80	2·86	Belgaum .	Bombay, Deccan.
1	1	6	10	11	1	...	...	...	11·0	7·7	+43	66	·544	3·6	1	1·73	−0·73	0·26	0·94	−0·68	9·06	5·44	+3·62	0·14	Sholapur.	
10	...	1	13	6	...	...	...	...	7·8	5·8	+34	69	·520	3·5	4	2·64	+1·36	2·03	1·22	+0·81	3·27	5·53	−2·26	0·86	Poona.	
...	1	9	7	11	4	1	...	...	4·9	?	?	78	·589	5·1	3	2·20	+0·80	1·65	2·22	−0·57	9·45	8·41	+1·04	1·01	Bijapur.	
10	...	5	4	2	1	2	4	2	4·9	4·0	+23	73	·569	3·3	4	1·75	+2·25	1·30	0·75	+0·55	2·72	4·27	−1·55	0·41	Malegaon .	Khandesh.
8	...	5	7	7	3	...	...	...	7·4	?	?	77	·582	3·2	2	?	?	0·50	0·72	−0·22	2·07	3·82	−1·75	0·23	Ahmednagar.	
4	1	4	10	5	4	...	2	...	5·1	3·4	+50	78	·588	4·0	3	1·18	+1·82	2·11	0·81	+1·30	3·25	4·44	−1·19	1·11	Akola .	Berar.
8	...	7	13	2	...	...	...	...	2·2	3·0	−27	71	·57	3·4	4	1·27	+2·73	1·14	0·64	+0·50	4·28	3·58	+0·70	0·32	Amraoti.	

† Mean of 29 days

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Provinces, West.	Khandwa	1,044	28·978	+·024	30·009	29·065	5th	28·903	20th	·162	68·4	86·6	+1·2	62·2	+6·4	74·4	+3·8	24·4	90·7	28th	52·1	5th & 6th	38·6
	Hoshangabad	1,020	29·009	?	30·019	29·089	5th	28·934	19th	·155	67·4	81·4	−2·4	63·2	+6·7	72·3	+2·2	18·2	87·3	1st	55·8	4th	31·5
	Nagpur	1,025	29·010	+·036	30·012	29·062	27th	28·959	19th	·103	72·5	83·1	−1·0	63·9	+4·3	73·5	+1·7	19·2	87·8	29th	58·2	2nd & 3rd	29·6
Central Provinces, Central.	Chanda	634	29·399	?	29·998	29·462	2nd	29·345	8th	·117	70·9	84·1	?	64·7	?	74·4	?	19·4	87·5	26th	55·1	3rd	32·4
	Seoni	2,030	27·983	?	30·024	28·037	26th	27·923	20th	·114	66·8	78·3	−2·5	60·5	+5·3	69·4	+1·4	17·8	83·1	1st & 26th	52·9	3rd & 4th	30·2
	Jubbulpore	1,327	28·717	+·028	30·045	28·771	5th	28·663	21st	·108	65·4	79·7	−1·3	59·2	+6·9	69·5	+2·8	20·5	83·9	4 days	50·9	30th	33·0
	Saugor	1,762	28·281	+·030	30·051	28·350	5th	28·226	19th	·124	65·4	80·0	−0·7	59·2	+3·1	69·6	+1·2	20·8	86·3	1st & 2nd	51·4	30th	34·9
Central Provinces, East.	Raipur	970	29·084	+·051	30·029	29·131	27th	29·037	20th	·094	69·0	82·6	+0·3	64·3	+4·2	73·5	+2·3	18·3	87·3	25th	59·2	3rd	28·1
	Sutna	1,040	29·017	+·038	30·058	29·073	25th	28·970	18th	·103	64·9	77·2	−3·2	58·6	+5·8	67·9	+1·3	18·6	84·0	1st	50·3	30th	33·7
	Sambalpur	463	29·580	+·034	30·006	29·630	28th	29·539	19th	·091	71·2	83·8	+0·6	65·9	+3·6	74·9	+2·1	17·9	88·0	25th	60·2	28th	27·8
Hyderabad, North.	Aurangabad	?	28·175	?	?	28·257	4th	28·082	20th	·175	74·6	85·4	?	63·4	?	74·4	?	22·0	88·6	1st & 12th	55·6	5th	33·0
	Indur	?	?	?	?	?	?	?	?	?	72·3	82·4	?	64·6	?	73·5	?	17·8	85·9	22nd	54·3	2nd	31·6
	Bidar	?	27·842	?	?	27·921	27th	27·720	8th	·201	69·7	79·4	?	65·1	?	72·3	?	14·3	83·1	22nd	62·0	3rd & 6th	21·1
	Gulburga	1,502	28·492	?	?	28·560	28th	28·407	8th	·153	72·5	84·5	?	65·1	?	74·8	?	19·4	87·7	22nd	59·8	1st	27·9
Hyderabad, South.	Raichur	1,378	28·589	?	?	28·695	28th	28·448	25th	·247	73·2	85·2	?	68·4	?	76·9	?	16·8	87·6	23rd & 26th	65·1	28th	22·5
	Hyderabad (Deccan).	1,690	28·322	?	29·937	28·400	28th	28·242	8th	·158	70·3	80·8	?	65·4	?	73·1	?	15·4	85·9	1st & 30th	58·3	2nd	27·6
	Secunderabad	1,787	28·243	+·043	30·007?	28·321	28th	28·156	8th	·165	69·6	81·2	−1·7	65·4	+2·9	73·2	+0·6	16·1	84·6	3 days	57·1	2nd	27·5
	Khamamet	369	?	?	?	29·733	28th	29·575	8th	·158	74·9	84·3	?	68·8	?	76·5	?	15·5	88·0	1st	62·2	1st	25·8
10. West Coast		...	...	+·009	...	...	...	...	...	...	...	86·9	+0·8	73·6	+1·6	80·3	+1·2	13·3	...	...	...	...	20·5
Konkan	Bombay	37	29·965	+·018	29·942	30·046	3rd	29·882	14th	·164	77·1	87·0	+0·3	74·4	+1·2	80·7	+0·8	12·6	91·0	3rd	70·0	23rd	21·0
	Ratnagiri	110	29·864	+·028	29·913	29·952	28th	29·751	14th	·201	80·4	91·1	+0·7	72·2	+2·0	81·7	+1·4	18·9	95·4	5th	67·4	1st	28·0
	Mormugao	60	29·919	?	29·914	29·995	27th	29·792	14th	·203	76·5	87·1	?	73·1	?	80·1	?	14·0	91·0	11th	70·4	4 days	20·6
	Goa	23	29·968	+·009	29·905	30·046	27th & 28th	29·859	14th	·187	77·5	85·8	?	73·9	?	79·9	?	11·9	89·5	5th	71·0	3 days	18·5
	Karwar	44	29·920	+·010	29·896	30·011	25th	29·797	14th	·214	75·8	87·6	+0·8	72·8	+3·2	80·2	+2·0	14·8	91·3	11th	69·2	29th	22·1
Malabar	Cochin	10	29·942	+·006	29·880	30·029	28th	29·872	7th	·157	78·1	87·7	+1·0	74·6	+0·4	81·2	+0·7	13·1	92·3	2nd & 3rd	70·7	12th	21·6
	Calicut	27	29·921	−·004	29·878	30·015	28th	29·851	7th	·164	78·1	86·0	?	73·5	?	79·8	?	12·5	89·3	7th	70·6	24th	18·7
	Mangalore	65	29·880	−·005	29·878	29·967	28th	29·782	14th	·185	78·3	88·4	+1·3	74·0	+1·1	81·2	+1·2	14·4	92·8	5th	71·4	30th	21·4
	Trivandrum	198	29·748	?	29·878	29·821	16th	29·669	7th	·152	76·4	81·5	?	74·0	?	77·8	?	7·5	84·0	2nd & 3rd	71·5	16th	12·5
11. South India		...	...	+·018	...	...	...	...	...	...	...	82·5	−1·4	69·8	+1·0	76·2	−0·2	12·6	...	...	...	...	21·6
Madras, South.	Pamban	37	29·921	?	29·885	30·012	28th	29·853	7th	·159	78·7	83·4	?	75·4	?	79·4	?	8·0	88·3	8th	71·2	26th	17·1
	Tinnevelly	168	29·797	?	29·895	29·905	28th	29·703	7th	·202	77·1	86·6	?	73·8	?	80·2	?	12·8	93·2	7th	69·9	24th & 28th.	23·3
	Madura	447	29·508	+·011	29·897	29·612	28th	29·433	7th	·179	76·1	84·7	−2·8	72·1	−0·2	78·4	−1·5	12·6	90·9	7th	66·6	28th	24·3
Madras, South, Central.	Salem	940	29·046	+·011	29·937	29·148	28th	28·973	6th	·175	74·9	84·7	−2·0	69·6	+1·8	77·2	−0·1	15·1	91·4	5th	64·4	30th	27·0
	Coimbatore	1,348	28·615	+·010	29·922	28·729	28th	28·498	7th	·231	72·8	83·1	−2·5	68·5	−0·8	75·9	−1·7	14·6	92·4	8th	65·6	4 days	26·8
Coorg	Mercara	3,781	26·255	+·002	29·919	26·332	28th	26·174	14th	·158	63·6	73·6	−1·7	61·7	+1·8	67·7	+0·1	11·9	77·0	3 days	57·7	30th	19·3
	Chitaldroog	2,405	27·578	?	29·935	27·671	28th	27·494	14th	·177	70·0	79·7	?	64·3	?	72·0	?	15·4	83·6	1st	59·9	28th	23·7
Mysore	Bangalore Bazar	2,982	27·037	+·013	29·952	27·128	28th	26·957	7th	·171	67·9	77·1	−1·1	63·4	+1·3	70·3	+0·1	13·7	82·2	9th	57·9	29th	24·3
	Bangalore Fort	3,019	26·986	?	29·928	27·084	28th	26·907	7th	·177	67·9	77·7	−1·1	63·3	+1·3	70·5	+0·1	14·4	83·8	9th	57·9	29th	25·9
	Hsasan	3,091	26·926	?	29·938	27·012	28th	26·848	14th	·164	68·7	78·1	?	61·7	?	69·9	?	16·4	81·2	19th & 21st.	56·9	30th	24·3
	Mysore	2,518	27·471	?	29·931	27·565	28th	27·402	13th	·163	70·7	80·6	?	65·6	?	73·1	?	15·0	83·9	1st	60·9	28th & 30th.	23·0
Madras, East Coast, South.	Negapatam	31	29·934	+·019	29·894	30·033	28th	29·855	6th	·178	77·9	83·0	−0·6	74·3	+0·4	78·7	−0·1	8·7	87·2	3 days	72·7	7 days	14·5
	Cuddalore	12	29·956	?	29·897	30·053	28th	29·829	6th	·224	77·0	83·5	?	72·8	?	78·2	?	10·7	88·2	1st	71·2	4 days	17·0
	Trichinopoly	255	29·710	+·009	29·902	29·813	25th	29·625	6th	·188	76·4	84·3	−2·3	72·1	+0·5	78·2	−0·9	12·2	92·5	1st	67·4	23rd	25·1
	Madras	22	29·965	+·021	29·918	30·073	28th	29·712	6th	·361	77·5	84·4	−0·3	73·2	+	78·8	+0·2	11·2	88·0	1st & 4th	69·5	29th	8·5

I—*continued.*

in India, Burma, etc., in November 1893—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 to 30th November 1893.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
3	...	9	10	3	1	2	...	2	3·6	2·6	+ 38	79	·559	3·4	2	1·09	+0·91	0·67	0·35	+ 0·32	1·44	2·32	− 0·88	0·28	Khandwa	Central Provinces, West.
3	...	19	8	...	...	...	...	...	2·8	1·9	+ 47	77	·520	5·2	4	0·91	+3·09	5·01	0·39	+ 4·62	5·51	2·47	+ 3·04	2·80	Hoshangabad.	
7	6	13	3	1	...	...	...	...	4·2	3·0	+ 40	70	·561	3·3	5	1·09	+3·91	2·96	0·79	+ 2·17	8·79	3·81	+ 4·98	1·02	Nagpur.	
13	3	4	6	...	...	...	...	4	1·6	1·8	− 11	80	·609	3·4	5	?	?	1·64	?	?	4·20	?	?	0·42	Chanda	Central Provinces, Central.
...	...	16	10	3	...	1	...	...	1·6	2·6	− 38	82	·514	2·6	5	0·82	+4·18	2·82	0·42	+ 2·40	6·79	2·40	+ 4·39	1·07	Seoni.	
10	3	11	1	2	3	...	...	...	2·0	1·8	+ 11	82	·516	3·4	3	1·27	+1·73	1·94	0·51	+ 1·43	5·74	2·58	+ 3·16	1·30	Jubbulpore.	
11	...	4	12	3	...	...	...	...	1·7	2·3	− 26	75	·468	3·0	5	0·55	+4·45	1·65	0·46	+ 1·19	3·74	2·20	+ 1·54	0·52	Saugor.	
6	3	13	6	...	...	...	...	2	2·2	3·3	− 33	78	·589	4·2	3	1·82	+1·18	0·59	0·55	+ 0·04	1·60	3·02	− 1·42	0·20	Raipur	Central Provinces, East.
9	7	3	8	1	...	...	2	...	3·3	3·2	+ 3	81	·499	3·4	5	0·73	+4·27	1·32	0·28	+ 1·04	5·64	2·50	+ 3·14	0·49	Sutna.	
...	13	13	3	...	...	...	...	1	4·3	1·4	+207	82	·632	3·3	3	?	?	0·66	0·30	+ 0·36	3·07	2·70	+ 0·37	0·36	Sambalpur.	
9	...	3	11	6	...	...	...	1	4·7	?	?	65	·553	3·7	4	?	?	2·48	0·61	+ 1·87	3·50	3·57	− 0·07	1·31	Aurangabad	Hyderabad, North.
5	2	6	6	7	3	1	...	...	5·1	?	?	80	·641	4·4	4	?	?	1·51	1·06	+ 0·45	6·70	3·69	+ 3·01	0·81	Indur.	
...	1	5	9	9	5	1	...	...	7·2	?	?	80	·584	3·8	4	?	?	3·07	1·15	+ 1·92	13·13	4·80	+ 8·33	2·16	Bidar.	
5	1	6	8	7	2	1	...	...	7·7	?	?	75	·598	5·3	1	?	?	0·33	0·64	−0·31	11·17	3·70	+7·47	0·14	Gulburga.	
...	...	7	10	11	2	...	...	...	8·7	?	?	76	·626	4·5	2	?	?	0·31	1·00	− 0·69	4·63	4·83	− 0·20	0·15	Raichur.	Hyderabad, South.
9	..	3	7	9	2	...	...	...	4·8	?	?	84	·623	6·0	6	?	?	3·65	2·05	+ 1·60	8·72	5·43	+ 3·29	1·25	Hyderabad (Deccan).	
2	...	10	13	5	...	...	...	...	6·0	3·5	+ 71	81	·583	5·5	5	?	?	3·71	1·85	+ 1·86	8·50	4·55	+ 3·95	1·40	Secunderabad.	
24	1	2	2	1	...	...	...	...	4·6	?	?	83	·724	2·7	7	?	?	3·63	?	?	5·51	?	?	1·74	Khamamet.	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·76	3·48	+1·37	...	...	...	...	**10. West Coast.**	
...	1	11	14	2	1	...	...	1	9·8	9·9	− 1	78	·734	2·6	2	1·09	+0·91	1·63	0·58	+ 1·05	2·09	3·42	−1·33	0·91	Bombay.	Konkan.
...	1	3	11	10	4	1	...	...	5·1	9·0	− 43	64	·662	3·6	1	1·18	−0·18	0·29	0·51	− 0·22	3·90	4·51	− 0·61	0·18	Ratnagiri.	
...	1	9	15	1	1	...	...	2	7·0*	?	?	82	·755	2·0	5	?	?	4·07	?	?	13·36	?	?	1·87	Mormugao.	
5	...	23	2	...	...	...	...	...	3·5	?	?	74	·698	1·8	6	?	?	4·66	1·39	+ 3·27	12·47	6·25	+ 6·22	2·80	Goa.	
15	...	15	...	...	...	...	...	...	2·5	?	?	81	·721	2·1	5	3·82	+1·18	2·78	2·87	− 0·09	8·86	10·53	− 1·67	0·89	Karwar.	
2	4	17	5	1	1	...	...	...	4·9	?	?	82	·799	4·7	12	10·09	+1·91	5·95	7·34	− 1·39	13·11	21·07	− 7·96	1·70	Cochin	Malabar.
2	1	4	17	4	1	...	1	...	10·2	?	?	84	·802	5·6	9	8·44	+0·56	5·68	5·64	+ 0·04	17·55	14·80	+ 2·75	1·69	Calicut.	
3	...	4	16	7	...	...	...	...	2·8	3·0	− 7	81	·783	4·9	3	5·10	−2·10	3·19	3·29	− 0·10	14·55	10·77	+ 3·78	1·98	Mangalore.	
10	1	5	8	2	...	1	2	1	1·3	?	?	91	·831	6·4	16	?	?	14·63	6·24	+ 8·39	24·51	17·00	+ 7·51	2·79	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·36	7·19	+6·50	...	...	...	...	**11. South India.**	
...	12	4	2	4	1	1	...	6	12·5	?	?	87	·859	6·4	16	8·00	+8·00	14·33	9·55	+ 4·78	17·07	16·41	+ 0·66	3·10	Pamban	Madras, South.
...	11	3	...	...	...	3	2	11	4·0	?	?	84	·783	8·9	16	10·50	+5·50	16·93	8·48	+ 8·45	19·01	14·00	+ 5·01	2·75	Tinnevelly.	
8	11	7	...	...	...	...	...	4	2·2	3·8	− 42	84	·761	6·4	14	7·09	+6·91	9·80	4·83	+ 4·97	20·91	11·57	+ 9·34	3·14	Madura	
17	3	7	1	...	...	...	1	1	3·2	3·3	− 3	83	·724	7·6	9	7·36	+1·64	4·56	4·53	+ 0·03	14·44	11·95	+ 2·49	1·10	Salem	Madras, South, Central.
...	11	1	13	...	1	...	4	...	2·7	2·6	+ 4	89	·720	7·3	14	8·09	+5·91	10·92	4·15	+ 6·77	15·81	9·87	+ 5·94	3·58	Coimbatore.	
...	1	13	12	4	...	...	...	...	8·7	3·7	+135	93	·551	7·2	5	7·20	−2·20	1·98	3·55	− 1·57	8·07	13·24	− 5·17	0·89	Mercara	Coorg.
2	...	6	14	8	...	...	...	...	8·9	?	?	85	·626	6·4	7	?	?	4·05	?	?	7·90	?	?	1·60	Chitaldroog	
...	3	14	8	3	...	...	...	2	7·5	3·7	+103	87	·595	7·6	6	6·09	−0·09	3·05	3·69	− 0·64	11·75	11·38	+ 0·37	1·00	Bangalore Bazar.	Mysore.
...	1	10	15	3	...	...	...	1	7·2	?	?	89	·611	5·8	7	?	?	2·82	?	?	12·64	?	?	0·95	Bangalore Fort.	
1	1	11	13	4	...	...	...	...	4·1	?	?	86	·602	7·3	6	?	?	2·76	?	?	11·36	?	?	0·60	Hassan.	
...	2	9	17	1	...	1	...	...	10·2	?	?	84	·627	7·2	7	?	?	3·73	?	?	15·32	?	?	0·87	Mysore	
7	5	9	3	1	1	1	2	1	7·6	5·2	+ 46	88	·839	8·3	19	13·09	+5·91	27·96	17·88	+10·08	31·85	29·57	+ 2·28	6·17	Negapatam	Madras, East Coast, South.
...	10	6	2	1	...	1	2	8	3·2	4·2	− 24	94	·876	7·8	21	11·8	+9·2	35·03	15·22	+19·81	40·84	24·53	+16·31	4·48	Cuddalore.	
17	5	6	1	...	...	...	...	1	1·8	?	?	86	·772	8·1	15	8·45	+6·55	13·48	5·50	+ 7·98	24·91	11·71	+13·20	6·61	Trichinopoly	
...	11	9	5	...	1	1	1	2	6·9	6·8	+ 1	90	·852	7·8	20	13·00	+7·00	24·13	16·67	+ 7·46	28·94	29·29	− 0·35	6·30	Madras.	

* Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 203 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras, East Coast, Central.	Nellore	71	29·923	?	29·928	30·027	28th	29·823	7th	·204	77·5	83·2	?	73·2	?	78·2	?	10·0	86·7	4 days	71·1	3 days	15·6
	Masulipatam	15	30·007	+·030	29·957	30·086	28th	29·927	8th	·159	76·0	83·1	− 1·5	72·0	+0·6	77·6	−0·5	11·1	87·0	1st	68·6	7th	18·4
Madras, Central	Cuddapah	433	29·563	?	29·943	29·660	28th	29·477	7th	·183	75·9	85·1	− 1·6	70·8	+1·3	78·0	−0·2	14·3	90·0	2nd	67·5	4 days	22·5
	Kurnool	923	29·072	?	29·952	29·158	28th	28·981	13th	·177	74·1	86·0	− 1·0	67·0	+2·6	76·5	+0·8	19·0	90·2	1st	60·3	2nd	29·9
	Bellary	1,475	28·516	+·031	29·957	28·600	28th	28·429	13th	·171	72·2	84·9	− 1·6	66·9	+0·9	75·9	·0·4	18·0	88·4	3 days	63·1	28th & 29th	25·3
Madras, East Coast, North.	Rajahmundry	112	29·902	+·029	29·953	29·978	28th	29·824	8th	·154	75·2	84·9	− 2·0	70·4	+1·1	77·7	−0·5	14·5	90·0	1st & 9th	67·0	30th	23·0
	Coconada	26	29·998	?	29·959	30·070	28th	29·918	8th	·152	75·4	83·9	1·1	71·5	+1·3	76·2	+0·1	9·4	85·2	1st	67·5	29th	17·7
	Vizagapatam	31	30·001	+·030	29·971	30·071	27th	29·946	8th	·125	78·0	80·2	− 1·2	75·4	+2·5	77·8	+0·7	4·8	83·4	1st & 3rd	72·4	29th	11·0
	Gopalpur	21	30·041	?	30·002	30·100	28th	29·998	8th	·102	72·3	82·1	+ 1·1	68·7	−0·5	75·4	+0·3	13·4	86·2	2nd	63·1	28th & 29th	23·1
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Peshin	?	?	?	?	?	?	?	?	...	?	68·4	?	23·8	?	46·1	?	44·6	74·1	3 days	9·9	29th	64·2
	Quetta	5,502	24·797	+·049	?	24·861	5th	24·701	19th	·160	40·3	65·0	+1·0	29·3	−1·4	47·2	−0·2	35·7	70·2	8th	16·3	29th	53·9
Africa	Sherino	?	?	?	?	?	...	?	...	?	45·5	67·4	?	?	?	?	?	?	72·9	13th	?	...	?
	Kalat	?	?	?	?	?	...	?	...	?	43·3	?	?	26·0	?	?	?	?	?	...	14·7	27th	?
	Chaman	5,488	?	?	?	?	...	?	...	?	54·2	69·0	?	41·8	?	55·4	?	27·2	76·1	12th	27·1	27th	49·0
Northern India	Srinagar	5,204	25·055	?	?	25·129	5th	24·967	20th	·162	32·0	59·7	?	26·3	?	43·0	?	33·4	63·9	7th & 10th	20·1	29th & 30th	43·8
	Gilgit	?	26·101	?	?	26·280	30th	25·920	1st	?	44·4	64·0	?	40·9	?	52·5	?	23·1	70·3	25th	32·1	30th	38·2
	Cherat	?	25·865	?	?	25·961	5th	25·764	19th	·197	54·7	68·0	?	45·7	?	56·9	?	22·3	72·8	16th	39·1	28th & 29th	33·7
	Murree	6,344	23·959	+·036	?	24·043	5th	23·869	19th	·174	48·0	60·3	− 1·0	45·4	+0·2	52·9	−0·4	14·9	66·6	15th	38·0	21st	28·6
	Poo	?			Not recorded.						?	52·0	?	31·4	?	41·7	?	20·6	61·8	1st	23·0	28th & 29th	38·8
	Simla	7,224	23·207	+·022	?	23·285	5th	23·109	29th	·176	48·2	54·2	− 1·9	43·1	−1·3	48·7	−1·6	11·1	58·2	16th	36·1	21st	22·1
	Chakrata	7,052	23·326	+·008	?	23·403	5th	23·224	29th	·179	48·6	58·0	− 1·4	42·7	−0·5	50·4	−1·0	15·3	62·3	7th	36·1	21st	26·2
	Mussoorie	?	23·661	?	?	23·741	5th	23·552	29th	·189	48·0	55·6	?	45·0	?	49·3	?	12·6	59·7	1st & 3rd	37·0	21st	22·7
	Ranikhet	6,069	24·211	+·047	?	24·292	5th	24·109	29th	·183	49·4	59·9	− 2·5	45·3	−1·2	52·6	−1·9	14·6	64·6	1st	39·0	21st	25·6
	Gnatong	?	18·969†	?	?	19·052	9th	18·877	24th	·175	33·1*	39·3*	?	24·9*	?	32·1*	?	14·4	45·9	6th	19·6	29th	26·3
	Darjeeling	7,421	23·092	+·036	?	23·167	5th	22·995	29th	·172	47·2	53·7*	− 0·7	41·7	+0·3	47·7*	−0·2	12·0	58·1	11th	38·6	30th	19·5
	Gantok	?	24·603*	?	?	24·697	8th	24·511	29th	·186	53·9*	64·8*	?	47·0*	?	55·9*	?	17·8	68·2	11th & 18th	44·0	25th	24·2
Central India	Mount Abu	3,945	26·168	+·009	?	26·258	5th	26·044	20th	·214	63·5	69·2	− 4·3	57·4	+0·5	63·4	−1·9	11·8	75·1	4th	51·9	23rd	23·2
	Pachmarhi	3,528	26·536	+·045	?	26·651	5th	26·523	20th	·128	65·6	71·9	− 0·1	56·0	+4·8	64·0	+2·4	15·9	75·8	1st & 29th	48·2	3rd & 4th	27·6
South India	Wellington	6,200	24·278	+·024	?	24·360	28th	24·215	7th	·145	59·1	65·6	− 1·0	53·2	+0·3	59·4	−0·4	12·4	71·2	7th	41·7	30th	29·5
	Kodaikanal	?	?	?	?	?	...	?	...	?	56·1	61·4	?	50·9	?	56·2	?	10·5	67·5	8th	46·1	25th & 30th	21·4
	Kottagiri	?	23·862	?	?	23·905	16th	23·805	7th	·100	57·2	62·8	?	52·6	?	57·7	?	10·2	66·9	3 days	47·2	30th	19·7
13. Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ceylon	Colombo	40	29·915	+·004	29·881	29·994	28th	29·841	8th	·153	80·7	84·7	?	73·1	?	78·9	?	11·6	87·5	18th	62·0	27th	25·5
Persia	Meshed	?	?	?	?	?	...	?	...	?	43·1	60·6	?	37·2	?	48·9	?	23·4	73·6	4th	29·0	26th	44·6
	Teheran	?	26·202	?	?	26·445	25th	25·945	30th	·500	53·6	68·1	?	46·2	?	57·2	?	21·9	77·8	5th	34·0	26th	43·8
	Isphahan	?	?	?	?	?	...	?	...	?	45·7	66·3	?	36·6	?	51·4	?	29·7	74·4	5th	25·2	27th	49·2
	Bushire	14	30·108	?	30·079	30·255	28th	29·971	8th	·284	69·9	80·0	?	63·7	?	71·8	?	16·3	89·6	3rd	53·8	28th	35·8
	Jask	?	30·126	?	?	30·218	28th	30·001	1st	·217	74·5	83·7	?	66·5	?	75·1	?	17·2	87·1	8th & 17th	55·8	26th	31·3
Arabia	Muscat	?	30·088	?	?	30·209	28th	29·991	19th	·218	76·6	79·6	?	74·4	?	77·0	?	5·2	83·4	1st & 8th	70·1	28th & 29th	13·3
	Baghdad	?	29·660	?	?	29·795	24th & 26th	29·495	30th	·300	58·6	79·1	?	55·1	?	67·1	?	24·0	88·0	6th	40·0	26th	48·0
	Aden	94	30·003*	?	30·031*	30·073	6th	29·949	1st	·124	74·5*	86·9*	?	72·5	?	79·7*	?	14·4	90·3	10th	69·3	28th & 30th	21·0
Afghanistan	Perim	?	29·856	?	?	29·930	6th & 28th	29·781	1st	·149	79·3	85·1	?	75·5	?	80·3	?	9·6	87·8	1st & 28th	73·4	29th	14·4
	Kabul	?	?	?	?	?	...	?	...	?	47·6	60·1	?	45·6	?	52·9	?	14·5	60·2		38·9	29th	21·3
Arabian Sea Island.	Amini Devi	15	29·927	?	29·870	30·008	28th	29·822	14th	·186	81·5	85·3	?	75·8	?	80·5	?	9·5	88·5	19th	71·5	9th	17·0
	Minicoy	10	29·952	?	29·887	30·028	28th	29·860	3rd	?	80·3	86·1	?	?	?	?	?	?	89·9	18th	?	...	?
Africa	Zanzibar	73	29·985	?	29·985	30·016	18th	29·907	30th	?	79·4	82·6	?	75·4	?	79·0	?	7·2	85·0	10th	70·9	2nd	14·1

* Mean of 25 days. † Mean of 27 days.

I—*concluded.*

in India, Burma, etc., in November 1893—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 October to 30th November 1893.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
9	4	4	2	...	...	...	...	11	4·8	?	?	92	·871	49·6	17	9·4	+ 7·6	25·89	12·35	+13·54	31·22	23·76	+ 7·46	5·04	Nellore	Madras, East Coast, Central.
3	12	10	1	3	1	...	...	...	5·2	5·5	— 5	87	·789	5·6	9	5·91	+ 3·09	17·36	7·00	+10·36	30·01	15·44	+ 4·57	7·90	Masulipatam.	
...	1	3	7	10	4	2	...	3	?	?	?	85	·762	6·8	14	7·00	+ 7·00	8·44	5·41	+ 3·03	12·77	10·78	+ 1·99	1·98	Cuddapah.	Madras, Central.
19	...	...	...	...	...	...	6	5	?	?	?	80	·676	4·8	4	3·17	+ 0·83	2·91	0·98	+ 1·93	9·60	5·51	+ 4·09	2·26	Kurnool.	
1	..	6	11	9	2	...	...	1	4·0	3·3	+ 21	85	·672	7·0	5	3·82	+ 1·18	1·26	2·09	— 0·83	7·66	6·15	+ 1·51	0·42	Bellary.	
1	17	10	2	...	...	...	...	...	?	?	?	78	·693	5·5	9	2·80	+ 6·20	11·96	2·85	+ 9·11	14·83	8·78	+ 6·05	5·00	Rajahmundry	Madras, East Coast, North.
1	18	10	...		...	...	...	1	12·1	?	?	82	·721	3·9	12	4·3	+ 7·7	27·43	5·46	+21·97	37·99	14·35	+23·64	8·53	Coconada.	
...	17	4	...	...	...	...	1	8	1·1	2·4	— 54	76	728	4·9	8	7·18	+ 0·82	10·72	8·45	+ 2·27	15·84	18·75	— 2·91	3·63	Vizagapatam.	
...	16	...	...	...	...	...	...	14	9·3	7·0	+33	86	·685	2·5	3	4·33	— 1·33	5·63	5·06	+ 0·57	12·66	15·45	— 2·79	3·75	Gopalpur.	
..	...	...	...	...	...	..	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
				Not	recorded.				?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Peshin	Baluchistan.
29	...	...	...	1	...	...	...	...	1·5	2·7	— 44	50	·124	0·6	0	0·09	— 0·09	0	0	0	0	0·07	— 0·07	0	Quetta.	
...	...	1	1	24	4	...	...	...	2·9	?	?	46	·138	?	0	?	?	0	?	?	0	?	?	0	Shirinao.	
...	...	...	...	1	4	1	1	23	?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Kalat.	
18	...	...	4	4	3	1	...	...	7·4	?	?	36	·152	0·9	0	?	?	0	?	?	0	?	?	0	Chaman.	
18	5	2	...	2	2	...	...	1	0·8	?	?	92	·167	0·9	0	?	?	0	?	?	0·09	?	?	0	Srinagar.	Northern India.
				Not	recorded.				?	?	?	49	·139	1·3	0	?	?	0	?	?	0	?	?	0	Gilgit.	
5	12	1	...	1	1	...	1	9	8·8	?	?	41	·177	2·1	0	?	?	0	?	?	0	?	?	0	Cherat.	
3	4	...	1	5	...	..	1	16	6·2	5·1	+ 22	34	·115	1·2	0	0·73	— 0·73	0	0·84	— 0·84	1·22	1·95	— 0·73	0	Murree.	
11	2	4	6	3	1	1	...	1	?	?	?	?	?	1·5	1	?	?	0·45	?	?	2·03	?	?	0·45	Poo,¶	
17	4	2	2	2	3	...	...	...	3·5*	1·9	+ 84	43	·136	0·8	1	1·18	— 0·18	0·40	0·65	— 0·25	1·84	1·48	+ 0·36	0·32	Simla.	
2	...	9	15	2	...	1	1	...	6·1	4·5	+ 36	62	·210	1·1	2	?	?	1·27	0·79	+ 0·48	3·39	1·37	+ 2·02	0·74	Chakrata.	
...	4	4	8	5	1	...	1	7	?	?	?	64	·214	1·4	2	?	?	1·29	?	?	6·01	?	?	0·78	Mussoorie.	
27	1	...	1	...	1	...	...	...	1·0	1·2	— 17	72	·255	1·6	1	1·00	?	0·43	0·46	— 0·03	9·70	1·50	+ 8·20	0·32	Ranikhet.	
...	1	4	8	9	1	2	2	2	2·5‡	?	?	84‡	·167‡	2·2	6	?	?	1·85	?	?	9·98	?	?	0·47	Gnatong.	
4	2	16	4	...	1	2	...	1	3·2†	1·7	+ 88	81	·262	5·0	2	0.63	+ 1·37	0·38	0·42	— 0·04	5·87	5·46	+ 0·41	0·12	Darjeeling.	
...	7	...	2	1	3	9	5	2	2·2	?	?	77‡	·318‡	3·6	4	?	?	0·89	?	?	6·07	?	?	0·33	Gantok.	
11	2	11	4	2	...	...	...	...	4·8	3·7	+ 30	61	·346	2·9	4	0·18	+ 3·82	3·30	0·07	+ 3·23	4·06	0·94	+ 3·12	1·58	Mount Abu	Central India.
3	2	4	11	4	1	4	1	...	4·0	2·5	+ 60	72	·450	3·9	4	1·09	+ 2·91	2·28	0·58	+ 1·70	4·06	3·45	+ 0·61	1·08	Pachmarhi.	
14	5	7	2	1	1	...	...	...	2·7	2·7	0	84	·426	6·9	18	13·22	+ 4·78	15·64	9·55	+ 6·09	26·14	20·90	+ 5·24	3·32	Wellington.	South India
2	2	12	4	4	...	3	...	3	9·1	?	?	88	·395	7·8	20	10·50	+ 9·50	16·77	5·59	+11·18	25·83	16·46	+ 9·37	1·90	Kodaikanal.	
...	3	4	7	9	5	2	...	...	7·2	?	?	92	·435	7·4	21	9·80	+ 11·20	21·56	6·93	+14·63	36·98	17·15	+19·73	4·29	Kottagiri .	
...	...	..	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
6	7	7	1	3	2	2	...	2	5·9	5·8	+ 2	78	·829	6·3	17	?	?	18·02	13·33	+ 4·69	23·54	25·42	— 1·88	2·15	Colombo .	Ceylon.
22	...	...	4	1	...	...	...	3	?	?	?	?	?	3·2	2	?	?	0·67	?	?	0·84	?	?	0·53	Meshed .	Persia.
11	3	10	1	...	1	...	1	3	2·1	?	?	43	169	2·4	0	?	?	0·07	?	?	0	?	?	0·07	Teheran	
...	...	6	5	...	...	...	10	9	1·1	?	?	67	·202	1·5	0	?	?	0	?	?	0	?	?	0	Isphahan	
...	...	16	6	7	...	...	...	1	2·7	6·1	— 5·6	58	·425	?	1	?	?	0·73	1·53	— 0·80	0·73	1·53	—0·80	0·73	Bushire.	
...	17	2	3	4	3	...	..	1	9·8	?	?	54	·470	0·3	0	?	?	0	?	?	0	?	?	...	Jask.	
...	...	1	3	2	4	3	14	3	2·7	?	?	67	·616	0·4	0	?	?	0·02	?	?	0·02	?	?	0·02	Muscat .	Arabia.
7	6	3	2	2	4	3	...	3	?	?	?	63	·318	0·5	1	?	?	0·13	...	...	0·19	...	...	0·13	Baghdad.	
4	1	7	15	...	2	...	...	...	11·4†	11·6	—0·2	69	·590	0·6	0	?	?	0	0·11	— 0·11	0	0·11	— 0·11	...	Aden.¶	
...	...	3	14	13	...	...	...	...	18·1	?	?	62	·622	0·9	0	?	?	0	?	?	0	?	?	...	Perim.	
...	...	...	8	...	2	13	6	1	?	?	?	?	?	3·1	0	?	?	0	?	?	?	?	?	...	Kabul .	Afghanistan.
6	2	2	2	1	...	2	5	10	?	?	?	82	·877	4·0	9	?	?	6·12	?	?	?	?	?	2·11	Amini Devi	Arabian Sea Island.
1	1	2	1	5	2	3	6	9	8·3	?	?	81	838	5·5	10	?	?	6·49	?	?	11·59	?	?	2·47	Minicoy	
...	1	6	5	6	4	6	...	1	5·6	?	?	80	·797	6·2	13	?	?	11·54	?	?	15·32	?	?	2·00	Zanzibar .	Africa.

