GOVERNMENT OF INDIA.

India. METEOROLOGICAL DEPARTMENT.

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FOR THE YEAR

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BY

JOHN ELIOT, M.A.,

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Corrigenda in the Monthly Weather Reviews for the years 1891 and 1892.

Page.	Column.	Part.	Subject.
470	1	Annual Summary, 1891 .	*For* '0·30' *read* '3·03,' in line 2.
470	2	Ditto . . .	*For* '0·35' *read* '3·54,' in line 1.
5	2	January, 1892 . .	*For* '6°57′' *read* '56°57′' in the column of "Long., East" in the table, against "3rd, *S. S. Java.*"
5	2	Ditto . . .	*For* 'larger' *read* 'large' in line 6 below the table.
16	1	Ditto . . .	*For* 'hundreth' *read* 'hundredths,' in line 3 below the rainfall statement.
20	...	Ditto . . .	*For* '66·3' *read* '66·7,' against Barisal in the column of "Mean daily temperature."
23	...	Ditto . . .	*Read* '2·6,' in the column of "Mean cloud amount" against Bareilly.
25	...	Ditto . . .	*For* '0·27' *read* '1·27,' in the column of "Normal number of rainy days," against Mooltan.
25	...	Ditto . . .	*For* '1' and '2' *read* '..' and '1' respectively, in the columns o 'W.' and 'N.-W.', against Ahmednagar.
63	...	February, 1892 . .	*For* "321' *read* '3·21,' in the column of "Rainfall of month" against Murree.
72	1	March, 1892 . . .	*For* 'th' *read* 'the' in line 16.
72	2	Ditto . . .	*For* 'Pujnab' *read* 'Punjab,' in line 9.
75	2	Ditto . . .	*For* 'Nothern' *read* 'Northern,' in line 5 below the second table.
78	2	Ditto . . .	*For* '·025' *read* '+·025,' against 26th and 27th in the tabular statement.
81	2	Ditto . . .	*For* '5°' *read* '50°,' after Long. in line 32.
86	2	Ditto . . .	*For* '32·5,' '23' and '+10·5' *read* '37·2,' '24·8,' and '+12·4' respectively, against "Mean of stations in the Central Provinces" in the second table.
86	2	Ditto . . .	*For* '5' *read* '50,' in line 8 below the second table.
101	...	Ditto . . .	*For* '—·246' *read* '—2·46,' in the column of "Variation from normal (Rainfall)" against Ranikhet.
111	1	April, 1892 . . .	*For* 'the Central Bengal' *read* 'Central Bengal,' in line 2 of the last paragraph.
112	1	Ditto . . .	*For* '20' *read* '23,' in line 15.
113	2	Ditto . . .	*For* '—·040' *read* '+·040,' against Hoshangabad in the last column of the tabular statement.
114	2	Ditto . . .	For '—·00' '—·00,' and '+·01' *read* '—·003,' '—·007,' and '+·019,' against "Guzerat and Central India, Berar and Central Provinces and Bombay," respectively, in the last column of the tabular statement.
115	1	Ditto . . .	*For* 'force, on the winds' *read* 'force of the winds' in line 14.
118	2	Ditto . . .	*For* 'in West Punjab' *read* 'in the West Punjab,' in line 15.
125	...	Ditto . . .	*For* '—0·12' *read* '—0·24,' against "North-Western Provinces" (Submontane) in the last column of the table.
125	...	Ditto . . .	*For* '?' *read* '5·1' and '1·9,' against Mysore in columns 3 and 4, respectively.
125	...	Ditto . . .	*For* '?' *read* 0, 0, 0·5, and 0 in the third column and '?,' 0·5, 0·7 and 0·9 in the fourth column, against Berar, Central Provinces (West), Central Provinces (Central) and Central Provinces (East) respectively.
125	...	Ditto . . .	*For* '?' *read* '1·5' and '2·4' against East Coast (Northern) (*a*) in columns 3 and 4, respectively, in the table.

Page.	Column.	Part.	Subject.
126	1	April, 1892 . . .	*For* 'in the case' *read* 'in the cases' in line 1.
153	2	May, 1892 . . .	*For* 'Eastern' *read* 'Western' in line 2 below the tabular statement.
155	2	Ditto . . .	*For* 'squally' *read* 'equally,' in line 12 below the tabulur statement.
156	1	Ditto . . .	*For* 'Deesa' '29·905,' '+·199,' '+·159,' S.S.E., blank, blank, dust-storm, *read* Sirsa, '29.587' '—·013,' —' ·045,' 'W,' '6' and '120' in respective columns, in the first table.
160	1	Ditto . . .	*For* 'A.M.' *read* 'P.M.' in line 24.
165	1	Ditto . . .	*For* '+39°' *read* '+29°' against Calcutta, in the third column of the second table.
169	...	Ditto . . .	*For* '?' *read* '6·7' and '5·7,' against Mysore, in columns 3 and 4 respectively of the rainfall statement.
169	...	Ditto . . .	*For* '?' *read* '0·7,' against Berar in column 3 of the rainfall statement.
170	2	Ditto . . .	*For* '(Except in Balasore)' *read* '(Except Balasore)' in line 1 below the first table.
180	...	Ditto . . .	*For* '29·979' *read* '29·797,' against Veraval in the fourth column of the table.
181	...	Ditto . . .	*For* '3' and '+133' *read* '6' and '+17,' respectively, against Agra in the columns of "Normal" and "Percentage Variation" under the heading "Wind velocity."
181	...	Ditto . . .	*For* '+4' *read* '+40,' against Sholapur in the column of "Percentage Variation of wind velocity."
181	...	Ditto . . .	*For* '+4' *read* '+7,' against Poona in the column of "Percentage Variation of wind velocity."
182	...	Ditto . . .	*For* '—2·0' and '—1·0,' *read* '+2·0' and '+1·9,' against Trichinopoly and Madras, respectively, in column 16 of the table.
185	...	Ditto . . .	*For* '4·70' *read* '4·10,' in the column of "Rainfall of month," against Kodalkanal.
187	...	Ditto . . .	*For* 'February' *read* 'May' at the top of the page.
194	2	June, 1892 . . .	*For* 'to the Persian Gulf' *read* 'of the Persian Gulf.'
195	2	Ditto . . .	*For* '+0·3,' '+0·1,' '+0·2,' *read* '+0·1,' '+0·2,' '+0·1,' respectively, against Burma Coast and Bay Islands in the second table.
195	2	Ditto . . .	*For* '—0·9,' '+0·2,' '—0·4,' *read* '—1·0,' '+0·3,' '—0·3,' respectively, against Upper Sub-Himalayas in the second table.
235	...	Ditto . . .	*For* '—0·24' *read* '+0·24,' in the column of "Variation from normal" under the heading of Rainfall, against XI.—South India.
240	...	Ditto . . .	*For* '?' *read* '68·3,' '25·1,' '77·9,' '45·7,' '54·3,' '—1·1' in columns 10, 12, 13, 15, 18, and 19, against Leh.
247	2	July, 1892 . . .	*For* '+0·3,' '+0·2,' *read* '+0·6,' '+0·3,' respectively, in columns 3 and 4, against West Coast in the second table.
267	1	Ditto . . .	*For* 'de' *read* 'due,' in line 13.
273	...	Ditto . . .	*For* '—2·22' *read* '—2·24,' in column of "Variation from normal" under "Rainfall," against Calcutta.
291	1	August, 1892 . .	*For* '20·03,' '29·93,' '—9·90,' *read* '18·43,' '28·29,' '—9·36,' respectively, against "Burma Coast and Bay Islands," in the first table.
293	2	Ditto . . .	*For* 'districts or' *read* 'districts of,' in line 38.
297	2	Ditto . . .	*For* '14' 1°' *read* '14°·1' in line 4, below the first table.
302	2	Ditto . . .	*For* 'Balaghats' *read* 'Balaghat,' in line 14.
302	2	Ditto . . .	*For* 'favourabe' *read* 'favourable,' in line 19.
315	...	Ditto . . .	*For* '+5·82' and blank *read* '+6·82' and '+4·72,' respectively, in columns of 'Variation' and 'Variation from normal' under 'Rainfall' against Bareilly.
319	...	Ditto . . .	*For* '10,' '6·59' "..." "..." '23·88' "..." "..." *read* '13,' '10·77,' '5·56,' +'5·21,' '28·06,' '19·27,' +'8·79,' respectively, in columns 1, 4, 5, 6, 7, 8, and 9, under 'Rainfall' against Aurangabad.
312—355	...	September, 1892 . .	*Add* '18' to all the page marks.

Page.	Column.	Part.	Subject.
314	1	September, 1892 . .	*For* 'It was' *read* 'The air was,' in line 13.
316	2	Ditto . . .	*For* '22½°N' *read* '22¼°N,' in line 3 below the first table.
322	1	Ditto . . .	*For* 'east' *read* 'west' in line 4.
322	1	Ditto . . .	*For* '*Peria*' *read* "*Terra*" in line 9 below the first table.
324	1	Ditto . . .	*For* 'is remained' *read* 'it remained,' in line 23.
328	1	Ditto . . .	*For* 'condition' *read* 'conditions,' in lines 1 and 2.
341	...	Ditto . . .	*Read* '−0·70' against Sirajganj in the column of "Variation," under "Rainfall".
343	...	Ditto . . .	*For* '−2·44' *read* '−3·44,' against Chupra, in the column of "Variation from normal" under the heading "Rainfall."
347	...	Ditto . . .	*For* '67' *read* '−67,' against Madura, in the column of "Percentage variation" of Wind velocity."
349	...	Ditto . . .	*For* '0' *read* '−100,' in the column of "Percentage variation of velocity" against Quetta.
376	2	October, 1892 . .	*For* 'West' *read* 'East,' in line 24.
383	1	Ditto . . .	*For* '17¾°N' *read* '13¾°N,' in line 5, below the second table.
385	2	Ditto . . .	*For* 'falle' *read* 'fallen' in line 2.
390	1	Ditto . . .	*For* 'depend' *read* 'depended,' in line 5 of paragraph 1.
391	2	Ditto . . .	*For* 'than,' *read* 'than 3,' in line 3 below the second table.
393	2	Ditto . . .	*For* 'exceeds' *read* 'exceeded' in line 3.
407	...	Ditto . . .	*For* '+5·0' *read* '5·09,' against Masulipatam, in the column of "Variation" under the heading "Rainfall."
418	1	Ditto . . .	*For* 'over' *read* 'in,' in line 9 of paragraph 5.
419	1	Ditto . . .	*For* 'Indaand Burma' 'read 'India and Burma,' in the last line.
419	2	Ditto . . .	*For* 'decrease the amount' *read* 'decrease in the amount,' in line 2, below the tabular statement.
421	2	Ditto . . .	*For* 'd ring' *read* 'during,' in line 1, below the tabular statement.
423	1	Ditto . . .	*For* 'Sufed, koh' *read* 'Sufed koh,' in line 9 of paragraph 4.
425	2	Ditto . . .	*For* 'exceeded 2' *read* 'exceeded 2°,' in the last line.
431	2	Ditto . . .	*For* 'M oderate rain' *read* 'Moderate rain,' in paragraph marked 5.
439	...	November, 1892 . .	*For* '·61' *read* '·561,' against False Point in the column of "Mean vapour tension."
439	...	Ditto . . .	*For* 'O' *read* '−100,' against Bareilly, in the column of "Percentage variation" under the heading "Wind velocity."
442 &443	...	Ditto . . .	*For* 'Bangalore' *read* 'Bangalore Bazar,' in the column of "Station."
443	...	Ditto . . .	*For* '2' *read* '22,' against Bellary, in the column of "Calm" under the heading "Wind direction."
454	2	December, 1892 . .	*For* 'Bihar' *read* 'Berar,' in line 7 of paragraph 4.
458	1	Ditto . . .	*For* 'West' *read* 'remainder,' in line 9 of paragraph 1.
458	2	Ditto . . .	*For* 'givss' *read* 'gives,' in the last line.
463	2	Ditto . . .	*For* '−·1' *read* '−3·1,' against Akyab, in column 4 of the last table.
466	2	Ditto . . .	*For* '1' '2' *read* '13' '17' '21' in the last column of the first table,
468	1	Ditto . . .	*For* 'Sindh' *read* 'Sind,' in column of "Meteorological province," in the first table.
471	1	Ditto . . .	*For* 'in the Derajat' *read* 'on the Upper Sind frontier,' in line 2 of paragraph 2 below the second table.
471	1	Ditto . . .	*For* 'Peshin' *read* 'Pishin,' in line 3 of paragraph 2 below the second table.

Page.	Column.	Part.	Subject.
471	2	December, 1892 . .	*For* 'over Maihar State' *read* 'over the Maihar State,' in line 4 of paragraph 2 below the second table.
471	2	Ditto . . .	*For* 'districts' *read* 'district,' in the last line.
472	1	Ditto . . .	*For* 'rainfall above':— *read* 'rainfall table above':—, in line 21.
473	2	Ditto . . .	*For* 'varies' *read* 'serious,' in line 6 below the tabular statement.

G. I. C. P. O.—No. 27 Meteor.—14-8-93—400.

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW.

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CALCUTTA, JANUARY 1892.

INTRODUCTION.

THIS review of the weather in India during the month of January 1892 is based on observations taken at 8 A. M. daily at 171 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 93 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and of the rainfall telegrams received during the month from District Officers throughout India. 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 January 1892.

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 during the day caused by the large 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 very 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 the primary depressions are not accompanied with a secondary depression, they either give no rain or light to moderate scattered rain over Northern and Central India. When they 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.

It was pointed out in the December review that the weather was unusually fine and very dry in North-Western India in that month, and that the pressure conditions were in certain respects the opposite of those which obtained in January 1891, a month of excessive rain and snow and of unusually frequent and large disturbance in North-Western India. The conditions hence indicated the probability of a much drier cold weather than usual and they were confirmed in the month under discussion. Four shallow depressions and disturbances appeared in Northern India during the month. The first apparently passed eastwards through South Persia and Baluchistan on the 2nd, 3rd and 4th and entered Sind on the 4th. It advanced eastwards, but filled up rapidly on the evning of the 5th. It was of very slight importance in India, but gave some light showers to Baluchistan, Rajputana, the Punjab and Kashmir. A very shallow depression appeared in Rajputana on the 9th. It advanced eastwards and was in the North-Western Provinces and Bundelkhand on the 10th, when it was somewhat larger and more plainly marked. It advanced into Bengal during the next 36 hours and filled up on the afternoon of the 11th. This disturbance gave some light showers of little importance on the 9th and 10th to the Punjab and western districts of the North-Western Provinces.

Whilst the depression was filling up on the 11th, another formed in or passed into Sind. It was in the western districts of Rajputana on the morning of the 12th. It advanced rapidly eastwards and filled up on the 15th. It gave even less rain than the preceding disturbance. The eastern districts of the Punjab received one or two light showers of no importance. A brief interval of anti-cyclonic conditions and weather followed until the 20th, when a diffused disturbance gave slightly unsettled weather for a short period over the greater part of the East Punjab, Rajputana, North-Western Provinces, Central India, the northern districts of the Central Provinces and Bihar. The disturbance was unchanged in general character throughout from the 22nd to the 25th. There was during this time no definite cyclonic circulation, and winds were very light and irregular. The disturbance ceased on the 25th, after which fine weather continued until the end of the month. This disturbance gave moderate general rain over a considerable stretch of country including the greater part of Rajputana, Central India, and the North-Western Provinces.

The mean pressure of the month of the whole of India was ·007″ above the normal. Pressure was locally in moderate defect in the Assam Valley and along the west coast of India from Surat to Mangalore. The local deficiency of pressure in these two areas ranged from ·02″ to ·03″. Pressure was in moderate local excess along the foot of the hills from Rawalpindi to Roorkee. The most important feature of the pressure was the great excess at the hill stations when compared with the neighbouring plain stations. This excess was greatest at Quetta, Leh and Kailang.

The following data illustrate this feature :—

HILL STATION.	Variation of mean pressure of month from normal.	PLAIN STATION.	Variation of mean pressure of month from normal.	Excess at hills.
	Inches.		Inches.	Inches.
Leh . . .	+·087	Lahore . .	+·014	+·073
Kailang . .	+·068	Sialkot . .	+·012	+·056
Quetta . .	+·063	Jacobabad . .	+·010	+·053
Murree . .	+·052	Rawalpindi .	+·028	+·024
Ranikhet . .	+·038	Bareilly . .	−·003	+·041

The data for Quetta and Leh indicate that this feature was most probably due to conditions in the higher atmospheric strata to the north and north-west of Upper India. Excessive pressure in that region in January and February is very frequently, if not almost invariably, associated with a partial or complete failure of the cold weather rains in Northern India.

In consequence of the very small rainfall of the month in the plains and of snow in the hill districts, and the abnormal prevalence of fine weather throughout nearly the whole month, temperature was more or less above the average during the month. The only storm which gave a cool period to Northern India was the depression of the 20th to the 23rd, when the North-Western Provinces, Rajputana, and some parts of the Punjab and Central India received fairly general rain. The following table gives comparative data of the mean temperature of Northern India on the 19th, 22nd, 24th and 26th, and shows the reduction of temperature caused by the storm :—

DISTRICT.	VARIATION OF MEAN TEMPERATURE FROM NORMAL ON			
	19th January.	22nd January	24th January.	26th January.
	°	°	°	°
Punjab	−1·0	−0·1	+3·6	+5·3
Sind and Rajputana .	−3·2	+0·8	−4·2	+1·8
Guzerat and Central India	−0·7	+6·9	−4·1	+3·6
North-Western Provinces and Oudh . . .	+0·5	+3·5	+0·8	+3·3
Bengal and Assam . .	+0·7	+0·6	+2·9	+4·5

The data for the 26th, which are also given, show that the cooling was very temporary and only lasted until the 25th. The cool wave did not extend to Bengal.

As might be expected from the peculiar weather conditions of the month, both day and night temperatures were more or less considerably above the normal, and the increase was greatest in Upper India.

The mean day or maximum temperature was above the normal over the whole of India almost without exception. The increase was less than 2° in Assam, Burma and Southern India, and was greatest at Peshawar (+4·8°) and Rawalpindi (+4·6°) and at the Himalayan hill stations at Murree (+5·0°) and Ranikhet (+4·6°).

The mean night temperature was in excess except in Burma and the greater part of Bengal, where the air was abnormally dry and skies freer from cloud than usual. The excess was more than 2° in amount over nearly the whole of North-Western and Central India, and was greatest in Rajputana, at Deesa (+6·0°) and Ajmere (+5·4°).

The mean temperature of the month was slightly below the average in Burma and was normal at the Madras coast stations. It was in excess over the remainder of India, the excess increasing in amount northwards and westwards, and was greatest in the area represented by the following stations:—

District.	Station.	Mean Temperature.		
		Actual.	Normal.	Variation.
		°	°	°
Rajputana	Deesa	71·6	66·6	+5·0
	Ajmere	62·6	59·2	+3·4
North Punjab	Peshawar	55·5	51·5	+4·0
Berar	Akola	72·0	68·7	+3·3
	Amraoti	74·5	71·5	+3·0
Himalayan Hill Stations.	Murree	45·3	41·7	+3·6
	Ranikhet	50·9	46·7	+4·2

Hence one of the most important prominent features of the meteorology of the month was the excessive temperature, both by day and night, in North-Western and Central India.

The air contained less vapour than usual over the whole of Northern India and Burma. The deficiency on the whole increased eastwards from Beluchistan and the Punjab to Bengal and Burma and was greatest in West Bengal and in Burma. The deficiency was nearly as great at Port Blair as in Pegu. As temperature was more or less in excess over the whole of this area, the humidity was considerably below the normal. The air was unusually dry at Port Blair and Mergui.

The air was, on the other hand, slightly damper and contained more vapour than usual in Sind, Kathiawar, Guzerat and the western and central districts of Rajputana and Central India. This increase was most marked at Ajmere in the centre of the Rajputana area of drought of the south-west monsoon of 1891.

In the Peninsula the air was drier and contained less vapour. The deficiency was most marked at the Deccan stations, more especially at Belgaum, Poona, Mercara and Vizagapatam.

The variations in the amount of cloud follow those of the humidity and amount of vapour closely. There was a slight excess in Sind, Rajputana, Central India, Assam and South India, and a slight to a moderate defect over the remainder of India and in Burma. The deficiency was greatest at Rangoon.

The average amount of cloud was less than 1 at the following stations:—

Station.	Actual cloud amount.	Normal cloud amount.	Variation from normal.
Rangoon	0·7	2·2	−1·5
Akyab	0·6	1·6	−1·0
Dhubri	0·8	1·8	−1·0
Calcutta	0·8	1·5	−0·7
Darbhanga	0·8	1·6	−0·8
Ratnagiri	0·5	0·6	−0·1
Karwar	0·7	0·9	−0·2
Demagiri	0	0·6	−0·6

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

Division.	Mean Variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	Inches.	%	
Burma Coast and Bay Islands	−·050	−4	−0·6
Assam	+·015	−2	+0·3
Bengal and Orissa	−·015	−6	−0·4
Gangetic Plain and Chota Nagpur	−·003	−5	−0·3
Upper Sub-Himalayas	−·003	−3	−0·4
East Rajputana, Central India, and Guzerat	+·043	+4	+0·3
Indus Valley and N. W. Rajputana	−·001	−4	+0·9
Deccan	0	−2	−0·2
West Coast	−·014	−4	−0·7
South India	−·009	−3	+0·8

As already stated, the month of January 1892 was exceptionally dry, and the rainfall almost without exception below the normal. The Punjab, the western districts of the North-Western Provinces, Baluchistan, and the western Himalayas received light local rain or snow during the first two depressions or disturbances of the month. The rainfall was not only very small in amount but very partially distributed. The third disturbance gave practically no rain. The fourth disturbance differed from the previous three both in its character and accompanying rainfall. It was a diffused stationary disturbance without any definite depression or cyclonic winds. It nevertheless gave a fair burst of rain for the season to Rajputana, Central India and the adjacent districts of the North-Western Provinces, and light showers in the East Punjab, the eastern and northern districts of the North-Western Provinces and the northern districts of the Central Provinces.

The whole of Burma, Bengal, Behar, Chota Nagpur, Orissa and the Peninsula south of Lat. 22°N., Cutch and Kathiawar received actually or practically no rain during the month. The total rainfall of the month exceeded half an inch over the greater part of Rajputana and Central

India. It was slightly above an inch in some districts of Rajputana, more especially in Ajmere.

The following table* gives a summary of the rainfall data of the eleven meteorological divisions of India :—

METEOROLOGICAL DIVISION.	Mean actual rainfall of January 1892.	Mean normal rainfall for January.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	0	0·25	−0·25
Burma Inland	0	0·82	−0·82
Assam	0·49	0·82	−0·33
Bengal and Orissa	0	0·46	−0·46
Gangetic Plain and Chota Nagpur	0·09	0·69	−0·60
Upper Sub-Himalayas	0·31	1·73	−1·41
Indus Valley and North-West Rajputana	0·24	0·51	−0·27
East Rajputana, Central India, and Guzerat	0·68	0·33	+0·47
Deccan	0·08	0·33	−0·24
West Coast	0	0·23	−0·23
Southern India	0·15	0·60	−0·50

* It should be noted that the data in this table are taken from Table I. A reference to that table will show that the averagesin the first column are in several cases for a greater number of stations than those in second and third columns. Hence the apparent discrepancies.

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for January 1892 is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean pressure of the month reduced to sea level and to constant gravity (that of latitude 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 variations of the actual mean pressure from the normal pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart No. 4 of Plate III, gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts given hitherto in the annual reports on the meteorology of India. The data on which this chart is based are given in Table II. It should be noted that the pressure data in this table are not only reduced to sea level, but also to constant gravity (that of latitude 45°).

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 this discussion are the 8 A.M. reduced observations and the variations derived from a comparison of these observations and the normal values given in Table I. The means in the third column are not only reduced or corrected to sea-level, but also to constant gravity. The normal means are obtained from the observations of the period 1878—88, and in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The mean pressure of the whole of India was ·007″ above the normal. Relatively to the general state, pressure was locally in defect in North-Eastern India and the west and south of the Peninsula and was locally in excess in other districts. The local deficiency of pressure was moderately large in two areas, *viz.*, Assam and the West Coast Districts. The following gives the negative anomalies in these two areas :—

DISTRICT.	STATION.	Negative Anomaly.
		″
ASSAM	Sibsagar	−·023
	Dhubri	−·023
WEST COAST	Surat	−·022
	Bombay	−·026
	Karwar	−·025
	Mangalore	−·020
	Calicut	−·020

Pressure was locally in moderate excess at the foot of the hills from Rawalpindi to Roorkee. The following data show the excess in that area :—

DISTRICT.	Station.	Positive Anomaly.
		″
PUNJAB	Rawalpindi	+·028
	Delhi	+·022
NORTH-WESTERN PROVINCES	Roorkee	+·022

The most remarkable feature of the pressure distribution of the month was the very great excess at the hill stations, more especially when compared with the adjacent plain districts. The following comparative data illustrate this feature :—

HILL STATION.	Variation of pressure from normal.	Neighbouring plain Station.	Variation of pressure from normal.	Excess of pressure at hill stations as compared with neighbouring plain stations.
	″		″	″
Leh	+·087	Lahore	+·021	+·066
Quetta	+·063	Jacobabad	+·017	+·046
Murree	+·052	Rawalpindi	+·035	+·017

HILL STATION.	Variation of mean pressure of month from normal.	Neighbouring plain station.	Variation of mean pressure of month from normal.	Excess of pressure at hill stations as compared with neighbouring plain stations.
	"		"	"
Ranikhet . .	+·038	Bareilly . .	+·004	+·034
Darjeeling . .	+·013	Dhubri . .	—·016	+·029
Mount Abu .	+·022	Deesa . .	—·021	+·043
Pachmarhi .	+·041	Hoshangabad .	+·002	+·039
		Nagpur . .	+·013	+·028
Wellington .	+·034	Coimbatore . .	+·001	+·033

The preceding data show that there was a considerable excess of pressure at all the hill stations. The excess was much larger at Leh, Kailang and Quetta than at the other hill stations, thus showing that it was, due to conditions in the higher atmospheric strata and in the elevated plateaux to the north and north-west of India. Excessive pressure in these districts in the cold weather is almost invariably associated with a mild and dry winter.

Barometric depressions and cold weather storms of the month.

At the commencement of the month pressure was below the normal in all districts. The deficiency ranged from ·01″ in the South Deccan and Central India to ·10″ in Assam and ·11″ in the Indus Valley. Pressure increased during the next 72 hours, and on the 4th was above the normal over the whole of India except Sind and South Madras. The deficiency in Sind was due to the approach of a shallow depression from Baluchistan. The following gives a brief account of this depression:—

Depression of the 4th to the 6th January.—The Bushire observations indicate that a disturbance passed eastwards across Southern Persia on the 1st and 2nd. The following gives observations at that station for the 1st, 2nd and 3rd:—

DATE.	PRESSURE.		WIND.		Cloud.	Rainfall.
	8 A.M.	Change in past 24 hours.	Direction.	Amount in miles in past 24 hours.		
	Inches.	"				Inches.
1st .	30·073	?	SE	10	0	*Nil.*
2nd .	29·882	—·191	SE	113	0	0·04
3rd . .	30·134	+·252	NW	165	0	0·91

A depression hence passed to the north of Bushire about midday of the 2nd.

This disturbance shown by the Bushire observations gave squally unsettled weather with much rain in the Persian Gulf. The following table gives abstracts of the information contained in the logs of steamers which were in the Persian Gulf at this time:—

Date.	Name of vessel.	POSITION AT NOON.		Barometer, 8 A.M.	WIND, 8 A.M.		Weather during day.
		Lat., north.	Long., east.		Direction.	Force.	
				"			
1st	S.S. *Java* .	At Jask .		30·18	Calm ...		Fine.
	S.S. *Calder* .	Fao. Left at 1-30 P.M. for Bushire.		...	(SE 5) at 4 P.M.		Head sea and cloudy, 8 P.M., strong head sea and squally, wind force 6.
1st	S.S. *Henry Bolckow.*	26° 36′	56° 35′	30·070	Variable.	2	Fine.
2nd	S.S. *Calder* .	Approaching Bushire.		...	SE	6	Hard squalls from SE veering to SSE, heavy sea. Heavy hail and showers of rain during afternoon.
	S.S. *Java* .	At Muscat		...	Variable.	2	Fine.
3rd	S.S. *Java* .	24°54′	16° 57′	30·080	E	4 to 5	Fine in the morning. Threatening to east and north in evening.
	S.S. *Calder* .	At Bushire		...	E	2	Fine.
	S.S. *Henry Bolckow.*	Bunder Abbas.		...	N	...	Heavy rain squalls during early morning. 8 A.M. heavy rain: wind shifted from NNW at 4 A.M. to E by N at 4 P.M., wind force 6.
4th	S.S. *Calder* .	27° 23′	51° 44′	...	Variable.	4 to 1	Cloudy.
	S.S. *Java* .	25° 05′	62° 37′	...	ESE	6 to 4	4 A.M. Continued lightning and strong sea. 5-40 A.M. Heavy rain with thunder and lightning.
	S.S. *Henry Bolckow.*	At Linga .		...	...	...	Fine.

The preceding data show that a disturbance, cyclonic in character, was transmitted eastwards from the 1st to the 4th in the Persian Gulf and north of the Arabian Sea. The disturbance was evidently more severe in the western half of the Persian Gulf as shown by the weather experienced by the S.S. *Calder* on the 2nd, and the larger barometric fall and rise at Bushire than it was off the Baluchistan coast on the 4th.

The disturbance passed eastwards across Baluchistan on the 4th and entered India on the night of that day or the

morning of the 5th. The following gives 8 A.M. observations of the 4th at stations in Beluchistan and Sind :—

Station.	Pressure.			Variation of mean temperature of previous 24 hours from normal.	Wind.		Cloud amount.	Rainfall in 24 hours.
	8 A.M. reduced to sea-level and Lat., 45°.	Change in previous 24 hours.	Variation from normal.		Direction.	Velocity in miles per hour in previous 24 hours.		
	"	"	"	°				Inches.
Quetta	?	+·043	+·065	+ 1·23	Calm	0	6	*Nil.*
Jacobabad	30·178	+·036	+·054	— 1·1	Calm	1	8	*Nil.*
Hyderabad	·102	+·022	—·005	+ 2·5	NE	19	10	*Nil.*
Kurrachee	·041	—·005	—·052	+ 5·5	NNE	19	8	*Nil.*

Pressure was above 30·25″ in the North Punjab and more than a tenth of an inch above the normal over a large part of Northern India. The preceding observations indicate that a feeble disturbance at 8 A.M. was passing through South Baluchistan and was approaching Lower Sind.

Pressure gave way rapidly during the day in North-Western India and decreased over the whole of India, except the south of the Peninsula and Sind. There was no definite depression on the morning of the 5th. The disturbance gave moderate cloud in North-Western India and Sind with light local showers. The depression apparently filled up during the day and disappeared on the morning of the 6th.

The disturbance was apparently of moderate intensity in Persia and the Persian Gulf, but as it approached the Sind frontier it diminished in importance and was very feeble in North-Western India, and disappeared shortly after its entrance into India. It gave some light showers of little value in Baluchistan, the Punjab, and Kashmir during the 48 hours preceding 8 A.M. of the 6th.

The pressure changes for a short time afterwards were generally small in amount and somewhat irregular. Pressure began to give way in North-Western India on the 7th. This was followed by the appearance of the second depression of the month.

Depression of the 9th to 12th January.—Weather had been fine for some days previously at Bushire and Quetta, and there were no indications of this depression having passed across Persia or Beluchistan. Pressure fell over the whole of India on the 8th. The fall was greatest in East Rajputana, and on the morning of the 9th a trough of low pressure ran from Surat to Sirsa. Pressure fell briskly in the North-Western Provinces and the northern districts of the Central Provinces during the 9th, and on the morning of the 10th a shallow oval-shaped depression covered the greater part of the North-Western Provinces and the eastern districts of Central India.

The following gives 8 A.M. observation of the 10th at stations in this area :—

Station.	Pressure.		Wind.		Cloud amount.	Rainfall in 24 hours.
	8 A.M. reduced to sea-level and Lat. 45°.	Variation from normal.	Direction.	Force.		
	"	"				Inches.
Sutna	29·936	—·141	NNE	3	2	*Nil.*
Allahabad	·906	—·178	ENE	2	1	*Nil.*
Benares	·936	—·146	Calm	2	3	*Nil.*
Lucknow	·935	—·150	NE	2	6	*Nil.*
Jhansi	·916?	—·166	S	2	5	*Nil.*

Light showers had fallen during the previous 24 hours in the north-western districts of the North-Western Provinces. Skies were clouded in the North-Western Provinces and were generally clear in other districts.

The barometric changes during the next 24 hours were everywhere small. The disturbance was apparently transferred on the morning of the 11th into Chota Nagpur and West Bengal, where skies had clouded over partially at the same time that they had cleared in the North-Western Provinces.

Its position at 8 A.M. of the 11th is indicated by the following observations :—

Station.	Pressure.			Variation of mean temperature of previous 24 hours from normal.	Wind.		Cloud amount.	Rainfall in 24 hours.
	8 A.M. reduced to sea-level and Lat. 45°.	Change in previous 24 hours.	Variation from normal.		Direction.	Velocity in miles per hour in previous 24 hours.		
	"	"	"	°				Inches.
Burdwan	29·916	—·034	—·149	+4·7	SSW	2	6	*Nil.*
Berhampore	·915	—·017	—·151	+2·7	ESE	2	6	*Nil.*
Purnea	·942	—·022	—·130	+1·6	Calm	2	0	*Nil.*
Patna	·954	—·016	—·131	+4·4	SE	2	4	*Nil.*

The observations show that the disturbance was very feeble. Winds were very light and skies clear or partially clouded in the area of depression.

A brisk increase of pressure occurred in North-Eastern India during the next 24 hours, and there was no trace of the depression on the morning of the 12th.

This disturbance differed from the preceding in the fact that it almost certainly formed in Rajputana and did not cross Sind from Baluchistan. It was, however, like the preceding very shallow and feeble and of little importance.

Depression of 12th to the 15th January.—Whilst the preceding depression was filling up on the 11th, the barometer fell briskly in Sind and Baluchistan, and on the morning of the 12th a shallow depression covered Sind

and West Rajputana. The following data show its position and character at 8 A.M. :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and Lat. 45°.	PRESSURE. Variation from normal of day.	Variation of mean temperature of previous 24 hours from normal.	WIND. Direction.	WIND. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in past 24 hours.
	"	"	°				Inches.
Mount Abu	?	—·119	+0·2	SW	6	0	*Nil.*
Ajmere	29·966	—·118	+1·5	E	3	0	*Nil.*
Hyderabad	·936	—·156	+0·8	NE	8	10	*Nil.*
Kurrachee	·909	—·169	+3·7	NNE	9	0	*Nil.*
Rajkot	·942	—·096	—0·5	WSW	5	0	*Nil.*

Pressure gave way in North-Eastern India and increased in North-Western and Western India during the day, and on the morning of the 13th a large shallow depression covered Bengal, Chota Nagpur, and the eastern and central districts of the North-Western Provinces. This was almost certainly the continuation of the depression in Sind on the preceding day. It was a large but very shallow, ill-defined and feeble disturbance without a definite centre. The following gives data for stations where the variation of pressure from the normal was greatest:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and Lat. 45°.	PRESSURE. Variation from normal of day.	Variation of mean temperature of previous 24 hours from normal.	WIND. Direction	WIND. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in past 24 hours.
	"	"	°				Inches.
Gaya	29·924	—·140	+4·3	W	4	0	*Nil.*
Patna	·933	—·149	+1·7	SE	2	6	*Nil.*
Benares	·919	—·153	+4·2	E	2	4	*Nil.*
Allahabad	·931	—·146	+6·3	ENE	4	0	*Nil.*
Sutna	·938	—·131	+5·2	SE	5	0	*Nil.*

A few light showers nowhere exceeding two-tenths of an inch and of no importance had been received during the previous 24 hours in the north-western districts of the North-Western Provinces.

A brisk fall of pressure occurred in Bengal during the day, whilst pressure continued to increase in North-Western India. The depression was hence transferred to Bengal on the 14th. The following data indicate its position at 8 A.M. of the 14th:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and Lat. 45°.	PRESSURE. Variation from normal of day.	Variation of mean temperature of previous 24 hours from normal.	WIND. Direction.	WIND. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in past 24 hours.
	"	"	°				Inches.
Dacca	29·869	—·171	+3·8	SSW	3	0	*Nil.*
Dhubri	·858	—·207	+0·7	E	3	0	*Nil.*
Purnea	·864	—·196	+0·5	SSW	1	0	*Nil.*
Berhampore	·861	—·197	+3·2	SW	1	0	*Nil.*

Pressure increased during the next 24 hours over the whole of India, except Upper Assam and Upper Burma. The following data indicate the position and character of the disturbance on the morning of the 15th :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and Lat. 45°.	PRESSURE. Variation from normal of day.	Variation of mean temperature of previous 24 hours from normal.	WIND. Direction.	WIND. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in past 24 hours.
	"	"	°				Inches.
Sibsagar	29·943	—·146	+3·5	NE	3	10	0·15
Dhubri	·913	—·149	+3·7	SW	5	0	*Nil.*
Silchar	·954	—·096	+4·0	Calm	1	9	0·44
Bhamo	·920?	?	?	NE	?	2	*Nil.*

The depression either filled up or passed out of the Indian region during the next 24 hours, and pressure increased briskly in North-Eastern India and Upper India during the day.

Pressure increased over the whole Indian area during the next 48 hours, and was excessive in Upper India on the morning of the 18th, when it was two-tenths of an inch above the normal in the North Punjab. Pressure then began to give way in Upper India, whilst it continued to rise in the remainder of India. This was followed by the appearance of the fourth depression of the month on the North-West Frontier.

The following gives 8 A.M. observations of the 20th at stations in Sind and Beluchistan :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and Lat. 45°.	PRESSURE. Change in previous 24 hours.	PRESSURE. Variation from normal of day.	Variation of mean temperature of previous 24 hours from normal.	WIND. Direction.	WIND. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in 24 hours.
	"	"	"	°				Inc.
Quetta	?	—·058	+·078	+3·9	Calm	0	3	*Nil.*
Hyderabad	30·101	—·068	+·041	—4·8	NE	12	10	*Nil.*
Jacobabad	·144	—·063	+·090	—3·3	Calm	2	8	*Nil.*
Kurrachee	·084	—·073	+·031	—1·8	NNE	14	9	*Nil.*

These observations show that a depression was approaching or forming in Lower Sind. Skies were clouded in Sind, but were generally clear in Northern and Central India.

Shallow depression of 21st to 23rd January.—Pressure continued to give way in North-Western India, and on the morning of the 21st a shallow depression covered

Lower Sind and Cutch. The following observations define its position :—

Station.	Pressure. 8 A.M. reduced to sea-level and Lat. 45°.	Pressure. Change in previous 24 hours.	Pressure. Variation from normal.	Variation of mean temperature of previous 24 hours from normal.	Wind. Direction.	Wind. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in 24 hours.
	"	"	"	°				Inc.
Bhuj	29·939	—·112	—·109	+7·1	W	3	7	*Nil.*
Rajkot	·954	—·101	—·058	+9·4	W	6	4	*Nil.*
Deesa	·934	—·118	—·091	+12·6	ESE	8	8	*Nil.*
Kurrachee	·958	—·126	—·088	+0·2	NNE	11	9	0·25
Quetta	?	—·042	+·048	+5·6	Calm	1	9	*Nil.*

Winds were cyclonic in direction in the depression area, but were of feeble intensity. Skies were cloudy in North-Western India. Rain had fallen during thunder-storms in Lower Sind and the Northern and Western Rajputana States including Jodhpur, Ajmere, Jeypur and Ulwar.

The disturbance was transferred eastwards during the next 24 hours, and was in the western districts of Central India and the Central Provinces at 8 A.M. of the 22nd. Its position at 8 A.M. of that day is defined by the following observations :—

Station.	Pressure. 8 A.M. reduced to sea-level and Lat. 45°.	Pressure. Change in previous 24 hours.	Pressure. Variation from normal.	Variation of mean temperature of previous 24 hours from normal.	Wind. Direction.	Wind. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in 24 hours.	Weather.
	"	"	"	°				Inches	
Neemuch	30·008	—·038	—·030	+7·8	NE	11	7	0·01	Threatening.
Indore	·035	—·010	—·005	+4·7	W	6	9	0·65	Thunder-storm with hail.
Hoshangabad	·009	—·110	—·034	+7·0	Calm	3	9	*Nil.*	
Saugor	·016	—·090	—·007	+8·5	Calm	5	6	*Nil.*	

Winds were very light and irregular in the area of depression. Skies were overcast over the East Punjab, the North-Western Provinces and Central Rajputana, and had cleared in Sind. Thunder-showers had been received over a large area including Sind, Rajputana, the Central Provinces, the western districts of the North-Western Provinces and the Punjab during the previous 24 hours, and amounts slightly exceeding 1 inch were registered at several stations.

The depression continued to advance eastward during the day. It was, however, now filling up rapidly, and its position is very faintly indicated by the observations of the 23rd. Its position at 8 A.M. of that day was probably in Chota Nagpur and the eastern districts of the Central Provinces. The following gives data for stations in that area :—

Station.	Pressure. 8 A.M. reduced to sea-level and Lat. 45°.	Pressure. Change in previous 24 hours.	Pressure. Variation from normal.	Variation of mean temperature of previous 24 hours from normal.	Wind. Direction.	Wind. Velocity in miles per hour in previous 24 hours.	Cloud amount.	Rainfall in 24 hours.
	"	"	"	°				Inc.
Chaibassa	30·121	—·027	?	?	ENE	1	0	*Nil.*
Hazaribagh	·106	—·042	+·075	+4·2	ESE	8	3	*Nil.*
Ranchi	·103	—·039	?	?	Calm	4	4	*Nil.*
Raipur	·078	+·002	+·066	+3·0	WSW	4	2	*Nil.*
Sambalpur	·094	+·011	+·078	+3·4	SE	5	1	*Nil.*

Winds were even lighter and more irregular than on the 22nd. Pressure was, in consequence of general changes, more or less considerably above the normal over the whole of India.

Rain had fallen in moderate amounts during thunder-showers in the North-Western Provinces, the eastern districts of Central India, Rajputana and the northern districts of the Central Provinces. The rainfall was most general in the Trans-Jumna districts of the North-Western Provinces. The Jalaun district received an average of 1·22 inches, and Hamirpur of 0·84 inch. Skies were still heavily clouded in the North-Western Provinces and Central India, but were beginning to clear.

A rapid increase of pressure occurred over the Indian area during the day, and on the morning of the 24th the disturbance had disappeared. Skies were, as hitherto, free from cloud in North-Eastern India and cleared in the North-Western Provinces and Central India during the day. Some light showers had been received during the previous 24 hours in the eastern districts of the North-Western Provinces.

Pressure oscillated rather rapidly during the remainder of the month. At the end of the month it was everywhere above the normal, the excess being greatest in the western districts of the North-Western Provinces, where it was slightly more than a tenth of an inch.

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

ARABIAN SEA.—The weather in the Persian Gulf and the north of the Arabian Sea (north of Lat. 22° to 24° N.) has been partially described in the account of the cold weather depressions of the month. Weather was squally with thunder-showers and hail from the 1st to the 4th, on the 10th and 11th, and again on the 29th and 30th. With these exceptions weather was fine with light to moderate winds. Over the Arabian Sea between Lat. 8°N. and Lat. 24° N. weather was fine throughout the month with moderate north-east monsoon winds. Weather was squally in the Gulf of Aden during the second week of the month, and on the 15th, 16th and 17th. The S.S. *Wivenhoe* in Lat. 15° 27′N. and Long. 54° 15′E. at noon of the 15th had north winds (force 4 to 6) with cloudy weather and heavy sea, and the *Strathdon* in Lat. 14°47′N. and Long. 51°37′E. on the same day had northerly winds (force 6 to 7) with a heavy sea. These vessels were about 170 miles further east on the 16th. The S. S. *Wivenhoe* had north-east winds (force 8 to 9) and a very high sea on that day and the *Strathdon* north-east winds (force 6). Both vessels passed into fine weather with moderate winds on the 17th.

In the equatorial belt of the Arabian Sea (to the south of Lat. 8° N) weather was apparently squally with frequent rain as in the corresponding belt in the Bay of Bengal, but the information is very much smaller in amount than for the corresponding area in the Bay.

The following gives a brief statement of the weather experienced by a few of the vessels in this area during the month. The S. S. *Khiva* in Lat. 2° 8′ N. and Long. 65·°1′ E. on the 9th had passing squalls during the afternoon. The ship *Osburgh* in Lat. 2° 6′ N. and Long. 64° 3′ E. on the 26th had variable winds and heavy rain squalls. The S. S. *Avoca* in Lat. 4° 11′ N. and Long. 53° 14′ E. on the 25th had winds variable in direction (force 5 to 6) with a rough sea and cloudy and rainy weather. The S. S. *Serica* in Lat. 1° 44′N. and Long. 67° 20′E. on the 25th and in Lat. 4° 43′N. and Long. 67° 44′ E at noon of the 26th had variable winds on both days (force 2 to 6) with thick cloudy rainy weather and a moderate sea.

BAY OF BENGAL.—Weather was fine over the whole of the Bay to the north of Lat. 8°N. during the month. Light to moderate north-east winds (force 1 to 4) generally prevailed with clear light weather. Weather was, on the other hand, squally with much rain in the equatorial belt to the south of Lat. 6° or 8°N. It will suffice to give a few examples. The S. S. *River Indus* in Lat. 6°· 18′N. and Long. 79° 19′E. at noon of the 2nd had light variable winds with heavy rain. The ship *Erne* in Lat. 6° 59′ N. and Long. 87°27′E. on the 6th had south-east winds (force 4) with heavy rain. The ship *E. J. Spicer* experienced heavy squalls of wind and rain in Lat. 3° 33′N. and Long. 88° 15′E. on the 13th. The S.S. *Falls of Inversnaid* in Lat. 7° 27′N. and Long. 82° 23′E. at noon on the 18th had heavy rain-squalls, and the ship *Harvest Queen* in Lat. 3° 13′S. and Long. 90° 20′E. at noon of the 22nd had north-west winds (force 5) with very heavy squalls. The weather was, so far as can be judged from the data received, finer and less squally during the last eight days of the month. The ships *Chittagong* and *Canada*, and the steamers *Mombassa* and *Purnea* in this area on the 27th had light variable winds (force 0 to 2), clear skies and a smooth sea. The *Chittagong* and *Harvest Queen* experienced some squalls on the 29th and 30th, but they were apparently feeble.

Summary of Special Storm Reports.

In the month of January the cold weather storms or disturbances occasionally give severe local duststorms or thunder or hailstorms in Northern and Central India. The following gives a very brief statement of the local storms during the month reported by observers. They were in no case severe or accompanied with any special features worthy of note—

4th.—Thunderstorm at Hyderabad (Sind).
18th.—Duststorm at Bhuj from 1 to 3 P.M.
21st.—Duststorm at Bhuj at 0·30 P.M.
22nd.—Duststorm at Hyderabad (Sind).

Summary of the reports of the weather and snowfall in the Mountain Districts to the North and North-West of India.[1]

The following gives a summary of the information received respecting the snowfall of the month of January and shows that the snowfall of the month was exceptionally small in amount in the Western Himalayas and Afghan mountains :—

(1) *Khyber and Tirah hills, Peshawar district.*—The

Political Officer, Khyber, writes that no snow fell in the Khyber, Lakka and Torsappar hills during the month of January 1892. Reports received from the Bara Valley and the Maidan of Tirah show that on two occasions a small quantity of snow fell there, which soon melted.

(2) *Kohat.*—The Assistant Commissioner, Thal, reports as follows of the snowfall on the Sufed Koh and adjacent mountains in Afghanistan :—

"Slight snow fell on the Sufed Koh and adjacent mountains. The following is the approximate amount of the snowfall during the month :—

Sufed Koh	. 5 to 6 feet
Dandighar	. 3 to 4 inches
Zawa Mountain	. 4 to 5 „
Samana Mountain.	4 to 5 „
Mastura in Tirah	. 5 to 6 „

The snow melted rapidly on all the mountains except the Sufed Koh, on which there was a depth of about 4 to 5 feet lying in the beginning of February."

The Assistant Commissioner, Mardan, reports that no snow fell in January on the hills adjacent to that sub-division of the Peshawar district.

(3) *Murree.*—The Deputy Commissioner, Rawalpindi district, states that no snow fell at Murree or on the hills adjacent to Kahuta during the month.

(4) *Kangra.*—The Civil Surgeon, Dharmsala, writes that no snow fell at MacLeodganj during the month.

(5) *Kulu.*—The Assistant Commissioner states that there were only two falls of snow during the month. They were light and did not extend below an elevation of 6,000 feet. The month was remarkably mild. The following table shows the reported depth of snow on the higher peaks and passes on the 25th of the month : and also on the same date of last year, for comparison—

District.	Name of pass.	Height above sea-level.	Reported depth of snow, January 25th 1892.	Reported depth on the same date of preceding year.
		Feet.	Feet.	Feet.
Kulu	Rotang	13,000	6	15
	Hamta	14,500	3	18
	Chandar Khani	?	4	14
	Barsai	?	3	11
	Bujadhar	?	2	13½
	Lohri Achhri	?	3	9
	Pushtari	?	3	7
	Bhubhu	10,000	2	9
	Majhang	?	0	5
Plach	Chul	?	1 foot.	10
	Sirikand	15,000	5	25
	Maghain	?	1	8
	Tikkar	?	1	7½
	Dundku	?	1	11
	Ramgarh	?	*Nil*	2
	Nunu	?	*Nil*	7
	Jalori	10,500	½	7
	Raghopur	?	½	8
	Lambari	?	½	6
	Sakiran	?	½	10
	Suphakum	?	½	13
	Gargarasan	17,000	½	16
	Bashleo	11,000	½	8
	Plach	?	½	10
	Tirath	?	½	10

Temperature of the Air.

The distribution of temperature in India for January 1892 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 data by means of which these charts have been prepared are given in Table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.*, 1878 to 1888. 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.

The mean maximum temperature of the month was

above the normal over the whole of India, with the exception of South Madras and Tenasserim. It was more than 2° in excess over nearly the whole of Northern and Central India and in the North Deccan. The excess was absolutely greatest in the North Punjab and at the Punjab hill stations, where it exceeded 4°. The following gives data for that area of increased day temperature :—

Station.		Temperature.		
		Actual maximum.	Normal maximum.	Variation from normal.
		°	°	°
Hill stations	Murree	52·9	47·9	+5·0
	Ranikhet	58·6	54·0	+4·6
Plain stations	Peshawar	68·8	64·0	+4·8
	Rawalpindi	67·9	63·3	+4·6
	Dera Ismail Khan	73·4	69·3	+4·1

The data in Table I show that the mean maximum temperature was also more than 4° above the normal at Burisal, Balasore, and Durbhunga. The two former stations have only been established for six years, and the means for this period are hence not comparable with those utilised for the great majority of stations in India.

The mean minimum or night temperature was also in excess over nearly the whole of India. It was slightly in defect in Burma and North Bihar and West Bengal. The excess in the night temperature ranged from 2° to 4° over the Central Provinces, Central India, Rajputana, the South Punjab and western districts of the North-Western Provinces. It exceeded 4° locally at two stations only, *viz.*, Deesa (+6·0°) and Ajmere (+5·4°) in Rajputana.

The month was hence marked by increased day and night temperature over nearly the whole of India. The mean temperature of the month was hence in excess except in Burma, where it was below the normal to a moderate amount (averaging 1°). The mean temperature was more than 2° above the normal in the Central Provinces, the North Deccan, Central India, West Bengal, Chota Nagpur, South Bihar, the southern districts of the North-Western Provinces and the West Punjab. The excess was more than 3° at the following stations :—

Province.	Station.	Mean temperature.		
		Actual, January 1892.	Normal, January.	Variation from normal.
		°	°	°
Punjab	Peshawar	55·5	51·5	+4·0
Rajputana	Jeypore	64·1	60·9	+3·2
	Ajmere	62·6	59·2	+3·4
	Deesa	71·6	66·6	+5·0
Central Provinces	Saugor	67·2	63·8	+3·4
Berar	Akola	72·0	68·7	+3·3
Guzerat	Surat	74·3	71·1	+3·2

At the commencement of the month temperature was in slight excess over the greater part of India. It was in moderate defect in the Deccan and Burma. The following gives the variation data of the 1st :—

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

Temperature increased in North-Western India before the depression of the 5th and 6th. This feeble storm was followed by very slight temperature changes, and temperature continued more or less in excess in North-Western India and increased slowly in other districts. The following table gives the temperature variation data of the 9th. They show that temperature was above the normal of the period in all districts except Madras :—

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

The excess was greatest at Sirsa in the Punjab (+10·7°) and Ajmere in Rajputana (+10·1°).

The depression of the 10th to the 14th produced larger temperature changes than the previous depression. A wave of moderately high temperature advanced eastwards on the 10th, 11th, 12th and 13th across Northern India, and was followed by an ill-defined cool wave. The fol-

lowing gives variation data of the 16th, when the effects of the storm had nearly passed away :—

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

Until the appearance of the next and the largest depression of the month, temperature was below the normal in North-Eastern India and on the North-West Frontier, and was considerably in excess in the Deccan and Central Provinces. The following data of the 19th illustrate the temperature conditions of the period from the 15th to the 20th :—

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

A depression appeared in Sind on the 21st, which advanced through South Rajputana and Central India and the Central Provinces on the 22nd and 23rd, and filled up in North-Eastern India on the 24th. This storm was preceded by a well-defined warm wave and followed by a cool wave across Northern and Central India.

The following table gives the largest excess and defect of temperature during the period from the 21st to the 25th at two stations in the front and in the rear of the storm, and hence illustrates the progress of the warm and cool waves:—

Period of 24 hours preceding 8 A.M. of the	Stations where greatest excess of temperature (variation from mean daily) was observed.	Amount of excess.	Stations where greatest deficiency of temperature was observed.	Amount of deficiency.
		°		°
21st	Deesa	+12·6	Hyderabad	—3·9
	Neemuch	+10·6	Jacobabad	—1·9
22nd	Ajmere	+10·0	Kurrachee	—8·8
	Khandwa	+9·0	Hyderabad	—6·6
23rd	Nagpur	+5·6	Mount Abu	—10·8
	Jubbulpore	+5·2	Deesa	—8·7
24th	Gaya	+6·5	Neemuch	—6·9
	Hazaribagh	+5·4	Jeypore	—6·9
25th	Berhampore	+6·3	Nowgong	—3·0
	Gaya	+6·8	Sutna	—2·0

A comparison of this table with the data of the storm given under the pressure section will show the relation of the temperature changes of the storm to the progress of the storm.

The temperature data of Deesa, Mount Abu and Neemuch indicate that in North-Western India the passage of the storm reduced temperature by upwards of 20°. The temperature changes due to the storm diminished rapidly in amount on the 24th and 25th, and on the 26th and 27th a rapid increase of temperature occurred over the whole Indian area, and temperature was largely in excess during the remainder of the month. The following variation data of the 29th illustrate the temperature conditions prevailing from the 27th to the end of the month :—

Province.	Variation of		
	Mean maximum temperature of day from normal.	Mean minimum temperature of day from normal.	Mean daily temperature from normal.
	°	°	°
Punjab	+6·4	+4·4	+5·4
Sind and Rajputana	+5·6	+9·7	+7·7
Central India and Guzerat	+5·0	+12·4	+8·7
N.-W. Provinces and Oudh	+2·0	+5·7	+3·9
Bengal and Assam	+3·5	+1·6	+2·6
Central Provinces and Berar	+1·9	+6·0	+4·0
Bombay	+3·4	+4·1	+3·8
Madras	—0·5	+1·6	+0·6
Burma	+1·6	—1·4	+0·1

The following table taken from the weekly weather reports gives the variation of temperature from the normal in different parts of India week by week during the month :—

Province.	Variation of mean temperatures for week ending January.				Variation of monthly mean temperature from normal.
	9th.	16th.	23rd.	30th.	
	°	°	°	°	°
Burma	+1·0	—1·5	—2·0	—0·1	—0·9
Bengal and Assam	—0·4	+3·0	+0·1	+3·1	+1·6
N.-W. P. and Oudh	+0·6	+4·1	+0·5	+2·5	+2·0
Punjab	+3·0	+1·5	—0·3	+5·0	+2·3
Bombay	+1·6	+0·1	+1·4	+3·2	+1·5
Berar and Central Provinces	+0·3	+3·3	+4·0	+3·7	+2·6
Guzerat and Central India	+3·1	+1·7	+1·5	+3·7	+2·5
Sind and Rajputana	+4·0	+2·0	—0·9	+2·6	+2·1
Madras	0	+0·1	+1·2	+0·8	+0·5

Winds.

The mean wind directions at 8 A.M. during the month of January 1892 are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind point. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small Chart No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past ten to twenty years.

In January the mean air movement differs little from that of the month of December over the greater part of India.

The most important change is the withdrawal of south-west winds from the south of the Bay in December and the extension of north-east winds southwards over the south of the Arabian Sea and Bay of Bengal to the equatorial belt of low pressure. North-east winds with fine clear weather obtained generally over these sea areas during the month.

North-westerly to westerly winds usually prevail in January over the Indo-Gangetic Plain. These winds are light and unsteady in the Punjab and increase in force and steadiness eastwards to Bihar and West Bengal. Light easterly winds blow down the Brahmaputra valley and northerly winds across the Bengal coast. In Rajputana and Central India the winds are as unsteady as in the Punjab, and their directions indicate a drift from the north with an increasing westerly tendency as the current advances southwards. The air motion in the Peninsula is the continuation of that of the Bay and is almost directly across it. Hence winds are almost due east with a slight northerly element. The wind data of the hill stations show that this drift is comparatively shallow, probably not extending in Northern India to a height of more than 3,000 or 4,000 feet. The movement of the cirrus clouds in Northern India indicates that the air motion in the higher strata is from west to east (mean direction S 80° W).

The regular movement described in the preceding paragraphs is interrupted in Northern India during the progress of the cold weather storms of the month. These usually give rise to feeble cyclonic circulations at the level of the plains and to strong cyclonic winds at the hill stations affected by them in their passage across Northern India. Hence the steadiness of the winds during the month depends chiefly upon the number and intensity of these storms.

In January 1892 the number of storms was much smaller than usual, and hence winds were much steadier and on the whole slightly stronger than usual. The following gives data for five representative stations in the Indo-Gangetic plain:—

	Steadiness.		Daily movement in miles.	
	Actual percentage.	Normal percentage.	Average in January 1892.	Normal in January.
Lahore	27	21	28	45
Allahabad	32	20	74	49
Patna	73	45	79	49
Calcutta	42	38	58	68
Saugor Island	35	19	183	151

The mean direction of the winds differed little from the normal except in Bengal, where the westerly component was much stronger than usual. This was especially the case at the following stations in South and East Bengal:—

Station.	Direction		Mean amount of increased westing.
	Mean, January 1892.	Normal, January.	
Dacca	N 81° W	N 53° W	28°
Calcutta	N 53° W	N 38° W	15°
Saugor Island	N 38° W	N 1° E	39°

The northerly winds in Sind and West Rajputana had an unusually strong easterly component. This was evidently due to the unusually small number of depressions which passed across Northern India during the month, and to their feeble intensity. Winds in Upper India hence were much steadier and slightly stronger than usual.

The following gives data for the Sind stations:—

	Direction.		Steadiness.		Daily movement in miles.	
	Mean, January 1892.	Normal, January.	Mean, January 1892.	Normal, January.	Mean, January 1892.	Normal, January.
Kurrachee	N 36° E	N 23° W	47	17	255	241
Hyderabad	N 45° E	N 11° W	90	55	184	174
Jacobabad	N 43° W	N 10° W	42	27	54	50

The features of the air movement in Northern and North-Western India in January 1892, it will thus be seen, are additional illustrations of the fact that the cold weather storms give very feeble winds at the level of the plains.

The winds at the hill stations present several features of interest. Except at Murree and Darjeeling, the air

movement was much below its normal amount. This decrease was very marked at Quetta, Mount Abu and Leh. Winds were also generally steadier and were on the average of the month, with one or two exceptions, from south-west. The most important exception was Darjeeling, where the mean wind direction was N 55° W, the normal being S 84° W. Winds were also much stronger (nearly 16 per cent.) at that station. These variations in the wind data of the month at Darjeeling point to the existence of very abnormal conditions over the Eastern Himalayas, which became more pronounced in February and March.

On the whole, winds were less steady although of normal strength in the Peninsula. In other respects the air movement in that area differed little from the normal. The northerly winds of the month were slightly stronger and steadier in Burma and had a stronger easterly element than usual. This last feature was most marked at Port Blair and Mergui.

The more important feature of the variations of the air movement of the month were hence almost entirely due to the unusual prevalence of what may be termed the normal weather conditions of the month and the abnormally small number and feebleness of the cold weather storms of the month.

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 the minimum, of the 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 five to twenty 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.

There was, on the whole, slightly less aqueous vapour present in the air than usual in the East Punjab, the Gangetic Plain and Burma. The variations were small in Northern India except in the western districts of Bengal, where the deficiency was considerable. Thus at Burdwan the deficiency averaged 15 per cent. and at Calcutta 8 per cent. As temperature was higher than usual the humidity of the air was below the average at all stations in Northern India.

The deficiency in the amount of aqueous vapour was even larger in amount in Lower Burma than in Bengal. It was as large in amount at Port Blair as at Rangoon and Diamond Island, and if the returns for Mergui are (as appears to be probable) trustworthy, the deficiency was greatest in the Malayan Peninsula. The decrease in the humidity was less marked in Burma than in Northern India, as the temperature in that area was slightly below the normal.

The following gives comparative data for representative stations in this broad belt stretching from the Punjab to Tenasserim, characterized by increased dryness of the air:—

District.	Station.	Aqueous vapour pressure.			Humidity.		
		Actual.	Normal.	Variation from normal.	Actual.	Normal.	Variation from normal.
		Inch.	Inch.	Inch.	per cent.	per cent.	per cent.
Burma	Mergui	·601	·708	−·107	69	74	− 5
	Diamond Island.	·593	·637	−·044	69	71	− 2
Bengal	Calcutta	·401	·434	−·033	63	71	− 8
	Patna	·349	·361	−·012	61	67	− 6
N.-W. Provinces.	Allahabad	·328	·343	−·015	58	68	−10
	Roorkee	·260	·285	−·025	60	65	− 5
Punjab	Lahore	·264	·265	−·001	60	61	− 1
	Peshawar	·226	·225	+·001	54	62	− 8

The amount of vapour in the air was somewhat larger than usual and the humidity generally above the normal by moderate amounts in Sind, Rajputana, Central India and the northern districts of the Central Provinces. The excess was greatest at Ajmere, Agra, Nowgong and Jubbulpore. The following gives comparative data for these four stations:—

District.	Station.	Aqueous vapour pressure.			Humidity.		
		Actual.	Normal.	Variation from normal.	Actual.	Normal.	Variation from normal.
		"	"	"	%	%	%
Rajputana	Ajmere	·350	·265	+·085	63	51	+12
North-Western Provinces.	Agra	·348	·291	+·057	62	57	+ 5
Central India	Nowgong	·339	·293	+·046	65	58	+ 7
Central Provinces.	Jubbulpore	·390	·329	+·061	66	60	+ 6

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The air was drier and contained less vapour than usual over the whole of tropical India (or the Peninsula). The deficiency was greatest at the Deccan stations of Poona, Belgaum, Mercara and Vizagapatam.

The humidity conditions were the same in general character at the hill stations as at the neighbouring plain stations, but the variations were even more larger in amount. Thus, at Mount Abu in Rajputana the aqueous vapour pressure of the month was ·057″ in excess and the mean humidity 3 above the normal. The mean humidity of the month was, on the other hand, very largely in defect at Quetta (−16), Chamba (−14), Simla (−13), and Chakrata (−9). The humidity at Leh was normal in amount and the amount of aqueous vapour in slight excess. (The amount of aqueous vapour was 10 per cent. in defect at Aden). It is hence very probable that the abnormal humidity conditions of the month in Northern India extended over Baluchistan, Persia and Arabia, but did not extend northwards into Thibet or Central Asia.

The variations in the mean cloud amount of the month were similar in general character to those of the hygrometric conditions.

The mean cloud amount was in slight excess in Sind, Rajputana, Central India and the eastern districts of the Central Provinces and in Assam, and was more or less in defect in all other districts. The deficiency exceeded one at the following stations:—

District.	Station.	Amount of cloud.		
		Mean actual.	Normal.	Variation from normal.
Burma	Rangoon	0·7	2·2	−1·5
Central Provinces	Seoni	1·5	3·6	−2·1
Ladakh	Leh	5·5	6·6	−1·1
Punjab	Chamba	4·9	6·3	−1·4
North-Western Provinces.	Chakrata	3·6	4·8	−1·2
	Pithoragarh	3·3	4·6	−1·3

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 gazettes. 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 1892 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, or 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 1892 was abnormally dry and free from important cold weather storms. Four disturbances influenced the weather to some extent in Northern India, but they were very feeble and gave very little rain.

The first disturbance gave light local showers from the 5th to the 7th in Beluchistan, the Punjab and the Western Himalayas, and the second disturbance, extending from the 9th to the 11th, gave a few light showers in the Punjab and hill districts. The third disturbance, which immediately followed the previous, was practically rainless. The fourth was an extensive but very feeble disturbance and affected an area, including the Punjab, Rajputana, Central India, the North-Western Provinces, and the northern districts of the Central Provinces. It lasted from the 21st to 24th and gave light to moderate thundershowers which were heaviest in Central and East Rajputana. That area received an average of nearly an inch of rain during this period. The following gives comparative rainfall data of the month for the 52 meteorological districts into which India is divided. The data are based on the monthly rainfall statements of the month published by the Local Governments.