* Mean of 22 days. † Mean of 28 days. ‡ Mean of 29 days. ¶ Wind observations for 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 to 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	...	29·919	29·814	·105	29·866	+·023	29+ ·858	86·0	77·9	8·1	88·1	72·9	15·2	83·6	83·6	81·0	+0·5	74·3	77·6	77·2	76·4
	Rangoon	...	·993	·883	·110	·937	+·041	·915	86·6	70·4	16·2	89·3	64·4	24·9	81·2	83·4	76·6	−1·4	68·2	73·9	73·3	71·8
	Diamond Island	...	·986	·877	·109	·931	+·037	·907	84·2	76·1	8·1	87·6	73·1	14·5	81·9	82·1	79·2	+0·2	72·3	75·3	74·9	74·2
	Coco's Island	111	·883	·780	·103	·831	?	·874	84·1	77·1	7·0	85·4	75·1	10 3	82·0	81·3	79 5	?	69·8	75·1	74·5	73·2
	Akyab	...	30·029	·916	·113	·976	+·040	·939	84·6	71·0	13·6	87·2	65·2	22·0	79·3	82·1	77·6	−0·5	68·9	75·4	77·0	73·7
Assam.	Silchar	...	29·968	·840	·128	·900	+·026	·957	84·5	65·2	19·3	89·5	59·9	29·6	76·8	81·8	73·5	+0·9	63·8	70·7	72·1	68·9
	Sibsagar	...	·787	·639	·148	·712	+·036	1·010	76·8	60·0	16·8	81·2	52·7	28·5	69·1	76·1	67·3	−0·3	59·4	66·8	69·7	65·3
	Dhubri	...	·969	·836	·133	·897	+·041	·969	78·5	63·4	15·1	83·0	59·9	23·1	71·8	78·0	69·3	−0·8	63·0	67·9	69·9	66·9
Bengal and Orissa.	Chittagong	...	·971	·867	·104	·917	+·042	·953	83·2	66·9	16·3	86·7	61·2	25·5	78·3	79·9	74·7	+0·7	66·1	73·1	72·8	70·7
	Dacca	...	30·039	·923	·116	·977	+·029	·946	83·1	66·3	16·8	88·0	62·2	25·8	77·7	80·4	74·8	+0·3	64·4	70·6	70·5	68·5
	Calcutta (Alipore)	...	·059	·946	·113	·995	+·034	·962	80·5	65·6	14·9	84·0	58·7	25·3	76·2	79·1	72·6	+0·3	64·2	68·3	68·9	67·1
	Ditto (Chowringhee).	...	·066	?	?	?	?	?	82·2	65·8	16·4	84·9	59·9	25·0	77·9	?	?	?	64·7	69·9	?	?
	Saugor Island	...	·051	·939	·112	·989	+·038	·959	80·9	67·4	13·5	85·6	60·7	24·9	77·5	78·6	73·2	−0·2	65·1	71·3	70·2	68·9
	Burdwan	...			Imperfect.				81·5	65·8	15·7	84·4	57·6	26·8	74·9	79·6	73·2	−0·3	63·7	67·3	68·5	66·5
	Berhampore	...	·016	·902	·114	·952	+·040	·968	80·5	66·1	14·4	84·6	60·2	24·4	74·7	79·0	72·9	−0·3	63·4	68·6	69·2	67·1
	False Point	...	·057	·963	·094	30·009	+·036	·972	82·1	67·0	15·1	85·2	58·0	27·2	79·4	79·0	73·3	+0·3	66·2	71·7	70·4	69·4
	Cuttack	...	29·990	·879	·111	29·934	+·027	·957	84·3	68·2	16·1	87·7	59·6	28·1	79·7	82·9	75·7	+1·1	66·0	69·2	70·1	68·4
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	28·048	27·946	·102	27·993	+·028	·974	76·5	58·0	18·5	79·2	50·2	29·0	70·7	73·8	66·3	−0·4	54·0	61·7	62·0	59·2
	Patna	...	29·909	29·801	·108	29·850	+·033	·990	79·6	62·3	17·3	83·8	51·4	32·4	75·5	77·7	70·1	−0·2	59·9	66·2	66·0	64·0
	Darbhanga	...	·932	·813	·119	·868	+·048	·992	80·0	63·6	16·4	84·1	56·4	27·7	74·6	78·2	70·9	−0·6	62·2	67·6	68·2	66·0
	Allahabad	...	·785	·677	·108	·721	+·037	·997	80·6	58·8	21·8	88·2	47·5	40·7	74·1	78·6	68·3	−0·7	57·0	65·0	64·9	62·3
	Ghazipur	220	·884	·786	·098	·827	+·065	1·007	80·7	58·7	22·0	86·3	49·0	37·3	74·3	77·5	68·7	+0·7	56·7	66·1	66·3	63·0
	Lucknow	...	·729	·624	·105	·669	+·038	1·005	80·3	55·0	25·3	86·3	44·5	41·8	73·9	76·7	66·8	−1·0	53·7	63·1	63·8	60·2
Upper Sub-Himalayas.	Dehra Dun	...	27·829	27·750	·079	27·779	+·036	1·020	72·9	51·0	21·9	77·7	44·9	32·8	64·8	68·0	60·0	−2·6	48·6	56·9	57·8	54·4
	Roorkee	...	29·188	29·086	·102	29·125	+·042	1·002	78·4	50·2	28·2	84·8	40·1	44·7	68·7	73·9	62·5	−1·4	48·3	59·4	60·8	56·1
	Meerut	...	·347	·243	·104	·286	+·040	1·009	78·7	50·8	27·9	85·6	42·9	42·7	68·6	75·5	63·4	−1·4	49·5	57·5	59·8	55·6
	Lahore	...	·389	·295	·094	·332	+·034	1·037	80·4	49·0	31·4	87·1	38·7	48·4	69·4	77·7	62·6	+0·6	46·6	57·8	61·1	55·2
	Ludhiana	...	·277	·177	·100	·216	+·051	1·018	78·5	50·5	28·0	85·9	40·5	45·4	69·4	76·0	62·7	+0·1	49·0	58·7	60·7	56·1
Indus Valley and N.-W. Rajputana.	Peshawar	...	·000	28·895	·105	28·938	+·034	1·063	76·5	43·5	33·0	80·9	31·9	49·0	63·6	73·8	57·9	−0·1	39·9	53·1	57·1	50·0
	Mooltan	...	·689	29·597	·092	29·633	+·045	1·032	83·7	52·8	30·9	90·3	43·2	47·1	70·8	82·2	66·5	+1·4	49·3	58·5	64·6	57·5
	Jacobabad	...	·923	·808	·115	·856	+·041	1·004	86·0	49·2	36·8	92·5	37·3	55·2	76·1	82·8	65·4	+0·5	45·2	59·8	61·7	55·5
	Kurrachee	...	30·032	·948	·084	·986	+·025	·985	86·2	61·3	24·9	90·3	54·8	35·5	82·3	83·1	73·6	−0·2	53·8	67·4	67·9	63·0
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·658	28·564	·094	28·601	+·042	1·033	80·5	56·0	24·5	89·2	47·0	42·2	73·9	77·3	66·5	−1·0	50·9	60·0	61·7	57·5
	Ajmere	...	·485	·385	·100	·432	+·037	1·033	78·7	54·8	23·9	86·9	45·8	41·1	70·6	76·9	65·3	−0·2	53·0	60·3	63·6	59·0
	Deesa	...	29·584	29·483	·101	29·527	+·018	·952	86·1	61·9	24·2	93·4	54·1	39·3	78·9	84·1	73·9	+0·2	56·7	63·5	65·7	62·0
	Nowgong	...	·320	·214	·106	·260	+·031	·990	78 4	56·0	22·4	85·0	47·3	37·7	71 6	75·8	66 4	0	55·2	63·0	63·8	60·7
	Agra	...	·518	·437	·111	·482	+·040	1·007	81·1	57·2	23 9	88·2	47·2	41·0	73·0	79·3	68·3	+0·6	52·6	60·9	62·8	58·7
Deccan.	Belgaum	...	27·460	27·352	·108	27·401	+·004	·838	79·6	63·1	16·5	82·7	58·5	24·2	74·0	77·8	70·8	+0·1	61·4	66·0	66·5	64·6
	Sholapur	...	28·423	28·297	·126	28·358	+·018	·886	85·9	64·2	21·7	89·2	58·1	31·1	79·1	83·8	74·2	+0·6	61·4	67·3	67·7	65·5
	Poona	...	·167	·045	·122	·108	+·007	·878	86·2	63·4	22·8	89·8	53·8	36·0	78·5	83·8	74·5	+2·3	60·3	66·3	66·4	64·4
	Akola	...	29·118	·988	·130	29·049	+·020	·935	85·1	63·8	21·3	89·2	51·1	38·1	78·6	83·3	74·9	+2·9	62·0	69·8	70·5	67·4
	Buldana	2,132	27·891	27·795	·096	27·839	+·009	·911	81·2	63·5	17·7	84·5	59·6	24·9	76·3	78·4	72·5	+0·5	60·3	66·2	66·2	64·2

II.

at 89 Stations in India, Burma, etc., for November 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	Heaviest fall during the month.	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.				
·801	·865	·851	·839	—·108	83	75	74	77	— 7	6·6	6·5	6·6	+1·6	...	6	17	14	17	6	...	...	...	E	N 63° E	63	53	182	165	...	...	Port Blair	Burma Coast and Bay Islands.
·666	·742	·691	·700	—·098	89	69	60	73	— 6	1·6	1·6	1·6	—3·0	...	...	5	28	15	3	...	...	...	S 76° E	N 60° E	85	57	95	102	...	...	Rangoon	
·747	·792	·773	·771	—·035	83	73	71	75	— 5	4·1	5·7	4·9	+0·5	...	3	20	22	13	...	...	...	2	N 78° E	N 59° E	75	64	240*	195	...	...	Diamond Island	
·633	·782	·765	·727	?	68	71	71	70	?	2·6	2·4	2·5	?	...	...	27	27	4	...	...	...	...	N 72° E	?	88	?	?	?	...	...	Cocos Island.	
·683	·829	·863	·791	+·035	90	83	78	84	+ 4	2·9	2·0	2·5	—0·8	...	10	16	5	...	3	8	13	5	N 20° W	N 6° W	28	29	46	54	...	...	Akyab	
·579	·673	·662	·638	+·019	93	73	61	76	— 1	4·9	4·8	4·9	+1·5	51	...	2	4	...	...	2	...	1	N 67° E	S 77° E	5	30	3*	45	...	...	Silchar	Assam.
·506	·629	·643	·593	+·005	97	88	71	86	+ 2	2·3	3·1	2·7	—1·8	22	1	18	10	9	...	...	...	...	N 76° E	N 62° E	50	69	32	39	...	...	Sibsagar	
·564	·632	·625	·603	—·009	96	81	66	81	+ 4	2·3	1·9	2·1	+0·7	8	4	28	18	...	...	2	...	...	N 58° E	N 47° E	72	46	145	118	...	...	Dhubri	
·635	·747	·716	·700	+·011	96	77	70	81	+ 2	2·5	2·0	2·3	—0·5	1	10	11	8	3	2	2	8	15	N 5° W	N 20° W	38	53	56*	73	...	...	Chittagong	Bengal and Orissa.
·582	·656	·612	·617	—·008	90	69	59	73	+ 1	3·3	3·7	3·5	+1·3	10	15	8	1	3	3	2	3	15	N 14° W	N 17° W	42	38	61	47	...	...	Dacca	
·585	·591	·573	·583	—·009	92	65	58	72	— 3	2·6	3·9	3·3	+0·6	4	28	12	3	1	...	...	2	10	N 4° E	N 17° W	72	58	34	65	...	...	Calcutta (Alipore).	
·600	·628	?	?	?	94	66	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	*Nil*	*Nil*	,, (Chowringhee).	
·592	·687	·631	·637	—·001	88	73	64	75	0	4·6	5·5	5·1	+2·3	...	25	21	2	...	...	2	2	8	N 80° E	N 5° E	75	58	183	154	...	...	Saugor Island.	
·568	·571	·550	·563	+·017	89	66	54	70	+ 3	3·7	4·4	4·1	+1·4	4	25	19	1	2	...	...	1	8	N 12° E	N 7° W	73	69	38*	44	...	...	Burdwan	
·551	·622	·584	·586	+·023	85	72	59	72	— 2	3·3	2·9	3·1	+0·6	10	23	8	3	...	2	1	3	10	N. 4° W.	N 25° W	55	54	37	40	...	...	Berhampore	
·640	·675	·633	·650	+·024	90	66	64	75	+ 1	4·6	4·5	4·6	+0·9	...	18	21	18	...	...	...	...	3	N 41° E	N 22° E	77	57	151*	157	...	...	False Point	
·616	·575	·566	·586	0	89	56	50	65	— 3	3·4	3·9	3·7	+1·1	15	6	31	5	1	...	1	...	1	N 44° E	N 1° W	63	43	42	40	...	...	Cuttack	
·374	·443	·412	·410	+·057	76	59	49	61	+ 7	4·8	4·4	4·6	+2·2	4	19	10	8	2	...	2	1	14	N 7° E	N 42° W	57	55	119	104	...	...	Hazaribagh	
·492	·523	·490	·502	+·043	86	59	52	66	+ 4	2·9	2·8	2·9	+1·2	2	9	7	5	1	..	3	18	15	N 43° W	N. 64° W.	50	29	54	36	...	...	Patna	Gangetic Plain and Chota Nagpur.
·545	·584	·558	·563	+·031	93	68	58	73	+ 3	1·6	1·6	1·6	+0·8	16	5	2	1	1	1	8	16	10	N 76° W	S 79° W	43	55	40	44	...	...	Darbhanga	
·449	·502	·438	·463	+·056	90	60	46	65	+ 2	3·3	3·4	3·4	+2·3	3	6	6	9	5	1	3	7	20	N 20° W	N 65° W	32	21	47	34	...	...	Allahabad	
·441	·537	·492	·490	+·082	89	63	53	68	+15	2·4	2·7	2·6	+1·4	46	...	1	1	...	...	...	9	3	N 74° W	S 83° W	17	32	15	22	0·90	0·53	Ghazipur	
·399	·439	·422	·420	+·065	91	53	46	63	+ 9	2·4	2·8	2·6	+1·6	59	...	...	...	...	...	...	1	...	W	N 45° W	?	46	5	34	...	...	Lucknow	
·314	·369	·355	·346	?	84	60	53	65	?	1·5	2·4	2·0	+0·8	37	2	...	...	1	3	6	7	4	S 77° W	N 76° W	23	18	12	41	...	...	Dehra Dun	
·319	·386	·359	·355	+·019	87	56	44	62	+ 5	1·2	2·1	1·7	+0·8	47	1	...	5	...	...	...	4	3	N 18° W	S 36° W	5	28	?	27	...	...	Roorkee	
·341	·330	·311	·328	+·001	91	48	36	58	+ 3	1·4	1·8	1·6	+0·9	28	1	1	1	...	...	1	22	6	N 78° W	N 50° W	43	46	22	30	...	...	Meerut	Upper Sub-Himalayas.
·289	·329	·322	·313	0	83	46	34	54	+ 5	0·3	0·9	0·6	—0·6	39	5	...	3	1	1	...	5	6	N 36° W	N 47° W	15	22	19	33	...	...	Lahore	
331	3·7	·331	·340	+·035	89	50	37	58	+ 6	1·2	2·5	1·9	+0·3	46	7	...	...	...	1	...	6	...	N 45° W	N 44° W	13	36	15	22	...	...	Ludhiana	
206	·278	·262	·249	—·022	72	48	32	50	— 4	1·0	1·7	1·4	—0·6	41	3	4	3	2	1	...	3	3	N 22° E	N 73° E	10	15	36*	51	...	...	Peshawar	
·313	·329	·380	·341	—·011	77	43	34	51	— 3	0·5	0·6	0·6	—0·2	17	...	3	...	22	...	17	...	1	S 8° E	S 73° W	42	8	23*	33	...	...	Mooltan	Indus Valley and N.-W. Rajputana.
·253	·301	·272	·275	—·024	71	34	24	43	— 2	0·5	0·8	0·7	—0·4	55	...	...	...	4	...	...	...	1	S 45° W	N 12° W	5	16	21*	38	...	...	Jacobabad	
·321	·476	·485	·427	—·010	59	44	44	49	— 5	1·5	1·0	1·3	+0·2	...	1	31	2	...	...	11	13	2	N 6° E	S 81° W	28	18	292	190	...	...	Kurrachee	
·282	·342	·359	·328	+·041	69	44	40	51	+ 8	3·1	3·7	3·6	+2·6	9	3	20	4	4	2	5	6	7	N 25° E	N 12° W	25	39	37	70	...	...	Jeypore	
·387	·400	·427	·405	+·097	88	55	49	64	+18	2·6	3·2	2·9	+2·0	9	2	19	5	15	4	2	4	...	S 88° E	N 32° E	40	10	49	35	...	...	Ajmere	E. Rajputana, C. India and Guzerat.
·401	·385	·392	·393	+·114	71	42	37	50	+16	3·7	4·3	4·0	+2·6	...	...	25	21	5	2	2	...	...	N 75° E	N 33° E	70	31	204	181	...	...	Deesa	
·432	·467	·438	·446	+·118	95	61	51	69	+17	3·4	3·8	3·6	+2·3	4	12	8	20	1	...	1	6	8	N 33° E	N 10° W	43	32	27*	24	...	...	Nowgong	
·340	·375	·357	·356	+·044	71	48	37	52	+ 8	2·0	2·3	2·2	+1·6	...	1	9	...	9	2	4	...	35	N 65° W	N 81° W	27	36	67	60	...	...	Agra	
·529	·541	·513	·528	+·058	91	65	55	70	+11	5·6	4·8	5·2	+1·6	...	1	14	27	14	2	1	1	...	S 88° E	N 84° E	75	67	316	280	...	...	Belgaum	Deccan.
·518	·526	·481	·508	+·040	85	54	43	60	+ 7	4·1	6·1	5·1	+1·3	...	1	19	15	21	4	...	...	...	S 84° E	N 69° E	73	63	267*	191	...	...	Sholapur	
·496	·499	437	·478	+·055	83	52	38	58	+10	3·9	5·2	4·6	+1·8	5	...	3	25	19	2	3	1	...	S 68° E	N 83° E	67	45	187	138	...	...	Poona	
·543	·617	·578	·579	+.179	90	64	52	69	+17	4·0	5·1	4·6	+3·1	6	4	7	25	6	8	...	3	1	S 85° E	N 64° E	52	50	118	84	...	...	Akola	
·491	·522	·498	·504	+·100	83	58	53	65	+14	2·6	3·7	3·2	+0·7	...	4	14	15	15	4	4	3	1	S 84° E	N 69° E	48	59	155*	113	1·79	0·83	Buldana	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 Stations

Meteorological Province.	Station.	Height 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 to 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—*continued.*	Khandwa	...	28·982	28·862	·120	28·918	+·001	+·921	86·4	62·1	24·3	90·7	52·0	38·7	77·6	83·9	73·6	+3·5	59·8	67·6	69·9	65·8
	Hoshangabad	...	29·015	·898	·117	·953	−·011	·943	81·0	63·2	17·8	86·8	55·8	31·0	73·8	79·7	71·8	+1·3	59·9	66·0	68·2	64·7
	Nagpur	...	·014	·897	·117	·952	+·017	·939	83·1	64·0	19·1	87·6	58·2	29·4	77·6	80·7	73·8	+1·4	61·3	68·1	68·6	66·0
	Jubbulpore	...	28·726	·618	·108	·668	+·017	·969	79·5	59·2	20·3	84·1	50·9	33·2	70·6	77·1	68·8	+2·4	58·3	64·2	65·4	62·6
	Saugor	...	·296	·194	·102	·241	+·038	·972	79·7	59·2	20·5	86·1	51·5	34·6	73·4	77·6	68·9	−0·6	56·5	63·5	65·0	61·6
	Raipur	...	29·084	·969	·115	29·023	+·030	·939	82·5	64·4	18·1	87·4	59·0	28·4	77·3	80·8	73·9	+2·3	62·0	67·7	67·8	65·8
	Sutna	...	·025	·921	·104	28·966	+·031	·986	76·9	58·5	18·4	83·0	50·1	32·9	72·8	75·6	66·8	+0·8	56·4	63·4	64·0	61·3
	Secunderabad	...	28·240	·125	·115	·183	+·037	·920	81·1	65·0	16·1	84·6	57·1	27·5	74·9	78·1	71·9	−0·5	63·6	67·5	68·5	66·6
	Hyderabad (Deccan).	...	·333	·225	·108	·277	?	·919	80·7	65·4	15·3	86·0	58·5	27·5	75·9	77·7	72·3	?	63·9	68·8	68·7	67·1
West Coast.	Bombay	...	29·969	29·856	·113	29·907	−·003	·884	86·9	74·3	12·6	90·8	69·9	20·9	80·9	82·7	79·3	+0·3	69·5	73·5	75·5	72·8
	Ratnagiri	...	·870	·758	·112	·808	+·011	·855	91·0	72·2	18·8	95·2	67·4	27·8	86·9	84·6	79·7	+1·1	67·9	73·8	75·8	72·5
	Karwar	...	·922	·816	·106	·863	+·004	·839	87·6	72·8	14·8	91·5	69·1	22·4	82·5	84·2	79·0	+1·8	69·7	73·5	75·5	72·9
	Cochin	...	·949	·848	·101	·893	−·004	·830	87·6	74·6	13·0	92·4	70·7	21·7	82·7	83·8	79·8	+0·1	73·0	76·2	76·5	75·2
South India.	Salem	...	·049	28·936	·113	28·998	−·001	·876	84·6	69·6	15·0	91·2	64·4	26·8	79·5	79·9	75·5	−0·3	68·5	72·4	72·5	71·1
	Mysore	...	27·476	27·366	·110	27·421	?	·850	80·5	65·7	14·8	83·6	60·9	22·7	74·7	77·3	72·3	?	64·6	68·1	68·3	67·0
	Mercara	...	26·270	26·183	·087	26·232	+·008	·875	73·6	61·7	11·9	77·4	57·9	19·5	67·9	70·3	66·8	+0·2	60·4	64·2	65·5	63·4
	Bangalore (Fort)	...	·994	·892	·102	·946	−·020	·861	77·8	63·3	14·5	83·8	58·1	25·7	72·5	73·7	69·5	−0·3	62·5	67·4	67·4	65·8
	Hassan	...	·929	·830	·099	·883	?	·858	78·0	61·7	16·3	81·2	56·9	24·3	72·8	75·1	69·1	?	60·3	66·8	67·3	64·8
	Chitaldroog	...	27·583	27·478	·105	27·531	?	·887	79·7	64·3	15·4	83·0	59·9	23·1	74·1	77·1	71·4	?	62·1	67·8	67·9	65·9
	Trichinopoly	...	29·719	29·603	·116	29·666	+·007	·855	84·1	72·4	11·7	90·9	67·3	23·6	79·0	80·4	76·9	−1·4	70·7	74·4	74·4	73·2
	Madras	...	·969	·876	·093	·922	+·003	·874	84·3	73·1	11·2	87·9	69·4	18·5	80·7	80·3	77·9	−0·3	?	76·4	75·7	75·3
	Bellary	...	28·527	28·399	·128	28·463	+·020	·881	84·7	66·8	17·9	88·3	62·9	25·4	77·2	81·9	74·7	−0·5	65·4	70·7	71·2	69·1
	Vizagapatam	...	30·015	29·916	·099	29·961	+·031	·930	80·0	75·3	4·7	83·3	72·5	10·8	79·6	80·1	79·1	0	68·1	73·3	73·8	71·7
	Cocanada	...	·013	·907	·106	·960	?	·923	80·4	71·4	9·0	84·2	67·5	16·7	78·6	79·0	75·6	?	70·2	73·6	72·9	72·2
Hill Station, Baluchistan.	Quetta	...	24·802	24·720	·082	24·751	+·030	?	64·4	29·3	35·1	70·0	16·3	53·7	54·6	61·4	46·1	−0·7	27·1	42·1	45·7	38·3
Hill Stations, Northern India.	Leh	11,503	19·801	19·700	·101	19·752	+·025	?	47·3	19·2	28·1	50·9	12·0	38·9	35·6	43·1	32·9	+0·6	17·6	26·9	33·5	26·0
	Srinagar	...	25·071	24·915	·126	24·998	?	?	59·6	26·3	33·3	63·9	20·1	43·8	36·1	59·0	42·8	?	25·7	34·2	52·2	37·4
	Murree	...	23·988	23·947	·041	23·958	+·034	?	60·3	45·7	14·6	66·6	38·1	28·5	53·7	54·1	51·2	+0·6	36·0	42·3	43·5	40·6
	Chamba	3,005	27·084	26·988	·096	27·045	+·020	?	71·6	45·5	26·1	75·2	38·9	36·3	57·6	63·6	54·7	−1·5	41·7	48·2	52·4	47·3
	Kallang	10,087	20·874	20·787	·087	20·840	+·016	?	53·0	23·9	29·1	56·9	17·5	39·4	39·5	46·8	35·0	+1·6	21·2	29·4	32·0	27·5
	Simla (Ridge)	...	23·228	23·178	·050	23·193	+·032	?	54·1	42·9	11·2	58·2	36·1	22·1	50·7	49·7	47·2	−2·9	35·0	40·8	42·1	39·2
	Simla (Chapslee)	...	?	?	?	?	?	?	60·0	42·6	17·4	66·1	36·2	29·9	52·9	?	?	?	35·8	42·0	?	?
	Chakrata	...	·357	23·292	·065	·315	+·001	?	57·8	42·5	15·3	62·5	36·1	26·4	52·4	52·6	48·7	−2·0	38·2	44·8	45·9	43·0
	Ranikhet	...	24·227	24·166	·061	24·184	+·030	?	59·7	45·3	14·4	63·6	39·0	24·6	55·2	57·5	51·8	−2·3	42·7	48·6	50·0	47·1
	Katmandu	4,388	25·779	25·682	·097	25·727	+·019	?	68·1	48·5	19·6	73·9	42·2	31·7	58·4	63·6	57·2	−1·5	46·2	53·7	56·2	52·0
	Darjeeling	...	23·107	23·032	·075	23·066	+·034	?	53·2	41·6	11·6	58·1	38·6	19·5	51·0	50·6	46·9	−0·6	39·4	46·8	47·2	44·5
	Demagiri	?	?	?	?	?	?	?	87·4	67·6	19·8	90·9	61·1	29·8	77·7	80·0	75·7	+2·1	?	?	?	?
	Tura	3,943	?	?	?	?	?	?	77·9	64·3	13·6	83·2	60·4	22·8	73·4	74·8	70·4	?	?	66·5	67·6	?
Hill Stations, Central India.	Mount Abu	...	26·181	26·108	·073	26·138	−·003	?	69·2	57·4	11·8	74·9	51·9	23·0	66·7	66·5	62·6	−2·0	51·0	56·4	57·2	54·9
	Pachmarhi	...	·599	·515	·084	·553	+·032	?	71·7	56·0	15·7	76·3	48·1	28·2	68·2	68·6	63·9	+2·3	53·6	60·6	61·4	58·5
	Chikalda	3,642	·466	·374	·092	·416	+·017	?	72·6	60·7	11·9	76·7	57·0	19·7	68·6	70·0	66·8	+0·2	57·3	62·1	62·2	60·6

II—*continued.*

in India, Burma, etc., for November 1893—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction. Number of winds from											Wind steadiness.		Wind velocity.					
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 of the month.	Heaviest rainfall during the month.	Station.	Meteorological Province.
·499	·556	·560	·538	+·179	86	60	49	65	+17	3·9	4·4	4·2	+2·6	...	5	18	18	4	1	4	1	9	N. 53° E.	N. 63° E.	48	55	89	62	...	...	Khandwa	Deccan—*continued.*
·485	·546	·551	·527	+·139	82	66	55	68	+14	4·2	4·4	4·3	+2·9	13	3	25	19	...	...	...	...	...	N. 61° E.	N. 60° E.	70	66	71	48	...	...	Hoshangabad	
·517	·573	·553	·548	+·133	85	61	55	67	+14	3·4	4·4	3·9	+1·4	12	3	22	16	4	..	2	1	...	N. 66° E.	N. 60° E.	59	30	102	71	...	...	Nagpur	
·464	·504	·480	·489	+·121	95	64	53	70	+14	3·0	3·6	3·3	+1·6	2	6	32	7	2	7	...	1	3	N. 51° E.	N. 47° E.	60	25	50	41	...	...	Jubbulpore	
·429	·466	·465	·453	+·157	84	58	51	64	+21	3·3	3·8	3·6	+2·5	...	6	16	16	16	1	1	1	3	N. 79° E.	N. 20° E	59	47	37	56	...	...	Saugor	
·529	·554	·513	·532	+·087	86	60	49	65	+6	3·7	5·4	4·6	+2·4	11	6	24	16	1	1	...	...	1	N. 56° E.	N. 31° E.	67	57	53*	83	...	...	Raipur	
·435	·474	·457	·455	+·157	87	60	53	67	+21	3·0	3·5	3·3	+2·1	4	18	5	18	5	...	...	2	8	N. 37° E.	N. 21° W.	48	33	82*	82	...	...	Sutna	
·576	·585	·579	·580	+·092	91	69	61	74	+12	5·5	5·2	5·4	+2·2	...	...	16	33	11	...	...	...	...	N. 86° E.	N. 53° E.	87	75	149	85	...	...	Secunderabad	
·579	·620	·592	·597	?	92	70	64	75	?	6·1	4·2	5·2	?	3	...	13	15	26	3	...	...	...	S. 74° E.	?	73	?	115*	?	...	...	Hyderabad (Deccan,)	
·661	·732	·787	·727	+·034	78	69	71	73	+2	2·2	1·8	2·0	−0·2	...	2	14	14	3	3	1	9	14	N. 22° E.	N. 17° E.	28	59	239	236	...	...	Bombay	West Coast.
·633	·660	·777	·690	+·030	80	52	65	66	+2	3·4	4·9	4·2	+3·0	1	6	2	13	9	2	7	8	12	N. 14° W.	N. 1° W.	5	30	196*	199	...	...	Ratnagiri	
·689	·710	·771	·723	+·007	85	64	67	72	−4	2·5	3·4	3·0	+0·5	5	1	14	...	...	...	1	9	30	N. 34° W	N. 26° W.	63	46	57	?	...	...	Karwar	
·791	·817	·817	·809	+·001	92	73	71	79	−1	4·4	6·3	5·4	+0·9	1	7	11	2	4	2	2	22	9	N. 49° W.	S. 49° W.	38	24	118	?	...	...	Cochin	
·684	·702	·701	·696	+·043	94	70	69	78	+2	7·9	8·6	8·3	+3·3	10	7	23	8	1	1	4	1	5	N. 38° E.	S. 65° E.	47	22	76	74	...	...	Salem	South India.
·598	·608	·583	·596	?	94	71	63	76	?	7·5	7·3	7·4	?	...	2	19	30	4	1	1	1	1	N. 75° E	?	76	?	238*	?	...	...	Mysore	
·514	·562	·576	·551	+·010	93	82	78	84	+1	5·9	5·2	5·6	−0·9	...	1	22	27	6	3	1	...	...	N. 80° E.	N. 61° E.	78	49	207	90	...	...	Mercara	
·560	·616	·602	·592	+·064	96	78	75	82	+9	7·2	6·2	6·7	+1·8	...	2	24	25	8	...	...	...	1	N. 73° E.	N. 60° E.	82	63	171*	90	...	...	Bangalore (Fort)	
·510	·588	·581	·560	?	92	73	67	78	?	6·6	7·0	6·8	?	1	2	21	24	8	1	...	...	...	N. 75° E.	?	80	?	98*	?	...	...	Hassan	
·534	·613	·569	·572	?	88	73	62	74	?	6·5	6·7	6·6	?	...	2	18	30	10	...	...	...	...	N. 81° E.	?	84	?	183*	?	...	...	Chitaldroog	
·730	·791	·773	·764	+·030	92	80	75	82	+6	8·1	8·8	8·5	+1·5	19	9	24	4	1	...	...	...	3	N. 35° E.	N. 31° E.	57	53	45	100	...	...	Trichinopoly	
?	·855	·829	·841	+·083	?	82	81	88	+8	7·8	7·6	7·7	+1·6	...	24	21	7	3	1	2	1	1	N. 30° E.	N. 24° E.	68	59	168	159	...	...	Madras	
·611	·673	·630	·638	+·093	92	73	59	75	+13	7·7	7·3	7·5	+2·8	2	...	14	28	16	...	...	...	...	S. 88° E.	N. 80° E.	82	56	94	78	...	...	Bellary	
·585	·752	·762	·700	+·040	66	74	74	71	+5	4·8	5·4	5·1	+1·7	...	25	27	2	2	...	...	...	4	N. 23° E.	N. 75° E.	82	56	25	53	...	...	Vizagapatam	
·723	·762	·731	·738	?	93	78	74	82	?	4·1	5·0	4·6	?	...	6	36	16	2	...	...	...	...	N. 55° E.	?	89	?	306*	?	...	...	Cocanada	
·128	·143	·147	·139	−·011	77	35	28	47	−1	0·5	1·1	0·8	−0·4	30	1	...	1	1	...	...	12	15	N. 63° W.	N. 41° W.	38	46	36*	60	...	...	Quetta	Hill Stations, Baluchistan.
·085	·078	·117	·093	+·008	81	38	42	54	+4	2·0	4·0	3·0	−0·9	1	1	...	...	...	20	30	8	...	S. 36° W.	S. 4° W.	84	24	71	46	*Nil.*	0	Leh	Hill Stations, Northern India.
·134	·178	·318	·210	?	94	83	63	80	?	0·8	1·5	1·2	?	56	...	...	...	1	1	1	...	1	S. 23° W.	?	3	?	20*	?	...	...	Srinagar	
·114	·153	·177	·148	−·010	37	38	41	39	−3	1·1	1·4	1·3	−1·6	4	4	...	2	16	6	7	3	18	S. 53° W.	S. 46° E.	15	17	151*	138	...	...	Murree	
·225	·233	·269	·240	−·036	73	49	46	56	+5	1·7	2·2	2·0	−0·2	51	1	1	1	...	...	1	1	4	N. 37° W.	S. 65° E.	8	14	101*	87	*Nil.*	0	Chamba	
·094	·082	·059	·078	−·023	72	34	20	42	−8	1·6	2·9	2·3	−1·3	...	1	1	2	8	12	20	11	5	S. 37° W.	S. 53° W.	55	65	45	29	*Nil.*	0	Kailang	
·124	·156	·191	·155	−·024	45	43	54	47	−1	1·6	2·9	2·3	+0·4	22	3	2	...	...	26	2	2	3	S. 11° W.	S. 89° W.	35	32	84	?	...	...	Simla (Ridge)	
·143	·157	?	?	?	52	41	?	?	?	1·5	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	0·43	0·32	Simla (Chapslee)	
·188	·221	·241	·217	+·021	69	57	61	62	+7	1·4	2·4	1·9	+0·3	3	...	5	9	4	2	3	34	...	S. 81° W.	S. 55° W.	35	28	137	109	...	...	Chakrata	
·250	·276	·285	·271	+·025	82	64	60	69	+11	2·1	3·3	2·7	+1·4	35	...	2	5	2	1	3	10	2	S. 74° W.	S. 52° W.	10	35	22	30	...	...	Ranikhet	
·290	·361	·369	·341	+·004	85	74	63	74	+3	4·1	4·2	4·2	+2·1	5	2	...	13	1	1	...	31	7	N. 77° W.	N. 81° W.	38	60	15	?	0·37	0·26	Katmandu	
·220	·279	·290	·264	−·002	83	75	78	79	−1	5·2	6·6	5·9	+1·7	5	2	15	7	1	1	9	10	8	N. 20° W.	N. 61° W.	18	8	74	40	...	...	Darjeeling	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	6	21	...	...	...	30	3	N. 47° W.	N. 59° W.	15	34	?	?	0·08	0·08	Demagiri	
?	·575	·596	?	?	?	70	69	?	?	3·0	3·8	3·4	−0·1	...	2	9	5	12	13	16	2	1	S. 13° E.	S. 17° E.	40	47	?	?	*Nil.*	0	Tura	
·307	·342	·365	·338	+·107	65	54	58	59	+22	3·0	3·4	3·2	+1·9	1	8	21	10	12	3	2	1	2	N. 69° E.	N. 73° E.	53	20	116*	90	...	...	Mount Abu	Hill Stations, Central India.
·391	·447	·467	·435	+·134	85	66	68	73	+19	4·7	5·2	5·0	+3·0	4	7	10	20	4	3	4	3	5	N. 67° E.	N. 52° E.	37	46	97*	60	...	...	Pachmarhi	
·438	·490	·475	·468	+·100	82	71	66	73	+17	5·0	5·7	5·4	+3·2	35	6	1	3	5	10	...	...	..	S. 47° E.	N. 3° W.	17	21	129	114	2·82	1·22	Chikalda	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89 Stations

Meteorological Province.	Station.	Height of barometer 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 to 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 Stations, South India.	Wellington	...	24·284	24·207	·077	24·246	+·004	29+ ?	65·5	53·2	12·3	71·0	41·6	29·4	61·5	61·1	58·2	−0·3	52·6	58·0	58·2	56·2
	Muscat	...	30·101	30·017	·084	30·059	?	?	79·3	74·3	5·0	83·4	70·1	13·3	78·6	79·1	76·7	?	65·6	70·3	70·8	68·9
Extra India.	Aden	...	29·998	29·884	·114	29·945	+·032	·971	87·1	72·5	14·6	90·3	69·3	21·0	79·5	85·3	79·4	+0·9	65·6	70·5	70·7	68·9
	Perim	...	·881	·751	·130	·820	?	?	84·9	75·5	9·4	87·3	73·4	13·9	82·0	81·3	79·3	?	68·9	71·4	70·6	70·3
	Minicoy	...	·962	·869	·093	·915	?	·850	85·9	79·2	6·7	89·9	76·6	13·3	82·4	82·2	81·3	?	73·9	76·8	76·5	75·7
	Zanzibar	...	·988	·901	·087	·945	?	·945	82·6	76·1	6·5	84·6	72·9	11·7	80·5	82·0	79·2	?	74·5	74·9	75·2	74·9

II—*concluded.*

in India, Burma, etc., for November 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	Heaviest rainfall during the month.	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.				
·394	·447	·458	·433	+·019	96	82	85	88	+4	7·3	7·4	7·4	+0·6	2	7	10	5	22	13	1	...	...	S. 61° E.	S. 41° E.	52	53	62	56	...	...	Wellington	Hill Station, South India.
·525	·636	·649	·603	?	61	65	65	64	?	0·7	0·4	0·6	?	...	2	7	19	2	1	1	6	22	N. 9° E.	?	33	?	67	?	...	...	Muscat	
·543	·631	·560	·578	−·072	68	63	46	59	−8	0·9	0·3	0·6	−1·5	11	...	4	27	8	8	...	1	...	S. 73° E.	E.	60	65	265	286	...	...	Aden	Extra India.
·619	·627	·606	·618	?	70	57	57	61	?	0·4	0·1	0·3	?	...	...	1	22	36	1	...	...	...	S. 62° E.	?	92	?	516	?	...	...	Perim	
·777	·849	·839	·828	?	78	77	77	78	?	5·7	6·3	6·0	?	2	6	1	5	7	3	6	13	16	N. 18° W.	?	10	?	199	?	...	...	Minicoy	
·834	·796	·784	·806	?	93	77	72	80	?	6·4	4·1	5·3	?	...	3	13	8	14	3	11	1	3	S. 68° E.	S. 6° W.	32	9	153*	104	...	...	Zanzibar	

* Corrected.

G. I. C. P. O.—No. 97 Meteor.—17-3-94.—400.

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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93.—5,500.

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.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93—5,600.

Litho., S. I. O., Calcutta.

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

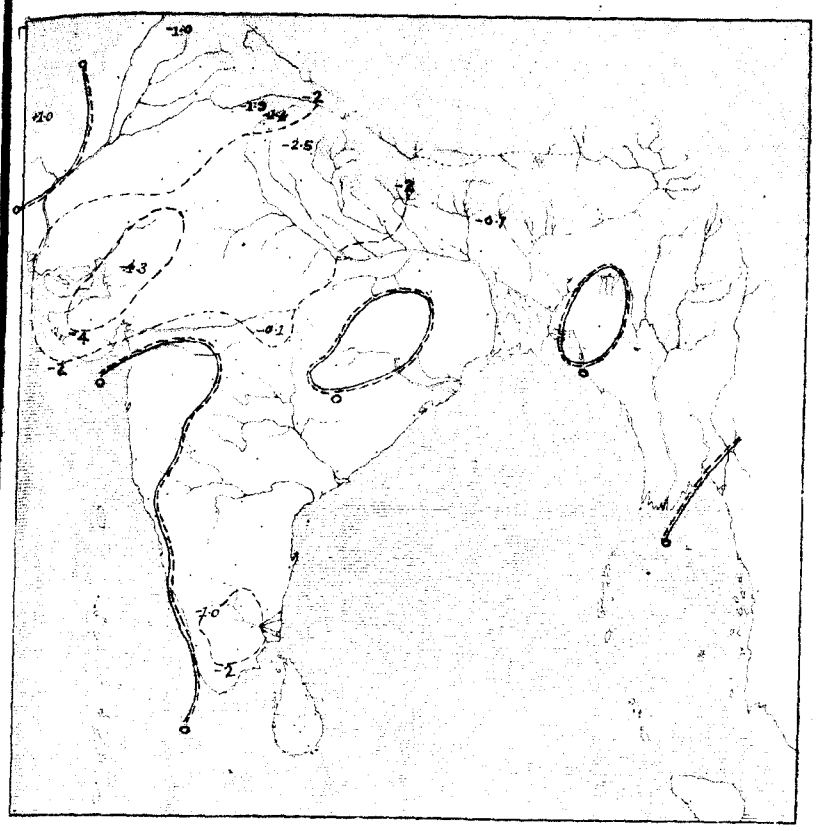
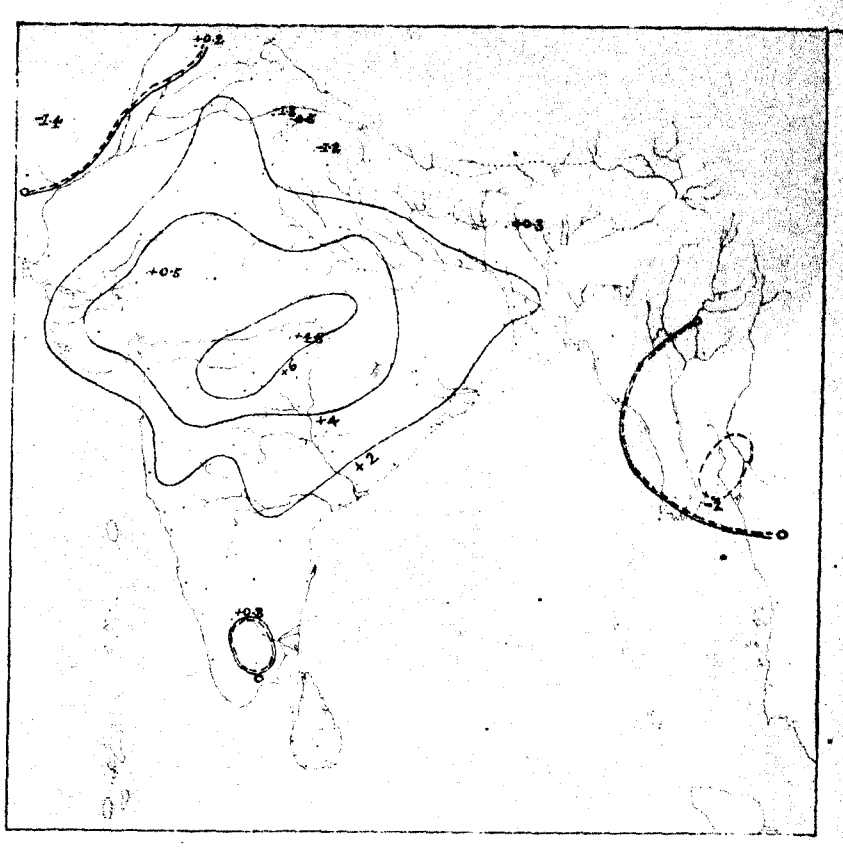


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

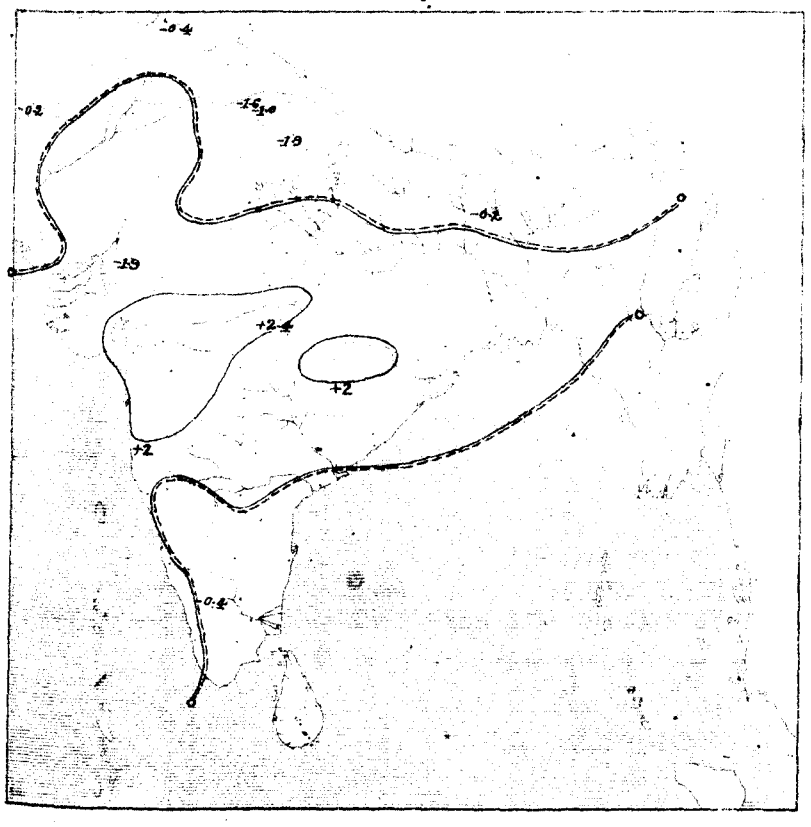
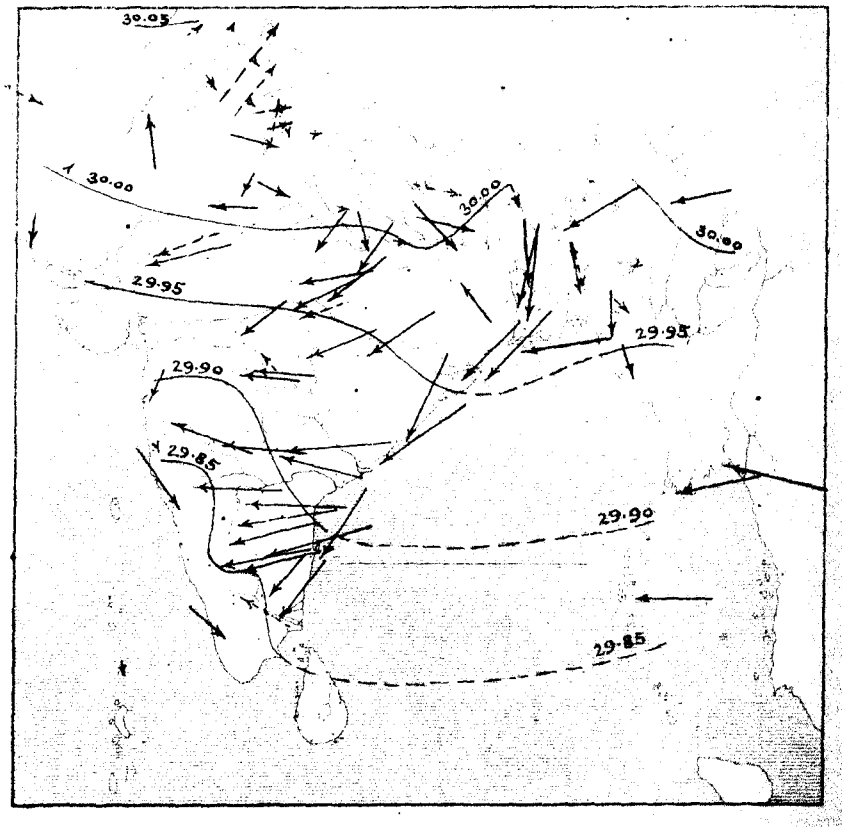


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF NOVEMBER 1893.



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. 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. 199, Wr., I.—April 93.—800.—199 R., May 93.—5,500.

Litho. S. I. O. Calcutta.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma 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 51 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 districts 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 figures.

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

Reg. No. 190, Wr., I.—April 93.—500.—190 R., May 93 —5,500

Litho., S. I. O., Calcutta.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, DECEMBER, 1893.

INTRODUCTION.

THIS Review of the weather in India during the month of December 1893 is based on observations taken daily at 8 A M. at 207 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 89 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 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 1893.

The most important feature in the meteorology of the month of December is the final withdrawal of south-west humid winds from the south of the Bay and the extension of 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 to 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 apparently originate sometimes in Baluchistan and Persia and sometimes in North-Western India itself. They generally give very little rain if they occur during the early part of December. In the latter part of December and in January and February these depressions and storms of the cold weather frequently give moderate general rain to Northern India and moderate to heavy snow to the hill districts. They usually march in an easterly direction

across Northern India. When they enter India from Baluchistan they frequently give rise to the formation of secondary or subsidiary depressions in the Punjab. These subsidiary storms are usually much deeper and more intense than the primary storms and give heavy rain in the Punjab, and stormy weather and heavy snow in the hills.

The ordinary features of the weather in December are the same as those of November over by far the greater part of the country. As a rule fine weather with light winds and clear skies obtains. Pressure is generally highest in the Punjab and Central Rajputana, and in Upper Assam at the eastern extremity of the Himalayas. It is lowest in the south of the Bay and the south-east of the Arabian Sea, and the range of pressure over the Indian area averages a quarter of an inch.

December 1893 was unusually free from disturbed stormy weather in the Bay of Bengal. It was also even more settled than usual in Northern India. Pressure was in general excess at the commencement of the month, the excess being larger and more marked in Upper Burma and Assam than elsewhere. Some local showers were received in Upper Burma during the first two or three days of the month. Fine clear weather prevailed at this time over the whole of Northern and Central India and fine weather with light cloud in Southern India. Pressure increased locally in Assam and Upper Burma on the 5th and was abnormally high in that area for some days, thus giving steep gradients favouring strong dry cool northerly winds in Burma. Temperature was hence much below the normal and the air unusually dry and skies free from cloud in Assam and Burma during the first fortnight of the month. The mean daily temperature of Burma was 4° below the normal at the beginning of the month. The deficiency increased until the 10th when it was 8° in amount. Temperature increased rapidly on the 13th and 14th, and on the 15th was only 1° below the normal.

Weather became showery in the South Coromandel coast districts on the 6th, and occasional showers more or less local in character continued to be received until the 20th, when the rains of the retreating south-west monsoon ceased, and the humid south-west monsoon current of 1893 withdrew finally from the Bay. The rainfall during this period was moderate in amount at the coast stations south of Madras, but decreased rapidly into the interior, and was small and insignificant at a distance of 50 miles and upwards from the coast. This rainfall accompanied a moderate reduction of temperature in the centre and south of the Peninsula where temperature was more or less in defect from the 10th to the 23rd. This reduction of temperature was most marked on the 15th and 16th when the mean temperature of the day was from 4° to 6° below the normal over the South Deccan and Central Madras.

During the whole of this period from the beginning of the month up to the 23rd fine weather with clear or lightly clouded skies hadprevailed in North-Western and Central India. The temperature conditions had varied to some extent in response apparently to actions and conditions obtaining in Baluchistan and Afghanistan. Temperature was generally above the normal by small to moderate amounts. It increased rather rapidly on the 23rd in North-Western India. An area of deficient pressure formed in Sind on that day and advanced eastwards to the foot of the Central Himalayas on the 27th, and filled up on that day. It gave moderate cloud but practically no rain to the districts over which it passed. A warm wave of moderate intensity preceded it and on the 25th temperature was above the normal over the whole of Northern India. A larger disturbance was in process of formation in Sind and Baluchistan at this time and temperature increased rapidly in the North-West Frontier districts on the 25th and 26th. Thus, the mean temperature of Jacobabad for the 24 hours preceding 8 A.M. of the 26th was nearly 13° above the normal. The disturbance began to give rain and snow to Baluchistan on the 29th. It was now a shallow depression which drifted rather slowly across Northern India during the next five or six days and was as usual preceded by a well-marked warm wave. Sind, the Punjab and Rajputana received fairly general and light to heavy rain on the 30th and 31st. The rainfall was irregularly distributed. It was very heavy in the Gujranwala district of the Punjab, and moderately heavy in Kerowlee and Bhurtpore in Rajputana. The following temperature variation data indicate what may be termed the crest of this warm wave (*i.e.*, the line or belt of greatest excess of temperature) from the 29th to the 31st:—

Date.	Station.	Variation of mean temperature of 24 hours preceding 8 A.M. of date from the normal.
29th	Quetta	+14°0
30th	Quetta	+12°4
	Jacobabad	+ 6°7
31st	Ajmere	+10°0
	Bickaneer	+ 7°3

The most important features of the meteorology of the Indian area during the month may hence be summarized as follows:—

(1) The prevalence of unusually settled weather during nearly the whole month over the whole land and sea area.

(2) Unusually cool and dry weather in Burma during the whole month, but more especially between the 5th and 14th. This accompanied a large local excess of pressure in Upper Burma, and strong northerly winds in the Irrawaddy valley.

(3) The retreating south-west monsoon was unusually feeble, and finally withdrew from the Bay about the 20th. The month was hence unusually

dry in Southern India and the rainfall largely below the normal of the month in South and Central Madras, Mysore, Coorg and Travancore.

(4) Weather was unusually fine and settled over Northern India from the 1st to the 23rd, when it began to be disturbed by a succession of cold weather disturbances. The second of these commencing on the 28th gave an unusually heavy burst of rain to North-Western India on the 30th and following three days.

Pressure.—The mean pressure of the Indian land area was ·029″ above the normal. Pressure was, relatively to this general state, in local defect in North-Western India, Bihar and Central India. The local deficiency was greatest in the West Punjab, Sind and Cutch, where it ranged between ·02″ and ·04″ in amount. Pressure was in local excess in Burma, North-Eastern India and the Peninsula. The excess was large in Assam (and perhaps Upper Burma), moderate in the Deccan and small in amount in the remaining districts of increased pressure. The most important abnormal feature of the month was the large local excess of pressure in Assam and Upper Burma.

Temperature.—The mean day or maximum temperature of the month was below the normal in Burma, North-Eastern India and the Deccan (or in the areas of greatest local excess of pressure) and above it over the remainder of India. The deficiency was small and unimportant except in Assam and Burma, in which it ranged between 2° and 4°. The mean day temperature was from 2° to 4° above the normal in the area of greatest local deficiency of pressure, *i.e.*, in Sind, Cutch and West Rajputana.

The mean night temperature of the month was lower than usual in Burma, Assam, Bengal and the Peninsula. The deficiency was large in Burma and the Assam Valley, and exceeded 5° in Central Burma at Tounghoo(−7°·0) and Thayetmyo (—5°·8). The mean minimum temperature was above the normal over the whole of North-Western and Central India. The excess was more than 3° over the greater part of the Punjab, Cutch and Baluchistan and was absolutely greatest at Lahore (+4°·4) and Mooltan (+4°·3).

The preceding remarks have shown that both the day and night temperatures were above the normal in North-Western and Central India. Hence also the mean daily temperature of the month was in excess over the whole of that area. The excess was more than 2° in amount in the South Punjab, North-West Rajputana, Guzerat, Kathiawar, Cutch, Sind and British Baluchistan, and more than 3° in the areas represented by the following stations :—
Bhuj (+3°·8), Quetta (+3°·8), Rajkot (+3°·4) and Mooltan (+3°·1).

Both the day and night temperatures were more or less considerably below the normal in Burma and North-Eastern India and the Deccan and hence also the mean daily temperature was in moderate defect over the whole of these areas. The deficiency in Burma and Assam averaged nearly 4° and was greatest at Thayetmyo (−4°·4) and Tounghoo (−5°·5).

The following table gives a summary of the variations of the mean temperature conditions of the month from the normal in the eleven meteorological provinces of India :—

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

Winds.—Unusually strong and steady dry and cool northerly winds prevailed in Burma during the month, and more especially during the first fortnight. Winds were very light and unsteady in the South-East Punjab and the western and central districts of the North-Western Provinces and the air movement from the west down the Gangetic Plain was abnormally weak and irregular. Hence the influence of these westerly winds in Bengal was very feeble and winds in that area were less westerly or more easterly than usual in December. The air motion in the North Bombay coast districts was very unsteady and lighter than usual, probably owing to similar conditions in North-Western India. Winds were normal in character in the Central Provinces, Deccan and Madras. The larger abnormal features of the mean air movement over India during the month were hence directly related to the contrasted pressure conditions in North-Western India and North-Eastern India and Burma.

Humidity.—The air was abnormally dry in Assam, Sikkim and Burma and at Port Blair. In Lower and Central Burma the amount of aqueous vapour present in the air was probably from 25 to 40 per cent. less than usual. The air was on the other hand more humid in the Gangetic Plain, Punjab, Central India and the Central Provinces. The increase was not large, and was on the whole most pronounced in Baghelkhand and the north-eastern districts of the Central Provinces, and at the Himalayan Hill stations. The increased humidity was mainly, if not entirely, due to the feebleness of the westerly winds of the month in North-Western India.

Cloud.—Skies were unusually free from cloud in Burma and North-Eastern India. This abnormal deficiency of cloud was very marked in Upper Assam and Burma. Thus at Sibsagar, the mean cloud amount of the month was only 0·3, the normal being 4·4. Skies were more clouded than usual in the central and western districts of the North-Western Provinces, the Punjab, Sind and Rajputana. The excess was greatest in the Punjab and Sind, and at Quetta in Baluchistan. There was, on the whole, less cloud than usual in the peninsula. The deficiency was very marked in Mysore, Coorg and Malabar and was small and unimportant in Madras and the Deccan. There was a remarkable local excess of cloud at Bombay and Ratnagiri in the Konkan where the air was, on the other hand, abnormally dry. The variations of the amount of cloud at the hill stations were the same in character as at the neighbouring plains stations. The mean cloud amount of the month was, for example, largely below the normal at Darjeeling and Wellington, and was in moderate excess at the hill stations in North-Western India.

The following table gives the variations of the absolute and relative humidity and the cloud amount from the normal in ten meteorological provinces :—

Meteorological Province.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
	"		
Burma Coast and Bay Islands	—·099	—6	—0·7
Assam	—·050	—3	—2·0
Bengal and Orissa	—·006	—2	—0·6
Gangetic Plain and Chota Nagpur	+·027	+3	—0·8
Upper Sub-Himalayas	+·025	+5	+1·1
Indus Valley and North-West Rajputana	+·013	—2	+1·1
East Rajputana, Central India and Guzerat	+·030	+5	+0·2
Deccan	+·002	+3	—0·5
West Coast	—·064	—8	+0·1
South India	—·014	—1	—0·7

Rainfall.—December 1893 was an unusually dry month over the greater part of India. No cyclonic storms formed in the Bay, as was also the case in December 1892. It is almost certain that the absence of storms in both months was directly related to the prevalence of unusually strong northerly winds in Burma and the east of the Bay. Madras received occasional showers, chiefly during the second and third weeks of the month. This rainfall was confined to a narrow belt along the South Coromandel coast. It diminished from an average of 7 or 8 inches at the coast stations to less than an inch at a distance of 40 miles from the coast. The rainfall of the month was hence considerably below the normal in Southern India.

Burma and Assam had light local showers during the first week of the month. The average total rainfall of the month in these areas was, however, less than the small normal of the period.

A cold weather storm which commenced to affect Baluchistan on the 29th, and North-Western India on the 30th, gave a moderately heavy burst of rain to the whole of North-Western and Central India, between the 30th December and the 3rd of January. The fall was large in Baluchistan and some parts of the Punjab and Rajputana on the 30th and 31st, and hence the rainfall of the month was in considerable excess (more especially when compared with the normal) in these areas.

The following table gives a summary of the rainfall data of the eleven meteorological provinces for the month of December :—

Meteorological Province.	Rainfall.		
	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	0·04	1·06	—1·02
Burma Inland	0·11	0·22	—0·04
Assam	0·12	0·55	—0·43
Bengal and Orissa	*Ni*	0·33	—0·33
Gangetic Plain and Chota Nagpur	*Nil*	0·29	—0·29
Upper Sub-Himalayas	0·06	0·45	—0·38
Indus Valley and North-Western Rajputana.	0·43	0·08	+0·26
East Rajputana, Central India and Guzerat.	0·04	0·18	—0·16
Deccan	*Nil*	0·58	—0·58
West Coast	0·06	0·90	—0·83
South India	1·32	3·19	—1·61

Atmospheric Pressure.

The mean 8 A.M. pressure of the whole of India for the month was ·029″ greater than the normal. The local anomalies or variations from the mean condition were larger than usual. Pressure was relatively to the general state in defect to a moderate extent in North-Western India, Bihar and Central India. The deficiency was greater than 0·02″ in the area including the following stations :—

District.	Station.	Variation of the mean pressure of the month from the normal.	Pressure Anomaly.
		"	"
Punjab	Peshawar	+·007	—·022
	Rawalpindi	+·008	—·021
	Dera Ismail Khan	+·001	—·028
Sind	Jacobabad	—·006	—·035
	Hyderabad	—·007	—·036
	Kurrachee	—·006	—·035
Cutch	Bhuj	—·005	—·034

Pressure was locally in excess, or the pressure anomalies were positive, in the Peninsula, Bengal, Assam and Burma.

They were greater than ·02″ in two areas for which data are given below :—

AREA.	STATION.	Variation of the mean pressure of the month from the normal.	Pressure anomaly.
		″	″
Assam and Upper Burma.	Sibsagar	+·073	+·044
	Silchar	+·056	+·027
	Dhubri	+·030?	+·001?
	Tounghoo	+·050	+·021
South Deccan	Bellary	+·052	+·023
	Secunderabad	+·049	+·020

The increased pressure over the Indian area accompanied increased temperature over the whole area except Burma. As usually occurs under this combination of conditions pressure was even more largely in excess at the higher level stations than at the plain stations. The following gives pressure variation data and vertical pressure anomalies of six pairs of stations :—

Hill and plains stations.	VARIATION FROM NORMAL OF		Vertical pressure anomaly.
	Mean temperature of month.	Mean pressure of month.	
	°	″	
Quetta	+3·8	+·048	+·054
Jacobabad	+2·5	−·006	
Leh	+2·5	+·043	+·028
Lahore	+2·5	+·015	
Murree	+2·5	+·024	+·017
Peshawar	+1·1	+·007	
Simla	+0·4	+·017	−·006
Ludhiana	+0·9	+·023	
Mount Abu	+0·8	+·030	+·011
Deesa	+2·2	+·019	
Pachmarhi	+0·7	+·038	+·008
Hoshangabad	−0·2	+·030	

It has already been pointed out that the increased pressure in December accompanied increased temperature both at the level of the plains and at the hill stations. The following gives data in support of this :—

Meteorological Province.	VARIATION FROM NORMAL OF	
	Mean pressure of month.	Mean temperature of month.
	″	°
Burma Coast and Bay Island	+·040	−3·4
Assam	+·065	−2·4
Bengal and Orissa	+·036	0
Gangetic Plain and Chota-Nagpur	+·023	+0·5
Upper Sub-Himalayas	+·023	+1·2
Indus Valley and North-West Rajputana	+·002	+2·3
East Rajputana, Central India, and Guzerat	+·024	+1·5
Deccan	+·033	+0·4
West Coast	+·030	+0·2
South India	+·032	−0·9
Mean for whole India	+·031	−0·1
Hill stations of Northern and Central India	+·027	+0·5

The above data establish that in December 1893 increased pressure accompanied on the average of the whole of India increased temperature and that the increase in both elements of observation, was as marked at the hill stations, up to elevations of 11,000 feet as at the plain stations. They also indicate that there is no direct relation between the two variations, but the pressure variations appear to have been due to a general excess of pressure, together with local variations of excess or defect depending upon and inversely related to the variations of temperature. It is hence evident that the variations of pressure which occasionally occur over the whole Indian area are not invariably related to the temperature conditions of the area, but depend in part at least upon other conditions, the nature of which can as yet only be surmised.

The chief abnormal features of the mean distribution of pressure of the month were —

1st.—General excess of pressure in the Indian area moderately large in amount.

2nd.—Local deficiency of pressure in North-Western and Central India, small in amount except in the North-West Frontier districts, where it ranged between ·02″ and ·04″ in amount.

3rd.—Local excess of pressure in North-East India and Burma and the peninsula. The excess was large and important in Assam and Upper Burma.

4th.—Pressure was in excess at the level of the hill stations as compared with the neighbouring plains stations, the excess being most marked over Baluchistan.

Barometric depressions of the month.

The month of December 1893 was singularly free from disturbed weather and the barometric movements that occurred during the month were on the whole regular pressure oscillating in periods ranging from three to seven

days and averaging four days. The following table gives a statement of the mean daily change of pressure and of the character of the changes, day by day, during the month :—

DATE.	Character of change of pressure.	Average amount of change of pressure.
		"
1st	General rise	+·079
2nd	Irregular changes	0
3rd	General fall	−·038
4th	Irregular and small	+·002
5th	General rise	+·044
6th	Ditto	+·011
7th	General fall	−·038
8th	General rise	+·014
9th	Ditto	+·032
10th	General fall	−·014
11th	Variations small and irregular	+·001
12th	Ditto ditto	−·009
13th	Ditto ditto	−·004
14th	General fall	−·034
15th	General rise	+·044
16th	Ditto	+·012
17th	Variable changes	−·005
18th	General fall	−·030
19th	General rise	+·023
20th	Variable changes	*Nil*
21st	General rise	+·020
22nd	Rise	+·019
23rd	General fall	−·057
24th	Ditto	−·062
25th	Variable changes	−·006
26th	General rise	+·012
27th	Variable changes	+·002
28th	General rise	+·016
29th	Ditto	+·028
30th	General fall	−·032
31st	Ditto	−·048

It will hence be seen that fairly regular oscillatory changes of pressure occurred during the month over the Indian area, the period of the oscillation averaging four days. Weather was fine throughout the month (excepting the last three days) over nearly the whole of India and hence these oscillations were of little or no importance.

At the commencement of the month pressure was more or less largely above the normal over the whole area. The excess was very pronounced in Upper Assam and Upper Burma, and was least on the west coast of India.

No change of importance occurred in the relative distribution of pressure during the first twelve days of the month, the chief feature being a large excess of pressure in North-Eastern India and Burma as compared with the Peninsula and North-Western India. These conditions were, on the whole, most strongly marked on the 6th. The following table, giving the variations of pressure on that day in different parts of India, illustrates the peculiar features of the pressure distribution at this period :—

PROVINCE.	Mean variation of pressure from normal.	Pressure anomaly.
	"	"
Burma	+·129	+·036
Assam	+·161	+·068
Bengal	+·101	+·008
North-Western Provinces and Oudh	+·114	+·021
Punjab	+·098	+·005
Rajputana and Central India	+·084	−·009
Sind and Guzerat	+·063	−·030
Central Provinces and Berar	+·087	−·006
Deccan	+·083	−·010
Bombay	+·070	−·023
Madras	+·071	−·022

As might be expected from the pressure distribution during this period from the 1st to the 13th, strong northerly winds prevailed in Burma, which gave it unusually cool and dry weather.

Pressure on the 9th and 10th increased to some extent in the Deccan relatively to other districts and from the 11th to the 18th the pressure distribution was characterized by the following features :—

(1) Pressure was steadily in excess over the whole Indian area.

(2) It was most largely in excess in two areas, one including Upper Burma and Assam, and the other the Deccan, Central Provinces and Central India. The excess in Upper Burma and Assam was less marked than during the first ten days of the month.

(3) The excess was least on the Malabar Coast and in Sind and Baluchistan.

During this period from the 11th to the 18th temperature was below the normal over the whole of India by moderate amounts, except in North-Western India, where it was in slight to moderate excess. On the 18th this area of increased temperature began to extend eastwards and southwards and on the 22nd temperature was more or less above the normal over the whole of India, except South Madras. Pressure decreased to some extent over India during this period, but continued in excess in Upper Burma and Assam and the Deccan relatively to the remainder of India.

Pressure decreased rapidly over the whole of India during the next 48 hours, and on the morning of the 24th it was for the first time during the month in general defect. The deficiency on that day ranged from ·025″ in Upper Burma to ·13″ in Upper Sind and the West Punjab. The pressure variations hence indicated the formation of an area of deficient pressure in Sind and the South-West Punjab on the 24th. This area of deficient pressure was apparently transferred eastwards during the next three days. It lay over Central Rajputana on the 26th, and the North-Western Provinces and Bihar on the 27th. The barometric changes associated with its formation and advance were too small to give rise to a well-defined low pressure area, and hence the daily weather charts do not show its existence. It is, however, plainly indicated by the pressure abnormals and its advance was accompanied by the appearance of moderate cloud in Rajputana and the Gangetic Plain as is shown by the following data :—

Province.	Actual average cloud amount at 8 A.M. on					
	23rd.	24th.	25th.	26th.	27th.	28th.
Sind	0·7	4·3	4·0	4·0	4·0	4·3
Rajputana	1·0	2·3	1·2	6·5	6·5	4·5
North-Western Provinces and Oudh	0·6	1·5	2·5	0·5	2·5	2·5
Bihar	0	1·0	0	1·2	0·8	1·0

No rain fell during this slight disturbance.

Pressure gave way briskly in Baluchistan on the 28th and briskly to rapidly in Sind and Baluchistan on the 29th, and on the morning of the 30th a depression of moderate intensity lay over Sind.

The changes of pressure in North-Western India and Baluchistan which immediately preceded and accompanied its appearance indicate that it formed in Sind and Baluchistan and this is confirmed by the Baghdad and Bushire observations, which establish that no large depression crossed Persia during the last ten days of December. The depression intensified slightly during the day and covered nearly the same area on the 31st as on the 30th. It formed the chief feature of the weather of the first four days of January during which it gave a moderately heavy burst of rain to the greater part of North-Western India. A full account of the storm will be given in the monthly review for January 1894.

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

The following is an abstract of the information relating to the snowfall in the Himalayan and Afghan mountain areas during the month of December received up to date.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Kurram.*—Snow fell on the Safed Koh down to 9,000 feet on the 6th. It was 9 inches in depth on the higher peaks. The snowfall is reported to have been later in commencing and smaller in amount than last year.

(2) *Bannu.*—Snow fell on the 31st on Shoidar Hill (10,000 feet high) and Gabar Hill, both in independent territory. The depth of the snowfall was reported to be from 1½ feet to 4 feet.

(3) *Kabul.*—Snow fell on the 16th (slight), 17th (slight), 30th (slight), and 31st (moderately heavy). The total fall during the month was 12¾ inches. The mountains surrounding Kabul were covered with snow at the end of the month. The fall was general over the whole country, and the depth of snow at the end of the month varied from 1 foot to 18 inches over the greater part of the Kabul and Ghazni districts.

(4) *Hazara.*—November and December were unusually fine and free from rain. Rain and sleet fell on the 31st at Abbotabad and snow is reported to have fallen on the higher ranges. The weather during the month was much colder and drier than usual, although there was more cloud.

II.—KASHMIR HIMALAYAS.

(1) *Gilgit.*—The Agency Surgeon writes on the 2nd January: "The winter has as yet been remarkable for the small amount of snowfall. The passes were open till the middle of December, whereas in average years they are closed by snow in the middle of November."

(2) *Leh* (*Ladakh*).—Snow fell on the 7th, 8th and 14th of December. The snow descended to 10,500 feet in the Leh Valley on the 14th. The snow line was lower than usual in October and November in consequence of the unusual precipitation in September. In the middle of December the snow line was about 11,000 feet on northern slopes and 12,500 feet on southern slopes of the mountains. On the 15th, the Taglang pass (17,000 feet high) on the road to Lahoul was reported open only with 4 feet of snow

lying. The Kardong Pass, 7 miles north of Leh on the Yarkand road, was closed by the snowfall on the 14th.

The general opinion of the inhabitants of the district is that snow has fallen earlier and more largely than usual, and a severe winter is anticipated.

III.—PUNJAB HIMALAYAS.

(1) *Kulu.*—There were slight falls of snow on the 7th, 8th and 9th, and on the 26th and 28th in the Kulu tahsil, and on the 8th and 9th in the Plach tahsil. The snow line descended to 9,000 feet. The weather was unusually cold and cloudy during the month. The following gives the reported depth of snow on the higher passes at the end of the month with corresponding data for December 1892 for comparison :—

Tahsil.	Name of pass.	Reported depth of snow at the end of December.	
		1893.	1892.
Kulu	Rotang	4 feet.	4½ feet.
	Hamta	3½ "	3 "
	Chandarkhani	3 "	4 "
	Barsai	3 "	1½ "
	Bojadhar	2½ "	2 "
	Lohri Achri	2½ "	¾ foot
	Bhubu	1½ "	2 feet
	Pastari	1 foot.	1½ "
	Majhang	½ "	1 foot
Plach	Srikhand	5 feet.	3 feet
	Chul	6 inches	*Nil*
	Maghin	5 "	...
	Tikar	5 "	...
	Dundku	6 "	...
	Nohnu	3 "	...
	Jalori	3 "	...
	Raghopur	4 "	...
	Lamri	6 "	...
	Sakiran	6 "	...
	Suphakam	2 feet.	...
	Gargarasan	3 inches.	...
	Basleo	6 "	...
	Plahch	9 "	...
	Tirath	3 feet.	... ?

(2) *Poo (Upper Sutlej Valley).*—Snow fell on the 23rd of November and on the 8th, 9th, and 14th of December. The fall of 23rd November was very heavy and extended over the whole of the Upper Sutlej Valley. Snow was lying at an elevation of 16,000 feet to a depth of 4 feet on the hills facing south and to a depth of 6 feet on the hills facing north. There was much more cloud than usual.

(3) *Kilba (Upper Sutlej Valley)* —The following gives a statement of the height to which the snow line descended at different dates of the month, due to the falls of the month :—

Month.	Date.	Height of snow line.	Remarks.
		Feet.	
December	7	11,000	Slight fall.
	8	10,800	
	9	7,000	
	13	11,000	Slight fall.
	14	9,500	
	25	11,000	Slight fall.
	26	9,500	

IV.—NORTH-WESTERN PROVINCES HIMALAYAS.

(1) *Almora.*—Malla Danpur. Snow fell on the 18th and 27th. The fall was 2 feet in amount on the peaks of Pindari and Pankua. Weather was colder and more cloudy than usual.

Malla Byans, Chandars and Darma.—The whole of these districts had a moderately heavy fall of snow (averaging 1½ feet) on the 25th and 30th December. Snow was lying to a depth of 3½ feet on the lower passes and to a depth of 12 feet on the passes of Simulekh, Somalekh, and Nuwedhara.

The winter is stated to have begun earlier than usual and the snowfall up to date is reported to be above the average.

Brief Summary of snowfall information—The information is limited but shews that there was probably less snow in Baluchistan and Afghanistan than usual in November and December. It was somewhat greater than usual in the Western Himalayas, more especially in the higher and more interior ranges and was also apparently larger in Kumaon than in Kashmir. The indications however generally pointed to a larger snow fall than usual, more especially on the higher ranges. There is no information for the Eastern Himalayas, but the conditions in Upper Burma and Assam seem to point to a more severe winter than usual in that area.

Summary of Special Storm Reports.

There were even fewer local storms than usual in December. Hailstorms and thunderstorms are of occasional occurrence during the cold weather storms that affect Northern India during the month. The following storms were reported during the month:—

31st December, 9 P.M.—Hailstorms lasting about 20

minutes occurred in the villages of Konchriakheri, Raoti, Piplia, Hanri, Mobali, and Titrode in the Sitamau State. Severe damage was inflicted on the opium crop.