Province.	Division.	Average actual number of rainy days in January 1892.	Normal number of rainy days in January.	Average actual rainfall for the month.	Normal rainfall for the month.	Variation from the normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim	0·1	?	0·02	0·10	— 0·08
	Lower Burma	0	?	0	0·23	— 0·23
	Central do.	0	?	0	0·08	— 0·08
	Upper do.	0	?	0	?	?
	Arakan	0	?	0	0·13	— 0·13
Bengal and Assam	Eastern Bengal	0	1·1	0	0·56	— 0·56
	Assam (Surma)	0·5	1·7	0·19	0·68	— 0·49
	Do. (Brahmaputra)	1·6	2·9	0·51	1·07	— 0·56
	Deltaic Bengal	0	0·9	0	0·46	— 0·46
	Central do.	0	0·9	0	0·43	— 0·43
	North do.	0·1	1·1	0·06	0·62	— 0·56
	Orissa	0	0·7	0	0·37	— 0·37
	Chota Nagpur	0·1	1·4	0·06	0·64	— 0·62
	Bihar (South)	0·3	1·3	0·08	0·55	— 0·47
	Do. (North)	0	1·3	0·01	0·62	— 0·61
North-Western Provinces and Oudh.	North-Western Provinces (East)	0·7	1·3	0·18	0·61	— 0·43
	Oudh (South)	0·7	1·4	0·20	0·72	— 0·52
	Do. (North)	0·4	1·3	0·09	0·31	— 0·22
	North-Western Provinces (Central)	1·1	1·3	0·66	0·58	+ 0·08
	Do. do. (West)	1·2	1·3	0·61	0·53	+ 0·08
	Do. do. (Sub-montane)	0·7	2·4	0·21	1·70	— 1·49
Punjab	Punjab (South)	1·5	1·2	0·63	0·56	+ 0·07
	Do. (Central)	1·6	1·5	0·62	0·74	— 0·12
	Do. (Sub-montane)	1·1	2·5	0·34	1·60	— 1·26
	Do. (Hill Districts)	1·6	4·2	0·54	3·85	— 3·31
	Do. (North-West)	1·0	2·8	0·28	1·70	— 1·42
	Do. (West)	0·7	1·3	0·18	0·61	— 0·43
Bombay and Malabar Coast Districts (Madras).	Malabar	0	0·3	0	0·19	— 0·19
	Madras (South Central)	0	0·3	0	0·12	— 0·12
	Coorg	0	?	0	0·04	— 0·04
	Mysore	0	0·2	0	0·11	— 0·11
	Konkan	0	0·2	0	0·09	— 0·09
	Bombay Deccan	0	0·2	0	0·06	— 0·06
	Hyderabad (North)	0	?	0	0·18	— 0·18
	Khandeish	0	0·2	0	0·05	— 0·05
Central Provinces and Berar.	Berar	0	?	0	0·42	— 0·42
	Central Provinces (West)	0·2	0·9	0·06	0·56	— 0·50
	Do. (Central)	0·4	1·1	0·24	0·53	— 0·29
	Do. (East)	0	1·0	0	0·47	— 0·47
Bombay (North)	Guzerat	0	0·2	0·02	0·07	— 0·05
	Kathiawar	0·1	?	0·05	0·06	— 0·01
	Sind	0·5	?	0·12	0·42	— 0·30
Rajputana and Central India.	Central India	1·0	?	0·59	0·65	— 0·06
	Rajputana (East), Central India (West)	1·3	?	0·79	0·28	+ 0·51
	Rajputana (West)	1·1	?	0·47	0·26	+ 0·21
Madras	East Coast (North)	0	0·3	0	0·17	— 0·17
	Do. (do.) (a)	0	0·2	0	0·05	— 0·05
	Hyderabad (South)	0	?	0	0·13	— 0·13
	Madras (Central)	0	0·1	0	0·05	— 0·05
	East Coast (Central)	0	0·5	0	0·38	— 0·38
	Do. (South)	0·4	0·8	0·11	0·47	— 0·36
	Madras (South)	0·2	1·1	0·05	0·66	— 0·61

The average rainfall of the month in Burma, Bengal, Orissa, Bihar and Chota Nagpur ranged from *nil* to eight hundredth of an inch in South Bihar, and was hence practically or actually *nil* over the whole of the area. The normal rainfall of the province of Bengal ranges from an average of four-tenths of an inch in Orissa to six-tenths in East Bengal, North Bihar and Chota Nagpur.

The North-Western Provinces obtained fairly general rain on the 22nd, 23rd and 24th during the fourth depression of the month. The rainfall was most general in the Gangetic Doab and Trans-Jumna districts, and was small in amount in the western and sub-montane districts. Fyzabad, Gorakhpur, Basti, Ballia and Sultanpur received no rain during the month. The rainfall of the month was largest in the Jhansi, Jalaun and Hamirpur districts where it slightly exceeded one inch.

The following gives a summary of the rainfall data of the month:—

	Rainfall.			Number of Rainy Days.		
	Actual.	Normal.	Variation.	Actual.	Normal	Variation.
	Inches.	Inches.	Inches.			
Oudh, South	0·20	0·72	—0·52	0·7	1·4	—0·7
Do. North	0·09	0·31	—0·22	0·4	1·3	—0·9
North-Western Provinces—						
East	0·18	0·61	—0·43	0·7	1·3	—0·6
Central	0·66	0·58	+0·08	1·1	1·3	—0·2
West	0·61	0·53	+0·08	1·2	1·3	—0·1
Sub-montane	0·21	1·78	—1·49	0·7	2·8	—2·1

The most remarkable feature of the rainfall as shown by this table was the very great deficiency in the sub-montane and hill districts.

The rainfall of the month was more or less in defect in the Punjab and was very unequally distributed.

Showers were received on the 9th and 10th, chiefly in the eastern districts and the hill districts. Light but fairly general rain fell during the fourth depression in the eastern half of the Province. Little or no rain was received during this period in the western or north-western districts. The rainfall of the month was hence unusually scanty in the western, northern and central districts. The districts of Bannu, Kohat, Peshawar, Hazara, Dera Ismail Khan, and Dera Ghazi Khan, where the rainfall was most deficient, obtained average amounts of less than a tenth of an inch. The rainfall was on the whole heaviest and most general in the Rohtak, Gurgaon, and neighbouring districts of the South Punjab. The following table gives average rainfall data for the month:—

	Rainfall.			Number of Rainy Days.		
	Actual.	Normal.	Variation.	Actual.	Normal.	Variation.
	Inches.	Inches.	Inches.			
Punjab, South	0·63	0·56	+0·07	1·5	1·2	+0·3
Do. Central	0·62	0·74	—0·12	1·6	1·5	+0·1
Do. North-West	0·38	1·70	—1·32	1·3	2·8	—1·5
Do. West	0·18	0·53	—0·35	0·7	1·3	—0·6
Do. Sub-montane	0·34	1·60	—1·26	1·0	2·5	—1·5
Do. Hill districts	0·54	3·70	—3·16	1·6	4·2	—2·6

This table shows that the deficiency was as marked in the sub-montane and hill districts of the Punjab as in the corresponding districts of the North-Western Provinces.

Rajputana received a moderate and general burst of rain during the fourth depression of the storm from the 22nd to the 24th. The rainfall was largest and most general in Ajmere Merwara, Jeypur, Kotah and Ulwar. Total falls ranging from 1 inch to 2½ inches were registered at the majority of stations in that area. The following gives rainfall data of the month in the larger states:—

State.	Average total rainfall of January 1892.	Average normal rainfall of January.	Percentage ratio of actual to normal.
	Inches.	Inches.	
Ajmere-Merwara	0·79	0·20	395
Jeypore	1·03	0·37	278
Ulwar	1·12	0·51	220
Jodhpur	0·43	0·28	154
Dholpur	0·68	?	?
Kotah	1·30	0·17	765

The Central India States obtained rain during the same period as Rajputana. The rainfall was, however, small in amount except in Bundelkhand and Baghelkhand, which received an average of 0·62 inch, the normal fall of the month being about 0·8 inch. Beluchistan and Kashmir obtained light rain or snow during the first two weeks of the month, but the total amounts were small in all cases and much below the (probable) normal average of the month.

Less than an average of a tenth of an inch of rain was received in Cutch, Guzerat, Kathiawar, Konkan, Malabar, the Bombay Deccan, Hyderabad, Mysore, Madras (except one or two districts on the Coromandel Coast), Berar and the Central Provinces except the northern districts, and over by far the greater part of that large area no rain fell. The northern districts of the Central Provinces (*i.e.* Saugor, Narsinghpur, Damoh, and Jubbulpore) received showers on the 23rd, giving an average total amount of 0·60 inch and ranging from 0·3 inch at Tejgarh to 1·65 inches at Hatta.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M., daily, taken at 171 stations in India during the month of January 1892.

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 89 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' observation of the same or a neighbouring observatory, with a series of hourly observations at the same observatory.

The mean temperature is calculated by the formula $\text{mean} = \frac{\text{maximum} + 16\text{ hours} + 2\text{ minimum}}{4}$ 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, &c., 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.

It should further be noted that the following terms are frequently employed in the India Daily Weather Report and 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 a line joining Surat and Balasore.

Upper India.—Includes the area north of Lat. 28°N., or Upper Sind, the Punjab and the upper western portion of the North-Western Provinces.

Central India.—Or the central tract between Rajputana and the Great Indian Peninsula Railway, 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 Lat.

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 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 Masulipatam.

Carnatic.—Includes the Madras Coast districts from Masulipatam to Lat. 12° North.

South India.—Or the area south of Lat. 12° North.

Burma, Upper.—Or that part of Burma to the north of latitude of Mandalay.

Burma, Central.—Or that part of Burma between the latitudes of Prome and Mandalay.

Burma, Lower.—Or that portion of Burma between the latitude of Prome and the Gulf of Martaban.

Tennasserim.—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 Gopalpur.

Circars Coast.—Includes the coast from Gopalpur 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 Kurrachee.

Table

Abstract of Observations taken at 8 A M. at

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.
		1	2	3	4	5	6	7	8	9													
I.—Burma Coast and Bay Islands.		...	...	+·010	...	..	...	...	...	...	...	85·3	−0·3	64·5	−1·4	75·6	−0·9	20·7	...	...	...	...	28·9
Bay Islands	Port Blair	61	29·942	?	29·934	30·026	20th	29·837	11th	·189	78·8	84·3	?	76·1	?	80·2	?	8·2	88·7	1st	70·8	17th	17·9
	Camorta*	?	29·965	?	?	30·043	22nd	29·861	13th	·182	80·7†	84·0	?	77·2	?	80·8	?	6·8	85·4	27th	74·9	14th	10·5
Tenasserim	Mergui	96	29·920	?	29·950	30·047	23rd	29·845	14th	·202	71·7	87·5	?	60·8	?	74·2	?	26·7	91·0	7th & 29th	53·3	14th	37·7
	Tavoy	26	30·029	?	29·986	30·154	22nd	29·957	13th	·197	68·9	89·2	?	60·7	?	75·0	?	28·5	93·2	29th	54·2	13th to 15th	39·0
	Moulmein	94	29·963	+·014	29·998	30·089	22nd	29.880	16th	·209	67·8	87·0	−1·2	64·9	−0·9	76·0	−1·1	22·1	91·5	29th	58·4	16th	33·1
	Toungoo	181	29·866	+·014	29·998	29·979	22nd	29·791	14th	·188	61·9	83·9	−1·5	57·1	−0·4	76·1	−1·0	26·8	87·3	30th	51·6	16th	35·7
Lower Burma	Rangoon	41	30·008	+·003	29·987	30·130	22nd	29.922	14th	·208	67·8	?	?	63·4	−0·4	?	?	?	?	?	59·8	10th	?
	Bassein	27	30·034	+·014	29·990	30·146	22nd	29·955	14th	·191	65·4	85·2	+0·1	60·7	−0·1	73·0	0	24·5	88·2	30th	57·5	14th	30·7
	Diamond Island.	41	30·012	+·015	29·988	30·112	22nd	29·936	14th	·176	74·4	84·8	+1·0	66·5	−4·1	75·7	−1·6	18·3	86·9	3rd	64·1	20th	22·8
Arrakan	Akyab	20	30·051	+·002	30·015	30·158	22nd	29·966	14th	·192	62·8	81·6	+0·3	57·1	−2·3	69·4	−1·0	24·5	85·2	27th	52·2	20th & 21st	33·0
II.—Burma Inland		...	...	+·027	...	...	...	...	...	...	...	83·4	+1·0	51·7	−4·1	67 6	−1·6	31·7	...	...	...	...	41·5
Central Burma	Thayetmyo	134	29·934	+·027	30·016	30·056	22nd	29·848	14th	·208	62·0	86·2	+1·0	49·5?	−4·1?	67·9?	−1·6?	36·7?	90·8	31st	43·9?	13th	46·9?
Upper Burma	Mandalay	?	29·814	?	29·760	29·951	22nd	29·708	10th	·243	63·1	87·1	?	56·9	?	72·1	?	30·2	91·5	31st	50·6	17th	40·9
	Kendat*	?	29·693	?	29·640	29·827	22nd	29·570	14th & 15th	·257	57·5	80·6	?	52·3	?	66·6	?	28·3	83·8	5 days	48·0	18th	35·8
	Bhamo	?	29·656	?	29·606	29·804	22nd	29·552	15th	·252	52·6	79·5	?	47·9	?	63·7	?	31·6	84·0	31st	41·7	1st	42·3
III.—Assam		...	...	−·009	...	...	...	...	...	...	...	75·0	+1·7	52·8	+1·1	64·1	+1·4	22·2	...	...	...	...	33·2
Assam (Surma)	Silchar	104	29·986	+·006	30·049	30·089	22nd	29·855	14th	·234	56·9	78·4	+1·6	52·7	+0·6	65·6	+1·1	25·7	83·5	23rd	46·0	4th	37·5
Brahmaputra	Sibsagar	333	29·760	−·016	30·070	29·864	22nd	29·636	15th	·228	54·8	70·7	+0·8	51·5	+1·9	61·6	+1·4	19·2	77·1	30th	45·1	5th	32·0
	Dhubri	115	29·965	−·016	30·042	30·092	22nd	29·782	14th	·310	56·2	76·0	+2·6	54·2	+0·7	65·1	+1·7	21·8	80·0	31st	50·0	17th	30.0
IV.—Bengal and Orissa		...	...	+·005	...	...	...	...	...	...	...	78·8	+2·6	54·5	+0·4	66·6	+1·5	24·2	...	...	...	...	34·9
East Bengal	Chittagong	87	29·997	+·007	30·036	30·088	22nd	29·885	14th	·203	60·7	81·0	+3·5	55·1	−0·3	68·1	+1·6	25·9	88·7	28th	50·1	18th	38·6
	Lungleh	?	?	?	?	?	?	?	?	?	55·1	59·3	?	52·9	?	56·1	?	6·4	60·8	7 days	45·5	18th	15·3
	Noakhali	43	30·037	?	30·029	30·135	23rd	29·888	14th	·247	60·3	79·1	?	52·1	?	65·6	?	27·0	82·0	26th & 27th	46·0	18th	36·0
	Comilla	35	30·052	?	30·036	30·138	22nd	29·912	14th	·226	58·4	79·4	?	53·7	?	66·6	?	25·7	82·4	15th & 26th	48·1	20th	34·3
	Sirajganj	46	30·032	?	30·030	30·128	22nd	29·862	14th	·266	56·5	78·0	?	50·7	?	64·4	?	27·3	81·5	26th	44·5	20th	37·0
	Dacca	22	30·060	+·001	30·031	30·172	22nd	29·899	14th	·273	60·1	79·9	+1·8	56·1	+1·2	68·0	+1·5	23·8	84·1	26th	49·7	18th	34·4
	Barisal	12	30·073	+·017	30·031	30·176	22nd	29·933	14th	·243	61·3	78·6	+4·6	54·7	+0·7	66·3	+2·7	23·9	83·3	15th	48·6	21st	34·7
	Mymensingh	55	30·027	+·013	30·038	30·127	22nd	29·867	14th	·260	57·7	76·6	+2·5	53·3	+2·1	65·0	+2·3	23·3	79·9	31st	47·1	17th	32·8
Deltaic Bengal	Faridpur	39	30·054	?	30·043	30·160	22nd	29·890	14th	·270	58·4	75·4‡	?	53·1	?	64·2‡	?	22·3	83·0	15th	47·0	18th, 20th & 21st	36·0
	Jessore	33	30·053	+·003	30·034	30·147	22nd	29·885	14th	·262	57·6	79·3	+1·2	52·7	−0·3	65·9	+0·5	26·6	84·2	15th	47·4	17th, 18th & 21st	36·8
	Calcutta	21	30·075	+·003	30·043	30·171	24th	29·907	14th	·264	59·8	79·7	+3·0	54·7	−0·7	67·2	+1·2	25·0	85·6	15th	49·7	21st	35·9
	Saugor Island	25	30·066	+·006	30·036	30·166	4th	29·910	14th	·256	63·9	77·3	+0·8	59·2	−0·1	68·2	+0·4	18·1	81·2	27th & 28th	52·2	5th	29·0
	Krishnagar	47	30·042	?	30·041	30·141	22nd	29·868	14th	·273	58·7	80·6	?	51·3	?	66·0	?	29·3	86·5	15th	45·2	21st	41·3
	Midnapore	149	29·945	?	30·049	30·034	22nd	29·783	14th	·251	62·0	84·2	?	56·3	?	70·3	?	27·9	91·3	15th	51·2	6th & 7th	40·1
Central Bengal	Bankura	298	29·766	?	30·034	29·853	22nd	29·603	14th	·250	59·9	81·5	?	55·2	?	68·4	?	26·3	88·1	15th	50·3	17th	37·8
	Raniganj*	345	29·766	?	30·082	29·853	4th	29·589	14th	·264	58·5	81·3†	?	54·6†	?	68·0†	?	26·7	86·5	15th	50·0	21st	36·5
	Burdwan	99	30·006	+·010	30·058	30·096	4th	29·831	14th	·265	60·9	81·3	+3·1	55·0	+0·4	68·1	+1·8	26·3	87·8	15th	48·8	17th	39·0
	Naya Dumka	490	29·577	?	30·058	29·668	22nd	29·421	14th	·247	55·9	79·0	?	51·4	?	65·2	?	27·6	84·1	15th & 25th	45·0	17th	39·0

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

I.

171 stations in India, Burma, etc., in January 1892.

Wind direction. Number of Winds from: Calm.	N.	NE.	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 January 1st to January 31st, 1892.	Normal rainfall for period January 1st to January 31st.	Variation from normal of period January 1st to January 31st.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·11	0·25	−0·25	...	...	...	**I.—Burma Coast and Bay Islands.**	
4	10	12	1	4	...	...	...	...	9	7	+ 29	77	·762	4·0	0	?	?	0	0·81	−0·81	0	0·81	−0·81	Port Blair .	Bay Islands.
...	...	...	...	...	...	...	...	...	12†	?	?	76	·794‡	8·4	4·00	?	?	1·12	?	?	1·12	?	?	Camorta*.	
...	14	5	3	1	...	1	...	7	2	2	0	80	·625	2·2	0	?	?	0·02	0·61	−0·59	0·02	0·61	−0·59	Mergui .	Tenasserim.
28	...	3	...	...	...	...	...	...	1	?	?	82	·582	0	0	?	?	0	0·16	−0·16	0	0·16	−0·16	Tavoy.	
...	1	20	5	3	...	1	...	1	3	2	+ 50	82	·564	0	0	0·09	−0·09	0	0	0	0	0	0	Moulmein.	
10	14	2	...	1	...	...	...	4	1	2	− 50	91	·511	0·5	0	0·27	−0·27	0	0·09	−0·09	0	0·09	−0·09	Toungoo.	
...	2	11	8	2	5	2	...	1	2	4	− 50	81	·549	0·5	0	0·27	−0·27	0	0·18	−0·18	0	0·18	−0·18	Rangoon .	Lower Burma.
13	4	6	...	...	...	...	...	8	3	3	0	89	·562	1·4	0	0	0	0	0·07	−0·07	0	0·07	−0·07	Bassein.	
...	14	6	3	...	...	...	...	8	8	6	+ 33	72	·616	1·5	0	0·44	−0·44	0	0·24	−0·24	0	0·24	−0·24	Diamond Island.	
...	19	11	1	...	...	...	...	...	3	3	0	85	·489	0·7	0	0·18	−0·18	0	0·11	−0·11	0	0·11	−0·11	Akyab .	Arrakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·82	−0·82	...	...	...	**II.—Burma Inland.**	
...	5	3	12	...	6	2	2	1	4	2	+ 100	81	·451	1·1	0	0	0	0	0	0	0	0	0	Thayetmyo .	Central Burma.
...	2	...	...	7	5	2	...	15	?	?	?	72	·416	0·8	0	?	?	0	0·26	−0·26	0	0·26	−0·26	Mandalay .	Upper Burma.
28	...	1	...	...	...	...	...	...	2	?	?	96	·455	0	0	?	?	0	0·94	−0·94	0	0·94	−0·94	Kendat.*	
1	...	8	1	1	1	5	1	13	?	?	?	93	·396	2·1	0	?	?	0	2·09	−2·09	0	2·09	−2·09	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·49	0·82	−0·33	...	...	...	**III.—Assam.**	
31	...	...	...	...	...	...	...	...	1	2	− 50	91	·425	3·3	2·00	1·91	+0·09	0·56	0·71	−0·15	0·56	0·71	−0·15	Silchar .	Assam (Surma).
1	1	11	4	11	...	3	...	...	2	2	0	99	·433	9·2	5·00	4·09	+0·91	0·90	1·45	−0·55	0·90	1·45	−0·55	Sibsagar .	Brahmaputra.
1	2	10	5	1	2	9	...	1	4	4	0	91	·413	1·4	0	1·29	−1·29	0·01	0·29	−0·28	0·01	0·29	−0·28	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·46	−0·46	...	...	...	**IV.—Bengal and Orissa.**	
27	1	1	1	1	...	...	...	...	2	4	− 50	85	·455	1·2	0	0·82	−0·82	0	0·52	−0·52	0	0·52	−0·52	Chittagong .	East Bengal.
...	...	...	...	...	...	...	...	...	?	?	?	79	·346	0	0	?	?	0	?	?	0	?	?	Lungleh.	
12	12	1	1	...	...	...	3	2	3	?	?	89	?	0	0	1·10	−1·10	0	0·52	−0·52	0	0·52	−0·52	Noakhali.	
9	14	4	2	1	1	...	...	...	1	?	?	90	?	1·3	0	1·53	−1·53	0	0·59	−0·59	0	0·59	−0·59	Comilla.	
...	3	...	...	...	7	5	14	2	1	?	?	91	?	0·6	0	1·11	−1·11	0	?	?	0	?	?	Sirajganj.	
10	6	3	2	...	3	3	1	3	3	2	+ 50	86	·446	1·6	0	1·09	−1·09	0	0·28	−0·28	0	0·28	−0·28	Dacca.	
30	...	...	...	...	1	...	...	...	2	?	?	86	·471	0·3	0	1·30	−1·30	0	0·80	−0·80	0	0·80	−0·80	Barisal.	
6	...	9	11	3	...	...	1	1	2	?	?	91	·435	1·0	0	0·80	−0·80	0	0·38	−0·38	0	0·38	−0·38	Mymensingh.	
27	1	...	...	...	1	2	...	...	1	?	?	91	?	0·6	0	0·85	−0·85	0	0·36	−0·36	0	0·36	−0·36	Faridpur .	Deltaic Bengal.
27	2	...	...	...	1	...	...	1	2	2	0	89	·429	1·3	0	0·82	−0·82	0	0·50	−0·50	0	0·50	−0·50	Jessore.	
13	8	1	...	...	1	2	2	4	2	3	− 33	85	·442	0·5	0	0·82	−0·82	0	0·50	−0·50	0	0·50	−0·50	Calcutta.	
...	9	10	2	...	1	4	1	4	8	6	+ 33	89	·535	1·2	0	1·00	−1·00	0	0·26	−0·26	0	0·26	−0·26	Saugor Island	
6	2	1	1	2	2	2	7	8	3	?	?	81	?	1·3	0	0·80	−0·80	0	0·44	−0·44	0	0·44	−0·44	Krishnagar.	
2	22	1	...	...	1	...	2	3	11	?	?	64	?	0·9	0	1·00	−1·00	0	0·75	−0·75	0	0·75	−0·75	Midnapore.	
12	1	...	...	...	...	...	11	7	2	?	?	68	?	1·4	0	1·10	−1·10	0	0·36	−0·36	0	0·36	−0·36	Bankura .	Central Bengal.
...	9	1	...	1	1	1	3	13	3‡	?	?	64	?	0·8	0	1·05	−1·05	0	?	?	0	?	?	Raniganj*.	
20	2	1	2	...	...	2	1	3	1	2	− 50	63	·338	1·2	0	0·27	−0·27	0	0·14	−0·14	0	0·14	−0·14	Burdwan.	
15	1	...	...	...	1	2	1	11	2	?	?	71	?	0	0	1·28	−1·28	0	0·63	−0·63	0	0·63	−0·63	Naya Dumka.	

* Mean of 29 days. † Mean of 27 days. ‡ Mean of 28 days.

Table

Abstract of Observations taken at 8 A. M. at 171 stati ns

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.
Central Bengal —*concld.*	Berhampore	67	30·022	−·006	30·041	30·114	22nd	29·842	14th	·272	57·0	79·4	+2·7	54·2	+1·0	66·8	+1·9	25·2	84·6	15th	49·1	17th	35·5
	Rampur Boalia.	70	30·010	?	30·033	30·108	22nd	29·833	14th	·275	58·1	77·1	?	52·4	?	64·8	?	24·7	81·0	15th	45·7	20th	35·3
	Malda*	80	30·022†	?	30·058†	30·126	22nd	29·862	14th	·264	59·0	79·0	?	49·4‡	?	64·3‡	?	29·6	82·6	15th & 25th	42·7	21st	39·9
	Bogra	61	30·001	+·008	30·018	30·103	22nd	29·828	14th	·275	56·1	77·9	+3·2	51·4	−1·3	64·7	+1·0	26·5	82·3	25th	45·2	17th & 20th	37·1
North Bengal	Dinajpur	118	29·937	−·011	30·036	30·066	22nd	29·777	14th	·289	56·1	78·4	+3·9	48·5	−0·1	63·5	+1·9	29·9	82·6	25tn	40·5	20th	42·1
	Rangpur	123	29·964	?	30·050	30·074	22nd	29·781	14th	·293	54·0	77·2	?	49·5	?	63·4	?	27·7	80·6	30th	43·0	17th	37·6
	Jalpaiguri	284	29·782	−·008	30·036	29·896	22nd	29·598	14th	·298	57·2	75·5	+2·6	52·6	+2·7	63·7	+2·7	22·9	80·4	30th	48·1	16th	32·3
Orissa	Balasore	54	30·038	+·004	30·043	30·137	22nd	29·879	14th	·258	62·0	83·1	+4·1	56·1	+0·4	69·6	+2·3	27·0	89·4	15th	50·5	1st	38·9
	False Point	21	30·076	+·006	30·039	30·164	22nd	29·958	14th	·206	65·1	80·4	+1·7	59·5	+0·4	70·0	+1·1	20·9	83·4	26th	54·5	3 days	28·9
	Cuttack	80	30·018	+·018	30·041	30·112	24th	29·892	14th	·220	64·0	85·0	+0·4	60·1	+0·1	72·6	+0·3	24·9	88·4	14th, 15th & 26th	53·9	2nd	34·5
	Shortt's Island	?	30·070	?	?	30·168	24th	29·929	14th	·239	70·5	77·6	?	66·6	?	72·1	?	11·0	84·4	15th	62·3	1st	22·1
	Puri	9·23	30·077	?	30·026	30·179	24th	29·956	14th	·223	68·5	80·6	?	63·9	?	72·3	?	16·7	85·7	16th	58·6	2nd	27·1
V.—Gangetic Plain and Ohota Nagpur.		...	...	+·006	..	...	...	...	...	...	...	76·7	+2·6	50·5	+1·0	63·6	+1·8	26·2	...	...	...	...	37·3
Chota Nagpur	Hazaribagh	2,007	28·027	+·011	30·063	28·119	25th	27·902	14th	·217	59·2	76·0	+3·4	52·0	+1·7	64·0	+2·6	24·0	81·2	14th	47·8	4th	33·4
	Ranchi	2,128	27·899	?	30·046	27·989	24th	27·777	14th	·212	60·7	76·3	?	52·0	?	64·2	?	24·3	81·0	14th	46·9	4th & 16th	34·1
	Chaibassa	760	29·317	+·034	30·053	29·404	24th	29·180	14th	·224	65·9	82·5	+4·0	54·0	+0·5	68·3	+2·3	28·5	87·4	15th	49·2	1st	38·2
Bihar (South)	Gaya	375	29·722	+·014	30·072	29·810	4th & 24th.	29·593	11th	·217	59·3	78·1	+2·5	53·3	+2·0	65·7	+2·3	24·8	82·4	11th	46·2	4th	36·2
	Dehri	351	29·739*	?	30·065*	29·836	4th	29·589	14th	·247	60·3	77·7	?	56·9	?	67·3	?	20·8	81·8	11th & 14th.	49·5	3rd	32·3
	Patna	183	29·916	−·005	30·061	30·009	22nd	29·757	14th	·252	59·5	73·1	+0·5	51·5	+1·9	62·4	+1·2	21·6	77·4	12th & 14th.	44·4	4th	33·0
	Arrah	190	29·896	?	30·052	30·005	4th	29·737	14th	·268	55·0	76·7	?	?	?	?	?	?	81·8	14th	?	?	?
	Buxar	239	29·864	?	30·074	29·965	4th	29·715	14th	·250	57·9	76·2	?	51·4	?	63·8	?	24·8	81·9	14th	45·4	21st	36·5
Bihar (North)	Purnea	125	29·962	+·001	30·051	30·073	4th	29·777	14th	·296	50·2	78·0	+3·3	45·3	−2·6	61·7	+0·4	32·7	82·2	25th	38·3	4th	43·9
	Bhagalpur	160	29·923	?	30·046	30·041	22nd	29·745	14th	·296	57·8	78·2	?	50·7	?	64·5	?	27·5	82·3	24th	45·0	20th	37·3
	Darbhanga	166	29·941	+·014	30·073	30·059	4th	29·755	14th	·304	55·2	76·3	+4·3	51·1	−0·9	63·7	+1·7	25·2	81·2	15th	45·4	4th	35·8
	Muzaffarpur	178	29·898	?	30·043	30·020	4th	29·713	14th	·307	53·1	77·0	?	48·6	?	62·8	?	28·4	79·9	12th & 15th.	41·8	3rd & 17th	38·1
	Motihari	224	29·843	?	30·041	29·963	4th	29·666	14th	·297	52·2	76·5	?	45·7	?	61·1	?	30·8	80·2	25th	39·0	3rd	41·2
	Chapra	181	29·901	?	30·048	30·009	4th	29·743	14th	·266	55·0	76·7	?	50·6	?	63·7	?	26·1	80·8	15th	45·7	4th & 21st	35·1
N.-W.P. (Eastern Districts).	Benares	267	29·824	+·002	30·066	29·930	4th	29·682	13th	·248	54·1	75·8	+1·1	49·1	+1·2	62·5	+1·2	26·7	81·1	14th	41·4	21st	39·7
	Allahabad	309	29·776	−·007	30·062	29·889	4th	29·624	10th	·265	55·0	77·4	+3·8	49·6	+2·1	63·5	+3·0	27·8	82·5	14th	41·9	21st	40·6
N.-W. P. (East Submontane).	Gorakhpur	256	29·819	−·003	30·052	29·938	4th	29·653	14th	·285	56·1	73·9	+0·5	50·4	+1·8	62·2	+1·2	23·5	77·5	15th, 19th & 25th.	44·3	3rd	33·2
Oudh (South)	Lucknow	369	29·710	−·004	30·066	29·835	24th	29·564	14th	·271	53·4	76·5	+2·7	48·0	+2·1	62·2	+2·4	28·5	82·2	11th	38·9	3rd	43·3
N.-W. Provinces (Central).	Cawnpur	416	29·670	?	30·076	29·784	24th	29·519	10th	·265	54·7	74·9	?	48·5	?	61·7	?	26·4	80·1	31st	41·0	20th & 21st.	39·1
VI.—Upper—Sub-Himalayas.		...	...	+·022	...	...	...	...	...	...	...	71·0	+2·8	44·6	+0·9	57·8	+1·8	26·3	...	...	...	...	39·2
N.-W. Provinces (Submontane).	Bareilly	568	29·486	+·004	30·061	29·620	4th	29·346	14th	·274	50·8	72·4	+2·5	47·1	+1·2	59·8	+1·9	25·3	76·2	9th & 14th	41·2	2nd & 20th.	35·0
	Dehra Dun	2,233	27·789	?	30·103	27·927	24th	27·685	14th	·242	48·5	70·9	?	45·5	?	58·2	?	25·4	75·0	26th	39·0	18th & 19th.	36·0
	Roorkee	887	29·178	+·029	30·099	29·305	24th	29·065	10th	·240	46·3	72·8	+3·4	44·3	+0·1	58·6	+1·8	28·5	77·8	25th	35·8	2nd	42·0
	Meerut	737	29·332	+·024	30·094	29·461	4th	29·205	10th	·256	49·0	72·3	+2·1	46·3	+2·1	59·3	+2·1	26·0	76·2	9th, 14th & 25th.	39·0	2nd & 3rd.	37·2
Punjab (Central).	Delhi	718	29·366	+·029	30·096	29·492	22nd	29·211	10th	·281	53·6	71·4	+0·4	50·1	+2·0	60·8	+1·2	21·3	78·1	9th	44·1	3 days.	34·0
	Lahore	702	29·369	+·021	30·101	29·516	24th	29·260	11th	·256	46·6	70·6	+3·0	42·7	+0·2	56·7	+1·6	27·9	76·8	31st	33·2	2nd	43·6
Punjab (Submontane).	Ludhiana	812	29·241	+·012	30·085	29·385	24th	29·134	11th	·251	48·7	70·6	+3·0	44·8	+1·4	57·7	+2·2	25·8	77·2	9th	36·3	1st & 2nd	40·9

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

I—*continued.*

in India, Burma, &c., in January 1892—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	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 1892.	Normal rainfall for period 1st January to 31st January.	Variation from normal of period 1st January to 31st January.	Station.	Meteorological Province or District.
11	1	2	...	1	2	7	4	3	1	2	−50	88	·413	1·5	0	0·73	−0·73	0	0·34	−0·34	0	0·34	−0·34	Berhampore.	Central Bengal—*concld.*
3	14	2		1	3	3	3	2	3	?	?	81	?	0·8	0	0·80	−0·80	0	0·33	−0·33	0	0·33	−0·33	Rampur Boalia.	
...	...	...	...	...	...	2	...	28	4	?	?	80	?	0·4	0	0·90	−0·90	0	0·73	−0·73	0	0·73	−0·73	Malda.*	
11	5	3	...	1	...	...	1	10	2	?	?	85	·384	0·3	0	0·85	−0·85	0	0·56	−0·56	0	0·56	−0·56	Bogra.	
...	1	3	1	1	2	9	8	6	2	?	?	83	·378	0·4	0	0·90	−0·90	0	0·43	−0·43	0	0·43	−0·43	Dinajpur	North Bengal.
8	...	3	11	1	...	1	7	...	2	?	?	89	?	0·2	0	0·75	−0·75	0	0·51	−0·51	0	0·51	−0·51	Rangpur.	
6	9	12	3	1	...	...	...	...	2	?	?	90	·422	0·2	0	1·21	−1·21		0·49	−0·49	0	0·49	−0·49	Jalpaiguri.	
2	4	1	...	...	1	1	...	22	3	?	?	77	·430	0·2	0	0·75	−0·75	0	0·48	−0·48	0	0·48	−0·48	Balasore	Orissa.
2	7	...	...	...	...	1	9	12	7	6	+17	90	·564	1·1	0	0·82	−0·82	0	0·58	−0·58	0	0·58	−0·58	False Point.	
20	1	3	1	...	...	2	2	2	1	1	0	78	·467	2·3	0	0·45	−0·45	0	0·14	−0·14	0	0·14	−0·14	Cuttack.	
...	11	3	...	...	1	1	8	7	9	?	?	80	·596	0·1	0	?	?	0	?	?	0	?	?	Shortt's Island.	
6	17	4	...	...	...	1	1	2	8	?	?	79	?	0·6	0	0·50	−0·50	0	0·25	−0·25	0	0·25	−0·25	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·09	0·69	−0·60	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
3	3	...	...	1	3	3	10	8	7	5	+40	58	·293	2·7	0	1·27	−1·27	0	0·65	−0·65	0	0·65	−0·65	Hazaribagh.	Chota Nagpur.
21	...	...	...	...	...	2	5	3	6	?	?	62	?	2·7	0	1·53	−1·53	0	0·77	−0·77	0	0·77	−0·77	Ranchi.	
9	...	2	2	1	1	8	8	...	1	?	?	61	·391	1·1	0	1·55	−1·55	0	0·71	−0·71	0	0·71	−0·71	Chaibassa.	
1	...	...	2	...	17	1	10	...	5	2	+150	69	·351	2·4	1	1·09	−0·09	0·12	0·62	−0·50	0·12	0·62	−0·50	Gaya	Bihar (South).
...	...	...	...	1	7	19	3	1	6*	?	?	67	?	1·7	0	1·43	−1·43	0·04	?	?	0·04	?	?	Dehri.	
...	...	...	2	2	1	1	25	...	3	2	+50	66	·339	2·4	0	1·18	−1·18	0·06	0·47	−0·41	0·06	0·47	−0·41	Patna.	
...	2	1	2	1	1	3	15	6	3	?	?	80	?	1·3	0	1·70	−1·70	0·09	0·86	−0·77	0·09	0·86	−0·77	Arrah.	
1	1	...	1	...	...	2	19	7	4	?	?	71	?	2·1	0	1·80	−1·80	0·06	0·81	−0·75	0·06	0·81	−0·75	Buxar.	
22	..	...	1	...	1	5	1	1	1	2	−50	89	·320	0·8	0	0·55	−0·55	0	0·39	−0·39	0	0·39	−0·39	Purnea	Bihar (North).
30	...	...	...	...	...	1	...	...	1	?	?	73	?	1·8	0	1·30	−1·30	0	0·54	−0·54	0	0·54	−0·54	Bhagalpur.	
8	1	2	...	...	2	6	9	3	3	2	+50	84	·363	1·0	0	1·27	−1·27	0·03	0·39	−0·36	0·03	0·39	−0·36	Darbhanga.	
10	2	1	2	1	1	5	8	1	3	?	?	91	?	1·4	0	1·53	−1·53	0	0·88	−0·88	0	0·88	−0·88	Muzaffarpur.	
4	...	...	1	...	...	11	14	1	5	?	?	89	?	1·1	0	1·41	−1·41	0	0·53	−0·53	0	0·53	−0·53	Motihari.	
9	...	...	2	1	3	14	2	...	3	?	?	84	?	1·2	0	1·70	−1·70	0	0·75	−0·75	0	0·75	−0·75	Chapra.	
10	...	...	2	1	...	12	5	1	3	3	0	87	·368	1·9	1	1·55	−0·55	0·57	0·76	−0·19	0·57	0·76	−0·19	Benares	N.-W. P. (Eastern Districts).
14	..	1	2	1	...	3	7	3	3	2	+50	80	·349	2·4	1	2·09	−1·09	0·29	0·89	−0·60	0·29	0·89	−0·60	Allahabad	
1	2	...	2	...	4	3	18	1	2	2	0	78	·355	1·6	0	1·18	−1·18	0·08	0·63	−0·55	0·08	0·63	−0·55	Gorakhpur	N.-W. P. (East Submontane).
9	3	2	1	...	...	2	8	6	3	2	+50	79	·325	2·3	0	1·64	−1·64	0·09	1·19	−1·10	0·09	1·19	−1·10	Lucknow	Oudh (South).
7	2	2	2	2	3	5	5	3	3	?	?	84	·362	2·5	1	1·40	−0·40	0·21	0·64	−0·43	0·21	0·64	−0·43	Cawnpur	N.-W. Provinces (Central).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·31	1·73	−1·41	..	...	...	**VI.—Upper—Sub-Himalayas.**	
24	2	1	...	...	...	...	3	1	1	3	−66	80	·302		1	2·36	−1·36	0·28	1·18	−0·90	0·28	1·18	−0·90	Bareilly	N.-W. Provinces (Submontane).
31	...	...	...	...	...	...	...	...	1	2	−50	71	·246	3·5	0	3·73	−3·73	0·07	2·27	−2·20	0·07	2·27	−2·20	Dehra Dun.	
16	...	...	2	1	2	...	2	8	2	2	0	85	·271	2·4	0	2·73	−2·73	0·05	2·09	−2·04	0·05	2·09	−2·04	Roorkee.	
14	...	...	...	1	...	1	14	1	2	2	0	75	·280	3·3	1	2·45	−1·45	0·28	1·45	−1·17	0·28	1·45	−1·17	Meerut.	
10	...	...	2	4	...	5	10	...	2	3	−33	70	·291	3·8	2	1·82	+0·18	0·40	1·36	−0·96	0·40	1·36	−0·96	Delhi	Punjab (Central).
22	2	1	1	1	...	...	4	...	1	2	−50	80	·258	2·8	2	2·00	0	0·44	0·93	−0·49	0·44	0·93	−0·49	Lahore.	
25	2	1	...	...	...	...	2	1	2	1	+100	78	·270	4·6	1	3·00	−2·00	0·66	1·78	−1·12	0·66	1·78	−1·12	Ludhiana	Punjab (Submontane).

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 171 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 (North)	Sialkot	829	29·217	+·019	30·086	29·366	24th	29·115	11th	·251	47·6	69·7	+3·0	43·6	+0·8	56·7	+1·9	26·1	77·5	8th	37·2	3 days	40·3
	Rawalpindi	1,649	28·392	+·035	30·114	28·546	24th	28·289	11th	·257	41·4	67·9	+4·6	37·2	−0·7	52·6	+2·0	30·7	74·0	27th & 31st.	30·4	18th	43·6
VII.—Indus Valley and North-West Rajputana.		...	...	**+·008**	...	...	...	...	...	...	...	**75·0**	**+2·4**	**47·0**	**+1·8**	**61·4**	**+2·1**	**27·3**	...	...	...	...	**41·9**
Punjab (West)	Peshawar	1,110	28·995	+·025	30·127	29·169	18th	28·883	12th & 27th.	·286	45·4	68·8	+4·8	42·2	+3·1	55·5	+4·0	26·6	75·1	26th, 27th, & 30th.	31·9	2nd	43·2
	Khushab	612	29·452	?	30·089	29·604	24th	29·353	12th	·251	45·5	?	?	39·0	?	?	?	?	?	?	29·1	4 days	?
	Montgomery	558	29·527	?	30·100	29·681	24th	29·393	9th	·288	48·6	72·5	?	43·2	?	57·9	?	29·3	78·8	31st	34·8	4th	44·0
	D. I. Khan	573	29·513	+·012	30·113	29·676	18th	29·403	12th	·273	44·0	73·4	+4·1	40·2	−0·2	56·8	+2·0	33·2	79·7	30th	32·0	3rd	47·7
	Mooltan	420	29·675	+·009	30·100	29·822	24th	29·557	12th	·265	49·8	72·0	+2·3	45·9	+3·6	59·0	+3·0	26·1	78·8	31st	39·2	2nd	39·6
	Sirsa	662	29·409	+·012	30·089	29·564	24th	29·272	9th	·292	48·6	73·5	+2·6	44·9	+2·6	59·2	+2·6	28·6	81·5	9th	34·7	17th	46·8
Sind and Cutch	Jacobabad	186	29·928	+·017	30·092	30·097	24th	29·801	12th	·296	49·4	74·7	+1·4	44·0	+1·2	59·4	+1·3	30·7	79·4	9th & 29th.	37·6	3rd	41·8
	Hyderabad	117	29·988	−·009	30·066	30·132	24th	29·859	12th	·273	56·0	76·5	0	51·8	+0·9	64·2	+0·5	24·7	83·1	28th	47·3	17th & 18th	35·8
	Kurrachee	49	30·050	−·011	30·053	30·180	24th	29·906	12th	·274	58·7	78·1	+1·6	55·8	+1·4	67·0	+1·5	22·3	83·0	7th & 29th.	50·1	2nd	32·9
	Bhuj	395	29·651	?	30·018	29·770	24th	29·533	12th	·237	62·9	81·4	?	56·6	?	69·0	?	24·8	88·6	31st	50·1	19th	38·5
Rajputana (West)	Bickaneer	744	*29·308	?	*30·069	29·452	24th	29·192	12th	·260	55·3	73·4	?	51·8	?	62·6	?	21·6	83·2	9th	43·1	18th	40·1
	Pachpadra	380	29·682	?	30·047	29·828	24th	29·550	12th	·278	52·9	80·5	?	48·6‡	?	64·4	?	31·9	89·6	6th	38·9	19th	50·7
East Rajputana, Central India and Guzerat.		...	...	**+·005**	...	...	...	...	...	...	...	**79·8**	**+2·1**	**53·6**	**+3·2**	**66·5**	**+2·7**	**26·7**	...	...	...	...	**40·7**
Rajputana (East)	Jeypore	1,431	28·629	+·012	30·096	28·751	24th	28·502	12th	·249	56·6	75·9	+2·4	52·3	+3·9	64·1	+3·2	23·6	82·0	22nd	44·2	19th	37·8
	Sambhar	1,254	28·785	0	30·080	28·914	24th	28·665	12th	·249	52·4	75·3	+3·1	47·9	+1·7	61·6	+2·4	27·4	85·9	22nd	40·0	19th	45·9
	Ajmere	1,611	28·453	+·018	30·119	28·581	24th	28·329	12th	·252	54·0	75·2	+1·3	49·9	+5·4	62·6	+3·4	25·3	80·0	3 days	42·4	16th	37·6
	Deesa	466	29·579	−·021	30·026	29·707	24th	29·452	12th	·255	62·3	86·1	+3·9	57·1	+6·0	71·6	+5·0	29·0	93·3	21st	49·9	11th & 12th.	43·4
Kathiawar	Rajkot	429	29·621	−·012	30·023	29·722	24th	29·539	11th & 12th.	·183	63·1	85·2	+1·0	54·0	+3·0	69·6	+2·0	31·2	92·9	21st	44·0	18th	48·9
	Veraval	?	30·024	?	29·985	30·121	23rd	29·950	11th	·171	67·4	?	?	60·2	?	?	?	?	?	?	53·3	16th & 18th.	?
	Bhavnagar	?	29·682	?	29·670	30·040	30th	29·581	9th	·459	63·5	82·5	?	59·6	?	71·0	?	22·9	90·4	21st	51·0	18th	39·4
Central India	Nowgong	757	29·330	+·015	30·093	29·455	24th	29·192	10th	·263	54·9	75·1	−0·2	48·6	+1·7	61·9	+0·8	26·5	82·0	11th & 22nd.	43·5	3 days	38·5
	Indore	1,823	28·210	+·012	30·048	28·317	24th	28·082	12th	·235	62·7	81·0	+2·4	51·9	+1·5	66·5	+2·0	29·1	85·0	21st & 31st.	44·1	1st	40·9
	Neemuch	1,630	28·415	+·013	30·078	28·533	24th	28·274	12th	·259	58·2	79·4	+2·1	52·5	+3·9	66·0	+3·0	26·9	86·3	21st	46·4	1st	39·9
Guzerat	Surat	36	30·012	−·015	29·992	30·089	23rd	29·943	11th	·146	65·4	89·6	+3·6	59·0	+2·7	74·3	+3·2	30·6	96·7	21st	53·1	11th	43·6
N.-W. P. (West)	Agra	555	29·545	+·021	30·101	29·663	24th	29·383	10th	·280	52·7	74·6	+1·2	50·5	+2·2	62·6	+1·7	24·1	80·6	10th	43·6	20th	37·0
	Jhansi	840	29·223	+·015	30·070	29·359	24th	29·056	10th	·303	57·4	77·7	+2·2	53·5	+3·2	65·6	+2·7	24·2	84·4	10th	48·4	3rd	36·0
Deccan.		...	...	**+·011**	...	...	...	...	...	...	..	**84·1**	**+2·2**	**57·4**	**+2·4**	**70·8**	**+2·3**	**26·7**	...	...	...	...	**37·6**
Bombay (Deccan)	Belgaum	2,524	27·486	+·002	29·982	27·554	25th	27·413	11th	·141	66·0	84·1	+1·2	58·3	+0·8	71·2	+1·0	25·8	85·8	3 days	53·9	14th & 15th.	31·9
	Sholapur	1,590	28·461	+·018	30·031	28·534	20th	28·385	11th	·149	68·7	89·2	+2·2	59·9	+2·3	74·6	+2·3	28·3	91·7	23rd & 28th.	51·6	1st	40·1
	Poona	1,841	28·190	+·003	30·028	28·264	20th	28·108	11th	·156	64·1	88·0	+3·3	56·2	+0·8	72·1	+2·1	31·8	90·5	4 days	47·0	1st	43·5
	Bijapur	?	28·089	?	?	28·158	21st & 25th.	28·000	11th	·158	69·3	79·5	?	67·1	?	73·3	?	12·4	83·0	24th	59·0	1st & 2nd	24·0
Khandeish	Malegaon	1,430	28·611	0	30·047	28·697	25th	28·522	10th	·175	62·4	87·0	+2·1	54·7	+2·7	70·9	+2·4	32·3	90·4	27th	46·0	1st	44·4
	Ahmednagar	2,152	27·882	?	30·036	27·969	20th	27·794	11th	·175	63·3	84·7	?	52·5	?	68·6	?	32·2	87·8	27th	41·4	1st & 2nd	46·4
Berar	Akola	930	29·124	+·010	30·042	29·213	4th & 20th.	29·011	11th	·202	63·3	87·3	+3·2	56·7	+3·4	72·0	+3·3	30·6	90·0	12th & 31st.	45·7	1st	44·3
	Amraoti	1,216	28·825	+·007	30·030	28·914	4th	28·710	11th	·204	66·8	86·2	+2·2	62·8	+3·8	74·5	+3·0	23·4	88·8	3 days	54·9	2nd	33·9
Central Provinces (West.)	Khandwa	1,044	29·000	+·015	30·045	29·098	24th	28·897	12th	·201	61·9	85·6	+2·4	54·8	+3·0	70·2	+2·7	30·8	89·2	31st	43·6	2 nd	45·6
	Hoshangabad	1,020	29·042	+·002	30·069	29·149	4th	28·925	12th	·224	60·1	81·6	+1·5	55·8	+3·6	68·7	+2·6	25·8	85·8	30th	47·3	1st	38·5
	Nagpur	1,025	29·030	+·013	30·048	29·132	24th	28·930	10th	·202	65·0	84·4	+1·4	57·8	+2·5	71·1	+2·0	26·6	86·8	27th	51·2	2nd	35·6

* Mean of 21 days. † Mean of 27 days. ‡ Mean of 30 days.

I—*continued.*

in India, Burma, etc., in January 1892—continued.

Wind direction. Number of winds from: Calm.	N.	NE.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry 8 P.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 1892.	Normal rainfall for period 1st January to 31st January.	Variation from normal of period 1st January to 31st January	Station.	Meteorological Province or District.
26	...	...	3	...	...	...	1	1	1	1	0	77	·257	2·5	2	2·36	−0·36	0·58	1·80	−1·22	0·58	1·80	−1·22	Sialkot .	PUNJAB (North).
16	...	2	1	...	...	4	...	8	2	2	0	79	·212	3·5	0	4·00	−4·00	·06	2·68	−2·62	0·06	2·68	−2·62	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·24	0·51	−0·27	...	...	...	**VII.—Indus Valley and North-West Rajputana.**	
12	1	...	...	...	10	6	2	...	3	2	+50	66	·204	3·9	1	2·73	−1·73	0·19	1·63	−1·44	0·19	1·63	−1·44	Peshawar .	PUNJAB (West).
19	2	3	1	...	...	1	2	3	3	?	?	59	·188	2·9	2	1·30	+0·70	0·17	0·52	−0·35	0·17	0·52	−0·35	Khushab.	
15	5	4	2	1	2	...	1	1	3	?	?	74	·261	3·5	1	0·90	+0·10	0·15	0·24	−0·09	0·15	0·24	−0·09	Montgomery.	
21	1	...	1	1	2	...	...	5	1	1	0	64	·188	2·2	0	1·45	−1·45	0	0·48	−0·48	0	0·48	−0·48	D. I. Khan.	
9	...	6	...	6	...	5	...	5	1	2	−50	72	·264	3·2	1	0·27	−0·27	0·31	0·39	−0·08	0·31	0·39	−0·08	Mooltan.	
8	3	1	8	...	1	...	5	5	4	3	+33	78	·276	4·1	1	1·36	−0·36	0·77	0·92	−0·15	0·77	0·92	−0·15	Sirsa.	
17	2	...	1	2	...	...	1	8	2	2	0	63	·227	4·3	0	0·73	−0·73	0·08	0·23	−0·15	0·08	0·23	−0·15	Jacobabad .	SIND AND CUTCH.
...	...	30	...	...	...	1	...	...	7	7	0	51	·230	4·9	1	0·90	+0·10	0·12	0·46	−0·34	0·12	0·46	−0·34	Hyderabad.	
...	10	21	...	...	...	...	...	...	11	10	+10	66	·329	3·2	1	1·18	−0·18	0·31	0·61	−0·30	0·31	0·61	−0·30	Kurrachee.	
11	9	3	1	..	...	...	2	5	6	6	0	62	·470	1·7	0	?	?	0	0·06	−0·06	0	0·06	−0·06	Bhuj.	
3	...	13	2	6	2	2	1	2	5	3	+66	51	·224	3·9	1	?	?	0·42	0·26	+0·16	0·42	0·26	+0·16	Bickaneer .	RAJPUTANA (West).
17	1	8	...	2	...	1	...	2	6‡	3	+100	60	·246	3·9	1	?	?	0·39	0·37	+0·02	0·39	0·37	+0·02	Pachpadra.	
...	...	...	...	...	...	...	...	...		...	...	...	...	...	...	...	...	0·68	0·33	+0·47	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
9	2	8	8	2	...	...	...	2	3	4	−25	67	·311	3·7	3	1·60	+1·40	2·57	0·53	+2·04	2·57	0·53	+2·04	Jeypore .	RAJPUTANA (East).
9	2	6	4	5	2	...	1	2	6	5	+20	69	·276	3·5	1	1·10	−0·10	0·83	0·36	+0·47	0·83	0·36	+0·47	Sambhar.	
13	3	3	1	...	3	...	...	8	3	2	+50	72	·306	2·7	2	1·45	+0·55	1·19	0·33	+0·86	1·19	0·33	+0·86	Ajmere.	
...	1	9	10	2	1	...	3	5	9*	9	0	46	·259	3·1	1	0·36	+0·64	0·55	0·06	+0·49	0·55	0·06	+0·49	Deesa.	
11	4	6	5	2	...	...	2	1	5	5	0	64	·376	1·0	0	0·20	−0·20	0	0·03	−0·03	0	0·03	−0·03	Rajkot .	KATHIAWAR.
12	12	6	...	...	...	...	...	1	4	?	?	56	·376	1·2	0	?	?	0	?	?	0	?	?	Veraval.	
...	1	1	...	...	...	9	7	13	8	?	?	71	·416	1·9	0	?	?	0	?	?	0	?	?	Bhavnagar.	
6	5	3	5	...	...	1	8	3	2	1	+100	77	·333	3·3	1	1·73	−0·73	0·93	0·77	+0·16	0·93	0·77	+0·16	Nowgong .	CENTRAL INDIA.
9	1	2	6	8	2	2	1	...	3	2	+50	76	·431	1·0	1	0·36	+0·64	0·65	0·16	+0·49	0·65	0·16	+0·49	Indore.	
3	2	6	13	1	...	...	1	5	7	8	−13	58	·290	1·7	0	0·45	−0·45	0·10	0·14	−0·04	0·10	0·14	−0·04	Neemuch.	
...	3	7	2	3	1	1	2	12	?	5	?	67	·426	1·1	0	0·18	−0·18	0	0·07	−0·07	0	0·07	−0·07	Surat . .	GUZERAT.
7	...	2	1	1	1	3	2	14	3	3	0	81	·324	2·9	2	1·27	+0·73	0·68	0·61	+0·07	0·68	0·61	+0·07	Agra . .	N.-W. P. (West).
17	3	1	1	1	1	4	1	2	1	2	−50	69	·329	2·6	2	1·18	+0·82	1·34	0·57	+0·77	1·34	0·57	+0·77	Jhansi.	
...	...	...	...	...	...	...	...	...	...	..	...	...	..	...	...	...	...	0·08	0·33	−0·24	...	...	...	**IX.—Deccan.**	
2	1	...	11	13	...	2	2	...	?	11	?	53	·339	2·2	0	0·27	−0·27	0	0·07	−0·07	0	0·07	−0·07	Belgaum .	BOMBAY (Deccan).
1	1	...	2	25	1	...	...	1	12	7	+71	50	·346	1·6	0	0·36	−0·36	0	0·19	−0·19	0	0·19	−0·19	Sholapur.	
20	...	...	5	4	...	...	...	2	6	6	0	53	·317	1·4	0	0·36	−0·36	0	0·07	−0·07	0	0·07	−0·07	Poona.	
...	...	...	2	27	1	1	...	...	7	?	?	58	·421	2·3	0	0·20	−0·20	0	0·08	−0·08	0	0·08	−0·08	Bijapur.	
4	1	1	...	...	1	4	13	7	5	4	+25	62	·354	1·9	0	027	−0·27	0	0·32	−0·32	0	0·32	−0·32	Malegaon .	KHANDEISH.
7	2	...	4	13	3	1	1	2	4	?	?	70	·417	1·4	0	?	?	0	0·56	−0·56	0	0·56	−0·56	Ahmednagar.	
5	...	6	15	2	1	...	...	2	5	3	+66	53	·312	0·7	0	0·45	−0·45	0	0·51	−0·51	0	0·51	−0·51	Akola . .	BERAR.
6	1	4	16	2	2	...	...	...	5	3	+66	50	·335	1·0	0	0·55	−0·55	0	0·34	−0·34	0	0·34	−0·34	Amraoti.	
12	2	4	6	2	2	1	2	...	3	3	0	58	·320	0·7	0	0·45	−0·45	0·01	0·28	−0·27	0·01	0·28	−0·27	Khandwa .	CENTRAL PROVINCES (West).
2	...	16	10	...	3	...	...	...	5	2	+150	66	·350	2·0	0	0·82	−0·82	0·03	0·29	−0·26	0·03	0·29	−0·26	Hoshangabad	
10	10	4	1	1	...	...	..	5	4†	3	+33	62	·386	1·2	0	0·64	−0·64	0	0·43	−0·43	0	0·43	−0·43	Nagpur.	

* Mean of 27 days. † Mean of 30 days. ‡ Mean of 24 days.

Table

Abstract of Observations taken at 8 A.M. at 171 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.
Central Provinces (Central).	Seoni	2,030	28·021	+·021	30·095	28·127	24th	27·914	11th	·213	61·0	80·6	+1·7	53·0	+1·6	66·8	+1·7	27·6	83·6	19th, & 20th.	44·0	2nd	39·6
	Jubbulpore	1,327	28·731	+·020	30·087	28·828	24th	28·614	10th & 11th.	·214	55·7	79·5	+2·5	50·5	+2·1	65·0	+2·3	29·0	85·4	13th	41·4	1st	44·0
	Saugor	1,762	28·282	+·011	30·072	28·382	24th	28·157	10th	·225	58·9	79·7	+3·3	54·6	+3·4	67·2	+3·4	25·1	84·3	3 days	47·0	1st	37·3
Central Provinces (East).	Raipur	960	29·098	+·020	30·059	29·186	24th	28·983	10th & 14th.	·203	64·0	83·3	+2·6	57·6	+2·3	70·5	+2·5	25·7	87·5	13th	49·9	1st	37·6
	Sutna	1,040	29·022	+·008	30·083	29·135	24th	28·886	10th	·249	55·7	76·4	+2·1	48·8	+1·6	62·6	+1·9	27·6	83·0	11th, & 14th.	41·7	4th	41·3
Hyderabad (North).	Aurangabad	?	28·189	?	?	28·274	20th	28·105	11th	·169	66·8	85·6	?	57·2	?	71·4	?	28·4	87·6	27th & 31st.	50·6	1st	37·0
	Indur	?	?	?	?	?	?	?	?	?	66·3	84·9	?	57·2	?	71·1	?	27·7	87·8	12th	46·7	1st	41·1
	Beeder	?	27·878	?	?	27·951	25th	27·783	11th	·168	67·7	82·6	?	61·0	?	71·8	?	21·6	84·8	28th	57·2	1st	27·6
Hyderabad (South).	Gulburga	?	28·521	?	?	28·610	25th	28·451	11th	·159	66·4	86·3	?	59·0	?	72·7	?	27·3	88·8	31st	53·5	1st	35·3
	Raichur	?	28·661	?	?	28·738	20th	28·590	12th	·148	67·6	86·6	?	63·6	?	75·2	?	23·0	89·1	27th	59·7	1st	29·4
	Secunderabad	1,787	28·269	+·013	30·051	28·344	24th	28·183	10th	·161	65·1	84·7	+0·9	59·5	+1·7	72·1	+1·3	25·2	89·1	27th	53·6	1st	35·5
	Hyderabad (Deccan.)	...	28·365	?	30·056	28·441	20th	28·275	11th	·166	63·8	*83·5	?	58·4	?	*70·7	?	25·1	85·6	12th, & 17th.	52·8	1st	32·8
	Kamamet	?	29·719	?	?	29·803	24th	29·631	11th	·172	66·4	87·0	?	60·7	?	73·9	?	26·3	90·5	27th	55·7	1st	34·8
V.—West Coast.		...	...	−·011	...	...	...	...	...	...	...	·5	+1·8	69·3	0	78·4	+0·9	18·2	...	...	...	...	27·2
Konkan	Bombay	37	29·992	−·019	29·970	30·055	25th	29·904	11th	·151	72·1	82·9	+0·8	69·6	+1·7	76·3	+1·3	13·3	88·4	6th & 27th.	63·0	23rd	25·4
	Ratnagiri	110	29·895	−·004	29·946	29·965	25th	29·815	11th	·150	74·1	88·6	+1·3	67·4	+0·8	78·0	+1·1	21·2	96·4	21st	62·9	1st	33·5
	Mormugoa	?	29·947	?	29·943	30·006	29th	29·882	11th	·124	72·3	87·3	?	69·7	?	78·5	?	17·6	92·0	20th	66·4	15th & 16th.	25·6
	Karwar	44	29·958	−·018	29·935	30·020	24th	29·876	11th	·144	68·2	88·2	+1·9	64·5	−1·5	76·4	+0·2	23·7	92·3	20th & 21st.	59·6	15th	32·7
Malabar	Mangalore	26	29·983	−·013	29·941	30·052	25th	29·913	2nd	·139	74·2	90·4	+2·9	69·9	+0·6	80·2	+1·8	20·5	94·3	28th	64·5	15th	29·8
	Calicut	27	29·974	−·013	29·928	30·040	25th	29·896	2nd	·144	75·2	88·3	?	69·8	?	79·1	?	18·5	91·3	4th	66·1	3 days	25·4
	Cochin	11	29·985	+·002	29·924	30·062	25th	29·907	2nd	·155	76·2	90·5	+2·0	69·7	−1·6	80·1	+0·2	20·8	93·3	24th, & 25th.	63·9	15th & 28th.	29·4
	Trivandrum	?	...	?	...	...	...	...	...	...	76·3	83·6	?	73·6	?	78·6	?	10·0	85·0	5 days	69·0	13th	16·0
XI.—South India.		...	...	+ 013	...	...	...	...	...	...	...	84·3	+0·7	64·8	+0·2	74·6	+0·5	19·5	...	...	...	..	27·1
Madras (South)	Pamban	37	29·990	?	29·954	30·066	21st	29·904	10th	·162	76·2	80·7	?	74·9	?	77·8	?	5·8	82·8	25th & 26th	72·7	2nd	10·1
	Madura	447	29·585	+·009	29·977	29·659	25th	29·496	9th	·163	74·3	86·6	−1·3	69·7	+1·2	78·2	−0·1	16·9	89·8	27th	65·6	13th	24·2
Madras (South Central).	Salem	940	29·128	+·010	30·026	29·196	25th	29·048	10th	·148	72·1	89·4	+1·5	65·1	+2·0	77·3	+1·8	24·3	91·9	31st	59·9	14th	32·0
	Coimbatore	1,348	28·679	+·001	29·999	28·762	25th	28·597	2nd	·165	69·0	88·7	+2·4	64·0	−0·2	76·4	+1·1	24·7	91·3	4 days	57·0	15th	34·3
Coorg	Mercara	3,780	26·287	?	29·976	26·350	21st	26·226	7th	·124	61·0	77·1	+1·0	57·4	+1·3	67·3	+1·2	19·7	79·3	15 days	52·2	15th	27·1
Mysore	Bangalore	2,981	27·094	+·003	30·050	27·172	25th	27·018	10th	·154	62·3	80·7	+1·6	56·7	+0·1	68·7	+0·9	24·0	83·2	11th & 22nd	52·9	15th	30·3
Madras (East Coast, South).	Negapatam	15	30·001	0	29·962	30·077	25th	29·921	10th	·156	75·6	80·8	−1·0	71·7	+0·9	76·3	−0·1	9·1	84·2	9th	66·7	3rd	17·5
	Cuddalore	12	30·039	?	29·981	30·112	25th	29·949	10th	·163	72·6	82·8	?	67·9	?	75·4	?	14·9	84·2	15th & 24th	64·8	12th & 23rd	19·4
	Trichinopoly	255	29·788	+·001	29·983	29·854	25th	29·713	10th	·141	73·4	86·8	−0·2	68·5	+1·7	77·7	+0·8	18·3	89·0	30th	62·9	12th & 14th	26·1
	Madras	22	30·052	+·005	30·005	30·120	25th	29·970	10th	·150	74·0	84·9	+0·3	67·6	−0·1	76·3	+0·1	17·3	86·5	3 days	63·5	27th	23·0
Madras (East Coast, Central).	Nellore	71	30·004	?	30·010	30·075	25th	29·917	10th	·158	71·0	85·7	?	65·5	?	75·6	?	20·2	88·2	24th	62·1	11th & 13th	26·1
	Masulipatam	15	30·085	+·026	30·035	30·165	24th	29·993	11th	·172	70·3	84·1	+0·9	64·4	−1·6	74·3	−0·4	19·7	87·5	16th	57·7	14th	29·8
Madras (Central)	Cuddapah	433	29·645	?	30·030	29·714	25th	29·570	11th	·144	73·1	88·8	?	63·9	?	76·3	?	24·9	92·0	25th	58·3	15th	33·7
	Kurnool	923	29·140	?	30·032	29·226	4th	29·047	11th	·179	69·6	88·5	?	58·9	?	73·7	?	29·6	91·0	27th & 28th	53·2	12th & 14th	37·8
	Bellary	1,475	28·574	+·031	30·028	28·650	25th	28·495	11th	·155	68·6	87·6	+0·1	60·8	+0·3	74·2	+0·2	26·8	89·9	27th & 28th	56·6	15th	33·3
Madras (East Coast, North).	Rajahmundry	112	29·971	?	30·025	30·041	24th	29·886	11th	·155	69·2	87·6	?	64·1	?	75·9	?	23·5	91·0	27th	58·9	15th	32·1
	Cocnaada	26	30·067	?	30·028	30·152	24th	29·982	10th	·170	68·8	80·8	?	63·3	?	72·1	?	17·5	85·7	16th	59·7	1st, 14th & 15th	26·0
	Vizagapatam	31	30·067	+·019	30·037	30·148	24th	29·977	11th	·171	71·1	78·5	−0·6	66·4	+0·5	72·5	−0·1	12·1	80·4	19th	62·9	3 days	17·5
	Gopalpur	21	30·074	+·038	30·036	30·167	4th	29·964	14th	·203	64·6	81·1	+3·9	60·1	−3·2	70·6	+0·4	21·0	88·2	28th	54·5	1st	33·7

* Mean of 26 days. † Mean of 30 days.