31st.—Thunderstorms at Allahabad, Lahore and Pachpadra.

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 moderate north-easterly winds obtained in all parts of the Arabian Sea, except in the extreme south-east, where winds were very irregular in direction. In the Gulf of Aden the winds were south-easterly and fresh to strong in force. In the Persian Gulf light south-easterly winds were blowing. Weather was fine over nearly the whole area; but showers were falling in the extreme south-east and in the Persian Gulf. The wind force averaged 2·8 at 8 A.M. of the 1st. During the next 24 hours winds strengthened considerably in the Persian Gulf and at the same time shifted round to northerly directions; but weather continued unsettled. On the other hand the air movement decreased rapidly in the Gulf of Aden and the winds began to shift round to east. An important change also occurred in the extreme south-east of the sea, where moderate north-easterly winds set in and the weather became fine. The air movement averaged 2·9 in force on the morning of the 2nd. Winds increased in the centre and south-west of the sea during the next 24 hours, and the mean strength of the winds had increased to 3·2 on the morning of the 3rd. Showers had ceased in the Persian Gulf and fine clear weather prevailed generally. Winds increased steadily in strength during the next three days, more especially in the Gulf of Aden, and on the morning of the 6th fresh to strong easterly winds were blowing. Six vessels out of the ten in that area had winds of force 5 and upwards. Weather was still fine and clear over the whole area. The average strength of the winds was 3·7 on the morning of the 6th. There was on this day a well marked tendency for the winds in the south-east of the sea to become irregular and unsteady, and for the weather to become showery and rainy. Winds fell off rapidly in force in the Gulf of Aden during the next 24 hours and increased to some extent in the west of the sea. The mean force for the whole area had diminished to 3·5 on the morning of the 7th. Light irregular winds prevailed in the south-east and weather was squally and rainy in that area. No change occurred during the next 24 hours, except in the area of unsettled rainy weather in the south-east, where winds increased rapidly. The average force of the winds further increased to 3·7 on the morning of the 8th. Conditions remained unchanged until the morning of the 11th, except that winds diminished steadily in strength, more especially in the east and centre of the sea, and the wind force for the whole of the Arabian Sea decreased to an average of 2·7 at 8 A.M. of the 11th. This decrease in the air movement over the east and centre of the sea was, however, only temporary, as winds increased again in force in this area during the next 24 hours, and the mean air movement over the whole of the Arabian Sea was 3·5 on the morning of the 12th. Fine settled weather continued to prevail everywhere, except in the extreme south-east, where weather was, as hitherto, showery. On the morning of the 13th, fine weather was re-established in that area. Important changes were at this time in progress in the Persian Gulf, where southerly winds had set in and the weather become cloudy. The unsettled conditions in the Persian Gulf developed steadily during the next 24 hours, and on the morning of the 15th the winds were blowing freshly and exhibited an irregular cyclonic circulation. Heavy rain was falling at the head of the Gulf. Weather continued more or less unsettled with southerly winds until the 21st, when the winds shifted round to north-west and the weather improved. Over the Arabian Sea and the Gulf of Aden a steady increase in the wind force had occurred during this period, and the mean wind force averaged 3·8 on the morning of the 21st. Winds remained practically steady during the next two days, and the mean wind force on the morning of the 23rd was 3·8, as on the 21st. No change occurred in the weather in any part of the sea during the next two days. Winds, however, decreased, and the average force of the winds was 2·5 on the morning of the 25th. The changes during the remaining days of the month were insignificant, except in the Persian Gulf, where conditions were feebly disturbed from the 26th to the 28th.

Bay of Bengal—At the commencement of the month light to moderate normal north-easterly winds prevailed generally over the Bay area and northerly winds on the Coromandel coast. Weather was everywhere fine except to the south-east of Ceylon, where light squalls were experienced. The mean air movement for the whole Bay area as determined from the wind data of 37 vessels amounted to 3·4. Conditions remained unchanged during the next 24 hours over nearly the whole area. Squally weather, however, set in over a small area to the south and south-east of the Nicobars. No further change occurred until the evening of the 4th, when the winds began to fall off in strength in all parts of the Bay. The decrease in the air movement was on the whole most rapid in the north,

where on the morning of the 5th very light winds were blowing. The mean air movement at 8 A. M. of this day was 2·5.

An important change was in progress in the east and centre of the Bay, where south-easterly winds had appeared. These winds strengthened during the next 24 hours, and advanced as north-easterly winds to the Coromandel Coast where rain commenced to fall. A rapid recovery in the strength of the winds had taken place in the north of the Bay, and the mean force increased to 3·4 on the morning of the 6th. Moderate to fresh north-easterly winds and rainy weather continued to prevail in the south-west of the Bay during the next 48 hours. The southerly winds, however, retreated southwards from the centre of the Bay, and hence northerly winds and fine weather set in again on the Coromandel Coast on the morning of the 8th. The mean wind force over the Bay on the morning of that day was 3·4. Conditions on the morning of the 10th were similar to those obtaining on the 1st. Northerly or north-easterly winds prevailed generally and weather was fine and settled except in the neighbourhood of the East Ceylon Coast and to the south and south-east of the Nicobars, where it was disturbed with occasional rain squalls. Winds fell off in force in the west of the Bay during the next 24 hours and on the morning of the 11th the mean air movement had diminished to 2·9, as compared with 3·5 on the morning of the 10th. No change of importance occurred until the 14th, on which day southerly winds again advanced northwards up the centre of the Bay, and north-easterly winds set in on the South Coromandel Coast, and the weather became rainy on the morning of the 15th. Moderate to fresh north-easterly winds and rainy weather prevailed in the neighbourhood of the South Coromandel Coast till the 19th when the south-west monsoon current of 1893 withdrew finally from the Bay. Hence northerly winds and fine weather set in on the Coromandel Coast and fine weather with light to moderate northerly and north-easterly winds prevailed from that date to the end of the month over the whole of the Bay. The mean wind force was 3·1 at 8 A.M. of the 20th. Fine settled weather continued steadily during the remainder of the month. The mean wind force as determined from the data of 13 vessels averaged 3·4 on the 31st of the month.

Temperature of the Air.

The mean day or maximum temperature was below the normal in North-Eastern India, Burma and the Deccan, and was above it over the remainder of India and in Baluchistan. The variations as a rule were not large and exceeded 2° in two areas only. The first area included Assam and Burma in which the mean day or maximum temperature was from 2° to 4° below the normal.

The following gives comparative data for stations in that area :—

Station.	Mean maximum temperature.		
	Actual, December 1893.	Normal, December.	Variation from normal.
	°	°	°
Tounghoo	80·3	84·3	−4·0
Thyetmyo	81·6	84·5	−2·9
Bassein	82·4	84·5	−2·1
Rangoon	85·1	87·3	−2·2
Moulmein	85·2	87·3	−2·1
Sibsagar	69·2	71·8	−2·6
Dhubri	72·6	74·7	−2·1

The second area comprised the greater part of Sind, Cutch and North-West Rajputana, in which the day temperature was more than 2° above the normal of the period.

The following table gives comparative data of the mean maximum or day temperatures for stations in that area for December :—

Station.	Mean maximum temperature.		
	Actual, December 1893.	Normal, December.	Variation from normal.
	°	°	°
Quetta	61·3	57·3	+4·0
Jacobabad	79·0	76·8	+2·2
Sirsa	77·9	75·0	+2·9
Bickaneer	79·1	75·2	+3·9
Bhuj	85·4	81·7	+3·7
Hyderabad	81·4	78·9	+2·5

The variations of the mean minimum temperature were similar in character to those of the mean day temperature over the greater part of India and were over a portion of the area larger in amount.

The mean night temperature was below the normal in Burma, Assam, Bengal, and the Peninsula, south of Lat. 19° N. The deficiency was very large in Assam and Burma, in which it ranged between 2° and 7°.

The following gives comparative data for stations at which the deficiency was greater than 4°:—

Station.	Mean minimum temperature. Actual, December 1893.	Normal, December.	Variation from normal.
	°	°	°
Bassein	60·5	65·5	−5·0
Rangoon	63·1	67·9	−4·8
Thayetmyo	53·7	59·5	−5·8
Tounghoo	56·1	63·1	−7·0
Sibsagar	46·1	50·6	−4·5

The defect was moderate in amount, slightly exceeding 2°, at the following stations in the Deccan and Mysore:—

Station.	Mean minimum temperature. Actual, December 1893.	Normal, December.	Variation from normal.
	°	°	°
Kurnool	57·0	60·0	−3·0
Cuddapah	63·8	66·4	−2·6
Bangalore	56·7	58·8	−2·1
Coimbatore	64·1	66·5	−2·4

The mean night temperature was above the normal over the whole of North-Western and Central India, the Central Provinces, Bihar and Chota Nagpur. The excess was more than 2° in amount in North-Western India and exceeded 3° at the following stations:—

Station.	Mean minimum temperature. Actual, December 1893.	Normal, December.	Variation from normal.
	°	°	°
Sialkot	44·8	41·6	+3·2
Lahore	44·6	40·2	+4·4
Mooltan	47·1	42·8	+4·3
Bhuj	59·1	55·2	+3·9
Quetta	32·0	28·4	+3·6

The mean temperature of the month was in slight defect (less than 2°) in the Peninsula and Bengal, and in moderate defect (2° to 5°) in Burma and Assam.

The following gives comparative mean temperature data of the month for the stations for which the means were more than 3° below the normal of the period:—

Province.	Station.	Mean daily temperature. Actual, December 1893.	Normal, December.	Variation from normal.
		°	°	°
Assam	Sibsagar	57·6	61·2	−3·6
Burma	Tounghoo	68·3	73·8	−5·5
	Thayetmyo	67·7	72·1	−4·4
	Bassein	71·5	75·1	−3·6
	Rangoon	74·0	77·5	−3·5

Over the remainder of India, including North-Western and Central India, the Central Provinces, Bihar and Chota Nagpur, the mean temperature was above the normal. The variations were small over by far the greater part of the area, but exceeded 2° in the area defined by the following stations:—

Station.	Mean temperature. Actual, December 1893.	Normal, December.	Variation from normal.
	°	°	°
Quetta	46·7	42·9	+3·8
Jacobabad	62·5	60·0	+2·5
Mooltan	61·4	58·3	+3·1
Lahore	58·4	55·9	+2·5
Sirsa	61·1	58·4	+2·7
Bickaneer	66·7	63·8	+2·9
Deesa	70·5	68·3	+2·2
Surat	73·8	71·7	+2·1
Rajkot	72·1	68·7	+3·4
Bhuj	72·3	68·5	+3·8
Hyderabad	68·2	65·7	+2·5

The area defined by these stations included the South Punjab, North and West Rajputana, Guzerat, Kathiawar, Cutch, Sind and British Baluchistan.

The following gives a summary of the chief features of the temperature conditions of the month:—

(1) Temperature was markedly in defect in Burma and Assam. The deficiency was nearly as large in the day as in the night temperature. The mean temperature of the month was from 4° to 6° below the normal over probably the whole of Central and Upper Burma. This low temperature was due to the abnormally strong flow of cool dry northerly winds down the Irrawaddy Valley during the month, and more especially during the first-half of the month.

(2) Temperature was in moderate excess in North-Western India, more especially in the area including Sind, the South Punjab, North and West Rajputana, Kathiawar and Cutch, in which the mean temperature of the month was from 2° to 4° above the normal. The excess was as large in the day as in the night temperature. This increase of temperature, both by day and night, was chiefly due to the prevalence of even finer and more settled weather than usual.

(3) Slightly lower temperature than usual in the Peninsula, chiefly due to decreased night temperature, and associated with decreased humidity.

The following table is a statement of the mean tem-

perature conditions of the month and their variations from the normal in 50 meteorological divisions :—

Province	Division.	Actual Temperature. Mean maximum.	Mean minimum.	Mean daily.	Mean daily range.	Absolute range.	Variation from normal of Maximum.	Minimum.	Range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	84·9	60·7	72·8	24·1	35·9	−3·1	−5·0	+1·9
	Lower Burma	82·6	64·8	73·7	17·8	25·9	−2·8	−3·8	+1·0
	Central do.	82·4	54·4	68·4	28·0	38·4	−2·9	−5·8	+2·9
	Upper do.	75·1	49·8	62·4	25·3	34·4	?	?	?
	Arakan	80·4	61·7	71·1	18·7	26·0	−1·7	−2·8	+1·1
Bengal and Assam	Eastern Bengal	77·3	55·3	66·3	22·0	29·7	+0·2	−0·8	+1·0
	Assam (Surma)	79·7	52·9	66·3	26·8	34·9	+0·3	−2·3	+2·6
	Do. (Brahmaputra)	70·9	49·5	60·2	21·5	29·4	−2·4	−3·9	+1·5
	Deltaic Bengal	76·6	55·6	66·1	21·0	29·2	−0·1	−0·5	+0·4
	Central do.	76·4	53·6	64·9	22·8	29·8	−0·5	+1·0	−1·5
	North do.	75·2	50·8	63·0	24·4	31·5	?	?	?
	Orissa	79·0	60·6	69·8	18·4	26·6	+0·2	+0·9	−0·7
	Chota Nagpur	74·0	49·9	61·9	24·2	33·1	+1·3	+0·4	+0·9
	Bihar (South)	75·4	52·3	63·8	23·1	30·1	+0·4	+1·8	−1·4
	Do. (North)	74·3	51·4	62·9	23·0	30·0	−0·9	+0·5	−1·4
North-Western Provinces and Oudh.	North-Western Provinces (East)	74·1	49·9	62·0	24·1	31·0	−0·8	+1·7	−2·5
	Oudh (South)	75·3	45·9	60·6	29·4	37·4	−0·2	+0·6	−0·8
	North-Western Provinces (Central)	75·9	47·3	61·6	28·7	35·7	?	?	?
	Do. do. (West)	77·3	51·7	64·6	25·6	33·0	+0·4	+2·6	−2·2
	Do. do. (Submontane)	71·8	46·5	59·2	25·3	33·6	+0·2	+2·1	−1·9
Punjab	Punjab (South)	75·4	47·4	61·4	28·1	34·7	+0·5	+2·2	−1·7
	Do. (Central)	72·2	44·6	58·4	27·6	37·1	+0·5	+4·4	−3·9
	Do. (Submontane)	72·9	44·4	58·6	28·5	37·6	0	+1·7	−1·7
	Do. (Hill Districts)	52·3	37·6	44·9	14·7	30·5	+0·6	+2·3	−1·7
	Do. (North-West)	68·7	40·9	54·8	27·8	39·7	−0·1	+2·5	−2·6
	Do. (West)	74·3	43·6	58·9	30·8	41·8	+0·7	+2·7	−2·0
Bombay and Malabar Coast Districts (Madras).	Malabar	87·2	70·0	78·6	17·2	22·3	+1·4	−2·1	+3·5
	Madras (South Central)	84·7	63·8	74·3	20·9	27·7	−0·3	−2·0	+1·7
	Coorg	76·2	57·2	66·7	19·0	25·8	−1·8	−1·1	−0·7
	Mysore	78·1	56·3	67·2	21·8	28·0	−0·8	−2·1	+1·3
	Konkan	86·4	67·9	77·2	18·5	26·0	+0·7	+0·5	+0·2
	Bombay Deccan	82·3	54·3	68·3	28·0	37·9	−0·4	−1·3	+0·9
	Hyderabad (North)	80·7	54·9	67·8	25·8	36·0	?	?	?
	Khandesh	83·1	49·5	66·4	33·7	46·7	+1·7	+1·3	+0·4
Central Provinces and Berar.	Berar	82·1	53·9	68·0	28·2	37·4	+0·5	+1·6	−1·1
	Central Provinces (West)	80·4	51·4	65·9	29·0	38·4	+0·4	+0·7	−0·3
	Ditto (Central)	77·4	49·6	63·5	27·9	37·6	+0·1	+0·7	−0·6
	Ditto (East)	79·3	54·5	67·0	24·8	33·4	+0·9	+1·3	−0·4
Bombay (North)	Guzerat	87·0	59·7	73·4	27·3	36·6	+1·6	+2·6	−1·0
	Kathiawar	84·5	60·2	72·4	24·4	33·9	+1·7	+5·0	−3·3
	Sind and Cutch	81·8	54·3	68·1	27·5	40·6	+2·5	+2·7	−0·2
Rajputana and Central India.	Central India (East)	74·4	47·3	60·9	27·1	35·7	−0·6	+1·4	−2·0
	Rajputana (East) Central India (West)	79·4	49·5	64·5	29·8	37·9	+1·0	+1·7	−0·7
	Rajputana (West)	81·6	51·4	66·5	30·2	39·3	+3·9	+1·9	+2·0
Madras	East Coast (North)	80·2	64·8	72·5	15·5	23·2	+0·3	−0·6	+0·9
	Hyderabad (South)	81·8	57·4	69·7	24·4	33·2	−1·0	−0·8	−0·2
	Madras (Central)	84·8	59·9	72·4	24·9	34·2	−0·3	−2·5	+2·2
	East Coast (Central)	83·2	66·7	75·0	16·6	22·5	−0·1	−0·7	+0·6
	East Coast (South)	83·1	69·2	76·3	13·9	20·4	+0·5	−1·1	+1·6
	Madras (South)	83·5	71·5	77·5	12·0	18·6	−0·5	−1·0	+0·5

The following is a brief statement of the more important features and changes of the temperature conditions in India during the month. Temperature at the commencement of the month was below the normal in the Punjab Gangetic Plain, Bengal and Burma and in excess elsewhere. The mean temperature of the 24 hours preceding 8 A.M. of the 1st was from 4° to 8° above the normal in Cutch, Kathiawar, Guzerat, Berar, Khandesh,

and the Bombay Deccan. It was on the other hand upwards of 4° below the normal in Central Burma. The following gives temperature variation data for the 1st :—

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

The chief feature of the temperature conditions of the Indian land area during the next fortnight was the remarkably low temperature in Burma, more especially in the central (and probably the northern) districts. The variations of the mean maximum, minimum and daily temperature from the normal for that area are given for each day from the 1st to the 15th in the following table :—

DATE.	VARIATION FROM NORMAL OF 24 HOURS PRECEDING 8 A.M. OF DATE OF THE		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
1st	—3·2	—4·6	—3·9
2nd	—3·3	—4·9	—4·1
3rd	—4·0	—4·7	—4·4
4th	—3·1	—5·4	—4·3
5th	—3·3	—5·1	—4·2
6th	—3·9	—6·3	—5·1
7th	—4·6	—8·5	—6·6
8th	—6·4	—5·8	—6·1
9th	—6·4	—8·2	—7·3
10th	—6·2	—9·2	—7·7
11th	—5·6	—8·9	—7·3
12th	—5·5	—8·6	—7·1
13th	—4·3	—6·5	—5·4
14th	—2·5	—3·7	—3·1
15th	—0·7	—1·5	—1·1

The preceding data show that the night temperature was somewhat more largely in defect than the day temperature. There was hence a large and general reduction of temperature throughout this period, which was slightly more marked by night than by day. The deficiency increased steadily from the 1st to the 10th, when the mean temperature of the previous 24 hours was nearly 8° below the normal. Temperature increased rapidly on the 13th, 14th and 15th and on the 15th and 16th the temperature conditions were practically normal. The cool period resembles in its more important features, a cool period in December 1891, a brief account of which was given in the weather reviews for these months. During this cool period in December 1893 there was a remarkable local excess of pressure in Assam and Burma, greatest in amount in Upper Assam and Upper Burma. This excess was apparently due to abnormal conditions in Southern China and East Thibet (and perhaps to heavy snowfall in the Eastern Himalayan region at the end of November.) The steep gradients due to these pressure conditions gave abnormally strong northerly winds in the Irrawaddy Valley. The whole period was hence not only one of unusual coolness, but also of abnormal dryness of the air and of unusually clear skies.

The phenomena of these cool periods in Burma suggest that they are similar in character and origin to the cool waves, which affect Northern India after the passage of cold weather storms, and that, owing to the special geographical and other conditions, they are more prolonged and the reduction of temperature occasionally even more marked than in Northern India.

No change of importance occurred in India during the first six days of the month, except that temperature fell slightly in Western India and was in excess by decreasing amounts. Temperature was in excess on the 6th over the whole of India by small to moderate amounts, and was, as already stated, largely in defect in Burma. The following table gives temperature variation data for the 24 hours period preceding 8 A.M. of the 6th :—

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

Temperature, which had for some time previously been above the normal in Upper India, fell below it on the 6th and continued in moderate defect for some days. A considerable reduction of temperature occurred on the 10th and 11th over the whole of Northern India and the Peninsula, which accompanied the prevalence of strongly marked anti-cyclonic conditions in North-Western India. By these changes temperature was reduced everywhere below the normal, as is shown by the temperature varia-

tion data for the 24 hours preceding 8 A.M. of the 11th given in the table below :—

Meteorological Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−5·6	−8·9	−7·3
Bengal and Assam	−2·8	−4·6	−3·7
North-Western Provinces and Oudh	−2·3	−2·3	−2·3
Punjab	−2·0	+0·5	−0·8
Sind and Rajputana	−2·7	−0·7	−1·7
Central India and Guzerat	−0·7	+1·1	+0·2
Central Provinces and Berar	−2·6	−2·6	−2·6
Bombay	+0·6	+0·3	+0·5
Madras	−0·5	−2·4	−1·5

A very slight disturbance gave rain in Baluchistan and moderate cloud in North-Western India and North Bombay on the 11th and following days. The night temperature hence rose considerably above the normal in these areas, and the mean temperature was hence also in moderate excess. Hence from the 13th to the 18th temperature was in slight excess generally in North-Western India and below the normal elsewhere, the deficiency being greatest and most marked in Burma and the Deccan. The following mean temperature variation data for the 14th and the 18th illustrate the temperature conditions of this period :—

Meteorological Province.	Variation from normal of mean temperature of the	
	14th	18th
	°	°
Burma	−3·1	−3·4
Bengal and Assam	−2·3	−2·3
North-Western Provinces and Oudh	−0·1	−0·5
Punjab	+0·2	+1·5
Sind and Rajputana	+1·3	+2·0
Central India and Guzerat	+1·6	−0·5
Central Provinces and Berar	+1·3	−1·0
Bombay	−2·2	−0·4
Madras	−3·7	−1·9

On the 18th skies cleared in Upper India, and a considerable increase of temperature occurred over the whole of North-Western India. With the continuance of fine clear weather and light variable winds and calms in Northern India, the area of excess temperature extended rapidly eastwards over the whole of Northern and Central India, and on the 21st temperature was more or less above the normal except in Assam and Burma and the Peninsula south of Lat. 19° N.

The following table gives temperature variation data for the 24 hours preceding 8 A.M. of the 21st and also mean temperature variation data for the 24th :—

Meteorological Province.	21st. Variation from Normal of			24th.
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.	Variation from normal of mean temperature.
	°	°	°	°
Burma	−2·3	−2·2	−2·3	−1·2
Bengal and Assam	+0·3	+0·4	+0·4	+0·2
North-Western Provinces and Oudh.	+0·6	+2·4	+1·5	+1·4
Punjab	+5·3	+3·0	+4·2	+3·2
Sind and Rajputana	+4·6	−0·3	+2·2	+2·7
Central India and Guzerat.	+3·5	+1·9	+2·7	+0·8
Central Provinces and Berar.	+3·0	+1·2	+2·1	+0·1
Bombay	+1·3	−2·0	−0·4	−1·2
Madras	+0·1	−3·1	−1·5	−0·3

The data show that in Northern and Central India both the day and night temperatures were above the normal, the excess being however larger in the day than in the night temperature. No important change occurred in the temperature conditions between the 21st and 24th. On the 25th a slight depression (indicated chiefly by the pressure abnormals and by cloud formation) appeared in Sind and travelled eastwards during the next two days. A large increase of temperature occurred in the area of deficient pressure and of cloud, and hence temperature was largely in excess in North-Western India. The following gives the largest excess variations from the normal on the 25th and two following days :—

Date.	Station.	Variation from normal of		
		Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
		°	°	°
25th	Jacobabad	+8·7	+10·5	+9·6
	Mooltan	+4·8	+8·5	+6·7
26th	Jacobabad	+9·6	+15·7	+12·7
	Bickaneer	+9·0	+7·8	+8·4
	Hyderabad	+8·7	+8·1	+8·4
27th	Hyderabad	+7·1	+7·4	+7·3
	Bareilly	+2·7	+6·3	+4·5
	Bhuj	+6·0	+8·0	+7·0

Whilst this warm wave was advancing across Northern India in front of the area of deficient pressure, another and larger disturbance began to form in Sind and North-East Baluchistan, which gave rise to larger temperature changes than accompanied the preceding feeble depression. The following temperature data illustrate the rapid

increase of temperature in the eastern half of the area of disturbance and the advance of the area of greatest excess of temperature in front of and with the depression. The following statement gives the largest temperature variations in the area affected by the disturbance on each day from the 27th to the 31st :—

Date.	Station.	Variation from normal of			Amount of cloud at 8 A.M. of date.
		Maximum.	Minimum.	Mean of day.	
		°	°	°	°
27TH	Quetta	+2.0	+5.9	+4.0	7
28TH	Quetta	+11.1	+5.0	+8.1	7
	Jacobabad	+0.7	+6.9	+3.8	8
29TH	Quetta	+12.0	+15.9	+14.0	6
	Hyderabad	+8.8	+7.8	+8.3	2
	Jacobabad	+3.5	+8.5	+6.0	10
30TH	Quetta	+12.6	+12.1	+12.4	10
	Rajkot	+6.3	+10.7	+8.5	0
	Jacobabad	+1.9	+11.5	+6.7	10
31st	Ajmere	+3.5	+16.4	+10.0	8
	Sirsa	+5.3	+10.6	+8.0	8
	Indore	+2.1	+8.8	+5.5	8

Hence during the last week of the month the temperature conditions of Northern India were mainly determined by the eastward advance of the warm waves preceding and accompanying the march of two depressions across Northern India. Temperature also increased relatively to the normal in the cool areas in Burma and the Deccan, and at the end of the month temperature was normal in these areas. The temperature conditions prevailing at the end of the month are shewn by the following variation data for the 24 hours preceding 8 A.M. of the 31st :—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	0	−0.4	−0.2
Bengal and Assam	+1.6	+1.4	+1.5
North-Western Provinces and Oudh.	+0.3	+6.7	+3.5
Punjab	−2.2	+11.5	+4.7
Rajputana and Sind	+1.9	+9.4	+5.7
Guzerat and Central India	+4.4	+8.2	+6.3
Central Provinces and Berar	+1.7	+5.3	+3.5
Bombay	−0.6	+0.5	−0.1
Madras	+0.4	+1.6	+1.0

The more important changes of temperature in the larger provinces of India are shown by the variations of the mean temperature from the normal, week by week, throughout the month given below :—

Province.	Variation from normal of mean temperature.				
	3rd to 9th.	10th to 16th.	17th to 23rd.	24th to 30th.	For whole month.
	°	°	°	°	°
Burma	−5.4	−4.8	−2.2	−1.7	−3.5
Bengal and Assam	0	−2.5	−0.9	+1.4	−0.2
North-Western Provinces and Oudh.	+1.6	−1.2	+0.7	+2.6	+0.9
Punjab	−0.2	−0.5	+3.1	+3.5	+1.5
Sind and Rajputana	+0.7	+0.3	+2.1	+4.3	+2.0
Central India and Guzerat	+1.7	+0.6	+1.2	+2.2	+1.7
Central Provinces and Berar.	+1.3	−0.8	+0.3	+1.4	+0.7
Bombay	+1.6	−0.9	−0.4	−0.5	+0.2
Madras	+0.5	−2.7	−1.5	+0.1	−0.7

Wind.

The air movement over India and Burma was characterized by large and important variations from the normal, which were, in almost all cases, directly related to the abnormal features of the pressure conditions of the month.

The following gives the more important features of the air movement of the month in India.

Winds were stronger and steadier than usual in Burma, thus indicating the flow of a much stronger and steadier air current from Upper Burma and perhaps South China down the Irrawaddy Valley. Winds were more northerly than usual in Central Burma and more easterly at the coast stations in Lower Burma.

The following data show the increased strength and steadiness of the winds in Burma during the month :—

Station.	Velocity.			Steadiness.		
	Actual, daily, December 1893.	Normal, daily, December.	Percentage variation.	Actual, daily, December 1893.	Normal, daily, December.	Percentage variation.
Diamond Island	294	166	+77	84	74	+14
Rangoon	147	114	+29	71	60	+18

In Bengal the northerly winds of the month contained a weaker westerly element or stronger easterly element

and were slightly less steady than usual and were also slightly below the normal strength.

The following gives data for four stations illustrating these abnormal features :—

Station.	Direction.			Steadiness.	
	Mean, December 1893.	Normal, December.	Decreased westing or increased easting.	Actual percentage.	Normal percentage.
			°		
Chittagong	N 14° W	N 23° W	+ 9	60	59
Dacca	N 8° E	N 36° W	+44	26	44
Calcutta	N 1° E	N 26° W	+ 27	61	60
Burdwan	N 3° W	N 23° W	+20	55	67

In Bihar winds were approximately normal in strength, but were less steady than usual.

Winds were remarkably unsteady and feeble over the central and western districts of the North-Western Provinces and the East Punjab, and hence the mean wind directions differed more or less irregularly from the normal. The most important feature was the unusual prevalence of winds from southerly directions.

The following data illustrate the exceptional weakness and unsteadiness of the winds in that area :—

Station.	Velocity.		Steadiness.	
	Actual, daily, December 1893.	Normal, daily, December.	Actual percentage.	Normal percentage.
Lucknow	3	40	0	49
Meerut	17	39	26	50
Lahore	21	35	3	22

Southerly winds were also unusually frequent in Rajputana and hence over the area including nearly the whole of the North-Western Provinces, Rajputana and the South-East Punjab. The mean wind directions at all stations in that area contained a southerly instead of the normal northerly component.

The following data for five typical stations in that area illustrate this feature :—

Station.	Wind direction.	
	Mean actual, December 1893.	Mean normal, December.
Roorkee	S 34° E	N 82° W
Lahore	S 89° W	N 36° W
Jeypore	S 78° W	N 14° W
Ajmere	S 23° E	N 84° E
Deesa	S 78° E	N 17° E

Winds were very unsteady in Sind. One of the more remarkable features of this period was the very slight air motion in Upper Sind and the adjacent districts of Rajputana and the Punjab.

The following gives data of the mean air movement of the month at Jacobabad, Mooltan, Lahore, Rawalpindi, Pachpadra and Bickaneer, at all of which the anemometers are in good working order, and well exposed, for the month of December 1893, a month of almost uniformly fine clear weather in these areas :—

Station.	Velocity.	
	Actual daily, December 1893.	Normal, daily, December.
	Miles.	Miles.
Jacobabad	25	38
Mooltan	14	30
Pachpadra	14	48
Bickaneer	60	58
Lahore	21	35
Rawalpindi	14	25

Winds were considerably steadier than usual in the Central Provinces, Deccan and Madras, and the mean direction and the strength of the air movement were practically normal.

The following gives data for a typical station in each of these areas :—

Station.	Velocity.		Steadiness.	
	Actual, daily, December 1893.	Normal, daily, December.	Actual, daily, December 1893.	Normal, daily, December.
Madras	172	179	92	75
Secunderabad	89	81	87	76
Nagpur	87	68	58	52

Winds were remarkably unsteady in the Konkan. Thus the precentage of steadiness at Bombay was only 27, the normal being 63.

Winds were more irregular and generally less steady than usual at the Himalayan hill stations.

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

(1) Winds were very light and unsteady in the Punjab, Rajputana and North-Western Provinces and southerly winds were more prevalent than usual.

(2) Winds were less westerly or more easterly than usual in Bengal. This and the preceding feature show that the drift down the Gangetic Plain was feeble and less steady than usual.

(3) Northerly winds of unusual strength prevailed in Burma.

(4) The air movement was slightly steadier than usual in the Peninsula and normal in direction and intensity.

(5) The air movement in the North Bombay coast districts as in North-Western India was very unsteady and irregular.

(6) The conditions of the land area indicate the prevalence of steady north east winds in the Bay, normal or slightly stronger than usual and of feeble and less steady north-east winds in the Arabian Sea. This is confirmed by the marine data for these areas.

Humidity and cloud.

The air was abnormally dry in Burma and to a slightly less extent at Port Blair. The unusual dryness in these areas is shown by the following mean data for three stations :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, December 1893.	Normal, December.	Variation from normal.	Actual, December 1893.	Normal, December.	Variation from normal.
Rangoon . .	·508	·671	−·163	65	73	−8
Diamond Island .	·572	·698	−·126	66	75	−9
Port Blair .	·742	·834	−·092	72	80	−8

The data for Rangoon indicate that over the greater part of the Irrawaddy valley the amount of aqueous vapour present in the air was probably from 25 to 40 per cent. below the normal.

In Assam as in Burma the air was unusually dry; but the deficiency in the amount of vapour was less marked than in Burma. It was greatest at Sibsagar, where the absolute humidity was ·393″ or ·056″ less than the normal.

The humidity conditions of Bengal and Orissa were practically normal. The air was slightly less damp than usual, but the variations were small and unimportant.

The air was somewhat damper than usual in the North-Western Provinces, Rajputana and the South-East Punjab. The relative humidity was more than 5 above the normal at Lucknow (+7), Lahore (+6), Ludhiana (+6), Ajmere (+11), Deesa (−6), and Nowgong (+7). The increased humidity in these areas was due chiefly to the unusual absence of dry westerly winds and perhaps to some extent to the abnormal rainfall in these areas in the preceding month. For similar reasons probably the air was generally damper in the Central Provinces, Baghelkhand and Hyderabad. The mean humidity of the month was more than 5 in excess at Sutna (+11), Saugor (+8), Jubbulpur (+8) Hoshangabad (+6), and Secunderabad (+6). The following gives mean variation data for these areas of slightly increased humidity :—

Province.	Aqueous vapour.			Humidity.		
	Average actual, December 1893.	Average normal, December.	Variation from normal.	Average actual, December 1893.	Average normal, December.	Variation from normal.
Punjab . .	·277	·269	+·008	60	58	+2
North-Western Provinces .	·333	·307	+·026	64	61	+3
Bihar . .	·415	·401	+·014	71	70	+1
Rajputana .	·299	·267	+·032	51	46	+5
Central India .	·332	·298	+·034	65	58	+7
Central Provinces . .	·334	·309	+·025	57	52	+5
Berar . .	·329	·335	−·006	51	51	0

The air was unusually dry in the Bombay-Deccan and Bombay coast districts and in Malabar. The following gives data for three stations :—

Station.	Aqueous vapour pressure.			Humidity.		
	Actual, December 1893.	Normal, December.	Variation from normal.	Actual, December 1893.	Normal, December.	Variation from normal.
Bombay . .	·581	·620	−·039	64	70	−6
Cochin . .	·659	·731	−·072	65	74	−9
Sholapur . .	·318	·380	−·062	45	49	−4

The humidity conditions differed to no important extent from the normal in the Madras coast districts. The mean humidity was below the normal in South and Central Madras as represented by the stations of Salem and Trichinopoly.

The air was generally damper than usual at the Himalayan and Central Indian hill stations. The increased humidity was most marked at the stations of Chakrata and Ranikhet, where the mean humidity of the month was 12 and 10 respectively in excess. The abnormal conditions in Assam appear to have extended westwards over the

Himalayan area at least as far as Sikkim, as the humidity at Darjeeling was 12 below the normal and the mean aqueous vapour nearly 25 per cent. in defect, or almost as largely in defect relatively to the normal as in Upper Assam and Burma.

The chief features of the hygrometric conditions of the month were—

1st.—Abnormal dryness of the air in Burma, Assam and Sikkim.

2nd.—Increased humidity in the Gangetic plain, Punjab, Rajputana, Central India and the Central Provinces and at the hill stations in these areas. The increase was moderate in amount, and was, on the whole, most pronounced in Baghelkhand, Bundlekhand, the north-eastern districts of the Central Provinces and at the hill stations of the North-Western Provinces.

3rd.—Decreased humidity and considerable deficiency in the amount of aqueous vapour in the west coast districts and the Bombay-Deccan.

There was less cloud than usual in Burma, Assam, Bengal, Orissa, Bihar and Chota Nagpur. Skies were remarkably free from cloud in the Assam Valley (and probably also in Upper and Central Burma). The following gives comparative data for the Assam Valley :—

Station.	Cloud.		
	Actual, December 1893.	Normal, December.	Variation from normal.
Sibsagar	0·3	4·4	−4·1
Dhubri	0·5	1·2	−0·7

Comparative data are given for the area of decreased cloud amount including North-Eastern India and Burma :—

District.	Cloud.		
	Actual, December 1893.	Normal, December.	Variation from normal.
Burma	1·9	2·9	−1·0
Assam	0·8	2·8	−2·0
Bengal	1·3	1·9	−0·6
Orissa	1·7	2·2	−0·5
Chota Nagpur	0·8	2·0	−1·2
Bihar	0·3	1·5	−1·2

Skies were, on the other hand, more clouded than usual in the western districts of the North-Western Provinces, the Punjab, Sind and Rajputana. The excess was largest in amount in Upper India as is shown by the following statement :—

District.	Cloud.		
	Actual, December 1893.	Normal, December.	Variation from normal.
North-Western Provinces, West	2·8	2·1	+0·7
Punjab	4·0	2·7	+1·3
Sind	3·2	1·9	+1·3
Rajputana	2·3	1·7	+0·6

There was less cloud over nearly the whole of the Peninsula. The deficiency was large in Mysore, Coorg and Malabar (as represented by Cochin), and was small in amount over the greater part of Madras, the Deccan and the Central Provinces. The following gives data for the area of deficient cloud amount in Southern India :—

District.	Station.	Cloud.		
		Actual, December 1893.	Normal, December.	Variation from normal.
Mysore	Bangalore	1·5	4·1	−2·6
Coorg	Mercara	2·4	5·1	−2·7
Malabar	Cochin	1·1	3·2	−2·1

There was a remarkable local excess of cloud in the northern portions of the area of decreased humidity in the west coast districts. The following gives data :—

Station.	Cloud.		
	Actual, December 1893.	Normal, December.	Variation from normal.
Bombay	2·8	1·8	+1·0
Ratnagiri	2·8	0·9	+1·9

The variations of the cloud amount at the hill stations in almost all cases agreed with those of the neighbouring low level stations. Thus the mean cloud amount was very considerably below the normal at Wellington in the Southern Indian area of decreased cloud and at Darjeeling in the North-Eastern Indian area of diminished cloud. It was, on the other hand, in slight to moderate excess at the

Western Himalayan hill stations. The following gives data for Darjeeling and Wellington :—

STATION.	CLOUD.		
	Actual, December 1893.	Normal, December.	Variation from normal.
Darjeeling	2·3	4·3	−2·0
Wellington	3·9	5·5	−1·6

The mean cloud amount was less than 1 in Chota Nagpur, Bihar, the eastern districts of the North-Western Provinces, Baghelkhand, the Assam Valley and Arakan.