I.

in India, Burma, &c., in January 1892—continued.

Wind direction. Number of winds from: Calm.	N.	NE.	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 month.	Variation from normal.	Total rainfall from January 1st to January 31st 1892.	Normal rainfall for period January 1st to January 31st.	Variation from normal of period January 1st to January 31st.	Station.	Meteorological Province or District.
10	2	4	3	5	3	2	2	...	2*	3	−33	70	·380	1·3	1	1·18	−0·18	0·14	0·60	−0·46	0·14	0·60	−0·46	Seoni.	Central Provinces (Central).
25	1	1	...	3	1	...	...	...	1	2	−50	83	·372	2·8	1	1·73	−0·73	0·65	0·90	−0·25	0·65	0·90	−0·25	Jubbulpore.	
10	...	3	6	9	1	1	...	1	3	3	0	63	·312	0·8	1	1·36	−0·36	0·39	0·76	−0·37	0·39	0·76	−0·37	Saugor.	
9	3	3	4	2	2	1	2	5	3	3	0	60	·362	1·8	0	0·45	−0·45	0	0·15	−0·15	0	0·15	−0·15	Raipur	Central Provinces (East).
9	10	4	...	4	1	...	2	1	4	4	0	70	·314	1·5	1	1·73	−0·73	0·71	1·13	−0·42	0·71	1·13	−0·42	Sutna.	
10	1	14	5	1	...	...	...	...	5	?	?	51	·337	0·5	0	?	?	0	?	?	0	?	?	Aurangabad.	Hyderabad (North).
7	...	...	5	13	4	1	...	1	7	?	?	61	·387	2·6	0	?	?	0	0·05	−0·05	0	0·05	−0·05	Indur.	
...	...	...	3	14	7	7	...	...	7	?	?	61	·414	1·0	0	?	?	0	0	0	0	0	0	Beeder.	
11	...	2	6	9	3	...	...	...	?	?	?	62	·397	2·3	0	?	?	0	0·08	−0·08	0	0·08	−0·08	Gulburga	Hyderabad (South).
...	...	2	5	16	8	...	...	...	8	?	?	65	·441	4·4	0	?	?	0	0·04	−0·04	0	0·04	−0·04	Raichur.	
5	...	8	15	2	1	...	...	...	6	4	+50	70	·434	3·3	0	0·36	−0·36	0	0·08	−0·08	0	0·08	−0·08	Secunderabad	
19	...	...	2	8	2	...	...	...	4	?	?	79	·478	1·4	0	?	?	0	?	?	0	?	?	Hyderabad (Deccan).	
24	2	...	...	4	...	...	...	1	?	?	?	79	·516	1·0	0	?	?	0	?	?	0	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·23	−0·23	...	...	...	**X.—West Coast.**	
...	4	14	11	2	...	...	...	...	9	10	−10	71	·571	1·5	0	0·27	−0·27	0	0·13	−0·13	0	0·13	−0·13	Bombay	Konkan.
10	1	3	15	2	...	...	...	...	7	10	−30	59	·490	0·2	0	0·45	−0·45	0	0·37	−0·37	0	0·37	−0·37	Ratnagiri.	
1	...	2	20	8	...	...	...	...	8	?	?	80	·639	1·0	0	?	?	0	?	?	0	?	?	Mormugoa.	
4	...	23	4	...	...	...	...	...	2	?	?	76	·531	0·4	0	0·27	−0·27	0	0·14	−0·14	0	0·14	−0·14	Karwar.	
...	...	3	27	1	...	...	...	...	3	4	−25	67	·569	1·0	0	0·10	−0·10	0	0·01	−0·01	0	0·01	−0·01	Mangalore	Malabar.
...	...	13	15	3	...	...	...	...	12	?	?	72	·629	2·2	0	0·38	−0·38	0	0·23	−0·23	0	0·23	−0·23	Calicut.	
3	...	22	6	...	...	...	...	...	4	?	?	70	·637	2·5	0	0·82	−0·82	0	0·52	−0·52	0	0·52	−0·52	Cochin.	
...	4	14	9	3	...	...	...	1	5	?	?	75	·681	4·6	0	?	?	0	?	?	0	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·15	0·60	−0·50	...	...	...	**XI.—South India.**	
...	14	9	1	...	...	...	...	7	11	?	?	85	·764	5·7	2	?	?	1·18	?	?	1·18	?	?	Pamban	Madras (Sout).
1	17	7	...	...	...	...	...	6	6	5	+20	72	·617	3·4	0	1·00	−1·00	0	0·45	−0·45	0	0·45	−0·45	Madura.	
13	...	14	3	...	...	...	...	1	4	5	−20	73	·579	2·4	0	0·36	−0·36	0·03	0·48	−0·45	0·03	0·48	−0·45	Salem	Madras (South Central).
...	13	6	9	1	...	...	...	2	5	3	+66	90	·640	4·8	0	0·64	−0·64	0	0·24	−0·24	0	0·24	−0·24	Coimbatore.	
...	2	3	26	...	...	...	...	...	7	4	+75	76	·409	3·6	0	0·30	−0·30	0	0·05	−0·05	0	0·05	−0·05	Mercara	Coorg.
...	1	12	16	2	...	...	...	...	3	4	−25	77	·436	5·1	0	0·50	−0·50	0	0·19	−0·19	0	0·19	−0·19	Bangalore	Mysore.
...	8	11	1	...	...	...	...	11	12	5	+140	80	·707	7·1	1	2·82	−1·82	0·16	2·22	−2·06	0·16	2·22	−2·06	Negapatam	Madras (East Coast, South).
..	15	4	1	...	...	...	1	10	3	?	?	88	·711	2·4	2	1·40	+0·60	1·38	0·88	+0·50	1·38	0·88	+0·50	Cuddalore.	
2	14	11	...	...	...	...	...	4	6	5	+20	77	·634	4·2	0	0·91	−0·91	0·03	2·85	−2·82	0·03	2·85	−2·82	Trichinopoly.	
...	14	13	3	...	...	...	1	...	7	6	+17	80	·675	4·0	1	1·36	−0·36	0·13	1·60	−1·47	0·13	1·60	−1·47	Madras.	
1	...	...	1	...	...	...	...	29	4	?	?	87	·662	6·0	0	0·60	−0·60	0	0·44	−0·44	0	0·44	−0·44	Nellore	Madras (East Coast, Central).
...	20	10	...	1	...	...	...	...	5	5	0	87	·645	2·0	0	0·27	−0·27	0	0·24	−0·24	0	0·24	−0·24	Masulipatam	
...	...	6	14	10	1	...	...	...	?	?	?	70	·569	1·9	0	0·20	−0·20	0	0·03	−0·03	0	0·03	−0·03	Cuddapah	Madras (Central).
30	...	...	...	1	...	...	...	...	?	?	?	70	·509	0·6	0	0·60	−0·60	0	0·11	−0·11	0	0·11	−0·11	Kurnool.	
13	...	...	...	3	5	...	...	...	4	3	+33	68	·471	1·9	0	0·18	−0·18	0	0·14	−0·14	0	0·14	−0·14	Bellary.	
1	26	4	...	...	...	...	...	...	?	?	?	69	·494	2·2	0	0·20	−0·20	0	0·16	−0·16	0	0·16	−0·16	Rajahmundry	Madras (East Coast, North).
...	25	2	1	...	...	...	...	3	6	?	?	72	·503	1·6	0	0·50	−0·50	0	0·22	−0·22	0	0·22	−0·22	Cocanada.	
...	...	...	...	...	...	1	25	5	1	2	−50	68	·522	2·2	0	0·64	−0·64	0	0·21	−0·21	0	0·21	−0·21	Vizagapatam.	
...	13	...	...	...	...	...	...	18	9	7	+29	75	·454	0·2	0	0·38	−0·38	0	0·22	−0·22	0	0·22	−0·22	Gopalpur.	

* Mean of 21 days.

Table

Abstract of Observations taken at 8 A.M. at 171 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.
XII.—Hill Stations.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	..	...	...
Beluchistan	Quetta	5,502	24·729	+·063	?	24·829	28th	24·558	12th	·271	36·1	54·3	+2·7	31·6	+2·4	43·0	+2·6	22·7	64·2	4th	21·8	1st & 10th	42·4
Northern India	Srinagar	5,204	25·033	?	?	25·179	24th	24·910	17th	·269	33·6	49·2	?	31·7	?	40·5	?	17·5	57·9	31st	23·1	2nd & 4th	34·8
	Murree	6,344	23·906	+·052	?	24·043	24th	23·782	1st	·261	42·1	52·9	+5·0	37·7	+2·1	45·3	+3·6	15·2	61·6	5th	30·2	17th & 18th	31·4
	Simla	7,274	23·106	+·029	?	23·245	24th	23·000	16th	·245	42·3	49·9	?	39·1	?	44·5	?	10·8	56·4	21st	30·2	18th	26·2
	Mussoorie	?	23·645	?	?	23·767	24th	23·538	14th	·229	43·3	52·8	?	39·9	?	46·4	?	12·9	58·2	21st	33·0	18th	25·2
	Ranikhet	6,069	24·161	+·038	?	24·271	24th	24·067	17th	·204	46·9	58·6	+4·6	43·1	+3·7	50·9	+4·2	15·5	64·1	21st	38·5	23rd	25·6
	Gnatong	...	19·196	?	?	19·317	22nd	19·006	13th	·311	38·7‡	49·4¶	?	17·4	?	33·5	?	32·0	61·4	21st & 22nd	9·1	9th	52·3
	Darjeeling	7,421	22·992	+·013	?	23·137	22nd	22·840	14th	·297	39·3	44·3	0	35·8	+1·2	40·1	+0·6	8·5	50·5	23rd	32·4	3rd	18·1
	Kalimpong†	?	26·162	?	?	26·296	22nd	26·002	14th	·294	51·0	62·7*	?	49·4	?	56·1*	?	13·3	68·2	23rd	45·4	6th	22·8
Central India	Mount Abu	3,945	26·155	+·022	?	26·237	25th	26·018	12th	·219	59·2	67·8	+1·0	53·9	+2·9	60·9	+2·0	13·9	74·1	21st	45·1	22nd	29·0
	Pachmarhi	3,511	26·605	+·041	?	26·688	20th	26·505	11th	·183	65·0	73·6	+2·9	50·4	+3·2	62·0	+3·1	23·2	75·8	3 days	39·8	1st	36·0
South India	Wellington	6,200	24·321	+·034	?	24·386	25th	24·257	11th	·129	55·4	67·7	+1·6	45·1	−0·5	56·4	+0·6	22·6	73·2	24th	35·7	15th	37·5
	Khodai Kanal	?	?	?	?	?	...	?	...	?	56·0	60·1	?	48·6	?	54·4	?	11·5	68·4	7th	41·9	31st	26·5
	Kotagiri	?	24·043	?	...	24·100	21st	23·986	14th	·114	55·8	60·9	?	48·2	?	54·6	?	12·7	65·9	11th & 24th	44·5	28th	21·4
XIII.—Extra India.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...
Persia	Meshed	?	?	?	?	?	...	?	...	?	34·2	46·1	?	30·0	?	38·1	?	16·1	57·0	22nd	18·0	1st	39·0
	Bushire	14	30·119	?	30·094	30·268	16th	29·910	2nd	·358	56·2	64·1	?	52·0	?	58·4	?	12·1	73·6	25th	44·8	21st	28·8
Arabia	Aden	94	29·989	?	30·016	30·075	16th	29·917	12th	·158	74·3	78·9	?	71·5	?	75·2	?	7·4	82·9	13th	65·3	18th	17·0
	Perim	?	29·863	?	?	29·973	20th	29·789	12th	·184	75·6	81·0	?	73·4	?	77·2	?	7·6	84·3	2nd & 5th	71·2	18th & 19th	13·1
Arabian Sea Islands.	Minicoy	10	29·987	?	29·922	30·069	21st	29·897	2nd	·172	79·8	86·4	?	78·0	?	82·1	?	8·4	88·7	25th	74·8	28th	13·9
Africa	Zanzibar	73	29·926	?	29·920	30·014	22nd	29·810	14th	·204	80·6	84·8	?	78·5	?	81·6	?	6·3	88·9	5th	71·4	13th	17·5

* Mean of 25 days. † Mean of last 26 days. ‡ Mean of 29 days. ¶ Mean of 30 days.

I—*concluded.*

in India, Burma, etc., in January 1892—concluded.

Wind direction. Number of winds from: Calm.	N.	NE.	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 1892.	Normal rainfall for period 1st January to 31st January.	Variation from normal of period 1st January to January 31st	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XII.—Hill Stations.**	
31	...	...	...	...	...	...	...	...	0	4	−100	65	·136	3·7	2	4·36	−2·36	0·75	1·96	−1·21	0·75	1·96	−1·21	Quetta	BELUCHISTAN.
9	...	...	3	8	10	...	1	...	3	?	?	89	·180	6·1	3	?	?	0·95	?	?	0·95	?	?	Srinagar.	NORTHERN INDIA.
7	4	1	3	13	1	...	...	2	9	8	+12	53	·137	5·2	3	3·18	−0·18	1·23	2·62	−1·39	1·23	2·62	−1·39	Murree.	
12	5	1	...	4	9	...	...	...	?	2	?	43	·110	4·1	1	4·27	−3·27	0·29	2·50	−2·21	0·29	2·50	−2·21	Simla.	
1	6	3	2	7	2	...	2	8	?	?	?	66*	·193*	3·5	1	3·30	−2·30	0·32	?	?	0·32	?	?	Mussoorie.	
24	...	...	4	...	...	3	...	...	2	2	0	56	·170	3·4	2	3·71	−2·71	0·68	2·43	−1·75	0·68	2·43	−1·75	Ranikhet.	
...	...	...	...	...	...	...	...	...	?	?	?	58†	·128†	?	3	?	?	0·65	?	?	0·65	?	?	Gnatong.	
3	...	2	8	3	3	9	2	1	4	3	+33	87	·212	3·1	1	1·71	−0·71	0·28	0·31	−0·03	0·28	0·31	−0·03	Darjeeling.	
7	1	6	1	2	1	1		2	?	?	?	84	·315	4·4	0	?	?	0·12	?	?	0·12	?	?	Kalimpong.‡	
8	1	6	1	4	1	5	2	...	4	5	−20	51	·258	2·0	1	0·73	+0·27	0·78	0·33	+0·45	0·78	0·33	+0·45	Mount Abu.	CENTRAL INDIA.
5	...	...	8	8	7	...	2	1	4	3	+33	47	·290	1·8	1	1·55	−0·55	0·28	0·52	−0·24	0·28	0·52	−0·24	Pachmarhi.	
26	...	2	1	...	1	...	...	1	2	2	0	68	·303	1·9	0	1·75	−1·75	0·02	1·04	−1·02	0·02	1·04	−1·02	Wellington.	SOUTH INDIA.
1	8	6	1	1	1	5	5	3	?	?	?	63	·279	4·4	0	?	?	0·15	?	?	0·15	?	?	Khodai Kana.	
10	2	2	3	5	7	2	...	...	?	?	?	68	·302	3·2	0	?	?	0·01	?	?	0·01	?	?	Kotagiri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XIII.—Extra India.**	
2	3	1	1	5	...	2	9	8	1	?	?	?	?	5·0	1	?	?	0·31	?	?	0·31	?	?	Meshed	PERSIA.
...	4	7	5	12	...	...	...	3	8	8	0	81	·416	0	4	?	?	1·82	3·63	−1·81	1·82	3·63	−1·81	Bushire.	
7	...	9	15	...	...	...	...	...	12	13	−8	72	·613	5·3	0	?	?	0	0·28	−0·28	0	0·28	−0·28	Aden.	ARABIA.
...	...	6	1	23	...	...	...	1	19	?	?	75	·666	3·2	0	?	?	0	?	?	0	?	?	Perim.	
...	8	14	6	1	...	...	2	...	9	?	?	83	·848	4·2	5	?	?	0·94	?	?	0·94	?	?	Minicoy	ARABIAN SEA ISLANDS.
...	14	16	...	1	...	...	...	...	?	9	?	83	·860	7·7	5	?	?	5·60	?	?	5·60	?	?	Zanzibar.	AFRICA.

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

Table

Abstract of Observations recorded at 10 A. M. and 4 P. M. at 93 stations

Meteorological Provinces.	Station.	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	29·956	29·850	·106	29·898	+·002	29·890	84·3	76·1	8·2	88·7	70·8	17·9	82·3	84·5	79·9	+ 0·5	71·0	75·2	76·0	74·1
	Mergui	·933	·796	·137	·861	+·004	·889	87·5	60·8	26·7	91·1	53·3	37·8	80·0	85·6	73·7	− 3·2	59·3	70·6	74·0	67·9
	Rangoon	30·025	·887	·138	·955	−·001	·934	91·9	63·4	28·4	97·2	59·5	37·7	76·9	85·9	74·4	+ 0·7	60·7	68·1	68·9	65·9
	Diamond Island	·030	·910	·120	·966	+·001	·943	84·9	66·6	18·3	86·9	64·3	22·6	78·0	80·4	74·2	− 1·6	63·4	69·7	70·5	67·9
	Cocos' Island	29·946	·852	·096	·894	?	·940	81·2	67·6	13·7	83·4	61·9	21·5	79·4	77·3	73·1	?	?	71·6	70·0	?
	Akyab	30·073	.954	·120	30·008	+·007	·971	81·8	57·1	24·7	85·4	52·2	33·2	72·2	78·6	69·1	− 1·0	55·6	64·6	67·2	62·5
Assam.	Silchar	·008	·870	·138	29·939	+·002	·998	78·4	52·7	25·7	83·5	46·0	37·5	66·6	78·0	64·8	+ 1·7	51·8	61·5	64·1	59·1
	Sibsagar	29·757	·614	·143	·683	−·052	·988	70·9	51·5	19·4	77·1	45·1	32·0	60·9	69·9	60·2	+ 2·6	51·3	59·5	63·3	58·0
	Dhubri	·996	·851	·145	·917	−·012	·992	76·4	54·2	22·2	80·0	50·0	30·0	63·8	75·3	63·9	+ 1·8	53·3	59·4	63·7	58·8
Bengal and Orissa.	Chittagong	30·015	·908	·107	·958	+·009	·995	81·2	55·1	26·1	88·7	50·0	38·7	72·1	76·9	67·5	+ 1·5	54·0	64·5	65·5	61·3
	Dacca	·085	·956	·129	30·014	+·004	·985	80·2	56·3	23·9	83·9	49·5	34·4	70·1	77·9	68·3	+ 2·3	53·8	62·5	64·0	60·1
	Calcutta (Alipore)	·100	·063	·137	·020	+·002	·987	79·8	54·8	25·0	85·5	49·5	36·0	70·1	78·9	66·4	+ 1·3	53·6	61·2	63·2	59·3
	Do. (Chowringhee)	·100	?	?	?	?	?	80·9	55·7	25·2	87·0	49·9	37·1	71·7	?	68·3	?	54·7	63·0	?	?
	Saugor Island	·090	·966	·124	·018	+·009	·988	77·6	59·2	18·4	81·3	52·3	29·0	72·1	75·7	67·5	+ 0·4	57·5	65·7	66·3	63·2
	Burdwan	·031	·885	·146	29·947	+·006	·988	81·3	55·0	26·3	87·8	48·8	39·0	70·4	79·5	67·3	+ 1·4	52·8	58·1	61·4	57·5
	Berhampore	·045	·915	·130	·968	+·002	·985	79·4	54·2	25·2	84·6	49·1	35·5	69·1	78·2	66·1	+ 1·4	51·8	60·6	62·5	58·3
	False Point	·100	·981	·119	30·036	+·004	·999	80·6	59·5	21·2	83·6	54·6	29·0	75·7	77·8	69·0	+ 0·9	58·6	68·7	68·7	65·3
	Cuttack	·035	·899	·134	29·962	+·001	·987	85·3	60·2	25·1	88·4	53·9	34·5	74·4	84·5	71·9	+ 1·1	58·7	65·3	66·2	63·3
Gangetic Plain and Chota Nagpur.	Hazaribagh	28·051	27·953	·098	27·994	+·011	30·012	76·3	52·0	24·3	81·2	47·8	33·4	68·3	73·8	63·0	+ 2·3	47·3	55·5	56·9	53·2
	Patna	29·929	29·803	·126	29·857	−·013	·002	73·3	51·6	21·8	77·8	44·4	33·4	67·0	73·1	62·2	+ 1·8	49·0	58·2	60·3	55·8
	Darbhanga	·975	·832	·139	·897	−·017	·024	76·7	51·2	25·4	81·2	45·4	35·8	66·8	75·4	63·4	+ 1·5	50·1	59·2	61·6	57·0
	Allahabad	·816	·684	·132	·737	+·002	·017	77·3	50·0	27·3	82·1	41·9	40·2	66·5	75·5	62·5	+ 2·0	47·7	57·5	60·1	55·1
	Ghazipur	·908	·785	·123	·836	+·012	·021	77·7	52·0	25·7	83·4	43·7	39·7	67·4	74·3	63·0	+ 3·8	49·4	58·6	59·8	55·9
	Lucknow	·743	·625	·117	·675	+·002	·020	76·4	48·0	28·4	82·2	38·9	43·3	65·7	73·6	62·9	+ 2·1	49·8	56·4	58·9	55·0
Upper Sub-Himalayas.	Dehra Dun	27·830	27·734	·096	27·772	+·034	·057	70·9	45·5	25·4	74·9	39·0	35·9	59·4	65·5	56·3	+ 1·4	43·4	51·1	53·7	49·4
	Roorkee	29·219	29·116	·102	29·157	+·036	·066	73·2	44·3	29·1	77·8	35·8	42·0	58·0	70·2	57·3	+ 1·5	41·8	51·7	55·9	49·2
	Meerut	·371	·257	·114	·306	+·019	·051	72·3	46·3	26·0	76·2	39·0	37·2	60·1	70·2	58·3	+ 2·3	45·5	52·6	56·8	51·6
	Lahore	·396	·313	·083	·343	+·011	·061	70·6	42·7	28·0	76·6	33·4	43·2	60·0	68·5	55·0	+ 3·2	41·4	51·7	55·1	49·4
	Ludhiana	·264	·166	·098	·204	−·003	·032	70·9	44·8	26·1	77·5	36·1	41·4	59·6	67·8	56·2	+ 3·8	44·1	52·1	55·5	50·6
Indus Valley and N.-W. Rajputana.	Peshawar	·027	28·926	·101	28·965	+·019	·125	68·9	42·1	26·7	75·3	31·9	43·4	56·5	66·7	53·9	+ 4·6	38·6	48·5	53·0	46·7
	Mooltan	·698	29·599	·099	29·637	+·007	·051	72·0	45·9	26·1	78·8	39·4	39·4	58·7	70·4	57·5	+ 3·7	41·5	50·9	58·9	50·5
	Jacobabad	·968	·844	·124	·894	+·022	·052	74·7	44·0	30·7	79·4	37·7	41·9	64·0	73·2	57·9	+ 1·4	41·3	53·0	56·5	50·3
	Hyderabad (Sind)	·988	·896	·092	·933	−·024	·009	76·5	51·8	24·7	83·1	47·3	35·8	68·5	74·9	63·5	+ 0·8	46·8	52·7	56·3	51·9
	Kurrachi	30·077	·955	·121	30·007	−·006	·010	78·1	55·7	22·4	82·8	50·1	32·7	69·4	76·1	66·1	+ 1·1	49·1	59·3	63·7	57·4
East Rajputana, Central India and Guzerat.	Jeypore	28·660	28·550	·110	28·594	+·012	·041	75·9	52·3	23·6	81·8	44·3	37·5	67·3	73·7	62·3	+ 3·7	46·8	56·6	59·8	54·4
	Ajmere	·479	·366	·113	·416	+·006	·050	75·2	49·9	25·3	80·0	42·4	37·6	64·6	74·2	61·8	+4·3	49·1	56·0	60·9	55·3
	Deesa	29·582	29·475	·107	29·516	−·025	29·951	86·1	57·1	29·0	93·5	49·9	43·6	76·2	84·2	71·6	+ 4·3	49·7	57·9	61·6	56·5
	Nowgong	·340	·223	·117	·272	+·001	·021	75·1	48·4	26·7	82·0	43·5	38·5	65·2	73·8	61·1	+ 0·7	47·3	56·7	60·3	54·8
	Agra	·577	29·456	·121	29·505	+·022	·044	74·6	50·6	24·0	80·4	43·6	36·8	63·7	73·9	61·9	+ 3·2	47·6	56·2	61·6	55·2
Deccan.	Belgaum	27·498	27·366	·132	27·427	−·011	29·890	84·3	58·2	26·1	86·0	53·7	32·3	74·7	83·2	71·0	+ 1·1	53·2	59·5	60·0	57·5
	Sholapur	28·471	28·318	·153	28·391	−·002	·944	89·4	59·9	29·4	91·8	51·6	40·2	78·3	87·6	73·9	+ 2·1	52·7	63·2	65·3	60·4
	Poona	·195	·060	·134	·125	−·009	·931	88·3	56·2	32·1	90·4	47·0	43·4	77·6	86·0	71·9	+ 2·9	51·2	59·9	61·9	57·7
	Akola	29·144	·997	·147	29·062	+·004	·966	87·5	56·6	30·9	90·0	45·5	44·5	76·0	86·7	71·1	+ 3·1	50·5	61·6	64·9	59·0

II.

in India, Burma, etc., for January 1892.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		Station.	Meteorological Provinces.
														Number of winds from																
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.		
·694	·782	·785	·754	−·040	77	71	66	71	−6	3·9	3·4	3·7	+0·5	...	15	29	11	4	1	...	...	...	N. 47° E.	N. 39° E.	76	78	210	160	Port Blair.	Burma Coast and Bay Islands.
·492	·626	·685	·601	−·107	92	60	56	69	−5	1·8	2·3	2·0	−0·4	...	27	12	6	1	...	2	2	12	N. 5 E°.	N. 12° W	68	59	58	47	Mergui.	
·498	·573	·482	·518	−·044	85	62	39	62	−3	0·4	1·1	0·7	−1·5	...	3	20	16	11	6	2	3	1	N. 85° E.	N. 25° E.	53	42	53	100	Rangoon.	
·545	·619	·616	·593	−·044	84	65	59	69	−2	1·5	2·0	1·7	−0·7	...	26	13	5	1	...	...	...	17	N. 3° E.	N. 6° E.	76	74	181	153	Diamond Island.	
?	·674	·637	?	?	?	67	68	?	?	1·4	1·4	1·4	?	...	22	32	2	...	...	...	...	...	N 29° E.	?	82	?	339	?	Cocos' Island.	
·415	·509	·518	·481	−·014	86	64	53	68	−3	0·5	0·6	0·6	−1·0	...	14	20	1	...	1	1	5	20	N. 7° W.	N. 23° W.	66	39	64	65	Akyab.	
·377	·481	·417	·425	+·002	94	73	44	70	−4	3·1	3·4	3·3	+0·2	60	...	...	...	...	...	...	1	1	N. 67° W.	S. 29° E.	3	27	1	48	Silchar.	Assam.
·380	·495	·495	·457	+·036	98	92	68	86	0	7·8	6·1	7·0	+1·6	...	1	36	4	16	2	3	...	...	N. 74° E.	N. 61° E.	64	51	40	43	Sibsagar.	
·397	·451	·437	·428	+·007	94	76	50	73	−3	0·7	0·9	0·8	−1·0	9	3	14	12	1	6	14	3	...	S. 68° E.	N. 74° E.	16	20	92	93	Dhubri.	
·409	·511	·479	·466	+·002	93	65	51	70	−2	1·5	1·3	1·4	0	28	3	9	2	...	1	2	9	8	N. 32° W.	N. 24° W.	24	48	43	89	Chittagong.	Bengal and Orissa.
·391	·467	·414	·424	−·009	85	64	43	64	−5	1·6	2·4	2·0	+0·4	...	3	6	4	3	5	10	16	15	N. 81° W.	N. 53° W.	39	32	61	50	Dacca.	
·399	·427	·376	·401	−·033	92	58	38	63	−8	0·4	1·2	0·8	−0·7	1	17	4	4	1	2	9	17	7	N. 53° W.	N. 38° W.	42	38	58	68	Calcutta (Alipore).	
·421	·465	?		?	94	60	?	?	?	Not recorded													?	?	?	?	?	?	Do. (Chowringhee).	
·448	·555	·530	·511	−·017	85	70	59	71	−5	1·0	1·7	1·4	−0·3	...	24	7	1	...	5	15	5	5	N. 38° W.	N. 1° E.	35	19	183	151	Saugor Island.	
·374	·326	·308	·336	−·058	85	44	30	53	−10	1·2	1·3	1·3	−0·5	11	15	4	1	1	2	4	12	12	N. 42° W.	N. 32° W.	45	46	31	43	Burdwan.	
·358	·421	·360	·380	−·010	85	59	38	61	−9	1·2	1·6	1·4	−0·8	4	5	3	4	...	...	6	25	14	N. 69° W.	N. 41° W.	57	50	34	43	Berhampore.	
·487	·607	·582	·559	+·026	95	69	61	75	−4	1·5	1·6	1·5	−0·5	...	12	6	11	10	7	4	6	6	N. 68° E.	N. 51° E.	16	22	161	147	False Point.	
·477	·505	·400	·459	−·017	91	91	34	61	−4	1·1	1·5	1·3	−0·5	11	10	15	4	2	1	5	8	5	N. 3° E.	N. 45° E.	29	11	31	34	Cuttack.	
·272	·288	·259	·273	+·005	69	41	31	47	−4	2·2	2·9	2·6	+0·2	1	8	...	4	4	5	2	16	22	N. 61° W.	N. 62° W.	48	54	174	118	Hazaribagh.	Gangetic Plain and Chota Nagpur.
·319	·372	·357	·349	−·012	82	56	44	61	−6	2·0	1·4	1·7	−0·8	3	2	...	4	1	1	...	49	2	N. 88° W.	N. 83° W.	73	45	79	49	Patna.	
·353	·407	·369	·376	−·021	93	61	42	65	−7	0·6	1·0	0·8	−0·8	4	...	3	3	3	...	13	24	7	S. 82° W.	S. 80° W.	56	47	67	59	Darbhanga.	
·305	·359	·321	·328	−·015	83	55	36	58	−10	2·5	2·7	2·6	−0·5	10	3	3	7	4	2	1	12	20	N. 47° W.	N. 34° W.	32	20	74	49	Allahabad.	
·324	·379	·326	·343	+·005	83	56	39	59	−2	1·6	1·8	1·7	−0·5	14	1	1	5	5	1	18	13	4	S. 57° W.	S. 76° W.	37	38	44	39	Ghazipur.	
·325	·338	·307	·323	+·022	83	53	37	58	−2	2·2	2·4	2·3	−0·6	7	5	2	3	1	1	7	19	17	N. 69° W	N. 57° W.	53	41	81	57	Lucknow.	
·259	·275	·270	·268	?	84	54	43	61	?	3·3	3·5	3·4	−0·8	24	3	0	2	1	7	6	13	4	S. 71° W.	S. 75° W.	29	17	19	43	Dehra Dun.	Upper Sub-Himalayas.
·242	·305	·263	·260	−·025	85	62	35	60	−5	2·3	2·8	2·5	−1·0	13	3	2	3	5	9	1	4	22	N. 62° W.	N. 72° W.	23	16	44	52	Roorkee.	
·298	·301	·288	·296	+·010	93	57	39	63	−1	2·6	3·1	2·8	−0·5	11	...	...	6	2	...	...	36	7	N. 84° W.	N. 49° W	55	45	48	51	Meerut.	
·250	·280	·261	·264	−·001	89	53	38	60	−1	3·3	3·5	3·4	0	23	7	2	5	1	3	...	8	13	N. 36° W.	N. 25° W.	27	21	28	45	Lahore.	
·276	·296	·282	·284	+·003	89	57	41	62	−5	4·3	5·0	4·6	+0·5	21	4	2	1	...	2	..	21	11	N. 67° W.	N. 56° W.	47	25	33	28	Ludhiana.	
·195	·246	·237	·226	+·001	72	54	37	54	−8	3·5	4·6	4·0	−0·9	14	2	8	5	6	9	6	5	7	S. 9° E.	S. 11° E.	8	7	74	59	Peshawar.	Indus Valley and N.-W. Rajputana.
·211	·278	·350	·280	+·023	67	55	47	56	−3	3·1	3·1	3·1	+0·3	8	1	16	...	17	...	8	...	12	N. 70° E.	N. 9° W.	16	24	29*	38	Mooltan.	
·218	·280	·239	·239	+·025	72	43	30	49	+3	3·8	3·0	3·4	+0·6	23	3	...	2	4	.	...	4	26	N. 43° W.	N. 10° W.	42	27	54	50	Jacobabad.	
·246	·191	·211	·216	−·065	62	28	25	38	−11	6·1	5·7	5·9	+4·1	...	...	57	...	1	2	...	...	2	N. 45° E.	N. 11° W.	90	55	184*	174	Hyderabad (Sind).	
·265	·376	·429	·357	+·013	60	53	48	54	−1	3·1	2·7	2·9	+0·2	...	5	38	3	...	...	12	4	..	N. 36° E.	N. 23° W.	47	17	255	241	Kurrachi.	
·258	·329	·346	·311	+·037	65	50	43	53	0	3·4	3·1	3·3	+0·2	1	3	15	20	10	1	1	3	8	N. 70° E.	N. 20° E.	48	21	64	92	Jeypore.	East Rajputana, Central India & Guzerat.
·329	·347	·375	·350	+·085	86	57	45	63	+12	2·4	3·1	2·7	+0·3	4	3	13	2	6	11	11	5	7	S. 20° W.	N. 82° E.	10	8	72	47	Ajmere.	
·263	·243	·248	·254	−·009	55	29	22	35	−3	3·0	3·9	3·5	+1·2	...	5	9	8	7	6	5	8	6	N. 70° E.	N. 3° W.	6	39	204	207	Deesa.	
·315	·355	·347	·339	+·046	92	58	44	65	+7	3·1	2·8	3·0	0	9	11	6	6	1	..	2	20	5	N. 40° W	N. 24° W.	35	22	43*	32	Nowgong.	
·295	·356	·389	·348	+·057	78	60	47	62	+5	2·2	2·4	2·3	−0·1	...	5	8	3	9	1	5	4	27	N. 32° W	N. 64° W.	35	35	75	82	Agra.	
·346	·322	·233	·300	−·056	71	37	20	43	−4	1·9	1·9	1·9	+0·2	...	1	2	26	26	5	1	1	...	S. 64° E.	S. 71° E.	79	50	282	261	Belgaum.	Deccan.
·311	·395	·349	·352	+·009	60	41	27	42	−2	1·0	2·2	1·6	−0·5	...	...	1	16	40	5	...	...	...	S. 54° E.	S. 60° E.	90	55	210	172	Sholapur.	
·320	·298	·255	·291	−·037	70	31	20	41	−1	1·4	2·0	1·7	−0·2	6	...	1	23	18	2	6	3	3	S. 59° E.	S. 63° E.	52	24	145	138	Poona.	
·291	·360	·327	·326	0	63	40	26	43	−6	1·0	1·9	1·4	0	1	3	16	15	10	1	7	2	7	N. 74° E.	N. 54° E.	35	30	113	82	Akola.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 stations.

Meteorological Province.	Station.	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.	Temprature, wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
Deccan—*concld.*	Buldana	27·909	27·794	·114	27·843	+·001	29·947	83·0	5 9·5	23·6	85·5	54·3	31·2	77·0	80·8	70·0	+ 1·6	51·5	60·1	60·4	57·4
	Khandwa	29·001	28·882	·118	28·933	+·003	·960	85·6	54·8	30·8	89·2	43·6	45·6	75·9	84·2	69·1	+ 2·3	49·2	61·2	64·4	58·3
	Hoshangabad	29·061	28·929	·131	28·987	−·007	·996	81·9	55·8	26·1	85·8	47·3	38·5	69·9	81·1	68·0	+ 2·3	51·0	59·4	64·3	58·3
	Nagpur	·044	·906	·138	·967	+·011	·973	84·6	57·9	26·7	86·8	51·4	35·4	73·9	83·0	70·2	+ 2·0	52·5	62·1	65·0	59·9
	Sironcha	·692	29·562	·130	29·620	−·004	·977	86·1	58·5	27·6	89·2	49·6	39·6	76·0	84·1	71·2	+ 0·2	56·0	65·8	66·7	62·9
	Chanda	·456	·322	·134	·381	+·014	·981	85·9	55·3	30·5	88·4	45·3	43·1	75·6	84·0	69·5	+ 1·1	53·1	63·5	66·1	60·9
	Seoni	28·042	27·929	·114	27·978	+·017	30·001	80·9	52·8	28·0	83·6	44·0	39·6	72·5	78·2	65·0	+ 1·1	49·5	60·0	61·8	57·1
	Jubbulpore	·749	28·622	·127	28·678	+·022	·008	79·5	50·5	29·0	85·3	41·5	43·8	67·6	78·2	64·0	+ 2·3	49·6	59·6	63·5	57·6
	Saugor	·303	·191	·112	·239	+·008	·002	79·8	54·5	25·3	84·5	47·2	37·3	69·8	78·0	66·0	+ 2·7	49·6	56·9	60·8	55·8
	Raipur	29·121	·986	·135	29·046	+·016	29·982	83·5	57·6	25·8	87·5	49·9	37·6	73·5	82·2	69·6	+ 2·8	51·9	60·9	62·8	58·5
	Sutna	·044	28·921	·124	28·973	+·004	30·018	76·4	48·9	27·5	83·0	41·7	41·3	67·7	76·0	61·8	+ 1·7	46·5	56·3	59·3	54·1
	Sambalpur	·620	29·492	·128	29·552	+·008	29·978	84·3	54·9	29·4	87·5	48·5	39·0	73·7	82·5	68·5	+ 1·3	53·0	63·2	66·0	60·7
	Secunderabad	28·288	28·153	·135	28·217	+·033	·974	81·9	59·5	25·4	89·1	53·5	35·6	75·0	83·0	71·4	+ 0·4	55·9	63·6	65·3	61·6
	Hyderabad (Deccan)	28·384	28·254	·130	28·319	?	·979	83·7	58·5	25·2	85·5	52·8	32·7	75·2	80·4	69·8	?	55·6	64·9	65·1	61·9
West Coast.	Bombay	30·007	29·887	·120	29·947	−·005	·924	83·5	69·3	14·1	88·4	63·0	25·4	76·4	80·6	75·3	+ 2·2	63·6	67·9	71·4	67·6
	Ratnagiri	29·902	·796	·106	·840	−·015	·889	88·8	67·5	21·3	96·4	62·9	33·5	84·7	83·6	76·4	+ 1·3	62·7	69·2	72·8	68·2
	Karwar	·974	·847	·127	·901	−·020	·878	88·5	64·7	23·7	92·3	59·9	32·4	77·6	85·6	75·5	+ 0·2	62·9	67·9	72·2	67·7
	Cochin	·988	·865	·123	·918	−·004	·856	90·6	69·7	20·9	93·3	63·9	29·4	84·2	87·0	78·9	− 0·2	68·8	72·3	74·3	71·8
South India.	Salem	·133	28·983	·150	·064	+·012	·954	89·6	65·1	24·5	91·9	60·1	31·8	79·5	83·4	75·8	+ 1·6	63·5	69·4	71·8	68·2
	Mercara	26·298	26·197	·101	26·248	−·059	·912	77·2	57·2	20·0	79·5	52·2	27·3	67·6	75·1	66·6	+ 0·6	53·5	58·5	58·8	56·9
	Trichinopoly	29·795	29·661	·134	29·734	+·010	·924	87·0	68·3	18·7	89·0	62·8	26·2	80·1	84·7	76·4	+ 0·9	65·6	70·3	72·0	69·3
	Madras †	30·064	·966	·102	30·011	+·018	·964	84·9	67·9	17·1	86·7	63·5	23·2	80·7	81·0	75 7	+ 0·1	?	72·6	72 6	70·6
	Bellary	28·578	28·431	·147	28·502	+·021	·940	87·7	60·8	26·8	89·8	56·8	33·0	77·9	85·5	73·4	+ 0·2	56·2	64·9	66·1	62·4
	Vizagapatam	30·090	29·962	·128	30·016	+·021	·986	78·7	66·5	12·2	80·5	62·8	17·7	76·7	79·1	75·7	0	60·9	67·1	68·8	65·6
Hill Station, Beluchistan.	Quetta	24·738	24·664	·074	24·691	+·037	?	54·3	31·5	22·8	64·3	21·7	42·6	46·3	51 5	42·2	+ 2·3	28·4	37·9	40·0	35·4
Hill Stations, Northern India.	Leh	19·762	19·659	·103	19·712	+·087	?	38·7	13·8	24·9	44·4	5·5	38·9	28·1	35·3	25·1	+ 6 7	12·6	22·4	29·9	21·6
	Srinagar	25·060	24·965	·095	25·013	?	?	49·2	31·8	17·4	57·9	23·1	34·8	37·9	47·7	40 3	?	30·6	35·7	42·4	36·2
	Murree	23·936	23·908	·028	23·912	+·051	?	53·1	38·0	15·1	61·6	30·1	31·5	46·6	47·6	43·7	+ 4·6	33·1	37·9	39·6	36·8
	Chamba	27·086	26·973	·113	27·029	+·016	?	66·4	43·6	22·8	75·1	37·1	38·0	51·9	61·0	52·5	+ 4·9	39·8	44·8	49·4	44·7
	Kailang	20·854	20·781	·072	20·817	+·068	?	40·7	19·6	21 1	43·7	9·5	39·2	30·1	36·8	28·0	+ 6·9	18·0	24·3	28·8	23·7
	Simla	23·138	23·079	·059	23·100	+·032	?	43·9	39·5	10.4	56·4	30·2	26·2	46·0	46·8	43·4	+ 2·7	32·0	36·7	39·0	35.9
	Chakrata	·393	·322	·071	·348	+·090	?	57·3	38·9	18·4	63·5	32·7	30·8	50·3	49·6	45·7	+ 4·1	33·4	40·8	40·6	38.3
	Ranikhet	24·188	24·122	·066	24·140	+·027	?	58·5	43·1	15·4	64·1	38·5	25·6	51·2	55·0	49·5	+ 3·4	37·0	43·6	45·2	42·0
	Pithoragarh	·861	·786	·075	·809	−·005	?	63·3	42·6	20·7	69·0	38·8	30·2	54·4	61·2	52·0	+ 3·9	38·3	47·9	48·8	45·0
	Katmandu	25·786	25·673	·112	25·724	+·037	?	66·9	37·3	29·7	71·4	31·2	40·2	48·4	63·6	51·2	+ 0·9	35·8	45·2	52·5	44·5
	Darjeeling	23·030	22·950	·075	22·986	+·027	?	44·3	35·8	8·5	50·5	3[illegible]·4	18·1	43·7	44·3	40·1	+ 1·0	34·4	40·9	42·2	39·2
	Pedong	25·404	25·291	·113	25·343	+·033	?	58·1	46·0	12·1	64·0	42·3	21·7	54·3	55·8	51·5	+ 3·5	44·4	50·1	50·4	48·3
	Demagiri	Not recorded.						78·0	54·6	23·4	83·0	50·1	32·9	66 1	77·7	66·2	+ 2·9	Not recorded.			
	Tura	Ditto.						74·6	58·6	16·0	80·4	53·5	26·9	69·2	72·3	66 0	+ 4·7	?	61·5	61·7	?
Hill Stations, Central India.	Mount Abu	26·184	26·102	·082	26·131	+·012	?	67·8	54·0	13·8	74·3	45·1	29·2	64·3	65·6	60·4	+ 2·9	47·0	52·4	53·0	50·8
	Pachmarhi	·621	·535	·086	·570	+·025	?	73·7	50·4	23·3	76·0	39·8	36·2	68·9	69·9	59·4	+ 1·4	46·2	55·1	56·1	52·4
	Chikalda	·480	·378	·102	·421	+·004	?	74·7	58·8	15·9	77·4	53·1	24·3	68·1	73·6	64·8	+ 2·6	53·1	55·8	57·3	55·4
	Makhla	Not recorded.					?	77·9	59·6	18·3	81·4	55·2	26·2	68·7	76·6	67·7	+ 3·5	55·0	58·4	60·6	58·0

* The means are as given in the registers

II.

in India, Burma, etc., for January 1892.—continued.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		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.		
·290	·311	·274	·292	−·034	57	33	26	39	−7	1·4	1·7	1·5	−0·8	2	3	9	7	17	13	8	1	2	S. 41°E,	N. 76° E.	42	21	146	135	Buldana	Deccan—*concld.*
·285	·359	·357	·333	−·004	65	40	30	45	−6	1·1	1·8	1·5	−0·1	3	7	11	9	5	12	11	...	4	S. 60° E.	N. 25° E.	18	23	73	70	Khandwa	
·318	·384	·398	·367	+ 023	71	52	37	53	−1	1·7	2·0	1·8	−0·1	5	8	24	14	..	3	5	2	1	N. 52° E.	N. 59° E.	50	39	116	57	Hosangabad	
·332	·415	·396	·381	+·026	69	49	35	51	−1	1·2	1·7	1·5	−0·8	3	9	19	12	9	7	1	1	..	N. 75° E.	N. 72° E.	51	30	103	73	Nagpur	
·421	·498	·426	·448	−·013	85	56	37	59	−3	2·3	2·2	2·2	+0·8	46	2	3	3	4	3	...	1	...	S. 77° E.	S. 75° E.	11	14	16	44	Sironcha	
·379	·429	·405	·404	−·010	86	48	35	56	−3	1·3	1·4	1·4	−0·6	7	1	2	22	22	3	...	...	5	S. 70° E.	S. 88° E.	61	23	53	50	Chanda	
·318	·366	·350	·344	+·022	78	46	36	53	0	1·1	1·9	1·5	−2·1	...	5	5	7	5	9	6	2	3	S. 43° E.	N. 75° E.	15	11	50	64	Sconi	
·350	·414	·407	·390	+·061	93	67	42	66	+6	2·0	1·8	1·9	−0·3	21	10	8	1	1	7	2	1	11	N. 10°W.	N. 8° E.	23	17	19	51	Jubbulpore	
·297	·308	·316	·307	+·034	70	43	35	49	+1	1·3	1·7	1·5	0	...	6	16	6	20	2	5	2	5	N. 88° E.	N. 13° E.	35	24	58	66	Saugor	
·313	·369	·316	·333	−·025	65	45	29	46	+8	2·2	2·3	2·2	+0·7	12	8	13	3	3	4	5	6	8	N. 3° W.	N. 5° E.	21	21	76	66	Raipur	
293	·317	·301	·303	+·024	83	47	33	54	+2	1·2	1·6	1·4	−0·8	4	28	5	3	3	2	1	5	11	N. 8° W.	N. 16° W.	56	27	102*	99	Sutna.	
·380	·441	·420	·414	−·026	88	53	38	59	−6	1·7	2·2	2·0	+0·6	...	3	14	2	3	9	16	3	12	S. 83° W.	N. 48°W.	14	30	85*	39	Sambalpur	
·406	·449	·406	·420	+·012	79	52	36	56	+1	2·6	2·7	2·7	+1·0	...	...	8	38	11	4	1	...	...	S, 83° E,	S. 87° E.	82	69	140	93	Secunderabad	
·405	·489	·431	442	?	82	56	42	60	?	1·4	1·8	1·6	?	5	...	2	14	32	8	1	...	...	S. 52° E.	?	77	?	104	?	Hyderabad (Deccan).	
·519	·572	·651	581	+·002	72	63	62	66	−4	1·3	1·0	1·2	−0·3	...	4	13	11	3	...	...	14	17	N. 9° W.	N. 6° E	37	63	214	243	Bombay	West Coast.
·507	·510	·662	·560	−·002	75	43	58	59	−2	0·4	0·6	0·5	−0·1	...	6	2	10	7	10	...	7	20	N. 36° W.	N. 34°W.	13	30	179	228	Ratnagiri	
·552	·558	·613	·574	−·025	90	60	51	67	−3	0·6	0·8	0·7	−0·2	2	...	25	...	...	...	...	17	18	N. 22° W.	N. 5° W.	53	53	59	?	Karwar	
·655	·634	·681	·657	−·031	81	54	53	63	−7	2·4	1·8	2·1	+2·0	1	...	22	7	...	1	...	20	11	N. 13°W.	S. 11° W.	37	13	91	?	Cochin	
·568	·586	·587	·580	+·017	91	58	47	65	0	3·1	4·3	3·7	+1·2	...	4	27	29	...	...	...	...	2	N. 62° E.	S. 84° E.	85	61	93	118	Salem	South India.
·369	·389	·314	·357	−·009	78	58	36	57	−13	3·7	4·3	4·0	+1·0	...	3	8	51	...	...	...	...	...	N· 81° E	N. 68° E.	92	60	173	102	Mercara	
·598	·607	·617	·607	−·003	87	59	52	66	−3	3·6	5·2	4·4	+0·1	2	7	40	11	1	...	...	...	1	N. 48° E.	N. 45° E.	85	78	146	114	Trichinopoly	
?	·693	·699	·680	+·041	?	66	65	76	+2	5·5	6·0	5·8	+1·8	...	13	37	11	...	...	1	...	...	N. 43° E.	N. 48° E.	85	76	165	143	Madras†	
·396	·458	·406	·420	+·016	74	48	33	52	+2	2·0	2·3	2·1	−0·1	14	...	...	16	29	3	...	...	...	S. 57° E.	S. 69° E.	71	68	108	81	Bellary	
·460	·544	·572	·525	−·057	70	58	57	62	−3	2·5	2·1	2·3	+0·6	...	5	6	8	8	13	11	7	4	S. 1° E.	S. 60° E.	23	42	24	42	Vizagapatam	
·127	·146	·132	·135	−·035	73	48	35	52	−16	3·4	3·1	3·2	−1·0	50	...	...	...	...	6	3	1	2	S. 34° W.	N. 83° W.	13	27	18*	88	Quetta	Hill Station, Beluchistan.
·070	·077	·123	·090	+·020	84	50	60	65	0	4·3	6·6	5·5	−1·1	21	...	...	1	1	4	23	11	1	S. 52° W.	S. 8° E.	53	24	10	24	Leh	Northern India.
·161	·187	·212	·186	?	90	81	64	78	?	5·7	5·7	5·7	?	5	7	7	2	12	13	3	4	9	S. 29° E.	?	10	?	56	?	Srinagar	
·140	·141	·163	·148	+·008	62	46	50	53	−6	5·2	6·0	5·6	−0·3	19	1	...	...	37	2	...	...	3	S. 44° E.	S. 54° E.	56	35	213	199	Murree	
·202	·212	·212	·209	−·012	70	55	40	55	−14	4·2	5·7	4·9	−1·4	41	1	...	...	2	1	2	7	8	N. 78° W.	S. 71° E.	21	17	69	57	Chamba	
·089	·087	·096	·091	+·008	82	53	45	60	−12	5·7	−6·2	5·9	−1·1	..	...	...	2	2	10	23	21	4	S. 57° W.	S. 68° W.	71	48	23	18	Kailang.	
·108	·124	·162	·133	−·020	47	42	51	47	−13	4·1	5·0	4·6	−0·9	13	17	2	...	5	22	1	...	2	S. 24° E.	S. 31° W.	11	19	?	48	Simla	
·137	·157	·162	·152	−·004	59	45	48	50	−13	3·4	3·7	3·6	−1·2	18	1	12	3	2	...	15	11	...	S. 74° W.	S. 66° W.	14	9	65	111	Chakrata	
·159	·208	·201	·189	−·003	59	56	47	54	−9	3·5	4·1	3·8	−0·3	20	...	1	4	1	1	35	...	...	S. 37° W.	S. 70° W.	52	17	52	41	Ranikhet	Hill Stations,
·189	·268	·217	·225	+·008	69	63	41	58	−8	2·9	3·7	3·3	−1·3	44	...	1	...	1	4	12	...	..	S. 29° W.	S. 47° E.	23	16	58	52	Pithoragarh	
·197	·269	·274	·246	−·003	88	79	48	71	−2	2·2	3·4	2·8	−0·5	18	4	2	2	4	4	1	16	11	N. 73° W.	N. 87° W.	31	68	18	?	Katmandu	
·187	·230	·249	·222	+·020	88	81	85	85	+5	5·6	7·2	6·4	+0·8	1	2	15	9	...	1	10	20	3	N. 55°W.	S. 84° W.	19	22	100	62	Darjeeling	
·276	·315	·306	·299	+·017	88	74	69	77	−6	5·5	7·7	6·6	+0·5	15	1	9	10	11	14	1	...	...	S. 57° E.	?	46	?	3	?	Pedong	
?	?	?	?	?	?	?	?	?	?	0	0	0	−0·6	1	...	...	2	19	21	19	...	...	S. 2° E.	N. 50° W.	77	34	?	?	Demagiri	
?	·461	·433	?	?	?	65	55	?	?	1·8	2·2	2·0	−0·8	...	...	...	14	8	18	21	...	...	S. 7° E.	S. 4° W.	64	53	?	?	Tura	
·247	·262	·262	·257	+·062	59	43	42	48	+8	2·7	3·4	3·1	+0·5	3	4	8	5	6	5	11	10	4	S. 52° W.	N. 83° W.	12	6	98	116	Mount Abu	Hill Stn., Central India.
·268	·278	·300	·280	+·003	73	39	41	51	−3	1·6	3·1	2·3	0	3	5	5	9	9	10	6	7	8	S. 18° E.	N. 68° W.	11	13	81	73	Pachmarhi	
·342	·305	·284	·310	−·005	69	45	34	49	−4	1·8	3·7	2·7	+0·7	13	...	1	1	9	26	8	3	1	S. 2° W,	S. 47° W.	59	26	130	116	Chikalda	
?	?	?	?	?	?	?	?	?	?	2·4	3·9	3·2	+0·2	...	2	1	5	14	18	11	8	3	S. 4° W.	S. 80° W.	50	29	?	?	Makhla	

* Corrected.

Sent by Government Astronomer, Madras.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M at 93 stations

Meteorological Province.	Station.	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 rang .	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	24·328	24·252	·076	24·290	+·019	?	67·8	45·1	22·7	73·0	35·7	37·3	62·7	62·8	56·9	+ 1·8	43·1	53·6	54·7	50·5
	Khodai Kanal	Not recorded.						60·1	48·6	11·5	60·4	41·9	26·5	58·7	56·2	54·5	?	45·4	51·4	52·9	49·6
	Kotagiri	·049	23·985	·064	·018	?	?	60·9	48·2	12·7	65·9	44·5	21·4	60·4	59·9	54·3	?	44·3	53·0	54·0	50·4
Extra India.	Aden	29·998	29·870	128	29·933	− ·014	·900	78·9	71·5	7·4	82·3	65·3	17·0	76·6	78·3	75·1	− 0·8	65·9	68·4	68·6	67·7
	Perim	·869	·764	·105	·817	?	?	81·0	73·3	7·7	84·3	71·2	13·1	78·6	79·4	76·7	?	67·5	71·5	71·7	70·3
	Minicoy	·997	·891	·103	·942	?	·877	86·4	78·6	7·7	88·7	74·8	13·9	83·1	83·6	81·4	?	73·6	76·9	77·2	75·9
	Zanzibar	·919	·793	·126	·856	?	·856	84·8	78·4	6·4	88·9	71·4	17·5	81·6	84·5	81·5	?	74·9	76·9	76·8	76·2

II.

in India, Burma, etc., for January 1892.—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		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.		
·262	·322	·350	·311	+·007	86	57	61	68	−1	2·6	2·8	2·7	+0·6	2	1	1	8	28	19	1	1	1	S. 35° E.	S. 14° E.	72	62	53	53	Wellington . .	Hill Stations, South India.
·271	·308	·371	·306	?	78	64	83	72	?	5·3	6·7	6·0	?	1	12	14	2	2	4	11	1	15	N. 18° W.	?	32	?	?	?	Khodai Kanal .	
·255	·329	·360	·315	?	75	63	70	69	?	3·6	4·6	4·1	?	...	1	3	11	22	20	2	1	2	S. 37° E.	?	66	?	134	?	Kotagiri . .	
·566	·588	·572	·577	−·066	73	64	59	66	−6	5·5	1·0	3·2	−0·8	6	1	9	29	8	5	1	1	1	S. 85° E.	N. 84° E.	64	70	265	311	Aden . . .	Extra India.
·600	·680	·678	·652	?	73	70	67	70	?	1·5	0·9	1·2	?	...	...	7	4	48	1	...	...	2	S. 55° E.	?	81	?	638	?	Perim . . .	
·763	·844	·849	·819	?	78	74	74	75	?	4·2	4·6	4·4	?	16	34	9	1	...	...	...	2	...	N. 39° E.	?	84	?	213	?	Minicoy . .	
·821	·861	·821	·834	...	84	19	70	78	?	6·1	3·2	4·7	?	...	24	31	...	3	1	2	...	1	N. 27° E.	N. 27° E.	76	60	?	205	Zanzibar . .	

GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE.—No. 8 METEO.—21-6-93.—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.

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.

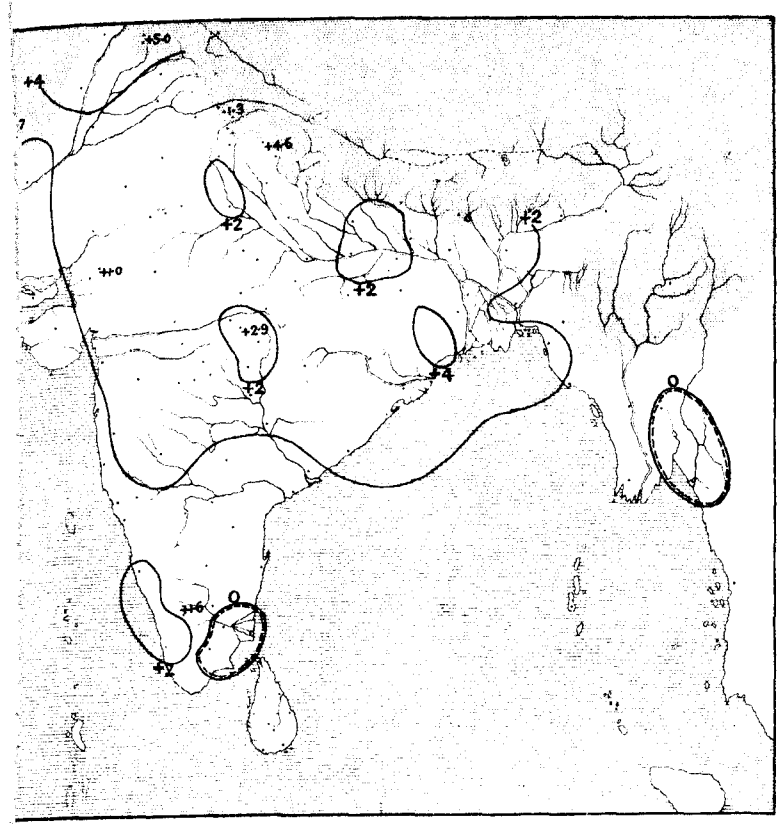
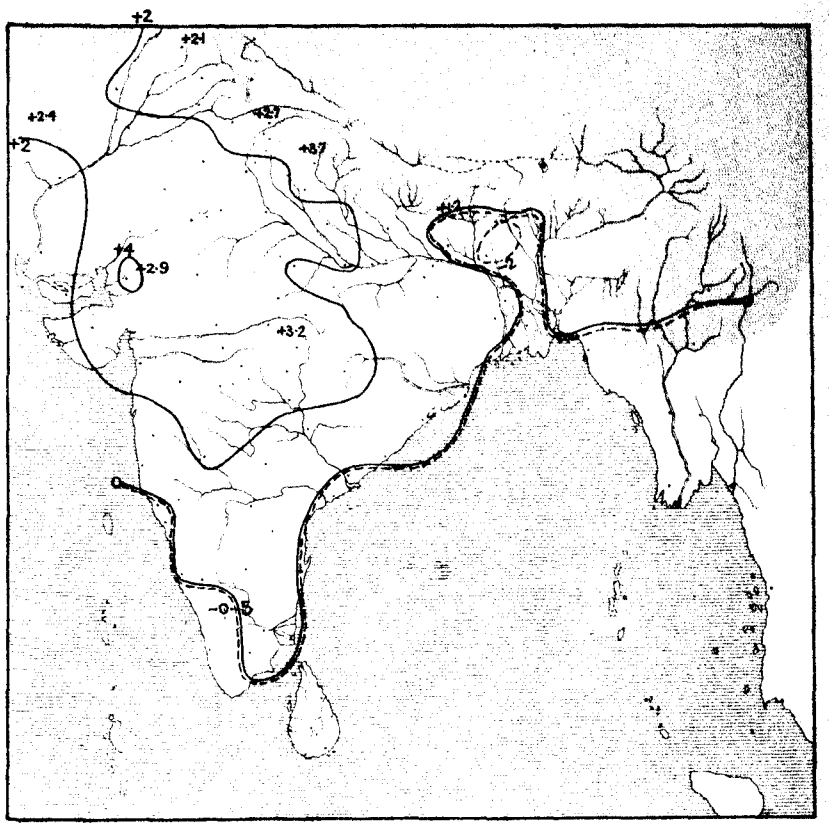


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

ontinuous lines indicate that the mean maximum of month was in xcess by amounts indicated by the attached numbers. Broken or dotted ıes that it was in defect by the amounts indicated by the attached ımbers. Double lines are the lines of no variation, the broken line facing c 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.