The chief features of the distribution of cloud during the month, were as follows:—

(1) Skies were most free from cloud in Arakan, the Assam Valley, Chota Nagpur, Bihar and the eastern districts of the North-Western Provinces.

(2) The mean amount of cloud for the month was considerably below the normal in Burma, Assam, Bengal, Bihar, and Chota Nagpur.

(3) Skies were somewhat more clouded than usual in North-Western and Central India.

(4) Skies were unusually free from cloud in Mysore, Coorg, Malabar and Travancore.

Rainfall.

December is usually the month of least rainfall in India. The average rainfall is less than an inch in amount over the whole of India with the exception of the greater part of South Madras. Over by far the greater part of Northern and Central India the average rainfall is less than three or four-tenths. The average rainfall slightly 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.

No rain fell during the month over by far the greater part of India, including Lower and Central Burma, Bengal, Bihar, Orissa, Chota Nagpur, the North-Western Provinces, Central India, Central Provinces, Berar, Hyderabad, Bombay, the Madras Deccan and Mysore.

The following gives the periods and areas of rainfall during the month:—

1st.—Light showers in Upper Burma, Upper Assam and Sikkim during the first week of the month

2nd.—Occasional showers in the Coromandel coast districts, chiefly during the second and third weeks of the month. The rainfall was moderately heavy at the South Coromandel coast stations, where it ranged between 5 and 11 inches, but diminished very rapidly into the interior and was less than an inch at an average distance of 50 miles from the coast in South Madras.

3rd.—Light to moderate showers in British Baluchistan, Sind, Punjab and Rajputana on the 30th and 31st in connection with a depression, which formed in Baluchistan and Sind on the 29th and drifted slowly eastwards during the next four or five days.

The following table gives mean actual, mean normal and variation rainfall data for the 51 meteorological divisions or districts, into which India is divided, in the same form as in the previous months and has been prepared in exactly the same manner as hitherto:—

PROVINCE.	DIVISION.	RAINY DAYS.		RAINFALL.		
		Actual, December 1893.	Normal, December.	Actual, December 1893.	Normal, December.	Variation.
				Inches.	Inches.	Inches.
BURMA . . .	Tenasserim*	?	?	0	0	0
	Lower Burma*	?	?	0	0·22	− 0·22
	Central do.*	?	?	0	0·11	− 0·11
	Upper do.*	?	?	0·06	?	?
	Arakan*	?	?	0	0·38	− 0·38

NOTE.—The figures entered against divisions marked with asterisks have been obtained from the Weekly Telegraphic Reports.

Province.	Division.	Rainy Days. Actual, December 1893.	Rainy Days. Normal, December.	Rainfall. Actual, December 1893.	Rainfall. Normal, December.	Rainfall. Variation.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	0·1	0·5	0·02	0·37	− 0·35
	Assam (Surma) *	?	?	0·02	0·59	− 0·57
	Do. (Brahmaputra)	?	?	0·11	0·39	− 0·28
	Deltaic Bengal	0	0·4	0	0·26	− 0·26
	Central do.	0·1	0·3	0·01	0·17	− 0·16
	North do.	0·1	0·4	0·01	0·19	− 0·18
	Orissa	0	0·8	0	0·51	− 0·51
	Chota Nagpur	0	0·5	0	0·31	− 0·31
	Bihar (South)	0	0·4	0	0·22	− 0·22
	Do. (North)	0	0·4	0	0·14	− 0·14
North-Western Provinces and Oudh.	North-Western Provinces (East)	0	0·4	0	0·26	− 0·25
	Oudh (South)	0·1	0·6	0·03	0·41	− 0·38
	Do. (North)	0	0·6	0	0·38	− 0·38
	North-Western Provinces (Central)	0·2	0·4	0·05	0·37	− 0·32
	Do. do. (West)	0·2	0·5	0·09	0·34	− 0·25
	Do. do. (Sub-montane)	0·1	0·7	0·03	0·41	− 0·38
Punjab	Punjab (South)	0·7	0·3	0·29	0·19	+ 0·10
	Do. (Central)	0·3	0·4	0·14	0·25	− 0·11
	Do. (Submontane)	0·3	0·8	0·10	0·54	− 0·44
	Do. (Hill Districts)	0·7	1·3	0·16	0·87	− 0·71
	Do. (North-West)	1·1	0·8	1·36	0·54	+ 0·82
	Do. (West)	0·8	0·2	0·40	0·12	+ 0·28
Bombay and Malabar Coast Districts (Madras).	Malabar	0	1·4	0	0·80	− 0·80
	Madras (South Central)*	0·1	2·6	0·01	1·40	− 1·39
	Coorg	0	?	0	?	?
	Mysore	0	1·1	0	0·61	− 0·61
	Konkan	0	0·3	0	0·14	− 0·14
	Bombay-Deccan	0	0·7	0	0·41	− 0·41
	Khandesh	0	0·8	0	0·56	− 0·56
Central Provinces and Berar.	Berar*	?	?	0·02	0·74	− 0·72
	Central Provinces (West)*	?	?	0·01	0·54	− 0·53
	Do. (Central)*	?	?	0·07	0·38	− 0·31
	Do. (East)*	?	?	0	0·36	− 0·36
Bombay (North)	Guzerat	0	0·1	0	0·05	− 0·05
	Kathiawar	0·2	0·2	0·09	0·05	+ 0·04
	Sind	0·4	?	0·17	0·11	+ 0·06
Rajputana and Central India.	Central India (East)	0·1	?	0·05	0·44	− 0·39
	Rajputana (East), Central India (West)	0·5	?	0·33	0·19	+ 0·14
	Do. (West)	0·6	?	0·19	0·01	+ 0·18
Madras	East Coast (North)	0·1	0·6	0·04	0·63	− 0·59
	Do. (do.) (a)	0	0·7	0	0·34	− 0·34
	Hyderabad (South)*	?	?	0·01	0·26	− 0·25
	Madras (Central)	0	0·9	0	0·46	− 0·46
	East Coast (Central)	0·1	2·9	0·07	2·72	− 2·65
	Do. (South)	2·1	5·3	1·31	5·20	− 3·89
	Madras (South)	1·5	4·8	0·71	3·94	− 3·23

NOTE.—The figures entered against divisions marked with asterisks have been obtained from the Weekly Telegraphic Reports.

Some showers were received in the hill districts of the Punjab on the 8th and 9th and again on the 26th and 27th. The disturbance of the last two days of the month gave general rain over the greater part of the province. The south-eastern districts, including Gurgaon, Rohtak, Dehli, Umballa, Ludhiana, Hoshiarpur and Kangra were the only districts in which no rain fell on the 30th and 31st. The rainfall was moderately heavy in the Jhelum, Peshawar, Rawalpindi and Kohat districts and exceptionally heavy in the Gujranwala district. The following gives a summary of the rainfall in these districts:—

District.	Average rainfall of 24 hours preceding 8 A.M., of 30th.	Average rainfall of 24 hours preceding 8 A.M., of 31st.	Total.
	Inches.	Inches.	Inches.
Gujranwala	0·36	3·10	3·46
Jhelum	*Nil*	1·16	1·16
Rawalpindi	*Nil*	1·01	1·01
Peshawar	*Nil*	1·23	1·23
Kohat	0·33	0·58	0·91

Falls of 4 inches or upwards in 24 hours were recorded at the following stations on the 31st :—

District.	Station.	Rainfall.
		Inches.
Gujranwala	Ramnagar . . .	5·25
	Wazirabad . . .	5·00
	Hafizabad . . .	4·72

The following gives a summary of the rainfall data of the province for the month, published in the Provincial Gazette :—

Division.	Rainfall.			Number of rainy days.		
	Average actual, December 1893.	Average normal, December.	Variation from normal.	Average actual, December 1893.	Average normal, December.	Variation from normal.
	Inches.	Inches.	Inches.			
Punjab (South) .	0·29	0·19	+0·10	0·7	0·3	+0·4
Do. (Central)	0·14	0·25	−0·11	0·3	0·4	−0·1
Do. (Sub-montane .	0·10	0·54	−0·44	0·3	0·8	−0·5
Punjab (Hill Districts) .	0·16	0·87	−0·71	0·7	1·3	−0·6
Punjab (North-West) . .	1·36	0·54	+0·82	1·1	0·8	+0·3
Punjab (West) .	0·40	0·12	+0·28	0·8	0·2	+0·6

Showers local in character were received in Sind and Cutch on the 31st. Falls exceeding an inch in amount were registered on that day at Karachi (1·01 inches) and Nalia in Cutch (1·31 inches).

A few showers were received in British Baluchistan on the 11th and 12th and moderate general rain on the 30th and 31st. The total rainfall for the month ranged from *nil* at four stations in the Pat Desert to 0·95 inch at Peshin and averaged 0·5 inch for the whole area represented by 50 rain gauge stations, chiefly on the railway line between Sibi and Quetta and Chaman.

Kashmir received occasional light showers during the month and moderate rain on the 31st. The rainfall was heaviest in the plain district of Jammu and the hills facing the Punjab. Poonch reported 4·47 inches on the 31st.

In Rajputana light to moderate rain fell on the 31st. This precipitation occurred in connection with numerous hailstorms and thunderstorms and was hence very irregularly distributed. The fall was on the whole heaviest in the Kerowlee and Bhurtpore States. The following gives comparative data for the larger states :—

State.	Rainfall.		
	Average actual, December 1893.	Average normal, December.	Variation from normal.
	Inches.	Inches.	Inches.
Jodhpur	0·20	0·01	+0·19
Jeypur	0·32	0·18	+0·14
Ulwar	0·40	0·39	+0·01
Bhurtpur	0·41	0·22	+0·19
Dholpur	0·37	?	?
Kerowlee	1·17	0·19	+0·98
Kotah	0·25	0·27	−0·02
Ajmere	0·19	0·22	−0·03

The mean rainfall of the month in this area, although not large, was considerably in excess of the small normal rainfall of the month, which ranges between *nil* and four-tenths of an inch.

Gwalior in Central India shared in the rainfall of the 31st. It received an average of 0·12 inch. No rain fell over the remainder of the Central India States.

As already stated, no rain fell in the North-Western Provinces, Bengal, the Central Provinces, Berar, Bombay (except Sind and Cutch), Assam and Burma during the month.

No rain fell during the month in the northern coast districts of Madras, including Ganjam, Vizagapatam and North Arcot and the interior districts of Cuddapah, Anantapur, Bellary, Kurnool, and in Malabar and South Canara, and practically none (*i.e.*, less than an average of a tenth of an inch) in Nellore, Kistna, Coimbatore, Salem and the Nilgiris.

In the remaining districts the rainfall was very irregularly distributed. It was moderately large in a narrow belt along the coast of the Tanjore and Madura districts and decreased rapidly into the interior and was less than an inch in amount at an average distance of 40 miles from the coast line of these districts. The chief periods of showery weather in South Madras were the 1st to the 5th, 5th to the 10th, and 17th to the 20th. The termination of the rains of the retreating south-west monsoon of 1893 in Madras hence dates from the 20th of December.

The following gives comparative data for the seven

districts, which received an average rainfall exceeding a tenth of an inch during the month :—

District.	Rainfall.		
	Average actual, December 1893.	Average normal, December.	Variation from normal.
	Inches.	Inches.	Inches.
Tanjore	3·60	8·02	−4·42
South Arcot	1·25	5·64	−4·39
Trichinopoly	0·19	3·69	−3·50
Madura	0·88	4·02	−3·14
Tinnevelly	0·54	3·83	−3·29
Chingleput	0·39	5·03	−4·64
Godavari	0·14	0·69	−0·55

Total amounts exceeding 9 inches were registered at the following stations only :—

District.	Station.	Rainfall.
		Inches.
Tanjore	Negapatam	11·31
	Vedaranyam	9·44
Madura	Pamban	9·80

The following gives a comparative rainfall statement of the nine meteorological divisions of the presidency :—

Division.	Number of Rainy Days.		Rainfall.		
	Actual, December 1893.	Normal, December.	Actual, December 1893.	Normal, December.	Variation from normal.
			Inches.	Inches.	Inches.
East Coast, North	0·1	0·6	0·04	0·63	−0·59
Do. North (a)	0	0·7	0	0·34	−0·34
Do. Central	0·1	2·9	0·07	2·72	−2·65
Do. South	2·1	5·3	1·31	5·20	−3·89
Madras, South	1·5	4·8	0·71	3·94	−3·23
Malabar Coast	0	1·4	0	0·80	−0·80
Madras, South Central	0·1	2·6	0·01	1·40	−1·39
Madras, Central	0	0·9	0	0·46	−0·46
Madras Hills	3·6	4·5	0·10	2·95	−2·85

Some showers fell in Travancore, chiefly between the 6th and 9th. The rainfall of the month was unusually small in amount. No rain fell in Cochin or Coorg.

Table

Abstract of Observations taken at 8 A.M. at 207

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.		...	...	+·040	...	...	...	...	...	...	...	83·7	−2·7	65·1	−4·0	74·4	−3·4	18·6	...	...	...	...	27·7
Bay Islands	Port Blair	61	29·935	?	29·927	29·978	11th	29·876	28th	·102	78·9	85·3	?	76·1	?	80·7	?	9·2	87·7	16th	70·4	12th	17·3
	Camorta‡	?	29·950	?	?	29·986	1st & 16th	29·883	31st	·103	79·8	83·8	?	76·1	?	79·9	?	7·7	85·3	25th	73·3	5th to 7th	12·0
Tenasserim	Mergui	96	29·939	?	29·968	30·003	10th	29·846	28th	·157	76·1	86·8	?	64·1	?	75·4	?	22·7	90·6	29th	54·2	9th	36·4
	Tavoy	26	30·016	?	29·973	30·073	6th	29·943	24th	·130	69·4	87·0	?	59·2	?	73·2	?	27·8	91·2	2 days	47·7	9th	43·5
	Moulmein	94	29·969	+·039	30·003	30·049	5th	29·893	24th	·156	66·7	85·2	−2·1	63·4	−2·9	74·3	−2·5	21·8	90·5	30th	58·4	10th	32·1
	Toungoo	181	29·895	+·050	30·028	29·964	6th	29·812	24th	·152	60·6	80·3	−4·0	56·1	−7·0	68·3	−5·5	24·2	82·8	3 days	51·1	10th	31·7
Lower Burma	Rangoon	41	30·022	+·035	30·000	30·099	6th	29·930	24th	·169	66·8	85·1	−2·2	63·1	−4·8	74·0	−3·5	22·0	89·2	31st	57·7	10th	31·5
	Bassein	27	30·046	+·044	30·009	30·114	6th	29·966	24th	·148	64·2	82·4	−2·1	60·5	−5·0	71·5	−3·6	21·9	86·2	31st	55·0	12th	31·2
	Diamond Island.	41	30·009	+·032	29·985	30·071	6th	29·946	2 days	·125	72·5	80·4	−4·2	70·9	−1·5	75·7	−2·9	9·5	82·5	5 days	67·4	9th	15·1
Arakan	Akyab	20	30·064	+·039	30·027	30·113	5th	29·980	31st	·133	65·2	80·4	−1·7	61·7	−2·8	71·1	−2·3	18·7	83·2	4th	57·2	2 days	26·0
II.—Burma Inland		...	...	?	...	...	...	...	...	...	...	77·6	−2·9	50·8	−5·8	64·3	−4·4	26·8	...	...	...	...	36·5
Central Burma	Thayetmyo	134	29·970	?	?	30·037	6th	29·892	3 days	·145	62·0	81·6	−2·9	53·7	−5·8	67·7	−4·4	27·9	83·6	31st	46·2	12th	37·4
	Minbu	?	29·957	?	?	30·028	13th	29·866	24th	·162	63·0	82·8	?	56·2	?	69·5	?	26·6	84·6	17th	45·0	12th	39·6
	Yamethin	?	29·418	?	?	29·465	6th	29·360	27th	·105	61·7	82·8	?	53·4	?	68·1	?	29·4	86·1	4 days	48·0	11th	38·1
	Fort Stedman.	?	27·151	?	?	27·190	2 days	27·103	1st	·087	51·5	73·6	?	44·4	?	59·0	?	29·2	78·2	31st	39·1	9th	39·1
Upper Burma	Mandalay	?	29·858	?	?	29·921	2nd	29·787	24th	·134	68·4	80·2	?	55·9	?	68·1	?	24·3	83·0	2nd	51·0	11th	32·0
	Kendat	?	29·781	?	?	29·864	6th	29·681	25th	·183	55·9	74·7	?	53·9	?	64·3	?	20·8	80·8	2 days	49·9	2 days	30·9
	Lashio	?	27·308	?	?	27·412	5th	27·199	27th	·213	47·3	70·6	?	43·2	?	56·5	?	27·4	75·6	31st	38·6	2 days	37·0
	Bhamo	?	29·753	?	?	29·812	6th	29·644	27th	·198	52·3	74·7	?	46·0	?	60·4	?	28·7	77·0	2 days	39·4	11th	37·6
III.—Assam		...	...	+·065	...	...	...	...	...	...	...	73·8	−1·5	50·6	3·3	62·2	−2·4	23·2	...	...	...	...	31·2
Assam (Surma)	Silchar	104	30·018	+·056	30·080	30·084	6th	29·939	31st	·145	59·3	79·7	+0·3	52·9	−2·3	66·3	−1·0	26·8	83·4	3rd	43·5	11th	34·9
Brahmaputra	Sibsagar	333	29·849	+·073	30·164	29·970	6th	29·726	28th	·244	49·3	69·2	−2·6	46·1	−4·5	57·6	−3·6	23·1	72·6	2 days	40·9	12th	31·7
	Dhubri	115	30·013	?	?	30·102	6th	29·891	27th	·211	56·1	72·6	−2·1	52·8	−3·2	62·7	−2·7	19·8	76·1	1st	49·0	9th	27·1
IV.—Bengal and Orissa		...	...	+·036	...	...	...	...	...	...	...	76·5	−0·1	55·4	+0·1	66·0	0	21·3	...	...	...	...	29·1
East Bengal	Chittagong	87	30·008	+·039	30·047	30·068	16th	29·940	27th	·128	65·5	77·8	0	57·3	−0·9	67·6	−0·5	20·5	80·7	9th	52·1	2 days	28·6
	Lungleh	?	?	?	?	?	...	?	...	?	56·3	64·4	?	53·0†	?	58·8†	?	11·4	72·8	31st	48·2	27th	24·6
	Noakhali	43	30·031	?	30·023	30·095	16th	29·956	27th	·139	62·8	77·6	?	55·6	?	66·6	?	22·0	80·7	8th	51·0	12th	29·7
	Comilla	36	30·062	?	30·047	30·118	16th	29·999	27th	·119	62·8	78·4	?	54·6	?	66·5	?	23·8	81·4	3 days	50·6	11th	30·8
	Sirajganj	46	30·057	?	30·055	30·121	6th	29·983	24th	·138	59·5	76·4†	?	53·1	?	64·9†	?	23·3	80·1	7th.	48·9	18th	31·2
	Dacca	20	30·072	+·031	30·041	30·139	16th	29·993	27th	·146	61·6	78·8	+0·5	56·6	−0·7	67·7	−0·1	22·2	82·1	4th	53·3	17th	28·8
	Barisal	13	30·072*	+·034	30·031*	30·135	16th	30·001	24th	·134	63·5	76·8	?	56·2	?	66·5	?	20·6	81·3	8th	52·5	19th	28·8
	Mymensingh	59	30·047	+·044	30·061	30·108	6th	29·965	27th	·143	58·9	75·8	?	53·7	?	64·7	?	22·1	79·2	7th	49·1	18th	30·1
Deltaic Bengal	Faridpur	46	30·061	?	30·057	30·130	16th	29·980	27th	·150	61·4	73·8	?	55·5	?	64·7	?	18·3	78·5	1st	51·5	11th	27·0
	Jessore	33	30·074	+·033	30·055	30·151	16th	29·971	27th	·180	60·8	77·2	−0·7	54·7	−0·4	66·0	−0·6	22·5	81·6	5th	51·0	24th	30·6
	Calcutta	21	30·093	+·029	30·061	30·163	16th	29·999	27th	·164	60·9	75·9	−0·1	55·8	−0·4	65·9	−0·3	20·1	78·2	2 days	51·7	13th	26·5
	Saugor Island	25	30·087	+·032	30·057	30·157	16th	30·008	27th	·149	62·5	76·1	+0·4	58·1	−0·8	67·1	−0·[illegible]	18·0	80·2	2nd	51·7	13th	28·5
	Krishnagar	47	30·067	?	30·066	30·134	16th	29·961	27th	·173	61·4	77·2	?	53·9	?	65·6	?	23·3	80·7	5th	50·0	13th	30·7
	Midnapore	149	29·977	?	30·080	30·038	16th	29·878	27th	·160	62·2	79·1	?	55·3	?	67·3	?	23·8	82·3	3 days	50·2	13th	32·1

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

I.

Stations in India, Burma, etc., in December 1893.

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 1893.	Normal rainfall for period 1st October to 31st December.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
																		0·92	1·06	−1·02	...	...	...	...	**I.—Burma Coast and Bay Islands.**	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...									
1	6	13	6	4	...	...	...	1	7·0	7·2	−28	75	·746	3·6	1	?	?	0·39	5·94	− 5·55	25·14	27·08	− 1·94	0·38	Port Blair .	Bay Islands.
...	5	10	10	1	...	...	1	...	9·1‡	?	?	79	·799	5·8	6	?	?	8·81	?	?	37·65	?	?	5·27	Camorta†.	
...	12	8	2	1	1	...	1	6	1·3	1·8	−28	67*	·598*	4·7	0	?	?	0	0·57	− 0·57	15·77	17·74	− 1·97	0	Mergui .	Tenasserim.
30	...	1	...	...	...	...	...	...	1·2	?	?	75	·547	0	0	?	?	0	0·14	− 0·14	16·61	12·98	+ 3·63	0	Tavoy.	
...	9	9	9	3	1	...	...	...	4·3	2·6	+65	76	·502	1·2	0	0·18	− 0·18	0	0·02	− 0·02	10·90	10·86	+ 0·04	0	Moulmein.	
4	23	...	...	...	...	...	...	4	1·0	2·3	−57	92	·493	0·9	0	0·36	−0·36	0	0·25	− 0·25	10·34	8·51	+ 1·83	0	Toungoo.	
...	1	16	13	1	...	...	...	...	6·0	4·9	+22	79	·523	1·6	0	0·45	−0·45	0	0·08	− 0·08	9·40	10·26	− 0·86	0	Rangoon .	Lower Burma.
5	2	18	2	...	...	...	...	4	3·9	2·7	+44	84	·504	2·7	0	0·55	−0·55	0	0·18	− 0·18	13·61	13·27	+ 0·34	0	Bassein.	
...	1	23	7	...	...	...	...	...	12·3	7·4	+66	71	·568	3·8	0	0·90	−0·90	0	1·17	− 1·17	19·77	23·87	− 4·10	0	Diamond Island.	
...	17	14	...	...	...	...	...	...	2·3	2·2	+ 5	89	·551	1·7	0	1·27	−1·27	0	1·20	− 1·20	9·96	14·16	− 4·20	0	Akyab .	Arakan.
																		0·11	0·22	−0·04	...	...	...	...	**II.—Burma Inland.**	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...									
...	14	5	2	2	...	...	...	8	3·7	3·2	+16	80	·449	1·0	0	0·36	−0·36	0	0·11	− 0·11	10·51	6·98	+3·53	0	Thayetmyo .	Central Burma.
3	1	...	...	...	...	...	4	23	7·3	?	?	79	·459	0·5	0	?	?	0	?	?	11·64	?	?	0	Minbu.	
4	17	...	...	1	...	...	...	9	4·0	?	?	86	·471	0	0	?	?	0	?	?	17·26	?	?	0	Yamethin.	
31	...	...	...	...	...	...	...	...	?	?	?	88	·438	2·7	0	?	?	0	?	?	7·08	?	?	0	Fort Stedman	
12	17	...	1	...	...	1	...	...	1·3	?	?	70	·472	1·3	0	?	?	0·08	0·29	− 0·21	7·23	4·30	+ 2·93	0·04	Mandalay .	Upper Burma.
22	1	...	...	...	...	...	2	6	1·0	?	?	95	·431	8·6	0	?	?	0	0·15	− 0·15	12·38	9·05	+ 3·33	0	Kendat.	
...	8	12	...	1	2	1	...	7	?	?	?	94	·305	7·0	1	?	?	0·12	?	?	5·54	?	?	0·12	Lashio.	
8	10	3	...	...	..	1	1	8	0·8	?	?	87	·346	3·8	2	?	?	0·65	0·33	+ 0·32	3·51	5·52	− 2·01	0·51	Bhamo.	
																		0·12	0·55	−0·43	...	...	...	...	**III.—Assam.**	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...									
23	...	2	4	...	1	1	...	...	1·5	1·9	−21	85	·433	2·4	0	1·09	−1·09	0	1·01	− 1·01	11·68	7·13	+ 4·55	0	Silchar .	Assam (Surma).
17	...	11	2	1	...	...	...	...	1·4	1·6	−13	99	·344	0·5	2	2·18	−0·18	0·35	0·56	− 0·21	5·82	6·39	− 0·57	0·16	Sibsagar .	Brahmaputra.
...	2	20	6	...	...	...	...	1	7·4	4·5	+64	90	·405	0·7	0	0·13	−0·13	0	0·07	− 0·07	3·20	3·77	− 0·57	0	Dhubri.	
																		0	0·33	− 0·32	...	...	...	...	**IV.—Bengal and Orissa.**	
...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...									
2	7	19	2	...	...	...	...	1	2·3	3·2	−28	91	·526	1·6	0	0·91	−0·91	0·12	0·88	− 0·76	15·69	7·61	+ 8·08	0·08	Chittagong .	East Bengal.
			Not	reco	rded				?	?	?	89	·405	?	0	?	?	0	?	?	16·85	?	?	0	Lungleh.	
...	13	14	3	1	...	...	...	...	2·2	?	?	90	·519	0·8	0	0·65	−0·65	0	0·59	− 0·59	16·60	9·27	+ 7·33	0	Noakhali.	
22	6	3	...	...	...	...	...	...	1·1	?	?	87	·498	1·3	0	0·61	−0·61	0	0·44	− 0·44	11·92	5·61	+ 6·31	0	Comilla.	
23	2	1	1	2	...	2	...	...	0·9	?	?	92	·472	0·6	0	0·50	−0·50	0	0·14	− 0·14	5·47	4·90	+ 0·57	0	Sirajganj.	
3	9	13	1	...	3	...	...	2	2·8	1·9	+47	86	·476	0·7	0	0·73	−0·73	0	0·24	− 0·24	4·87	5·27	− 0·40	0	Dacca.	
25	1	4	...	1	...	...	...	...	1·6	?	?	89	·509	0·7	0	0·50	−0·50	0	0·36	− 0·36	8·58	6·75	+ 1·83	0	Barisal.	
1	5	13	8	2	...	...	...	2	1·8	?	?	89	·445	0·8	0	0·40	−0·40	0	0·20	− 0·20	7·37	6·38	+ 0·99	0	Mymensingh.	
25	4	...	...	...	...	...	...	2	0·8	?	?	90	·495	0·5	0	0·40	−0·40	0	0·15	− 0·15	2·12	4·84	− 2·72	0	Faridpur .	Deltaic Bengal.
15	8	4	...	...	...	...	...	4	1·5	1·7	− 12	88	·473	0·1	0	0·64	−0·64	0	0·31	− 0·31	5·03	4·59	+ 0·44	0	Jessore.	
21	7	2	1	...	...	...	...	...	1·0	3·0	− 67	86	·461	0	0	0·73	−0·73	0	0·39	− 0·39	7·37	4·69	+ 2·68	0	Calcutta.	
...	13	4	3	...	1	...	...	...	8·3	6·4	+30	92	·523	1·8	0	1·27	−1·27	0	0·55	− 0·55	5·42	9·48	− 4·06	0	Saugor Island.	
1	7	2	3	...	2	1	4	11	2·3	?	?	83	·452	0·8	0	0·25	−0·25	0	0·11	− 0·11	5·38	4·64	+ 0·74	0	Krishnagar.	
6	14	3	...	...	..	1	...	7	1·9	?	?	72	·408	0·5	0	0·40	−0·40	0	0·37	− 0·37	3·86	5·38	− 1·52	0	Midnapore.	

* Mean of 30 days. † Mean of 27 days. ‡ Mean of 25 days.

Table

Abstract of Observations taken at 8 A.M. at 207 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Central Bengal.	Bankura*	298	29·802	?	30·071	29·871	16th	29·701	27th	·170	59·7	77·7	?	54·6	?	66·2	?	23·1	81·1	27th	50·8	3 days	30·3
	Raniganj	334	29·822	?	30·093	29·850	1st	29·688	27th	·162	58·9	76·6†	?	53·9	?	64·9†	?	22·7	80·9	1st	50·2	13th	30·7
	Burdwan	99	30·022	+·030	30·074	30·090	16th	29·915	27th	·175	60·5	77·3	−0·3	56·1	+0·5	66·8	+0·1	21·2	80·1	5th	52·7	13th	27·4
	Naya Dumka	489	29·609	?	30·090	29·678	22nd	29·508	27th	·170	57·4	75·6	?	52·2	?	63·9	?	23·4	78·6	6th	48·1	3 days	30·5
	Berhampore	67	30·054	+·033	30·073	30·123	16th	29·945	27th	·178	58·9	75·8	−0·6	56·6	+1·5	66·2	+0·5	19·2	78·9	5th	53·3	13th	25·6
	Rampur Boalia.	70	30·041	?	30·064	30·114	16th	29·932	27th	·182	60·7	75·7	?	52·1	?	63·9	?	23·6	79·6	5th	48·1	11th	31·5
	Malda	72	30·043*	?	30·080*	30·121	6th	29·915	27th	·206	57·7*	75·7*	?	51·1‡	?	63·4‡	?	24·6	78·3	5th	47·5	11th	30·8
	Bogra	61	30·045	?	?	30·114	1st	29·957	27th	·157	59·2	76·4	?	51·8	?	64·1	?	24·6	79·8	4th	48·2	2 days	31·6
North Bengal	Dinajpur	123	25·997	+·054	30·082	30·074	6th	29·877	27th	·197	57·7	75·7	?	51·3	?	63·5	?	24·4	79·1	5th	47·5	3 days	31·6
	Rangpur	123	30·002	?	30·087	30·076	6th	29·888	27th	·188	56·0	75·0	?	50·5	?	62·7	?	24·5	77·8	5th	46·1	23rd	31·7
	Jalpaiguri	284	29·845	+·054	30·100	29·931	6th	29·739	27th	·192	56·9	74·8	?	50·6	?	62·7	?	24·2	77·9	6th	46·6	7th	31·3
Orissa	Balasore	56	30·057	+·026	30·062	30·114	9th	29·967	27th	·147	60·8	78·7	?	55·2	?	66·9	?	23·5	81·3	3 days	50·5	4 days	30·8
	False Point	21	30·093	+·030	30·056	30·149	16th	30·019	27th	·130	64·6	78·1	+1·0	57·2	+0·1	67·7	+0·6	20·9	80·9	1st	51·8	13th	29·1
	Cuttack	80	30·027	+·028	30·053	30·091	16th	29·943	27th	·148	64·6	81·4	−0·6	59·3	+1·3	70·3	+0·4	22·1	83·8	1st	53·9	12th	29·9
	Shortt's Island	?	30·089	?	?	30·151	9th	30·011	27th	·140	71·5	76·4	?	68·3	?	72·4	?	8·1	83·0	28th	64·1	13th	18·9
	Puri	15	30·086	?	30·041	30·138	3 days	30·014	27th	·124	66·3	80·4	?	62·6	?	71·5	?	17·8	83·2	8th	58·6	12th & 13th.	24·6
V.—Gangetic Plain and Chota Nagpur.		...	...	+·023	...	...	...	...	...	...	...	74·8	−0·1	50·4	+1·1	62·6	+0·5	24·4	...	...	...	...	31·8
Chota Nagpur	Hazaribagh	2,007	28·039	+·015	30·083	28·121	6th	27·939	27th	·182	57·5	72·5	+1·1	50·2	+0·1	61·3	+0·6	22·3	76·2	16th	45·3	12th	30·9
	Ranchi	2,128	27·914	?	30·075	27·987	6th	27·817	24th	·170	58·0	71·8	?	51·2	?	61·5	?	20·6	76·0	27th	45·3	12th	30·7
	Daltonganj	730?	29·373	?	30·102	29·469	28th	29·277	27th	·192	57·7	75·6	?	47·3	?	61·4	?	28·3	78·4	28th	42·5	12th	35·9
	Chaibassa	760	29·329	?	30·031	29·393	9th	29·231	26th	·162	57·7	78·6	+1·5	52·3	+0·7	65·5	+1·1	26·3	82·5	28th	47·8	13th	34·7
Bihar (South)	Gaya	375	29·749	?	?	29·822	16th	29·640	27th	·182	58·1	76·6	+0·9	52·1	+1·2	64·4	+1·1	24·5	78·7	2nd	48·5	13th	30·2
	Dehri	351	29·781	?	30·107	29·862	16th	29·655	27th	·207	60·2	75·6	?	53·1	?	64·4	?	22·5	78·1	2 days	50·4	11th	27·7
	Patna	183	29·946	+·017	30·093	30·033	6th	29·825	27th	·208	59·2	73·9	−0·1	53·3	+2·4	63·6	+1·2	20·6	77·4	2 days	48·4	18th	29·0
	Arrah	190	29·937	?	30·091	30·019	6th	29·819	27th	·200	56·5	75·4	?	50·6	?	63·0	?	24·8	78·8	7th	47·5	13th	31·3
	Buxar	239	29·819	?	30·099	29·986	6th	29·784	27th	·202	60·4	75·3	?	52·2	?	63·8	?	23·1	79·6	6th	47·4	2 days	32·2
Bihar (North)	Purnea	125	29·995	+·038	30·083	30·086	6th	29·870	27th	·216	54·4	73·9	−2·2	50·9	+1·0	62·4	−0·6	23·0	77·2	2 days	47·3	4 days	29·9
	Bhagalpur	160	29·955	?	30·077	30·050	6th	29·832	27th	·218	57·9	75·4	?	50·6	?	63·0	?	24·8	77·8	3 days	47·0	18th	30·8
	Darbhanga	166	29·963	+·032	30·093	30·050	6th	29·834	27th	·216	57·3	74·3	+0·4	54·1	−0·1	64·3	+0·2	20·2	78·3	7th	51·9	2 days	26·4
	Muzaffarpur	178	29·958	?	30·101	30·055	6th	29·831	27th	·224	57·0	73·5	?	51·9	?	62·7	?	21·6	76·7	4 days	48·3	18th	28·4
	Motihari	224	29·889	?	30·085	29·989	6th	29·760	27th	·229	56·0	74·4	?	48·7	?	61·6	?	25·7	78·7	7th	43·9	21st	34·8
	Chapra	181	29·957	?	30·102	30·042	6th	29·838	27th	·204	58·0	74·5	?	51·9	?	63·2	?	22·6	78·3	5th	48·7	19th	29·6
N.-W. P. (Eastern Districts).	Benares	267	29·852	+·019	30·095	29·943	6th	29·738	27th	·205	53·5	73·7	−1·5	48·9	+1·3	61·3	−0·1	24·8	75·7	3 days	44·5	17th	31·2
	Allahabad	309	29·807	+·014	30·093	29·892	6th	29·698	27th	·194	55·6	75·4	+0·6	49·4	+2·2	62·4	+1·4	26·0	77·5	3 days	44·4	12th & 17th.	33·1
N.-W. P. (East Submontane).	Gorakhpur	256	29·860	+·029	30·092	29·930	6th	29·733	27th	·197	57·8	73·1	−1·6	51·5	+1·6	62·3	0	21·6	76·5	6 days	47·8	18th & 19th.	28·7
Oudh (South)	Lucknow	370	29·743	+·019	30·100	29·849	6th	29·622	24th	·227	52·8	75·3	−0·2	45·9	+0·6	60·6	+0·2	29·4	78·4	6th	41·0	17th	37·4
Oudh (North)	Bahraich	403	?	?	?	?	...	?	...	?	55·9	74·8	?	48·3	?	61·6	?	26·5	78·9	3rd	44·5	17th	34·4
N.-W. Provinces (Central).	Cawnpore	416	29·703	?	30·109	29·793	6th	29·586	27th	·207	55·3	75·9	?	47·3	?	61·6	?	28·6	79·1	27th	43·0	11th & 17th.	36·1
	Mainpuri	516	29·579	?	30·092	29·674	6th	29·458	27th	·216	52·5	75·9	?	47·2	?	61·6	?	28·7	77·8	3 days	42·6	17th	35·2

*Mean of 30 days. †Mean of 24 days. ‡ Mean of 29 days.

I—*continued.*

in India, Burma, etc., in December 1893—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 31st Dec. 1893.	Normal rainfall for period 1st Oct. to 31st Dec.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
19	5	...	...	...	...	...	4	2	1·6	?	?	78	·404	1·0	0	0·50	−0·50	0	0·22	− 0·22	3·43	4·62	− 1·19	0	Bankura * .	CENTRAL BENGAL.
7	7	1	...	...	...	...	1	15	1·3	?	?	82	·413	0	0	0·35	−0·35	0	0·12	− 0·12	2·96	3·73	− 0·77	0	Raniganj.	
8	13	2	...	...	...	1	1	6	1·5	1·9	−21	77	·406	1·0	0	0·27	−0·27	0	0·16	− 0·16	5·34	4·15	+ 1·19	0	Burdwan.	
15	6	1	1	...	...	...	1	7	2·1†	?	?	81	·383	0·1	0	0·42	−0·42	0	0·22	− 0·22	4·50	4·48	+ 0·02	0	Naya Dumka.	
4	11	2	2	...	...	...	1	11	1·4	1·6	−13	91	·455	0·5	0	0·45	−0·45	0	0·21	− 0·21	3·00	5·29	− 2·20	0	Berhampore.	
5	19	6	...	...	...	...	1	...	3·9	?	?	85	·455	0·8	0	0·30	−0·30	0	0·11	− 0·11	4·56	4·69	− 0·13	0	Rampur Boalia.	
2	...	1	...	...	...	1	...	26	2·2	?	?	85	·408	0·5	0	0·30	−0·30	0	0·18	− 0·18	6·15	4·72	+ 1·43	0	Malda. *	
8	...	16	3	...	...	...	...	4	1·2	?	?	85	·434	0·2	0	0·25	−0·25	0	0·10	− 0·10	4·81	4·38	+ 0·43	0	Bogra.	
...	3	26	...	...	...	...	...	2	1·8	?	?	83	·398	0·2	0	0·30	−0·30	0	0·06	− 0·06	3·38	5·20	− 1·82	0	Dinajpur .	NORTH BENGAL.
1	1	9	19	1	...	...	...	...	1·5	?	?	89	·410	0·1	0	0·25	−0·25	0	0·10	− 0·10	1·74	5·52	− 3·78	0	Rangpur.	
9	12	4	2	...	...	...	...	4	1·9	?	?	82	·382	1·0	0	0·20	−0·20	0	0·13	− 0·13	3·21	5·69	− 2·48	0	Jalpaiguri.	
2	15	1	1	...	...	2	2	8	2·9	?	?	86	·458	0·2	0	0·70	−0·70	0	0·44	− 0·44	5·15	7·52	− 2·37	0	Balasore .	ORISSA.
...	21	2	...	...	..	...	...	8	6·1	6·3	− 3	84	·481	2·4	0	1·18	−1·18	0	1·20	− 1·20	5·39	12·11	− 6·72	0	False Point.	
25	1	1	...	...	...	1	1	2	1·3	1·3	0	72	·443	0·7	0	1·18	−1·18	0	0·49	− 0·49	5·47	5·89	− 0·42	0	Cuttack.	
...	7	13	2	...	1	...	3	5	12·2	?	?	71	·550	0·4	0	?	?	0	?	?	3·96	?	?	0	Shortt's Island	
2	25	3	1	...	...	...	...	...	5·8*	?	?	76	·493	0·3	0	0·90	−0·90	0	0·68	− 0·68	8·52	11·79	− 3·27	0	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·29	−0·29	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
12	0	3	5	1	0	3	4	3	4·5	4·6	− 2	72	·343	0	0	0·45	−0·45	0	0·31	− 0·31	6·27	3·74	+ 2·53	0	Hazaribagh.	CHOTA NAGPUR.
23	2	...	...	...	...	2	3	1	3·6	?	?	71	·345	0·3	0	0·55	−0·55	0	0·29	− 0·29	5·03	3·67	+ 1·36	0	Ranchi.	
...	5	...	4	1	...	6	1	14	1·7	?	?	79	·380	0·4	0	?	?	0	?	?	3·19	?	?	0	Daltonganj.	
21	1	...	...	...	3	2	2	1	0·3	?	?	80	·383	0·9	0	0·70	−0·70	0	0·37	− 0·37	0·87	3·56	− 2·69	0	Chaibassa.	
1	1	1	2	8	11	2	5	...	5·7	1·3	+338	74	·362	1·5	0	0·27	−0·27	0	0·31	− 0·31	1·76	3·17	− 1·41	0	Gaya . .	BIHAR (South).
...	...	...	4	...	...	22	4	1	3·2	?	?	83	·433	0	0	0·71	−0·71	0	0·57	− 0·57	5·92	3·71	+ 2·21	0	Dehri.	
8	1	1	5	1	3	5	7	...	1·8	1·7	+ 6	80	·406	0·4	0	0·36	−0·36	0	0·21	− 0·21	6·23	3·54	+ 2·69	0	Patna.	
...	8	6	1	...	1	1	4	10	1·2	?	?	87	·401	0·5	0	0·35	−0·35	0	0·21	− 0·21	3·90	3·64	+0·26	0	Arrah.	
4	2	1	3	1	2	8	9	1	1·7	?	?	76	·406	0·5	0	0·45	−0·45	0	0·23	− 0·23	9·25	3·75	+5·50	0	Buxar.	
8	8	3	2	2	...	...	4	4	1·2	1·3	− 8	92	·392	0·1	0	0·36	−0·36	0	0·16	− 0·16	4·04	3·99	+0·05	0	Purnea .	BIHAR (North).
29	1	1	...	...	...	...	...	...	0·3	?	?	84	·401	0·5	0	0·35	−0·35	0	0·10	− 0·10	4·60	3·57	+1·03	0	Bhagalpur.	
14	...	3	4	3	1	3	2	1	1·0	2·0	− 50	90	·424	0·1	0	0·36	−0·36	0	0·15	− 0·15	9·39	3·81	+5·58	0	Darbhanga.	
20	...	...	4	4	...	1	2	...	1·0	?	?	93	·433	0·3	0	0·20	−0·20	0	0·13	− 0·13	12·03	3·69	+8·34	0	Muzaffarpur.	
13	...	...	1	2	...	5	10	...	2·1	?	?	92	·414	0·3	0	0·56	− 0·56	0	0·18	− 0·18	8·50	3·69	+ 4·81	0	Motihari.	
12	1	2	3	...	...	7	4	2	1·4	?	?	87	·421	0·7	0	0·35	−0·35	0	0·18	− 0·18	4·67	4·07	+0·60	0	Chapra.	
29	...	1	...	...	...	1	...	...	1·3	2·4	− 46	94	·389	0·4	0	0·45	−0·45	0	0·33	− 0·33	5·10	3·17	+1·93	0	Benares .	N.-W. P. (Eastern Districts).
16	1	1	1	...	1	1	4	6	2·0	1·5	+ 33	85	·382	0·7	0	0·64	−0·64	0	0·43	− 0·43	3·79	2·22	+1·57	0	Allahabad.	
12	4	...	3	1	...	1	10	...	1·0	0·9	+ 11	83	·403	0·4	0	0·45	−0·45	0	0·21	− 0·21	10·98	4·07	+6·91	0	Gorakhpur .	N.-W. P. (East Submontane).
31	...	...	...	...	...	...	...	...	0·1	1·7	− 94	89	·355	1·1	0	0·82	−0·82	0	0·40	− 0·40	1·85	1·13	+0·72	0	Lucknow.	OUDH (South).
16	...	4	2	2	...	1	1	5	1·7	?	?	89	·404	0·3	0	?	?	0	0·45	− 0·45	3·29	2·14	+1·15	0	Bahraich .	OUDH (North).
16	1	1	...	2	1	1	7	2	1·7	?	?	85	·377	0·4	0	0·5	−0·5	0	0·30	− 0·30	1·69	1·40	+0·29	0	Cawnpore .	N.-W. PROVINCES (Central).
25	...	...	...	2	...	2	1	1	0·7	?	?	81	·328	1·4	0	?	?	0	0·48	− 0·48	2·24	1·30	+0·94	0	Mainpuri.	

* Mean of 30 days.

† Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 207 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.	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		...	...	+·023	...	...	...	...	...	...	..	71·6	−0·1	45·3	+2·4	58·5	+1·2	26·3	...	...	...	...	35·0
N.-W. Provinces (Submontane).	Bareilly	568	29·522	+·024	30·098	29·618	6th	29·387	27th	·231	51·5	72·6	−0·2	47·6	+2·3	60·2	+1·1	25·0	75·7	4th	42·7	16th	33·0
	Dehra Dun	2,233	27·818	+·019	30·122	27·912	6th	27·692	24th	·220	51·3	68·0	+0·2	47·7	+2·3	57·9	+1·3	20·3	71·5	4th	42·0	16th	29·5
	Roorkee	887	29·187	+·020	30·113	29·279	6th	29·055	27th	·224	47·8	72·9	+0·3	45·2	+2·0	59·1	+1·2	27·7	76·8	3rd	38·9	11th	37·9
	Meerut	738	29·354	+·030	30·117	29·445	6th	29·226	25th	·219	49·0	73·6	+0·3	45·6	+1·9	59·6	+1·1	28·0	76·2	3rd & 4th	42·1	4 days	34·1
Punjab (Central)	Delhi	718	29·358	?	?	29·448	6th	29·216	25th	·232	52·9	72·9	−1·9	50·4	+2·0	61·7	+0·1	22·5	75·1	3 days	47·6	16th & 29th.	27·5
	Lahore	702	29·384	+·015	30·114	29·487	9th	29·174	31st	·313	48·5	72·2	+0·5	44·6	+4·4	58·4	+2·5	27·6	76·3	21st	39·2	15th	37·1
Punjab (Submontane).	Umballa	962?	29·175	?	30·115	29·289	6th	29·038	25th	·251	48·2	74·2	?	44·0	?	59·0	?	30·2	77·0	3 days	37·0	15th	40·0
	Ludhiana	812	29·277	+·031	30·122	29·367	9th	29·140	25th	·227	48·8	71·8	+0·2	44·8	+1·7	58·3	+1·0	27·0	75·6	25th	39·4	15th	36·2
Punjab (North)	Sialkot	830	29·252	+·036	30·118	29·361	9th	29·097	31st	·264	49·3	70·5	−0·1	44·8	+3·2	57·6	+1·6	25·7	74·0	6th	39·3	10th & 15th.	34·7
	Rawalpindi	1,649	28·413	+·008	30·132	28·524	9th	28·192	31st	·332	43·0	67·5	−0·4	38·0	+2·1	52·8	+0·9	29·5	72·6	20th	31·9	15th	40·7
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·002	...	...	...	...	...	...	...	78·4	+2·0	48·2	+2·5	63·0	+2·3	29·6	...	...	...	...	40·4
Punjab (West)	Peshawar	1,110	28·999	+·007	30·136	29·111	9th	28·824	31st	·287	43·7	68·1	+0·1	39·8	+2·1	54·0	+1·1	28·3	76·7	21st	32·9	2nd	43·8
	Mardan	?	?	?	?	?	...	?	...	?	40·1	85·5	?	?	?	?	?	?	95·1	14th & 15th,	?	...	?
	Khushab	612	29·475	?	30·108	29·575	9th	29·255	31st	·320	48·0	73·0	?	42·6	?	57·8	?	30·4	79·9	21st	35·1	2nd	44·8
	Montgomery	558	29·541	?	30·112	29·661	9th	29·316	31st	·345	50·6	75·8	?	43·8	?	59·8	?	32·0	79·3	20th & 23rd.	38·3	15th	41·0
	D. I. Khan	573	29·524	+·001	30·122	29·637	9th	29·297	31st	·340	44·8	72·7	−0·5	40·7	+1·1	56·7	+0·3	32·0	78·2	3rd & 21st.	32·0	2nd	46·2
	Mooltan	420	29·702	+·019	30·126	29·782	6th	29·462	31st	·320	51·6	75·8	+1·8	47·1	+4·3	61·4	+3·1	28·7	78·3	6 days	43·2	16th	35·1
	Sirsa	662	29·422	+·010	30·103	29·527	9th	29·210	31st	·317	48·2	77·9	+2·9	44·3	+2·4	61·1	+2·7	33·6	81·0	25th & 26th.	39·2	16th	41·8
Sind and Cutch	Jacobabad	186	29·923	−·006	30·085	30·045	9th	29·708	31st	·337	52·8	79·0	+2·2	45·9	+2·7	62·5	+2·5	33·1	83·5	26th	40·1	20th	43·4
	Hyderabad	117	29·993	−·007	30·071	30·106	9th	29·773	31st	·333	58·7	81·4	+2·5	55·0	+2·5	68·2	+2·5	26·4	86·2	23rd	47·0	21st	39·2
	Kurrachee	49	30·062	−·006	30·065	30·170	9th	29·848	31st	·322	63·0	81·4	+1·3	57·4	+1·4	69·4	+1·4	24·0	86·0	2nd & 5th	51·1	21st & 22nd.	34·9
	Bhuj	395	29·677	−·005	30·041	29·744	2nd	29·449	31st	·295	67·1	85·4	+3·7	59·1	+3·9	72·3	+3·8	26·3	89·9	3rd	54·0	18th & 19th.	35·9
Rajputana (West)	Bickaneer	753	29·329	?	30·089	29·455	9th	29·050	31st	·405	56·5	79·1	+3·9	54·3	+1·9	66·7	+2·9	24·8	82·2	6 days	51·3	19th	30·9
	Pachpadra	380	29·691	?	30·052	29·812	17th	29·503	31st	·309	57·9	84·1	?	48·5	?	66·3	?	35·6	88·6	2nd	41·0	20th	47·6
VIII.—East Rajputana, Central India and Gujarat.		...	...	+·024	...	...	...	...	...	...	...	80·9	+0·9	53·4	+2·1	67·2	+1·5	27·6	...	...	..	...	36·1
Rajputana (East)	Jeypore	1,431	28·660	+·015	30·131	28·752	9th	28·489	31st	·263	55·7	78·6	+0·9	49·9	+1·9	64·3	+1·4	28·7	82·0	21st	45·2	18th	36·8
	Sambhar	1,254	?	?	?	28·912	9th	28·612	31st	·300	52·6	76·6	+1·3	47·2	+1·5	61·9	+1·4	29·4	79·8	26th	42·9	16th	36·9
	Ajmere	1,611	28·490	+·032	30·168	28·580	9th	28·272	31st	·308	51·1	76·9	+0·7	46·5	+2·6	61·8	+1·7	30·4	79·9	3 days	41·4	16th	38·5
	Deesa	466	29·616	+·009	30·064	29·7 5	17th	29·396	31st	·309	62·0	86·7	+1·8	54·4	+2·6	70·5	+2·2	32·3	90·2	21st	49·1	18th & 25th.	41·1
Kathiawar	Rajkot	429	29·647	+·016	30·046	29·707	20th	29·456	31st	·251	67·2	87·2	+1·7	56·9	+5·0	72·1	+3·4	30·3	90·9	30th	52·5	22nd	38·4
	Veraval	?	30·052	?	30·012	30·108	12th	29·935	31st	·173	69·2	83·7	?	63·5	?	73·6	?	20·2	87·6	8th & 10th.	56·3	22nd	31·3
	Bhavnagar	?	36·061	?	30·048	30·124	15th	29·895	31st	·229	63·6	82·7	?	60·1	?	71·4	?	22·6	87·4	2nd	55·5	19th	31·9
Central India	Nowgong	757	29·319	+·022	30·114	29·427	16th	29·206	31st	·221	54·4	74·9	−0·4	46·5	+0·8	60·7	+0·2	28·4	78·6	15th	41·1	17th	37·5
	Indore	1,823	28·249	+·040	30·104	28·329	9th	28·081	31st	·248	58·0	78·7	+0·5	49·0	+0·1	63·9	+0·3	29·7	81·0	4 days	42·7	17th	38·3
	Neemuch	1,630	28·452	+·026	30·123	28·546	9th	28·245	31st	·301	57·7	78·7	+0·9	50·2	+1·3	64·4	+1·1	28·5	81·8	3 days	45·9	3 days	35·9
Gujarat	Surat	36	30·039	+·020	30·019	30·096	12th	29·893	31st	·203	66·0	88·2	+1·6	59·3	+2·6	73·8	+2·1	28·9	93·2	2nd	52·1	24th	41·1
	Ahmedabad	176	29·935	?	30·068	30·009	9th	29·740	31st	·269	65·8	85·8	?	60·1	?	73·0	?	25·7	88·7	3rd & 30th.	56·7	18th & 26th.	32·0
N.-W. P. (West)	Agra	555	29·560	+·016	30·115	29·646	6th	29·431	25th	·215	54·0	76·3	+0·4	50·1	+2·1	63·3	+1·3	26·2	78·6	14th & 26th.	45·1	16th	33·5
	Jhansi	858	29·256	+·039	30·116	29·344	9th	29·111	31st	·233	60·5	78·2	+0·4	53·2	+2·0	65·8	+1·7	25·0	81·9	27th	49·4	17th	32·5

I—*continued.*

in India, Burma, etc., in December 1893—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 1893.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
																									VI.—Upper Sub-Himalayas.	
...	.	..	.	..	..	...	...	...	...	...	...	...	...	...	...	...	..	0·06	0·45	−0·38	...	...	...	...		
26	...	...	...	...	2	2	...	1	0·2	2·2	− 91	86	·332	1·5	0	0·64	−0·64	0	0·38	− 0·38	6·45	1·55	+ 4·90	0	Bareilly	N.-W. Provinces (Submontane).
31	...	...	...	...	...	...	...	...	0·1*	1·7	− 94	80	·307	3·4	0	1·10	−1·10	0·01	0·87	− 0·86	3·74	1·81	+ 1·93	0·01	Dehra Dun.	
22	1	...	2	2	...	1	2	1	0·3	1·3	− 77	91	·309	1·8	0	0·91	−0·91	0	0·29	− 0·29	1·33	0·93	+ 0·40	0	Roorkee.	
24	...	...	1	...	...	...	6	...	0·5	1·6	− 69	79	·280	2·1	0	1·00	−1·00	0	0·34	− 0·34	0·40	1·02	− 0·62	0	Meerut.	
22	...	...	...	1	1	3	4	...	0·9	2·7	− 67	69	·278	2·6	0	0·55	−0·55	0	0·38	− 0·38	0·55	0·62	− 0·07	0	Delhi	Punjab (Central).
25	...	1	...	2	...	...	3	...	0·9	1·5	− 40	80	·273	2·7	1	0·55	+0·45	0·40	0·19	+ 0·21	0·40	0·48	− 0·08	0·40	Lahore.	
25	...	1	...	...	...	1	1	3	1·3	?	?	90	·307	2·6	0	?	?	0	0·44	− 0·44	0·18	0·93	− 0·75	0	Umballa	Punjab (Submontane).
27	1	...	...	...	1	...	2	...	0·5	0·8	− 38	83	·289	4·2	0	1·27	−1·27	0	0·52	− 0·52	0	1·10	− 1·10	0	Ludhiana.	
27	...	...	4	...	...	...	...	...	0·6	1·1	− 45	79	·280	3·2	0	0·82	−0·82	0	0·41	− 0·41	0	0·72	− 0·72	0	Sialkot	Punjab (North).
23	1	1	...	1	1	...	2	2	0·6	1·1	− 45	80	·226	4·2	1	1·27	−0·27	0·22	0·63	− 0·41	0·64	1·55	− 0·91	0·22	Rawalpindi.	
																									VII.—Indus Valley and N.-W. Rajputana.	
...	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	...	0·43	0·08	+0·26	...	...	...	...		
18	...	1	...	...	2	7	3	...	1·9	2·4	− 21	70	·201	5·1	1	0·64	+0·36	0·94	0·15	+ 0·79	0·94	0·65	+ 0·29	0·94	Peshawar	Punjab (West).
?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	1	?	?	1·44	?	?	1·44	?	?	1·44	Mardan.	
23	1	6	1	...	...	...	...	...	1·2	?	?	59	·203	4·5	1	0·2	+0·8	0·45	0·16	+ 0·29	0·47	0·56	− 0·09	0·45	Khushab.	
17	4	5	3	1	1	...	...	...	2·2	?	?	65	·244	0·5	1	0·4	+0·6	0·44	0·20	+ 0·24	0·44	0·33	+ 0·11	0·44	Montgomery.	
27	1	1	1	...	...	1	...	...	1·2	0·8	+ 50	63	·189	3·6	1	0·27	+0·73	0·69	0·08	+ 0·61	0·69	0·26	+ 0·43	0·69	D. I. Khan.	
19	...	9	...	1	...	2	...	...	0·7	1·3	− 46	70	·271	3·2	1	0·18	+0·82	0·14	0·07	+ 0·07	0·14	0·14	0	0·14	Mooltan.	
26	...	...	1	2	1	...	...	1	1·9	2·2	− 14	71	·243	3·0	1	0·73	+0·27	0·27	0·30	− 0·03	0·27	0·52	− 0·25	0·27	Sirsa.	
30	...	...	...	1	...	...	...	...	0·9	1·6	− 44	62	·254	3·2	0	0·09	−0·09	0	0	0	0	0	0	0	Jacobabad	Sind and Cutch.
11	15	1	1	...	...	...	...	3	7·3	6·5	+ 12	59	·287	1·0	1	0	+1·00	0·36	0	+ 0·36	0·37	0·06	+ 0·31	0·36	Hyderabad.	
...	...	30	...	...	...	...	...	1	11·5	9·2	+ 25	61	·356	4·2	1	0·10	+0·90	0·67	0	+ 0·67	0·69	0	+ 0·69	0·67	Kurrachee.	
23	1	2	4	...	1	...	—	...	6·7	5·1	+ 31	53	·351	2·5	0	?	?	0	0	0	0·27	0·42	− 0·15	0	Bhuj.	
5	5	5	1	2	...	1	1	11	2·5	2·4	+ 4	48	·223	3·7	1	?	?	0·18	0	+ 0·18	0·69	0·19	+ 0·50	0·18	Bickaneer	Rajputana (West).
15	2	7	...	2	...	...	...	5	0·8	2·1	− 62	54	·263	6·0	0	?	?	0	0·03	− 0·03	1·32	0·08	+ 1·24	0	Pachpadra.	
																									VIII.—East Rajputana, Central India and Gujarat.	
...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·04	0·18	−0·16	...	...	...	...		
19	1	4	2	1	...	2	1	1	1·4	3·4	− 59	66	·296	2·5	0	0·30	−0·30	0·09	0·07	+ 0·02	2·55	0·51	+ 2·04	0·09	Jeypore	Rajputana (East).
10	2	1	2	3	3	...	8	2	3·9	3·7	+ 5	69	·279	1·2	1	0·60	+0·40	0·12	0·22	− 0·10	1·89	0·52	+ 1·37	0·12	Sambhar.	
27	...	..		1	...	...	1	2	1·6	1·4	+ 14	82	·312	2·4	0	0·45	−0·45	0	0·12	− 0·12	1·93	0·44	+ 1·49	0	Ajmere.	
...	...	9	14	7	1	...	...	...	6·9	8·1	− 15	56	·313	1·9	0	0·09	− 0·09	0	0·07	− 0·07	1·55	0·55	+ 1·00	0	Deesa.	
6	4	5	12	3	...	...	...	1	4·4	4·8	− 8	61	·414	0·7	0	0	0	0	0	0	1·54	0·74	+ 0·80	0	Rajkot	Kathiawar.
5	8	17		1	...	...	...	..	3·6	?	?	65	·467	3·4	0	?	?	0	?	?	2·28	?	?	0	Veraval.	
...	4	2	...	...	...	10	5	10	6·8	?	?	81	·485	2·4	1	?	?	0·37	?	?	3·70	?	?	0·37	Bhavnagar.	
13	1	1	3	1	...	3	6	3	1·3	1·2	+ 8	81	·342	0·5	0	0·64	−0·64	0	0·73	− 0·73	3·58	2·15	+ 1·43	0	Nowgong	Central India.
15	8	2	3	1	2	...	...	...	1·2	2·1	− 43	71	·347	0·3	0	0·55	−0·55	0	0·28	− 0·28	2·76	2·46	+ 0·30	0	Indore.	
6	...	6	16	2	...	1	...	...	4·3	8·1	− 47	56	·271	1·2	0	0·73	−0·73	0	0·20	− 0·20	2·46	1·03	+ 1·43	0	Neemuch.	
...	4	11	8	1	...	1	2	4	?	5·0	?	65	·426	1·0	0	0·18	−0·18	0	0	0	0·47	1·93	− 1·46	0	Surat	Gujarat.
3	...	8	15	3	...	1	...	...	4·6	?	?	55	·354	2·5	0	?	?	0	?	?	2·67	?	?	0	Ahmedabad.§	
4	...	2	..	7	...	3	...	15	2·6	2·6	0	72	·301	1·2	0	0·55	−0·55	0	0·15	− 0·15	1·97	0·60	+ 1·37	0	Agra	N.-W. P. (West).
20	1	...	...	...	2	5	1	2	1·1	2·3	− 52	60	·320	0·5	0	0·36	−0·36	0	0·14	− 0·14	3·21	1·01	+ 2·20	0	Jhansi.	

* Mean of 29 days. † Wind direction for 30 days.

Table

Abstract of Observations taken at 8 A.M. at 207 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
IX.—Deccan	...	...	...	+·033	...	...	...	...	...	...	...	80·5	+0·2	53·3	+0·5	67·0	+0·4	27·7	...	...	...	...	37·3
Bombay (Deccan)	Belgaum	2,524	27·506	+·033	30·007	27·548	2nd	27·428	31st	·120	65·4	79·4	−1·7	56·3	−1·8	67·8	−1·8	23·1	83·3	3rd	52·9	16th	30·4
	Sholapur	1,590	28·477	+·043	30·060	28·534	19th	28·373	31st	·161	66·2	83·7	−0·9	55·7	−1·2	69·7	−1·1	28·0	89·2	1st	50·6	12th & 13th	38·6
	Poona	1,840	28·224	+·036	30·076	28·281	19th	28·096	31st	·185	61·4	84·5	+1·5	53·0	−1·0	68·8	+0·3	31·5	89·5	3 days	46·5	13th	43·0
	Bijapur	1,946	28·108	?	30·051	28·157	19th	28·011	31st	·146	64·2	81·6	?	52·3	?	67·0	?	29·3	86·3	1st & 2nd	46·6	13th & 16th, 23rd	39·7
Khandesh	Malegaon	1,430	28·654	+·038	30·096	28·716	19th	28·512	31st	·204	60·9	81·5	+1·7	51·3	+1·3	68·0	+1·5	33·2	91·4	1st	46·0		45·4
	Ahmednagar	2,152	27·920	?	30·086	27·974	19th	27·997	31st	·177	60·9	81·7	?	47·6	?	64·7	?	34·1	87·3	1st	39·4	13th	47·9
Berar	Akola	930	29·159	+·034	30·087	29·223	9th & 16th.	29·024	31st	·199	58·8	82·3	+0·6	50·5	+0·8	66·4	+0·7	31·8	87·0	1st	44·7	20th	42·3
	Amraoti	1,215	28·862	+·031	30·077	28·922	16th	28·732	31st	·190	63·9	81·8	+0·4	57·2	+2·3	69·5	+1·4	24·6	86·4	1st	53·9	3 days	32·5
Central Provinces (West).	Khandwa	1,044	29·034	+·036	30·090	29·118	17th	28·881	31st	·234	57·5	83·5	+2·2	49·1	+0·5	66·4	+1·4	34·4	86·7	1st	43·1	19th	43·6
	Hoshangabad	1,020	29·090	+·030	30·126	29·156	17th	28·923	31st	·233	56·6	77·3	−1·4	51·4	+1·0	64·4	−0·2	25·9	80·8	28th	44·8	19th	36·0
	Nagpur	1,025	29·067	+·039	30·088	29·135	10th	28·940	31st	·189	61·1	80·4	+0·3	53·6	+0·6	67·0	+0·5	26·8	83·8	28th	48·2	19th	35·6
Central Provinces (Central).	Chanda	634	29·465	?	30·082	29·535	10th	29·335	31st	·200	58·6	80·9	?	51·6	?	66·3	?	29·3	85·5	1st	46·1	3 days	39·4
	Seoni	(a) 2,033	28·038	+·025	30·093	28·111	17th	27·935	31st	·176	58·8	75·8	−1·2	49·4	+0·6	62·6	−0·3	26·4	80·1	28th	43·0	12th	37·1
	Jubbulpore	1,327	28·758	+·026	30·119	28·831	9th	28·628	31st	·203	54·0	75·9	+0·1	46·6	+1·6	61·3	+0·9	29·3	79·9	28th	41·4	12th	38·5
	Saugor	1,762	28·308	?	?	28·384	9th	28·168	31st	·216	56·8	77·1	+1·5	50·6	−0·2	63·9	+0·7	26·5	81·3	28th	45·9	19th	35·4
Central Provinces (East).	Raipur*	970	29·124	+·033	30·090	29·193	11th	29·027	31st	·166	61·5	78·6	+0·7	54·5	+1·6	66·6	+1·2	24·1	81·3	28th	50·3	19th	31·5
	Sutna	1,040	29·044	+·015	30·107	29·127	6th	28·923	31st	·204	55·0	73·8	−0·8	48·0	+2·0	61·0	+0·6	25·8	77·0	3 days	43·2	16th	33·8
	Sambalpur	463	29·634	+·031	30·072	29·694	9th	29·549	27th	·145	61·3	80·0	+1·1	54·5	+1·0	67·3	+1·1	25·5	84·5	30th	49·2	12th & 13th, 20th	35·3
Hyderabad (North).	Aurangabad	?	28·225	?	?	28·280	13th	28·101	31st	·179	68·5	83·9	?	53·5	?	68·7	?	30·4	88·8	1st	48·0		40·8
	Indur	?	?	?	?	?	...	?	...	?	65·0	80·0	?	52·3	?	66·1	?	27·7	84·3	1st	45·1	12th	39·2
Hyderabad (South).	Bidar	?	27·896	?	?	27·962	9th & 19th,	27·770	3rd	·192	67·8	78·1	?	58·9	?	68·5	?	19·2	83·1	1st	55·0	12th	28·1
	Gulbarga	1,502	28·556	?	?	28·608	19th	28·466	31st	·142	64·2	82·5	?	55·6	?	69·1	?	26·9	87·8	1st	50·6	20th	37·2
	Raichur	1,378	28·660	?	?	28·725	19th	28·543	31st	·182	67·7	83·3	?	61·4	?	72·4	?	21·9	87·6	1st	57·2	3 days	30·4
	Hyderabad (Deccan).	1,690	28·379	?	30·074	28·435	9th	28·292	31st	·143	62·4	80·2	?	55·4	?	67·8	?	24·8	83·4	3 days.	50·3	16th	33·1
	Secunderabad	1,787	28·297	+·049	30·093	28·352	9th	28·219	31st	·133	61·8	80·3	−1·0	55·6	−0·8	68·0	−0·9	24·7	83·6	1st & 2nd	50·6	12th & 20th.	33·0
	Khamamet	369	29·725	?	29·978	29·799	5th	29·641	31st	·158	66·3	82·9	?	59·1	?	71·1	?	23·8	86·0	3rd	53·7	12th & 13th	32·3
X.—West Coast	...	...	...	+·030	...	...	...	...	...	...	...	86·7	+1·0	68·8	−0·5	77·8	+0·2	17·9	...	...	...	...	24·3
Konkan	Bombay	37	30·027	+·032	30·035	30·084	19th	29·911	31st	·173	73·2	85·2	+1·1	70·7	+1·4	78·0	+1·3	14·5	88·0	1st	68·0	6 days	20·0
	Ratnagiri	110	29·934	?	?	29·983	12th	29·834	31st	·154	75·4	90·1	+0·9	67·4	+0·5	78·8	+0·7	22·7	94·4	4th	61·9	14th	32·5
	Mormugoa	60	29·990	?	29·986	30·047	10th	29·889	31st	·158	71·1	85·6	?	68·1	?	76·9	?	17·5	88·0	4 days	64·3	23rd	23·7
	Goa	23	30·046	+·033	29·983	30·097	11th	29·944	31st	·153	73·0	84·0	?	67·4	?	75·7	?	16·6	86·5	22nd	60·0	28th	26·5
	Karwar	44	29·995	+·044	29·972	30·059	11th	29·902	31st	·157	68·7	87·1	+0·1	66·0	−0·4	76·6	−0·2	21·1	89·8	22nd	62·4	24th & 31st	27·4
Malabar	Cochin	10	29·990	+·031	29·928	30·047	2nd	29·920	31st	·127	75·3	89·8	+2·0	71·2	−1·7	80·5	+0·2	18·6	92·3	2nd	68·7	6 days	23·6
	Calicut	27	29·975	+·017	29·932	30·035	2nd	29·911	28th & 31st	·124	74·3	87·2	?	68·1	?	77·7	?	19·1	89·3	9th	64·7	29th & 30th.	24·6
	Mangalore	65	29·942	+·017	29·940	29·988	2nd	29·872	31st	·116	73·2	89·2	+0·8	68·3	−2·4	78·8	−0·8	20·9	90·8	7th	65·0	22nd & 30th	25·8
	Trivandrum	198	29·783	?	29·913	29·845	2nd	29·718	31st	·127	75·7	82·4	?	72·4	?	77·4	?	10·0	83·5	3rd	68·5	30th	15·0
XI.—South India	...	...	...	+·032	...	...	...	...	...	...	...	81·6	−0·3	63·8	−1·4	72·7	−0·9	17·8	...	...	...	...	24·9
Madras (South)	Pamban	37	29·986	?	29·951	30·035	2nd	29·911	31st	·124	75·7	80·0	?	73·6	?	76·8	?	6·4	81·8	2 days	70·7	4th	11·1
	Tinnevelly	168	29·870	?	29·970	29·912	20th	29·800	31st	·112	74·8	85·1	?	71·5	?	78·3	?	13·6	88·7	27th & 31st.	66·4	21st	22·3
	Madura	447	29·580	+·044	29·972	29·617	20th	29·503	31st	·114	74·6	85·3	−0·5	69·4	−1·0	77·4	−0·8	15·9	87·9	31st	65·6	14th & 30th	22·3

(a) 2,034 feet previous to 13th December 1893.

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in December 1893—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 1893	Normal rainfall for period from 1st October to 31st December.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·58	−0·58	...	...	...	...	**IX.—Deccan.**	
2	...	4	20	5	...	...	...	...	?	12·3	?	62	·388	2·0	0	0·18	−0·18	0	0·07	− 0·07	12·96	7·23	+ 5·73	0	Belgaum .	Bombay (Deccan).
7	...	3	12	9	...	...	...	...	8·4	6·8	+ 24	53	·343	2·5	0	0·91	−0·91	0	0·72	− 0·72	9·06	6·16	+ 2·90	0	Sholapur.	
15	...	2	11	1	...	...	...	2	5·7	5·7	0	56	·311	2·3	0	0·82	−0·82	0	0·38	− 0·38	3·28	5·91	− 2·63	0	Poona.	
3	...	3	8	17	...	...	...	...	3·4	?	?	67	·415	2·5	0	0·09	−0·09	0	0·59	− 0·59	9·45	9·00	+ 0·45	0	Bijapur.	
9	1	...	1	...	...	1	9	10	4·2	3·5	+ 20	59	·322	3·0	0	0·82	−0·82	0	0·48	− 0·48	2·72	4·75	− 2·03	0	Malegaon .	Khandesh.
20	1	2	2	3	1	1	...	1	3·7	?	?	71	·389	1·1	0	?	?	0	0·16	− 0·16	2·07	3·98	− 1·91	0	Ahmednagar.	
10	3	4	9	3	2	...	...	...	3·4	3·1	+ 10	70	·347	3·0	0	?	?	0	1·28	− 1·28	3·25	5·72	− 2·47	0	Akola . .	Berar.
...	6	7	14	4	...	...	...	...	3·7	3·1	+ 19	57	·346	1·1	0	1·09	−1·09	0	1·00	− 1·00	4·28	4·58	− 0·30	0	Amraoti.	
10	...	8	8	2	...	3	...	...	2·4	2·4	0	65	·310	0·8	0	0·64	−0·64	0	0·64	− 0·64	1·44	2·96	− 1·52	0	Khandwa .	Central Provinces (West).
7	...	16	8	...	...	...	...	...	2·2	2·4	− 8	77	·352	1·3	0	1·00	−1·00	0	0·87	− 0·87	5·51	3·34	+ 2·17	0	Hoshangabad	
8	12	9	...	...	...	...	...	2	3·6	2·8	+ 29	60	·358	1·1	0	1·00	−1·00	0	0·66	− 0·66	8·79	4·47	+ 4·32	0	Nagpur.	
23	1	3	2	1	...	...	...	1	1·0	1·6	− 38	78	·388	1·3	0	?	?	0	?	?	4·20	?	?	0	Chanda .	Central Provinces (Central).
...	2	19	3	...	...	5	1	1	0·8	2·5	− 68	79	·394	1·6	0	0·91	−0·91	0	0·85	− 0·85	6·79	3·25	+ 3·54	0	Seoni.	
12	2	...	...	12	5	...	...	...	1·3	1·8	− 28	83	·347	0·9	0	0·91	−0·91	0	0·54	− 0·54	5·74	3·12	+ 2·62	0	Jubbulpore.	
23	1	1	2	2	1	...	...	1	1·5	2·5	− 40	72	·332	0·4	0	0·73	−0·73	0	1·04	− 1·04	3·74	3·24	+ 0·50	0	Saugor.	
17	4	4	1	...	1	...	...	2	1·5‡	2·6	− 42	70	·371	1·3	0	?	?	0	0·40	− 0·40	1·60	3·42	− 1·82	0	Raipur ** .	Central Provinces (East).
10	13	2	3	...	...	...	1	2	3·0	3·6	− 17	80	·345	0·3	0	0·91	−0·91	0	0·59	− 0·59	5·64	3·09	+ 2·55	0	Sutna.	
...	22	7	...	...	...	...	...	2	4·0	1·4	+186	80	·436	1·0	0	?	?	0	0·38	− 0·38	3·07	3·11	− 0·04	0	Sambalpur.	
7	4	9	6	3	1	1	...	...	3·7	?	?	52	·367	1·7	0	?	?	0	0·78	− 0·78	3·50	4·35	− 0·85	0	Aurangabad	Hyderabad (North).
13	3	1	1	7	4	...	1	1	3·9	?	?	77	·478	1·5	0	?	?	0	0·40	− 0·40	6·70	4·09	+ 2·61	0	Indur.	
...	...	4	19	4	1	3	...	...	6·1	?	?	65	·440	0·1	0	?	?	0	0·61	− 0·61	13·13	5·41	+ 7·72	0	Bidar.	
10	...	6	11	3	1	...	...	...	6·0	?	?	65	·396	2·6	0	?	?	0	0·40	− 0·40	11·17	4·10	+ 7·07	0	Gulbarga .	Hyderabad (South).
...	...	8	13	9	1	...	...	...	7·2	?	?	65	·450	2·1	0	?	?	0	0·10	− 0·10	4·63	4·93	− 0·30	0	Raichur.	
25	...	3	...	2	1	...	...	...	3·0	?	?	79	·451	2·5	0	?	?	0	0·39	− 0·39	8·72	5·82	+ 2·90	0	Hyderabad (Deccan).	
15	...	7	8	1	...	...	...	...	3·7	3·3	+ 12	75	·414	1·3	0	?	?	0	0·24	− 0·24	8·50	2·70	+ 5·80	0	Secunderabad	
30	...	1	...	...	...	...	...	...	3·4	?	?	83	·544	0·7	0	?	?	0	?	?	5·51	?	?	0	Khamamet.	
...	...	...	...	...	...	...	...		...	...	...	...	...	..	...	...	...	0·06	0·90	−0·83	...	...	...	...	**X.—West Coast.**	
...	...	9	19	3	...	...	...	...	9·0	10·0	− 10	71	·588	2·4	0	0·18	−0·18	0	0·13	− 0·13	2·09	3·55	− 1·46	0	Bombay .	Konkan.
1	...	3	14	12	1	...	...	...	5·4	9·9	− 45	48	·426	3·1	0	0·27	−0·27	0	0·11	− 0·11	3·90	4·62	− 0·72	0	Ratnagiri.	
...	...	5	19	2	...	...	...	...	8·1§	?	?	72	·557	0·2	0	?	?	0	?	?	13·36	?	?	0	Mormugoa.*	
...	...	30	1	...	...	...	...	...	3·8	?	?	59	·487	1·1	0	?	?	0	0·15	− 0·15	12·47	6·40	+ 6·07	0	Goa.	
4	1	22	3	...	...	...	...	...	1·9	?	?	74	·517	0·7	0	0·18	−0·18	0	0·14	− 0·14	8·86	10·67	− 1·81	0	Karwar.†	
...	5	23	3	...	...	...	...	...	5·2	?	?	72	·639	0·7	0	3·36	−3·36	0	2·10	− 2·10	13·11	23·17	−10·06	0	Cochin .	Malabar.
...	...	8	21	2	...	...	...	...	10·9	?	?	75	·630	0·1	0	2·11	−2·11	0	1·65	−1·65	17·55	16·45	+ 1·10	0	Calicut.	
...	...	2	23	6	...	...	...	...	3·3	3·5	− 6	68	·558	0·6	0	1·10	−1·10	0	0·39	− 0·39	14·55	11·16	+ 3·39	0	Mangalore.	
6	3	9	10	3	...	...	...	...	1·5	?	?	77	·684	2·1	1	?	?	0·52	2·52	− 2·00	25·03	19·52	+5·51	0·52	Trivandrum.	
...	...	..	...	...	...	...		...	...	...	...	...	...	...	..	...	...	1·32	3·19	−1·61	...	...	...	...	**XI.—South India.**	
..	21	6	...	...	...	...	...	4	15·7	?	?	87	·773	4·9	11	7·00	+4·00	9·80	9·11	+ 0·69	26·87	25·52	+ 1·35	2·12	Pamban. .	Madras (South).
...	14	4	...	...	...	...	1	12	5·9	?	?	75	·655	6·2	3	6·50	−3·50	0·60	4·16	− 3·56	19·61	18·16	+ 1·45	0·16	Tinnevelly	
...	15	9	...	..	...	...	...	7	4·3	4·9	− 12	72	·623	3·1	0	4·36	−4·36	0	2·44	− 2·44	20·91	14·01	+ 6·90	0	Madura.	