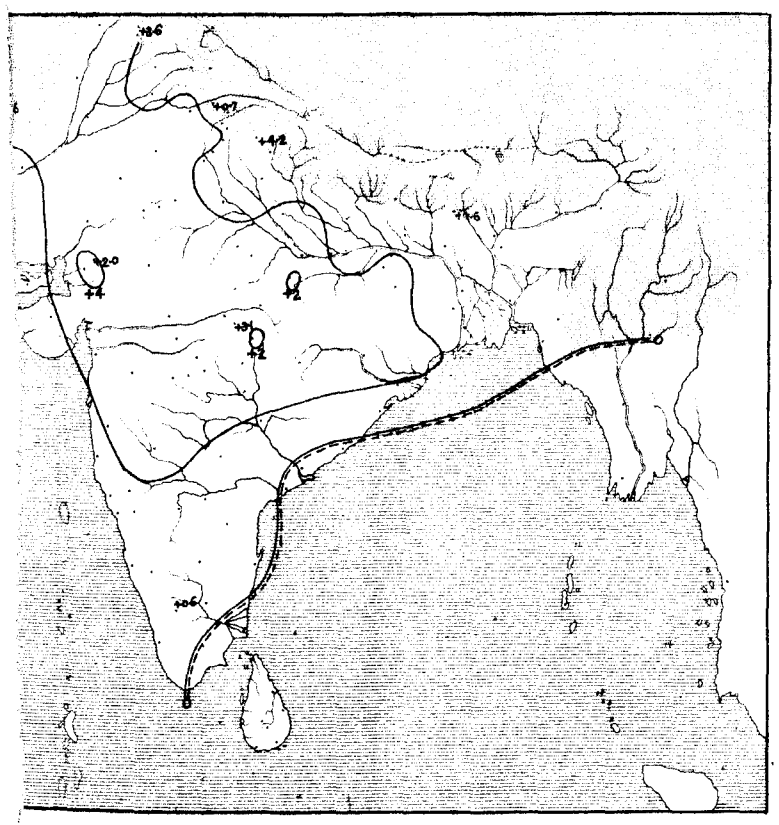
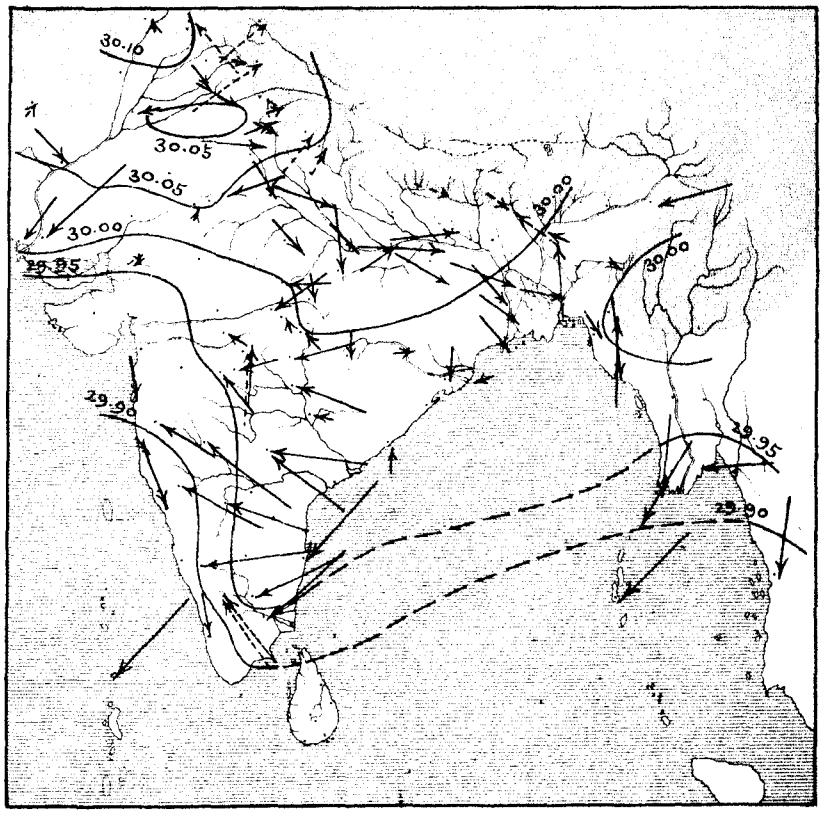


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JANUARY 1892.



Explanation.

inuous lines indicate that the mean daily temperature of month in excess by amounts indicated by the attached numbers. Broken otted lines that it was in defect by the amounts indicated by the l numbers. Double lines are the lines of no variation, the broken cing 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.

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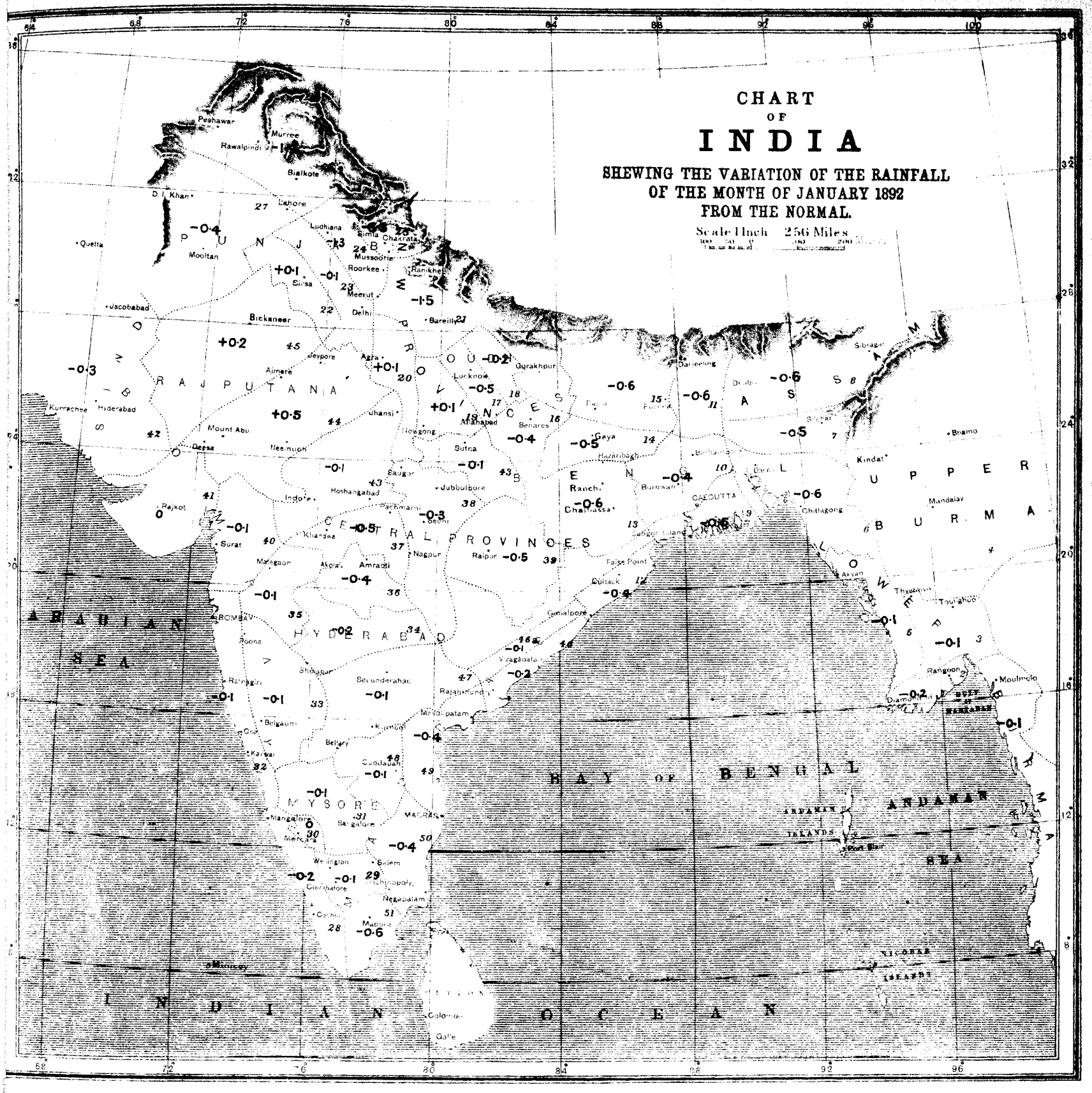
Litho., S. I. O., Calcutta.



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)

GOVERNM ENT OF INDIA,

METEOROLOGICAL DEPARTMENT.

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INTRODUCTION.

THIS review of the weather in India during the month of February 1892 is based on observations taken at 8 A.M. daily at 173 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 93 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and of the rainfall telegrams received during the month from District Officers throughout India and the rainfall statements of the month published by the Provincial Governments. 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 February 1892.

February is usually the last month of the cold weather season proper in Northern India. Temperature increases rather rapidly, more especially in the latter half of the month, and pressure usually begins to decrease in Northern India. Hence the gradients favouring the prevalence of north-east winds in the Bay of Bengal and Arabian Sea diminish during the month and winds decrease slightly in strength. The general character of the air motion in the interior of India in February is similar to that prevailing in January. An important change usually begins at the Head of 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 in the air motion of the hot weather months. The setting in of these winds

usually accompanies the appearance of a very shallow depression in West Bengal, Chota Nagpur, or the eastern districts of the Central Provinces. It is at first very slight, but gradually develops and becomes one of the more important and conspicuous features of the pressure distribution of the hot-weather months.

The chief disturbances of the month of February, as of January, are depressions which appear in North-Western India and advance eastwards across Northern India. Their number and intensity differ very greatly from year to year, and the rainfall of the month, which is chiefly due to these storms, hence differs very largely from one year to another in amount and distribution.

The setting in of southerly winds on the Bengal coast is followed by occasional series of thunder-storms in Bengal and Assam, but it is very rarely that they are of importance in February.

The meteorology of India in February 1892 was characterized by strongly marked abnormal features, and contrasts strikingly with that of February 1891. That month was marked by frequent rain in Northern India, low temperature, greater humidity and cloud than usual and frequent cold weather storms in Northern India. In February 1892, temperature was excessive, the air much drier than usual, and the rainfall below the normal over the greater part of Northern India.

Fine clear weather obtained at the commencement of the month. Temperature was largely above the normal of the period, more especially in Rajputana, Sind and Central India, where it averaged 7½° in excess on the 1st. Pressure decreased for some days in Northern India. A slight disturbance appeared on the 8th in Central India and the northern districts of the Central Provinces which gave light thundershowers in these districts. East and North Bengal and Assam received light to moderate showers during the next 24 hours. This disturbance passed away on the 10th, when a second disturbance appeared in Sind and West Rajputana. The preceding disturbance exercised little influence on the temperature which was from 3° to 9° above the normal on the 10th in Northern and Central India. The second disturbance drifted very slowly eastwards across the head of the Peninsula and gave light to moderate showers, chiefly in the eastern or advancing quadrant of the depression. It was in Rajputana on the 11th and 12th, Bundelkhund on the 13th, the south-eastern districts of the North-Western Provinces on the 14th, and apparently filled up on the 15th in Bihar. Central India, the North-Western Provinces, Bihar, and Chota Nagpur received moderate showers during this period from the 11th to the 15th. This disturbance reduced temperature considerably except in Upper India, and temperature on the 16th was from 2° to 7° below the normal over the area of moderate rainfall defined above. The third depression or disturbance of the month formed in Sind on the 16th and 17th, and advanced as a very feeble and almost rainless disturbance across Northern India on the 18th, 19th and 20th. The Punjab received some light showers on the 17th and 18th. A depression similar in character appeared in Sind and Rajputana on the 25th. It filled up on the 26th after giving some light showers to the Punjab.

Temperature increased steadily from the 16th to the 20th, when it was considerably above the normal. The following gives data for the area of greatest excess of temperature on the 20th:—

Province.	Variation from normal of		
	Maximum temperature of 24 hours preceding 8 A.M. of 22nd.	Minimum temperature of 24 hours preceding 8 A.M. of 22nd.	Mean temperature of 24 hours preceding 8 A.M. of 22nd.
	°	°	°
North-Western Provinces	+4·8	+5·7	+5·3
Central India and Guzerat	+4·6	+5·5	+5·1
Central Provinces and Berar	+3·9	+6·2	+5·1

The increased temperature was hence as strongly marked in the night as in the day temperature.

The chief feature of the last week of the month was a low pressure area in North Bengal. It was strongly exhibited on the 23rd and 24th, disappeared on the 25th, reappeared on the 27th and filled up again on the 29th.

Little or no rain fell in any part of Northern India during this period. Temperature began to fall steadily on the 21st, and was generally below the normal on the 24th. The decrease of temperature continued until the end of the month.

The following gives temperature variation data of this cool period for Northern and Central India:—

District or Hill Station.	Variation from the normal of the mean temperature of the 24 hours preceding 8 A.M. of the								
	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.
	°	°	°	°	°	°	°	°	°
Punjab	+2·3	+2·3	−1·1	−2·3	−0·9	−7·0	−8·1	−6·5	−2·8
North-Western Provinces and Oudh	+3·1	+1·9	+0·9	−1·8	−4·7	−2·8	−2·9	−6·9	−5·8
Bengal and Assam	+3·4	+3·3	+2·8	+2·2	−2·3	−3·4	−0·1	−1·3	−4·6
Rajputana and Sind	+3·5	+4·0	+0·5	−3·2	−2·2	−2·1	−6·7	−7·6	−5·3
Central India and Guzerat	+2·5	+0·9	−0·4	−3·4	−5·7	−2·9	−4·6	−8·5	−7·2
Central Provinces and Berar	+4·2	+1·9	+0·9	−2·7	−4·2	−2·7	−2·2	−5·1	−7·2
Quetta	−1·4	−3·6	−5·5	−7·2	−10·0	−12·9	−10·1	−3·4	+6·6
Murree	+2·6	−0·4	−2·3	−4·4	−8·8	−9·0	−7·9	−0·8	+2·4
Darjeeling	+0·2	+1·1	+3·3	+0·1	+0·5	+0·9	+0·6	−1·0	−2·5

The preceding data show that this cool period was due to a succession of two cool waves. The first wave produced its largest effect in Rajputana and the Punjab on the 24th, and the effect was transmitted eastwards in 48

hours to Bengal where the greatest reduction of temperature due to this wave was on the 26th. The second cool wave commenced in the Punjab on the 26th, and produced its maximum cooling effect in the Punjab on the 27th, in the North-Western Provinces, Rajputana and Central India on the 28th, and in Bengal and the Central Provinces on the 29th. These two cool waves during the last week of the month formed, on the whole, the most striking feature of the meteorology of the month.

The mean pressure of the month was considerably (—·060″) below the normal. Pressure was locally in defect in Northern and Central India, the deficiency being greatest in Sind and Assam. It was in local excess in the Peninsula, more especially in the West Deccan and Khandeish where the local excess averaged ·025″. The most noteworthy feature in the pressure was the large excess at the hill stations relative to the plains below. This excess was most strongly marked at Leh and Quetta, thus indicating that this feature was probably in large part due to abnormal conditions in the elevated plateaux of Central Asia. If this excess be measured by the difference between the variation of pressure from the normal at the hill stations and the nearest plain stations, the following data show the amount of this excess from November 1891 to February 1892:—

Station.	Excess of pressure at hill station, compared with neighbouring plain station in			
	November 1891.	December 1891.	January 1892.	February 1892.
	″	″	″	″
Leh	+·113	+·045	+·066	+·086
Quetta	+·056	+·048	+·046	+·093
Murree	+·056	+·030	+·017	+·045
Ranikhet	+·020	+·013	+·034	+·053
Darjeeling	+·016	+·013	+·029	+·053
Mount Abu	+·021	+·019	+·043	+·025

The mean maximum or day temperature was above the normal over the whole of India with the exception of the Madras coast districts. The excess increased northwards, and was greatest in West Rajputana, Sind, West Punjab, and Baluchistan in which it slightly exceeded 4°. The mean minimum or night temperature was in excess over the whole of India, and generally in defect in the Peninsula. The excess was greatest in Rajputana and the South-West Punjab, where it ranged from 4·1° at Deesa to 5·2° at Mooltan. The variations of the day and night temperatures were hence the same in character throughout India. The mean temperature of the month was considerably in excess in Northern and Central India, the excess being greatest in North-Western India, where it was from 3° to 3½° above the normal. It was in moderate excess in the Peninsula. The following table gives temperature variation data of the eleven meteorological divisions of India:—

Meteorological Division.	Variation of			
	Mean maximum from normal.	Mean minimum from normal.	Mean daily from normal.	Mean daily range from normal.
	°	°	°	°
Burma Coast	+1·0	+0·4	+0·6	+0·6
Burma Inland	+0·8	0	+0·4	+0·8
Assam	+1·8	+2·7	+2·3	—0·9
Bengal and Orissa	+2·5	+3·0	+2·8	—0·5
Gangetic Plain	+2·0	+2·8	+2·4	—0·8
Upper Sub-Himalayas	+1·8	+2·2	+2·0	—0·4
Indus Valley and North-West Rajputana	+3·7	+3·3	+3·5	+0·4
East Rajputana and Central India	+2·7	+3·5	+3·1	—0·8
Deccan	+1·0	+1·8	+1·4	—0·8
West Coast	+1·5	+1·1	+1·3	+0·4
Southern India	+0·6	+1·4	+1·0	—0·8

The mean air movement over the whole of India in February 1892 differed little from the normal of the month. Winds were slightly steadier in the Gangetic Plain. Southerly winds set in earlier than usual in South Bengal, and the winds in Bengal were hence very much steadier and stronger than usual.

The variations in the hygrometric conditions from the normal were less noteworthy than in January. The air was remarkably dry in the western districts of Bengal. Thus the mean humidity of the month was 12 in defect at Calcutta and 10 at Berhampore. There was generally more vapour in the air in the Gangetic Plain, Rajputana and Central India, but, in consequence of increased temperature, the humidity variations were small, except at Nowgong (11 in excess), Kurrachee (7 in excess) and Ajmere (5 in excess). The air was much drier in Berar and the western and eastern districts of the Central Provinces. The variations were small in the Peninsula. In Madras the humidity was generally above the average, and in the Bombay coast districts was below it.

The mean cloud amount of the month was considerably in excess in East Bengal and Assam. It was in slight excess in the Upper Sub-Himalayas, but was in moderate defect in the Gangetic Plain and West Bengal. It was in general defect over the whole of the Peninsula except the Madras coast districts, but the variations were generally small. Skies were most free from cloud during the month in the Konkan (average amount 0·3) and the Bombay Deccan (average amount 0·8). There was less cloud than usual at Quetta but more at the Himalayan stations. The excess was greatest at Kailang (+1·2) and Leh (+0·8).

The following table gives the variations of the mean aqueous vapour pressure, mean humidity and mean cloud

amount from the normal in ten meteorological provinces of India in February 1892:—

Province.	Variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Amount of cloud from normal.
	"	%	
Burma Coast and Bay Islands	—·006	—1	—0·3
Assam	+·044	0	+1·0
Bengal and Orissa	+·001	—6	+0·4
Gangetic Plain and Chota Nagpur	+·041	+1	—0·4
Upper Sub-Himalayas	—·009	—2	+0·3
Indus Valley and North-West Rajputana.	+·015	—3	0
East Rajputana, Central India and Guzerat.	+·058	+4	—0·3
Deccan	+·007	0	—0·5
West Coast	+·010	—2	—0·5
Southern India	+·034	+2	+2·2

The normal rainfall of the month is small except in the North and East Punjab, the submontane districts of the North-Western Provinces and South and East Bengal in each of which areas it slightly exceeds one inch. The rainfall of February 1892 over the whole of India differed little from the average. It was somewhat irregularly distributed, due to the abnormal character of the depressions of the month. They advanced by more southerly tracks than usual, and did not give rise to secondary depressions in Upper India, and hence the rainfall occurred chiefly in Central India, the northern districts of the Central Provinces, the North-Western Provinces, Bihar, Chota Nagpur and Assam. These provinces hence obtained somewhat larger amounts than usual. On the other hand, the rainfall was below the normal in the Punjab, the deficiency increasing in amount northwards and was greatest relatively to the normal in the North Punjab. The rainfall was small in other districts, and averaged less than a tenth of an inch over nearly two-thirds of India, including the greater part of Burma, Bombay, Berar, Hyderabad, North and Central Madras, Rajputana and Sind.

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

Meteorological Province.	Rainfall in Inches.		
	Actual rainfall of month.	Normal rainfall of month.	Variation from normal.
	"	"	"
Burma Coast	0·73	0·46	+0·32
Burma Inland	0·10	0·11	—0·01
Assam	2·62	1·32	+1·30
Bengal and Orissa	0·47	0·95	—0·50
Gangetic Plain and Chota Nagpur	0·95	0·44	+0·54
Upper Sub-Himalayas	1·16	1·08	+0·08
Indus Valley and North-West Rajputana.	0·12	0·39	—0·26
East Rajputana, Central India and Guzerat.	0·13	0·17	—0·01
Deccan	0·38	0·14	+0·32
West Coast	0·22	0·12	—0·05
Southern India	0·34	0·22	+0·08

The snowfall reports of the month indicate that the snowfall in the Western Himalayas was very light and much below the average. Very heavy snow was received on the 15th and 16th over the greater part of the Eastern Himalayas, but the snowfall of the month in that area was probably below the average to a slight extent.

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for February 1892 is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean pressure of the month reduced to sea-level and to constant gravity (that of latitude 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 variations of the actual mean pressure from the normal pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart, No. 4 of Plate III, gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts published hitherto in the annual reports on the meteorology of India. The data on which this chart is based are given in Table II. It should be noted that the pressure data in that table are not only reduced to sea-level, but also to constant gravity (that of latitude 45°).

The more important barometric changes and movements during the month are fully described in the statement of the barometric depressions of the month. The data that are chiefly used in this discussion are the 8 A.M. reduced observations and the variations derived from a comparison of these observations and the normal daily values, the monthly means of which are utilized in Table I. The means in the third column of that table are not only reduced or corrected to sea-level, but also to constant gravity. The normal means are obtained from the observations of the period 1878-88, and in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The mean pressure of the whole of India was very largely below the normal. The deficiency averaged ·060.″ The mean pressure distribution of the month hence agreed rather with that of March than of February.

Pressure was in local defect over the whole of Northern India (with the exception of the North Punjab) and Burma.

The negative anomalies were small except in two areas for which data are given in the following table :—

DISTRICT.	STATION.	Variation of mean pressure of month from the normal of month.	Pressure anomaly of month.
Sind . . .	Hyderabad . .	—·087″	—·027″
	Jacobabad . .	—·084″	—·024″
	Sibsagar . .	—·085″	—·025″
North Bengal and Assam.	Dhubri . . .	—·084″	—·024″
	Purnea . . .	—·078″	—·018″

Pressure was locally in excess in the Peninsula. The excess was greatest, or the positive anomalies were largest, in Khandeish and the West Deccan. The following gives data for stations in that area :—

STATION.	Variation of mean pressure of month from the normal.	Pressure anomaly (positive) of month.
Khandwa	—·039″	+ ·021″
Malegaon	—·031″	+ ·029″
Poona	—·032″	+ ·028″
Sholapur	—·037″	+ ·023″
Bellary	—·034″	+ ·026″

The most remarkable feature of the month was the great excess of pressure at the hill stations as compared with the plain stations. This feature was even more prominent in February than it had been in the preceding three months.

The following data illustrate this feature :—

HILL STATION.	Variation of mean pressure of month from the normal. (a)	NEIGHBOURING PLAIN STATION.	Variation of mean pressure of month from the normal. (b)	Excess at hill station as compared with plain station. (a—b)
Leh . . .	+ ·021″	Lahore . .	—·065″	+ ·086″
Murree . .	+ ·001″	Rawal Pindi .	—·044″	+ ·045″
Ranikhet . .	—·019″	Bareilly . .	—·072″	+ ·053″
Darjeeling . .	—·031″	Dhubri . .	—·084″	+ ·053″
Quetta . .	+ ·009″	Jacobabad .	—·084″	+ ·093″
Mount Abu . .	—·027″	Deesa . .	—·052″	+ ·025″
Pachmarhi . .	—·019″	Hoshangabad .	—·056″	+ ·037″
Wellington . .	—·007″	Coimbatore .	—·061″	+ ·054″

These figures establish that there was a general excess of pressure at the higher hill stations in India, and that this excess of pressure was greatest at Quetta and Leh.

The pressure distribution of February 1892 was hence marked by several features of considerable importance They were—

1st.—Large deficiency of pressure over the whole Indian area.

2nd.—Local deficiency of pressure in Northern India, greatest in Sind and in Assam. The deficiency in Sind was apparently due to excessive temperature conditions. That in Assam most probably accompanied, and was due to, abnormal conditions in the Eastern Himalayas.

3rd.—Local excess of pressure in the Peninsula, greatest in the West Deccan and Khandeish.

4th.—A remarkable excess of pressure at the higher hill stations in India, greatest at Leh and Quetta, and hence indicating that it was probably due to abnormal actions and conditions in the great plateaux of Central Asia. This has been a permanent feature of the distribution of pressure since November 1891, but was more marked in February than in the preceding months.

Barometric depressions and cyclonic storms of the month.

At the commencement of the month pressure was very uniform over North-Western and Central India. Moderately steep gradients obtained in the west of the Peninsula and the Bay of Bengal. Pressure changed somewhat irregularly during the next four days, the tendency being towards greater uniformity of pressure. The range of pressure, which was ·2″ on the 1st, was barely ·1″ on the morning of the 5th.

Temperature was at this time largely in excess over nearly the whole of India. The excess was greatest in Rajputana and Central India, and on the 6th the mean temperature was from 10° to 14° above the normal in that area. The weather became slightly unsettled during the 7th, and numerous light thunder-showers were received in Central India, the northern and western districts of the Central Provinces and the central districts of the North-Western Provinces. During the next 24 hours, Bengal and Orissa obtained light to moderate thunder-showers. Skies cleared on the 10th. Pressure was on that day, as it had been for some days previously, very uniform over nearly the whole of India. A period of disturbed weather now followed from the 10th to the 18th.

Depression of the 10th to the 15th February.—This depression apparently formed on the 10th in Sind and West Rajputana as weather had been fine with light winds for some days previously in the Persian Gulf and north of the Arabian Sea. Pressure increased in North-Western India on the 7th and 8th, and began to decrease on the 9th, and a very shallow depression covered Sind and a portion of West Rajputana on the 10th. The barometer continued to fall and the depression intensified slightly. The following observations define its position and character at 8 A.M. of the 11th:—

Station.	Barometer.			Wind.			Variation of mean temperature of previous 24 hours from normal.
	8 A.M. Reduced to sea-level and Lat. 45°.	Change in past 24hours.	Variation from normal.	8 A.M. Direction.	Velocity in miles per hour.	Percentage ratio to actual of normal.	
	"	"	"				°
Kurrachee	29·866	—·058	—·164	NE	9	82	+2·8
Hyderabad (Sind)	·843	—·059	—·200	NW	6	86	+6·3
Deesa	·856	—·041	—·153	NE	4	44	+4·2
Bickaneer	·865	—·061	—·192	NE	6	150	+4·2
Jacobabad	·883	—·051	—·176	Calm	3	100	+6·9
Quetta	?	—·054	—·058	Calm	0	0	+6·7

Showers had fallen in Central India and the northern districts of the Central Provinces during the preceding 24 hours. Pressure increased over the whole of India during the day, and the shallow depression occupied nearly the same position as on the 11th. The following data indicate its position on the morning of the 12th:—

Station.	Barometer.			Wind.			Variation of mean temperature of previous 24 hours from normal.
	8 A.M. Reduced to sea-level and Lat. 45°.	Change in past 24hours.	Variation from normal.	8 A.M. Direction.	Velocity in miles per hour.	Percentage ratio of actual to normal.	
	"	"	"				°
Deesa	29·903	+·047	—·095	ENE	8	89	+ 4·6
Bickaneer	·830	—·035	—·269	SE	4	100	+ 6·4
Jacobabad	·909	+·026	—·143	NNW	9	300	+12·2
Hyderabad	·854	+·011	—·182	NW	5	71	+ 6·1
Quetta	?	+·020	—·030	Calm	0	0	+ 9·9

Winds were light, and the cyclonic circulation feeble and imperfectly developed. Local showers had fallen during the previous 24 hours in the northern districts of the Central Provinces, the North-Western Provinces and North Punjab. Pressure increased rapidly in Sind, and fell in Northern India, more especially in the Punjab during the 24 hours. The shallow depression was transferred on the morning of the 13th to the eastern districts of Rajputana and the adjacent districts of the North-Western Provinces. The following table gives data:—

Station.	Barometer.			Wind.			Variation of mean temperature of previous 24 hours from normal.
	8 A.M. Reduced to sea-level and Lat. 45°.	Change in past 24hours.	Variation from normal.	8 A.M. Direction.	Velocity in miles per hour.	Percentage ratio of actual to normal.	
	"	"	"				°
Jhansi	29·884	—·010	—·091	WSW	3	100	+8·4
Agra	·898	—·034	—·103	SE	6	150	+7·9
Delhi	·966	0	—·024	ENE	5	125	+4·2
Jeypore	·909	+·015	—·110	SW	2	50	+6·5

The brisk fall of pressure in the Punjab indicated a slight tendency to the formation of a secondary depression in the Punjab. It however never passed beyond the initial stage. Rain had fallen during the previous 24 hours over the greater part of the Punjab, North-Western Provinces and West Bihar. The rainfall was heaviest in the eastern districts of the North-Western Provinces. Hence, during the whole of this period, no rain had fallen in the central depression. Rain was received only in the districts to the east and north of the central depression, and was diffused in character.

The barometric changes of the next 24 hours were very irregular in character. The barometer fell rapidly in the eastern districts of the North-Western Provinces to which the depression was now transferred, and also in North Bengal where a distinct and independent depression was forming. The following data give the position of the depression in the North-Western Provinces on the morning of the 14th:—

Station.	Barometer.			Wind.			Variation of mean temperature of previous 24 hours from normal.
	Reduced to sea-level and Lat. 45°.	Change in past 24hours.	Variation from normal.	Direction.	Velocity in miles per hour.	Percentage ratio of actual to normal.	
		"	"				°
Sutna	29·836	—·101	—·154	S	4	80	+3·7
Lucknow	·850	—·110	—·132	ENE	5	167	+4·6
Cawnpore	·836	—·103	?	E	5	?	?
Agra	·889	—·009	—·114	NW	6	150	+5·1
Nowgong	·846	—·076	—·154	NW	1	50	+4·9

Fairly general light to moderate rain had been received in the North-Western Provinces, Bihar and the northern districts of the Central Provinces during the previous day

A brisk to rapid increase of pressure occurred during the day in North Eastern India, and the two depressions in the eastern districts of the North-Western Provinces and North Bengal partially filled up. Light showers were received during the day in Bengal, Bihar and the North-Western Provinces. There were very faint indications in the observations of the passage of a very shallow depression

through Bengal on the 16th, and Burma on the 17th. This was probably the feeble continuation of the depression described above. Bengal received some showers on the 15th, after which the skies cleared in North-Eastern India. The observations of the 15th also showed that a shallow depression was entering Sind from Beluchistan or forming in Sind.

Depression of the 16th to the 19th February.—The Bushire observations establish that a depression passed to the north of that station on the 15th and 16th. The following gives data:—

Date.	Barometer. 8 A.M. Reduced to sea-level and Lat. 45.°	Barometer. Change during previous 24 hours.	Wind. Direction, 8 A.M.	Wind. Average velocity in miles per hour of previous 24 hours.	Humidity, 8 A.M.	Rainfall of 24 hours preceding 8 A.M. of date.
	"	"			%	"
14th	29·990	−·085	S	4	73	*Nil*
15th	·788	−·211	SE	3	62	"
16th	·838	+·050	NE	6	74	"
17th	·987	+·149	N	7	82	"

The logs of ships in the Persian Gulf and the north of the Arabian Sea indicate that weather was fine with light to moderate winds throughout this period.

At the same time that the barometer was falling rapidly at Bushire on the 14th it was falling briskly in Sind and a shallow depression covered Sind. The following gives data of the 15th for stations in that area:—

Station.	Barometer. 8 A.M. Reduced to sea-level and Lat. 45.°	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Velocity in miles per hour.	Wind. Percentage ratio of actual to normal.	Variation of mean temperature of previous 24 hours from normal.
	"	"	"				°
Kurrachee	29·878	−·061	−·137	W	10	91	+4·5
Hyderabad	·847	−·053	−·169	SW	7	100	+5·5
Jacobabad	·841	−·051	−·190	ESE	3	100	+1·5
Quetta	?	−·018	−·044	Calm	2	50	+2·6

Pressure increased over the whole Indian area during the day. The depression in Sind occupied the same position on the 16th as on the 15th. The following gives data for stations in the central depression:—

Station.	Barometer. 8 A.M. Reduced to sea-level and Lat. 45.°	Barometer. Change in past 24 hour.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Velocity in miles per hour.	Wind. Percentage ratio of actual to normal.	Variation of mean temperature of previous 24 hours from normal.
	"	"	"				°
Kurrachee	29·936	+·058	−·079	NE	11	100	+2·6
Hyderabad	·904	+·057	−·106	SW	5	71	+7·6
Jacobabad	·916	+·075	−·103	ENE	5	167	+5·6
Quetta	?	−·012	−·052	Calm	1	25	+12·4

The depression was hence very shallow, and the air movement feeble and somewhat irregular. The pressure changes of the next 24 hours were small in amount, and the depression was practically unchanged in position on the 17th. The following gives data:—

Station.	Barometer. 8 A.M. Reduced to sea-level and Lat. 45.°	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. 8 A.M. Direction.	Wind. Velocity in miles per hour.	Wind. Percentage ratio of actual to normal.	Variation of mean temperature of previous 24 hours from normal.
	"	"	"				°
Hyderabad	29·935	+·031	−·080	SW	7	100	+5·3
Deesa	·970	−·014	−·023	SSW	7	78	+3·3
Bickaneer	·923	−·034	−·048	SE	6	150	+2·9
Mooltan	30·012	−·010	−·018	Calm	2	100	+7·5
Jacobabad	29·957	+·041	−·062	Calm	3	100	+6·4
Quetta	?	+·052	−·002	Calm	4	100	+7·7

The despression was transferred to Central and West Rajputana on the morning of the 18th but was shallow and of less importance than on the 17th.

Light showers had fallen in the Punjab during the previous 24 hours. The air motion in the depression was even more irregular and feeble than on the preceding day.

A general fall of pressure occurred over the Indian area during the day. The fall was greatest in the eastern districts of Central India and the North-Western Provinces, to which the shallow depression was now transferred. It was on the morning of the 18th a feeble diffused disturbance in which there was no definite area of minimum pressure or of feeble cyclonic circulation. Some light showers had fallen in the Punjab during the previous 24 hours.

The disturbance was transferred eastwards during the next 24 hours into Bihar and West Bengal, but was even feebler and more diffused than on the 19th. Pressure continued to give way over the whole Indian area, but weather was fine, and skies clear or lightly clouded over the whole of Northern India.

Pressure continued to give way over the whole of India on the 20th, the fall being greatest in East Bengal, and the shallow depression and disturbance was in that area on the morning of the 21st. The depression either passed eastwards into Upper Burma or filled up on the 22nd after giving some light showers in Assam.

The chief feature of the pressure distribution at this time was the great deficiency of pressure over the whole Indian area. It ranged from ·09″ in Tenasserim and Konkan to ·15″ in Sind and ·25″ in North Bengal on the 22nd. Temperature was on the same day in moderate excess, averaging 3° in Northern India and ranging from 2° in the North-Western Provinces to 4° in Rajputana.

A shallow depression covered North Bengal on the 23rd. A few showers fell in the Punjab on that day. The

North Bengal depression remained unchanged in position and character during the next two days, and filled up on the 25th. It gave no rain to Bengal, and was hence of little importance. While this depression was filling up, a shallow depression formed in the North Punjab on the 25th. It filled up rapidly on the 26th after giving light local showers of little importance in that area, and a general large rise of pressure in North-Western India established anticyclonic conditions for a brief period lasting until the end of the month. A shallow depression lay over North Bengal on the 27th and 28th, and filled up on the 29th. So far as can be inferred from the observations taken at Darjeeling, Kalimpong and Gnatong it was not associated with stormy snowy weather in the higher Sikkim Himalayas.

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

The following brief summary is drawn up from the extracts taken from the logs of vessels entering the ports of Bombay and Calcutta.

Bay of Bengal.—Weather was fine with light to moderate north-east winds over the Bay to the north of Lat. 12°N. throughout the whole month. Squalls were of occasional occurrence in the south of the Bay between Ceylon and the Nicobars. They were most frequent from the 11th to the 15th, *i.e.*, during the chief period of disturbance in Northern India. Thus the ship *Hereford* in Lat. 2° N. and Long. 85°18′E. on the 11th had light westerly winds and squalls with rain, and on the 12th in Lat. 3°N. and Long. 84°48′E. she had light north-east winds and heavy rain squalls. Similar winds and weather were experienced on these two days by the ships *Hebe*, *Cordelia* and *Erin's Isle* and the S.S. *Clitus*. These vessels, it may be noted, had light and variable winds near the equator, and until they advanced as far north as Lat. 4°N., where they passed rapidly into the north-east monsoon region. Winds ranged in force from 1 to 2 in the north of the Bay to 4 to 6 in the south of the Bay. On the 14th, for example, the ship *Frank Pendleton* had ENE. winds, force 6, in Lat. 12° N. and Long. 87°E., the *Barque Minden* north-east winds, force 5, in Lat. 10° N. and Long. 88°E. on the 14th, and the ship *Erin's Isle* variable winds, force 6, in Lat. 4°N. and Long. 92°E.

The S.S. *Khandalla* had squally, rainy weather on the 17th in Lat. 6° N. and Long. 81°30′ E. The S.S. *Loodiana* in Lat. 6½° N. and Long. 81°48′ E. at noon of the 20th had occasional squalls with rain and the S.S. *Purnea* in Lat. 7°43′ N. and Long. 90° E. on the 21st had squally E. by N. winds, force 5.

Arabian Sea.—Fine clear weather with moderate north-east winds obtained throughout the month over nearly the whole of Arabian Sea. Weather was occasionally squally with rain in the extreme south, off the West Ceylon Coast and probably in the equatorial belt from Latitude 0° to 6° or 8° N.

Weather was unsettled in the Persian Gulf during the first week of the month, and also on the 20th and 21st. The S.S. *King Arthur* had strong west-north-west winds, force 6, on the 2nd when approaching Bushire. The S.S. *King Arthur* and *Arabia* had north-west winds, force 5 to 7, with a high sea on the 3rd, and on the 5th the *Assyria* experienced a strong north-east gale in the morning when approaching Bunder Abbas. The S.S. *Java*, which left Busreh at 6-20 A.M. of the 7th for Bushire had dull cloudy weather with ESE. winds, force 5, and constant rain, and the S.S. *Arabia*, which arrived at that port at noon, experienced similar weather.

The S.S. *King Arthur* had north-west winds, force 4 to 6 on the 20th in Lat. 27° N. and Long. 52° E. and the S.S. *Arabia* had westerly winds, force 2 to 6, on the morning of the 21st in Lat. 25° N. and Long. 61° 30′ E.

Summary of the Reports of the Weather and Snowfall in the mountain districts to the north and north-west of India.

The snowfall reports of the present winter up to the end of February 1892 show that over the Western Himalayas and the Afghan mountains the snowfall was abnormally small in amount. The snowfall of the present winter to date is almost certainly one of the smallest on record, and the temperature and pressure conditions in Northern India are such as are usually associated with very deficient snowfall in the Western Himalayas.

I.—THE AFGHAN HIGHLANDS.

(*a*) *Hills west of Dera Ismail Khan.*—The Deputy Commissioner has forwarded the following statement of the snowfall on the Takht-i-Suleiman and the Zmarai range during the winter up to the end of February 1892 :—

Date.	Takht-i-Suleiman.		Zmarai Range.	
	Feet.	Inches.	Feet.	Inches.
12th December 1891 . . .	1	...	...	6
18th February 1892 . . .	1	6	1	...
24th ditto ,, . . .	...	9	...	6
29th ditto ,, . . .	1	6	1	3

The fall was very light as compared with the previous year.

The Assistant Commissioner, Tonk, has supplied the following details regarding the snowfall on the Waziri Hills. "The first fall of snow took place on the 30th December 1891, when a little fell on Pirghal which is over 11,000 feet. On the 9th there was a fair fall of snow in Razmak, but south of this none was observed. On 1st February 1892, a sprinkling of snow fell on the hills between the Kaisorghal Peak and Pirghal. On the 12th of the same month there was a slight snow-storm on the Shinsar Peak near Kashmir Kar, when about 6 inches of snow fell. The fall was heavier on Pirghal and the Takht-i-Suleiman range."

"On the 17th February there was a fair fall of snow on the higher Waziri Hills generally. The rainfall was very scanty during the cold-weather months; in fact almost *nil;* and the season was much milder than usual."

(*b*). *Hills west of Kohat.*—The Assistant Commissioner, Thull, writing on the 17th March, reports that there was a slight fall of snow on the 26th of February. The approximate depth of the snowfall was as follows:—

Spinghar or Sufed Koh	4 to 5 feet.
Dandoghar	2 inches.
Torghar	2 "

At the beginning of March the snow had melted from all the hills except Sufed Koh, where it was lying to a depth of 3 to 4 feet.

(*c*). *Hills west of Peshawar.*—The Deputy Commissioner, Peshawar, forwards the following statement from the Political Officer, Khyber, of the snowfall in these mountains: "On the 4th of February rain fell on the Khyber, but no snow came with it. About one foot of snow fell on the Lakka and Torsappar Hills on the 24th February. Between the 1st and the 24th snow fell on two occasions in Bara, Tirah and the Surghur Hills. It soon melted away in Bara and Tirah, but remained for some time on the Surghur Hills. The average fall was between 1 and 2 feet."

II.—THE HIMALAYAS.

The Kashmir and Punjab Himalayas.

(*a*) *Murree and adjacent hills.*—The following table gives the snowfall reported to have fallen at Murree and Kahuta:—

STATION.	Date of fall.	DEPTH OF SNOWFALL.	
		Feet.	Inch.
Murree . . .	6th February .	...	2
	15th " .	...	1
	25th " .	...	2
	Total .	...	5

No snow fell at Kahuta during the month.

(*b*) *Leh.*—The Superintendent of the observatory, writing on the 1st of February, states that he believes there has been a very heavy snowfall in the neighbouring mountains. No particulars had, however, been received at the date of his writing.

(*c*) *Kulu.*—The Assistant Commissioner, Kulu, has sent a full statement of the reported depth of snow in the higher peaks and passes in the Tahsils Kulu and Plach of the Kangra district.

The following table gives this information, together with similar information, for the previous three years:—

DISTRICT.	Name of pass.	Height above sea-level in feet.	REPORTED DEPTH OF SNOW ON 25TH FEBRUARY.			
			1892.	1891.	1890.	1889.
			ft. in.	ft. in.	ft. in.	ft. o
KULU .	Rotang .	13,000	6 0	19 0	15 0	18 0
	Hamta . .	14,500	6 0	16 0	9 0	14 0
	Chunderkhani	...	8 0	15 0	12 6	14 0
	Barsai . .	...	4 0	9 0	6 0	11 0
	Bujadhar .	...	1 6	13 0	...	...
	Lori Achhri .	...	5 0	10 0	4 0	10 0
	Pushtari .	...	4 0	8 0	9 0	7 0
	Buba . .	10,000	5 0	9 0	4 0	11 0
	Majang .	...	2 0	6 0	4 0	5 0
PLACH .	Chul . .	...	3 0	13 0	5 0	22 0
	Srikand .	15,000	9 0	35 0	...	55 0
	Maghian .	...	3 0	11 0	5 0	16 0
	Tikkar . .	...	3 0	11 0	...	...
	Dindku .	...	4 0	15 0	6 0	16 0
	Ramgarh .	...	...	1 0	...	...
	Nanun . .	...	2 0	7 0	4 0	11 0
	Jalori . .	10,500	3 0	10 0	4 0	16 0
	Raghopur .	...	3 0	11 0	6 0	16 0
	Himri . .	...	3 0	11 0	4 6	13 0
	Sakiran .	...	3 0	12 0	5 0	12 0
	Suphakun .	...	6 0	17 0	8 0	12 0
	Gargarasan .	17,000	7 0	21 0	8 0	18 0
	Bashleo .	11,000	4 0	12 0	6 0	17 0
	Plach . .	...	5 0	14 0	8 0	10 0
	Tirath . .	...	5 0	14 0	8 6	20 0

(*d*) *Lahaul.*—The Reverend A. W. Heyde, Superintendent of the observatory at Kailang, in a letter, dated 21st March, gives the following account of the weather during the past winter in Lahaul:—

"The winter, which is now going, has been an extremely mild and snowless one, only two feet of snow having been registered up to this date. The heaviest fall we had was on the 2nd and 3rd March when 12 inches fell; the remainder fell during February, whilst none fell during January. The snow which came down on the 2nd and 3rd March was mixed with a great deal of dust which gave it a strong yellowish tinge, so much so that the natives said "Red snow has fallen." Probably a dust-storm somewhere down in the plains sent this dust up into Lahaul. Since this fall the weather has been quite clear. Even so early we have nights above freezing point, and during the day temperature is unusually high. The hill sides up to 12,000 feet and more are quite free of snow and so dry that very moderate winds are able to raise dust. This is very abnormal for this time of the year. On the passes and high hills also little fresh snow lies. The man who brought my

letters this year over the Rotang Pass a few days ago says that no more than about 3 feet of snow is on the top of the pass, and on the slopes of both sides only patches here and there."

The Nepaul Himalayas.

The Assistant Resident, Katmandu, writes that an enquiry into the snowfall on the adjacent mountains appears to show that the snowfall (in January chiefly) was this winter greater than in the past few years. The chief passes from Thibet were stated by travellers coming from that district to be closed by snow, and they were obliged to make a considerable detour to the eastward in order to cross into Nepaul.

Summary of Storm Reports.

Local storms in the month of February usually occur during the periods of general disturbance described as cold-weather storms. They are generally of feeble intensity, but sometimes dust-storms, thunder-storms and hail-storms of considerable severity occur during these disturbed periods. The following gives a summary of the local storms reported by observers in the month of February 1892:—

7th.—Dust-storms at Akola (without rain), Chikalda, and Jubbulpore. Thunder-storm at Nagpur (5-30 to 8 P.M.). Hail-storm at Poona (6-10 to 6-24 P.M.) from west.

10th.—Violent dust-storm at Hoshangabad (6-3 to 6-25 P.M.). Thunder-storms at Akola (8 A.M.) and Sutna (9-30 to 11 P.M.). Hail-storm at Khandwa at 4-30 P.M. Hail-storm at Sibsagar. The wind shifted from south-west to north-east and blew with average velocity of 53 miles during the storm. The storm came up from the south. The rainfall during the storm from 6-30 P.M. to 7-20 P.M. was 1·69 inches.

11th.—Violent thunder-storm at Hazaribagh (1-30 to 2-30 P.M.). Thunder-storm at Sutna (4-45 to 5-40 P.M.).

12th.—Dust-storm at Hyderabad (Sind) (without rain).

13th.—Hail-storm at Sutna at 4-45 P.M.

16th.—Thunderstorm and hail-storm at Sibsagar from 5-40 to 6-25 P.M. Temperature fell from 66·6° at 5-40 P.M. to 49·0° at 6-15 P.M. The hail-storm was very severe, but was apparently confined to a small area round Sibsagar. The observer states it destroyed most of the silk caterpillars.

Temperature of the Air.

The distribution of temperature in India for February 1892, 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 data by means of which these charts have been prepared are given in Table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years *viz.*, 1878 to 1888. 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 variation of the mean daily temperature from the normal, as determined by the use of this definition, agrees in almost all cases very closely with the variation 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.

The meteorological conditions of the month of February 1892 were identical in general character with those of January, and hence the temperature variations of these two months were very similar. The mean maximum temperature was above the normal over the whole of India with the exception of a portion of the Madras coast districts, where it was normal. The excess was more than 2° over nearly

the whole of Bengal, and in the Punjab, Sind, Cutch, Rajputana and Central India. It exceeded 4° in the area defined by the following stations :—

DISTRICT.	STATION.	Mean actual maximum temperature of February 1892.	Mean normal maximum temperature of February.	Variation of actual from normal.
		°	°	°
Rajputana	Deesa	90·6	85·4	+5·2
	Sambhar	80·8	76·5	+4·3
Sind	Hyderabad	84·8	80·0	+4·8
	Jacobabad	81·5	77·2	+4·3
West Punjab	Mooltan	77·2	73·2	+4·0
	Dera Ismail Khan	76·7	71·9	+4·8
Baluchistan	Quetta	57·4	52·2	+5·2

The excessive day temperature was hence most marked in the north-west frontier districts and West Rajputana.

The mean minimum temperature was above the normal, except at Cochin (—1·3°) and Karwar (—0·4°) on the west coast of India. The excess was more than 2° over the whole of India to the north of a line joining Surat, Saugor and Chittagong. It was largest in three areas for which data are given below :—

DISTRICT.	STATION.	Mean actual minimum temperature of February 1892.	Mean normal minimum temperature of February	Variation of actual from normal.
		°	°	°
RAJPUTANA, CENTRAL INDIA AND WEST PUNJAB.	Deesa	58·8	54·4	+4·4
	Ajmere	53·9	48·0	+5·9
	Jeypore	55·1	49·9	+5·2
	Sirsa	50·2	45·8	+4·4
	Mooltan	51·1	45·8	+5·3
	Peshawar	45·8	41·4	+4·4
NORTH BENGAL	Mymensingh	57·4	52·0	+5·4
	Dinajpur	53·7	49·5	+4·2
CENTRAL GANGETIC PLAIN.	Patna	56·8	52·3	+4·5
	Allahabad	55·5	50·9	+4·6

The mean temperature of the month was in excess with only one or two exceptions. The excess was moderate in amount in the Peninsula and large in Northern India. It was more than 3° in amount over nearly the whole of North-Western India to the west of a line joining Surat and Allahabad, and was absolutely largest at the following stations :—

PROVINCE.	STATION.	Variation of mean temperature from the normal.
		°
RAJPUTANA	Deesa	+4·6
	Ajmere	+4·7
	Jeypore	+4·1
NORTH-WESTERN PROVINCES.	Jhansi	+3·9
	Lucknow	+3·9
	Allahabad	+3·7
WEST PUNJAB	Peshawar	+3·9
	Mooltan	+4·7
SIND	Jacobabad	+3·3
	Hyderabad	+3·6
BALUCHISTAN	Quetta	+3·4

One of the more important features of the month was high temperature in North-Western India.

Temperature was very largely above the normal at the commencement of the month. The following gives temperature variation data of the 1st :—

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

Temperature increased rapidly during the next four days in Northern and North-Western India, and was from 10° to 12° above the normal on the 5th in the West Punjab, Sind and West Rajputana. The following gives variation data for that day in different parts of India :—

PROVINCE.	VARIATION OF		
	Mean maximum from normal.	Mean minimum from normal.	Mean temperature from normal.
	°	°	°
Burma	−0·3	+ 1·0	+ 0·4
Bengal and Assam	+4·8	+ 4·1	+ 4·5
North-Western Provinces and Oudh.	+5·5	+ 6·7	+ 6·1
Punjab	+8·8	+ 9·9	+ 9·4
Rajputana and Sind	+9·9	+10·6	+10·3
Central India and Guzerat	+7·7	+ 5·9	+ 6·8
Central Provinces and Berar	+5·4	+ 3·8	+ 4·6
Bombay	+4·6	+ 2·5	+ 3·6
Madras	+4·6	− 0·7	+ 2·0

Light showers fell in Central India and the Central Provinces on the 7th, and in Bengal on the 8th, which caused a slight temporary reduction of temperature in these areas. The following gives the temperature variations of the 9th, when this slight reduction had almost disappeared :—

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

A period of slightly disturbed weather followed, during which light thunder-showers were received, chiefly in the Central Provinces, Central India, Bihar, Bengal, the North-Western Provinces and the Punjab. This lasted from the 11th until the 15th. The rainfall was heaviest in the Gangetic plain, Central India and the Central Provinces, but was nowhere large in amount. It nevertheless caused a very considerable reduction of temperature. The following gives the average temperature variations of the 16th at the close of this period:—

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

A shallow depression appeared in Upper India on the 15th. It gave light showers on the 17th and 18th in the Punjab, and filled up on the 18th. A slight depression, similar in character, gave some showers to the Punjab on the 21st. During this interval temperature increased rather rapidly, and was above the normal in all districts except some parts of Bombay and Madras on the 22nd. The following table gives temperature variations of that day;—

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

A remarkable fall of temperature commenced on the 24th, which was not due to rainfall in Northern India as fine clear weather obtained generally from the 23rd to the end of the month. The following variations of the mean temperature from the normal in Northern and Central India day by day from the 21st to the end of the month show the character and extent of this change:—

Province and Hill Station.	Variations of the mean temperature from normal.								
	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.
	°	°	°	°	°	°	°	°	°
Punjab	+2·3	+2·3	−1·1	−2·3	−0·9	−7·0	−8·1	−6·5	−2·8
Rajputana	+3·5	+4·0	+0·5	−3·2	−2·2	−2·1	−6·7	−7·6	−5·3
Central India	+2·5	+0·9	−0·4	−3·4	−5·7	−2·9	−4·6	−8·5	−7·2
North-Western Provinces.	+3·1	+1·9	+0·9	−1·8	−4·7	−2·8	−2·9	−6·9	−5·8
Bihar and Bengal.	+3·4	+3·3	+2·8	+2·2	−2·3	−3·4	−0·1	−1·3	−4·6
Quetta	−1·4	−3·6	−5·5	−7·2	−10·0	−12·9	−10·1	−3·4	+6·6
Darjeeling	+0·2	+1·1	+3·3	+0·1	+0·5	+0·9	+0·6	−1·0	−2·5
Murree	+2·6	−0·4	−2·3	−4·4	−8·8	−9·0	−7·9	−0·8	+2·4

An examination of these figures shows that the cool period was due to the advance of two cool waves from North-Western India. The first wave advanced from the Punjab on the 23rd, and Rajputana on the 24th to Bengal on the 26th. The second wave was more marked than the first. It advanced from the Punjab on the 26th to Bengal on the 29th. It is not a little noteworthy that the greatest reduction of temperature due to these cool waves occurred in Central India. The data for Quetta and Darjeeling strongly confirm the supposition that these waves advanced from the north-west frontier. No large change of meteorological conditions occurred in India during this period. The Punjab received some light showers on the 23rd and 24th but the neighbouring mountains appear to have received very little snow during this disturbance. Heavy snow fell on the Sufed Koh in Afghanistan during a storm on the 26th. The two cool waves may have been due to these two disturbances. It is however more probable that they were due to more general actions and conditions extending over a considerable part of Central Asia to the north-west of the Punjab.

The following gives the variations of the mean temperature in the larger provinces week by week during the month, and also of the whole month:—

Province.	Variations of mean temperature from normal from week to week during February 1892.				Variation of mean temperature from normal for the month.
	6th.	13th.	20th.	27th.	
	°	°	°	°	°
Burma	+0·6	+2·1	+0·4	−0·7	+0·6
Bengal and Assam	+4·0	+4·4	+0·3	+0·8	+2·6
North-Western Provinces and Oudh.	+5·8	+5·5	+1·2	−0·9	+2·4
Punjab	+7·4	+7·1	+2·5	−2·1	+3·0
Sind and Rajputana	+8·2	+6·4	+4·0	−0·9	+3·7
Guzerat and Central India	+7·9	+5·6	+1·9	−1·9	+2·4
Berar and Central Provinces.	+5·4	+3·7	+0·4	−0·7	+1·6
Bombay	+3·5	+2·7	+0·4	−0·6	+1·3
Madras	+0·8	+1·3	+0·7	+1·1	+1·1

Winds.

The mean wind direction at 8 A.M. during the month of February 1892 is shown in Plate I, by arrows flying with the wind. It is obtained by the use of Lambert's formula in which equal values are given to every wind point. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart, No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

The general character of the air movement in February is generally similar to that in January. In consequence of the increase of temperature, the gradients favouring northerly winds diminish and the north-east winds in the Bay and Arabian Sea are generally feebler in February than in January. The average force of the winds in the Bay in January is 3·1 (Beaufort notation) and in February 2·6, *i.e.*, 0·5 or 16 per cent. less.

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

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 in February 1892 were on the average of the month approximately normal in direction in the Punjab and North-Western Provinces, and were slightly stronger and steadier than usual. The increased strength was shown most strongly at the eastern stations, *viz.* :—

Station.	Mean daily air movement.			Steadiness.	
	Actual, February 1892.	Normal, February.	Excess expressed as a percentage.	Percentage, February 1892.	Average percentage, February.
	Miles.	Miles.	Miles.		
Lucknow . . .	113	78	+45	40	44
Allahabad . . .	99	69	+43	33	25
Hazaribagh . . .	221	156	+42	61	60

Southerly winds set in earlier than usual during the month in South Bengal, and hence winds were considerably stronger and steadier in Lower Bengal. The following gives data for three stations :—

Station.	Mean daily air movement.		Mean steadiness.	
	Actual, February 1892.	Normal, February.	Percentage, February 1892.	Average percentage, February.
	Miles.	Miles.		
False Point . . .	238	183	42	16
Saugor Island . . .	272	189	30	23
Dacca	85	63	53	35

The influence of the deficiency of pressure in North Bengal (shown in part by the tendency to the formation of low pressure areas) was strongly marked at Darjeeling chiefly by giving greatly increased wind velocity), and at Dhubri (by changing wind direction). The following gives data for these two stations :—

Station.	Direction.		Mean daily air movement.	
	Mean wind direction, February 1892.	Normal mean wind direction, February.	Actual, February 1892.	Normal, February.
			Miles.	Miles.
Darjeeling . . .	S 71° W	S 83° W	223	121
Dhubri	S 30° W	S 22° E	120	95

Winds were approximately normal in Lower Burma and at Port Blair, but were somewhat stronger than usual.

Winds were very unsteady in Sind, in consequence of the numerous depressions which formed or passed through that area.

The following gives data for the stations in that area :—

Station.	Direction.		Steadiness.	
	Mean wind direction, February 1892.	Normal mean wind direction, February.	Percentage, February.	Average percentage.
Kurrachee . . .	S 88° W	N 80° W	40	27
Hyderabad . . .	S 66° W	N 25° W	11	41
Jacobabad . . .	N 31° E	N 17° E	16	36

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 the minimum of the 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 5 to 25 years of the available cloud data for the same hours.

The air was slightly drier at Port Blair and in Burma in February 1892. It was very considerably drier in Bengal. This was in part due to less vapour than usual, but chiefly to increased temperature. Thus at Calcutta the humidity was 12 below the normal, and at Berhampore 10 below it.

In the Gangetic plain and the Punjab there was somewhat more vapour present than usual, but the humidity was below the normal to a slight extent at all stations due to increased temperature.

The air was much drier in Sind, the humidity averaging 11 in defect in Hyderabad and 6 in defect at Jacobabad. In Rajputana, Central India and the eastern districts of the Central Provinces, there was a moderate excess of aqueous vapour on the average of the month, and the humidity of the air was above the normal. The excess of humidity was large at Nowgong (+ 11), Ajmere (+5) and Hoshangabad, Saugor and Agra (+ 5). The air was unusually dry in Berar and the western districts of the Central Provinces. The mean humidity of the month was 9 in defect at Buldana and 7 in defect at Khandwa. The variations in the amount of aqueous vapour present in the air were generally moderate in the Peninsula, but in consequence of increased temperature, the air was somewhat drier than usual.

The variations of the hygrometric conditions at the hill stations were generally small. The air was unusually dry at Quetta where the humidity averaged 54, or 12 less than the normal.

The amount of cloud was slightly in defect in Burma. It was in moderate to large excess in Bengal and Assam. Thus the mean cloud amount at Dacca was 3·9 or 2·1 above the normal, and at Silchar it was 4·7 or 1·6 above the normal. The variations were small and somewhat irregular in the Gangetic plain. The cloud amount was more or less in defect in Rajputana, Central India, the Central Provinces and the Bombay Deccan. Skies were most free from cloud during the month at Karwar, Ratnagiri and Bombay, where the mean cloud amounts were 0·2, 0·2 and 0·6, respectively.

There was more cloud than usual in Southern India. The increase was very marked at Madras (+ 4·6). Skies were somewhat more clouded at the hill stations, but the variations were in all cases small and unimportant except at Mount Abu where the mean cloud amount was only 1·5, or 1·3 below the normal.

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 February 1892 are based in part upon the rainfall data of the meteorological observatories throughout India, and in part upon the provincial monthly rainfall statements 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 160 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. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced in a few cases from the rainfall information telegraphed by district officers, and in other cases from the published provincial monthly statements. A summary of

the data is given in the following table, and the actual figures utilized in the chart are those given in the last column. The numbers in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall. A number given in a corner of each district in small slanting figures serves as an index by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

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 thundershowers, but, as a rule, the conditions for these storms do not usually occur before March.

The rainfall in February 1892 was due to both causes, but in consequence of the increased heat, the rainfall due to local thunderstorms was greater than usual, whilst that due to cold weather storms was less than usual, and abnormally distributed.

The chief periods of rainfall were as follows:—

1st.—From the 7th to the 10th. During this period the Central Provinces, North-Western Provinces, Assam and Bengal received light local showers.

2nd.—From the 12th to the 15th. Baluchistan, the Punjab, Central India, the North-Western Provinces and Bengal received light to moderate general rain, due to a cold weather storm.

3rd.—From the 15th to the 22nd. Madras and Travancore received thundershowers from the 15th to the 17th, Baluchistan moderate rain from the 17th to the 19th, and Bengal thunderstorms on the 21st and 22nd. This was hence a period of partial local disturbance and rain.

4th—From the 27th to the 29th. Assam, Bengal, Madras and Travancore received light to moderate rain during the period, due to series of thunderstorms.

Province.	Division.	Actual number of rainy days.	Average number of rainy days.	Actual rainfall during the month.	Normal rainfall during month.	Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
Burma	Tenasserim	1·3	P	0·85	0·16	+ 0·69
	Lower Burma	0	P	0	0·14	— 0·14
	Central do.	0	P	0	0·04	— 0·04
	Upper do.	0	P	0·01	P	P
	Arakan	0	P	0	0·07	— 0·07
Bengal and Assam	Eastern Bengal	1·3	1·7	0·61	1·00	— 0·39
	Assam (Surma)	...	...	1·65	1·67	— 0·02
	Do. (Brahmaputra)	...	...	1·41	1·19	+ 0·22
	Deltaic Bengal	0·5	1·8	0·17	1·17	— 1·00
	Central do.	1·1	1·4	0·49	0·76	— 0·27
	North do.	1·7	1·3	0·88	0·48	+ 0·40
	Orissa	0·6	1·5	0·21	0·90	— 0·69
	Chota Nagpur	3·0	1·3	1·24	0·70	+ 0·54
	Bihar (South)	1·9	1·1	0·96	0·44	+ 0·52
	Do. (North)	0·9	1·1	0·38	0·43	— 0·05
North-Western Provinces and Oudh.	North-Western Provinces (East)	2·7	0·9	1·13	0·37	+ 0·76
	Oudh (South)	2·0	0·6	0·94	0·23	+ 0·71
	Do. (North)	2·3	0·8	0·77	0·31	+ 0·46
	North-Western Provinces (Central)	1·3	0·6	0·56	0·21	+ 0·35
	Do. do. (West)	0·8	0·8	0·35	0·31	+ 0·04
	Do. do. (Submontane)	2·8	2·1	1·51	1·28	+ 0·33
Punjab	Punjab (South)	1·1	1·1	0·43	0·45	— 0·02
	Do. (Central)	1·1	1·2	0·37	0·50	— 0·13
	Do. (Submontane)	1·7	2·4	0·70	1·33	— 0·63
	Do. (Hill Districts)	4·1	4·4	2·38	3·04	— 0·66
	Do. (North-West)	1·3	2·7	0·36	1·40	— 1·04
	Do. (West)	0·6	1·1	0·18	0·44	— 0·26
Bombay and Malabar Coast Districts (Madras).	Malabar	0·2	0·2	0·05	0·16	— 0·11
	Madras (South Central)	1·0	0·3	0·73	0·16	+ 0·57
	Coorg	0·4	P	0·17	0·13	+ 0·04
	Mysore	0·3	0·1	0·11	0·04	+ 0·07
	Konkan	...	...	0	0	0
	Bombay Deccan	...	...	0	0·02	— 0·02
	Hyderabad (North)	0·1	P	0·03	0·07	— 0·04
	Khandeish	...	...	0	0·06	— 0.06

Province.	Division.	Actual number of rainy days.	Average number of rainy days.	Actual rainfall during the month.	Normal rainfall during month.	Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
Central Provinces and Berar.	Berar	...	...	0·06	0·13	— 0·07
	Central Provinces (West)	1·5	0·5	0·50	0·21	+ 0·29
	Do. (Central)	1·5	0·6	0·58	0·25	+ 0·33
	Do. (East)	0·7	0·6	0·23	0·32	— 0·09
Bombay (North)	Guzerat	...	...	0	0·01	— 0·01
	Kathiawar	...	...	0	0·11	— 0·11
	Sind	...	...	0·06	0·29	— 0·23
Rajputana and Central India.	Central India (East)	1·4	?	0·71	0·34	+ 0·37
	Rajputana (East) Central India (West)	0·3	?	0·07	0·29	— 0·22
	Rajputana (West)	0	?	0·01	0·13	— 0·12
Madras	East Coast (North)	0·1	0·5	0·08	0·25	— 0·17
	Do. (do.) (*a*)	0	0·4	0	0·19	— 0·19
	Hyderabad (South)	0	?	0	0·09	— 0·09
	Madras (Central)	0·1	0·1	0·02	0·03	— 0·01
	East Coast (Central)	0·1	0·2	0·10	0·13	— 0·03
	Do. (South)	0·4	0·2	0·22	0·30	— 0·08
	Madras (South)	1·4	0·8	1·00	0·53	+ 0·47

A reference to the Chart (Plate IV) or the preceding table, will show that practically or actually no rain fell during the month in Sind, Rajputana, Bombay, Berar, the Deccan, Mysore, North and Central Madras, and by far the greater part of Burma and Arakan.

Baluchistan received some light showers on the 12th and 13th, and general and moderately heavy rain from the 17th to the 20th. Peshin, for example, received 1·33 inches during this period, and Quetta 0·91 inch. The rainfall of the month was approximately normal in amount.

Kashmir received occasional light showers, but there was no period of general rainfall as in Baluchistan. Iskardo reported the largest total amount, *viz.* 4.5 inches.

The Punjab received rain chiefly during the second rainfall period of the month. The rain was very irregularly distributed, but was chiefly given to the south-eastern districts. The rainfall was normal or in slight defect in the south and central districts. It was in moderate defect in the submontane and hill districts. The North-West Punjab received barely a quarter of its normal average amount (1·4 inches) and the West Punjab less than half its average amount (·44 inch). The districts of Jhelum, Dera Ghazi Khan, Muzuffargarh and Mooltan received average local amounts of less than a tenth of an inch.

Rajputana and the western states of Central India received practically no rain during the month. Bundelkhand and Baghelkhand obtained moderate rain between the 11th and 15th. Sutna registered 3·52 inches during this period. The rainfall in those two districts averaged 1¼ inches, the normal fall being about four-tenths of an inch.