** Mean of 29 days.
‡ „ of 28 „
„ of 25 „

* Wind directions of 26 days.
† Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 207 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.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras (South Central).	Salem	940	29·118	+·033	30·017	29·159	11th	29·039	31st	·120	71·7	85·9	+0·3	63·5	−1·5	74·7	−0·6	22·4	87·9	26th	58·4	30th	29·5
	Coimbatore	1,348	28·680	+·032	29·998	28·730	2nd	28·616	31st	·114	69·8	83·5	−0·9	64·1	−2·4	73·9	−1·7	19·4	85·4	5 days	59·6	30th	25·8
Coorg	Mercara	3,781	26·293	+·012	29·995	26·348	2nd	26·223	28th	·125	59·3	73·0	−1·8	56·4	−1·1	64·7	−1·5	16·6	76·0	3 days	51·7	28th	24·3
	Chitaldroog	2,405	27·632	?	30·009	27·682	9th	27·553	31st	·129	66·6	79·4	?	58·0	?	68·7	?	21·4	82·1	2nd & 4th.	54·9	19th	27·2
Mysore	Bangalore Bazar	2,982	27·085	+·031	30·037	27·135	10th	27·010	31st	·125	62·7	76·4	−0·8	56·7	−2·1	66·6	−1·5	19·7	79·2	2nd	52·9	15th	26·3
	Bangalore Fort	3,019	27·038	+·017	30·014	27·084	9th	26·963	31st	·121	63·2	78·3	−0·8	56·4	−2·1	67·4	−1·5	21·9	80·7	2nd	52·4	15th	28·3
	Hassan	3,091	27·973	?	30·015	27·014	20th	26·902	31st	·112	64·8	77·7	?	54·0	?	65·9	?	23·7	79·9	4th	50·5	31st	29·4
	Mysore	2,517	27·521	?	30·012	27·569	2nd	27·450	31st	·119	65·5	79·9	?	58·1	?	69·0	?	21·8	82·5	2nd & 7th.	54·4	22nd & 23rd.	28·1
Madras (East Coast, South).	Negapatam	31	29·992	+·031	29·952	30·039	20th	29·921	31st	·118	74·6	80·4	−0·4	70·6	−1·3	75·6	−0·9	9·8	82·1	3 days	67·7	29th & 30th.	14·4
	Cuddalore	12	30·032	?	29·974	30·077	20th	29·952	31st	·125	73·6	83·4‡	?	69·1	?	76·4‡	?	14·3	86·2	6th	66·2	13th & 22nd.	20·0
	Trichinopoly	255	29·782	+·029	29·875	29·831	2nd	29·711	31st	·120	74·8	85·1	+1·0	68·6	−0·4	76·9	+0·3	16·5	88·0	26th	62·9	30th	25·1
	Madras	22	30·041	+·035	29·994	30·092	20th	29·951	31st	·141	74·7	83·6	+0·9	68·5	−1·6	76·1	−0·4	15·1	85·5	3 days	63·5	22nd	22·0
Madras (East Coast, Central).	Nellore	71	30·000	?	30·006	30·055	20th	29·919	31st	·136	72·8	84·2	?	67·5	?	75·9	?	16·7	86·7	2nd & 25th.	64·1	20th & 29th.	22·6
	Masulipatam	15	30·081	+·043	30·031	30·132	11th	30·003	31st	·129	71·0	82·2	−0·1	65·8	−0·7	74·0	−0·4	16·4	84·5	4th	62·2	5 days	22·3
Madras (Central)	Cuddapah	433	29·648	?	30·034	29·705	11th	29·563	31st	·142	72·2	85·3	+0·6	63·8	−2·6	74·6	−1·0	21·8	87·5	5th	59·8	13th	27·7
	Kurnool	923	29·146	?	30·045	29·200	19th	29·067	31st	·133	67·0	85·2	−0·4	57·0	−3·0	71·1	−1·7	28·2	93·2	6th	51·7	14th & 15th.	41·5
	Bellary	1,475	28·584	+·052	30·045	28·637	11th	28·502	31st	·135	66·9	84·0	−1·2	58·9	−1·8	71·5	−1·5	25·1	87·4	3rd	54·0	10th	33·4
Madras (East Coast, North).	Rajahmundry	112	?	?	?	30·014	10th	29·894	31st	·120	68·9	84·5	−1·2	64·2	−1·1	74·4	−1·2	20·3	87·0	4 days	58·9	13th	28·1
	Cocanada	26	30·062	+·040	30·023	30·115	10th	29·982	24th	·133	70·2	79·3	+0·3	65·0	−1·5	72·2	−0·6	14·3	82·7	2nd	59·5	13th	23·2
	Vizagapatam	31	30·058	+·020	30·027	30·106	15th & 16th.	29·984	24th	·122	72·9	77·5	−0·5	69·6	+2·2	73·5	+0·9	7·9	80·4	2nd	65·9	5 days	14·5
	Gopalpur	21	30·088	?	30·050	30·144	16th	30·016	24th	·128	64·5	79·6	?	60·2	?	69·9	?	19·4	81·7	5 days	54·6	13th	27·1
XII - Hill Stations.																							
Baluchistan	Kachh Fort	?	24·063	?	?	24·200	2nd	23·800	31st	·400	39·6	62·3	?	25·8	?	44·1	?	36·5	69·0	20th	17·0	17th	52·0
	Pishin	?	?	?	?	?	...	?	...	?	?	64·1	?	25·0	?	44·5	?	39·1	79·1	20th	14·9	1st & 2nd.	64·2
	Quetta	5,502	24·773	+·048	?	24·928	2nd	24·499	31st	·429	38·3	61·3	+4·0	32·0	+3·6	46·7	+3·8	29·3	71·7	23rd	22·8	1st & 2nd.	48·9
	Shirino	?	?	?	?	?	...	?	...	?	41·7	60·9	?	37·5	?	49·7	?	23·4	71·2	21st	29·6	4th	41·6
	Kalat	?	?	?	?	?	...	?	...	?	39·7	66·2	?	28·7	?	47·4	?	37·5	82·3	22nd	19·8	7th	62·5
	Chaman	5,488	25·782*	?	?	25·859	20th & 21st.	25·579	31st	·280	49·0	62·9	?	41·6	?	52·2	?	21·3	78·1	23rd	33·1	3rd	45·0
Northern India	Srinagar	5,204	25·048	?	?	25·179	20th	24·775	31st	·404	32·0	49·8	?	28·4	?	39·1	?	21·4	55·0	25th	19·6	3rd	35·4
	Gilghit	?	26·236	?	?	26·420	27th	25·900	31st	·520	37·6	53·1	?	35·3	?	44·2	?	17·8	58·9	25th	30·1	3rd & 14th	28·8
	Cherat	?	25·841	?	?	25·942	9th	25·608	31st	·334	50·2	59·4	?	44·1	?	51·8	?	15·3	70·8	22nd	35·1	31st	35·7
	Murree	6,344	23·929	+·024	?	23·995	6th	23·692	31st	·303	45·7	55·9	+1·9	42·8	+3·0	49·4	+2·5	13·1	67·1	21st	35·0	31st	32·1
	Poo	?	?	?	?	?	...	?	...	?	?	46·5	?	28·9	?	37·7	?	17·6	52·4	24th	24·6	2 days	27·8
	Simla	7,224	23·185	+·017	?	23·266	6th	23·079	31st	·187	44·0	51·1	−0·8	41·5	+1·6	46·3	+0·4	9·6	58·4	24th	34·5	9th & 15th.	23·9
	Chakrata†	7,052	23·297	−·004	?	23·396	6th	23·187	27th	·209	44·6	54·3	−0·7	40·2	+0·9	47·3	+0·1	14·1	62·3	25th	31·6	15th	30·7
	Mussooree	?	23·629	?	?	23·730	6th	23·514	27th	·216	44·2	51·1	?	40·4	?	45·8	?	10·7	57·7	24th	35·0	15th	22·7
	Ranikhet	6,069	24·183	+·028	?	24·270	6th	24·069	27th	·201	44·8	57·4	−0·6	42·1	−0·2	49·8	−0·4	15·3	62·7	25th	36·0	15th	26·9
	Gnatong	?	18·910	?	?	18·980	11th	18·870	17th	·110	29·1	39·5	?	20·6	?	30·1	?	18·9	46·4	2 days	13·1	16th	33·3
	Darjeeling	7,421	23·053	+·026	?	23·174	6th	29·921	27th	·253	41·3	48·7	−0·2	36·1	−0·7	42·5	−0·5	12·6	55·9	31st	31·4	15th	24·5
	Gantok	?	24·580	?	?	24·669	6th	24·414	27th	·255	45·5	59·6	?	40·3	?	49·9	?	19·3	63·8	23rd	35·2	16th	28·6

* Mean of 15 days.
† „ of 30 „
‡ „ of 24 „

I—*continued.*

in India, Burma, etc., in December 1893—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 1893.	Normal rainfall for period, 1st October, to 31st December.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
9	6	7	1	...	...	2	5	1	4·0	4·0	0	72	·570	2·8	0	3·18	−3·18	0	1·65	− 1·65	14·44	13·60	+ 0·84	0	Salem .	Madras (South Central).
...	14	9	8	...	...	...	...	...	5·3	3·0	+ 77	85	·626	3·9	0	3·45	−3·45	0	1·57	− 1·57	15·81	11·44	+ 4·37	0	Coimbatore.	
...	...	17	11	3	...	...	...	...	8·7	4·7	+ 85	85	·438	4·2	0	1·50	−1·50	0	0·78	− 0·78	8·07	14·02	− 5·95	0	Mercara .	Coorg.
...	...	3	17	11	...	...	...	...	9·4	?	?	71	·469	1·9	0	?	?	0	?	?	7·90	?	?	0	Chitaldroog.	
...	3	17	9	1	...	...	...	1	7·1	3·9	+ 82	82	·469	4·2	0	1·36	−1·36	0	0·74	− 0·74	11·75	12·12	− 0·37	0	Bangalore Bazar.	Mysore.
...	...	13	16	2	...	...	...	...	7·5	?	?	82	·486	1·7	0	?	?	0·02	?	?	12·66	?	?	0·02	Bangalore Fort	
1	...	10	14	6	...	...	...	...	4·0	?		76	·469	2·3	0	?	?	0	?	?	11·36	?	?	0	Hassan.	
...	...	12	19	...	...	...	...	...	11·7	?	?	80	·502	1·4	0	?	?	0	?	?	15·32	?	?	0	Mysore.	
10	6	6	...	...	...	...	...	9	6·3	6·8	− 7	84	·723	7·1	8	11·00	−3·00	11·31	12·84	− 1·53	43·16	42·41	+ 0·75	3·25	Negapatam.	Madras (East Coast, South).
...	17	5	...	...	...	...	...	9	3·7	?	?	93	·771	5·1	4	6·9	−2·9	7·95	8·06	− 0·11	48·79	32·59	+16·20	5·78	Cuddalore.	
11	11	7	...	...	...	...	...	2	2·9	5·0	− 42	73	·634	4·5	0	5·64	−5·64	0·07	3·15	− 3·08	24·98	14·86	+10·12	0·07	Trichinopoly.	
1	21	5	...	...	...	...	...	4	7·3	7·6	− 4	80	·696	4·8	2	5·73	−3·73	0·37	6·94	− 6·57	29·31	36·23	− 6·92	0·18	Madras.	
1	1	1	...	...	..	...	3	25	4·4	?	?	85	·690	7·4	0	3·8	−3·8	0	3·26	− 3·26	31·22	27·02	+ 4·20	0	Nellore .	Madras (East Coast, Central).
1	22	8	..	...	...	...	...	...	3·7	5·7	− 35	81	·617	2·3	1	1·45	−0·45	0·48	1·25	− 0·77	30·49	16·69	+13·80	0·48	Masulipatam	
...	...	...	2	10	7	8	...	4	?	?	?	77	·609	2·0	0	1·50	−1·50	0	1·37	− 1·37	12·77	12·15	+ 0·62	0	Cuddapah .	Madras (Central).
25	...	...	...	...	...	...	5	1	?	?	?	73	·491	1·7	0	1·00	−1·00	0	0·26	− 0·26	9·60	5·77	+ 3·83	0	Kurnool.	
4	2	2	3	19	...	...	...	1	3·0	3·1	− 3	79	·527	3·2	0	0·45	−0·45	0	0·21	− 0·21	7·66	6·36	+ 1·30	0	Bellary.	
1	23	...	...	...	...	...	...	7	?	?	?	74	·522	3·3	1	0·03	+0·97	0·20	0·50	− 0·30	15·03	9·28	+ 5·75	0·15	Rajahmundry	Madras (East Coast, North).
...	26	1	...	...	...	...	...	4	9·1	?	?	76	·556	2·0	1	1·0	0	0·83	0·81	+ 0·02	38·82	15·16	−23·66	0·83	Cocanada.	
2	3	1	...	...	...	...	10	15	1·0	2·1	− 52	71	·576	2·5	0	1·82	−1·82	0	3·28	− 3·28	15·84	22·03	− 6·19	0	Vizagapatam.	
16	...	...	...	...	..	...	...	15	1·1	6·9	− 84	81	·491	0·5	0	1·18	−1·18	0	1·46	− 1·46	12·66	16·91	− 4·25	0	Gopalpur.	
																									XII.—Hill Stations.	
...	...	1	6	...	...	...	24	...	?	?	?	51	·125	?	2	?	?	0·41	?	?	0·41	?	?	0·25	Kachh Fort .	Baluchistan.
...	...	...		Not	reco	rded.		...	?	?	?	?	?	?	2	?	?	1·00	?	?	1·00	?	?	0·67	Pishin.	
29	1	...	...	...	1	...	...	...	1·0	2·7	− 63	72	·169	3·6	2	0·91	+1·09	0·50	0·41	+ 0·09	0·50	0·48	+ 0·02	0·22	Quetta.	
...	...	7	3	16	4	1	...	...	2·7	?	?	54	·146	?	1	?	?	0·67	?	?	0·67	?	?	0·67	Shirino.	
...	...	...	...	...	5	2	...	24	?	?	?	?	?	?	1	?	?	0·19	?	?	0·19	?	?	0·10	Kalat.	
7	1	...	6	9	5	3	...	...	6·6	?	?	43	·146	5·1	2	?	?	0·45	?	?	0·45	?	?	0·30	Chaman.	
19	2	2	1	2	2	...	1	2	1·8	?	?	94	·173	5·8	1	?	?	0·26	?	?	0·35	?	?	0·21	Srinagar .	Northern India.
?	?	?	?	?	?	?	?	?	?	?	?	63	·142	6·2	0	?	?	0·02	?	?	0·02	?	?	0·02	Gilghit.	
1	16	1	...	1	2	...	...	10	14·6	?	?	40	·144	5·9	1	?	?	1·56	?	?	1·56	?	?	1·56	Cherat.	
6	5	3	3	9	1	...	...	4	7·5	6·1	+ 23	38	·115	4·6	1	1·55	−0·55	0·43	0·66	− 0·23	1·65	2·61	− 0·96	0·43	Murree.	
21	...	2	4	4	...	...	...	...	?	?	?	?	?	3·7	0	?	?	0·03	?	?	1·61	?	?	0·03	Poo.	
11	8	6	1	...	3	...	1	1	5·1†	1·8	+183	40	·112	4·1	0	1·45	−1·45	0·04	0·70	− 0·66	1·88	2·18	− 0·30	0·04	Simla.	
5	1	7	11	1	...	1	2	2	5·5‡	4·2	+ 31	59‖	·169‖	2·7‖	0	?	?	0	0·84	− 0·84	3·39	2·21	+ 1·18	0	Chakrata.*	
...	2	3	9	4	...	1	2	10	?	?	?	65	·187	2·4	0	1·5	−1·5	0	?	?	6·01	?	?	0	Mussooree.	
23	...	...	4	...	1	...	3	...	1·3	1·3	0	66	·196	2·7	0	1·00	−1·00	0	0·66	− 0·66	9·70	2·16	+ 7·54	0	Ranikhet.	
1	1	6	4	13	1	1	2	2	4·2	?	?	76	·121	1·2	2	?	?	0·27	?	?	10·25	?	?	0·15	Gnatong.	
4	...	2	16	6	2	1	...	...	3·0	1·9	+ 58	64	·163	1·8	0	0·75	−0·75	0·02	0·28	− 0·26	5·89	5·74	+ 0·15	0·02	Darjeeling.	
...	2	1	16	3	1	3	5	...	1·8	?	?	84	·256	1·8	1	?	?	0·15	?	?	6·22	?	?	0·11	Gantok.	

* Wind points for 30 days. † Mean of 26 days. ‡ Mean of 29 days. ‖ „ 30 „

Table

Abstract of Observations taken at 8 A.M. at 207 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 during recorded 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.
Central India	Mount Abu	3,945	26·190	+·030	?	26·254	9th	25·982	31st	·272	61·3	68·7	−0·3	54·1	+1·8	61·4	+0·8	14·6	73·6	20th	49·0	17th	24·6
	Pachmarhi	3,528	26·600	+·038	?	26·661	9th	26·486	31st	·175	59·5	69·6	+0·8	45·2	+0·4	57·4	+0·6	24·4	71·8	4 days	40·8	11th	31·0
South India	Wellington	6,200	24·300	+·024	?	24·349	2nd	24·240	27th	·109	55·1	65·0	−0·3	43·3	−6·2	54·2	−3·3	21·7	69·2	14th	35·7	14th	33·5
	Kodaikanal	?	?	?	?	?	...	?	...	?	54·0	61·9	?	45·5	?	53·7	?	16·4	67·5	26th	40·1	28th & 30th	27·4
	Kottagiri	?	23·880	?	?	23·925	2nd	23·831	27th	·094	*54·7	62·7	?	*46·6	?	*54·6	?	16·1	67·9	4th	?	...	?
XIII.—Extra India.																							
Ceylon	Colombo	40	29·948	+·020	29·914	30·004	6th	29·388	28th	·116	81·9	86·8	?	72·1	?	79·5	?	14·7	89·0	7 days	71·0	5 days	18·0
Persia	Meshed	?	?	?	?	?	...	?	...	?	?	50·6	?	33·5	?	42·0	?	17·1	62·6	21st	22·0	25th	40·6
	Teharan	?	26·127	?	?	26·465	2nd	25·900	19th & 26th.	·565	41·2	52·6	?	36·5	?	44·5	?	16·1	62·7	2nd	23·8	22nd	38·9
	Isphahan	?	?	?	?	?	...	?	?	?	38·7	52·0	?	34·2	?	43·1	?	17·8	60·8	7th	25·6	31st	35·2
	Bushire	14	30·109	?	30·080	30·310	22nd	29·839	19th	·471	63·2	70·2	?	59·7	?	64·9	?	10·5	78·6	14th	55·3	29th	23·3
	Jask	?	30·114	?	?	30·296	12th	29·851	31st	·445	69·0	78·7	?	65·0	?	71·9	?	13·7	81·6	29th	57·2	31st	24·4
Arabia	Muskat	?	30·093	?	?	30·195	13th	29·876	31st	·319	72·8	75·5	?	71·5	?	73·5	?	4·0	78·6	24th	68·1	31st	10·5
	Baghdad	?	29·671?	?	?	29·899	22nd	29·267?	19th	·632?	50·0	62·6	?	46·6	?	54·6	?	16·0	75·6	2nd	36·5	21st	39·1
	Aden	94	†29·969	?	29·997	30·020	4th	29·901	31st	·119	†75·2	†84·3	?	73·5	?	†78·9	?	10·8	88·3	2nd to 4th	69·9	1st & 19th	18·4
	Perim	?	29·816	?	?	29·915	4th	29·734	28th	·181	76·4	83·1	?	73·6	?	78·4	?	9·5	84·3	4 days	70·4	31st	13·9
Afghanistan	Kabul	?	?	?	?	?	?	?	...	?	38·8	51·3	?	37·7	?	44·5	?	13·6	59·2	1st	31·4	15th	24·8
	Kashgar	?	25·914†	?	?	26·320	4th	25·620	23rd	·700	24·0‡	39·2‡	?	20·2†	?	29·5‡	?	19·0	49·6	25th	5·6	27th	44·0
Arabian Sea Islands.	Amini Divi	15?	29·991	?	29·931	30·042	2nd	29·921	28th	·121	81·3	85·4	?	71·8	?	78·6	?	13·6	87·2	27th	68·5	24th	18·7
	Minicoy	10	29·991	?	29·926	30·056	2nd	29·925	31st	·131	78·8	86·4	?	?	?	?	?	?	88·3	13th	?	?	?
Africa	Zanzibar	73	29·931	?	29·931	30·004	15th	29·832	25th	·172	81·2	84·9	?	78·6	?	81·8	?	6·3	88·5	31st	75·8	11th	12·7

* Mean of 29 days.
† " " 30 "
‡ " " 28 "

I—*concluded.*

in India, Burma, etc., in December 1893—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Station.	Meteorological Province or District.
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	SW.	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 October to 31st December 1893.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period.	Heaviest rainfall during month.		
16	3	8	...	1	...	2	...	1	3·6	3·6	0	45	·245	1·4	0	0·18	−0·18	0	0·13	−0·13	4·06	1·07	+ 2·99	0	Mount Abu.	CENTRAL INDIA.
16	2	2	5	1	3	1	...	1	1·5	2·6	− 42	59	·304	0·9	0	0·91	−0·91	0	0·72	−0·72	4·06	4·17	− 0·11	0	Pachmarhi.	
19	1	5	2	4	...	...	...	...	2·2	2·5	− 12	68	·299	1·9	1	6·78	−5·78	0·19	4·85	−4·66	26·33	25·75	+ 0·58	0·16	Wellington.	SOUTH INDIA.
3	1	10	4	8	1	1	...	3	6·1	?	?	72*	·296*	3·2	3	8·50	−5·50	0·92	7·39	−6·47	26·75	23·85	+ 2·90	0·27	Kodaikanal.	
...	...	1	6	7	10	4	1	2	5·7	?	?	71*	301*	2·5	1	6·30	−5·30	0·27	4·16	−3·89	37·15	21·31	+15·84	0·19	Kottagiri.	
																									XIII.—Extra India.	
2	14	12	2	1	...	...	...	...	9·4	7·9	+ 19	70	·767	2·7	7	?	?	4·34	7·29	−2·95	27·88	32·71	− 4·83	1·82	Colombo.	CEYLON.
19	1	4	4	...	...	1	1	1	?	?	?	?	?	5·8	3	?	?	0·56	?	?	1·40	?	?	0·20	Meshed.	PERSIA.
14	2	8	...	...	1	...	3	3	1·6	?	?	64	·166	4·6	7	?	?	2·29	?	?	2·36	?	?	0·76	Teharan.	
...	2	4	4	1	...	3	13	4	3·6	?	?	84	·198	6·1	...	?	?	?	?	?	0?	?	?	?	Isphahan.	
...	1	11	5	10	...	...	...	4	5·5	6·6	− 17	76	·444	?	11	?	?	10·34	3·60	+6·74	11·07	5·13	+5·94	5·30	Bushire.	
...	12	7	6	3	...	...	...	3	12·9	?	?	73	·514	1·2	1	?	?	0·32	?	?	0·32	?	?	0·18	Jask.	
...	...	...	6	7	5	1	7	5	3·5	?	?	72	·585	1·5	1	?	?	0·50	?	?	0·52	?	?	0·50	Muskat.	ARABIA.
16	3	...	1	2	3	4	...	2	8·8?	?	?	83	·304	1·6	6	?	?	2·51	?	?	2·70	?	?	0·69	Baghdad.	
1	...	13	16	...	...	...	...	1	11·7	12·4	− 6	79†	·690†	4·8	0	?	?	0	0·24	−0·24	0	0·35	−0·35	0	Aden.	
...	...	6	20	5	...	...	...	...	24·2	?	?	76	·690	3·5	1	?	?	0·34	?	?	0·34	?	?	0·34	Perim.	
...	...	...	13	...	1	13	4	...	?	?	?	?	?	?	3	?	?	1·30	?	?	1·30	?	?	0·70	Kabul.	AFGHANISTAN.
20	1	1	2	...	...	1	3	2	1·9‡	?	?	?	?	5·3†	1	?	?	0·80	?	?	(a)0·99	?	?	0·80	Kashgar(b)	
3	15	10	1	...	...	...	...	2	?	?	?	69	·713	2·9	0	?	?	0	?	?	12·28	?	?	0	Amini Divi.	ARABIAN SEA ISLANDS
3	7	14	4	2	1	...	...	...	6·3	?	?	78	·767	2·6	3	?	?	1·45	?	?	13·04	?	?	0·73	Minicoy.	
...	4	19	5	...	3	...	...	...	7·0	?	?	81	·868	3·5	7	?	?	3·33	?	?	18·65	?	?	0·80	Zanzibar.	AFRICA.

* Mean of 29 days.
† " " 30 "
‡ " " 26 "

(a) Total rainfall for November not included.
(b) Wind directions for 30 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

Meteorological Province	Station.	Height of the 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 to 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 Island.	Port Blair	...	29·945	29·840	·105	29·889	+·017	29+·881	85·2	76·1	9·1	87·7	70·4	17·3	82·1	82·6	79·6	+ 3·4	71·3	74·8	74·7	73·6
	Rangoon	...	30·028	·901	·127	·963	+·025	·941	85·3	62·7	22·6	89·1	57·8	31·3	75·2	82·2	72·2	− 3·3	59·9	66·5	68·0	64·8
	Diamond Island	...	·026	·906	·120	·961	+·020	·938	80·4	70·9	9·5	82·5	67·4	15·1	74·8	79·0	74·9	− 2·1	65·2	67·4	69·4	67·3
	Cocos Island	111	29·918	·818	·100	·863	P	·907	81·3	75·0	6·3	83·0	71·7	11·3	79·3	78·3	77·0	P	62·4	70·5	69·9	67·6
	Akyab	...	30·078	·963	·115	30·019	+·029	·985	80·4	61·7	18·7	83·1	57·3	25·8	73·1	77·3	70·7	− 1·7	59·2	67·5	69·8	65·5
Assam.	Silchar	...	028	·895	·133	29·958	+·026	1·016	79·8	52·9	26·9	83·4	48·5	34·9	68·4	77·4	65·1	− 0·6	51·6	61·6	64·8	59·3
	Sibsagar	...	29·851	·699	·152	·773	+·043	1·079	69·2	46·1	23·1	72·6	40·9	31·7	57·6	68·8	56·7	− 2·0	45·6	56·3	60·9	54·3
	Dhubri	...	30·034	·898	·136	·959	+·041	1·034	72·5	52·8	19·7	74·7	49·0	25·7	62·6	71·6	62·0	− 2·5	52·2	58·5	62·4	57·7
Bengal and Orissa.	Chittagong	...	·017	·918	·099	·964	+·029	1·002	77·9	57·3	20·6	80·5	51·9	28·6	70·8	74·4	67·1	− 0·3	56·5	66·2	66·6	63·1
	Dacca	...	·091	·971	·120	30·026	+·018	·994	78·8	56·7	22·1	82·3	53·3	29·0	70·7	76·1	67·8	+ 0·3	54·8	64·1	64·6	61·2
	Calcutta (Alipore)	...	·111	·988	·123	·040	+·019	1·007	75·9	55·8	20·1	78·0	51·5	26·5	69·0	74·8	65·2	0	54·9	62·1	63·2	60·1
	Do. (Chowringhee).	...	·113	P	P	P	P	P	77·2	56·1	21·1	79·9	52·5	27·4	70·7	P	P	P	55·5	63·2	P	P
	Saugor Island	...	·098	·982	·116	·032	+·016	1·002	76·1	53·1	18·0	80·0	52·1	27·9	71·9	74·1	66·2	− 0·3	55·9	65·1	64·1	61·8
	Burdwan	...	·039	·912	·127	29·966	+·024	1·015	77·4	56·1	21·3	80·1	52·7	27·4	68·7	75·5	66·3	− 0·5	54·5	61·0	62·4	59·3
	Berhampore	...	·068	·950	·118	·999	+·029	1·016	75·7	56·6	19·1	78·9	53·3	25·6	67·6	74·1	65·8	− 0·1	54·4	62·3	63·1	59·9
	False Point	...	·105	30·000	·105	30·051	+·015	1·014	78·1	57·2	20·9	80·4	51·8	28·6	74·0	75·1	66·5	− 0·1	56·8	65·9	65·4	62·7
	Cuttack	...	·039	29·919	·120	29·976	+·010	1·001	81·4	59·3	22·1	83·3	53·9	29·4	74·2	80·0	69·7	+ 0·3	57·4	63·3	64·9	61·9
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	28·065	27·959	·106	28·001	+·005	·999	72·6	50·2	22·4	76·3	45·3	31·0	66·1	70·2	60·5	+ 0·1	46·2	56·1	56·8	53·0
	Patna (Bankipur)	...	29·968	29·850	·118	29·903	+·023	1·045	73·9	53·3	20·6	77·4	48·4	29·0	67·5	72·3	63·1	+ 0·7	51·6	60·3	61·5	57·8
	Darbhanga	...	·992	·864	·128	·922	+·038	1·049	74·4	54·1	20·3	78·3	51·9	26·4	66·4	72·5	63·7	− 0·1	53·3	60·6	62·5	58·8
	Allahabad	...	·831	·718	·113	·763	+·015	1·045	76·4	49·4	27·0	78·6	44·4	34·2	67·3	74·5	61·3	+ 0·6	47·7	59·4	60·8	56·0
	Ghazipur	220			Rejected.				74·7	50·4	24·3	79·4	48·5	30·9	67·4	71·5	61·4	+ 0·7	48·4	60·4	61·3	56·7
	Lucknow	...	·770	·663	·104	·707	+·025	1·048	75·3	46·0	29·3	78·4	41·0	37·4	68·6	71·5	59·3	− 0·4	45·3	59·2	60·0	54·8
Upper Sub-Himalayas.	Dehra Dun	...	27·815	27·762	·083	27·793	+·022	1·054	67·9	47·8	20·1	71·5	41·9	29·6	60·3	63·6	55·9	− 0·5	45·4	53·5	55·3	51·4
	Roorkee	...	29·226	29·115	·111	29·158	+·026	1·048	72·7	45·1	27·6	76·8	39·1	37·7	60·9	69·0	57·1	+ 0·5	44·1	55·1	57·3	52·2
	Meerut	...	·381	·281	·100	·322	+·024	1·056	73·3	45·6	27·7	76·2	41·9	34·3	61·3	70·3	58·1	+ 0·9	45·0	52·9	57·5	51·8
	Lahore	...	·411	·319	·092	·353	+·002	1·070	71·7	44·6	27·1	76·3	39·2	37·1	60·4	68·9	56·2	+ 3·3	42·6	53·0	57·3	51·0
	Ludhiana	...	·301	·207	·094	·242	+·022	1·057	71·4	45·0	26·4	75·6	39·2	36·4	61·3	68·8	56·3	+ 1·8	44·3	54·3	57·6	52·1
Indus Valley and N.W. Rajputana.	Peshawar	...	·018	28·931	·087	28·963	0	1·110	67·4	39·9	27·5	76·6	32·9	43·7	54·9	64·8	51·6	+ 1·0	36·7	47·6	52·0	45·4
	Mooltan	...	·718	29·623	·095	29·658	+·011	1·067	75·2	47·1	28·1	78·3	43·2	35·1	61·6	73·4	59·4	+ 3·3	44·1	51·4	59·8	51·8
	Jacobabad	...	·945	·832	·113	·877	−·011	1·028	78·9	45·8	33·1	83·5	40·1	43·4	67·5	75·6	60·2	+ 2·4	42·5	55·8	60·3	52·8
	Kurrachee	...	30·060	·977	·083	30·014	−·013	1·015	81·0	57·4	23·6	86·0	51·1	34·9	77·9	78·5	68·2	+ 1·2	50·3	65·6	66·1	60·7
E. Rajputana, Central India and Gujarat.	Jeypore	...	28·685	28·585	·100	28·624	+·019	1·078	78·1	49·9	28·2	82·0	45·3	36·7	70·0	75·2	60·0	+ 0·1	45·5	56·4	58·9	53·6
	Ajmere	...	·506	·408	·098	·451	+·016	1·065	76·6	46·5	30·1	79·9	41·5	38·4	64·5	75·5	60·7	+ 1·7	45·3	54·8	61·0	53·7
	Deesa	...	29·630	29·518	·112	29·566	+·016	·993	86·3	54·4	31·9	90·2	48·9	41·3	76·3	84·5	69·7	+ 1·7	50·2	59·5	63·0	57·6
	Nowgong	...	·357	·247	·110	·292	+·010	1·030	75·2	46·4	28·8	79·1	41·0	38·1	65·7	72·7	59·8	− 0·1	46·2	57·1	59·2	54·2
	Agra	...	·586	·472	·114	·517	+·016	1·051	76·1	50·2	25·9	78·6	45·1	33·5	66·1	74·9	62·8	+ 1·8	46·1	56·3	60·0	54·1
Deccan.	Belgaum	...	27·507	27·397	·110	27·449	+·015	·894	79·3	56·2	23·1	83·2	53·1	30·1	72·1	78·1	67·6	− 1·7	53·2	60·0	59·8	57·7
	Sholapur	...	28·488	28·349	·139	28·418	+·029	·957	83·7	55·7	28·0	88·2	50·6	37·6	74·7	82·7	69·0	− 1·5	51·0	60·3	61·5	57·6
	Poona	...	·227	·096	·131	·163	+·020	·945	81·4	52·9	31·5	89·4	46·5	42·9	74·9	82·6	65·6	+ 0·2	49·1	59·0	60·3	56·2
	Akola	...	29·173	29·037	·136	29·098	+·023	·992	82·4	56·5	31·9	85·5	44·7	40·8	73·0	81·4	65·6	− 0·3	48·7	61·1	63·2	57·8
	Buldana	2,132	27·915	27·839	·106	27·885	+·024	·970	79·0	56·3	22·7	83·5	52·0	31·5	73·2	77·1	66·6	− 0·6	50·5	59·5	59·0	56·3
	Khandwa	...	29·033	28·914	·122	28·968	+·014	·983	83·5	49·2	34·3	86·4	43·1	43·3	67·2	81·8	65·3	+ 0·4	46·1	58·6	62·2	55·6

II.