The North-Western Provinces obtained fairly general rain on the 7th and 8th, and again from the 11th to the 15th. The rainfall was on the whole heaviest in the eastern districts. It was small in amount in the districts of Etawah, Agra, Muttra, Jhansi and Aligarh, where, however, it slightly exceeded the small normal amounts. In other districts it was more or less considerably in excess. The excess was greatest in Oudh (South) and the North-Western Provinces (East), in which it averaged three quarters of an inch, the normal rainfall of the month in these districts being only three-tenths.

Orissa and South-West and East Bengal received local showers during the periods of disturbance during the month, but the total amounts were more or less below the average.

North Bengal, Bihar and Chota Nagpur received fairly general and moderate rain during the second rainfall period of the month from the 12th to 15th. The rainfall was most general in Chota Nagpur and South Bihar. The total rainfall was in excess in these areas by amounts averaging nearly half an inch for the whole area.

The Central Provinces obtained local showers during the second rainfall period of the month, which gave average amounts for the month in the different divisions in slight excess of the small normal fall of the month.

The districts of Tanjore, Madura, Tinnevelly, Salem and Coimbatore obtained thunder-showers on the 16th and 17th, and again from the 26th to the 29th. The district of Salem received some heavy thundershowers on the 15th. Six stations (out of 18) in the Salem district recorded rainfalls on that day ranging from 1·16 to 2·7 inches. The rainfall of the month was below the very small average of the month over the whole of Madras except Madras (South), which obtained a mean total amount of 1 inch, or double the normal mean of the month (·53 inch).

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 173 stations in India during the month of February 1892.

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 93 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 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.

Table

Abstract of Observations taken at 8 A.M., at 173 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.
Burma Coast and Bay Islands.		...	...	—·066	...	...	...	...	...	...	...	89·4	+1·0	67·8	+0·3	78·6	+0·6	22·6	...	...	...	...	29·3
Bay Islands	Port Blair	61	29·877	?	29·869	29·969	2nd	29·804	21st	·165	79·1	88·4	?	76·0	?	82·2	?	12·4	90·8	25th	70·9	29th	19·9
	Camorta	...	29·917	?	?	30·007	2nd	29·850	21st	·157	82·2	86·4	?	77·5	?	82·0	?	18·9	89·2	25th	74·6	26th	14·6
Tenasserim	Mergui	96	29·834	?	29·862	29·922	2nd	29·766	23rd	·156	76·0	89·3	?	66·3	?	77·8	?	23·0	92·3	7th	60·7	15th	31·6
	Tavoy	26	29·940	?	29·897	30·032	2nd	29·883	26th & 29th.	·149	72·7	91·6	?	67·9	?	79·8	?	23·7	94·2	1st & 7th.	60·7	23rd	33·5
	Moulmein	94	29·852	—·063	29·885	29·944	2nd	29·762	29th	·182	74·1	92·6	+1·3	70·1	+2·9	81·4	+2·1	22·5	94·5	13th14th & 16th.	64·9	5th	29·6
	Toungoo	181	29·747	—·067	29·877	29·843	1st	29·634	29th	·209	65·2	90·9	0	60·2	+0·1	75·5	+0·1	30·7	94·7	25th26th & 29th.	54·1	3rd	40·6
Lower Burma	Rangoon	41	29·894	—·075	29·875	29·982	1st	29·816	29th	·166	70·2	94·9	+2·6	66·3	+1·4	80·7	+2·0	28·6	98·6	16th	62·3	27th	36·3
	Bassein	21	29·923	—·059	29·883	30·015	1st	29·853	29th	·162	70·8	90·4	+1·0	65·0	+1·3	77·8	+1·2	25·4	94·2	4 days	62·0	4 days	32·2
	Diamond Island	41	29·910	—·068	29·886	30·000	2nd	29·838	23rd	·162	76·7*	84·8	+0·8	68·2	—3·5	76·7	—1·4	16·6	87·4	12th	66·6	6th, 3th & 21st.	20·8
Arakan	Akyab	20	29·949	—·061	29·912	30·051	1st	29·866	23rd	·185	66·7	84·6	0	60·2	—0·7	72·4	—0·4	24·4	88·2	15th	54·2	18th & 19th.	34·0
Burma, Inland		...	...	—·057	...	...	...	...	...	...	...	88·8	+0·8	55·0	0	71·8	+0·4	33·8	...	...	...	...	44·5
Central Burma	Thayetmyo	134	29·797	—·057	29·879	29·916	1st	29·711	23rd	·205	63·6	93·2	+0·8	54·2	0	73·3	+0·4	39·0	98·2	29th	46·9	3rd	51·3
Upper Burma	Mandalay	?	29·675	?	29·621	29·800	1st	29·494	24th	·306	68·5	92·7	?	59·9	?	76·3	?	32·8	98·5	25th	53·1	18th	45·4
	Kindat*	?	?	?	?	?	?	?	?	?	60·8	85·7	?	53·7	?	69·7	?	32·0	88·8	29th	50·0	27th	38·8
	Bhamo	?	29·520	?	29·470	29·664	1st	29·321	24th	·343	58·9	83·6	?	52·3	?	67·9	?	31·3	87·0	24th & 28th.	44·7	27th	42·3
Assam		...	...	—·080	...	...	...	...	...	...	...	78·2	+1·8	56·8	+2·7	67·5	+2·3	21·4	...	...	...	...	34·2
Assam (Surma)	Silchar	104	29·866	—·070	29·927	29·987	17th	29·720	23rd	·267	61·9	80·9	+1·2	57·8	+2·9	69·4	+2·1	23·1	83·8	2nd	48·3	17th	35·5
Brahmaputra	Sibsagar	333	29·631	—·085	29·937	29·760	17th	29·465	24th	·295	58·1	74·0	+1·5	54·7	+1·7	64·2	+1·6	19·3	79·4	6th & 24th.	46·1	19th	33·3
	Dhubri	115	29·829	—·084	29·901	29·963	1st	29·639	23rd	·324	61·1	79·8	+2·7	57·9	+3·6	68·9	+3·2	21·9	86·4	24th	52·5	17th	33·9
Bengal and Orissa		...	...	—·065	...	...	...	...	...	...	...	83·0	+2·5	59·9	+3·0	71·5	+2·8	23·0	...	...	...	...	35·8
East Bengal	Chittagong	87	29·888	—·059	29·925	29·985	1st	29·771	24th	·214	67·2	84·6	+3·3	61·9	+3·5	73·3	+3·4	22·7	88·7	13th & 14th.	54·1	17th	34·6
	Lungleh	?	?	?	?	?	?	?	?	?	59·1	61·5	?	56·6	?	59·1	?	4·9	68·9	15th	51·5	3rd	17·4
	Noakhali	43	29·924	?	29·915	30·026	2nd	29·791	24th	·235	67·9	82·4	?	59·6	?	71·0	?	22·8	84·5	14th15th & 22nd.	49·0	17th	35·5
	Comillah	35	29·935	?	29·919	30·037	1st	29·811	23rd & 24th.	·226	65·0	83·2	?	59·5	?	71·4	?	23·7	87·4	22nd	50·1	17th	37·3
	Sirajganj	46	29·902	?	29·900	30·030	1st	29·764	21st	·266	62·7	82·6	?	54·5	?	68·5	?	28·1	88·3	22nd	46·7	29th	41·6
	Dacca	22	29·937	—·069	29·908	30·050	1st	29·805	23rd	·245	65·6	83·3	+0·8	60·9	+3·2	72·1	+2·0	22·4	88·1	22nd	53·3	17th	34·8
	Bárisal	12	29·962	—·037	29·920	30·071	17th	29·826	23rd	·245	68·1	83·1	+4·3	61·2	+4·0	72·2	+4·2	21·9	87·8	22nd	53·1	17th	34·7
	Mymensingh	59	29·902	—·072	29·915	30·023	1st	29·759	24th	·264	62·2	79·8	+1·0	57·4	+5·4	68·6	+3·2	22·4	84·6	22nd	48·9	29th	35·7
Deltaic Bengal	Faridpur	39	29·935	?	29·924	30·043	1st	29·794	24th	·249	65·1	81·3	?	57·8	?	69·6	?	23·5	86·6	8th	49·0	17th & 29th.	37·6
	Jessore	33	29·930	—·065	29·911	30·058	1st	29·791	21st	·267	65·3	84·5	+1·1	59·2	+2·7	71·9	+1·9	25·3	90·7	22nd	51·5	1st & 29th.	39·2
	Calcutta	21	29·946	—·068	29·914	30·073	1st	29·814	21st	·259	67·5	84·7	+2·9	61·6	+1·7	73·2	+2·3	23·1	90·6	28th	52·2	17th	38·4
	Saugor Island	25	29·938	—·065	29·908	30·071	1st	29·799	23rd	·272	72·6	82·5	+1·4	68·2	+2·9	75·4	+2·2	14·3	86·2	25th	57·9	17th	28·3
	Krishnagar	47	29·912	?	29·910	30·039	1st	29·779	21st	·260	65·9	85·1	?	56·7	?	71·0	?	28·4	91·4	22nd	49·1	29th	42·3
	Midnapore	149	29·823	?	29·923	29·952	1st	29·683	23rd	·269	69·5	88·9	?	62·9	?	75·9	?	26·0	95·3	21st & 28th	56·2	17th	39·1
Central Bengal	Bankura	298	29·636	?	29·897	29·759	1st	29·510	23rd	·249	65·5	85·4	?	60·4	?	72·9	?	25·0	91·1	21st & 22nd.	53·8	17th	37·3
	Raniganj†	345	29·627	?	29·938	29·771	1st	29·495	23rd	·276	64·4	84·5	?	60·0	?	72·2	?	24·5	90·0	28th	54·7	17th	35·3
	Burdwan	99	29·873	—·062	29·923	30·019	1st	29·743	23rd	·266	67·0	85·8	+2·4	60·8	+2·7	73·3	+2·6	25·0	92·4	22nd	52·3	17th	40·1

* Mean of 27 days.

I.

in India, Burma, etc., in February 1892.

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 29th February 1892.	Normal rainfall for period, 1st January to 29th February.	Variation from normal of period, 1st January to 29th February.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	0·73	0·46	+0·32	...	...	...	**Burma Coast and Bay Islands.**	
2	8	13	1	...	...	...	1	4	6	5	+20	83	·824	1·7	0	?	?	0	1·17	— 1·17	0	1·98	— 1·98	Port Blair .	Bay Islands.
6	...	2	...	...	...	...	...	...	7	?	?	77	·815	6·9	1	?	?	0·22	?	...	...	...	...	Camorta.	
...	13	1	1	2	...	...	1	11	3	2	+50	89	·795	3·9	7	?	?	5·64	1·43	+ 4·21	5·66	2·04	+ 3·62	Mergui .	Tenasserim.
28	...	...	...	...	...	...	...	1	2	?	?	90	·727	0·7	1	...	...	1·30	0·53	+ 0·77	1·30	0·69	+ 0·61	Tavoy.	
1	1	11	13	3	...	...	...	...	3	2	+50	84	·710	0·7	1	0·45	+0·55	0·10	0·17	— 0·07	0·10	0·17	— 0·07	Moulmein.	
2	16	5	1	1	1	...	...	3	1	2	—50	88	·551	0·9	0	0·36	0·36	0	0·17	— 0·17	0	0·26	— 0·26	Toungoo.	
...	1	2	2	...	2	7	11	4	4	4	0	84	·618	1·5	0	0·45	—0·45	0	0·11	— 0·11	0	0·29	— 0·29	Rangoon .	Lower Burma.
5	...	...	...	...	1	...	...	23	6	4	+50	88	·665	1·9	0	0·45	—0·45	0	0·33	— 0·33	0	0·40	— 0·40	Bassein.	
...	15	...	...	...	...	...	...	14	10	7	+43	76	·695	1·5	0	0·40	—0·40	0	0·10	— 0·10	0	0·34	— 0·34	Diamond Island.	
...	14	13	2	...	...	...	...	...	4	3	+33	85	·566	0·8	0	0·36	—0·36	0	0·13	— 0·13	0	0·24	— 0·24	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·10	0·11	—0·01	...	...	...	**Burma, Inland.**	
...	8	2	1	...	4	...	9	5	4	4	0	72	·418	1·1	0	0	0	0	0	0	0	0	0	Thayetmyo	Central Burma.
6	2	...	1	5	7	5	...	3	3	?	?	55	·378	0·8	0	...	...	0	0·02	— 0·02	0	0·28	— 0·28	Mandalay .	Upper Burma.
26	1	...	...	...	...	...	...	...	2	?	?	93	·500	0	1	...	...	0.35	0·13	+ 0·22	0·35	1·07	— 0·72	Kindat.*	
1	...	6	...	...	...	10	...	12	...	?	?	85	·426	2·8	0	...	...	0·06	0·28	— 0·22	0·06	2·37	— 2·31	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·62	1·32	+1·30	...	...	...	**Assam.**	
29	...	...	...	...	...	...	...	...	2	3	—33	89	·499	5·1	5	3·91	+1·09	3·13	1·93	+ 1·20	3·69	2·64	+ 1·05	Silchar .	Assam (Surma)
3	1	14	5	2	1	1	1	1	2	2	0	98	·479	7·8	9	4·55	+4·45	4·08	1·67	+ 2·41	4·98	3·12	+ 1·86	Sibsagar .	Brahmaputra.
3	3	4	7	...	2	8	1	1	5	4	+25	80	·430	2·0	2	0·71	+1·29	0·64	0·35	+ 0·29	0·65	0·64	+ 0·01	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·47	0·95	—0·50	...	...	...	**Bengal and Orissa.**	
20	1	3	3	1	1	...	...	...	3	4	—25	82	·552	3·1	1	1·55	—0·55	0·26	1·08	— 0·82	0·26	1·60	— 1·34	Chittagong	East Bengal.
...	...	...	...	...	...	...	...	...	...	?	?	87	·443	...	...	?	?	?	?	?	?	?	?	Lungleh.	
13	4	3	2	4	1	1	1	...	3	?	?	90	...	0·3	1	1·60	—0·60	0·31	0·89	— 0·58	0·31	1·41	— 1·10	Noakhali.	
3	1	2	3	9	10	...	...	1	2	?	?	87	...	2·7	0	2·00	—2·00	0·05	0·90	— 0·85	0·05	1·49	— 1·44	Comilla.	
...	2	2	...	2	3	9	8	3	1	?	?	81	...	1·7	1	1·47	—0·47	0·16	?	?	0·16	?	?	Sirajganj.	
4	1	2	2	3	5	4	3	5	4	3	+33	87	·554	3·7	2	1·91	+0·09	1·45	1·33	+ 0·12	1·45	1·61	— 0·16	Dacca.	
18	2	3	...	...	...	3	1	2	2	?	?	84	·588	2·7	0	1·75	—1·75	0·05	1·17	— 1·12	0·05	1·97	— 1·92	Bárisal.	
2	1	6	12	2	1	1	3	1	3	?	?	86	·482	2·3	2	1·30	+0·70	1·53	1·05	+ 0·48	1·53	1·43	+ 0·10	Mymensingh.	
19	2	...	...	1	4	2	...	1	2	?	?	86	...	1·7	1	2·05	—1·05	1·24	1·26	— 0·02	1·24	1·62	— 0·38	Faridpur .	Deltaic Bengal.
22	2	...	...	1	...	1	1	2	3	2	+50	85	·532	1·6	0	2·00	—2·00	0·03	1·15	— 1·12	0·03	1·65	— 1·62	Jessore.	
5	8	1	...	...	3	6	3	3	4	4	0	77	·525	1·7	0	1·64	—1·64	0·04	1·21	— 1·17	0·04	1·71	— 1·67	Calcutta.	
...	8	4	...	...	1	9	4	3	11	8	+38	80	·653	2·7	0	2·00	—2·00	0	1·28	— 1·28	0	1·54	— 1·54	Saugor Island.	
2	2	1	2	2	4	2	7	7	4	?	?	69	...	1·5	0	1·55	—1·55	0·03	1·01	— 0·98	0·03	1·45	— 1·42	Krishnagar.	
2	10	...	1	...	9	...	4	3	12	?	?	69	...	1·4	1	1·40	—0·40	0·17	1·01	— 0·84	0·17	1·76	— 1·59	Midnapore.	
8	2	...	...	...	1	...	10	8	3	?	?	68	...	2·0	1	1·75	—0·75	0·24	1·05	—0·81	0·24	1·41	— 1·17	Bankura .	Central Bengal.
...	...	...	...	...	...	...	...	...	...	...	...	64	...	2·4	2	1·35	+0·65	0·69	?	?	0·69	?	?	Raniganj.†	
14	6	...	...	1	1	1	3	3	2	2	0	59	·390	2·2	0	·164	—1·64	0·15	0·84	— 0·69	0·15	0·98	— 0·83	Burdwan.	

† Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M., at 173 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	29·443	?	29·918	29·581	1st	29·315	23rd	·266	61·9	82·8	?	58·1	?	70·4	?	24·7	87·6	22nd & 28th.	54·1	1st, 17th & 29th	33·5
	Berhampore	67	29·889	—·077	29·906	30·022	1st	29·748	21st	·274	63·1	83·4	+1·2	58·3	+2·5	70·9	+1·9	25·1	89·6	22nd	52·1	29th	37·5
	Rampur Boalia.	70	29·879	?	29·901	30·010	1st	29·747	23rd	·263	63·6	81·5	?	57·7	?	69·6	?	23·8	86·8	22nd & 23rd.	51·9	1st	34·9
	Malda*	80	29·874	?	29·909	30·013	1st	29·730	23rd	·283	64·1	84·3	?	54·8†	?	69·7†	?	29·5	90.3	28th	46·2	29th	44·1
	Bogra	61	29·873	—·061	29·889	30·002	1st	29·723	24th	·279	61·1	82·8	+3·8	55·3	+3·9	69·1	+3·9	27·5	88·3	22nd & 24th.	49·2	17th & 29th.	39·1
North Bengal	Dinajpur	118	29·815	—·094	29·892	29·955	1st	29·637	23rd	·318	60·8	82·8	+4·5	53·7	+4·2	68·3	+4·4	29·1	89·1	28th	46·5	26th & 29th.	42·6
	Rangpur	123	29·838	?	29·922	23·961	1st	29·645	23rd & 24th.	·316	59·5	80·6	?	53·2	?	66·9	?	27·4	87·0	24th	46·6	26th	40·4
	Jalpaiguri	284	29·648	—·077	29·899	29·778	1st & 17th.	29·444	23rd	·334	59·9	79·2	+3·9	53·7	+3·4	66·5	+3·7	25·5	88·4	24th	46·1	28th	42·3
Orissa	Balasore	54	29·904	—·070	29·908	30·041	1st	29·762	23rd	·279	69·0	87·4	+4·4	62·9	+3·2	75·2	+3·8	24·5	94·4	28th	57·6	4 days	36·8
	False Point	21	29·957	—·056	29·920	30·076	1st	29·823	23rd	·253	71·8	83·6	+0·9	66·1	+1·7	74·9	+1·3	17·5	86·4	3 days.	58·5	17th	27·9
	Cuttack	80	29·894	—·050	29·920	30·021	1st	29·739	23rd	·282	70·0	91·3	+1·1	64·9	—0·2	78·1	+0·5	26·4	96·4	24th	59·8	17th	36·6
	Short's Island	?	29·945	?	?	30·084	1st	29·800	23rd	·284	74·3	82·3	?	70·4	?	76·4	?	11·9	89·2	28th	66·6	4th	22·6
	Puri	91	29·948	?	29·897	30·099	1st	29·806	23rd	·293	73·9	84·0	?	69·8	?	76·9	?	14·2	89·7	25th	62·6	17th	27·1
Gangetic Plain and Chota-Nagpur.		...	...	—·065	...	...	...	...	...	...	...	81·5	+2·0	55·3	+2·8	68·4	+2·4	26·2	...	...	...	...	37·1
Chota-Nagpur	Hazaribagh	2,007	27·918	—·051	29·932	28·052	1st	27·808	23rd	·244	62·5	79·0	+1·2	55·7	+1·8	67·5	+1·5	23·3	84·1	7th	49·2	29th	34·9
	Ranchi	2,128	27·794	?	29·920	27·919	1st	27·684	23rd	·235	63·7	79·1	?	56·2	?	67·7	?	22·9	85·9	8th	49·9	16th	36·0
	Chaibassa	760	29·192	—·038	29·921	29·331	1st	29·047	23rd	·284	68·9	86·1	+2·3	59·7	+3·7	72·9	+3·0	26·4	91·4	7th	54·2	16th	37·2
Bihar, South	Gaya	375	29·591	—·055	29·936	29·737	1st	29·463	23rd	·274	65·2	83·1	+1·4	58·3	+2·5	70·7	+2·0	24·8	88·2	21st	53·8	16th	34·4
	Dehri	351	29·613	?	29·933	29·747	1st	29·484	23rd	·263	66·1	82·7	?	56·9*	?	69·8*	?	25·8	87·8	20th & 21st.	46·0	16th	41·8
	Patna	183	29·773	—·076	29·916	29·931	1st	29·628	23rd	·303	65·8	79·2	+1·0	56·8	+4·5	68·0	+2·8	22·4	83·8	23rd	51·7	25th	32·1
	Arrah	190	29·757	?	29·908	29·895	1st	29·621	23rd	·274	61·8	82·3	?	?	?	?	?	?	87·0	23rd	?	?	?
	Buxar	239	29·718	?	29·923	29·863	1st	29·588	23rd	·275	63·3	81·4	?	57·1	?	69·2	?	24·3	86·4	21st	50·9	1st	35·5
Bihar, North	Purnea	125	29·814	—·078	29·900	29·962	1st	29·638	23rd	·324	57·8	82·9	+3·8	50·8	+0·1	66·8	+2·0	32·1	89·2	28th	42·8	26th	46·4
	Bhagalpur	159-160	29·783	?	29·902	29·933	1st	29·645	22nd	·288	64·3	83·2	?	57·4	?	70·3	?	25·8	89·2	28th	51·0	1st	38·2
	Darbhanga	166	29·795	—·061	29·923	29·944	1st	29·631	23rd	·313	60·7	80·4	+4·2	55·5	+2·0	68·0	+3·1	24·9	84·4	28th	51·4	26th	33·0
	Muzaffarpur‡	178	29·754	?	29·896	29·902	1st	29·595	23rd	·307	59·1	81·3	?	53·7	?	67·6	?	27·6	85·2	23rd	48·3	26th	36·9
	Motihari	*224	705	?	29·898*	29·836	1st	29·542	23rd	·294	60·1	81·7	?	50·3	?	66·1	?	31·4	85·2	23rd & 28th.	44·9	17th & 26th.	40·3
	Chapra	181	29·763	?	29·906	29·901	1st	29·616	23rd	·285	61·3	81·9	?	55·9	?	69·0	?	26·0	86·3	23rd	51·1	29th	35·2
N.-W. Provinces (Eastern Districts).	Benares	267	29·687	—·068	29·925	29·831	1st	29·564	23rd	·267	60·2	81·9	+0·8	54·4	+2·8	68·2	+1·8	27·5	87·2	21st	48·5	26th & 28th.	38·7
	Allahabad	309	29·638	—·080	29·918	29·790	1st	29·527	23rd	·263	61·7	82·9	+2·8	55·5	+4·5	69·2	+3·7	27·4	88·0	27th	50·9	3 days	37·1
N.-W. Provinces (East Submontane).	Gorakhpur	256	29·680	—·068	29·908	29·809	1st	29·533	23rd	·276	61·4	79·4	+0·7	54·9	+3·0	67·2	+1·9	24·5	84·4	27th	51·3	5 days	33·1
Oudh, South	Lucknow	369	29·573	—·073	29·923	29·714	1st	29·469	22nd	·245	59·6	80·5	+1·6	52·9	+2·7	66·7	+2·2	27·6	85·3	20th & 27th.	48·0	25th & 26th.	37·3
N.-W. Provinces (Central).	Cawnpore	416	29·532	?	29·930	29·676	1st	29·431	23rd	·245	60·6	80·0	?	53·2	?	66·7	?	26·8	86·0	20th & 27th.	47·0	25th	39·0
Upper—Sub-Himalayas		...	...	—·062	...	...	...	...	...	...	...	73·8	+1·8	48·9	+2·2	61·4	+2·0	24·9	...	...	...	...	39·
N.-W. Provinces (Sub-Montane).	Bareilly	568	29·345	—·072	29·911	29·470	1st	29·239	29th	·231	55·6	75·4	0	51·1	+2·2	63·3	+1·1	24·3	81·3	27th	45·7	25th	35·6
	Dehra Dun	2,232	27·665	?	29·948	27·795	1st	27·539	29th	·256	52·8	71·8	?	48·6*	?	60·2*	?	23·2	79·0	3rd	42·0	15th	37·0
	Roorkee	887	29·020	—·070	29·933	29·146	1st	28·907	29th	·239	51·8	75·0	+1·3	48·9	+1·7	62·0	+1·5	26·1	81·3	7th	42·0	25th & 28th.	39·3
	Meerut	738	29·193	—·059	29·942	29·312	1st	29·108	29th	·204	54·4	75·9	+0·8	49·6	+2·1	62·8	+1·5	26·3	82·7	7th	43·1	28th	39·6
Punjab, Central.	Delhi	718	29·224	—·058	29·944	29·359	1st	29·137	21st	·222	57·9	76·0	+0·2	54·5	+2·6	65·3	+1·4	21·5	82·1	7th	51·1	15th	31·0
	Lahore	702	29·235	—·065	29·953	29·364	1st	29·112	25th	·252	53·2	74·6	+3·5	47·3	+1·8	61·0	+2·7	27·3	79·8	11th	37·2	26th	42·6

* Mean of 28 days. † Mean of 25 days. ‡ Mean of 27 days. § Mean of 26 days.

I—*continued.*

in India, Burma, etc., in February 1892—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 29th February 1892.	Normal rainfall for period, 1st January to 29th February.	Variation from normal of period, 1st January to 29th February	Station.	Meteorological Province or District.
17	1	...	1	...	...	2	1	7	2	?	?	67	?	1·7	1	1·44	−0·44	1·13	0·70	+ 0·43	1·13	1·33	− 0·20	Naya Dumka	Central Bengal.—*contd.*
3	2	2	2	1	7	6	4	2	2	2	0	78	·448	2·4	2	1·73	+0·27	0·78	1·13	− 0·35	0·78	1·47	− 0·69	Berhampore.	
1	6	4	...	2	4	8	2	2	3	?	?	73	?	1·7	1	1·35	−0·35	0·67	0·90	− 0·23	0·67	1·23	− 0·56	Rampur Boalia.	
6	...	...	...	...	...	17	1	4	4	?	?	63	?	1·3	2	1·10	+0·90	0·70	0·72	− 0·02	0·70	1·45	− 0·75	Malda.*	
13	...	1	4	3	...	3	4	1	3	?	?	78	·413	1·1	2	1·35	+0·65	0·31	0·80	− 0·49	0·31	1·36	− 1·05	Bogra.	
...	...	1	1	1	4	11	10	1	3	?	?	72	·384	1·2	1	1·25	−0·25	0·30	0·52	− 0·22	0·30	0·95	− 0·65	Dinajpur .	North Bengal.
5	...	1	6	1	...	4	10	...	2§	?	?	87	?	0·5	1	1·00	0	0·28	0·40	− 0·12	0·28	0·91	− 0·63	Rangpur.‡	
6	8	7	1	4	...	...	1	2	3	?	?	85	·443	0·6	1	1·05	−0·05	1·07	0·34	+ 0·73	1·07	0·83	+ 0·24	Jalpaiguri.	
...	7	2	...	...	4	7	1	8	5	?	?	73	·520	0·7	1	2·20	−1·20	0·60	1·40	− 0·80	0·60	1·88	− 1·28	Balasore .	Orissa.
1	6	...	..	...	...	9	11	2	10	7	+43	85	·664	2·4	1	1·55	−0·55	0·42	0·87	− 0·45	0·42	1·45	− 1·03	False Point.	
15	...	2	1	1	2	4	3	1	2	2	0	74	·543	1·5	0	1·36	−1·36	0	0·60	− 0·60	0	0·74	− 0·74	Cuttack.	
...	4	2	...	...	...	4	17	2	11	?	?	76	·646	0·7	1	?	?	1·00	?	?	1·00	?	?	Shortt's Island.	
1	8	5	...	...	...	5	3	7	11	?	?	80	?	1·6	0	1·20	−1·20	0	1·08	−1·08	0	1·33	− 1·33	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·95	0·44	+0·54	...	...	...	**Gangetic Plain and Chota-Nagpur.**	
...	...	...	...	...	3	6	12	8	9	7	+29	57	·220	2·6	4	1·45	+2·55	2·02	0·55	+ 1·47	2·02	1·20	+ 0·82	Hazaribagh.	Chota-Nagpur.
7	1	...	...	...	2	4	3	12	6	?	?	61	?	3·6	4	1·94	+2·06	1·80	1·01	+ 0·79	1·80	1·78	+ 0·02	Ranchi.	
1	1	2	2	...	1	8	9	5	1	?	?	62	·434	2·8	2	1·35	+0·65	1·28	0·82	+ 0·46	1·28	1·53	− 0·25	Chaibassa.	
...	2	...	3	...	13	2	9	...	6	3	+100	60	·376	2·2	3	0·73	+2·27	0·67	0·31	+ 0·36	0·79	0·93	− 0·14	Gaya .	Bihar, South.
...	...	...	1	3	7	13	4	1	6	?	?	62	?	1·8	3	0·67	+2·33	0·47	?	?	0·51	?	?	Dehri.	
1	1	...	...	1	1	2	21	2	4	3	+33	61	·393	2·0	2	0·82	+1·18	1·23	0·37	+ 0·86	1·29	0·84	+ 0·45	Patna.	
...	2	1	...	...	3	5	10	8	4	?	?	?	?	1·6	3	0·85	+2·15	1·30	0·55	+ 0·75	1·39	1·41	− 0·02	Arrah.	
...	...	1	...	1	...	1	11	15	5	?	?	66	?	1·9	3	1·10	+1·90	1·21	0·36	+ 0·85	1·27	1·17	+ 0·10	Buxar.	
20	...	...	...	1	...	3	4	1	3	2	+50	75	·353	1·5		1·00	−1·00	0·08	0·57	− 0·49	0·08	0·96	− 0·88	Purnea .	Bihar, North.
21	...	...	...	...	1	4	3	...	1	?	?	67	?	2·3	1	?	?	0·19	0·67	− 0·48	0·19	1·21	− 1·02	Bhagalpur.	
8	1	1	...	...	1	6	8	4	4	4	0	71	·383	1·7	1	1·27	−0·27	0·91	0·51	+ 0·40	0·94	0·90	+ 0·04	Darbhanga.	
6	...	2	1	1	1	7	9	2	7	?	?	80	?	1·2	2	1·26	+ 0·74	0·79	0·51	+ 0·28	0·79	1·39	− 0·60	Muzaffarpur.	
4	1	3	1	1	...	3	13	3	7	?	?	79	?	1·8	0	1·06	−1·06	0·11	0·31	− 0·20	0·11	0·84	− 0·73	Motihari.	
10	...	2	...	...	5	9	2	1	5	?	?	78	?	1·9	3	0·80	+2·20	1·09	0·46	+ 0·63	1·09	1·21	− 0·12	Chupra.	
12	...	1	1	...	3	10	2	...	4	4	0	82	·428	1·8	4	0·82	+3·18	0·76	0·20	+ 0·56	1·33	0·96	+ 0·37	Benares .	N.-W. Provinces (Eastern Districts).
11	...	1	2	1	2	3	6	3	4	3	+33	72	·401	1·4	5	0·64	+4·36	1·17	0·12	+ 1·05	1·46	1·01	+ 0·45	Allahabad.	
...	4	1	1	1	...	2	17	3	3	2	+50	70	·385	1·2	3	0·73	+2·27	0·69	0·23	+ 0·46	0·77	0·86	− 0·09	Gorakhpur	N.-W. Provinces (Eastern Sub-montane).
11	2	1	2	...	...	...	9	4	4	3	+33	71	·363	1·8	2	0·55	+1·45	1·36	0·07	+ 1·29	1·45	1·26	+ 0·19	Lucknow .	Oudh, South.
3	2	2	2	4	2	5	8	1	5	?	?	77	·410	1·8	5	0·60	+4·40	1·01	0·28	+ 0·73	1·22	0·92	+ 0·30	Cawnpore .	N.-W. Provinces (Central).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·16	1·08	+0·08	...	...	...	**Upper—Sub-Himalayas.**	
23	...	...	1	1	...	...	2	2	1	4	−75	76	·341	2·2	3	1·18	+1·82	1·48	0·37	+ 1·11	1·76	1·55	+ 0·21	Bareilly .	N.-W. Provinces (Sub-montane).
28	...	...	1	...	...	...	...	...	1	2	−50	67	·268	4·3	3	3·00	0	2·15	2·20	− 0·05	2·22	4·47	− 2·25	Dehra Dun.	
20	...	1	...	...	1	...	1	6	2	3	−33	81	·314	2·7	3	2·09	+0·91	2·43	0·95	+ 1·48	2·48	3·04	− 0·56	Roorkee.	
12	...	3	1	...	...	1	10	2	3	3	0	71	·298	2·5	2	1·27	+0·73	1·15	0·62	+ 0·53	1·43	2·07	− 0·64	Meerut.	
12	2	1	3	1	...	2	6	2	3	4	−25	64	·211	3·0	2	1·00	+1·00	1·05	0·43	+ 0·62	1·45	1·79	− 0·34	Delhi .	Punjab (Central).
20	2	1	...	2	1	...	1	2	2	2	0	68	·276	3·1	0	2·00	−2·00	0·18	0·98	− 0·75	0·62	1·86	− 1·24	Lahore.	

Table

Abstract of Observations taken at 8 A.M., at 173 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).	Ludhiana	812	29·104	−·069	29·935	29·223	1st	29·010	25th	·213	53·8	74·1	+2·0	49·2	+2·8	61·7	+2·4	24·9	81·7	7th	39·4	27th	42·3
Punjab, North	Sialkot	830	29·087	−·061	29·944	29·225	1st	28·936	25th	·289	51·8	72·7	+2·8	47·9	+2·5	60·3	+2·7	24·8	78·0	3 days	35·2	27th	42·8
	Rawalpindi	1,649	28·269	−·044	29·963	28·387	1st	28·102	25th	·285	47·2	68·6	+3·6	42·6	+1·8	55·6	+2·7	26·0	74·0	4 days	32·9	26th	41·1
Indus Valley and North-West Rajputana.		...	...	−·073	...	...	...	...	...	...	...	79·2	+3·7	51·9	+3·3	65·4	+3·5	27·3	...	...	...	...	42·1
Punjab, West	Peshawar	1,110	28·880	−·048	29·995	29·024	2nd	28·777	25th	·247	49·8	69·7	+3·6	45·8	+4·2	57·8	+3·9	23·9	77·6	10th	35·9	24th & 26th.	41·7
	Khushab	612	29·320	?	29·943	29·453	1st	29·169	25th	·284	52·8	?	?	46·4	?	?	?	25·0	75·9	24th	33·1	26th	42·8
	Montgomery	558	29·394	?	29·956	29·519	1st	29·285	25th	·234	54·9	76·7	?	47·6	?	62·2	?	29·1	82·8	6th & 11th.	34·8	27th	48·0
	D. I. Khan	573	29·388	−·073	29·973	29·526	2nd	29·256	25th	·270	51·2	76·7	+4·5	46·6	+2·3	61·7	+3·4	30·1	85·2	12th	34·0	27th	51·2
	Mooltan	420	29·547	−·073	29·965	29·696	2nd	29·440	15th	·256	56·2	77·2	+4·1	51·1	+5·2	64·2	+4·7	26·1	82·3	12th	41·3	27th	41·0
	Sirsa	662	29·272	−·074	29·940	29·404	1st	29·169	25th	·235	54·3	78·0	+2·3	50·2	+4·2	64·2	+3·3	27·8	83·5	7th	42·7	26th	40·8
Sind and Cutch.	Jacobabad	186	29·791	−·084	29·951	29·921	2nd	29·680	15th	·241	57·2	81·5	+4·1	50·1	+2·4	65·8	+3·3	31·4	85·5	22nd	39·6	27th	45·9
	Hyderabad	117	29·862	−·087	29·938	29·983	2nd	29·768	11th	·215	62·3	84·8	+4·6	56·6	+2·5	70·7	+3·6	28·2	89·2	5th	51·7	26th & 29th.	37·5
	Kurrachee	49	29·947	−·072	29·949	30·070	2nd	29·863	11th	·207	63·8	81·7	+2·6	60·1	+2·4	70·9	+2·5	21·6	85·5	7th	51·1	27th	34·4
	Bhuj	395	29·569	?	29·931	29·682	2nd	29·482	11th	·200	66·7	87·0	?	60·6	?	73·8	?	26·4	92·9	5th	56·2	28th	36·7
Rajputana, West	Bickaneer	753	29·161	?	29·915	29·285	2nd	29·067	15th	·218	59·0	79·0	?	55·6	?	67·3	?	23·4	84·2	6th & 18th.	50·5	16th & 17th.	33·7
	Pachpadra	380	29·582	?	29·943	29·706	2nd	29·454	21st	·252	57·0	86·3	?	52·1	?	69·2	?	34·2	91·5	3rd	40·4	28th	51·1
East Rajputana, Central India and Guzerat.		...	...	−·058	...	...	...	...	...	...	...	84·6	+2·7	56·7	+3·5	70·4	+3·1	28·3	...	...	...	...	42·2
Rajputana, East	Jeypore	1,431	28·510	−·069	29·959	28·627	1st	28·436	21st	·191	60·6	81·4	+3·1	55·1	+5·0	68·3	+4·1	26·3	86·1	6th & 7th.	47·2	29th	38·9
	Sambhar	1,254	28·667	−·076	29·945	28·783	1st	28·593	26th	·190	56·7	80·8	+4·0	51·6	+3·3	66·2	+3·7	29·2	85·9	6th	42·9	29th	43·0
	Ajmere	1,611	28·342	−·054	29·986	28·463	2nd	28·265	11th	·198	58·7	81·2	+3·5	53·9	+5·8	67·6	+4·7	27·3	85·5	6th	42·8	28th	42·7
	Deesa	466	29·506	−·052	29·948	29·619	2nd	29·412	11th	·207	65·6	90·6	+5·0	58·8	+4·1	74·7	+4·6	31·8	96·8	7th	49·5	27th	47·3
Kathiawar	Rajkot	429	29·565	−·036	29·963	29·656	2nd	29·493	7th	·163	66·1	89·0	+1·2	57·3	+3·1	73·2	+2·2	31·7	94·9	2nd	50·0	25th	44·9
	Veraval	?	29·966	?	29·926	30·033	1st	29·907	7th	·126	69·5	...	...	61·5	?	...	...	...	...	...	54·3	25th	...
	Bhavnagar	?	29·962	?	29·950	30·068	2nd	29·902	8th & 21st.	·166	66·7	85·8	?	62·5	?	74·1	?	23·3	89·4	8th & 18th.	55·0	28th	34·4
Central India	Nowgong	757	29·196	−·068	29·943	29·329	1st	29·091	23rd	·238	62·0	81·8	+1·0	53·3	+2·1	67·6	+1·6	28·5	87·0	19th & 20th.	459	28th	41·1
	Indore	1,823	28·121	−·046	29·945	28·252	1st	28·035	22nd	·217	63·9	84·6	+1·8	51·8	0	68·2	+0·9	32·8	90·0	7th	44·1	28th	45·9
	Neemuch	1,630	28·315	−·051	29·955	28·438	1st	28·241	3 days	·197	63·3	84·0	+3·2	54·6	+3·0	69·3	+3·1	29·4	90·8	7th	41·0	28th	49·8
Guzerat	Surat	36	29·945	−·052	29·926	30·045	2nd	29·884	21st	·161	68·9	91·7	+2·2	61·9	+3·8	76·9	+3·0	29·8	98·2	5th	55·5	26th	42·7
N.-W. P., West	Agra	555	29·408	−·065	29·954	29·542	1st	29·312	26th	·230	58·5	80·2	+1·5	55·6	+3·8	67·9	+2·7	24·6	85·1	19th	47·6	27th & 28th	37·5
	Jhansi	840	29·097	−·064	29·927	29·217	1st	28·994	26th	·223	64·0	83·8	+3·3	58·6	+4·4	71·2	+3·9	25·2	90·4	20th	51·9	15th	38·5
Deccan		...	...	−·046	...	...	...	...	...	...	...	89·2	+1·0	60·9	+1·8	75·1	+1·4	28·4	...	...	...	...	40·6
Bombay, Deccan	Belgaum	2,524	27·417	−·047	29·891	27·526	2nd	27·349	22nd	·177	69·0	88·3	−0·4	60·0	+0·4	74·2	0	28·3	98·8	29th	56·4	12th	42·4
	Sholapur	1,590	28·371	−·037	29·920	28·511	2nd	28·288	26th	·223	73·1	95·1	+1·2	63·7	+2·0	79·4	+1·6	31·4	100·7	29th	56·6	15th	44·1
	Poona	1,840	28·124	−·032	29·948	28·240	2nd	28·060	21st	·180	66·8	92·1	+1·3	58·4	+0·8	75·3	+1·1	33·7	97·5	29th	48·5	15th	49·0
	Bijapur	...	27·960	?	...	28·123	2nd	27·891	7th	·232	74·1	84·4	?	70·9	?	77·7	?	13·5	87·5	24th & 28th.	66·0	16th	21·5
Khandeish	Malegaon	1,430	28·541	−·031	29·963	28·666	2nd	28·452	21st	·214	65·7	90·3	+0·6	56·2	+1·1	73·3	+0·9	34·1	94·4	6th	47·5	15th	46·9
	Ahmednagar	2,152	27·814	?	29·917	27·939	2nd	27·740	21st	·199	66·5	88·6	?	56·5	?	72·6	?	32·1	92·8	6th	48·4	16th	44·4
Berar	Akola	930	29·025	−·042	29·932	29·156	2nd	29·918	21st	·238	67·1	92·1	+1·7	59·2	+2·6	75·7	+2·2	32·9	97·8	10th & 22nd.	51·6	16th	46·2
	Amraoti	1,215	28·724	−·048	29·921	28·859	1st	28·620	21st	·239	68·3	91·6	+1·6	64·7	+3·9	78·2	+2·8	26·9	95·3	3 days	56·4	29th	38·9

I—*continued.*

in India, Burma, etc., in February 1892—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 29th February.	Normal rainfall for period, 1st January to 29th February.	Variation from normal of period, 1st January to 29th February.	Station.	Meteorological Province or District.
18	...	1	...	...	2	...	3	5	2	2	0	73	·306	4·4	2	1·82	+0·18	0·58	0·97	−0·39	1·24	2·75	−1·51	Ludhiana.	Punjab (Sub-montane).
17	5	...	2	...	...	...	3	2	1	2	−50	74	·291	3·7	4	2·45	+1·55	1·15	1·36	−0·21	1·73	3·16	−1·43	Sialkot	Punjab, North.
12	1	3	...	1	...	...	4	8	3	2	+50	72	·240	4·1	1	3·18	−2·18	0·27	1·85	−1·58	0·33	4·53	−4·20	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·12	0·39	−0·26	...	...	...	**Indus Valley and North-West Rajputana.**	
8	...	1	...	1	5	8	4	2	5	3	+67	72	·253	5·0	0	2·00	−2·00	0·23	0·97	−0·74	0·42	2·60	−2·18	Peshawar	Punjab, West.
14	1	6	2	...	...	...	2	4	3	?	?	54	·222	3·1	1	1·70	−0·70	0·16	0·77	−0·61	1·32	1·29	+0·03	Khushab.	
8	3	3	4	2	1	1	3	4	5	?	?	64	·279	3·7	1	1·10	−0·10	0·33	0·64	−0·31	0·48	0·88	−0·40	Montgomery	
18	2	1	2	...	...	1	2	3	1	2	−50	65	·250	3·5	1	0·91	+0·09	0·28	0·34	−0·06	0·28	0·82	−0·54	D. I. Khan.	
7	...	14	2	1	...	3	...	2	2	2	0	64	·296	3·3	1	1·00	0	0·35	0·38	−0·03	0·66	0·77	−0·11	Mooltan.	
4	2	2	7	1	5	...	4	4	5	3	+67	73	·312	3·9	1	0·55	+0·45	0·10	0·24	−0·14	0·87	1·16	−0·29	Sirsa.	
17	3	...	4	2	...	...	...	3	4	3	+33	47	·232	2·4	0	1·00	−1·00	0·02	0·32	−0·30	0·10	0·55	−0·45	Jacobabad	Sind and Cutch.
...	...	12	...	1	...	8	...	8	6	7	−14	49	·278	2·7	0	0·30	−0·30	0	0·26	−0·26	0·12	0·72	−0·60	Hyderabad.	
...	...	26	...	...	...	1	2	...	10	11	−9	75	·450	1·4	0	0·36	−0·36	0	0·22	−0·22	0·31	0·83	−0·52	Kurrachee.	
10	2	2	...	...	...	1	8	6	5	7	−29	67	·440	0·6	0	?	?	0	0·16	−0·16	0	0·22	−0·22	Bhuj.	
1	4	4	2	8	3	5	...	2	5	4	+25	44	·225	3·6	0	?	?	0·01	0·24	−0·23	0·43	0·50	−0·07	Bickaneer	Rajputana, West.
19	1	5	1	...	...	1	...	2	5	3	+67	44	·204	2·6	0	?	?	0	0·09	−0·09	0·39	0·46	−0·07	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·13	0·17	−0·01	...	...	...	**East Rajputana, Central India and Guzerat.**	
10	4	4	4	1	...	2	1	3	3	4	−25	57	·300	3·2	0	0·60	−0·60	0·10	0·17	−0·07	2·67	0·70	+1·97	Jeypore	Rajputana, East.
12	2	6	1	...	1	1	3	3	5	5	0	60	·282	2·8	0	0·55	−0·55	0·02	0·12	−0·10	0·85	0·48	+0·37	Sambhar.	
17	1	5	...	...	...	1	1	4	4	3	+33	61	·303	2·3	0	0·64	−0·64	0	0·28	−0·28	1·19	0·61	+0·58	Ajmere.	
...	2	3	1	3	3	1	5	11	8*	9	−11	43	·280	2·0	0	0·27	−0·27	0	0·16	−0·16	0·55	0·22	+0·33	Deesa.	
7	3	7	1	...	...	1	1	9	6	6	0	66	·432	0·2	0	0·10	−0·10	0	0·09	−0·09	0	0·12	−0·12	Rajkot	Kathiawar.
7	14	3	...	...	...	...	...	5	7	?	?	61	·442	0·8	0	?	?	0	?	?	0	?	?	Veraval.	
...	...	1	...	...	...	18	5	5	10*	?	?	69	·460	0·8	0	?	?	0	?	?	0	?	?	Bhavnagar.	
6	1	...	5	...	...	2	11	4	2	2	0	71	·386	1·6	2	0·73	+1·27	0·97	0·26	+0·71	1·90	1·03	+0·87	Nowgong	Central India.
16	4	1	...	2	1	2	2	1	3	3	0	54	·323	0·6	2	0·55	+1·45	0·22	0·20	+0·02	0·87	0·36	+0·51	Indore.	
9	1	3	2	1	...	1	5	7	7	9	−22	48	·281	0·6	1	0·55	+0·45	0·19	0·24	−0·05	0·29	0·38	−0·09	Neemuch.	
...	4	...	...	2	2	...	5	16	...	5	?	66	·480	1·1	0	0	0	0	0	0	0	0·07	−0·07	Surat	Guzerat.
1	...	3	...	6	...	5	...	14	4	4	0	69	·343	2·1	0	0·36	−0·36	0·14	0·05	+0·09	0·82	0·66	+0·16	Agra	N.-W. P., West.
13	2	...	...	...	1	8	1	4	2	3	−33	58	·344	1·5	0	1·09	−1·09	0·11	0·31	−0·20	1·45	0·88	+0·57	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·38	0·14	+0·32	...	...	...	**Deccan.**	
14	1	3	3	3	1	...	3	1	...	10	?	48	·336	0·4	0	0·09	−0·09	0·01	0	+0·01	0·01	0·07	−0·06	Belgaum	Bombay, Deccan.
1	3	4	7	8	1	1	...	4	13	7	+86	34	·280	0·6	0	0·09	−0·09	0	0	0	0	0·20	−0·20	Sholapur.	
25	...	1	2	...	...	...	...	1	7	6	+17	48	·313	0·7	1	0	+1·00	0·66	0	+0·66	0·66	0·07	+0·59	Poona.	
1	...	2	1	8	...	4	3	10	7	?	?	55	·462	0·5	0	0·10	−0·10	0	0·02	−0·02	0	0·10	−0·10	Bijapur.	
5	...	1	...	...	...	2	10	11	5	5	0	69	·435	1·3	0	0·18	−0·18	0	0·07	−0·07	0	0·39	−0·39	Malegaon	Khandeish.
4	4	4	3	1	2	2	1	8	7	?	?	61	·403	0·5	0	?	?	0	0·07	−0·07	0	0·63	−0·63	Ahmednagar	
8	1	5	4	4	...	...	3	4	5	4	+25	42	·281	0·9	0	0·18	−0·18	0	0·07	−0·07	0	0·58	−0·58	Akola	Berar.
8	...	4	12	3	...	1	1	...	5	4	+25	41	·283	1·2	1	0·27	+0·73	0·33	0·08	+0·25	0·33	0·42	−0·09	Amraoti.	

* Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 173 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	28·909	—·039	29·947	29·043	2nd	28·818	21st	·225	63·8	88·7	—0·1	56·2	+1·1	72·5	+0·5	32·5	95·2	7th	47·6	29th	47·6
	Hoshangabad	1,020	28·944	—·056	29·961	29·075	1st	28·844	22nd	·231	62·9	86·1	+0·7	57·8	+2·8	72·0	+1·8	28·3	91·4	7th	50·8	29th	40·6
	Nagpur	1,025	28·920	—·048	29·926	29·046	1st	28·804	21st	·242	69·1	90·0	+0·6	61·0	+1·6	75·6	+1·1	29·0	94·8	21st & 27th.	54·2	16th	40·6
Central Provinces, Central.	Seoni	2,030	27·918	—·043	29·968	28·067	1st	27·809	23rd	·258	65·1	84·1	—0·2	56·1	+0·8	70·1	+0·3	28·0	88·6	23rd	48·9	16th	39·7
	Jubbulpore	1,327	28·616	—·049	29·954	28·752	1st	28·497	23rd	·255	60·2	83·6	+1·4	53·4	+1·5	68·5	+1·5	30·2	88·4	11th	44·4	29th	44·0
	Saugor	1,762	28·172	—·055	29·945	28·312	1st	28·059	23rd	·253	61·8	83·9	+3·1	56·4	+2·1	70·1	+2·6	27·5	89·3	7th	48·4	29th	40·9
Central Provinces, East.	Raipur	960	28·990	—·037	29·936	29·121	1st	28·857	23rd	·264	68·9	87·9	+0·8	62·3	+1·9	75·1	+1·4	25·6	92·0	4 days.	53·8	16th	38·2
	Sutna	1,040	28·893	—·071	29·937	29·040	1st	28·781	23rd	·259	61·3	81·3	+1·7	53·8	+2·7	67·6	+2·2	27·5	86·1	3rd	47·8	28th & 29th.	38·3
Hyderabad, North.	Aurangabad	?	28·114	?	?	28·235	2nd	28·046	22nd & 26th	·189	70·2	89·9	?	59·2	?	74·6	?	30·7	94·0	4th	51·9	15th	42·1
	Indur	...	...	...	...	...	...	...	...	...	71·6	91·0	?	62·4	?	76·7	?	28·6	95·5	27th & 29th.	54·2	2nd	41·3
	Beeder	...	27·792	?	?	27·916	2nd	27·715	22nd	·201	73·2†	88·6	?	64·9†	?	76·6†	?	23·7	97·5	27th	61·6	8th	35·9
Hyderabad, South.	Gulburga	?	28·444	?	?	28·568	1st	28·363	26th	·205	73·6	93·0	?	64·1	?	78·5	?	28·9	98·7	29th	53·5	3rd	45·2
	Raichur	...	28·567	?	?	28·694	1st & 2nd	28·459	29th	·235	73·3	93·2	?	68·6	?	80·9	?	24·6	98·3	29th	64·4	3rd	33·9
	Secunderabad	1,787	28·168	—·053	29·928	28·303	2nd	28·079	23rd	·224	69·4	92·0	+0·9	63·7	+1·1	77·9	+1·0	28·3	98·2	29th	60·0	3rd	38·2
	Hyderabad (Deccan).	1,690	28·266	?	29·929	28·398	2nd	28·178	23rd	·220	70·1	92·7§	?	63·5	?	78·9§	?	29·2	96·6	29th	59·3	1st & 2nd.	37·3
	Kamamet	?	29·603	?	?	29·745	1st	29·497	4th 23rd	·248	73·1	93·0	?	67·4	?	80·2	?	25·6	97·8	25th	61·2	5th	36·6
West Coast		...	...	—·054	...	...	...	...	...	...	...	87·4	+1·5	71·5	+1·1	79·5	+1·3	16·0	...	...	...	...	24·7
Konkan	Bombay	37	29·930	—·054	29·907	30·039	2nd	29·855	29th	·184	74·2	84·3	+1·9	71·6	+3·2	78·0	+2·6	12·7	87·4	3rd & 18th.	66·0	15th	21·4
	Ratnagiri	110	29·831	—·045	29·881	29·943	2nd	29·722	24th	·221	76·6	88·4	+2·2	69·6	+2·6	79·0	+2·4	18·8	96·9	3rd	61·9	14th	35·0
	Mormugoa	?	29·883	?	29·878	29·976	2nd	29·801	24th	·175	74·8	86·4	?	72·1	?	79·3	?	14·3	90·0	3 days	68·3	15th	21·7
Malabar	Karwar	44	29·900	—·060	29·877	29·994	2nd	29·809	24th	·185	70·2	87·4	+1·3	66·7	—0·4	77·1	+0·5	20·7	93·8	3rd	62·5	4th	31·3
	Mangalore	26	29·926	—·057	29·883	30·008	1st	29·840	24th	·168	76·6	88·4	+0·7	72·6	+1·4	80·5	+1·1	15·8	95·3	3rd	68·0	4th	27·3
	Calicut	27	29·917	—·060	29·875	29·987	1st	29·839	22nd	·148	78·7	89·0	?	72·8	?	81·0	?	16·2	89·8	5 days	69·1	3rd	20·7
	Cochin	10	29·931	—·048	29·869	29·989	2nd	29·871	22nd	·118	79·0	90·6	+1·2	71·6	—1·3	81·1	—0·1	19·0	92·3	1st & 28th.	66·8	2nd	25·5
	Trivandrum	?	29·733§	?	29·865	29·751	18th	29·675	22nd	·076	76·8	84·7	?	74·6	?	79·7	?	10·1	86·0	4 days	71·0	4th & 6th.	15·0
South India		...	...	—·053	...	...	...	...	...	...	...	89·0	+0·6	68·2	+1·4	78·7	+1·0	20·8	...	...	...	...	31·6
Madras, South	Pamban	37	29·925	?	29·889	30·027	2nd	29·838	23rd	·189	78·6	84·2	?	75·3	?	79·8	?	8·9	89·8	28th	70·2	5th	19·6
	Tinnevelly*	...	29·801	?	29·726	29·937	32nd	29·720	23rd	·217	77·0	92·2	?	74·1	?	83·2	?	18·1	97·8	26th	65·9	5th	31·9
	Madura	447	29·511	—·056	29·899	29·618	2nd	29·435	24th	·183	77·0	91·7	—0·4	71·0	+2·0	81·4	+0·8	20·7	94·4	5 days	64·7	5th	29·7
Madras, South Central.	Salem	940	29·049	—·055	29·940	29·156	2nd	28·968	24th	·188	74·3	95·5	+2·2	67·7	+3·3	81·7	+2·8	27·8	99·4	28th & 29th.	59·9	4th	39·5
	Coimbatore	1,348	28·603	—·061	29·911	28·691	2nd	28·528	24th	·163	72·2	93·6	+1·6	66·8	+1·9	80·3	+1·8	26·8	95·8	4 days	61·6	5th	34·2
Coorg	Mercara	3,781	26·250	?	29·890	26·312	6th	26·189	24th	·123	66·7	81·5	+0·2	59·6	+2·3	70·6	+1·3	21·9	86·2	28th	56·7	2nd	29·5
Mysore	Bangalore	2,982	27·024	—·051	29·937	27·119	2nd	26·953	23rd	·166	68·2	87·0	+1·7	60·4	+1·7	73·7	+1·7	26·6	92·2	29th	54·9	6th & 22nd	37·3
Madras, East Coast, South.	Negapatam	31	29·931	—·060	29·891	30·045	2nd	29·851	23rd	·194	76·9	84·0	—0·2	72·9	+1·4	78·5	+0·6	11·1	89·2	28th	65·2	4th	24·0
	Cuddalore	12	29·955	?	29·897	30·072	2nd	29·864	23rd	·208	75·3	85·0	?	69·6	?	77·3	?	15·4	88·7	25th & 29th.	62·8	4th	25·9
	Trichinopoly	254·255	29·715	—·058	29·907	29·823	2nd	29·637	23rd	·186	76·0	92·2	+0·2	70·3	+2·7	81·3	+1·5	21·9	96·6	25th & 27th.	63·9	4th	32·7
	Madras	22	29·956	—·065	29·909	30·078	1st	29·851	24th	·227	75·7	87·5	+1·0	68·5	+0·8	78·0	+0·9	19·0	90·5	17th & 28th.	62·5	22nd	28·0
Madras, East Coast, Central.	Nellore	71	29·889	?	29·894	30·034	1st	29·783	23rd	·251	74·7	90·8	?	68·0	?	79·4	?	22·8	95·7	16th	63·6	22nd	32·1
	Masulipatam	15	29·969	—·060	29·919	30·109	1st	29·858	23rd	·251	74·8	86·8	—0·2	67·6	—0·1	77·2	—0·2	19·2	94·6	5th	62·2	22nd	32·4
Madras, Central	Cuddapah	433	29·527	?	29·905	29·677	1st	29·429	29th	·248	77·6	95·9	?	68·9	?	82·4	?	27·0	101·7	28th	62·4	3rd	39·3
	Kurnool	923	29·029	?	29·907	29·173	1st	28·927	29th	·246	74·8	94·8	?	64·9	?	79·9	?	29·9	99·5	29th	57·3	3rd	42·2
	Bellary	1,475	28·473	—·034	29·908	28·608	1st	28·375	29th	·233	73·7	94·3	0	66·1	+1·4	80·2	+0·7	28·2	100·5	29th	59·6	1st	40·9
Madras, East Coast, North.	Rajahmundry	112	29·860	?	29·911	29·990	1st	29·757	23rd	·233	73·8	92·2	?	68·3	?	80·3	?	23·9	98·0	5th & 5th.	64·5	2nd	33·5

* The winds are for 28 days.

† Mean of 27 days.

I—*continued.*

in India, Burma, etc., in February 1892—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 29th February 1892.	Normal rainfall for period, 1st January to 29th February.	Variation from normal of period, 1st January to 29th February.	Station.	Meteorological Province or District.
13	4	3	...	1	1	1	1	5	3	4	− 25	46	·272	0·6	1	0·18	+0·82	0·33	0·04	+ 0·29	0·34	0·32	+ 0·02	Khandwa .	Central Provinces, West.
3	...	7	11	1	...	4	2	1	4	3	+ 33	63	·367	1·5	2	0·36	+1·64	0·46	0·19	+ 0·27	0·49	0·48	+ 0·01	Hoshangabad.	
6	7	3	3	1	...	...	...	9	6	4	+ 50	48	·364	1·0	2	0·91	+1·09	0·57	0·20	+ 0·37	0·57	0·63	− 0·06	Nagpur.	
...	6	6	5	4	3	1	...		2	3	− 33	57	·356	1·2	4	1·55	+2·45	1·46	0·71	+ 0·75	1·60	1·31	+ 0·29	Seoni .	Central Provinces, Central.
22	...	1	...	3	1	2	...	...	1	2	− 50	76	·403	1·6	3	0·91	+2·09	1·30	0·31	+ 0·99	1·95	1·21	+ 0·74	Jubbulpore.	
13	2	1	2	4	5	2	...	...	3	3	0	57	·316	1·1	1	0·82	+0·18	0·35	0·27	+ 0·08	0·74	1·03	− 0·29	Saugor.	
1	3	4	2	1	3	3	4	7	*5	4	+ 25	*53	·373*	*2·1	1	0·73	+0·27	0·19	0·31	− 0·12	0·19	0·46	− 0·27	Raipur .	Central Provinces, East.
5	4	2	...	1	4	...	9	4	5	5	0	68	·373	1·0	4	1·18	+ 2·82	3·52	0·36	+ 3·16	4·23	1·49	+ 2·74	Sutna.	
13	1	7	3	2	1	2	...	...	4	?	?	38	·284	0·5	0	?	?	0	?	?	0	?	?	Aurangabad	Hyderabad, North.
2	2	1	4	4	8	2	2	4	4	?	?	46	·354	1·1	0	?	?	0	0·01	− 0·01	0	0·06	− 0·06	Indur.	
...	3	3	2	5	2	10	1	2	8	?	?	‡56	‡·451	0	0	?	?	0	...	...	...	...	...	Beeder.	
8	3	4	3	6	5	...	...	...	8	?	?	46	·378	0·6	0	?	?	0	0·12	− 0·12	0	0·20	− 0·20	Gulburga .	Hyderabad, South.
...	1	1	3	10	7	2	2	3	6	?	?	48	·399	1·4	0	?	?	0	0	0	0	0·04	− 0·04	Raichur.	
6	1	6	10	3	1	...	...	2	6	4	+ 50	60	·426	1·7	0	0	0	0	0	0	0	0·08	− 0·08	Secunderabad.	
12	3	1	3	5	1	...	2	2	2	?	?	65	·477	1·4	0	?	?	0	?	?	0	?	?	Hyderabad (Deccan).	
9	1	...	...	11	8	...	...	...	...	?	?	76	·626	1·8	0	?	?	0	?	?	0	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·22	0·12	−0·05	...	...	...	**West Coast.**	
...	5	13	8	2	1	...	...	...	11	11	0	70	·600	0·9	0	0	0	0	0	0	0	0·13	− 0·13	Bombay .	Konkan.
11	9	3	5	1	...	...	...	...	8	12	− 33	63	·570	0·2	0	0	0	0	0	0	0	0·37	− 0·37	Ratnagiri.	
3	5	5	8	5	2	...	...	1	10	?	?	85	·738	0·4	0	...	...	0	?	?	0	?	?	Mormugoa.	
1	1	17	10	...	...	...	...	...	3	?	?	83	·610	0·2	0	0	0	0	0	0	0	0·14	− 0·14	Karwar.	
3	4	11	11	...	...	...	...	...	3	4	− 25	78	·711	1·0	0	0	0	0	0	0	0	0·01	− 0·01	Mangalore .	Malabar.
3	4	8	11	3	...	...	...	...	15	?	?	74	·730	0·9	0	0·13	−0·13	0	0·08	− 0·08	0	0·31	− 0·31	Calicut.	
9	...	15	3	...	...	...	...	2	4	?	?	73	·728	1·4	2	1·00	+1·00	0·40	0·62	− 0·22	0·40	1·14	− 0·74	Cochin.	
...	5	10	9	3	...	...	1	1	5	?	?	86	·802	3·3	3	...	...	1·35	?	?	1·35	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·34	0·22	+0·08	...	...	...	**South India.**	
4	4	14	5	...	1	...	...	1	8	?	?	81	·788	4·6	3	?	?	1·12	?	?	2·30	?	?	Pamban.	Madras, South.
...	15	3	...	...	...	...	1	9	5	?	?	84	·787	3·7	2	1·50	+0	0·83	0·83	0	?	?	?	Tinnevelly.¶	
1	16	11	...	...	...	...	...	1	4	5	− 20	74	·700	1·8	1	0·45	+0·55	1·00	0·28	+ 0·72	1·00	0·73	+ 0·27	Madura .	
15	1	10	3	...	...	...	...	...	3	6	− 50	77	·665	1·4	1	0·09	+0·91	1·25	0·07	+ 1·18	1·28	0·55	+ 0·73	Salem .	Madras, South Central.
...	13	6	6	...	...	2	2	...	6	3	+100	87	·689	4·1	2	0·30	+ 1·70	0·99	0·14	+ 0·85	0·99	0·38	+ 0·61	Coimbatore.	
...	10	1	15	...	...	...	1	2	5	4	+ 25	69	·457	3·8	0	0·30	−0·30	0	0·11	− 0·11	0	0·16	− 0·16	Mercara .	Coorg.
...	...	4	12	7	2	2	2	...	4	4	0	71	·492	2·5	0	0·18	−0·18	0	0·14	− 0·14	0	0·33	− 0·33	Bangalore	Mysore.
7	...	6	1	1	...	...	2	12	9	4	+125	80	·743	5·1	0	0·55	−0·55	0	0·65	− 0·65	0·16	2·87	− 2·71	Negapatam	Madras, East Coast, South.
...	9	1	2	...	1	1	6	9	3	?	?	90	·794	1·4	0	0·40	−0·40	0	0·25	− 0·25	1·38	1·13	+ 0.25	Cuddalore.	
1	8	12	5	1	...	1	...	1	5	4	+ 25	78	·704	2·8	1	0	+1·00	0·26	0	+ 0·26	0·29	2·85	− 2·56	Trichinopoly	
1	6	4	4	2	1	3	4	4	6	5	+ 20	83	·740	2·4	0	0·09	−0·09	0	0·27	− 0·27	0·13	1·87	− 1·74	Madras.	
3	...	1	...	10	2	2	1	10	4	?	?	83	·714	3·3	0	0·20	−0·20	0	0·08	− 0·08	0	0·52	− 0·52	Nellore .	Madras, East Coast, Central.
12	8	3	...	4	1	...	...	1	2	5	− 60	89	·743	2·9	1	0·27	+0·73	0·55	0·15	− 0·40	0·55	0·39	+ 0·16	Masulipatam.	
...	...	4	13	11	1	...	...	...	...	?	?	57	·540	0·9	0	0·10	−0·10	0	0	0	0	0·03	− 0·03	Cuddapah.	Madras, Central.
29	...	...	...	...	...	...	...	...	...	?	?	57	·485	0·4	0	0	0	0	0	0	0	0·11	− 0·11	Kurnool.	
24	...	...	...	1	1	...	...	3	4	4	0	52	·435	0·4	0	0·09	−0·09	0	0·07	− 0·07	0	0·21	− 0·21	Bellary.	
4	14	10	...	...	...	...	...	1	...	?	?	74	·630	1·7	1	0·20	+0·80	0·85	0·25	+ 0·60	0·85	0·41	+ 0·44	Rajahmundry	Madras, East Coast, North.

§ Mean of 23 days. * Mean of 28 days. ¶ Mean of 26 days. ‡ Mean of 24 days.

Table

Abstract of Observations taken at 8 A.M., at 173 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.
Madras East Coast, North —*concld.*	Coconada	26	29·954	?	29·915	30·096	1st	29·862	23rd	·244	73·6	85·6	?	67·6	?	76·6	?	18·0	93·7	29th	63·2	21st	30·5
	Vizagapatam	31	29·950	−·058	29·919	30·083	1st	29·830	23rd	·253	75·6	81·7	−1·1	71·3	+1·4	76·5	+0·2	10·4	84·9	22nd	67·4	1st & 20th.	17·5
	Gopalpur	21	29·947	−·030	29·908	30·084	1st	29·805	23rd	·279	69·9	84·3	+2·5	65·9	−2·6	75·1	−0·1	18·4	90·2	25th	59·0	5th	31·2
Hill Stations		...	...	...	?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beluchistan	Quetta	5,502	24·657	+·009	?	24·746	3rd	24·577	21st	·169	40·2	57·4	+4·9	33·4	+1·8	45·4	+3·4	24·0	66·7	3rd	24·3	6th, 10th, & 26th.	42·4
	Shebo*	?	?	?	?	?	?	?	?	?	40·4	59·7	?	?	?	?	?	?	67·5	9th	?	?	?
Northern India	Srinagar	5,204	24·895	?	?	25·080	2nd	24·706	25th	·374	36·9	50·2	?	33·8	?	42·0	?	16·4	55·5	12th	25·1	27th	30·4
	Murree	6,344	23·815	+·001	?	23·939	1st	23·652	25th	·287	40·6	51·3	+3·5	35·8	+1·5	43·6	+2·5	15·5	62·6	4th	27·7	25th	34·9
	Simla	7,274	23·007	−·027	?	23·138	2nd	22·886	15th	·252	41·9	48·3	?	38·1	?	43·2	?	10·2	58·4	5th	28·8	15th	29·6
	Mussoorie	?	23·558	?	?	23·704	18th	23·405	15th	·299	43·3	52·4	?	40·2	?	46·3	?	12·2	63·2	5th	31·0	15th	32·2
	Ranikhet	6,069	24·072	−·019	?	24·205	12th	23·957	24th	·248	45·8	56·8	+1·2	42·3	+1·4	49·6	+1·3	14·5	67·6	4th	29·5	16th	38·1
	Gnatong	?	19·081	?	?	19·277	1st	18·893	22nd	·384	36·6	49·6	?	14·5	?	32·1	?	35·1	57·4	17th	3·1	16th	54·3
	Darjeeling	7,421	22·902	−·031	?	23·036	1st	22·740	24th	·296	41·3	46·0	+0·2	36·4	+2·6	41·3	+1·4	9·6	52·3	23rd	29·3	16th	23·0
	Kalimpong	?	26·057	?	?	26·219	17th	25·869	24th	·350	51·3	63·2	?	49·3	?	56·3	?	13.9	69·2	5th	43·3	16th & 17th.	25·9
Central India	Mount Abu	3,945	26·088	−·027	?	26·231	2nd	26·012	22nd	·219	61·8	69·7	+0·2	56·4	+3·0	63·1	+1·6	13·3	75·1	3rd & 7th	49·0	27th	26·1
	Pachmarhi	3,511	26·517	−·019	?	26 644	2nd	26·417	21st	·227	66·3	76·3	+1·0	52·4	+1·6	64·4	+1·3	23·9	81·7	7th	45·8	25th	35·9
South India	Wellington	6,200	24·287	−·007	?	24·348	2nd	24·230	22nd	·118	59·3	71·2	+0·7	48·9	+2·3	60·1	+1·5	22·3	74·2	9th	41·2	4th	33·0
	Kodaikanal	?	?	?	?	?	?	?	?	?	57·7	67·9	?	51·2	?	59·6	?	16·7	71·9	8th	43·4	1st	28·5
	Kotagiri		23·887	?	?	24·075	2nd	23·799	23rd	·276	59·4	70·1	?	51·2	?	60·7	?	18·9	74·7	10th	47·0	1st	27·7
Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Meshed		?	?	?	?	?	?	?	?	36·4	49·8	?	31·4	?	40·6	?	18·4	62·0	15th & 16th.	20·0	25th	42·0
Persia	Bushire	14	30·035	?	30·007	30·207	3rd	29·817	15th & 28th	·390	58·9	67·8	?	54·5	?	61·1	?	13·3	80·6	25th & 26th	47·3	22nd	33·3
Arabia	Aden	94	29·910	?	29·937	29·983	4th	29·851	22nd	·132	75·2	81·8	?	73·2	?	77·5	?	8·6	85·1	13th	69·1	10th	16·0
	Perim		29·762	?	?	29·853	5th	29·651	25th	·202	76·5	83·6	?	74·2	?	78·9	?	9·4	86·5	28th	72·2	5th & 8th.	14·3
Arabian Sea Island.	Minicoy		29·950	?	29·886	29·995	1st	29·893	22nd & 23rd.	·102	?	?	?	?	?	?	?	?	?	?	?	?	?
Africa	Zanzibar	73	29·870	?	29·870	29·939	19th	29·799	11th	·140	82·2	86·6	?	80·1	?	83·4	?	6·5	88·1	9th	77·3	11th	10·8

* Mean of 23 days. * Mean of 22 days from 9th to 30th. † Mean of 14 days.

I —*concluded.*

in India, Burma, etc., in February 1892 —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 29th February 1892.	Normal rainfall for period, 1st January to 29th February.	Variation from normal of period, 1st January to 29th February.	Station.	Meteorological Province or District.
5	13	1	1	1	...	...	1	7	6	?	?	77	·628	1·1	0	0·40	−0·40	0	0·21	− 0·21	0	0·43	− 0·43	Cocanada.	Madras East Coast, North —*Concld.*
...	...	...	...	...	...	...	23	6	1	2	−50	71	·637	1·2	0	0·18	−0·18	0	0·09	− 0·09	0	0·30	− 0·30	Vizagapatam.	
2	12	...	...	...	1	3	...	11	12	10	+20	78	·570	0·2	0	1·13	−1·13	0	0·65	− 0·65	0	0·87	− 0·87	Gopalpur	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**Hill Stations.**	
29	...	...	...	...	...	...	...	...	2	4	−50	61	·153	3·0	2	4·09	−2·09	0·88	1·69	− 0·81	1·63	3·65	−2·02	Quetta .	Beluchistan.
...	...	6	1	1	2	12	1	...	?	?	?	75	·194	2·0	3	...	...	1·67	?	?	?	?	?	Shebo*.	
14	2	2	...	5	5	...	...	1	4	?	?	88	·199	6·6	4	...	...	0·98	?	?	1·93	?	?	Srinagar .	Northern India.
7	2	1	1	11	...	...	...	7	10	8	+25	58	·145	5·5	6	3·36	+2·64	·321	2·75	+0·46	4·44	5·37	−0·93	Murree.	
5	9	3	...	4	7	...	1	...	...	2	?	50	·130	4·2	3	4·36	−1·36	2·20	2·37	−0·17	2·49	4·87	−2·38	Simla.	
...	5	1	2	6	1	1	3	10	...	?	?	66	·185	3·9	4	3·50	+0·50	2·79	?	?	3·11	?	?	Mussoorie	
20	...	...	3	1	...	5	...	...	3	2	+50	62	·187	4·2	3	4·09	−1·09	2·45	1·53	−0·92	3·13	3·96	−0·83	Ranikhet.	
...	...	...	...	...	...	...	...	...	...	...	...	70	·149	?	10	?	?	12·29	?	?	12·94	?	?	Gnatong.	
3	...	1	7	5		8	4	...	9	5	+80	80	·210	4·0	4	2·29	+1·71	2·45	0·95	+1·50	2·73	1·26	+1·47	Darjeeling.	
5	...	8	3	7	...	1	4	1	?	?	?	78	·299	3·9	3	?	?	1·73	?	?	1·85	?	?	Kalimpong.	
2	7	4	...	...	...	4	7	5	6	6	0	38	·211	1·7	0	0·36	−0·36	0·03	0·36	−0·33	0·81	0·69	+0·12	Mount Abu	Central India.
4	1	...	3	3	4	1	9	4	5	4	+25	38	·248	1·6	2	0·82	+1·18	1·34	0·25	+1·09	1·62	0·77	+0·85	Pachmarhi.	
22	1	4	...	1		...	...	...	2	3	−33	65	·332	1·4	3	0·50	+2·50	1·00	0·15	+0·85	1·02	1·19	−0·17	Wellington.	South India.
1	10	6	2	2		...	2	2	?	?	?	50	·239	1·1	1	?	?	0·67	?	?	0·82	?	?	Kodaikanal.	
9	1	3	5	5		...	1	...	5	?	?	64	·320	2·8	4	?	?	0·85	?	?	0·86	?	?	Kotagiri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**Extra India.**	
2	3	4	...	3	1	1	4	11	?	?	?	?	?	4·3	0	?	?	0·04	...	...	...	...	...	Meshed.	
...	4	10	8	3	1	...	...	3	7	9	−22	77	·385	0	3	?	?	1·00	3·17	−2·17	2·82	6·80	−3·98	Bushire .	Persia.
2	...	11	15	...	...	...	...	1	15	14	+ 7	78	·682	6·5	0	?	?	0·16	0·24	−0·08	0·16	0·52	−0·36	Aden .	Arabia.
...	1	1	2	24	...	1	...	...	19	?	?	79	·722	5·2	3	?	?	1·12	?	?	1·12	?	?	Perim.	
...	15	6	...	...	...	...	...	8	6	?	?	76	·799	4·2	0	?	?	0	?	?	0·94	?	?	Minicoy .	Arabian Sea Island.
...	7	16	1	...	..	2	1	2	9	7	+29	79	·877	8·4	0	?	?	0·06	?	?	5·66	?	?	Zanzibar .	Africa.

* Mean of 28 days.

Table

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

Meteorological Province.	Station.	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	29·897	29·787	·110	29·837	—·052	29·829	88·4	76·0	12·4	90·8	70·9	19·9	83·3	87·1	81·4	+1·7	72·5	76·9	78·6	76·0
	Mergui	·858	·726	·132	·787	—·063	·814	89·3	66·3	23·1	92·6	60·7	31·9	82·4	86·7	77·2	—2·1	64·8	76·0	77·2	72·7
	Rangoon	·912	·774	·138	·840	—·074	·818	94·9	66·3	28·6	98·7	62·1	36·6	79·6	91·3	78·0	+2·2	63·5	70·5	70·9	68·3
	Diamond Island	·936	·824	·112	·877	—·057	·853	84·8	68·2	16·6	87·2	66·7	20·5	80·8	81·2	75·1	—1·5	66·2	72·4	72·2	70·2
	Cocos Island	·875	·785	·091	·827	?	?	83·6	?	?	86·4	?	?	81·4	79·6	?	?	69·4	73·8	72·9	72·0
	Akyab	·973	·858	·116	·908	—·047	·871	84·8	60·2	24·6	88·2	54·2	34·0	75·9	80·7	72·0	—0·2	59·0	67·7	70·1	65·6
Assam.	Silchar	·889	·758	·131	·820	—·069	·878	80·9	57·9	23·0	83·8	48·3	35·5	71·0	80·6	68·8	+2·0	56·7	64·9	67·1	62·9
	Sibsagar	·630	·486	·144	·556	—·116	·857	74·0	54·7	19·3	79·4	46·1	33·3	65·3	71·9	62·7	+1·7	54·5	61·9	64·2	60·2
	Dhubri	·858	·709	·149	·780	—·090	·853	79·8	57·9	21·9	86·4	52·5	33·9	67·8	78·7	67·2	+3·0	55·5	61·1	63·4	60·0
Bengal and Orissa.	Chittagong	·908	·797	·111	·844	—·062	·883	84·9	62·0	22·8	88·7	54·1	34·6	76·5	80·7	72·9	+2·8	60·3	68·8	68·7	65·9
	Dacca	·969	·836	·132	·896	—·058	·866	82·3	61·1	22·2	87·9	53·5	34·4	73·7	81·2	72·0	+2·2	58·9	65·7	66·4	63·7
	Calcutta (Alipore)	·973	·836	·137	·894	—·058	·861	84·7	61·6	23·1	90·7	52·2	38·5	75·7	83·5	72·5	+2·7	58·6	65·0	64·8	62·8
	Calcutta (Chowringhee)	·972	?	?	?	?	?	86·3	62·2	24·1	92·0	53·7	38·3	77·5	?	74·3	?	59·7	66·9	?	?
	Saugor Island	·965	·838	·127	·889	—·060	·859	82·7	68·2	14·5	86·2	57·9	28·3	77·4	80·4	74·4	+2·3	?	69·5	70·2	?
	Burdwan	·899	·759	·140	·816	—·064	·864	85·8	60·9	24·9	92·4	52·3	40·1	74·7	83·4	72·3	+2·1	57·1	61·1	62·6	60·3
	Berhampore	·913	·779	·133	·833	—·068	·850	83·4	58·4	25·0	89·6	52·1	37·5	74·1	82·2	70·1	+1·5	54·6	62·6	64·1	60·4
	False Point	·985	·865	·120	·923	—·053	·886	83·7	66·1	17·5	86·6	58·4	28·2	80·1	80·8	73·7	+1·6	65·3	71·6	72·6	69·8
	Cuttack	·908	·773	·135	·841	—·057	·865	91·3	65·1	26·2	96·4	59·8	36·6	80·8	90·2	77·1	+1·7	63·1	67·8	68·7	66·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	27·941	27·845	·096	27·889	—·050	·882	79·0	56·0	23·0	84·1	49·2	34·9	70·5	77·3	67·0	+1·5	50·7	56·9	58·3	55·3
	Patna	29·783	29·661	·122	29·716	—·086	·858	79·1	56·8	22·3	83·8	51·8	32·0	73·5	78·9	67·8	+2·8	52·9	61·4	62·5	58·9
	Darbhanga	·825	·688	·137	·751	—·062	·876	80·4	55·6	24·8	84·4	51·4	33·0	70·8	79·8	67·8	+3·1	53·7	60·4	62·9	59·0
	Allahabad	·672	·546	·126	·600	—·078	·873	82·7	55·5	27·2	87·9	50·8	37·1	71·3	81·1	68·2	+2·9	52·2	60·8	63·1	58·7
	Ghazipur	·759	·638	·121	·691	—·071	·872	83·2	57·6	25·6	89·3	51·5	37·8	73·1	79·9	69·1	+5·8	54·0	61·9	62·5	59·5
	Lucknow	·602	·482	·120	·535	—·080	·875	80·6	52·9	27·7	85·3	48·0	37·3	70·4	78·1	66·4	+0·9	54·1	59·1	61·4	58·2
Upper Sub-Himalayas.	Dehra-Dun	27·692	27·610	·083	27·644	—·057	·911	71·8	48·6	23·3	79·1	42·1	37·0	62·8	66·8	58·3	+0·6	45·7	52·9	53·8	51·0
	Roorkee	29·053	28·966	·087	29·002	—·058	·895	75·0	49·0	26·0	81·3	42·0	39·3	63·0	73·1	60·9	+0·9	46·1	55·2	57·8	53·0
	Meerut	·223	29·125	·098	·169	—·063	·903	75·9	49·7	26·2	82·7	43·1	39·6	65·3	74·3	61·9	+1·0	48·5	55·7	59·0	54·4
	Lahore	·258	·173	·085	·206	—·079	·912	75·0	47·3	27·7	79·8	37·2	42·6	64·7	73·1	60·1	+3·6	45·0	54·4	56·5	52·0
	Ludhiana	·123	·037	·087	·071	—·089	·888	74·2	49·2	25·0	81·7	39·4	42·3	64·4	71·4	60·4	+2·9	47·8	55·6	57·2	53·5
Indus Valley and N. W. Rajputana.	Peshawar	28·902	28·806	·096	28·844	—·064	·993	69·6	45·8	23·7	77·6	35·9	41·7	58·9	67·0	56·4	+4·4	41·9	50·7	52·7	48·4
	Mooltan	29·572	29·469	·103	29·511	—·074	·918	77·2	51·1	26·1	82·3	41·3	41·0	65·3	76·0	63·3	+5·1	45·8	55·7	62·7	54·7
	Jacobabad	·824	·689	·134	·746	—·075	·901	81·5	50·5	31·0	85·5	39·4	46·1	71·2	80·6	65·2	+3·5	43·9	55·3	58·8	52·7
	Hyderabad (Sind)	·867	·763	·104	·807	—·101	·879	85·2	56·6	28·6	89·2	51·7	37·5	75·4	82·9	70·4	+4·3	50·1	56·0	58·7	54·9
	Kurrachee	·967	·858	·109	·905	—·076	·908	81·8	59·9	21·8	85·3	51·3	34·0	73·7	78·6	70·2	+2·1	56·0	64·3	68·3	62·9
E. Rajputana, Central India and Guzerat.	Jeypore	28·540	28·426	·114	28·473	—·069	·900	81·6	55·1	26·5	86·3	47·2	39·1	72·1	79·5	67·8	+4·9	48·2	57·2	59·3	54·9
	Ajmere	·365	·260	·104	·309	—·051	·920	81·2	54·3	26·9	85·3	42·8	42·5	70·5	79·9	67·7	+6·2	50·6	57·7	61·7	56·7
	Deesa	29·512	29·396	·116	29·445	—·060	·876	91·0	58·8	32·2	96·7	49·6	47·1	79·4	88·7	74·4	+4·1	50·5	60·5	62·9	58·0
	Nowgong	·211	·097	·114	·146	—·084	·883	81·8	53·3	28·5	87·0	45·9	41·1	71·4	79·6	66·8	+2·0	51·9	60·6	63·0	58·5
	Agra	·432	·325	·107	·370	—·066	·904	80·2	55·6	24·6	85·1	47·4	37·7	69·6	79·4	67·4	+3·2	50·9	59·4	63·3	57·9
Deccan.	Belgaum	27·435	27·300	·135	27·363	—·054	·809	88·5	60·0	28·5	98·8	56·3	42·5	79·7	86·8	73·2	+0·5	55·0	60·2	62·4	59·2
	Sholapur	28·380	28·224	·156	28·297	—·053	·826	95·5	63·8	31·7	100·5	56·7	43·8	83·9	93·4	79·8	+2·0	53·2	63·1	66·7	61·0
	Poona	·133	27·987	·146	·059	—·040	·849	92·5	58·4	34·1	97·5	48·4	49·1	80·3	89·9	74·9	+2·0	52·4	59·4	62·0	57·9

II.

at 93 Stations in India, Burma, etc., for February 1892.

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.		
·752	·839	·864	·818	+·007	84	74	67	75	−2	1·9	2·0	1·9	−0·8	...	7	33	8	10	...	...	...	...	N 59° E	N 41° E	77	76	155	117	Port Blair	Burma Coast and Bay Islands.
·595	·815	·808	·739	−·034	92	73	64	76	0	3·6	2·9	3·2	−0·1	...	26	2	1	3	2	...	2	22	N 19° W	N 38° W	71	56	63	49	Mergui	
·553	·627	·485	·555	−·015	85	62	33	60	−3	1·0	2·1	1·5	−0·5	...	5	7	4	5	6	9	14	8	S 89° W	S 56° W	23	13	88	96	Rangoon	
·613	·689	·672	·658	−·020	88	64	63	72	−1	2·1	2·3	2·2	0	...	29	...	...	...	...	...	...	29	N 22° W	N 25° W	91	86	226*	173	Diamond Island	
?	·736	·722	?	?	?	68	72	?	?	0·6	0·8	0·7	?	...	46	11	...	...	...	...	...	...	N 8° E	?	95	?	316	?	Cocos Island	
·475	·575	·599	·550	+·032	86	64	58	69	0	0·8	1·1	0·9	−0·2	...	10	17	4	...	2	1	10	14	N 9° W	N 27° W	50	45	89	83	Akyab	
·453	·536	·494	·495	+·058	83	70	47	70	0	4·2	5·2	4·7	+1·6	33	...	...	4	2	3	9	7	..	S 36° W	S 33° E	24	25	5	66	Silchar	Assam.
·428	·510	·499	·479	+·034	99	82	65	82	+1	6·3	6·8	6·5	+0·9	1	1	41	5	1	2	3	3	1	N 48° E	N 58° E	67	53	45	52	Sibsagar	
·414	·454	·384	·417	+·039	86	67	40	64	0	1·8	2·3	2·1	+0·4	3	3	9	9	4	2	18	8	2	S 30° W	S 22° E	14	13	120	95	Dhubri	
·492	·604	·546	·545	+·041	89	66	52	69	−1	2·9	3·7	3·3	+1·5	17	1	2	1	1	5	13	11	7	S 72° W	N 8° W	40	30	72	106	Chittagong	Bengal and Orissa.
·475	·532	·458	·483	+·042	87	65	43	65	+1	4·2	3·7	3·9	+2·1	...	3	1	2	2	11	19	10	10	S 60° W	S 76° W	53	35	85	63	Dacca	
·461	·485	·368	·438	−·049	83	54	32	56	−12	1·5	1·8	1·7	−0·2	...	11		1	1	...	18	14	11	N 78° W	S 81° W	55	23	90	86	Calcutta (Alipore).	
·486	·529	?	?	?	86	54	?	?	?					Not recorded.									?	?	?	?	?	?	Calcutta (Chowringhee).	
?	·602	·590	?	?	?	64	58	?	?	2·5	1·2	1·9	−0·1	...	17	2	...	...	15	13	6	5	S 83° W	S 58° W	30	23	272	189	Saugor Island.	
·420	·366	·294	·360	−·040	78	43	26	49	−7	2·3	3·1	2·7	+0·8	8	12	1	1	1	...	10	14	11	N 64° W	N 58° W	50	43	47	53	Burdwan	
·379	·421	·361	·387	−·007	77	50	34	54	−10	2·5	2·4	2·4	+0·5	1	1	...	3	1	3	12	29	8	S 82° W	N 72° W	69	44	60	56	Berhampore	
·618	·667	·697	·661	+·046	95	65	66	75	−4	1·9	1·8	1·9	−0·8	...	5	4	5	8	21	8	6	1	S 3° E	S 12° W	42	16	238	183	False Point	
·554	·510	·423	·496	−·025	88	49	30	56	−6	1·0	1·6	1·3	−0·5	...	5	10	1	2	8	17	7	8	S 76° W	S 16° W	27	13	53	51	Cuttack	
·309	·300	·256	·288	+·040	68	42	28	46	+4	2·6	3·1	2·9	+0·8	...	12	...	...	2	4	7	8	25	N 57° W	N 68° W	61	60	221	156	Hazaribagh	Gangetic Plain and Chota Nagpur.
·355	·388	·352	·365	+·011	76	48	37	53	−4	1·3	1·5	1·4	−1·1	1	2	...	1	1	...	2	50	1	N 89° W	N 79° W	87	47	105	71	Patna	
·393	·391	·352	·379	+·002	87	52	35	58	−5	1·2	1·2	1·2	−0·4	2	3	2	1	4	2	10	25	9	S 88° W	S 72° W	57	46	92	87	Durbhunga	
·354	·400	·343	·366	+·035	79	52	33	55	−1	1·8	2·1	2·0	0	7	2	3	7	4	2	2	10	21	N 42° W	N 66° W	33	25	99	69	Allahabad	
·373	·407	·338	·372	+·100?	78	51	34	54	+11?	1·4	1·4	1·4	−0·3	10	...	3	4	3	...	9	21	8	S 88° W	S 82° W	44	58	69	56	Ghazipur	
·364	·358	·333	·352	+·059	73	48	35	52	+1	1·8	1·8	1·8	−1·2	6	...	5	4	2	2	10	16	13	N 85° W	N 58° W	40	44	113	78	Lucknow	
·271	·282	·257	·275		79	50	40	57	?	3·4	5·2	4·3	+0·2	23	3	1	3	3	5	10	7	2	S 46° W	S 85° W	23	19	...	48	Dehra Dun	Upper Sub-Himalayas.
·280	·337	·279	·298	+·011	79	58	35	58	−3	2·9	3·7	3·3	−0·1	14	2	3	2	6	4	4	6	17	N 68° W	N 52° W	23	23	49	68	Roorkee	
·333	·320	·301	·318	+·025	92	52	36	60	+3	2·8	3·5	3·1	+0·3	8	...	6	5	4	1	...	28	6	S 89° W	N 54° W	34	52	65	64	Meerut	
·274	·293	·242	·270	−·009	83	48	31	54	−3	3·0	4·1	3·6	+0·1	10	10	6	7	2	2	1	11	9	N 18° W	N 25° W	29	30	44	57	Lahore.	
·309	·333	·283	·308	+·008	84	56	38	60	−3	4·7	5·2	5·0	+1·1	20	8		3	1	3	...	16	7	N 61° W	N 48° W	35	39	52	39	Ludhiana	
·224	·271	·226	·240	+·008	71	55	36	54	−5	4·1	5·0	4·6	+0·3	12	6	1	7	3	5	2	8	14	N 49° W	N 51° W	23	9	104	78	Peshawar	
·244	·336	·396	·325	+·059	63	51	44	52	−1	2·7	2·7	2·7	0	4	...	24	..	7	...	14	...	9	N 34° E	N 5° E	18	18	42*	53	Mooltan	Indus Valley and N. W. Rajputana.
·208	·231	·208	·216	−·009	55	31	20	35	−6	2·7	3·2	3·0	−0·3	13	4	5	5	3	6	5	...	17	N 31° E	N 17° E	16	36	97	71	Jacobabad	
·269	·197	·177	·214	−·059	55	23	16	31	−11	4·1	3·7	3·9	+1·7	...	...	18	...	2	1	13	...	24	S 66° W	N 25° W	11	41	152*	167	Hyderabad (Sind.)	
·406	·485	·557	·482	+·078	77	58	57	64	+7	1·7	0·6	1·1	−1·9	..	...	16	1	.	...	18	22	1	S 88° W	N 80° W	40	27	231	252	Kurrachee	
·259	·289	·262	·270	+·012	58	36	25	40	−4	2·9	3·4	3·2	+0·4	...	6	3	5	2	5	12	10	15	N 79° W	N 8° W	36	40	86	105	Jeypore	E. Rajputana, Central India and Guzerat.
·331	·326	·329	·329	+·071	77	43	32	50	+5	1·6	2·0	1·8	−0·5	2	7	5	4	...	8	5	21	6	N 81° W	S 77° W	36	8	99	63	Ajmere	
·266	·281	·234	·260	+·031	52	29	17	32	+2	1·5	2·5	2·0	−0·4	...	3	...	6	11	13	8	9	7	S 17° W	N 28° W	33	36	184	215	Deesa	
·374	·388	·359	·374	+·097	91	50	36	59	+11	1·5	3·3	2·4	−0·9	2	5	...	6	1	2	3	30	9	N 78° W	N 52° W	55	33	55	41	Nowgong	
·317	·375	·374	·355	+·076	70	52	37	53	+5	2·0	2·7	2·4	0	...	...	6	2	13	...	15	2	20	S 83° W	N 75° W	20	38	104	97	Agra	
·373	·283	·264	·307	−·026	72	29	21	41	+3	0·1	1·3	0·7	−0·6	...	6	9	13	9	3	4	4	2	N 84° E	S 78° E	31	23	250	241	Belgaum	Deccan.
·277	·321	·325	·308	0	47	28	20	32	−2	0·2	1·5	0·8	−0·9	...	2	10	11	15	3	4	5	8	S 84° E	S 33° E	26	32	231	159	Sholapur	
·326	·248	·214	·263	−·028	66	24	16	35	+3	0·7	1·3	1·0	−0·6	13	...	...	12	10	1	1	12	9	S	N 28° W	4	21	162	152	Poona	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 Stations

Meteorological Province.	Station.	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.*	Akola	29·056	28·893	·163	28·968	—·047	·862	92·4	59·2	33·2	97·7	51·7	46·0	79·6	90·8	75·1	+2·3	50·5	61·4	65·1	59·0
	Buldana	27·839	27·712	·127	27·769	—·046	·848	86·6	63·8	22·8	91·5	57·0	34·5	78·6	84·3	74·3	+1·1	51·3	58·1	59·9	56·4
	Khandwa	28·915	28·795	·120	28·849	—·049	·867	88·7	56·6	32·1	95·2	47·6	47·6	79·9	86·9	72·0	+0·3	48·9	60·3	63·4	57·5
	Hoshangabad	·960	·830	·130	·889	—·062	·887	86·1	57·7	28·4	91·4	50·8	40·6	74·6	86·0	71·6	+1·4	52·2	61·8	65·1	59·7
	Nagpur	28·936	28·787	·149	28·856	—·054	29·847	90·1	61·1	29·0	95·0	54·4	40·6	78·5	88·3	74·9	+1·2	53·6	62·9	65·8	60·8
	Sironcha	29·581	29·443	·138	29·506	—·078	·856	93·3	64·6	28·7	99·0	56·6	42·4	80·8	91·3	78·2	+0·2	59·7	67·6	68·4	65·2
	Chanda	·354	·212	·142	·277	—·035	·867	91·6	59·4	32·2	95·9	51·3	44·6	80·4	89·6	74·7	+0·5	55·5	65·3	68·6	63·1
	Seoni	27·940	27·827	·114	27·878	—·083	·877	84·5	56·1	28·4	88·6	48·9	39·7	75·1	82·6	69·5	+1·3	50·7	60·0	61·4	57·4
	Jubbulpore	28·640	28·513	·127	28·571	—·050	·885	83·6	53·4	30·2	88·4	44·3	44·1	71·6	82·1	67·9	+1·8	52·3	60·9	63·9	59·0
	Saugor*	·197	·084	·113	·135	—·052	·877	83·9	56·5	27·4	89·3	48·3	41·0	74·7	82·8	69·7	+2·6	50·8	59·4	61·4	57·2
	Raipur	29·013	·857	·156	·931	—·056	·853	88·0	62·3	25·7	92·1	53·8	38·3	77·7	86·7	74·5	+2·8	54·0	61·9	64·2	60·0
	Sutna	·918	·792	·126	·847	—·083	·870	81·3	53·9	27·4	86·1	47·8	38·3	71·7	80·3	66·6	+2·3	51·2	58·9	60·6	56·9
	Sambalpur	·503	29·370	·133	29·436	—·049	·857	88·9	59·2	29·7	93·5	53·9	39·6	78·3	87·1	73·1	+0·7	55·5	64·3	67·3	62·4
	Secunderabad	28·194	28·049	·145	28·117	—·034	·843	92·4	63·9	28·5	98·0	60·0	38·0	80·7	89·9	78·2	+1·2	58·1	66·1	68·6	64·3
	Hyderabad (Deccan)	28·289	28·148	·142	28·219	?	?	?	63·5	?	?	59·1	?	81·1	89·0	?	?	56·2	65·8	66·7	62·9
West Coast.	Bombay	29·948	29·820	·128	29·875	—·049	·852	84·3	71·6	12·7	87·4	66·0	21·4	78·7	82·0	77·7	+2·7	65·2	69·4	72·1	68·9
	Ratnagiri	·846	·738	·108	·783	—·050	·832	88·1	69·9	18·2	96·9	61·9	35·0	84·3	84·0	78·3	+2·4	64·2	72·0	74·3	70·2
	Karwar	·918	·798	·121	·849	—·058	·825	87·3	66·7	20·6	93·7	62·4	31·3	80·0	84·9	76·7	+0·3	65·8	71·2	74·3	70·4
	Cochin	·943	·816	·127	·874	—·043	·812	90·6	71·6	19·0	92·3	66·8	25·5	85·7	87·6	80·7	—0·1	71·9	75·0	76·7	74·5
South India.	Salem	·058	28·896	·162	28·981	—·057	·858	95·7	67·7	28·0	99·4	59·9	39·5	81·5	92·6	79·9	+2·6	65·6	72·1	73·9	70·5
	Mercara	26·257	26·151	·106	26·204	—·098	·840	81·8	59·6	22·2	86·4	56·7	29·7	72·6	77·7	70·0	+1·2	56·0	62·7	64·4	61·0
	Trichinopoly*	29·723	29·573	·150	29·652	—·054	·842	92·2	70·2	22·0	96·6	63·7	32·9	84·4	90·3	79·7	+2·2	68·2	72·3	73·5	71·3
	Madras†	29·975	29·869	·108	29·918	—·050	·870	87·7	68·6	19·1	90·5	62·6	27·9	82·8	83·2	77·5	+0·4	?	74·0	74·0	72·2
	Bellary	28·486	28·335	·151	28·406	—·036	·817	94·3	66·2	28·1	100·5	59·6	40·9	83·9	92·7	80·6	+0·9	56·3	66·1	67·8	63·4
	Vizagapatam	29·983	29·843	·140	29·903	—·048	·872	81·9	71·3	10·7	85·0	67·3	17·7	80·5	82·3	79·6	+0·7	65·3	70·7	72·6	69·5
Hill Station, Beluchistan.	Quetta	24·668	24·590	·078	24·622	—·016	?	57·4	33·4	24·0	66·7	24·1	42·6	49·1	54·3	44·6	+3·4	30·9	39·2	41·6	37·2
Hill Stations, Northern India.	Leh	19·645	19·558	·087	19·608	+·021	?	35·1	14·6	20·5	44·7	4·8	39·9	26·4	30·0	24·9	+3·0	13·6	22·2	26·2	20·7
	Srinagar	24·912	24·824*	·088*	24·866*	?	?	50·3	33·7	16·5	55·5	25·1	30·4	41·3	48·3*	41·[illegible]*	?	32·4	38·4	42·6*	37·8*
	Murree	23·839	23·811	·028	23·818	—·012	?	51·5	36·1	15·4	62·6	27·7	34·9	44·7	46·4	41·9	+2·6	32·4	37·4	39·0	36·2
	Chamba	26·963	26·878	·085	26·927	—·058	?	63·9	45·6	18·3	77·0	38·7	38·3	54·0	60·2	52·4	+2·9	42·4	47·0	49·5	46·3
	Kailang	20·755	20·700	·055	20·734	—·001	?	33·5	16·3	17·2	44·2	3·0	41·2	26·9	29·9	22·6	+2·8	15·3	22·8	25·0	21·0
	Simla	23·031	22·982	·048	23·000	—·041	?	48·3	38·1	10·2	58·4	28·8	29·6	44·6	45·6	41·9	+0·6	32·2	36·9	38·9	36·1
	Chakrata	·305	23·245	·059	·268	+·041	?	54·3	37·9	16·4	67·7	28·6	39·1	48·4	47·5	43·8	+1·3	33·7	40·4	40·3	38·2
	Ranikhet	24·094	24·034	·061	24·052	—·030	?	56·9	42·2	14·7	67·6	29·5	38·1	50·5	54·1	48·3	+1·0	37·1	43·3	45·3	41·9
	Pithoragarh	·775	·701	·073	·726	—·004	?	61·0	42·8	18·2	74·2	33·8	40·4	53·7	59·7	51·0	+1·1	38·7	46·8	48·3	44·6
	Katmandu	25·649	25·543	·106	25·591	—·051	?	68·6	40·7	28·0	74·4	34·6	39·8	51·3	65·9	54·0	+1·4	39·0	46·9	53·0	46·3
	Darjeeling	22·929	22·855	·074	22·887	—·046	?	46·0	36·4	9·6	52·3	29·3	23·0	44·7	45·8	41·2	+0·7	34·8	41·4	42·4	39·5
	Pedong	25·267	25·169	·099	25·205	—·076	?	59·8	44·5	15·5	63·9	39·2	24·7	54·0	56·2	51·2	+1·7	41·5	48·8	49·3	46·5
	Demagiri			Not recorded.				79·5	58·9	20·6	82·9	52·3	30·6	71·7	79·0	69·1	+4·0		Not recorded.		
	Tura			Ditto.				78·3	65·1	13·2	82·2	55·4	26·8	71·8	76·2	71·2	+7·8	?	60·4	60·5	?

* Mean of 28 days.

† The means are as given in the register sea

II —*concluded.*

in India, Burma, etc., for February 1892 —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.		
·258	·306	·277	·280	—·004	50	31	19	33	— 3	0·8	1·8	1·3	—0·1	2	5	9	6	6	1	1	3	25	N 12° W	N 1° E	42	25	110	92	Akola	Deccan—*continued.*
·228	·234	·217	·226	—·063	38	24	19	27	— 9	0·9	1·5	1·2	—0·8	4	14	5	...	8	4	3	5	13	N 26° W	N 5° W	29	29	148	149	Buldana	
·255	·285	·294	·278	—·041	55	28	23	35	— 7	0·9	1·4	1·2	—0·2	2	14	14	2	3	5	8	5	5	N 1° W	N 8° W	26	32	81	89	Khandwa	
·326	·398	·372	·366	+·057	68	47	31	49	+ 5	1·0	1·8	1·4	-0·2	2	2	8	12	2	8	5	14	5	S 47° W	N 58° E	5	18	87	66	Hoshangabad	
·324	·383	·355	·354	+·029	59	39	26	42	+ 2	0·7	1·7	1·2	—0·7	3	11	10	6	5	6	5	7	5	N 17° E	N 55° E	16	17	...	93	Nagpur	
·454	·503	389	·448	—·023	74	49	27	50	— 3	0·9	1·2	1·0	—0·5	32	5	2	3	2	6	2	2	4	N 42° W	S 15° E	2	24	39	62	Sironcha	
·396	·424	·421	·414	+·020	77	41	30	50	+ 1	1·0	1·9	1·4	—0·5	...	6	3	3	22	3	3	1	17	S 84° E	S 68° E	10	15	78	66	Chanda	
·307	·336	·284	·309	+·008	68	40	26	45	+ 2	0·9	1·7	1·3	—2·2	...	10	8	4	5	11	8	6	6	S 87° W	N 40° W	5	10	46	70	Seoni	
·396	·406	·387	·396	+·085	94	52	34	60	+ 2	1·7	1·7	1·7	—0·4	14	7	2	1	6	7	4	8	9	N 84° W	N 13° W	19	20	33	59	Jubbulpore	
·306	·321	·276	·299	+·059	66	37	24	43	+ 5	1·2	1·5	1·4	0	1	5	5	1	4	10	17	9	6	S 55° W	N 6° W	38	24	72	68	Saugor	
·313	·348	·303	·320	—·030	55	37	24	39	— 7	1·6	1·9	1·7	+0·3	2	5	11	6	2	1	8	12	10	N 39° W	N 40° W	27	13	132	92	Raipur	
·350	·353	·292	·330	+·097	83	47	28	53	+13	0·8	1·5	1·2	—0·9	2	7	1	...	1	11	0	17	19	N 72° W	N 41° W	54	38	96	116	Sutna	
·395	·420	·404	·407	—·054	78	43	32	51	— 6	1·8	2·0	1·9	+0·4	...	6	20	1	6	6	8	1	10	N 26° E	N 52° W	23	19	98	44	Sambalpur	
·416	·462	·438	·439	+·038	70	44	31	48	+ 2	0·5	1·8	1·1	—0·2	1	1	7	20	6	7	4	5	7	S 78° E	S 71° E	29	46	147	90	Secunderabad	
·367	·448	·380	·397	?	63	42	28	44	?	0·3	1·4	0·9	?	19	4	4	4	15	4	3	4	1	S 49° E	?	24	?	119	?	Hyderabad (Deccan.)	
·546	·599	·658	·601	—·005	70	61	60	64	— 5	0·6	0·6	0·6	—0·7	...	4	12	9	2	1	1	7	22	S 85° E	N 4° W	26	60	253	257	Bombay	West Coast.
·528	·624	·722	·624	+·031	72	54	62	63	0	0·1	0·3	0·2	-0·2	...	10	2	...	8	6	1	13	18	N 59° W	N 52° W	40	52	208	292	Ratnagiri	
·622	·648	·709	·660	+·011	93	63	59	72	— 1	0·2	0·1	0·2	—0·5	...	...	6	1	...	...	...	17	34	N 52° W	N 50° W	77	61	75	?	Karwar	
·743	·728	·774	·748	+·005	85	59	59	68	— 3	0·1	1·2	0·7	—1·4	13	...	12	1	...	...	1	17	14	N 46° W	N 89° W	43	28	103	?	Cochin	
·609	·666	·585	·620	+·072	89	62	39	63	+ 6	1·7	3·2	2·5	+0·7	8	1	26	20	...	...	1	...	1	N 63° E	S 75° E	73	53	76	132	Salem	South India.
·412	·457	·459	·442	+·044	80	57	48	62	+ 3	4·9	5·6	5·2	+2·9	...	9	6	20	...	...	...	11	12	N 13° E	N 59° E	38	35	123	93	Mercara	
·669	·633	·602	·635	+·023	90	54	43	62	— 1	2·7	3·1	2·9	0	...	3	29	15	6	2	3	...	...	N 68° E	N 65° E	70	74	122	100	Trichinopoly	
?	·726	·714	·724	+·064	?	64	63	76	+ 4	6·4	8·1	7·3	+4·6	...	4	18	18	10	4	3	1	...	N 84° E	E	61	68	138	119	Madras†	
·336	·424	·372	·377	+·025	52	37	24	38	+ 1	0·8	1·5	1·2	—0·1	22	...	2	7	18	2	2	...	5	S 55° E	S 56° E	34	50	102	95	Bellary	
·545	·630	·677	·617	—·024	71	60	61	64	— 1	1·4	0·9	1·2	—0·2	...	1	2	1	5	24	13	11	1	S 24° W	S 11° W	64	43	27	49	Vizagapatam	
·153	·147	·135	·146	—·022	80	47	35	54	—12	2·5	4·1	3·3	—0·9	47	1	...	...	...	1	2	3	4	N 76° W	N 76° W	14	30	17	100	Quetta	Hill Station, Beluchistan.
·076	·087	·112	·092	+·018	86	60	68	71	+ 6	6·2	8·8	7·5	+0·8	25	...	5	7	...	6	12	2	1	S 4° W	S 25° E	18	18	7	33	Leh	Hill Station, Northern India.
·172	·201	·211*	·194*	?	88	77	63*	76*	?	5·9	7·3	6·6	?	3	7	7	1	10	14	2	5	9	S 3° E	?	7	?	81	?	Srinagar	
·148	·150	·164	·154	+·001	68	52	53	58	— 6	5·7	6·8	6·3	+0·7	13	1	1	...	33	2	...	1	7	S 44° E	S 39° E	45	29	222	196	Murree	
·239	·245	·235	·240	+·013	77	59	47	61	— 4	7·1	7·8	7·4	+2·0	22	3	...	1	5	1	...	7	19	N 53° W	N 55° E	32	8	75	80	Chamba	
·083	·094	·094	·091	?	86	63	59	69	?	6·7	8·4	7·5	+1·2	...	...	...	1	1	4	19	27	6	S 72° W	S 69° W	78	64	20	22	Kailang	
·126	·145	·166	·142	—·012	56	50	54	51	— 5	4·7	6·9	5·8	+0·3	8	18	7	1	4	18	1	...	1	N 72° E	S 22° W	13	28	?	?	Simla	
·154	·173	·180	·169	+·009	69	53	56	59	— 4	3·7	5·7	4·7	—0·1	20	1	9	3	...	...	13	12	...	S 81° W	S 54° E	21	3	60	126	Chakrata	
·171	·209	·215	·198	+·005	65	58	52	58	— 2	4·1	5·5	4·8	+0·4	12	...	...	15	1	...	29	1	...	S 15° W	S 55° W	38	24	80	51	Ranikhet	
·196	·256	·227	·226	+·022	70	63	46	60	+ 2	3·8	4·8	4·3	+0·1	26	...	8	2	3	2	17	...	...	S 13° W	S 29° E	19	20	71	62	Pithoragarh	
·225	·273	·259	·252	+·010	87	72	43	67	+ 2	2·1	4·6	3·4	+0·[illegible]	7	4	1	4	5	3	8	19	7	S 83° W	N 87° W	38	70	26	?	Katmandu	
·186	·230	·238	·216	+·007	86	78	78	80	+ 1	4·7	5·6	5·2	—0·[illegible]	2	2	6	5	1	1	20	16	3	S 71° W	S 83° W	42	33	223	121	Darjeeling	
·235	·287	·273	·261	—·020	79	69	61	69	— 8	3·7	5·5	4·9	—0·[illegible]	..	...	5	10	3	17	7	1	...	S 26° E	?	40	?	?	?	Pedong	
?	?	?	?	?	?	?	?	?	?	1·0	1·2	1·1	+0·[illegible]	1	...	...	2	18	19	16	2	...	S 2° E	N 55° W	74	32	?	?	Demagiri	
?	·444	·356	?	?	?	59	40	?	?	3·1	2·9	3·0	+0·[illegible]	..	1	1	13	5	15	19	4	...	S 1° W	S 12° W	52	66	?	?	Tura	

by the Government Astronomer, Madras.

* Mean of 28 days,

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 Stations

Meteorological Province.	Station.	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.
Hill Station, Central India.	Mount Abu	26·116	26·034	·083	26·066	−·044	?	69·7	56·4	13·3	75·1	49·0	26·1	65·1	68·2	62·7	+2·9	46·7	50·4	52·0	49·7
	Pachmarhi	·539	·447	·091	·487	−·034	?	76·5	52·4	24·1	81·7	45·8	35·9	70·0	73·8	63·6	+1·8	46·8	53·8	54·8	51·8
	Chikalda	·402	·294	·108	·342	−·050	?	78·8	60·7	18·1	83·0	53·8	29·2	71·0	76·6	69·0	+1·5	49·6	54·6	56·5	53·6
	Makhla.			Not recorded.				83·9	61·1	22·8	88·0	56·2	31·8	71·9	80·9	71·5	+2·9	53·2	57·8	61·0	57·3
Hill Station, South India.	Wellington	24·297	24·218	·079	24·257	−·019	?	71·5	48·9	22·6	74·2	41·2	33·0	66·1	66·9	60·6	+2·8	46·5	54·4	56·7	52·5
	Kodaikanal	?	?	?	?	?	?	67·9	51·1	16·8	71·9	43·4	28·5	62·4	60·3	57·9	?	45·9	51·9	54·8	50·7
	Kotagiri	23·897	23·820	·077	23·859	?	?	70·1	51·2	18·9	74·7	47·0	27·7	65·2	64·6	59·3	?	47·7*	54·4	55·4	52·6*
Extra India.	Aden	29·925	29·798	·127	29·861	−·059	29·889	81·8	73·1	8·7	85·1	69·1	16·0	77·5	79·9	77·0*	+0·2	68·4	70·9	70·8	70·0
	Perim	·791	·674	·116	·733	?	?	83·6	74·2	9·4	86·5	72·2	14·3	79·1	80·2	78·1	?	70·0	72·7	73·1	72·0
	Minicoy	·968	·856	·112	·907	?	·842	?	?	?	?	?	?	84·0	84·6	?	?	?	76·4	76·8	?
	Zanzibar	·863	·725	·138	·794	?	·798	86·6	80·0	6·6	88·1	77·4	10·7	83·4	85·6	83·2	?	76·5	77·7	78·0	77·6

* Means of 28 days.

II—*concluded.*

in India, Burma, etc., for February 1892—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.		
·214	·203	·207	·208	+·039	46	32	29	36	+ 4	1·2	1·8	1·5	−1·3	...	10	8	...	...	2	9	18	11	N 73° W	N 71° W	49	24	136	133	Mount Abu .	Hill Station, Central India.
·259	·233	·219	·237	+·001	65	31	26	41	− 1	1·5	2·6	2·0	+0·1	2	3	2	4	5	3	5	19	14	N 80° W	N 49° W	42	24	?	92	Pachmarhi .	
·233	·242	·229	·235	−·054	44	32	26	34	− 8	1·5	2·6	2·1	+0·6	17	10	...	...	3	6	3	5	14	N 57° W	N 75° W	31	29	161	142	Chikalda. .	
?	?	?	?	?	?	?	?	?	?	1·6	2·7	2·2	−0·8	...	2	3	1	7	7	5	18	13	S 84° W	S 83° W	40	40	?	?	Makhla . .	
·297	·308	·359	·321	+·041	84	48	55	62	+ 4	1·8	3·3	2·5	0	...	3	5	2	31	16	1	...	...	S 40° E	S 31° E	72	60	53	62	Wellington .	Hill Station, South India.
·262	·276	·377	·302	?	70	50	72	64	?	1·8	5·7	3·7	?	1	12	10	10	13	10	...	2	...	S 89° E	?	49	?	?	?	Kodaikanal.	
·298*	·315	·347	·322*	?	78*	51	57	62*	?	3·0	4·0	3·5	?	...	1	2	12	17	20	4	2	..	S 32° E	?	65	?	127	?	Kotagiri .	
·632	·670	·635	·646	−·006	78	71	62	70	− 2	6·5	1·3	3·9	−0·3	6	1	9	35	3	4	...	...	...	N 88° E	N 81° E	76	72	364	331	Aden . .	Extra-India.
·679	·722	·723	·708	?	80	73	70	74	?	4·5	0·6	2·5	?	...	1	1	3	49	...	1	...	3	S 49° E	?	81	?	442	?	Perim . .	
?	·808	·816	?	?	?	69	68	?	?	3·9	4·1	4·0	?	...	37	10	1	...	...	...	...	10	N 1° E	?	88	?	149	?	Minicoy . .	
·866	·872	·859	·874	?	84	76	70	77	?	5·7	3·9	4·8	?	...	18	24	4	1	1	2	1	6	N 23° E	N 25° E	67	26	219	156	Zanzibar. .	

* Mean of 28 days.

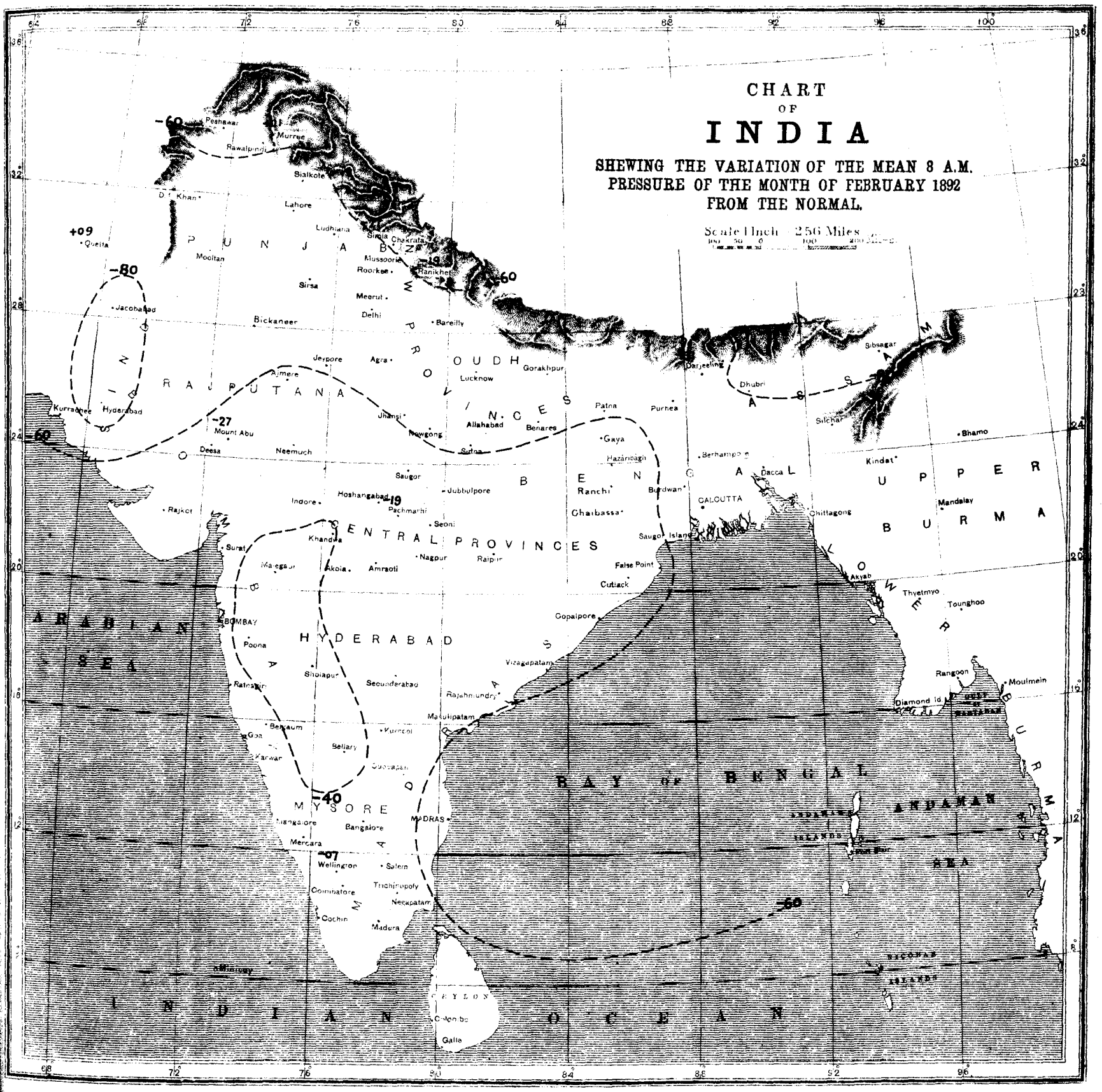
GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE.—No. 12 METEO.—2-7-92,—400.

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. 253, Wr. I.—June 92.—416 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.

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

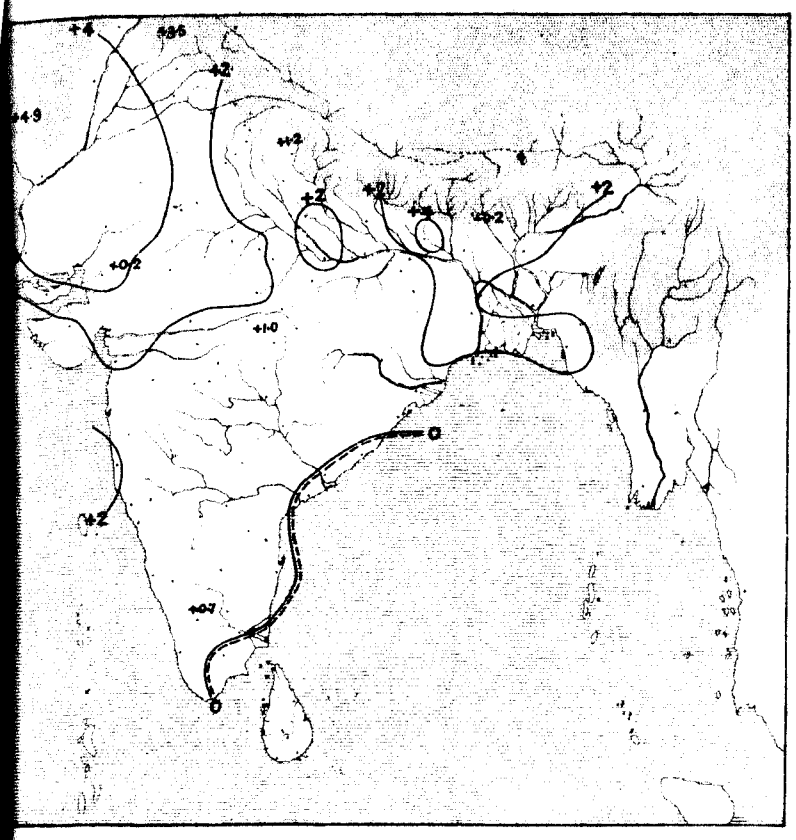
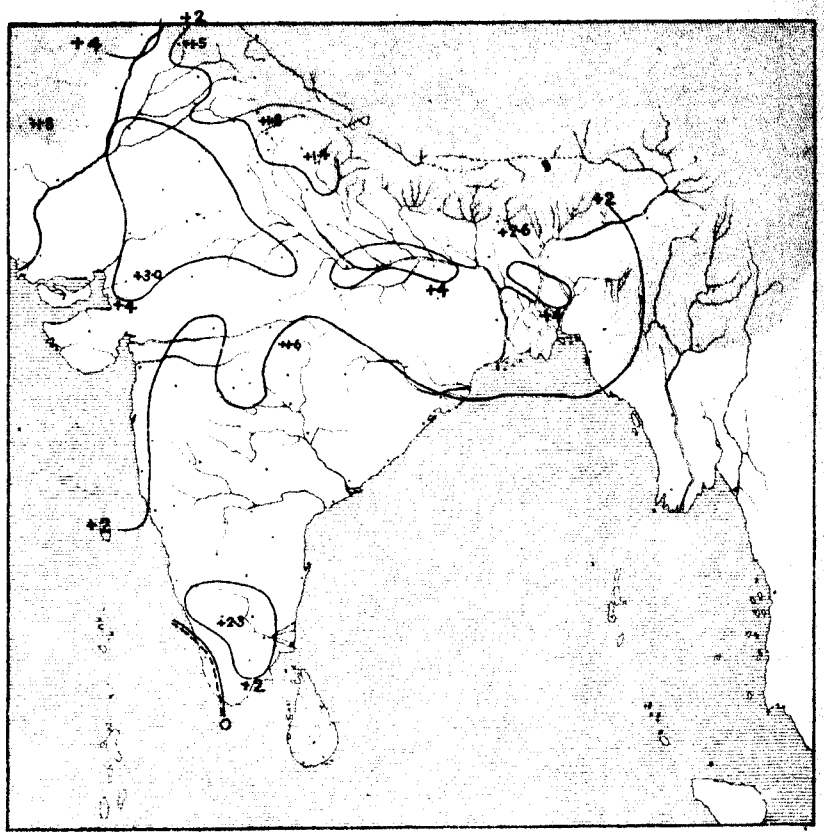


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

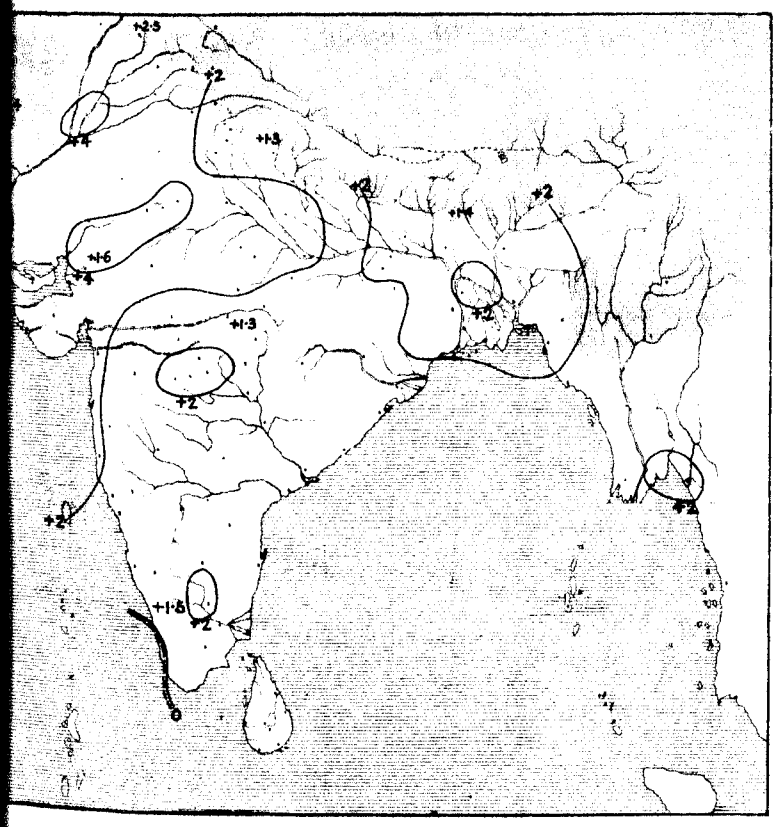
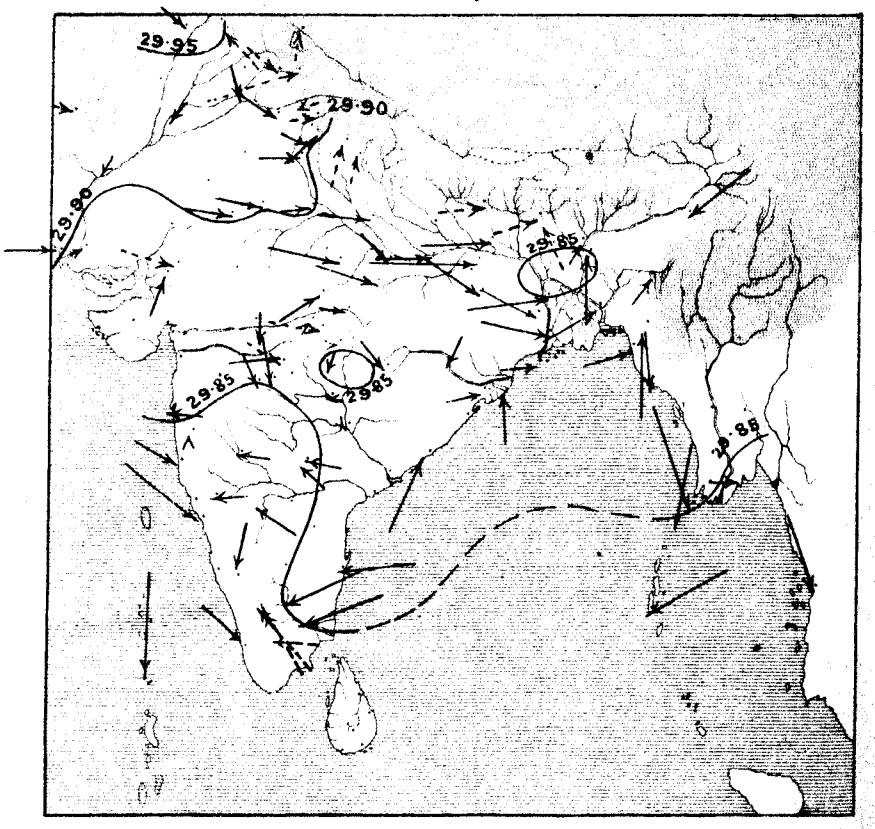


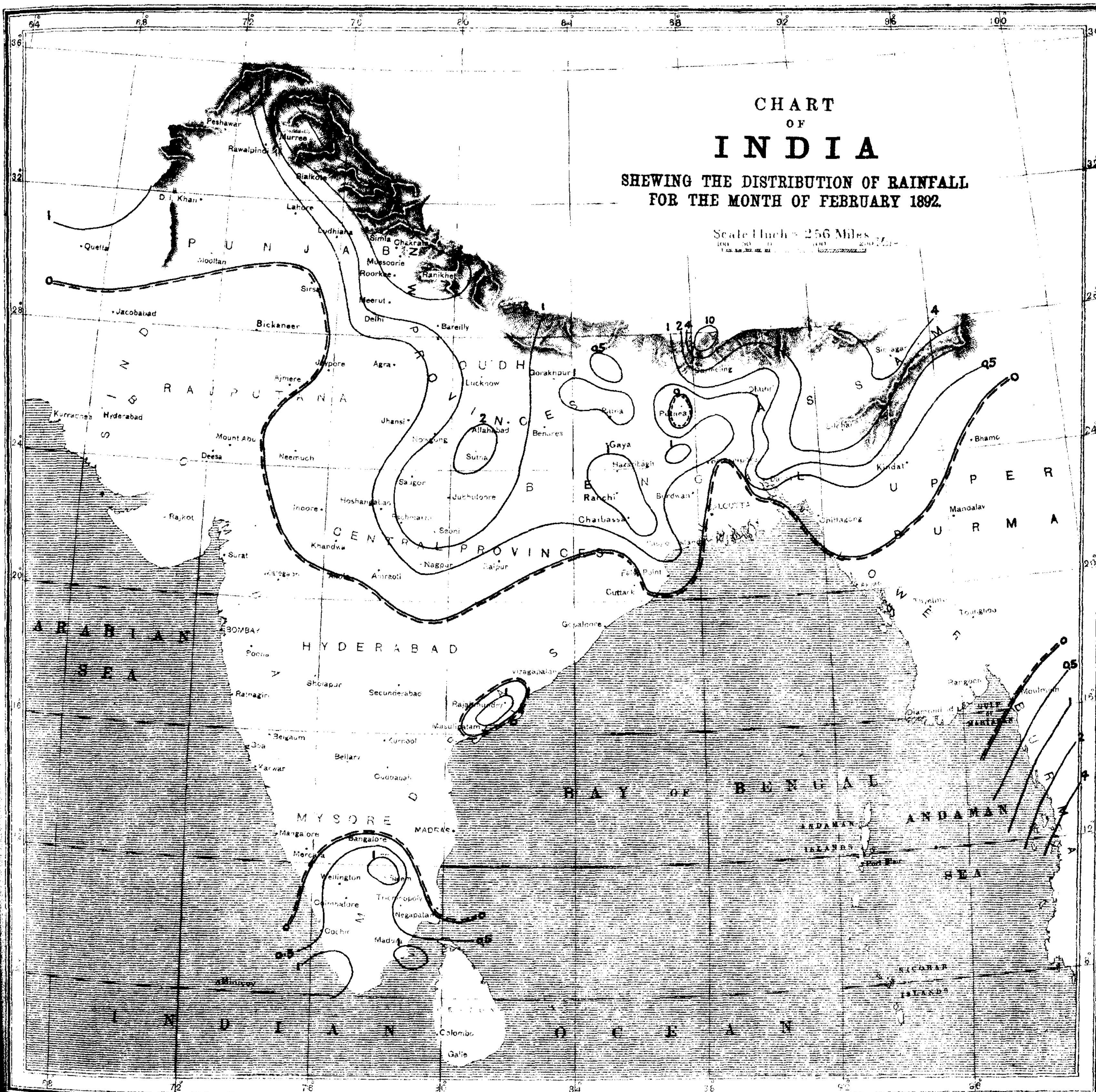
CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF FEBRUARY 1892.