Stations in India, Burma, etc., for December 1893.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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 of the month.	Heaviest fall of the month.	Station.	Meteorological Province.
																									%	%						
·702	·765	·756	·742	−·092	78	70	67	72	−8	4·7	4·5	4·6	+0·2	...	13	26	11	9	3	...	...	...	N. 58° E.	N. 51° E.	68	72	169	171	...	...	Port Blair	Burma Coast and Bay Islands.
·483	·537	·505	508	−·163	84	61	47	65	−8	1·2	2·0	1·6	−1·5	...	2	27	22	5	2	3	...	1	N. 71° E.	N. 36° E.	71	60	147	114	...	...	Rangoon	
·549	·575	·593	·572	−·126	73	66	60	66	−9	2·9	3·4	3·2	+0·1	2	5	38	14	...	...	...	...	3	N. 48° E.	N. 34° E.	84	74	294*	166	...	...	Diamond Island.	
·396	·631	·621	·550	?	46	63	64	58	?	2·7	1·9	2·3	?	...	26	32	1	1	...	...	...	...	N. 27° E.	?	90	?	?	?	*Nil*	*Nil*	Cocos Island.	
·477	·600	·630	·569	−·014	86	73	67	75	0	0·9	0·7	0·8	−1·6	...	13	20	4	...	4	6	12	3	N. 1° W.	N. 15° W.	34	39	57	56	...	...	Akyab	
·369	·461	·444	·425	−·048	91	67	47	69	−6	1·7	1·4	1·6	−1·3	37	2	3	10	4	4	2	...	...	S. 73° E.	S. 57° E.	23	35	38*	42	...	...	Silchar	Assam.
·303	·440	·434	·393	−·056	93	92	61	83	−2	0·3	0·3	0·3	−4·1	28	1	28	1	4	...	...	...	...	N. 52° E.	N. 65° E.	48	61	33	37	...	...	Sibsagar	
·386	·437	·443	·422	−·045	96	77	57	77	−1	0·5	0·4	0·5	−0·7	4	3	31	24	...	...	...	...	...	N. 62° E.	N. 58° E.	84	42	180	109	...	...	Dhubri	
·454	·586	·551	·530	+·010	95	77	64	79	+4	1·5	1·8	1·7	−0·3	3	13	16	2	...	...	1	9	3	N. 14° W.	N. 23° W.	60	59	56*	76	...	...	Chittagong	Bengal and Orissa.
·410	·513	·457	·460	−·019	89	68	51	69	−2	0·6	1·3	1·0	−0·4	7	7	13	6	2	8	2	3	14	N. 8° E.	N. 36° W.	26	44	68	48	...	...	Dacca	
·424	·470	·427	·440	−·005	94	66	49	70	−2	0·4	1·3	0·9	−0·9	6	27	12	3	...	...	4	3	7	N. 1° E.	N. 26° W.	61	60	25	66	...	...	Calcutta (Alipore.)	
·437	·483	?	?	?	96	64	?	?	?	?	?	?	?	Not recorded.									?	?	?	?	?	?	*Nil*	*Nil*	Do. (Chowringhee.)	
·423	·531	·474	·477	−·026	87	68	56	70	−4	1·5	2·6	2·1	−0·1	...	36	11	3	1	3	3	...	5	N. 8° E.	N. 7° E.	68	56	198	153	...	...	Saugor Island.	
·406	·436	·393	·412	+·003	90	62	44	65	+2	0·5	1·8	1·2	−0·7	7	27	10	2	...	2	4	3	7	N. 3° W.	N. 23° W.	55	67	35*	43	...	...	Burdwan	
·398	·491	·434	·442	+·010	87	73	51	70	−2	0·4	1·1	0·8	−1·1	7	22	5	...	...	2	1	3	22	N. 22° W.	N. 26° W.	66	62	34	38	...	...	Berhampore	
·461	·531	·500	·498	−·001	97	63	57	72	−3	1·8	2·4	2·1	−0·5	...	21	16	17	1	1	...	2	4	N. 36° E.	N. 43° E.	66	64	150*	151	...	...	False Point	
·452	·442	·415	·436	−·021	89	52	40	60	−5	0·5	2·0	1·3	−0·5	15	17	21	3	...	...	1	2	3	N. 21° E.	N. 12° E.	58	35	32	29	...	...	Cuttack	
·266	·329	·300	·298	+·043	72	51	40	55	+3	0·5	1·0	0·8	−1·2	2	15	10	9	1	4	4	7	10	N. 89° W.	N. 54° W.	34	64	110	110	...	...	Hazaribagh	Ganetic Plain and Chota Nagpur.
·363	·431	·405	·400	+·026	88	63	51	68	+3	0·2	0·4	0·3	−1·5	8	7	10	16	1	...	4	7	9	N. 25° E.	N. 83° W.	29	52	42	41	...	...	Patna (Bankipur.)	
·398	·453	·435	·429	+·001	91	70	55	73	−1	0	0·4	0·2	−0·8	13	1	6	11	9	2	3	10	7	S. 86° E.	S. 79° W.	7	58	26	51	...	...	Darbhanga	
·312	·406	·354	·357	+·015	88	60	41	63	−4	0·4	1·1	0·8	−0·7	2	8	15	13	3	1	2	6	12	N. 24° E.	N. 54° W.	40	22	48	42	...	...	Allahabad.	
·314	·436	·410	·387	+·032	86	65	53	68	+7	0·2	1·1	0·7	−0·5	46	...	...	4	1	...	2	7	...	S. 60° W.	S. 81° W.	7	49	11	25	*Nil*	*Nil*	Ghazipur.	
·295	·382	·370	·345	+·044	95	54	48	66	+7	1·4	2·2	1·8	+0·1	62	...	...	...	...	...	...	...	...	0	N. 53° W.	0	49	3	40	...	...	Lucknow	
·278	·328	·335	·314	?	83	63	57	68	?	2·2	4·9	3·6	+1·2	42	2	...	1	1	5	7	1	1	S. 29° W.	N. 73° W.	14	16	6	40	...	...	Dehra Dun	Upper Sub-Himalayas.
·279	·359	·318	·319	+·033	92	67	45	68	+5	2·2	3·3	2·8	+0·7	36	1	...	8	4	3	2	4	3	S. 34° E.	N. 82° W.	8	11	10	32	...	...	Roorkee	
·293	·293	·308	·290	+·013	95	51	42	61	+2	1·4	2·6	2·0	+0·3	32	...	...	3	3	1	2	17	4	S. 84° W.	N. 52° W.	26	50	17	39	...	...	Meerut	
·250	·307	·313	·292	+·012	81	58	46	63	+6	3·2	4·1	3·7	+1·5	35	4	1	2	7	2	1	6	4	S. 89° W.	N. 36° W.	3	22	21	35	...	...	Lahore	
·286	·333	·319	·316	+·040	95	61	46	67	+6	4·4	5·4	4·9	+1·9	44	3	...	...	2	4	...	8	1	S. 79° W.	N. 30° W.	11	24	16	26	...	...	Ludhiana	
·183	·242	·233	·220	−·028	73	56	40	56	−5	4·7	4·8	4·8	+1·3	37	2	4	6	4	2	3	1	3	E.	S. 2° E.	10	8	80*	59	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·252	·246	·338	·273	+·009	73	45	42	55	−1	2·5	2·4	2·5	+0·5	42	1	10	...	4	...	2	...	3	N. 45° E.	N. 14° E.	14	11	14	30	...	...	Mooltan	
·231	·293	·322	·282	+·041	74	44	37	51	+2	3·3	3·5	3·4	+1·4	56	...	3	...	3	...	...	...	...	E.	N. 15° W.	7	22	25	38	...	...	Jacobabad	
·273	·474	·462	·411	+·031	57	50	50	53	−3	3·0	2·7	2·9	+1·1	...	7	33	3	...	...	10	8	1	N. 24° E.	N. 42° E.	42	14	281	216	...	...	Kurrachee	
·254	·289	·297	·280	+·038	70	39	34	48	−1	2·4	2·6	2·5	+0·6	10	4	9	6	...	4	15	11	3	S. 78° W.	N. 14° W.	19	29	36	79	...	...	Jeypore	Rajputana, Central India, and Gujarat.
·291	·314	·359	·320	+·051	91	52	41	61	+11	1·7	2·3	2·0	+0·6	10	2	7	2	15	9	4	5	8	S. 23° E.	N. 84° E.	18	15	43	35	...	...	Ajmere	
·312	·287	·290	·297	+·030	73	32	25	43	+6	2·2	2·3	2·3	+0·6	...	2	9	27	20	4	...	...	...	S. 78° E.	N. 17° E.	77	27	169	195	...	...	Deesa	
·312	·357	·327	·332	+·004	93	56	41	65	+7	0·7	1·9	1·3	−0·6	2	9	3	11	...	2	1	23	11	N. 49° W.	N. 34° W.	40	29	24*	27	...	...	Nowgong	
·263	·331	·322	·305	+·021	71	51	37	53	0	1·3	1·2	1·3	−0·1	...	...	9	...	12	...	10	...	31	N. 48° W.	N. 64° W.	31	28	64	63	...	...	Agra	
·369	·371	·290	·343	−·030	81	47	30	53	+4	1·9	1·6	1·8	−1·0	...	...	13	33	11	...	1	...	...	N. 89° E.	S. 84° E.	85	70	340	296	...	...	Belgaum	Deccan.
·322	·317	·285	·318	−·002	71	40	25	43	−3	2·3	2·7	2·8	−0·2	5	2	15	18	21	1	...	...	...	S. 86° E.	N. 89° E.	71	57	201*	169	...	...	Sholapur	
·309	·306	·250	·288	−·043	75	35	22	44	+1	2·1	2·3	2·2	−0·5	5	...	13	26	16	1	...	1	...	S. 86° E.	S. 78° E.	74	56	136	136	...	...	Poona	
·324	·384	·339	·352	+·014	87	47	32	55	+3	2·8	3·0	2·9	+1·2	6	13	15	16	7	2	...	2	1	N. 59° E.	N. 61° E.	55	58	79	77	...	...	Akola	
·293	·310	·279	·306	−·011	65	41	30	46	−3	0·3	0·5	0·4	−2·3	...	14	8	14	7	8	2	6	3	N. 64° E.	N. 82° E.	27	52	120*	116	*Nil*	*Nil*	Buldana	
·276	·350	·318	·315	−·006	73	47	29	51	0	0·8	1·2	1·0	−0·9	2	10	31	6	1	1	3	1	7	N. 51° E.	N. 66° E.	63	41	59	57	...	...	Khandwa	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 89

Meteorological Province.	Station.	Height of the 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 to 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	...	29·101	28·979	·122	29·033	+·023	29·1036	77·5	51·5	26·0	82·5	44·8	37·7	66·2	76·3	63·6	−1·9	48·8	58·2	61·7	56·2
	Nagpur	...	·076	·914	·132	·003	+·024	1·000	80·4	53·6	26·8	83·6	48·4	35·2	71·5	78·9	66·0	−0·7	50·2	59·7	62·0	57·3
	Jubbulpore	...	28·770	·654	·116	28·705	+·018	1·021	76·2	46·6	29·6	79·9	41·4	38·5	65·7	74·4	60·4	−0·3	46·1	57·3	60·2	54·5
	Saugor	...	·324	·218	·106	·264	+·028	1·065	77·3	50·6	26·7	81·3	45·5	35·8	70·1	76·1	63·1	−0·2	47·5	57·8	60·3	55·2
	Raipur	...	29·130	29·005	·125	29·061	+·019	·990	78·7	54·5	24·2	82·8	50·2	32·6	70·2	77·0	65·6	0	50·9	59·4	60·8	57·0
	Sutna	...	·060	28·951	·109	28·996	+·011	1·024	74·0	48·1	25·9	79·5	43·2	36·3	67·9	73·3	59·9	+0·2	46·0	58·0	58·6	54·2
	Secunderabad	...	28·290	·176	·114	·232	+·038	·979	80·3	55·5	24·8	83·6	50·5	33·1	71·7	77·7	66·8	−2·6	54·3	61·4	63·6	59·8
	Hyderabad (Deccan).	...	·391	·273	·118	·328	?	·979	80·1	55·4	24·7	83·5	50·3	33·2	73·2	76·5	66·9	?	53·9	62·8	62·6	59·8
West Coast.	Bombay	...	30·035	29·915	·120	29·968	+·020	·945	85·0	70·7	14·3	87·6	67·9	19·7	77·0	81·7	76·4	+0·5	64·8	68·4	71·1	68·1
	Ratnagari	...	29·940	·816	·124	·871	+·033	·918	89·9	67·6	22·3	94·2	61·9	32·3	84·5	84·1	76·7	+0·2	60·0	67·0	70·9	66·0
	Karwar	...	·992	·872	·120	·925	+·026	·901	87·1	65·8	21·3	89·8	62·1	27·7	78·8	84·2	75·1	−0·5	61·5	68·0	71·3	67·0
	Cochin	...	·989	·880	·109	·928	+·013	·865	89·8	71·2	18·6	92·5	68·6	23·9	83·6	86·7	79·1	+0·1	68·2	72·1	74·4	71·6
	Salem	...	·118	28·991	·127	·054	+·013	·932	86·0	63·4	22·6	89·8	58·5	31·3	78·7	82·3	73·6	−0·4	61·8	67·9	68·5	66·1
South India.	Mysore	...	27·527	27·408	·119	27·468	?	·904	80·1	58·1	22·0	85·0	54·3	30·7	72·3	78·4	68·7	?	57·0	63·3	63·7	61·3
	Mercara	...	26·305	26·217	·088	26·260	+·017	·914	73·2	56·4	16·8	76·6	51·7	24·9	64·9	71·2	64·4	−0·8	54·4	59·7	63·2	59·1
	Bangalore (Fort)	...	27·046	·931	·115	·988	−·008	·906	78·5	56·4	22·1	83·0	52·6	30·4	71·4	75·0	66·6	−1·0	55·6	62·6	63·0	60·4
	Hassan	...	26·976	·865	·111	·920	?	·903	77·8	54·0	23·8	80·2	50·5	29·7	70·7	76·1	65·5	?	51·2	61·3	62·1	58·2
	Chitaldroog	...	27·641	27·526	·115	27·583	?	·916	79·4	57·9	21·5	82·7	54·9	27·8	71·9	77·8	68·3	?	53·9	62·4	62·6	59·7
	Trichinopoly	...	29·785	29·664	·121	29·724	+·019	·912	85·2	68·6	16·6	89·2	62·9	26·3	80·0	82·5	76·0	−0·1	65·6	70·3	70·9	69·0
	Madras	...	30·049	·956	·093	30·000	+·025	·953	83·5	68·4	15·1	85·6	63·6	22·0	79·6	79·6	75·2	−0·8	?	72·3	71·6	71·0
	Bellary	...	28·593	28·455	·138	28·523	+·038	·947	84·0	58·9	25·1	87·4	54·0	33·4	75·5	82·1	70·6	−1·7	56·5	66·8	68·0	63·8
	Vizagapatam	...	30·074	29·963	·111	30·012	+·017	·981	77·3	69·5	7·8	80·2	65·9	14·3	75·6	77·4	75·0	−0·2	62·0	67·7	68·7	66·1
	Cocanada	...	·076	·964	·112	·020	?	·983	79·2	65·2	14·0	82·7	59·5	23·2	176·6	77·8	71·9	?	63·2	68·6	68·9	66·9
Hill Station, Baluchistan.	Quetta	—	24·786	24·703	·083	24·732	+·030	?	61·3	32·1	29·2	71·5	22·9	48·6	51·5	57·2	45·7	+3·6	30·3†	45·1	49·4	41·8†
Hill Stations, Northern India.	Leh	11,503	19·790	19·699	·091	19·741	+·043	?	38·6	16·7	21·9	45·9	9·3	36·6	128·4	34·2	26·8	+2·5	14·8	23·5	28·6	22·3
	Srinagar	...	25·071	24·981	·090	25·014	?	?	49·3	28·3	21·0	55·0	19·6	35·4	36·8	48·1	38·5	?	27·9	34·8	43·2	35·3
	Murree	...	23·959	23·918	·041	23·927	+·020	?	55·1	42·8	12·3	66·9	34·8	32·1	49·8	48·9	47·1	+2·8	34·5	39·6	40·7	38·3
	Chamba	3,005	27·087	26·999	·088	27·045	−·002	?	65·9	44·1	21·8	72·8	39·2	33·6	53·4	59·3	51·3	+0·8	40·5	45·8	49·8	45·4
	Kailang	10,087	...	...	...	...	...	...	...	...	Not	received.		...	...	—	...	...	...	...	...	...
	Simla (Ridge)	...	23·211	23·159	·052	23·173	+·030	?	50·9	41·5	9·4	58·4	34·5	23·9	47·8	47·1	44·7	−1·0	33·6	38·0	40·3	37·3
	Simla (Chapslee)	...	...	Not	record	ed.	...	...	56·8	41·4	15·4	64·0	34·3	29·7	50·5	?	?	?	34·0	39·5	?	?
	Chakrata	...	·332	·270	·062	·289	−·017	?	54·1	40·2	13·9	62·3	31·6	30·7	48·9	48·0	45·2	−0·6	36·1	41·5	42·6	39·9
	Ranikhet	...	24·203	24·147	·056	24·160	+·018	?	57·1	42·3	14·8	62·5	35·8	26·7	59·6	54·3	48·7	−0·8	39·5	45·0	46·6	43·7
	Katmandu	4,388	25·802	25·690	·112	25·745	+·040	?	62·2	38·1	24·1	65·6	31·2	34·4	48·2	58·3	49·1	−3·4	36·4	45·5	50·2	44·0
	Darjeeling	...	23·077	23·004	·073	23·039	+·036	?	49·0	36·1	12·9	55·9	31·4	24·5	46·2	46·2	41·8	−0·1	31·8	39·8	40·7	37·4
	Demagiri	?		Not	record	ed.			87·5	57·2	30·3	90·9	51·1	39·8	67·3	74·7	69·2	+2·8	?	?	?	?
	Tura	3,943		Not	record	ed.			73·3	58·4	14·9	81·0	54·3	26·7	66·6	70·7	65·2	?	?	58·5	61·0	?
Hill Stations, Central India.	Mount Abu	...	26·208	26·131	·077	26·162	+·014	?	68·5	54·1	14·4	73·6	49·0	24·6	66·2	65·6	60·6	+0·9	46·6	52·3	53·4	50·8
	Pachmarhi	...	·617	·531	·083	·569	+·030	?	69·6	45·2	24·4	71·8	41·1	30·7	64·8	66·3	56·7	+1·5	42·3	52·9	54·3	49·8
	Chikalda	3,642	·499	·402	·097	·444	+·020	?	71·4	54·7	16·7	74·2	51·0	23·2	65·7	69·1	62·6	−0·4	49·2	55·2	57·0	53·8

† Mean of 30 days.

II—*continued.*

Stations in India, Burma, etc., for December 1893—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		Total rainfall of the month.	Heaviest fall of the month.	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.				
·315	·389	·372	·358	+·022	82	60	41	61	+6	1·0	2·3	1·7	+0·1	22	2	19	18	...	...	...	...	1	N. 62° E.	N. 61° E.	% 56	% 63	53	58	...	...	Hoshangabad	Deccan—*concld.*
·325	·369	·347	·347	+·002	78	48	35	54	+2	1·1	2·0	1·6	−0·8	14	4	29	9	3	1	2	...	...	N. 57° E.	N. 64° E.	58	52	87	68	...	...	Nagpur	
·307	·370	·348	·342	+·042	96	58	41	65	+8	0·9	1·5	1·2	−0·7	18	14	10	...	4	7	3	...	6	N. 14° E.	N. 32° E.	23	17	30	41	...	...	Jubbulpore.	
·293	·328	·328	·316	+·051	79	44	37	53	+8	0·4	0·9	0·7	−0·5	...	4	18	2	18	1	11	1	7	N. 89° E.	N. 37° E.	23	38	32	60	...	...	Saugor.	
·328	·367	·320	·339	−·006	77	49	34	53	−1	1·1	2·4	1·8	0	17	13	13	2	...	2	4	2	5	N. 7° E.	N. 35° E.	34	48	27*	66	...	...	Raipur.	
·288	·364	·312	·321	+·071	85	53	38	59	+11	0·2	0·7	0·5	−0·9	5	33	1	8	2	...	...	4	9	N.	N. 31° W.	63	39	72*	89	...	...	Sutna.	
·413	·419	·418	·417	+·004	93	54	44	64	+6	1·6	2·2	1·9	−0·5	...	...	26	30	6	...	...	...	...	N. 75° E.	N. 65° E.	87	76	89	81	...	...	Secunderabad.	
·403	·446	·397	·415	?	92	54	43	63	?	2·8	3·5	3·2	?	6	...	21	9	20	6	...	...	...	S. 82° E.	?	61	?	71*	?	...	...	Hyderabad (Deccan).	
·537	·584	·622	·581	−·039	71	63	57	64	−6	2·5	3·0	2·8	+1·0	...	...	10	19	4	...	1	10	18	N. 19° E.	N. 17° E.	27	63	218	238	...	...	Bombay.	West Coast.
·423	·432	·582	·479	−·079	63	36	49	49	−9	2·9	2·7	2·8	+1·9	...	7	3	10	17	1	4	7	13	N. 67° E.	N. 4° W.	10	36	206*	213	...	...	Ratnagiri.	
·493	·543	·599	·545	−·065	78	55	51	61	−8	1·1	1·1	1·1	−0·5	7	...	33	1	...	...	...	7	14	N. 12° E.	N. 1° E.	54	57	49	?	...	...	Karwar.	
·653	·637	·685	·659	−·072	86	55	54	65	−9	0·5	1·6	1·1	−2·1	...	8	19	3	...	...	...	27	5	N. 29° W.	S. 50° W.	47	15	123	?	...	...	Cochin.	
·535	·539	·515	·529	−·060	90	55	47	64	−8	3·5	5·9	4·7	+0·6	5	2	32	15	...	...	2	4	2	N. 51° E.	N. 89° E.	63	48	97	91	...	...	Salem.	South India
·454	·473	·406	·444	?	93	59	42	65	?	2·5	1·9	2·2	?	...	...	14	44	3	...	...	1	...	N. 82° E.	?	90	?	278*	?	...	...	Mysore.	
·404	·456	·491	·450	−·017	88	74	64	75	−2	2·3	2·4	2·4	−2·7	...	...	22	31	4	1	...	2	2	N. 74° E.	N. 73° E.	77	75	216	117	...	...	Mercara.	
·427	·467	·437	·447	−·009	95	60	50	69	0	1·8	1·2	1·5	−2·6	...	...	21	31	7	...	...	...	...	N. 80° E.	N. 70° E.	88	81	181*	93	...	...	Bangalore Fort.	
·347	·438	·398	·394	?	82	58	44	61	?	2·5	2·8	2·7	?	5	...	21	29	7	...	...	...	...	N. 79° E.	?	80	?	99*	?	...	...	Hassan.	
·369	·449	·382	·400	?	76	57	40	58	?	2·0	1·7	1·9	?	...	...	18	34	10	...	...	...	...	N. 84° E.	?	87	?	194*	?	...	...	Chitaldroog.	
·595	·614	·604	·605	−·058	85	60	55	67	−7	5·0	5·4	5·2	−0·7	3	14	44	1	...	...	...	...	...	N. 35° E.	N. 39° E.	90	75	71	121	...	...	Trichinopoly.	
?	·702	·667	·707	+·015	?	70	66	81	+3	5·7	4·5	5·1	−0·2	...	36	24	...	...	...	...	...	2	N. 16° E.	N. 24° E.	92	75	172	179	...	...	Madras.	
·430	·551	·514	·499	+·034	86	63	47	65	+7	4·0	3·5	4·1	+0·7	1	...	7	33	21	...	...	...	...	S. 79° E.	S. 87° E.	85	69	74	75	...	...	Bellary.	
·456	·564	·598	·546	−·004	62	65	63	63	0	2·5	2·7	2·6	+0·1	...	17	28	7	1	...	2		7	N. 28° E.	N. 83° E.	72	55	21	49	...	...	Vizagapatam.	
·560	·595	·589	·581	?	89	65	61	72	?	1·7	2·2	2·0	?	..	5	20	26	9	...	...	...	2	N. 72° E.	?	77	?	222*	?	..	...	Cocanada.	
·157†	·240	·281	·227†	+·082	86†	64	62	70†	+14	3·3	3·6	3·5	+0·5	48	...	...	...	...	2	3	3	6	N. 89° W.	N. 48° W.	15	37	27	58	...	...	Quetta.	Hill Station, Baluchistan.
·072	·088	·114	·091	+·012	77	57	58	64	+4	6·2	6·6	6·4	+0·9	2	...	2	1	...	27	25	4	1	S. 25° W	S. 1° W.	76	34	40	30	0·14	0·06	Leh.	Hill Stations, Northern India.
·152	·184	·226	·187	?	95	82	67	81	?	5·1	5·5	5·3	?	43	3	2	...	5	5	...	...	4	S. 56° E.	?	5	?	46*	?	...	...	Srinagar.	
·118	·140	·172	·143	+·008	43	40	50	44	−5	5·2	4·7	5·0	+0·3	5	6	1	8	27	3	4	2	6	S. 53° E.	S. 58° E.	37	31	176*	167	...	...	Murree.	
·214	·224	·249	·229	−·009	73	55	49	59	+4	5·6	7·0	6·3	+1·9	44	1	...	2	3	2	2	1	7	N. 82° W.	S. 58° E.	5	16	73*	70	0·12	0·06	Chamba.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	..	...	S. 44° W.	...	46	...	20	...	...	Kailang.	
·113	·131	·180	·142	0	44	40	56	47	+1	4·2	6·1	5·2	+1·6	16	13	4	...	1	24	1	..	2	S. 8° E.	N. 83° W.	13	18	125	?	...	...	Simla (Ridge).	
·123	·131	?	?	?	47	36	?	?	?	4·1	?	?	?	no	t r	e c	o r	d e	d .	..	...	...	?	?	?	?	?	?	0·05	0·05	Simla (Chapslee).	
·172	·187	·219	·191	+·012	69	55	67	63	+12	2·4	5·0	3·7	+0·5	4	...	3	9	4	3	4	30	5	S. 83° W.	S. 55° W.	37	14	134	100	...	...	Chakrata.	
·216	·231	·242	·230	+·033	80	60	57	66	+10	2·9	4·3	3·6	+1·1	43	1	...	3	...	...	2	12	1	N. 88° W.	S. 54° W.	18	22	31	35	...	...	Raniket.	
·201	·275	·272	·249	−·025	85	81	56	74	+1	2·1	2·7	2·4	−0·5	5	1	1	2	5	...	..	30	18	N. 74° W.	N. 64° W.	61	61	16	?	0·13	0·13	Katmandu	
·139	·181	·199	·174	−·026	66	59	65	64	−12	2·1	2·5	2·3	−2·0	10	4	4	14	4	1	9	11	4	S. 45° W.	N. 54° W.	2	4	74	46	...	...	Darjeeling.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	13	37	1	...	...	11	..	N. 13° E.	N. 58° W.	59	33	?	?	*Nil*	*Nil*	Demagiri.	
?	·398	·423	?	?	?	62	57	?	?	1·4	2·6	2·0	−1·0	...	...	5	7	18	16	14	1	1	S. 19° E.	S. 15° E.	58	45	?	?	0·24	0·24	Tura.	
·234	·234	·269	·246	+·034	56	37	43	45	+4	1·1	1·4	1·3	−0·5	2	10	16	2	8	1	12	2	9	N. 9° E.	N. 48° E.	21	14	86*	86	...	...	Mount Abu	Hill Stations, Central India.
·240	·268	·284	·264	−·003	79	44	44	56	+2	1·0	1·9	1·5	−0·6	9	13	9	10	3	1	3	5	9	N. 14° E.	N. 29° E.	34	22	41*	63	...	...	Pachmarhi.	
·291	·317	·330	·313	+·005	68	50	46	55	+2	2·6	3·5	3·1	+0·8	41	7	1	...	3	8	.	1	1	S. 30° E.	N. 77° W	3	9	99	117	*Nil*	*Nil*	Chikalda.	

† Mean of 30 days.

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and at 4 P.M. at 89

Meteorological Province.	Station.	Height of the 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 to 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 . .	...	24·307	24·233	·074	24·270	+·007	29+ ?	65·1	43·3	21·8	69·4	35·9	33·5	60·0	60·5	53·1	−3·0	41·5	52·5	55·2	49·7
Extra India.	Muscat . .	...	30·106	30·013	·093	30·060	?	?	75·3	71·5	3·8	78·6	68·1	10·5	74·4	74·9	73·3	?	65·7	68·4	69·2	67·8
	Aden . . .	...	29·971	29·857	·114	29·917	−·039	·944	84·2	73·6	10·6	88·3	69·9	18·4	78·0	82·1	78·3	+1·7	69·3	71·5	71·9	71·0
	Perim . . .	...	·838	·712	·126	·775	?	?	82·9	73·6	9·3	84·6	70·4	14·2	79·5	79·5	77·4	?	69·5	71·8	71·6	71·0
	Minicoy . .	...	·996	·900	·096	·943	?	·878	86·5	?	?	88·3	?	?	82·2	83·4	?	?	71·7	75·2	75·3	74·0
	Zanzibar . .	...	·931	·844	·087	·888	?	·887	85·2	78·7	6·5	88·6	75·8	12·8	82·2	84·6	81·8	?	77·3	?	?	?

II—*concluded.*

Stations in India, Burma, etc., for December 1893—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.					
														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 of the month.	Heaviest fall of the month.	Station.	Meteorological Province.
																									%	%						
·251	·321	·383	·318	—·029	86	63	73	74	− 2	2·5	5·3	3·9	−1·6	1	...	1	12	33	14	1	...	...	S. 43° E.	S. 35° E.	82	60	52	55	...	...	Wellington.	Hill Station, S. India.
·557	·616	·638	·604	?	72	72	73	73	?	0·8	2·1	1·5	?	...	1	11	19	4	2	2	5	18	N. 34° E.	?	30	?	85	?	...	...	Muscat.	Extra India.
·660	·687	·645	·663	+·026	80	71	60	70	0	4·1	1·2	2·7	—1·3	3	...	7	39	6	6	...	...	...	S. 84° E.	N. 89° E.	79	69	435	299	...	...	Aden.	
·668	·677	·671	·672	?	80	67	67	72	?	1·2	0·1	0·7	?	...	...	11	26	24	1	...	...	...	S. 79° E.	?	82	?	579	?	...	...	Perim.	
?	·779	·771	?	?	?	71	67	?	?	3·2	3·4	3·3	?	5	12	31	8	3	3	...	...	...	N. 48° E	?	69	?	142	?	...	...	Minicoy.	
·921	?	?	?	?	94	?	?	?	?	4·3	2·4	3·4	?	...	14	25	7	2	9	3	...	2	N. 48° E.	N. 26° E.	50	30	168*	140	...	...	Zanzibar.	

* Corrected.

G. I. C. P. O.—No. 110 Meteor.—6-4-94.—400.

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.

Litho., S. I. O., Calcutta.

Reg. No. 160, Wr., I.—April 93.—500.—199 B., May 93.—6,500.

Explanation.

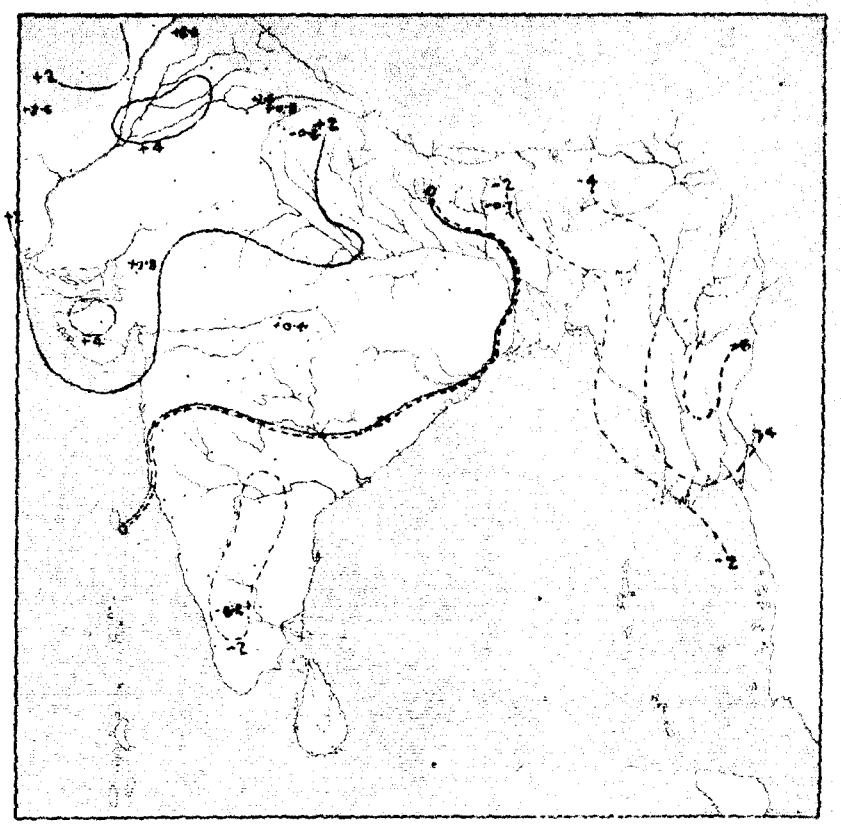
The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines 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.

Litho., S. I. O., Calcutta.

Reg. No. 199, Wr., I.—April 93—500.—199 R., May 93—5,500.

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.

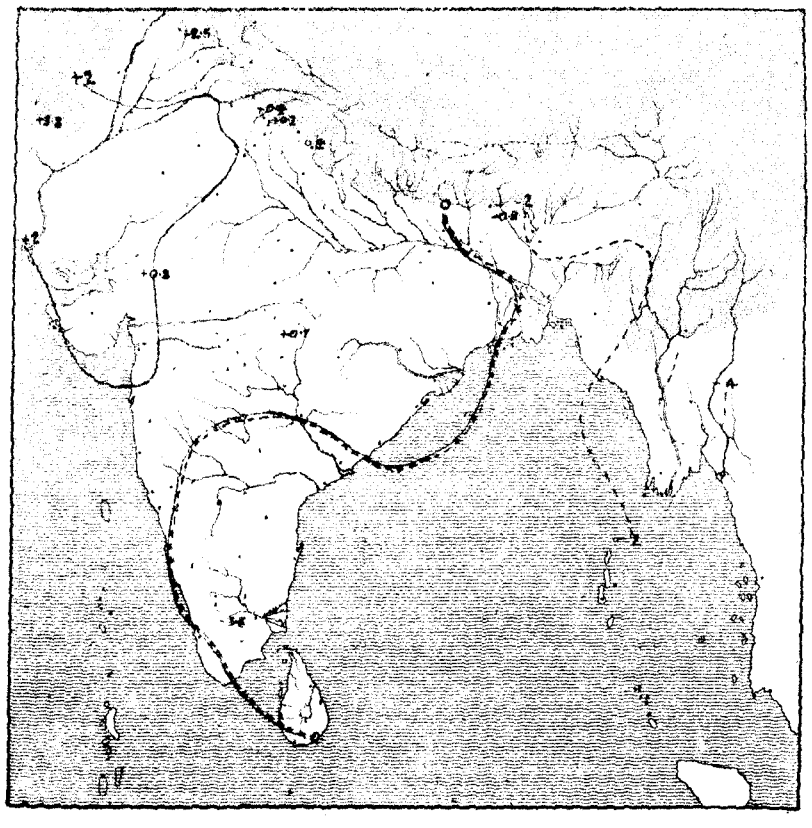
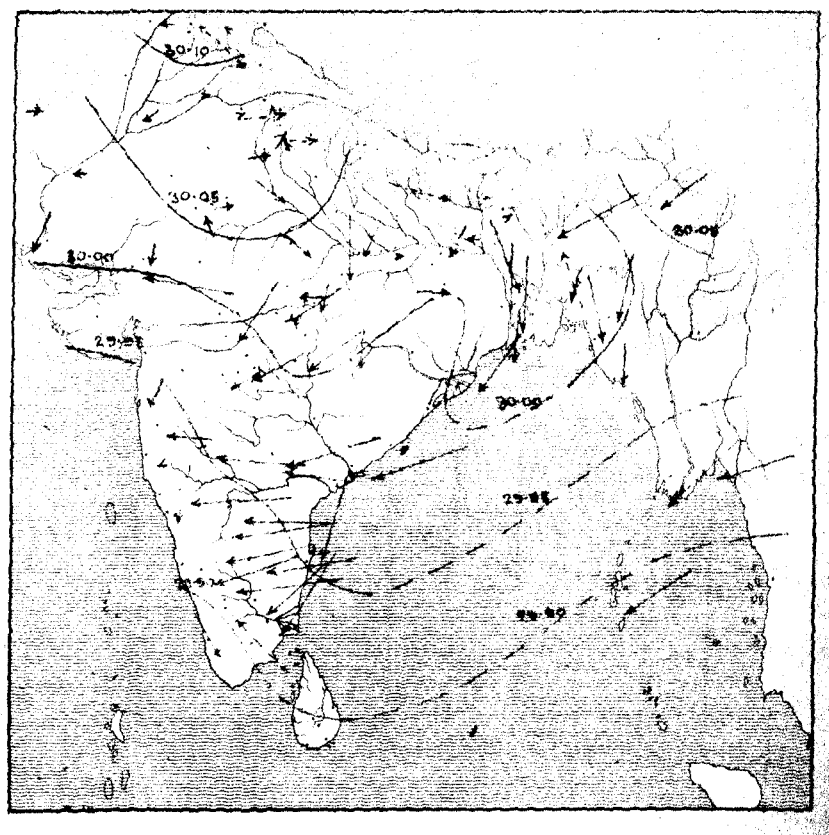


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF DECEMBER 1898.



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., S. I. O., Calcutta.

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. 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. S. I. O. Calcutta.

Reg. No. 199, Wr., I.—April 93.—500.—199 R., May 93.—5,500.

H.H.P.

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 51 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 districts 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 figures.

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

Reg. No. 129. Wr. I.—Apr. 93—500.—199 R. May 93—5,500.
Litho., S. I. O., Calcutta.