Explanation.

ontinuous lines indicate that the mean daily temperature of month as in excess by amounts indicated by the attached numbers. Broken r dotted lines that it was in defect by the amounts indicated by the ttached numbers. Double lines are the lines of no variation, the broken ne 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.

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)

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW,

PUBLISHED BY ORDER OF

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CALCUTTA, MARCH, 1892.

INTRODUCTION.

THIS review of the weather in India during the month of March 1892 is based on observations taken daily at 8 A.M. at 173 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 93 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and the weekly rainfall telegrams sent to Simla by District Officers throughout India and the monthly rainfall statements published in the Provincial Gazettes. The meteorological data of the Bay of Bengal and the Arabian Sea, which are collected at the ports of Calcutta and Bombay, are utilised, so far as is at present possible, in discussing the weather of India.

Summary of the chief features of the weather in India during the month of March 1892.

The month of March is usually the commencement of the hot weather in Northern and Central India. The hottest area in February in India is defined by the isotherm of 80° and includes the South Deccan and the Tinnevelly, Madura, Trichinopoly and Coimbatore districts of South Madras. The North Punjab is the coolest area at this time. The mean temperature of Peshawar and Rawalpindi,—allowance being made for elevation above the sea,—is slightly below 60°. Temperature during the month of March increases least rapidly in Southern India and most rapidly in Central and Northern India, the rise of temperature varying from 3° in Southern India to about 10° in Northern India. The area of highest mean temperature, for the month of March includes the whole of the Deccan Berar and the greater part of the Central Provinces. In that area the mean daily temperature of the month slightly exceeds 85°, the highest mean temperatures being those at Cuddapah (87·7°), Kurnool (86·9°), Sironcha (85·4°) and

Bellary (85·2). When allowance is made for elevation above the sea, the temperature in the South and Central Deccan ranges from 87° to 89°. The lowest temperatures in March, as in February, obtain in the North Punjab, where the mean daily temperature averages 65° during the month.

The slow change from the cold weather distribution of pressure to the hot weather and south-west monsoon distribution commences in March. Pressure continues for some time highest in Upper India, but the range of pressure between Upper and Southern India usually diminishes from a mean of ·2″ in February to a mean of ·1″ in March. One important change in the distribution of pressure occurs during this month, and accompanies the setting in of southerly winds on the Bengal coast. The combination of these winds with the westerly winds of th Gangetic plain and the easterly winds down the Assam valley, tends to give a permanent cyclonic circulation in North-Eastern India, and to develop a shallow depression, the central area of which usually lies over Chota Nagpur and the Bilaspur and Sambalpur districts of the Central Provinces.

The weather of the month of March 1892 stands in the most complete contrast to the weather of the corresponding month of 1891. March 1891 was an unusually cool, damp and rainy month over the whole of Northern India. March 1892 was the hottest and driest month on record since 1865.

At the end of the month of February, temperature was below the normal over a large portion of India. This was due to a cool wave which advanced across Northern India after the showery weather of the fourth week of the month. A warm wave appeared on the north-west frontier on the 26th and 27th and covered Sind, the Punjab and Rajputana at the end of the month. Hence, at the commencement of the month of March, a cool wave and a warm wave were passing across Northern India.

On the morning of the 1st of March a depression had advanced into Sind and West Rajputana probably from Baluchistan. This primary depression advanced across Northern India through Central India, the North-Western Provinces, Bihar, Chota Nagpur and Bengal into Burma. It was throughout an extensive but very shallow depression and gave little cloud and no rain except in Bengal, where light local thundershowers fell during its passage across that province.

The primary depression was, hence, in itself of little importance. Its appearance in Sind was immediately followed by a rapid fall of the barometer in the Punjab and the formation of a deepish secondary depression, the centre of which was near Peshawar on the morning of the 2nd. It marched slowly to the south-east during the day, and the centre was to the east of Lahore on the morning of the 3rd.

The depression began to decrease in intensity on the night of the 2nd and filled up very rapidly on the 3rd. On the morning of the 4th there was not only no trace of its existence shown by the observations, but strongly marked anti-cyclonic conditions obtained on that day in North-Western India. This secondary depression or storm gave light to moderate general rain over the North and East Punjab and moderate snow to some parts of the higher Afghan highlands and the Pujnab Himalayas.

A cool wave followed immediately in the rear of the primary depression and extended over the whole of India on the 6th. From the 3rd to the 6th a series of three temperature waves, including two cool waves and one warm wave, were advancing or being transferred across Northern India and Burma. The following table gives the greatest variations of temperature from the normal at two stations within each of the areas covered by these waves on the 3rd :—

DISTRICT.	STATION.	Variation of mean temperature of the preceding 24 hours from the normal.
		°
FIRST COOL WAVE IN NORTH-EAST INDIA.	Dhubri . . .	—4·3
	Dacca . . .	—3·4
INTERMEDIATE WARM WAVE	Jhansi . .	+5·8
	Ludhiana . . .	+5·1
SECOND COOL WAVE IN NORTH-WEST INDIA.	Quetta . . .	—13·2
	Jacobabad . . .	—11·6

The axis of the second cool wave (or the line of greatest depression of temperature) was in the Central Provinces on the 6th, in Bengal on the 7th and in Burma on the 8th. Temperature now began to increase rapidly and was on the 9th slightly in excess on the North-West Frontier. On the 11th it was above the normal over India generally and from that date until nearly the end of the month it was steadily and largely in excess.

The increased temperature was most marked in Sind, Rajputana and the Punjab.

The excess increased in amount with great steadiness from the 12th until the 26th, 27th and 28th, when excessive temperatures were registered in North and Central India, higher in fact than have been registered in March since 1865. The following gives some of the more remarkable of the high day temperatures recorded during this period

with the highest previously registered in March at the same stations :—

STATION.	Highest maximum temperature recorded in March 1892.	Highest maximum temperature previously recorded in March.	Year in which it was recorded.
	°	°	
Deesa	114·5	109·3	1880
Hyderabad	112·2	109·6	"
Sirsa	111·4	102·6	"
Mooltan	108·2	104·9	"

The highest maximum or day temperatures registered during the month were 114·5° at Deesa, 113° at Pachpadra, and 112·8° at Nagpur.

The excess was almost as strongly marked in the night as in the day temperature and was almost as large at the hill stations as at the adjacent plain stations in Upper India. The following gives three examples of the largest variations in the plains and two examples of the largest variations in the hills on the 26th :—

STATION.		VARIATION OF		Mean temperature of the day from the normal.
		Maximum temperature of preceding 24 hours from the normal.	Minimum temperature of preceding 24 hours from the normal.	
		°	°	°
PLAINS	Peshawar	+17·5	+13·9	+15·7
	Dera Ismail Khan	+17·5	+18·0	+17·8
	Jacobabad	+15·3	+19·4	+17·4
HILLS	Murree	+13·9	+10·5	+12·2
	Ranikhet	+10·1	+9·7	+9·9

During this period of increasing heat, the air became gradually drier and drier over Northern and Central India, and the period from the 26th to the 28th was one of excessive dryness, as well as of excessive temperature. Thus the humidity at 8 A.M. of the 29th was only 3 per cent. at Khushab and 4 at Peshawar. At 4 P.M. of the same day it was only 2 at Buldana, 3 at Allahabad and 4 at Lahore, Roorkee and Akola.

During the five or six days preceding this excessively hot and dry period pressure had decreased largely in North-Eastern India relatively to Western India, and was, on the 27th, three-tenths of an inch lower at the foot of the hills from the South-East Punjab to Assam than on the Bombay coast. Strong westerly hot winds had been blowing for several days previously. They increased in strength on the 27th and 28th and blew with the force of a gale for a short time on the Bombay coast and across Central India and the North Deccan.

Pressure increased rapidly but irregularly on the 29th and 30th, and weather was disturbed with numerous dust-storms in North-Western India and thundershowers in North-Eastern India and Southern India.

The preceding remarks have stated briefly the most important weather changes during the month. The chief feature of the meteorology of the month was the excessively high temperature of the last three weeks of the month The increased temperature was generally exhibited most strongly in the day or maximum temperature. The mean maximum temperature of the month was above the normal over the whole of India. The excess averaged 2° in the Peninsula and North-East India and increased northwards and westwards to the Punjab, Sind and Rajputana, in which areas it was above 6°. It was absolutely greatest at Dera Ismail Khan (+8·4°) and Sirsa (+9·9°).

In Northern and Central India the air was much drier than usual, and hence the earth's surface and air cooled down at night more rapidly than usual. Over the greater part of the Deccan, Berar, Central Provinces and Burma the decrease was, on the whole, more than sufficient to undo the increased heating by day. Hence the night or minimum temperature was in moderate defect in these areas (by amounts generally less than 1°). In the area of greatest excess of day temperature in North-Western India and also in Madras, the mean minimum temperature of the month was above the normal. The excess was slightly greater than 2° in the Punjab and at Salem and Bangalore in Southern India, and was absolutely greatest at Peshawar (+3·8°) and Mooltan (+3·3°).

The mean temperature was normal or slightly in excess in Burma, the Peninsula and North-Eastern India. It was considerably in excess in North-Western India, the excess being greatest in the Punjab, Sind and West Rajputana in which it was more than 4° in amount. It was absolutely greatest at Sirsa (+6·1°) and Mooltan (+5·5°). The temperature was almost as largely in excess at the hill stations in Northern India as at the neighbouring plain stations. The excess at these stations was greatest at Ranikhet (+5·5°) and Kailang (+5·7°).

The following table gives the variations of the maximum, minimum and mean temperature of the month from the normal in the eleven meteorological provinces of India :—

DISTRICT.	VARIATION OF			Average daily range.	Average absolute range during month.
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.		
	°	°	°	°	°
Burma Coast and Bay Islands.	−0·6	−1·7	−1·2	21·7	33·0
Burma, Inland	−0·5	−1·3	−0·9	34·7	51·0
Assam	+2·3	−0·6	+0·9	23·8	43·3
Bengal and Orissa	+2·4	−0·8	+0·8	25·7	46·3
Gangetic Plain and Chota Nagpur.	+2·5	−0·2	+1·2	31·1	52·7
Upper Sub-Himalayas	+5·1	+1·0	+3·1	31·8	57·4
Indus Valley and North-West Rajputana	+6·9	+2·3	+4·5	32·4	62·3
East Rajputana, Central India and Guzerat.	+3·8	+0·9	+2·4	33·0	59·7
Deccan	+1·7	−0·8	+0·4	31·6	54·0
West Coast	+0·2	0	+0·1	13·1	23·4
Southern India	+1·8	+0·6	+1·2	22·4	36·5

The mean pressure of India for the month was largely below the normal pressure of the month. The deficiency averaged ·076″, or nearly a twelfth of an inch. Relatively to this general deficiency pressure was locally in defect in Northern India, the deficiency being greatest along the foot of the hills from Lahore to Dhubri. It was locally in excess in the Peninsula, the excess being largest in Berar and the West Deccan. This unusually large deficiency over the whole of India was in great part the result of actions set up by the abnormal and excessive temperature of the month.

Under such conditions the deficiency of pressure is usually much smaller at the hill than the plain stations and is sometimes in slight excess of the normal. These features may evidently be described as an excess of pressure at the hill stations relatively to the adjacent plain stations. The pressure conditions of March 1892 were in strict accordance with the rule. The relative excess of pressure ranged from ·034″ in the case of Mount Abu to ·087″ in the case of Quetta and ·108″ in the case of Leh.

A reference to the weather reviews of the preceding two or three months will show that the larger variations of the pressure distribution from the normal in March 1892 were similar in character (but generally larger in amount) to those of the preceding months of January and February.

The mean air movement of the month was that characteristic of the hot weather. Winds were much stronger and steadier over the whole of Northern India and, were fairly normal in direction except in Central India, where westerly winds prevailed to a larger extent than usual. Very strong hot dry westerly winds prevailed in Central India, Berar and the Central Provinces throughout the month.

Winds were generally stronger than usual on the Bombay and Madras coasts. At the Bengal coast stations the mean daily air movement was upwards of 50 per cent. above the normal. Winds were, on the other hand, less steady than usual in Burma and at Port Blair, and differed little from the normal in strength.

The month was abnormally dry over the whole of the interior. At the coast stations the mean humidity of the month was approximately normal, but over the whole of the interior the amount of aqueous vapour present in the air was very much less than usual. This, combined with the increased temperature, gave excessively low humidities during the latter half of the month, and the month was in consequence the driest March on record. The amount of cloud was slightly in excess in Burma and was normal in the west coast districts and South Bengal, and was more or less largely in defect over the whole of the interior. Skies were practically free from cloud (*i.e.* the mean cloud amount was less than 0·5) over the greater part of the North Deccan, Central Provinces, Central India, Berar, Chota Nagpur, Bihar and the North-Western Provinces. At several stations, *e.g.*, Khandwa and Akola the mean cloud amount of the month was *nil*. The following table gives the variations of the mean aqueous vapour pressure, humidity and cloud amount of ten meteorological provinces of India :—

Meteorological Province.	Mean Variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	″	%	
Burma coast and Bay islands	−·067	−3	+0·7
Assam	−·041	−7	−1·3
Bengal and Orissa	−·074	−10	−1·6
Gangetic plain and Chota Nagpur	−·070	−8	−1·9
Upper Sub-Himalayas	−·090	−14	−1·5
Indus valley and North-West Rajputana	−·089	−15	−1·2
East Rajputana, Central India and Guzerat	−·027	−6	−1·9
Deccan	−·062	−6	−1·8
West coast	+·012	−1	−0·8
Southern India	−·014	−3	−0·1

No rain fell over nearly five-sixths of India. The Punjab and Baluchistan received light general rain from the 1st to the 4th of the month, averaging barely three-tenths of an inch in amount in the Punjab. The rainfall of the month in that province was very considerably in defect, by amounts averaging 1·1 inches.

Bengal and Orissa obtained occasional thundershowers during the month. The chief periods of disturbance and rain were on the 4th and 5th, and the 28th.

The rainfall occurred chiefly in Assam and North and East Bengal, but it was considerably below the average.

Tenasserim in Burma and Malabar also received occasional thundershowers. The rainfall of the month averaged 4·5 inches for Tenasserim and was in slight excess.

The remainder of India was actually or practically rainless during the month. The following table gives mean rainfall data for the eleven meteorological provinces of India :—

Meteorological Province.	Average actual rainfall of month.	Average normal rainfall of month.	Variation from normal.
	Inches.	Inches.	Inches.
Burma coast and Bay islands	1·43	0·86	+0·58
Burma, Inland	0·06	0·81	−0·75
Assam	4·00	5·58	−1·58
Bengal and Orissa	0·61	1·70	−1·08
Gangetic plain and Chota Nagpur	0·05	0·46	−0·42
Upper Sub-Himalayas	0·15	1·10	−0·94
Indus valley and North-West Rajputana	0·12	0·42	−0·30
East Rajputana, Central India and Guzerat	0	0·11	−0·11
Deccan	0·01	0·25	−0·24
West coast*	0·72	0·39	+0·48
Southern India	0·01	0·50	−0·48

NOTE.—A reference to Table I will show that the means for the province marked* in columns 2 and 3 are for a smaller number of stations than the means in the first column. Average rainfalls are not at present available for certain stations.

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for March is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean pressure of the month reduced to sea-level and to constant gravity (that of Latitude 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 variations of the actual mean pressure from the normal pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts given hitherto in annual reports on the meteorology of India. The data on which this chart is based are given in Table II.

The more important barometric changes and movements during the month are fully given in the statement of the barometric depressions of the month. The data that are chiefly used in this discussion are the 8 A.M. reduced observations, and the variations derived from a comparison of these observations and the normal values. The normal means are obtained from the observations of the period 1878—1888, and, in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The mean pressure of the Indian land area for the month of March 1892 was ·076″ below the normal. The deficiency was abnormally great and such as has not occurred for many years in India. It was least in the Deccan, Central Provinces and Central India, in which it averaged ·05″, and was greatest in the South Punjab and along the foot of the Himalayas from Roorkee to Sibsagar, in which area it averaged ·11″.

Allowing for the general deficiency of pressure in India by adding ·076″ to the pressure variations in order to obtain the local pressure anomalies, it is seen that pressure was locally in defect in Northern India and Burma. The deficiency exceeded ·020″ in the South Punjab and at the foot of the hills from Roorkee to Sibsagar and was actually greatest at the following stations:—

STATION.	Variation of mean pressure of the month from the normal.	Local pressure anomaly.
	″	″
Sibsagar	—·110	—·034
Lucknow	—·111	—·035
Bareilly	—·116	—·040
Roorkee	—·113	—·037
Dera Ismail Khan	—·117	—·041

Pressure was locally in excess in the Peninsula and Central India. The excess was more than ·020″ in Ceylon, the Deccan, Berar, the Central Provinces, Central India and Guzerat, and was greater than ·030″ at the following stations:—

STATION.	Variations of the mean pressure of the month from the normal.	Local pressure anomaly.
	″	″
Bellary	—·041	+·035
Sholapur	—·042	+·034
Akola	—·043	+ 033
Khandwa	—·043	+·033

The mean pressure of the month was either normal or in slight defect at all the hill stations, with perhaps the exception of Darjeeling. When this fact is taken in consideration with the large deficiency at the plain stations, it is evident that there was an excess of pressure at the hill stations as compared with the plain stations. The following gives data in illustration:—

HILL STATION.	Variation of mean pressure of month from normal.	Neighbouring Plain Station.	Variation of mean pressure of month from the normal.	Relative excess of pressure at hill stations.
	″		″	″
Leh	+·003	Lahore	—·105	+·108
Kailang	—·027	Sialkot	—·099	+·072
Murree	—·026	Peshawar	—·094	+·068
Quetta	+·010	Jacobabad	—·077	+·087
Ranikhet	—·053	Bareilly	—·115	+·062
Mount Abu	—·090	Deesa	—·064	+·034
Wellington	—·023	Coimbatore	—·080	+·057

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

(1). Pressure was largely in defect over the whole Indian area.

(2). Pressure was locally deficient in Nothern India, the greatest deficiency being along the foot of the hills from Roorkee to Sibsagar.

(3). Pressure was locally in excess in the Peninsula and Central India, the excess being greatest in the centre of this area from Bellary through Sholapur to Khandwa.

(4). Pressure was relatively in excess at the hill stations as compared with the neighbouring plain stations, the relative excess being greatest at Leh and Quetta, for which it was nearly a tenth of an inch.

A reference to the Weather Review for February, 1892, will show that the chief features of the pressure conditions in March were identical in general character with those of the month of February.

Barometric depressions and cylonic storm of the month.

At the end of the previous month weather was disturbed in the Persian Gulf and Baluchistan, and there were indications of the approach of a depression to the North-West frontier.

Strong north-east monsoon winds, 4 to 6, prevailed in the centre of the Arabian Sea between Socotra and Bombay at the commencement of the month. The weather was also very disturbed in the Persian Gulf on the 1st and 2nd. The following table gives observations taken on board vessels in the Persian Gulf on these days :—

Date.	Vessel.	Position at Noon.		Wind.		Weather.
		Lat. N.	Long. E.	Direction.	Force.	
1st	*Pemba*	Bushire		N	5	Fine.
	Henry Bolckow	Bahrein		NW	6	High sea.
	Simla	Linga		W	7	Rising sea. Wind increased to force 9 at 8 P.M.
2nd	*Purulia*	Karachi		WNW	5	...
	Henry Bolckow	Off Bahrein		...	5	Fine.
	Simla	26°38′	52°34′	NNW	7 to 9	High sea.
	Pemba	27° 0′	52°21′	N	4 to 6	Fine. Moderate sea.

The available data, hence, appear to establish that weather was for a short time before the appearance or formation of the depression disturbed over a very extensive area to the west and north-west of India, including the north and centre of the Arabian Sea, the Persian Gulf, and perhaps Persia and Baluchistan. Neither the Bushire nor Quetta observations of this period furnish any conclusive evidence of the passage of a well marked cyclonic storm through Persia and Baluchistan. Hence it is probable that the storm or depression about to be described originated in Sind or Baluchistan during a period of slight general disturbance in South-Western Asia and the North Arabian Sea.

Pressure increased over the whole of Burma and India except North-Western India on the 29th of February. The decrease in North-Western India was greatest at Quetta and Jacobabad, and on the morning of the 1st a shallow depression covered Upper Sind and the adjacent districts of Baluchistan. The following gives data showing its position :—

Station.	Pressure.			Wind.		Cloud amount 8 A.M.	Variation of mean temperature of 24 hours preceding 8 A.M., from normal.
	8 A.M., reduced to 32° sea-level and constant gravity.	Change during past 24 hours.	Variation from normal.	Direction 8 A.M.	Velocity in miles per hour during previous 24 hours.		
	"	"	"				°
Hyderabad	29·817	−·086	−·130	SW	5	3	+2·5
Jacobabad	·793	−·115	−·152	E	4	10	+1·3
Quetta	?	−·134	−·149	Calm	1	10	+7·8

The preceding data show that the depression was very shallow, the mean air movement very feeble and the disturbance slight. Skies had, however, clouded over in the Punjab and the Western Himalayas, and light showers had fallen in the North Punjab and adjacent hill districts. The barometric changes of the next 24 hours were due to the advance of the primary depression into Central India and the formation of a deep secondary depression in the North Punjab. The following observations define the position and character of the secondary depression at 8 A.M. of the 2nd :—

Station.	Pressure.			Wind.		Cloud amount 8 A.M.	Variation of mean temperature of 24 hours preceding 8 A.M., from normal.
	8 A.M., reduced to 32°, sea-level and constant gravity.	Change during past 24 hours.	Variation from normal.	Direction 8 A.M.	Velocity in miles per hour during previous 24 hours.		
	"	"	"				°
Leh	?	−·166	−·151	Calm	0	10	+3·0
Kailang	?	−·072	−·061	W	2	10	+1·3
Murree	?	−·228	−·180	SE	16	10	−3·8
Rawalpindi	29·647	−·277	−·239	SE	6	10	+0·6
Peshawar	·654	−·365	−·309	SSW	3	10	−3·9
Dera Ismail Khan.	·635	−·239	−·332	N	1	5	−1·4
Khushab	·654	−·201	?	Calm	5	3	?
Lahore	·695	−·178	−·224	SE	6	7	+5·0

The wind at Peshawar fell to a calm at 10 A.M., and blew from north-west at 4 P.M. The observations show that a deepish depression had formed in the North Punjab, the centre of which was ill-defined, but was probably near Peshawar at 8 A.M. The air motion at the level of the plains was comparatively feeble, but was very strong at Murree and Simla. Rain had fallen in the North Punjab and snow in the Punjab Himalayas. There was less cloud in the South Punjab and Sind, and skies were cloudless over the whole of Central and North-Eastern India.

The primary depression was almost completely obscured, but the isobars and isabnormals in the weather charts of the day indicate that it was probably in the area between Ajmere, Jhansi and Neemuch at 8 A.M. of the 2nd. Skies were cloudless in this area and weather fine with light winds.

The secondary depression advanced south-eastwards into the East Punjab during the next 24 hours. The following observations indicate its position and character at 8 A.M. of the 3rd:—

STATION.	PRESSURE.			WIND.		Cloud amount 8 A.M.	Variation of mean temperature of 24 hours preceding 8 A.M. from normal.
	8 A.M. reduced to 32°, sea-level and constant gravity.	Change during past 24 hours.	Variation from normal.	Direction 8 A.M.	Velocity in miles per hour during previous 24 hours		
	"	"	"				°
Leh	?	−·135	−·260	SE	3	10	+3·5
Kailang	?	−·258	−·333	NW	2	10	+0·2
Murree	?	−·023	−·200	SE	39	13	−7·9
Simla	?	−·152	−·193	S	...	10	−3·0
Rawalpindi	29·766	+·119	−·171	ENE	3	2	−5·5
Sialkot	·710	−·004	−·211	Calm	5	6	+4·8
Lahore	·709	+·014	−·228	NNW	6	10	+2·0
Ludhiana	·731	−·035	−·198	Calm	14	0	+5·1
Sirsa	·758	+·001	−·180	W	9	0	+4·2

The preceeding data indicate that the centre of the depression was to the east of Lahore and probably near the foot of the hills. The depression was, however, now filling up and was less than a quarter of an inch and hence a tenth of an inch less than on the 2nd.

Skies were heavily clouded in the hills, but were clearing in the Punjab plains. The average cloud amount in the Punjab on the morning of the 3rd was 3·2, or 2·1 less than on the morning of the 2nd. Light to moderate showers had been received during the previous 24 hours in the East Punjab and moderate to heavy snow in the hills.

The primary depression was in the eastern districts of the North-Western Provinces and Baghelkhand on the morning of the 3rd. Skies were cloudless in this area, but were partially clouded at Hazaribagh and Patna immediately in front of the depression.

A very rapid increase of pressure exceeding two-tenths of an inch occurred over the Punjab and North-Western Provinces during the next 24 hours. This completely filled up the secondary depression and established strongly marked anti-cylonic conditions in North-Western India for a brief period. The increase of pressure was greatest at Kailang (+·274″) and Lahore (+·289″). Skies had completely cleared in the Punjab and adjacent Himalayan area, and a rapid reduction of temperature had set in over Upper India.

The primary depression now formed the chief feature in the weather and covered the greater part of Bengal at 8 A.M. of the 4th. The following data indicate its character at that hour:—

STATION.	PRESSURE.			WIND.		Cloud amount 8 A.M.	Variation of mean temperature of 24 hours preceding 8 A.M., from normal.
	8 A.M., reduced to 32°, sea-level and constant gravity.	Change during past 24 hours.	Variation from normal.	Direction 8 A.M.	Velocity in miles per hour during previous 24 hours.		
	"	"	"				°
Calcutta	29·803	−·023	−·109	SSW	7	10	+1·3
Dacca	·847	−·006	−·063	E	5	9	−0·5
Purneah	·838	−·003	−·064	Calm	1	3	+3·0
Hazaribagh	·868	+·074	−·050	NNW	11	0	+2·9

The primary depression was, hence, now very shallow, and the air motion was very irregular and feeble. Skies were, however, partially clouded in Bengal and some light showers had been received, chiefly in Orissa.

The depression was transferred eastwards into Burma during the next 24 hours, but was now of little importance, as it was filling up. Skies cleared in Bengal during the day. East Bengal obtained some showers. The depression gave no cloud to Burma. It disappeared during the next 48 hours.

The storm is an example of a double depression or cold weather storm, consisting of a primary shallow depression which advanced at a fairly uniform rate of 300 miles per diem across Northern India from Sind to Burma in four days and of a shorter-lived but deeper secondary depression in the Punjab. This formed rapidly on the 1st and filled up as rapidly on the 3rd. The primary depression was practically rainless except when passing through Bengal, to which it gave some thundershowers. The secondary depression gave a moderately heavy fall of snow in the Punjab Himalayas and light to moderate rain in the South and East Punjab.

A cool wave passed across India in the rear of the depression and gave a very cool period, lasting until the 9th. Temperature increased very rapidly from that date, and was largely above the normal of the period from the 12th until the end of the month. Strongly marked hot weather conditions hence obtained in Northern and Central India from the 10th to the end of the month. The weather was very settled during the whole of this period, and was remarkably free from disturbances.

The barometric changes of this period were, hence, such as occur during a period of rapidly increasing temperature

and settled weather in the hot season. The chief features were—

1st.—General decrease of pressure over the whole of India, greatest in amount in Northern India.

2nd.—General deficiency of pressure, the amount of which varied from day to day. The deficiency was, however, greatest throughout the whole period in Northern India along the foot of the Himalayas from Rohilkhand to Assam.

3rd.—Fairly regular oscillations of pressure of short period, the amplitude of which increased with the continuance of the abnormal conditions.

The following table gives data showing the regularity of the pressure oscillations of short period during the period of rapidly increasing temperature from the 16th to the end of the month :—

DATE.	Average change of pressure over whole of India during 24 hours preceding 8 A.M. of date.	Character of change.
	"	
11th . .	—·026	Fall general.
12th . .	—·026	Ditto.
13th . .	—·022	Changes, irregular.
14th . .	—·006	Ditto.
15th . .	—·032	Fall general.
16th . .	+·010	Changes, irregular.
17th . .	—·008	Fall general.
18th . .	+·020	Rise general.
19th . .	+·019	Ditto.
20th . .	—·062	Fall general.
21st . .	—·019	Ditto.
22nd . .	+·039	Rise general.
23rd . .	+·019	Ditto.
24th . .	—·050	Fall general.
25th . .	—·026	Fall general.
26th . .	·025	Rise general.
27th . .	·025	Ditto.
28th . .	—·058	Fall general.
29th . .	—·042	Ditto.
30th . .	+·080	Rise general.
31st . .	+·058	Ditto.

The tendency of the changes from the 10th to the 22nd was to develop the normal hot weather low-pressure area in Sind. It was clearly shown on the 15th and again on the 22nd, and on both occasions was almost certainly due to the increasing heat in North-Western India, and not to the advance of a depression from Baluchistan. During the whole of this period gradients were small. There had been for some time previous a marked tendency to the formation of a low pressure area along the foot of the hills. This developed rapidly during the next four or five days. On the 25th and 26th a trough of low pressure stretched from the East Punjab to Chota Nagpur and moderately steep gradients favouring westerly winds obtained in Northern India and the Deccan. The changes of pressure on the 27th and 28th intensified these conditions. On the 28th and 29th pressure was lowest along the foot of the hills from the East Punjab to Gorakhpur, and was three-tenths of an inch lower than on the Bombay coast. These steep gradients gave very strong westerly winds on the Bombay coast, and in Central India and the Deccan. Pressure increased rapidly during the next two days in Northern India and the gradients diminished in amount. Hence during the last two days of the month moderate westerly winds obtained in the Deccan and Central India.

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

The snowfall reports of the month are not quite so complete as might have been wished. They, however, agree in showing that over the whole of the Afghan mountain area and the Western and Central Himalayas, the snowfall of the past winter has been unusually small in amount, and was almost as markedly a defect as that of the preceding winter was in excess. The data for the Eastern Himalayas are less reliable, but appear to indicate that the snowfall was considerably below the normal of the season in the Sikkim Himalayas, and normal, or perhaps in slight excess, in the Bhotan (or Assam) Himalayas. A heavy fall of snow occurred in that part of the Himalayan area on the 15th and 16th of February.

I.—The Afghan Highlands.

(*a*). *Suleiman Range.*—The Deputy Commissioner of Dera Ismail Khan supplies the following information :—

"The following table gives a statement of the snowfall in the Takht-i-Suleiman and Zmarai range in the month of March :—

DATE.	Takht-i-Suleiman.		Zmarai range.	
	Ft.	In.	Ft.	In.
1st March	2	0	1	6
2nd March	1	6	1	0
TOTAL OF MONTH	3	6	2	6

Snow also fell on the 1st March on the Kashmir Kar range and the peak of Kundighar, as well as on all the higher Waziri hills. This was the last, and also the heaviest fall during the winter of 1891-92.

(*b*). *Hills bordering Kohat.*—The Assistant Commissioner, Thal, states that there was no snowfall on these mountains in the month of March. The previous snow melted off from all the mountains except the Safed Koh, on which it was lying to the depth of about one foot in the beginning of April.

(*c*). *Hills bordering the Peshawar district.*—The Assistant Commissioner, Mardan, writes that about six feet of snow fell in the Mahaban hills in the Gadun territory in February, and that no snow fell in March or April in the hills surrounding the Yusufzai subdivision.

II.—The Kashmir and Punjab Himalayas.

(*a*). *Murree.*—The Deputy Commmissioner, Rawalpindi, reports that no snow fell in March at Murree or on the hills adjacent to Kahuta.

(*b*). *Kulu.*—The following table shows the reported depth af snow on the higher peaks and passes in the subdivision on the 25th of the month :—

NAME OF PASS.	Height.	DEPTH OF SNOW ON 25TH OF			
		March 1892.	March 1891.	March 1890.	March 1889.
	Feet.	Feet.	Feet.	Feet.	Feet.
Rotang	13,000	5	13	16	17
Hamta	14,500	4	13	10	16
Chandar Khani	?	4	14	6	10
Barsai	?	3	9	7	6
Bushtari	?	2	9	7½	3
Bhujadhar	?	1	10	10	3
Lori Achri	?	1½	8	6	5
Bhubha	10,000	1	?	3½	6
Majang	?	?	5	2	2
Chul	?	1	9½	4	6
Sirikhand	15,000	10	39	16	5
Maghian	?	1	11	5	6
Tikkar	?	1	9	?	?
Dundku	?	2	15	6	6
Ramgarh	?	...	½	?	?
Nuna	?	1	7	2	4
Jalori	10,500	1	7	4	4
Raghopur	?	1	8	5	5
Himri	?	...	8	5	4
Sakiran	?	2	13	?	?
Suphakham	?	3	23	8	8
Gargarasan	17,000	3	28	10	12
Bashleo	11,000	1	9	6	6
Plach	?	2	11	11	10
Tirath	?	3	15	12	13

Ladakh.—The only information received up to date from Leh is the following brief extract from a letter, dated 1st February :—

"The passes have been cleared for nearly three weeks, so there must have been heavy snowfall in the Zamski pass."

Lahaul.—The Revd. A. W. Heyde, writing on the 21st March, says : "The winter which is now going has been an extremely mild and snowless one, only two feet of snow having been registered up to this date. The heaviest fall we had on the 2nd and 3rd March, when 12 inches fell ; the remainder fell during February, whilst none fell during January. The snow which came down on the 2nd and 3rd March was mixed with a great deal of dust, which gave it a strong yellowish tinge, so much so that the natives said, 'Red snow has fallen.' Probably a dust-storm somewhere down in the plains sent this dust up into Lahaul. Since this fall the weather has been clear. Even so early we have nights above freezing-point and during the day temperature is unusually high. The hillsides up to 12,000 feet and more are quite free of snow and so dry that very moderate winds are able to raise dust. This is very abnormal for this time of the year. On the passes and high hills also little fresh snow lies. The man who brought my first letters this year over the Rotang pass a few days ago says that no more than three feet of snow is on the top of the pass, and on the slopes of both sides only patches here and there."

III.—The Nepal and Sikkim Himalayas.

Nepal Himalayas.—The Assistant Resident, Katmandu, writes of the snowfall in the adjacent mountains as follows:—"So far as I have been able I have made inquiries into the snowfall of last winter on the Himalayas lying to the north of this, and my informants assure me that the snowfall—in January chiefly—was this year reported by travellers to have been greater than in the past few years, their impression being founded on the fact that the pass usually used by them was found to be blocked by snow, and that they had to make a detour eastwards in order to cross by another pass."

Sikkim Himalayas.—The Political Agent, Sikkim, has sent the following statement respecting the snowfall of the past year:—

"It is difficult to give any reliable information as I can only go by hearsay for this year, not having visited the higher passes as yet.

"A comparison with last year may be of use.

"I visited the following during July and August 1891:—

Number.	Pass.	Elevation.
1	Yeamtso-la	15,800 feet.
2	Tangchung-la	17,340 "
3	Thi-la	17,810 "
4	Nangua-la	17,590 "
5	Sibu-la	17,580 "
6	Donkia-la	18,100 "
7	Pass Nonawl	17,700 "
8	Peak Nonawl	18,210 "

"On 1, 2, 3, 4, 5 and 7 there was deep snow, though on 1, 2, 3 and 4 at that time of the year there is usually no snow. There was no snow on 6 and 8, but these are very far north and are getting beyond the range of snowfall. There was generally more snow than usual last year.

"This year, from what I can gather from travellers, there is not much snow on the Jelap Chola range, and much less than the average, and from a messenger just returned from the Lachin valley, I learn the snow in the north of Sikkim is much less than usual."

The Revd. R. Kilgour, B.D., of the Kalimpong Mission, states that the inquiries he has made show that the fall of snow in the passes between Sikkim and Thibet was much less than in the winter of 1890-91.

The Revd. Father Desgodins, S.J., of the Pedong Mission in Sikkim, has placed at the disposal of the Department the notes he made of the weather in Sikkim during the past winter. The following gives the falls of snow which he observed:—

Date.	.....	Elevation to which snowfall descended.
12th January	A little snow on the Sikkim hills	13,000 feet.
27th "	0·27 inch rain at Pedong.	
1st February	0·24 " rain at Pedong.	
9th "	0·06 " rain at Pedong	
13th "	0·03 " rain at Pedong.	
	It was not possible to see whether snow had fallen on the distant hills on these four occasions of rain at Pedong. As the transit of the wool loads was not stopped in the passes during this period, it is certain, if there was snow, it must have been light.	
15th February 16th "	Very heavy snow in the Sikkim mountains. It is stated that 7 to 9 feet of snow fell on the passes and blocked them.	8,000 "
25th March	Snow on the Sikkim mountains	12,000 "
28th "	Ditto ditto	12,000 "
	So far as could be judged these two falls were not heavy.	

He also states that "the most striking feature of this year is the perfectly dry skies we have had from the 16th of February to the 25th of March. This period is generally one of frequent storms and snow on the higher mountains. During this month of dryness the heavy fall of the 15th and 16th of February must have almost entirely melted away. Whether this was actually the case I cannot say, as I was seldom able to see the distant mountain tops on account of the air being exceptionally misty and hazy. In short, I believe, that this year the snow has been under the average of normal years, for the wool caravans were stopped only after the heavy snowfall of the 15th and 16th February."

IV.—The Assam Himalayas.

(*a*) *Kamrup.*—The Deputy Commissioner, Kamrup, states that in his recent visit to Darranga, Divangiri and Suban Khall, he was informed by the Bhutias and Khampas that the snowfall was much heavier than in the previous year.

(*b*) *Darrang.*—The Deputy Commissioner, Darrang, from inquiries he made from the adjacent hill tribes, learnt that the rainfall and snowfall were deficient throughout the whole of last year, but that heavy snow fell in the middle of February. The snowfall towards the Koriapara side of the district was also said to have been much greater than in the previous winter.

Lakhimpur.—The Assistant Political Officer, Sadiya, states that in the adjacent mountains to the north, the snowfall was less than in the previous winter.

Summary of Special Storm Reports.

Storms in the month of March may belong to two classes, *viz.* storms of the cold weather type, originating or appearing in Upper India and passing eastwards, giving rain in the plains and snow in the hills of North-Western India, and hot weather storms, *i.e.* thunderstorms, hailstorms and duststorms. The latter storms are due to thermal disturbance, but they rarely give rain in March except in Assam, Bengal, and some parts of Southern India, where local sea winds prevail more or less throughout the month.

1st.—Duststorm at Hyderabad from 2 P.M. to 4-30 P.M. Winds blew with an average velocity of nearly 67 miles per hour from 2 P.M. to 3 P.M.

2nd.—Duststorm at Lahore.

23rd.—Storm at Camorta in the Nicobars from 8 P.M. to midnight. Very heavy winds blew, which caused much destruction of property. Rainfall during storm 3·5 inches.

24th.—Severe thunderstorm at Pedong from 8-10 P.M. to 9-45 P.M. Rainfall, 1·54 inches.

27th.—Thunderstorm at Pedong from 5-30 P.M. to 7 P.M. Total rainfall during storm, 1·01 inches.

28th.—Nor'wester at Mymensingh at 4-30 P.M. Storm came down from west-north-west and caused much destruction to property in the station. The barometer rose nearly a tenth of an inch between 4-30 P.M. and 4-40 P.M. as the storm was approaching, and was fairly steady during the storm. Duststorm at Pachpadra with very violent winds. Barometer changed rapidly and irregularly, but temperature remained high throughout and did not fall to any marked extent as the storm passed away.

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

Bay of Bengal.—Fine clear weather prevailed throughout the month over nearly the whole of the Bay. Light airs to moderate north-east winds (1 to 4) obtained over the Bay area except near the Bengal and Madras coasts. So far as is indicated by the available information, weather was fine and cloudy with light unsteady winds between the equator and Lat. 7° or 8° N., from the beginning of the month to the 10th. During the next fortnight weather was occasionally squally with heavy rain in this area.

Thus the ship *William Turner* in Lat. 3° 47′ N. and Long. 82° 56′ E. at noon of the 12th had squally weather with heavy rain, the ship *Vandalia* in Lat. 3°16′ N. and Long. 90° 8′ E. on the 14th had south-west winds with heavy rain squalls, the S.S. *Virawa* in Lat. 6° 55′ N. and Long. 82° 16′ E. on the 18th had light variable winds, cloudly weather and heavy rain, the S.S. *Holy Rood* in Lat. 8° 55′ N. and Long. 82° 55′ E. had heavy rain with east-north-east winds on the 19th, the S.S. *Pundua* in Lat. 5° 40′ N. and Long. 99° 45′ E. on the 22nd had heavy rain and the ship *Carleton* in Lat. 4° 50′ N. and Long. 87° 43′ E. on the 24th had north-west squalls with rain.

The weather in this equatorial belt at the entrance to the Bay was apparently fine with very occasional squalls and little rain during the remainder of the month.

Mr. Marshall, of the Calcutta Pilot Service, reports the occurrence of a very severe squall or cyclonic storm in the Gulf of Martaban on the 26th March. No further particulars have been received up to date of this storm.

Arabian Sea.—The information for the Arabian Sea is less complete than that for the Bay. The few vessels that passed through the equatorial belt at the entrance of the Arabian Sea, more especially to the south-west of Ceylon, experienced occasional squalls. Weather was disturbed with very strong winds in the Gulf of Aden, and to the north and east of Socotra during the first four days of the month. The following gives a few examples of the weather experienced in that area by vessels proceeding from Aden to Bombay. The S.S. *Worsley Hall* in Lat. 14° 58′ N. and Long. 54° 47′ E. on the first had north-east winds, force 5 to 6, squally weather and heavy rain. The mail steamer *Shannon* in Lat. 14° 1′ N. and Long. 5° 25′ E. on the 2nd had strong easterly winds, force 6, with a rough sea and on the 3rd in Long. 55° E. had north-east winds, force 4 to 5. The S.S. *Rosario* in Lat. 15° 18′ N. and Long. 55° 48′ E. on the 4th had easterly winds, force 5 to 6, with a high sea. The weather improved in this area on the 5th and 6th, and during the remainder of the month fine weather with light to moderate north-east monsoon winds obtained. Weather was unsettled and squally with strong winds in the Persian Gulf during the first four days of the month. The available data have been given in the account of the disturbance of the first week of the month, and need not be repeated. Weather was fine with light to moderate winds in the Persian Gulf during the remainder of the month.

Temperature of the Air.

The distribution of temperature in India for March 1892 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 in each of these charts 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 data by means of which these charts have been prepared are given in Table I. The mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.* 1878 to 1888. 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 variation of the mean daily temperature from the normal, as determined by the use of this definition, agrees in almost all cases very closely with the variation 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.

The month of March 1892 was remarkable for unusually high temperature over nearly the whole of India. This was due to the abnormally dry weather which had obtained during the previous cold weather months in Northern India and the very deficient snowfall in the Himalaya and Afghan mountain regions. The increased temperature was shown more largely in the day than in the night temperature.

The mean day or maximum temperature of the month was above the normal over the whole of India except the Konkan and Upper Burma. The excess was more than 2° over nearly the whole of Northern India, the North Deccan and a portion of Southern India defined by the stations of Madras, Bangalore, Salem and Negapatam. It was more than 4° over the greater part of North-Western India and exceeded 6° in Upper Sind, West Rajputana and the Punjab. The excess was absolutely greatest at the following stations:—

STATION.	Actual mean maximum temperature of March 1892.	Normal mean maximum temperature of month of March.	Variation of actual from normal maximum temperature.
	°	°	°
Sirsa	95·3	85·4	+9·9
Dera Ismail Khan	92·5	84·1	+8·4
Mooltan	93·8	86·2	+7·6
Jacobabad	98·4	91·0	+7·4
Lahore	91·4	84·2	+7·2

These stations, hence, defined the area of greatest excess of day temperature during the month.

Higher day temperatures were noted in March 1892 over the whole of the interior of India than have been observed during the previous 25 years, and the month is hence the hottest March on record. The following gives the highest maximum temperatures registered in March 1892 at representative stations, and the highest hitherto recorded in the same month at the same stations and the year in which it was recorded:—

DISTRICT.	STATION.	Highest maximum temperature registered, March 1892.	Highest maximum temperature previously recorded in March.	Year.
		°	°	
Deccan	Sholapur	110·7	108·7	1878
Central Provinces and Berar.	Akola	111·6	108·6	1880
	Nagpur	112·8	109·0	1880
	Raipur	110·3	106·6	1880
Central India	Indore	106·1	104·0	1878
	Neemuch	107·5	104·6	1878
North-Western Provinces.	Allahabad	106·3	104·6	1880
	Jhansi	110·0	107·5	1875
	Agra	108·5	106·7	1880
	Roorkee	102·2	101·2	1884
Rajputana	Deesa	114·5	109·3	1880
	Pachpadra	113·0	111·5	1880
Kathiawar	Rajkot	111·4	110·2	1880
Sind	Hyderabad	112·2	109·6	1880
	Jacobabad	111·8	110·1	1880
Punjab	Sirsa	111·4	102·6	1880
	Mooltan	108·2	104·9	1880
	Dera Ismail Khan	106·5	103·5	1880
	Lahore	105·0	104·6	1880

In some cases, as, for example, Agra and Roorkee, there are continuous series of observations from the year 1867, and hence extending over a period of 25 years. The data in the preceding table show that the highest maximum temperatures registered in March 1892 were from 1°

to 5° above the highest previously recorded in the same month, and that the excessive temperature was, so far as can be judged by the preceding data, most marked in the Central Provinces, West Rajputana, Sind and the Punjab.

The mean minimum temperature varied less from the normal than the maximum temperature. The air was remarkably dry and contained much less vapour than usual over the greater part of India, and hence the loss of temperature by radiation at night was larger than usual. The mean minimum temperature of the month was in moderate defect in Burma, Bengal, the Central Provinces, Berar and North Deccan and the greater part of Central India and the North-Western Provinces. The deficiency was less than 2°, except locally at Jubbulpore (—3·2°), Indore (—2·2°), and Berhampore (—2·5°).

In Southern India and the area of most excessive day temperature in North-Western India, the increased radiation by night was not sufficiently large to reduce the night temperature below the normal. Hence, over the whole of India to the north of a line joining Hazaribagh, Allahabad, Hoshangabad and Surat, the mean minimum temperature was in excess. The excess was greatest in the Punjab and Upper Sind, and was 3°, or upwards, at the following stations:—

STATION.	Actual mean minimum temperature of March 1892.	Normal mean minimum temperature of March.	Variation of actual from normal.
	°	°	°
Delhi	65·5	62·5	+3·0
Peshawar	55·7	51·9	+3·8
Mooltan	61·2	57·9	+3·3

The mean temperature of the month was in excess over the whole of India, almost without exception. The excess was less than 2° except in the Punjab, Sind, Rajputana and the adjacent districts of Central India and the North-Western Provinces, and in a small area in Southern India represented by Salem and Bangalore. It was more than 4° in amount at the following stations in the Punjab and Upper Sind:—

STATION.	Actual mean temperature of March 1892.	Normal mean daily temperature of March.	Variation of actual from normal.
	°	°	°
Sirsa	77·5	71·4	+6·1
Mooltan	77·5	72·1	+5·5
Dera Ismail Khan	75·0	69·8	+5·2
Sialkot	73·8	68·7	+5·1
Peshawar	69·3	64·4	+4·9
Jacobabad	79·9	75·2	+4·7

The increased temperature was almost as largely exhibited at the hill stations in Upper India as in the adjacent plains. The following table gives data in illustration:—

STATION.	VARIATION OF		
	Mean maximum from normal of month.	Mean minimum from normal of month.	Mean temperature from normal of month.
	°	°	°
Leh	+1·7	+3·1	+2·4
Kailang	+6·9	+4·5	+5·7
Quetta	+6·3	+1·1	+3·7
Murree	+5·4	+2·5	+4·0
Ranikhet	+5·9	+5·1	+5·5
Mount Abu	+2·2	+3·7	+3·0

The preceding data show that the variations of the mean temperature conditions of the month from the normal were the same in character at the hill stations of Upper India, and also at Kailang, Leh and Quetta, as in the plains of Upper India.

In the preceding paragraphs the variations of the mean temperature conditions of the month from the normal have been fully stated. It may be noted that the small charts in Plate III show the variations at a glance. The lines and corresponding numbers give the distribution of the variations of the maximum, minimum and mean temperature from the normal and the detached numbers in smaller figures the corresponding actual variations for the hill stations.

The following gives a brief description of the more important temperature features and changes throughout the month.

Temperature at the commencement of the month was below the normal over the greater part of India. This was the continuation of a feature of the weather of the last ten days of the preceding month, the causes of which are stated in the Weather Review of that month. The following gives variation data of the 1st:—

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

The preceding data show that the deficiency of temperature at this period was greatest in the Central Provinces and Bengal, and that temperature was in slight excess in Upper India.

Stormy weather with rain in the Punjab plains and snow

in the hills set in on the 1st and lasted until the 4th. A cool wave appeared on the North-West frontier and advanced rapidly eastwards and southwards; the warm and cool waves of the 1st in Northern India also passed away rapidly eastwards in front of it.

Hence from the 2nd to the 5th two cool waves, separated by a warm wave, were advancing eastwards across Northern India. The following gives the greatest variations of the mean temperature from the normal in each of the areas covered by these waves on the 2nd, 3rd and 4th:—

DATE.	.....	STATION.	Variation of mean temperature of 24 hours preceding 8 A.M. of date from the normal.
			°
2nd	WESTERN COOL WAVE	Peshawar	— 3·9
		Quetta	— 6·1
		Jacobabad	— 0·3
	INTERMEDIATE WARM AREA.	Ludhiana	+ 4·4
		Sirsa	+ 7·9
		Deesa	+ 3·6
	EASTERN COOL WAVE	Jessore	— 8·8
		Burdwan	— 7·1
		Calcutta	— 6·4
3rd	WESTERN COOL WAVE	Quetta	—13·2
		Jacobabad	—11·6
		Hyderabad	— 6·5
	INTERMEDIATE WARM AREA.	Ludhiana	+ 5·1
		Jhansi	+ 5·8
		Akola	+ 2·6
	EASTERN COOL WAVE	Dhubri	— 4·0
		Dacca	— 3·4
		Thayetmyo	— 4·0
4th	WESTERN COOL WAVE	Indore	—12·4
		Poona	—12·3
		Mount Abu	—10·7
		Jeypore	—10·7
	INTERMEDIATE WARM AREA.	Purneah	+ 2·7
		Berhampore	+ 5·9
		Burdwan	+ 5·3
	EARTERN COOL WAVE	Tounghoo	— 3·3
		Bassein	— 3·3

The preceding data show very clearly the appearance of the cool wave on the 2nd on the north-west frontier, and also the advance of the series of three waves eastwards. The first cool wave passed out of Burma on the 5th, and the second cool wave rapidly advanced eastwards and covered the whole of India on the 6th, on which day, however, temperature rose above the normal at Quetta. The following data give the axis or line of greatest depression of temperature in the cool wave from the 5th to the 8th:—

DATE.	STATION.	Variation of the mean temperature of 24 hours preceding 8 A.M. of date from the normal.
		°
5th	Malegaon	—14·4
	Khandwa	—12·7
	Indore	—12·4
6th	Akola	—10·4
	Jubbulpore	—10·2
	Saugor	— 9·7
7th	Jessore	— 9·0
	Calcutta	— 7·7
	Jubbulpore	— 7·3
8th	Jessore	— 7·7
	Akyab	— 5·7
	Silchar	— 4·8

The preceding data illustrate the eastward extension of advance of the cool wave and its decreasing intensity (or depression of temperature) as it marched eastwards.

Temperature now began to increase rapidly, and on the 9th it was above the normal in North-Western India and below it in Central and North-Eastern India.

Temperature increased steadily over the whole of Northern India during the next three days and the area of increased temperature extended eastwards from North-Western India over the whole of Northern and Central India. The following table giving mean temperature variation data of the 9th and 12th illustrates this change:—

DISTRICT.	Average variation of mean temperature of the 9th from the normal.	Average variation of mean temperature of the 12th from the normal.	Abnormal increase of temperature from 9th to 12th.
	°	°	°
Punjab	+2·6	+3·5	+0·9
Rajputana	+1·1	+4·2	+3·1
Central India	—2·1	+2·2	+4·3
North-West Provinces	+0·3	+3·2	+2·9
Central Provinces	—1·7	+1·4	+3·1
Bengal	—2·1	+0·9	+3·0

Hence a general and fairly uniform abnormal increase of temperature averaging 3°, in addition to then ormal increase due to the seasonal changes, occurred during the period.

Temperature was very considerably in excess during the remainder of the month in Upper and Central India. The following gives mean temperature variation data at three days' intervals from the 15th to the 30th:—

DISTRICT.	VARIATION OF AVERAGE MEAN TEMPERATURE FROM THE NORMAL FOR THE PERIOD OF 24 HOURS ENDING AT 8 A.M. OF THE					
	15th.	18th.	21st.	24th.	27th.	30th.
	°	°	°	°	°	°
Punjab	+5·3	+9·1	+6·7	+10·5	+ 8·5	+2·4
Rajputana	+4·9	+6·5	+4·5	+ 7·4	+10·7	+7·3
Central India	+0·9	+4·3	+2·2	+ 5·3	+ 7·6	+4·6
North-West Provinces	+1·2	+6·3	+4·2	+ 4·8	+ 6·4	+1·3
Bengal	+0·9	+2·4	+4·0	+ 4·4	+ 3·7	+2·6
Central Provinces	+0·3	+2·2	+2·7	+ 3·8	+ 6·1	+2·6

This table shows that the greatest excess of temperature was exhibited in the Punjab, Sind and Rajputana, and that the period of greatest excess was from the 24th to the 27th.

The following temperature variation data of the 26th illustrate clearly the chief features of the temperature conditions of this very hot period :—

DISTRICT.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma	— 3·7	+ 2·7	— 0·5
Bengal	+ 4·1	+ 3·6	+ 3·9
North-West Provinces	+ 8·8	+ 4·4	+ 6·6
Punjab	+ 13·5	+ 10·2	+ 11·9
Rajputana	+ 11·3	+ 7·3	+ 9·3
Central India	+ 7·8	+ 3·8	+ 5·8
Central Provinces	+ 6·6	+ 3·1	+ 4·9
Bombay	+ 3·5	+ 0·6	+ 2·1
Madras	+ 5·8	+ 2·7	+ 4·3

The following gives the more striking features of the temperature conditions of this very hot and dry period :—

1st.—Temperature was in general excess over the whole of India, but was in slight defect in Burma.

2nd.—The excess was from 3° to 5° greater in the day than in the night temperature over nearly the whole of India.

3rd.—The excess was greatest and most marked in the West Punjab, Sind and Rajputana, and more especially in the Indus valley. The following gives data for the three stations at which the excess was absolutely greatest on the 26th :—

STATION.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Dera Ismail Khan	+ 17·5	+ 18·0	+ 17·8
Jacobabad	+ 15·3	+ 19·4	+ 17·4
Peshawar	+ 17·5	+ 13·9	+ 15·7

4th.—The excess was almost as large at the hill stations as at the adjacent plain stations. The following gives variation data of three hill stations for the 26th :—

STATION.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Murree	+ 13·9	+ 10·5	+ 12·2
Simla	+ 9·6	+ 11·9	+ 10·8
Ranikhet	+ 10·1	+ 9·7	+ 9·9

This very hot period from the 21st to 27th was followed by a short period of disturbed weather with strong but unsteady winds, numerous dust storms in North-Western and Central India and some thundershowers in North-Eastern India. Hence a moderate reduction of temperature occurred between the 27th and 30th.

The following gives temperature variation data for the 31st, or at the end of this disturbed period :—

PROVINCE.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma	+ 0·4	+ 0·8	+ 0·6
Bengal	+ 0·8	+ 2·0	+ 1·4
North-West Provinces	+ 1·4	— 2·2	— 0·4
Punjab	+ 5·9	— 4·0	+ 1·0
Sind and Rajputana	+ 8·4	+ 4·9	+ 6·7
Guzerat and Central India	+ 4·2	+ 2·2	+ 3·2
Central Provinces	+ 3·5	+ 2·3	+ 2·9
Bombay	+ 0·6	+ 0·3	+ 0·5
Madras	+ 3·5	+ 4·6	+ 4·1

The following table gives the variations of the mean temperature from the normal, week by week, during the month of March 1892 for the larger provinces as given in the Weekly Weather Summaries published in the *Gazette of India* :—

PROVINCE.	VARIATION OF MEAN TEMPERATURE FROM WEEK TO WEEK.				Variation of mean monthly temperature from normal.
	5th.	12th.	19th.	26th.	
	°	°	°	°	°
Burma	— 1·8	— 1·9	— 0·9	+ 0·5	— 1·1
Bengal and Assam	— 2·6	— 2·4	+ 1·8	+ 4·1	+ 0·8
North-West Provinces and Oudh	— 3·6	— 0·5	+ 3·4	+ 5·3	+ 2·1
Punjab	— 2·5	+ 1·9	+ 6·4	+ 9·2	+ 4·6
Bombay	— 2·3	— 1·1	+ 1·4	+ 1·5	+ 0·4
Central Provinces and Berar	— 5·2	— 2·5	+ 1·2	+ 3·6	+ 0·4
Central India and Guzerat	— 5·8	— 2·3	+ 3·0	+ 3·8	+ 1·2
Sind and Rajputana	— 4·6	+ 0·7	+ 5·2	+ 6·4	+ 3·5
Madras	+ 1·6	— 0·6	— 0·4	+ 2·4	+ 1·3

Winds.

The mean wind directions at 8 A.M. during the month are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to all winds. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart (No. 4 of Plate III) by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions as obtained from the observations of the past 10 to 20 years.

March usually commences the hot weather season, and the air motion over India is that characteristic of the hot weather, but is usually somewhat unsteady in character, more especially in the Gangetic plain and Upper India. North-westerly to westerly winds obtain in the Gangetic plain, easterly winds in the Assam valley and southerly winds in South Bengal. The winds are especially unsteady and variable in the area between these more or less opposing winds, including West Bengal and South Bihar.

In consequence of the prevalence of very strongly marked hot weather conditions in March 1892, the air movement in Northern India differed little in direction from the normal, but was much steadier and stronger than usual. The following data for representative stations illustrate these features :—

Station.	Steadiness Percentage.		Mean Daily Air Movement in miles.		
	Actual average, March 1892.	Normal average, March.	Actual, March 1892.	Normal, March.	Percentage ratio of actual in normal.
Calcutta	68	49	158	126	125
Patna	63	48	120	83	145
Allahabad	79	34	139	72	193
Roorkee	63	23	86	70	123
Lahore	47	33	573	73	70?

The data show that the increased steadiness was most marked in the North-West Provinces.

The mean wind directions at Saugor Island and False Point contained a very feeble westerly element. This deflection of the winds almost invariably occurs in the hot weather months, when the hot weather conditions are more strongly developed than usual. The variations of the mean wind directions in the interior of Bengal were apparently somewhat irregular. Thus, at Calcutta and Dacca the southerly winds of the month were more westerly than usual, and at Burdwan and Berhampore they had, on the other hand, less westing than usual.

Winds were either normal in strength or slightly above their usual force in Rajputana and Central India. They were very much steadier than usual, and the westerly element in the north westerly winds of the month was very strongly marked. The following gives data for two stations in illustration :—

Station.	Steadiness Percentage.		Mean Wind Direction.	
	Actual, March 1892.	Normal, March.	Actual, March 1892.	Normal, March.
Nowgong	72	34	N 79° W	N 63° W
Jeypore	64	34	N 59 W	N 20° W

Winds were, on the whole, less steady and somewhat weaker than usual in Sind. As in Northern India generally, the westerly element was more marked than usual.

The chief feature in the air movement in the Central Provinces was the unusual steadiness of the winds. In other respects, the air motion was approximately normal in direction with slight local variations of little importance. Winds were considerably stronger at Sambalpur and Raipur in the eastern districts, but elsewhere the variations of strength were generally small. The means for Jubbulpore and Seoni, it may be noted, are of doubtful validity. The following table gives data illustrating the increased steadiness in the Central Provinces :—

Station.	Mean Steadiness Percentage.		
	Actual, March 1892.	Normal, March.	Variation from normal March 1892.
Sambalpur	42	29	+13
Nagpur	39	6	+33
Akola	48	44	+ 4
Mean of stations in the Central Provinces.	32·5	23	+10·5

Winds were normal on the west coast of India except at Bombay, where the mean wind direction was N 74° W, the normal being N 28° W. In Madras and Burma the mean air movement differed little from that normal to the month.

Winds were slightly steadier at Murree and Leh, but were very unsteady at Quetta. They were steadier at the hill stations in the North-Western Provinces, more especially at Chakrata, where the mean percentage was 5, the normal being 8. The mean wind directions at the hill stations were practically normal, except at Simla, where north-west winds prevailed to a very unusual extent

The chief features of the air motion of the month were—

1st.—The abnormal steadiness and increased strength of the westerly and north-westerly winds in the Gangetic plain and Central India.

2nd.—The abnormally strong westerly winds which prevailed on the 27th and 28th over the greater part of the country.

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 the minimum, of the 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 amounts at 10 and 16 hours, and the normal means, with which the actual daily means of the month are computed are the means for periods varying from 5 to 25 years of the available cloud data for the same hours.

The air contained somewhat less moisture than usual in Burma and the Bay islands. The mean humidity of the month was slightly below the normal, the deficiency being greatest at Port Blair (—5). The air was exceptionally dry over the whole of the Gangetic plain. The abnormal dryness of the air was due as much to smaller amounts of aqueous vapour as to increased temperature. This feature, it may be noted, was as strongly marked in Bengal as in the Punjab.

The following gives data for a few representative stations:—

Station.	Mean Aqueous Vapour Pressure.			Mean Humidity Percentage.		
	Actual, March 1892.	Normal, March.	Variation of actual from normal.	Actual, March 1892.	Normal, March.	Variation of actual from normal.
	"	"	"	%	%	%
Calcutta . .	·323	·671	—·148	51	70	—19
Hazaribagh .	·183	·290	—·107	20	34	—14
Allahabad . .	·223	·374	—·147	26	42	—16
Lahore . .	·234	·356	—·122	33	49	—16

The humidity was from 10 to 20 below the normal over nearly the whole of Bengal, Bihar, Chota Nagpur, the North-West Provinces and the Punjab. The deficiency was equally pronounced in Sind and West Rajputana, but was from some local conditions small in amount in Central and East Rajputana and Bundelkhand and at Agra.

Thus, the mean humidity of the month was 19 below the normal at Hyderabad and 9 at Deesa. It was, on the other hand, normal at Ajmere and only 2 in defect at Nowgong and 6 at Agra.

The abnormal dryness of the air was as strongly shown at Quetta and the Western Himalayan hill stations, but apparently did not extend to Leh and Kailang, at both of which stations the mean humidity and aqueous vapour pressure of the month practically agreed with the normal. The following gives data for three hill stations:—

Station.	Mean Aqueous Vapour Pressure.			Mean Humidity Percentage.		
	Actual, March 1892.	Normal, March.	Variation of actual from normal.	Actual, March 1892.	Normal, March.	Variation of actual from normal.
	"	"	"	%	%	%
Quetta . .	·174	·214	—·040	44	57	—13
Murree . .	·158	·194	—·036	38	54	—16
Simla . .	·113	·206	—·087	27	52	—25

In the Eastern Himalayas, as indicated by the data for Darjeeling and Pedong, the deficiency was much smaller and the mean humidity conditions differed little from the normal.

In the coast districts of the Peninsula the mean humidity conditions of the month were practically normal. There was a slight excess in the amount of vapour present in the air, and a small deficiency in the humidity due to the increased temperature of the month.

Over the whole of the interior of the Peninsula, the air was much drier than usual. The deficiency was most marked in the eastern districts of the Central Provinces and in Berar and at the hill stations of Pachmarhi and Chikalda. The following gives data for these districts:—

District.	Mean Aqueous Vapour Pressure.			Mean Humidity Percentage.		
	Actual, March 1892.	Normal, March.	Variation of actual from normal.	Actual, March 1892.	Normal, March.	Variation of actual from normal.
	"	"	"	%	%	%
Sambalpur .	·322	·579	—·197	37	50	—13
Raipur . .	·243	·366	—·123	22	37	—15
Pachmarhi .	·149	·248	—·099	21	32	—11
Buldana . .	·164	·292	—·128	15	28	—13
Chikalda . .	·191	·297	—·106	20	33	—13

Hence over nearly the whole of the interior of India the amount of vapour present in the air was from 20 to 50 per cent. below the normal and the mean humidity of the month was 10 to 20 in defect.

The humidity conditions during the first week of the month differed little from the normal, but during the period of rapidly increasing and excessive temperature, from the 9th to the 27th or 28th the amount of vapour present in the air steadily diminished and the air became abnormally dry. This culminated in a period of excessive dryness of the air in Northern India on the 26th, 27th and 28th.

Remarkably low humidities were observed during this period. The 28th was the driest day over the greater part of Northern India. The following gives 8 A.M. humidity data of stations in the north of the Punjab for that day and also of the previous day for comparison :—

Station.	Aqueous Vapour Pressure.		Humidity.	
	8 A.M. of 28th.	8 A.M. of 27th.	8 A.M. of 28th.	8 A.M. of 27th.
	"	"	%	%
Peshawar	·033	·192	4	20
Khushab	·032	·171	3	21
Rawalpindi	·064	·260	9	20

The large decrease in the amount of aqueous vapour was apparently due to the strong north-west winds blowing at these stations on the morning of the 28th.

The following gives 4 P.M. humidity of the same day at the stations where the air was driest at that hour :—

Station.	Humidity percentage at 4 P.M. of 28th.	Aqueous vapour pressure at 4 P.M. of 28th.	Highest aqueous vapour registered during the night of the 28th.
	%	"	"
Lahore	4	·079	·241 at 10 P.M.
Roorkee	4	·056	·199
Allahabad	3	·069	·224 at 10 P.M.
Akola	4	·091	·209
Buldana	2	·043	·186

The preceding data illustrate an important feature in the meteorology of the hot weather in India, *viz.* the very large and rapid variations in the amount of the aqueous vapour present in the air. It is evident that these variations cannot be ascribed to diffusion or to local evaporation, as they are frequently greatest where the soil is driest and at stations far from any river or any other large source of aqueous vapour. It is hence most probable that they are results of the convective motion of the atmosphere due to the great heat of the period.

The mean cloud amount of the month was in slight excess at Leh, and also in Burma and the Andaman Islands. It was more or less in defect over the whole of India. Over a large part of he interior, including the Central Provinces, Berar, the Bombay, Deccan, Chota Nagpur, Bihar and the eastern and central districts of the North-West Provinces skies were practically cloudless throughout the whole month. The following gives data for representative stations in these areas :—

District.	Station.	Mean cloud amount.		
		Actual, March 1892.	Normal, March.	Variation of actual from normal.
		"	"	"
Bombay Deccan, Berar.	Belgaum	0·2	2·1	—1·9
	Akola	0	1·4	—1·4
Central Provinces.	Khandwa	0	1·7	—1·7
	Jubbulpore	0·1	2·3	—2·2
Central India	Sutna	0	1·9	—1·9
Chota Nagpur	Hazaribagh	0·1	2·5	—2·4
	Patna	0·2	2·7	—2·5
	Allahabad	0·2	1·9	—1·7
	Lucknow	0·2	2·7	—2·5

Over the remainder of India the mean amount of cloud was much smaller than usual, the deficiency ranging from 1 in East Bengal to 3 in the Western Himalayas.

The deficiency in the amount of cloud, it may be noted, was as marked at Aden as in India. The mean cloud amount at Aden was only 1·2 or 2·1 less than the normal (3·3).

The disturbance of the first week of the month gave moderate cloud to Upper India, but after it passed away, skies were cloudless during the remainder of the month over the whole of India, except the coast districts of Bengal and Southern India and Lower Burma

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 offices 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 March 1892 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 or the monthly rainfall statements published by the Provincial 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. The line of no rainfall is indicated by two parallel lines separated by a short distance—one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 51 meteoro-

logical districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced chiefly from the rainfall statements of the month, published by the Provincial Governments that were received in time and supplemented where necessary by the rainfall information telegraphed by District Officers. A summary of the rainfall data is given in the following table, and the actual figures utilised in the chart are those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall; a number given in a corner of each district in small slanting figures serves as an index, by means of which, in referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

The following table gives comparative data of the rainfall in each of the 52 meteorological districts into which India is divided:—

PROVINCES.	DIVISION.	Actual number of rainy days.	Normal number of rainy days.	Actual rainfall of the month.	Normal rainfall of the month.	Variation from normal.
				Inches.	Inches.	Inches.
BURMA	Tenasserim*	...	...	2·32	0·64	+ 1·68
	Lower Burma*	?	?	0·80	0·09	+ 0·71
	Central do.*	?	?	0·45	0·13	+ 0·32
	Upper do.*	?	?	0·03	?	?
	Arakan*	?	?	0	0·32	− 0·32
BENGAL AND ASSAM	Eastern Bengal	1·3	3·6	1·17	2·84	− 1·67
	Assam (Surma)*	?	?	10·97	8·36	+ 2·61
	Do. (Brahmaputra)*	?	?	4·26	3·57	+ 0·69
	Deltaic Bengal	0·2	2·6	0·07	1·83	− 1·76
	Central do.	0·5	1·6	0·37	0·93	− 0·56
	North do.	1·4	2·2	1·32	1·50	− 0·18
	Orissa	0·1	1·8	0·03	1·08	− 1·05
	Chota Nagpur	0	1·7	0·01	0·83	− 0·82
	Bihar (South)	0·1	0·9	0·04	0·36	− 0·32
	Do. (North)	0·5	0·8	0·19	0·39	− 0·20
NORTH-WEST PROVINCES AND OUDH.	North-West Provinces (East)	0	0·7	0	0·28	− 0·28
	Oudh (South)	0	0·7	0	0·30	− 0·30
	Do. (North)	0	0·9	0	0·43	− 0·43
	North-West Provinces (Central)	0	0·7	0	0·29	− 0·29
	Do. do. (West)	0	1·0	0	0·36	− 0·36
	Do. do. (Submontane)	0	2·1	0·01	1·25	− 1·24
PUNJAB	Punjab (South)	0·2	0·8	0·03	0·44	− 0·41
	Do. (Central)	0·1	0·9	0·02	0·48	− 0·46
	Do. (Submontane)	0·6	1·7	0·11	1·12	− 1·01
	Do. (Hill Districts)	0·9	4·4	0·32	3·72	− 3·40
	Do. (North-West)	1·4	2·7	0·59	1·72	− 1·13
	Do. (West)	0·1	1·2	0·03	0·61	− 0·58
BOMBAY AND MALABAR COAST DISTRICTS (MADRAS).	Malabar	0·9	0·8	0·54	0·44	+ 0·10
	Madras (South Central)	0·5	1·1	0·19	0·74	− 0·55
	Coorg*	0·3	?	0·13	0·99	− 0·86
	Mysore	?	?	0·18	0·30	− 0·12
	Konkan	0	0·2	0·01	0·08	− 0·07
	Bombay Deccan	0	0·4	0	0·18	− 0·18
	Hyderabad (North)	0	?	0	0·24	− 0·24
	Khandeish	0	0·1	0	0·02	− 0·02
CENTRAL PROVINCES AND BERAR.	Berar*	?	?	0	0·37	− 0·37
	Central Provinces (West)*	?	?	0	0·29	− 0·29
	Do. (Central)*	?	?	0	0·48	− 0·48
	Do. (East)*	?	?	0·01	0·60	− 0·59
BOMBAY (NORTH)	Guzerat	0	0	0	0·01	− 0·01
	Kathiawar	0	0·1	0	0·05	− 0·05
	Sind	0	?	0·01	0·28	− 0·27
RAJPUTANA AND CENTRAL INDIA.	Central India (East)	0·1	?	0·02	0·18	− 0·16
	Rajputana (East), Central India (West)	0	?	0	0·14	− 0·14
	Do. (West)	0	?	0	0·08	− 0·08
MADRAS	East coast (North)	0	0·9	0·01	0·55	− 0·54
	Do. (do.) (a)	0	2·0	0	1·01	− 1·01
	Hyderabad (South)	0	?	0	0·28	− 0·28
	Madras (Central)	0	0·3	0·01	0·13	− 0·12
	East coast (Central)	0	0·5	0	0·32	− 0·32
	East coast (South)	0	0·5	0·01	0·38	− 0·37
	Madras (South)	0·3	1·5	0·11	1·05	− 0·94

* The data in this case are obtained from the weekly district telegrams, as the monthly rainfall statement of the province in which they are situated was not received in time to be utilised in the preparation of the table.

The normal rainfall of the month of March over the greater part of the country including Bihar, the North-West Provinces (except the submontane districts), South and Central Punjab, Rajputana, Central India, Berar, the Central Provinces, Hyderabad (Deccan) and the greater parts of Madras, is less than half an inch. It exceeds one inch in the following areas :—

(1) The north-west submontane and hill districts of the Punjab, where it is chiefly due to moderate rain accompanying depressions similar in character to the cold weather storms of the previous four months.

(2) Orissa, North, East and Deltaic Bengal and Assam, where it is due to thundershowers accompanying nor' westers and other hot-weather storms which are of occasional occurrence in March.

(3) South Madras.

(4) Tenasse rim.

No rain fell during the month over by far the greater part of the country. The rainfall chart (Plate IV) shows that rain was received in the districts named above, *viz.* the Punjab, North-East India, South Madras, Malabar and Tenasserim. The average rainfall in all other districts was either *nil*, or less than a tenth of an inch.

East Baluchistan and Kashmir obtained moderate rain during the disturbance of the first week of the month, Baluchistan on the 1st and 2nd, and Kashmir on the 1st, 2nd and 3rd. Five, out of nine, stations in Kashmir received total amounts in the month exceeding three inches, Iskardo registering the highest total, *viz.* 5·4 inches.

The north-west and submontane districts of the Punjab and the adjacent hill stations received light showers on the 2nd, 3rd and 4th during the disturbance of the first week of the month. The Peshawar district obtained the largest amounts which gave a somewhat smaller total than the normal rainfall of the month. The rainfall of the month was very considerably in defect in other districts. The hill districts and submontane districts received barely 10 per cent. of their normal averages and the north-west districts of the Punjab an average of 30 per cent. The rainfall of the other divisions was practically *nil*.

East Bengal received light thundershowers on the 5th and North and East Bengal, and the Purneah, Durbhanga and Bhagalpur districts of Bihar fairly general rain on the 28th due to a series of thunderstorms of considerable intensity. Falls exceeding 3 inches were registered at Kurigram (3·85″) and Rungpur (3·09″) in the Rungpur district and at Durgapur (3·4″) in the Mymensingh district. Deltaic Bengal, Orissa, Chota Nagpur, Bihar (except the districts of Purneah, Durbhanga and Bhagalpur) received practically no rain during the month. Central and Eastern Bengal each obtained an average of 40 per cent. of their normal amounts, and the number of rainy days were less slightly than 40 per cent. of the normal. The average fall of the month in North Bengal was approximately normal. The rainfall of the month was hence largely in defect over the whole of the province of Bengal except North Bengal, where it was practically normal in amount.

Assam received a few light local showers on the 5th, and general moderate to heavy rain from the 27th to the end of the month. This rainfall was heaviest in the Cachar district and the Khasi and Jaintia hills. Cherrapunji registered the very large amount of 29·11 inches on the 30th and 12·08 inches on the 31st.

The rainfall was very irregularly distributed, but was generally in slight to moderate defect, except in the Assam Hill districts, the Sibsagar, Darrang and Nowgong districts, and some parts of Cachar. Cherrapunji received a total rainfall during the month of 54·90 inches, or nearly six times the normal rainfall of the month (9·44 inches).

Some light local thunder showers were received in South Madras and Malabar, chiefly during the last four days o f the month. The amounts were very small, except at the Malabar stations. Travancore also received occasional thundershowers, more especially during the last four days of the month. The rainfall was slightly in excess of the normal in the Malabar district of Madras and probably also in Travancore. Coorg, Cochin, Mysore and Hyderabad were actually or practically rainless throughout the month.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 173 stations in India during the month of March 1892.

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 subdivided into smaller meteorological areas or districts, of which there are 51 in all. This subdivision 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 subdivision 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 utilised 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 93 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' observation of the same or a neighbouring observatory, with a series of hourly observations at the same observatory.

The mean temperature is calculated by the formula, $\text{mean} = \frac{\textit{maximum} + \textit{16 hours} + \textit{2 minimum}}{4}$ 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 is 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.

Table

Abstract of Observations taken at 8 A.M. at 173

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.
I.—Burma Coast and Bay Islands.		...	...	−·083	...	...	...	...	...	...	...	91·5	−0·6	69·8	−1·7	80·7	−1·2	21·7	...	...	...	...	33·0
Bay Islands	Port Blair	61	29·829	?	29·821	29·915	6th	29·737	25th	·178	80·1	89·4	?	76·4	?	82·9	?	13·0	92·7	20th	71·2	3rd	21·5
	Camorta	?	29·872	?	?	29·949	6th	29·726	24th	·223	81·3	87·0	?	75·6	?	81·3	?	11·4	89·3	4th	72·3	9th	17·0
Tenasserim	Mergui	96	29·787	?	29·815	29·869	31st	29·718	25th	·151	78·2	90·1	?	67·3	?	78·7	?	22·8	94·4	18th	62·5	4th	31·9
	Tavoy	26	29·894	?	29·851	29·974	31st	29·815	25th	·159	75·7	91·3	?	70·4	?	80·9	?	20·9	96·2	10th	62·7	1st	33·5
	Moulmein	94	29·799	−·087	29·832	29·892	31st	29·701	26th	·191	78·0	92·9	−0·9	73·3	+1·2	83·1	+0·2	19·6	98·4	20th	65·4	2nd	33·0
	Tounghoo	181	29·690	−·075	29·816	29·776	31st	29·616	24th	·160	73·0	96·0	−1·8	67·0	−0·1	81·5	−1·0	29·0	101·2	20th	54·1	2nd	47·1
Lower Burma	Rangoon	41	29·844	−·090	29·822	29·954	31st	29·753	26th	·201	73·6	96·0	−0·5	70·3	−0·5	83·2	−0·5	25·7	100·6	20th	64·8	2nd	35·8
	Bassein	27	29·871	−·074	29·834	29·958	31st	29·791	24th	·167	75·1	93·3	−0·8	68·9	−1·2	81·1	−1·0	24·4	98·7	19th	64·0	2 days	34·7
	Diamond Island.	41	29·862	−·084	29·838	29·958	31st	29·772	24th	·186	78·8	86·1	+0·6	70·2	−5·0	78·2	−2·2	15·9	91·8	19th	67·1	2 days	24·7
Arakan	Akyab	20	29·881	−·085	29·844	29·975	31st	29·807	24th	·168	72·9	88·5	−0·3	64·2	−4·6	76·4	−2·5	24·3	91·6	13th	56·7	2 days	34·9
II.—Burma Inland		...	...	−·075	...	...	...	...	...	...	...	96·3	−0·5	61·6	−1·3	79·1	−0·9	34·7	...	...	...	...	51·0
Central Burma	Thayetmyo	134	29·726	−·075	29·805	29·820	31st	29·646	24th	·174	72·6	99·2	−0·5	64·7	−1·3	82·0	−0·9	34·5	104·7	21st	51·8	2nd	52·9
Upper Burma	Mandalay	?	29·601	?	29·547	29·666	6th	29·542	24th	·124	77·2	100·1	?	67·9	?	84·1	?	32·2	104·9	26th	55·1	2nd	49·8
	Kendat*	?	?	?	?	?	?	?	?	?	66·7	93·6	?	56·6	?	75·1	?	37·0	99·3	21st	50·0	4th	49·3
	Bhamo	?	29·429	?	29·379	29·502	31st	29·348	28th	·154	65·8	92·4	?	57·3	?	75·1	?	35·1	98·1	2 days	46·2	2nd	51·9
III.—Assam		...	...	−0·96	...	...	...	...	...	...	...	85·9	+2·3	62·1	−0·6	74·1	+0·9	23·8	...	...	...	...	43·3
Assam (Surma)	Silchar	104	29·773	−·089	29·832	29·880	6th	29·604	29th	·276	68·1	89·2	+4·1	61·7	−1·8	75·5	+1·2	27·5	97·6	2 days	51·4	1st	46·2
Brahmaputra	Sibsagar	333	29·529	−·110	29·828	29·618	1st	29·409	29th	·209	65·1	80·8	+1·6	60·6	+0·5	70·7	+1·1	20·2	91·6	25th	51·2	1st.	40·4
	Dhubri	115	29·722	−·089	29·795	29·860	1st	29·513	29th	·347	69·4	87·8	+1·2	64·1	−0·6	76·0	+0·3	23·7	97·1	21st	53·8	1st	43·3
IV.—Bengal and Orissa		...	...	−·084	...	...	...	...	...	...	...	92·5	+2·4	66·7	−0·8	79·7	+0·8	25·7	...	...	...	...	46·3
East Bengal	Chittagong	87	29·807	−·076	29·843	29·895	6th	29·705	29th	·190	72·8	88·9	+2·9	66·3	−1·4	77·6	+0·8	22·6	93·7	24th	56·1	1st	37·6
	Lungleh	?	?	?	?	?	?	?	?	?	67·0	?	?	61·4	?	?	?	?	?	?	49·5	29th	?
	Noakhali	43	29·828	?	29·818	29·944	6th	29·690	29th	·254	75·5	87·8	?	66·9	?	77·4	?	20·9	93·3	25th	49·5	1st	43·8
	Comilla	35	29·839	?	29·823	29·941	6th	29·680	29th	·261	73·0	91·2	?	66·4	?	78·8	?	24·8	97·3	26th	51·6	1st	45·7
	Sirajganj	46	29·783	?	29·780	29·926	6th	29·582	29th	·344	71·6	92·9	?	62·2	?	77·5	?	30·7	101·3	21st	47·6	1st	53·7
	Dacca	22	29·828	−·087	29·798	29·957	6th	29·653	29th	·304	73·2	92·7	+2·5	67·1	−1·5	79·9	+0·5	25·6	99·6	20th	53·8	1st	45·8
	Barisal	12	29·856	−·065	29·814	29·959	7th	29·704	29th	·255	74·7	90·7	+3·4	67·9	−1·8	79·3	+0·8	22·8	95·3	4 days	52·1	1st	43·2
	Mymensingh	63	29·795	−·086	29·807	29·921	6th	29·618	29th	·303	70·4	89·0	+2·3	64·7	+2·3	76·8	+2·3	24·3	96·5	26th	50·3	1st	46·2
Deltaic Bengal	Faridpur	39	29·815	?	29·803	29·957	6th	29·640	29th	·317	73·8	88·7	?	65·0	?	76·9	?	23·7	100·0	21st	50·0	1st	50·0
	Jessore	33	29·813	−·086	29·794	29·966	6th	29·642	29th	·324	74·7	94·7	+1·8	66·0	−2·5	80·3	−0·4	28·7	103·2	21st	49·4	1st	53·8
	Calcutta	21	29·826	−·085	29·793	29·985	6th	29·642	29th	·343	75·4	93·7	+3·0	68·3	−1·6	81·0	+0·7	25·4	101·0	22nd	53·7	1st	47·3
	Saugor Island	25	29·831	−·079	29·801	29·983	6th	29·664	29th	·319	78·6	86·9	−0·6	75·3	+0·2	81·1	−0·2	11·6	91·2	14th	57·4	1st	33·8
	Krishnagar	47	29·786	?	29·783	29·955	6th	29·588	29th	·367	76·1	95·9	?	65·8	?	80·9	?	30·1	103·4	21st	48·1	1st	55·3
	Midnapore	149	29·704	?	29·801	29·873	6th	29·518	29th	·355	78·0	99·9	?	68·8	?	84·4	?	31·1	106·4	5 days.	57·2	1st	49·2
Central Bengal	Bankura	298	29·514	?	29·767	29·684	6th	29·306	29th	·378	74·9	98·6	?	68·0	?	83·3	?	30·6	107·6	29th	55·8	6th	51·8
	Raniganj*	345	29·500	?	29·801	29·666	6th	29·298	29th	·368	73·7	97·6	?	67·2	?	82·4	?	30·4	106·9	31st	55·8	1st	51·1
	Burdwan	99	29·747	−·082	29·794	29·926	6th	29·546	29th	·380	76·0	97·1	+3·2	67·6	−1·0	82·4	+1·1	29·5	104·7	21st	52·3	1st	52·4

* Mean of 30 days.

I.

Stations in India, Burma, etc., in March 1892.

Wind Direction. Number of winds from: Calm.	N	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st March.	Normal rainfall for period 1st to 31st March.	Variation from normal of period 1st to 31st March.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·43	0·86	+0·58	...	...	...	**I.—Burma Coast and Bay Islands.**	
...	5	2	1	4	...	3	8	8	10	4	+150	81	·836	4·0	0	?	?	0	0·47	−0·47	0	0·47	−0·47	Port Blair .	Bay Islands.
14	...	2	1	...	1	...	...	...	3	?	?	79	·841	9·3	8	?	?	13·41	?	?	13·41	?	?	Camorta.	
...	9	1	2	3	3	1	1	11	3	2	+ 50	85	·819	5·0	9	?	?	5·09	2·48	+2·61	5·09	2·48	+2·61	Mergui .	Tenasserim.
29	...	...	...	...	...	1	...	1	2	?	?	87	·779	1·0	4	?	?	4·95	3·83	+1·12	4·95	3·83	+1·12	Tavoy.	
4	1	9	9	5	...	2	1	...	3	3	0	81	·780	1·8	2	0·36	+1·64	0·77	0·41	+0·36	0·77	0·41	+0·36	Moulmein.	
...	8	2	2	15	4	...	...	...	?	3	?	84	·703	1·6	0	0·18	−0·18	0·03	0·04	−0·01	0·03	0·04	−0·01	Tounghoo.	
...	1	1	1	...	4	9	13	2	4	5	− 20	84	·701	1·9	2	0·36	+1·64	2·04	0·07	+1·97	2·04	0·07	+1·97	Rangoon .	Lower Burma.
1		...	...	1	...	5	4	19	6	5	+ 20	84	·740	3·0	0	0	0	0	0·03	−0·03	0	0·03	−0·03	Bassein.	
...	13	1	...	...	...	1	2	14	9	8	+13	75	·733	4·4	0	0	0	0	0	0	0	0	0	Diamond Island.	
...	13	12	3	...	2	...	...	1	4	4	0	82	·665	2·6	0	0·82	−0·82	0	0·37	−0·37	0	0·37	−0·37	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·06	0·81	−0·75	...	...	...	**II.—Burma, Inland.**	
...	1	1	1	...	16	6	6	...	6	5	+20	62	·508	0·6	0	0	0	0	0	0	0	0	0	Thayetmyo .	Central Burma.
6	...	...	...	3	7	12	...	3	6	?	?	44	·422	0·4	0	?	?	0	0·76	−0·76	0	0·76	−0·76	Mandalay .	Upper Burma.
23	2	2	...	...	...	1	1	1	2	?	?	83	·568	0	1	?	?	0·21	0·96	−0·75	0·21	0·96	−0·75	Kendat.	
3	...	6	1	3	...	8	1	9	?	?	?	75	·482	1·1	0	?	?	0·03	1·51	−1·48	0·03	1·51	−1·48	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·00	5·58	−1·58	...	...	...	**III.—Assam.**	
27	...	...	...	1	1	...	...	...	3	3	0	77	·540	2·4	3	9·82	−6·82	1·89	9·29	−7·40	1·89	9·29	−7·40	Silchar .	Assam (Surma).
2	2	15	5	4	1	2	...	...	2	3	−33	92	·572	5·8	6	9·27	−3·27	8·44	4·73	+3·71	8·44	4·73	+3·71	Sibsagar .	Brahmaputra.
1	...	8	11	2	1	6	2	...	7	6	+17	69	·512	2·1	2	2·29	−0·29	1·68	2·72	−1·04	1·68	2·72	−1·04	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·61	1·70	−1·08	...	...	...	**IV.—Bengal and Orissa.**	
11	1	1	3	10	5	...	...	...	5	6	−17	78	·636	2·0	0	3·45	−3·45	0·05	2·87	−2·82	0·05	2·87	−2·82	Chittagong .	East Bengal.
...	...	...	...	...	...	...	...	...	?	?	?	88*	·592*	...	1	?	?	0·90	?	?	0·90	?	?	Lungleh.	
12	1	1	...	3	10	3	1	...	5*	?	?	87	?	1·0	0	3·65	−3·65	0·02	3·55	−3·53	0·02	3·55	−3·53	Noakhali.	
...	2	1	2	7	18	1	...	...	5	?	?	81	?	2·4	1	4·41	−3·41	1·49	3·76	−2·27	1·49	3·76	−2·27	Comilla.	
...	...	...	3	4	8	11	5	...	4	?	?	79	?	3·2	1	2·26	−1·26	1·06	1·28	−0·22	1·06	1·28	−0·22	Sirajganj.	
4	...	...	1	1	16	8	1	...	8	5	+60	79	·669	3·7	1	4·00	−3·00	1·29	3·74	−2·45	1·29	3·74	−2·45	Dacca.	
12	1	...	...	2	7	5	2	2	5	?	?	77	·684	3·3	1	4·65	−3·65	0·21	2·51	−2·30	0·21	2·51	−2·30	Barisal.	
...	1	1	14	12	2	1	...	...	5	?	?	81	·627	4·0	2	5·90	−3·90	1·31	2·19	−0·88	1·31	2·19	−0·88	Mymensingh.	
6	...	...	...	1	15	7	2	...	6	?	?	76	?	1·8	1	3·85	−2·85	0·80	2·93	−2·13	0·80	2·93	−2·13	Faridpur .	Deltaic Bengal.
4	1	...	...	6	5	13	1	1	4	3	+33	74	·669	2·4	0	3·64	−3·64	0	2·87	−2·87	0	2·87	−2·87	Jessore.	
3	1	1	...	...	7	15	3	...	7	5	+40	72	·656	2·0	0	2·09	−2·09	0	1·40	−1·40	0	1·40	−1·40	Calcutta.	
...	1	2	...	1	13	9	5	...	16	12	+33	79	·782	2·8	0	2·18	−2·18	0	1·55	−1·55	0	1·55	−1·55	Saugor Island.	
1	...	...	...	1	12	8	6	3	7	?	?	60	?	1·6	0	2·20	−2·20	0	1·48	−1·48	0	1·48	−1·48	Krishnagar.	
1	5	...	...	...	21	3	...	1	11	?	?	60	?	0·3	0	2·20	−2·20	0	1·46	−1·46	0	1·46	−1·46	Midnapore.	
9	...	...	...	...	5	1	14	2	4	?	?	50	?	0·5	0	1·85	−1·85	0	1·25	−1·25	0	1·25	−1·25	Bankura .	Central Bengal.
...	...	...	...	...	...	..	...	...	?	?	?	49	?	0·1	0	1·45	−1·45	0	0·65	−0·65	0	0·65	−0·65	Raniganj.*	
4	1	...	...	...	6	13	7	...	5	3	+ 66	52	·503	1·3	0	1·82	−1·82	0	1·37	−1·37	0	1·37	−1·37	Burdwan.	

* Mean of 30 days.
† " of 29 "
‡ " of 25 "

Table

Abstract of Observations taken at 8 A.M. at 173 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.
Central Bengal —*concld.*	Naya Dumka	489	29·315	?	29·769	29·477	6th	29·102	29th	·375	75·9	95·8	?	66·4	?	81·2	?	29·4	105·2	29th & 31st.	53·1	1st	52·1
	Berhampore	67	29·757	—·099	29·774	29·929	1st	29·544	29th	·385	72·8	95·5	+2·3	66·4	+0·3	80·9	+1·3	29·1	104·7	29th	53·2	1st	51·5
	Rampur Boalia.	70	29·751	?	29·771	39·921	6th	29·542	29th	·379	72·9	90·9	?	65·8	?	78·4	?	25·1	96·6	31st	50·5	1st	46·1
	Malda*	80	29·733	?	29·765	29·909	1st	29·521	29th	·388	76·2	95·6	?	62·3	?	79·0	?	33·3	103·2	22nd	48·3	1st	54·9
	Bogra†	61	29·741	—·094	29·756	29·904	1st	29·554	29th	·350	71·7	94·6	+4·6	64·2	—0·2	79·4	+2·2	30·4	102·3	21st	50·7	1st	51·6
North Bengal	Dinajpur	118	25·691	—·126	29·765	29·844	2 days	29·478	29th	·366	68·5	92·4	+1·9	60·1	—1·5	76·3	+0·2	32·3	101·1	22nd	48·5	2nd	52·6
	Rangpur	123	29·718	?	29·798	29·860	1st	29·505	29th	·355	69·3	89·7	?	60·3	?	75·0	?	29·4	98·0	21st	49·1	6th	48·9
	Jalpaiguri	284	29·548	—·075	29·793	29·705	1st	29·340	29th	·365	69·5	87·6	+2·1	61·1	+0·9	74·4	+1·5	26·5	95·4	2 days	49·6	2 days	45·8
Orissa	Balasore	56	29·790	—·088	29·794	29·957	6th	29·607	29th	·350	75·9	95·8	+5·2	68·7	—1·7	82·3	+1·8	27·1	102·5	18th	55·5	1st	47·0
	False Point	21	29·857	—·069	29·820	29·984	6th	29·696	29th	·288	77·8	87·2	—0·7	71·4	—0·9	79·3	—0·8	15·8	94·5	14th	61·0	1st	33·5
	Cuttac	80	29·782	—·069	29·806	29·923	6th	29·607	29th	·316	76·3	99·7	+2·5	70·7	—2·2	85·2	+0·2	29·0	106·4	28th	62·3	1st	44·1
	Shortt's Island.	?	29·838	?	?	29·983	6th	29·658	29th	·325	78·3	85·7	?	74·3	?	80·0	?	11·4	90·8	11th	68·8	6th	22·0
	Puri	9	29·849	?	29·798	29·979	6th	29·699	29th	·280	77·9	86·7	?	74·2	?	80·5	?	12·5	95·7	14th	62·6	1st	33·1
V.—Gangetic Plain and Chota Nagpur.		...	...	—·095	...	...	...	...	...	...	...	94·3	+2·5	63·2	—0·2	78·8	+1·2	31·1	...	...	...	...	52·7
Chota Nagpur	Hazaribagh	2,007	27·822	—·086	29·775	27·938	6th	27·640	29th	·298	76·2	91·8	+2·8	65·4	+1·5	78·6	+2·2	26·4	101·8	27th	53·1	1st	48·4
	Ranchi	2,128	27·708	?	29·771	27·819	6th	27·529	29th	·290	77·2	91·3	?	65·3	?	78·3	?	26·0	101·1	28th	50·9	1st	50·2
	Chaibassa	760	29·063	—·085	29·777	29·201	1st	28·865	29th	·336	76·8	98·7	+3·1	66·4	—1·3	82·6	+0·9	32·3	108·1	29	54·0	1st	54·1
Bihar (South)	Gaya	375	29·448	—·095	29·780	29·622	1st	29·216	29th	·406	77·3	96·6	+2·4	68·1	+1·8	82·4	+2·1	28·5	105·1	27th	56·2	1st	48·9
	Dehri	351	29·461	?	29·769	29·635	6th	29·244	29th	·391	78·1	96·7	?	66·8‡	?	81·8‡	?	29·9	106·4	27th	55·5	2nd	50·9
	Patna	183	29·629	—·104	29·767	29·800	6th	29·421	29th	·379	76·5	92·3	+0·9	64·6	+1·0	78·4	+1·0	27·7	101·7	25th	53·4	1st	48·3
	Arrah	190	29·616	?	29·762	29·790	6th	29·398	29th	·392	72·8	95·9	?	63·8	?	79·8	?	32·1	103·8	25th	52·1	6th	51·7
	Buxar	239	29·575	?	29·773	29·753	6th	29·344	29th	·409	74·0	94·3	?	65·4	?	79·9	?	28·9	102·9	25th, 26th, & 27th.	53·9	1st	49·0
Bihar (North)	Purnea	125	29·698	—·089	29·780	29·863	1st	29·493	29th	·370	69·0	93·6	+3·0	59·3	—1·2	76·5	+0·9	34·3	101·3	4 days	45·3	1st	56·0
	Bhagalpur	160	29·641	?	29·757	29·818	1st	29·429	29th	·389	73·6	94·6	?	64·6	?	79·7	?	30·0	102·8	22nd	52·0	1st	50·8
	Darbhanga§	166	29·670	—·076	29·794	29·825	1st	29·448	29th	·377	68·5	89·2	+1·4	59·7	—3·8	74·5	—1·2	29·5	98·0	31st	51·7	1st	46·3
	Muzaffarpur	178	29·613	?	29·750	29·784	1st	29·424	29th	·360	69·9	93·1	?	61·3	?	77·3	?	31·8	101·7	23rd	49·3	1st	52·4
	Motihari	224	29·570	?	29·757	29·743	1st	29·364	29th	·379	69·0	92·8	?	57·7	?	75·3	?	35·1	101·2	23rd	46·9	1st	54·3
	Chapra	181	29·620	?	29·759	29·793	1st	29·407	29th	·386	72·0	94·9	?	63·4	?	79·2	?	31·5	103·3	31st	50·6	1st	52·7
N.-W. P. (Eastern Districts).	Benares	267	29·552	—·096	29·781	29·724	6th	29·328	29th	·396	71·7	96·4	+2·6	61·8	—0·7	79·1	+1·0	34·6	105·8	3 days	47·0	1st	58·8
	Allahabad	309	29·511	—·100	29·782	29·686	6th	29·277	29th	·409	74·5	97·0	+3·3	62·1	—0·2	79·6	+1·6	34·9	107·4	26th & 28th.	47·9	1st	59·5
N.-W. P. (East Submontane).	Gorakhpur	256	29·537	—·106	29·757	29·713	1st	29·318	29th	·395	71·3	93·4	+2·1	62·8	+0·2	78·1	+1·2	30·6	101·8	26th	51·3	1st	50·5
Oudh (South)	Lucknow	370	29·430	—·111	29·767	29·605	6th	29·193	29th	·422	72·6	95·0	+3·4	61·0	+0·3	78·2	+1·8	34·0	105·3	26th	46·0	1st	59·3
N.-W. Provinces (Central).	Cawnpore	416	29·400	?	29·783	29·578	4th	29·162	29th	·416	73·8	94·8	?	61·3	?	78·1	?	33·5	106·1	26th	46·0	1st	60·1
VI.—Upper Sub-Himalayas		...	...	—·098	...	...	...	...	...	...	...	89·7	+5·1	57·9	+1·0	73·8	+3·1	31·8	..	...	...	...	57·4
N.-W. Provinces (Submontane).	Bareilly	568	29·204	—·115	29·752	29·385	4th	28·966	29th	·419	67·6	91·7	+3·7	58·4	—0·8	75·1	+1·5	33·3	101·4	26th	46·7	1st	54·7
	Dehra Dun	2,233	27·565	?	29·787	27·705	4th	27·327	29th	·378	64·5	86·5	?	56·8	?	71·7	?	29·7	98·5	28th	43·5	5th	55·0
	Roorkee	887	28·886	—·112	29·771	29·051	5th	28·630	29th	·421	62·9	90·8	+4·7	55·3	—1·4	73·1	+1·7	35·5	102·2	25th & 27th.	46·2	1st & 6th	56·0
	Meerut	738	29·063	—·091	29·785	29·247	4th	28·802	29th	·445	68·3	91·2	+3·8	58·8	+0·8	75·0	+2·3	32·4	103·8	27th	46·6	6th	57·2
Punjab (Central)	Delhi	718	29·103	—·084	29·798	29·290	5th	28·852	29th	·438	72·1	91·8	+3·0	65·5	+3·0	78·7	+3·0	26·3	104·5	27th	51·1	5th	53·4
	Lahore	702	29·099	—·101	29·791	29·328	5th	28·835	29th	·493	68·0	91·4	+7·2	56·3	—0·1	73·9	+3·6	35·1	106·3	25th	42·1	5th	64·2

* Mean of 30 days.
† „ of 27 „
‡ Mean of 29 days.
§ „ „ 24 „

I—*continued.*

in India, Burma, etc., in March 1892—continued.

Wind Direction. Number of winds from: Cal	N	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour	Normal	Percentage variation	Hygrometry, 8 A.M. Mean humidity	Mean vapour tension	Mean cloud amount	Rainfall. Number of rainy days	Normal number of rainy days	Variation	Rainfall of month	Normal rainfall of month	Variation from normal	Total rainfall from 1st to 31st March	Normal rainfall for period 1st to 31st March	Variation from normal of period, 1st to 31st March	Station	Meteorological Province or District
6	1	...	1	2	2	1	7	11	3*	?															
...	...	...	3	1	13	8	6	...	5	3	+ 66	65	·555	1·5	0	1·64	—1·64	0	1·20	[illegible]	0	[illegible]	[illegible]	[illegible]	
2	...	...	...	4	10	11	3	1	5	?	?	66	?	1·1	1	1·35	—0·35	1·10	0·81	+ 0·29	1·10	0·81	+ 0·29	Rampur Boalia.	CENTRAL BENGAL
7	...	1	2	11	...	8	...	1	4	?	?	53	?	1·1	1	1·10	—0·10	0·97	0·74	+ 0·23	0·97	0·74	+ 0·23	Malda.*	
11	...	2	8	5	1	...	...	...	4	?	?	73	·597	2·6	2	3·50	—1·50	3·66	0·84	+ 2·82	3·66	0·84	+ 2·82	Bogra.	
...	...	4	5	1	5	8	8	...	3	?	?	63	·471	2·1	1	2·60	—1·60	1·10	0·90	+ 0·20	1·10	0·90	+ 0·20	Dinajpur	NORTH BENGAL.
2	...	1	13	2	6	2	5	...	3	?	?	79	?	0·6	2	1·60	+0·40	3·70	1·30	+ 2·40	3·70	1·30	+ 2·40	Rangpur.	
3	2	6	9	10	1	...	...	...	4	?	?	70	·514	0·9	1	5·79	—4·79	0·50	1·83	— 1·33	0·50	1·83	— 1·33	Jalpaiguri.	
3	4	1	...	...	7	12	...	4	8	?	?	69	·638	0·5	0	3·85	—3·85	0	1·38	— 1·38	0	1·38	— 1·38	Balasore	ORISSA.
...	2	...	...	...	5	11	12	1	13	11	+ 18	86	·823	2·4	0	2·00	—2·00	0·01	1·38	— 1·37	0·01	1·38	— 1·37	False Point.	
12	...	...	...	...	5	10	3	1	3	3	0	72	·667	2·1	1	1·64	—0·64	0·22	1·14	— 0·92	0·22	1·14	— 0·92	Cuttack.	
...	1	1	...	...	2	17	8	1	17†	?	?	80	·784	1·0	0	?	?	0	?	?	0	?	?	Shortt's Island.	
1	5	1	...	1	...	18	3	2	14	?	?	83	?	2·5	0	0·80	—0·80	0	0·52	— 0·52	0	0·52	— 0·52	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·05	0·46	—0·42	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
...	1	...	...	1	2	9	15	3	12	7	+ 71	24	·234	0·4	0	1·82	—1·82	0	0·82	— 0·82	0	0·82	— 0·82	Hazaribagh.	CHOTA NAGPUR.
11	1	...	...	...	3	3	8	5	9	?	?	33	?	0·4	1	2·32	—1·32	0·12	1·09	— 0·97	0·12	1·09	— 0·97	Ranchi.	
9	1	...	...	...	3	13	4	1	2	?	?	46	·437	0·2	0	2·20	—2·20	0	1·21	— 1·21	0	1·21	— 1·21	Chaibassa.	
...	...	...	2	2	11	6	9	1	7*	3	+133	49	·459	1·2	0	1·18	—1·18	0	0·64	— 0·64	0	0·64	— 0·64	Gaya	BIHAR (South).
2	...	...	...	2	11	13	2	1	7	?	?	30	?	0	0	1·14	—1·14	0	0·70	— 0·70	0	0·70	— 0·70	Dehri.	
...	...	2	4	...	2	3	20	...	5	3	+ 66	39	·361	0·3	0	0·82	—0·82	0	0·41	— 0·41	0	0·41	— 0·41	Patna.	
...	...	...	3	2	2	6	15	3	5	?	?	45	?	0	0	0·95	—0·95	0	0·34	— 0·34	0	0·34	— 0·34	Arrah.	
...	1	...	2	..	1	1	22	4	7	?	?	36	?	0·2	0	0·85	—0·85	0	0·28	— 0·28	0	0·28	— 0·28	Buxar.	
20	...	1	4	1	...	2	2	1	2	3	— 33	58	·428	0·7	1	0·73	+0·27	0·17	0·49	— 0·32	0·17	0·49	— 0·32	Purnea	BIHAR (North).
20	...	1	4	...	1	...	4	1	2	?	?	50	?	1·1	1	0·65	+0·35	0·57	0·33	+ 0·24	0·57	0·33	+ 0·24	Bhagalpur.	
8	...	...	4	1	...	3	5	3	4	5	— 20	54	·383	0·7	0	0·91	—0·91	0·03	0·34	— 0·31	0·03	0·34	— 0·31	Darbhanga.	
1	...	1	5	5	...	6	9	4	6	?	?	58	?	0·4	0	1·05	—1·05	0	0·42	— 0·42	0	0·42	— 0·42	Muzaffarpur.	
1	1	2	5	3	...	4	13	2	7	?	?	58	?	1·0	0	0·82	—0·82	0	0·37	— 0·37	0	0·37	— 0·37	Motihari.	
4	...	...	6	1	2	10	7	1	6	?	?	47	?	0	0	0·75	—0·75	0	0·29	— 0·29	0	0·29	— 0·29	Chapra.	
7	...	...	...	1	2	9	12	...	6	5	+ 20	55	·435	0·1	0	0·64	—0·64	0	0·17	— 0·17	0	0·17	— 0·17	Benares	N.-W. P. (Eastern Districts).
5	...	...	...	1	2	6	12	5	6	3	+100	33	·276	0·6	0	0·73	—0·73	0	0·20	— 0·20	0	0·20	— 0·20	Allahabad.	
...	4	1	4	1	3	2	13	3	3	4	— 25	51	·397	0·3	0	0·73	—0·73	0	0·26	— 0·26	0	0·26	— 0·26	Gorakhpur	N.-W. P. (East Submontane).
8	1	...	...	...	...	2	17	3	6	4	+ 50	47	·383	0·1	0	1·00	—1·00	0	0·23	— 0·23	0	0·23	— 0·23	Lucknow.	OUDH (South).
...	...	1	...	1	...	6	20	3	6	?	?	42	·362	0·6	0	0·80	—0·80	0	0·24	— 0·24	0	0·24	— 0·24	Cawnpore	N.-W. PROVINCES (Central).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·15	1·10	—0·94	...	...	...	**VI.—Upper Sub-Himalayas.**	
14	...	...	2	...	...	...	3	12	3	4	— 25	54	·375	0·2	0	1·82	—1·82	0	0·99	— 0·99	0	0·99	— 0·99	Bareilly	N.-W. PROVINCES (Submontane).
31	...	...	...	...	...	...	...	...	1†	2	— 50	44	·274	1·5	0	2·64	—2·64	0	1·55	— 1·55	0	1·55	— 1·55	Dehra Dun.	
18	...	...	1	2	...	1	2	7	4	3	+ 33	52	·301	2·0	0	1·82	—1·82	0	0·83	— 0·83	0	0·83	— 0·83	Roorkee.	
5	...	...	...	...	...	3	21	2	4	3	+ 33	41	·281	0·7	0	1·55	—1·55	0	1·02	— 1·02	0	1·02	— 1·02	Meerut.	
1	...	...	...	1	...	9	18	2	4	4	0	32	·255	0·8	0	1·18	—1·18	0	0·56	— 0·56	0	0·56	— 0·56	Delhi	PUNJAB (Central).
19	2	...	1	2	3	...	1	3	2	3	— 33	42	·286	2·1	0	1·36	—1·36	0·06	0·69	— 0·63	0·06	0·69	— 0·63	Lahore.	

* Mean of 30 days.
† „ of 29 „

Table

Abstract of Observations taken at 8 A.M. at 173 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 Submontane.	Ludhiana	812	28·976	—·106	29·780	29·177	5th	28·729	29th	·448	67·4	[illegible]	+6·2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25th	46·7	4th & 5th	58·6
Punjab North	Sialkot	890	[illegible]	[illegible]	[illegible]	[illegible]	5th	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+7·3	55·3	+2·9	73·8	+5·1	31·0	104·2	25th	43·3	5th	60·9
	Rawalpindi	1,649	28·166	—·077	29·801	28·354	5th	27·845	29th	·509	62·3	82·3	+5·2	53·1	+2·6	67·7	+3·9	29·2	96·0	25th	39·4	4th	56·6
VII.—Indus Valley and N.-W. Rajputana.		...	...	—·090	...	...	...	...	...	...	...	94·3	+6·9	61·4	+2·3	78·1	+4·5	32·4	...	...	...	...	62·3
Punjab West	Peshawar	1,110	28·760	—·085	29·838	28·980	5th	28·455	29th	·525	64·4	82·9	+6·0	55·7	+3·8	69·3	+4·9	27·2	98·5	26th	37·9	4th	60·6
	Khushab	612	29·188	?	29·788	29·419	5th	28·904	29th	·515	67·3	?	?	54·9*	?	?	?	?	?	?	40·1	3rd	?
	Montgomery	558	29·257	?	29·797	29·511	5th	28·993	29th	·518	71·5	94·5	?	59·1	?	76·8	?	35·4	106·9	25th	42·8	5th	64·1
	D. I. Khan	573	29·248	—·117	29·812	29·523	5th	28·966	29th	·557	66·1	92·5	+8·4	57·4	+1·9	75·0	+5·2	35·1	106·5	26th	40·9	5th	65·6
	Mooltan	420	29·408	—·103	29·810	29·676	5th	29·185	29th	·491	69·3	93·8	+7·6	61·2	+3·3	77·5	+5·5	32·6	108·2	25th	45·3	5th	62·9
	Sirsa	662	29·154	—·093	29·799	29·369	5th	28·896	29th	·473	68·9	95·3	+9·9	59·6	+2·3	77·5	+6·1	35·7	111·4	28th	45·2	4th	66.
Sind and Cutch	Jacobabad	186	29·655	—·079	29·810	29·875	5th	29·499	29th	·376	73·3	98·4	+7·4	61·4	+2·0	79·9	+4·7	37·0	111·8	26th	39·6	3rd	72·2
	Hyderabad	117	29·746	—·081	29·816	29·930	6th	29·610	29th	·320	72·9	98·9	+5·4	66·3	+1·7	82·6	+3·1	32·6	112·2	26th	52·2	3rd & 5th	60·0
	Kurrachee	49	29·847	—·072	29·849	30·072	5th	29·708	29th	·364	71·9	89·7	+3·8	66·9	+0·8	78·3	+2·3	22·8	106·3	31st	55·0	6th	51·3
	Bhuj	395	29·484	?	29·835	29·662	5th	29·341	29th	·321	78·3	98·1	?	66·6	?	82·4	?	31·5	110·5	28th	55·1	4th & 5th	55·4
Rajputana West	Bickaneer	753	29·066	?	29·794	29·273	5th	28·845	29th	·428	72·7	94·4	?	67·7	?	80·8	?	26·7	106·6	26th	51·5	4th	55·1
	Puchpadra	380	29·492	?	29·838	29·739	5th	29·342	30th	·397	70·9	99·3	?	59·5†	?	79·2†	?	39·8	113·0	27th	41·4	5th	71·6
VIII.—East Rajputana, Central India and Guzerat.		...	...	—·063	...	...	...	...	...	...	...	96·5	+3·8	63·5	+0·9	80·2	+2·4	33·0	...	...	...	...	59·7
Rajputana, East	Jeypore	1,431	28·432	—·064	29·841	28·608	5th	28·190	29th	·418	73·3	95·1	+5·1	62·2	+1·2	78·9	+3·2	33·2	108·6	27th	44·2	4th	64·1
	Sambhar	1,254	28·588	—·073	29·809	28·761	5th	28·348	29th	·413	70·0	94·1	+5·7	60·7	+1·3	77·4	+3·5	33·4	107·5	27th	44·9	4th	62·6
	Ajmere	1,611	28·274	—·047	29·864	28·452	5th	28·043	29th	·409	73·3	94·0	+4·4	61·8	+2·9	77·9	+3·7	32·2	107·5	27th	47·3	6th	60·2
	Deesa	466	29·430	—·053	29·859	29·611	4th	29·278	29th	·333	76·1	102·2	+6·3	65·1	+1·2	83·6	+3·8	37·1	114·5	28th	47·0	4th	67·5
Kathiawar	Rajkot	429	29·484	—·049	29·873	29·658	4th	29·336	29th	·322	74·5	99·4	+2·7	61·7	—0·9	80·6	+0·9	37·7	111·4	28th	49·0	4th	62·4
	Veraval	?	29·890	?	29·850	30·072	4th	29·789	29th	·283	74·3	?	?	64·2	?	?	?	?	?	...	49·3	4th	?
	Bhavnagar	?	29·884	?	29·870	30·066	4th	29·770	29th	·296	73·7	94·0	?	67·9	?	81·0	?	26·1	103·4	29th	55·0	5th	48·4
Central India	Nowgong	757	29·085	—·082	29·816	29·275	5th	28·880	29th	·395	70·8	95·2	+1·3	59·6	—1·3	77·5	0	35·6	106·1	27th	45·4	1st	60·7
	Indore	1,823	28·060	—·053	29·840	28·212	6th	27·915	29th	·297	75·4	95·3	+2·5	58·6	—2·2	79·0	+0·2	36·7	106·1	28th	42·1	4th	64·0
	Neemuch	1,630	28·251	—·049	29·850	28·425	6th	28·088	29th	·337	75·0	95·4	+3·1	62·8	+1·2	79·1	+2·2	32·6	107·5	27th	45·9	5th	61·
	Surat	36	29·877	—·061	29·856	30·057	4th	29·777	29th	·280	75·5	98·9	+2·8	66·4	+0·6	82·7	+1·7	32·5	110·1	28th.	54·0	6th	56·19
Guzerat	Agra	555	29·289	—·084	29·818	29·476	5th	29·038	29th	·438	70·9	95·8	+3·8	64·8	+1·9	80·3	+2·9	31·0	108·5	26th&27th	53·6	1st	54·9
N.-W. P. West	Jhansi	840	28·998	—·077	29·801	29·179	6th	28·776	29th	·403	77·0	97·8	+1·5	69·7	+4·3	83·8	+4·4	28·1	110·0	27th	56·9	1st	53·1
	...	...	...	—·054	...	...	...	...	...	...	...	98·2	+1·7	66·6	0·8	82·4	+0·4	31·6	...	...	...	...	54·0
IX.—Deccan	Belgaum	2,524	27·381	—·052	29·832	27·468	6th	27·331	21st	·137	73·2	94·2	—0·3	63·2	—1·0	78·7	—0·7	31·0	103·4	27th	52·9	4th	50·5
Bombay Deccan	Sholapur	1,590	28·312	—·042	27·834	28·439	5th	28·243	29th	·196	81·0	102·9	+2·6	68·5	—0·4	85·7	+1·1	34·4	110·7	28th	55·6	4th	55·1
	Poona	1,840	28·067	—·046	29·860	28·191	6th	28·020	21st	·171	74·5	99·9	+2·8	63·8	—1·0	81·7	+0·9	36·1	109·1	28th	47·5	4th	61·6
	Bijapur	...	27·952	?	?	28·065	6th	27·898	22nd	·167	79·6	90·1	?	75·8	?	83·0	?	14·3	97·7	29th	65·5	7th	32·2
Khandeish	Malegaon	1,430	28·469	—·049	29·857	28·605	4th	28·357	29th	·248	76·8	99·2	+1·7	63·5	—0·4	81·3	+0·7	35·7	109·3	28th	43·9	5th	65·4
	Ahmednagar	2,152	27·759	?	29·841	27·895	4th	27·674	29th	·221	77·5	96·8	?	61·9	?	79·4	?	34·9	103·2	25th	46·4	6th	56·8
Berar	Akola	930	28·952	—·043	29·837	29·107	6th	28·827	29th	·280	76·8	101·1	+2·0	64·6	—1·3	82·9	+0·1	36·5	111·6	28th	49·1	6th	62·5
	Amraoti	1,215	28·648	—·055	29·816	28·816	6th	28·512	29th	·304	79·3	101·1	+2·1	68·4	0	84·8	+1·1	32·7	110·8	28th	53·9	4th.	56·9

* Mean of 29 days.
† " 30 "

I—*continued.*

in India, Burma, etc., in March 1892—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 March.	Normal rainfall for period 1st to 31st March.	Variation from normal of period 1st to 31st March.	Station.	Meteorological Province or District.
26	...	...	...	1	...	...	1	3	1	2	−50	46	·305	2·0	1	2·36	−1·36	0·10	1·04	−0·94	0·10	1·04	− 0·94	Ludhiana .	Punjab, Submontane.
13	7	2	2	1	...	...	4	2	1	2	−50	52	·330	2·0	2	2·64	−0·64	0·49	1·24	−0·75	0·49	1·24	− 0·75	Sialkot .	Punjab, North.
9	...	4	2	1	1	1	1	12	4	3	+33	51	·276	1·4	2	3·91	−1·91	0·73	1·95	−1·22	0·73	1·95	− 1·22	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·12	0·42	−0·30	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
10	1	...	2	3	7	4	3	1	6	4	+50	55	·318	2·2	1	3·55	−2·55	1·05	1·84	−0·79	1·05	1·84	− 0·79	Peshawar .	Punjab, West.
11	2	6	2	1	1	4	2	2	4	?	?	33	·217	1·7	0	1·60	−1·60	0·07	0·54	−0·47	0·07	0·54	− 0·47	Khushab .	
1	3	6	2	7	3	1	1	7	5	?	?	38	·287	2·0	1	1·00	0	0·26	0·41	−0·15	0·26	0·41	− 0·15	Montgomery.	
12	4	8	1	...	1	...	...	5	1	2	−50	47	·315	1·7	0	1·55	−1·55	0	0·58	−0·58	0	0·58	− 0·58	D. I. Khan.	
3	3	23	...	1	...	...	...	1	3	2	+50	45	·328	1·5	0	1·18	−1·18	0	0·49	−0·49	0	0·49	− 0·49	Mooltan.	
3	3	...	...	1	11	5	6	2	7	4	+75	61	·455	1·5	0	0·55	−0·55	0	0·36	−0·36	0	0·36	− 0·36	Sirsa.	
11	3	1	6	5	...	...	...	5	3	4	−25	29	·245	1·6	0	0·73	−0·73	0	0·11	−0·11	0	0·11	− 0·11	Jacobabad .	Sind and Cutch.
...	...	7	...	1	1	22	...	...	7	8	−13	40	·355	1·1	0	0·50	−0·50	0	0·17	−0·17	0	0·17	− 0·17	Hyderabad.	
...	2	12	...	...	...	1	6	10	10	12	−17	73	·588	1·1	0	0·55	−0·55	0·07	0·18	−0·11	0·07	0·18	− 0·11	Kurrachee.	
5	...	1	1	...	...	1	19	4	7	8	−13	52	·491	0·2	0	?	?	0	0·09	−0·09	0	0·09	− 0·09	Bhuj.	
...	1	...	1	5	6	16	1	1	6	4	+50	21	·172	1·0	0	?	?	0	0·15	−0·15	0	0·15	− 0·15	Bickaneer .	Rajputana (West).
16	1	2	1	1	2	4	...	4	6	4	+50	32*	·271*	1·1	0	?	?	0	0·07	−0·07	0	0·07	− 0·07	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·11	−0·11	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
6	5	2	...	1	...	1	1	15	4	5	−20	34	·284	1·0	0	0·50	−0·50	0	0·07	−0·07	0	0·07	− 0·07	Jeypore .	Rajputana (East).
14	3	2	...	2	1	...	6	3	6	6	0	29	·208	0·7	0	0·64	−0·64	0	0·36	−0·36	0	0·36	− 0·36	Sambhar.	
7	1	2	...	1	2	5	9	4	5	4	+25	39	·322	0·5	0	0·27	−0·27	0	0·01	−0·01	0	0·01	− 0·01	Ajmere.	
...	...	5	4	...	4	...	9	9	9	9	0	29	·264	0·5	0	0·18	−0·18	0	0·06	−0·06	0	0·06	− 0·06	Deesa.	
8	...	4	2	...	...	2	7	8	7	8	−13	63	·552	0·1	0	0	0	0	0	0	0	0	0	Rajkot .	Kathiawar.
8	13	...	...	1	...	...	2	7	8	?	?	66	·569	0·8	0	?	?	0	?	?	0	?	?	Veraval.	
...	...	...	...	...	...	17	12	2	10	?	?	75	·648	0	0	?	?	0	?	?	0	?	?	Bhavnagar.	
7	...	...	...	...	1	5	15	3	3	2	+50	45	·345	0·2	0	0·55	−0·55	0	0·17	−0·17	0	0·17	− 0·17	Nowgong. .	Central India.
11	4	1	3	1	...	2	7	2	3	4	−25	35	·331	0·1	0	0	0	0	0	0	0	0	0	Indore.	
5	...	3	2	...	...	5	11	5	8	9	−11	30	·269	0·1	0	0·18	−0·18	0	0·01	−0·01	0	0·01	− 0·01	Neemuch.	
...	5	...	...	...	...	13	3	10	?	6	?	71	·651	0·4	0	0	0	0	0	0	0	0	0	Surat . .	Guzerat.
...	...	1	...	1	...	7	...	22	5	5	0	41	·310	0·2	0	0·82	−0·82	0	0·24	−0·24	0	0·24	− 0·24	Agra . .	N.-W. P. (West).
5	1	...	...	...	2	17	2	4	3	3	0	25	·231	0	0	1·00	−1·00	0	0·33	−0·33	0	0·33	− 0·33	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·01	0·25	−0·24	...	...	...	**IX.—Deccan.**	
9	3	3	1	5	3	1	3	3	?	12	?	50	·401	0·1	0	1·00	−1·00	0	0·48	−0·48	0	0·48	− 0·48	Belgaum .	Bombay (Deccan).
3	4	2	2	6	1	...	4	9	10	8	+25	32	·329	1·0	0	0·36	−0·36	0	0·12	−0·12	0	0·12	− 0·12	Sholapur.	
20	...	...	...	...	1	...	7	3	8	8	0	38	·336	0	0	0·36	−0·36	0	0·07	−0·07	0	0·07	− 0·07	Poona.	
3	3	2	...	2	...	9	4	8	7	?	?	43	·445	1·4	0	0·03	−0·03		0·08	−0·08	0	0·08	− 0·08	Btjapur .	
2	1	...	...	...	2	6	13	7	7	6	+17	64	·580	0·1	0	0	0	0	0	0	0	0	0	Malegaon .	Khandeish.
1	9	3	1	4	1	...	3	9	8	?	?	51	·507	0	0	?	?	0	0·04	−0·04	0	0·04	− 0·04	Ahmednagar.	
8	1	1	3	1	...	1	4	12	5	4	+25	26	·231	0	0	0·82	−0·82	0	0·42	−0·42	0	0·42	− 0·42	Akola . .	Berar.
...	...	5	8	1	...	4	7	6	5	4	+25	22	·223	0	0	0·45	−0·45	0	0·23	−0·23	0	0·23	− 0·23	Amraoti .	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 173 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	28·838	—·043	29·851	29·000	6th	28·692	29th	·308	74·7	99·1	+1·2	64·9	—0·1	82·0	+0·6	34·2	109·7	28th	46·6	5th	63·1
	Hoshangabad	1,020	28·863	—·059	29·858	29·031	6th	28·695	29th	·336	72·8	97·6	+1·2	65·0	+0·8	81·4	+1·0	32·6	108·5	28th	49·8	5th & 6th.	58·7
	Nagpur	1,025	28·831	—·064	29·813	28·984	6th	28·670	29th	·314	79·2	100·4	+1·4	67·3	—0·2	83·9	+0·6	33·1	112·8	28th	55·3	5th	57·5
Central Provinces (Central).	Seoni	2,030	27·856	—·048	29·859	27·983	6th	27·710	29th	·273	75·7	95·1	+1·1	61·9	—1·8	78·5	—0·4	33·2	104·2	28th	49·9	5th & 6th.	54·3
	Jubbulpore	1,327	28·544	—·049	29·853	28·692	5th	28·351	29th	·341	69·3	95·1	+1·6	58·0	—3·2	76·6	—0·8	37·1	106·0	28th	45·9	5th	60·1
	Saugor	1,752	28·107	—·054	29·840	28·248	6th	27·927	29th	·321	72·0	95·2	+2·7	62·9	—1·9	79·1	+0·4	32·3	105·9	27th & 28th.	47·9	5th	58·0
Central Provinces (East).	Raipur	960	28·893	—·053	29·819	29·056	6th	28·663	29th	·393	77·7	98·6	+1·6	68·6	—0·2	83·6	+0·7	30·0	110·3	28th	58·3	1st & 5th.	52·0
	Sutna	1,040	28·794	—·082	29·811	28·961	6th	28·588	29th	·373	72·0	93·3	+1·3	59·5	—1·5	76·4	—0·1	33·8	104·1	28th	45·7	1st	58·4
Hyderabad (North).	Aurangabad	?	28·047	?	?	28·187	6th	27·950	29th	·237	78·6	99·0	?	65·5	?	82·3	?	33·5	108·2	28th	49·2	5th	59·0
	Indur		?	?	?	?	...	?	...	?	79·3	99·0	?	*67·0	?	*83·1	?	32·0	108·6	29th	52·2	6th	56·4
	Beeder		27·734	?	?	27·848	6th	27·633	29th	·215	81·8	96·4	?	71·9	?	84·2	?	24·5	104·5	28th	63·0	4th	41·5
Hyderabad (South).	Gulburga	?	28·381	?	?	28·482	6th	28·294	29th	·188	80·7	100·8	?	70·3	?	85·6	?	30·5	109·0	28th	59·6	7th	49·4
	Raichur		28·500	?	?	28·609	6th	28·428	29th	·181	78·5	100·6	?	74·1	?	87·3	?	26·5	109·0	26th	67·6	4th & 6th.	41·4
	Secunderabad	1,787	28·101	—·070	29·827	28·216	6th	27·993	29th	·223	78·0	100·1	+2·2	69·7	+0·1	84·9	+1·2	30·4	109·3	29th	61·5	7th	47·8
	Hyderabad (Deccan).	1,690	28·192	?	29·827	28·310	6th	28·083	29th	·227	77·2	100·1	?	69·3	?	84·7	?	30·8	108·2	29th	59·8	7th	48·4
	Kamamet		29·512	?	?	29·624	6th	29·341	29th	·283	79·3	101·0	?	73·0	?	87·0	?	28·0	109·9	30th	62·1	6th	47·8
X.—West Coast		...	...	—·062	...	...	...	...	...	...	...	88·2	+0·2	75·1	0	81·7	+0·1	13·1	...	...	...	...	23·4
Konkan	Bombay	37	29·873	—·064	29·853	30·019	4th	29·828	21st	·191	77·6	84·7	—1·0	74·1	+0·6	79·4	—0·2	10·6	91·4	27th	66·0	5th	25·4
	Ratnagiri	110	29·782	—·063	29·830	29·903	4th	29·712	21st	·191	79·8	87·2	0	72·8	+0·4	80·2	+0·2	14·4	91·9	9th & 27th.	61·4	4th	30·5
	Mormugoa	?	29·859	?	29·847	29·939	4th	29·791	15th	·148	79·6	87·9	?	75·6	?	81·8	?	12·3	93·0	28th	68·4	4th & 5th.	24·6
	Karwar	44	29·860	—·067	29·837	29·929	4th	29·801	26th	·128	76·5	88·1	+0·4	72·7	—0·5	80·4	—0·1	15·4	90·3	4 days	64·0	4th	26·3
Malabar	Mangalore	26	29·882	—·060	29·851	29·953	3rd	29·840	15th	·113	85·1	89·5	+0·6	76·7	+1·0	83·1	+0·8	12·8	91·8	28th	71·4	5th	20·4
	Calicut	27	29·885	—·066	29·838	29·967	6th	29·828	21st	·139	82·0	90·2	?	76·8	?	83·5	?	13·4	93·4	28th	71·1	4th	22·3
	Cochin	10	29·906	—·053	29·844	29·993	6th	29·844	21st	·149	82·3	91·4	+0·8	75·1	—1·5	83·3	—0·4	16·3	93·3	6 days	71·2	2nd	22·1
	Trivandrum	?	29·705	?	29·836	29·787	6th	29·643	15th & 21st.	·144	79·9	86·5	?	76·9	?	81·7	?	9·6	89·0	30th	73·5	10th	15·5
XI.—South India		...	...	—·071	...	...	...	...	...	...	...	94·9	+1·8	72·6	+0·6	83·8	+1·2	22·4	...	...	...	...	36·5
Madras, (South)	Pamban	37	29·872	?	29·836	29·969	6th	29·792	30th	·177	82·3	88·8	?	76·9	?	82·9		11·9	91·8	25th	72·7	3rd	19·1
	Tinnevelly	?	29·741	?	29·838	29·818	6th	29·662	30th	·156	81·1	98·1	?	77·6	?	87·8	?	20·5	104·5	31st	73·9	2nd & 3rd	30·6
	Madura	447	29·458	—·070	29·841	29·547	6th	29·372	29th	·175	81·5	97·9	+0·9	73·9	+1·7	85·9	+1·3	24·0	105·5	26th	68·1	18th	37·4
Madras, (South Central).	Salem	940	28·994	—·065	29·874	29·077	6th	28·925	30th	·152	79·4	101·7	+3·3	72·9	+2·7	87·3	+3·0	28·8	107·5	26th	64·9	15th & 18th.	42·6
	Coimbatore	1,348	28·551	—·080	29·843	28·621	6th	28·482	25th & 26th.	·139	77·3	96·7	+0·4	70·1	+0·3	83·5	+0·4	26·6	100·8	26th & 28th.	64·6	14th & 15th.	36·2
Coorg	Mercara	3,781	26·230	?	29·848	26·296	6th	26·170	25th	·126	69·2	85·9	+1·5	61·9	+0·6	73·9	+1·1	24·0	89·2	20th	58·2	16th	31·0
Mysore	Bangalore	2,982	26·992	—·055	29·869	27·067	6th	26·943	21st	·124	74·3	92·7	+2·4	66·3	+2·2	79·5	+2·3	26·4	99·2	27th	60·4	9th	38·8
Madras (East Coast, South).	Negapatam	31	29·874	—·075	29·834	29·967	6th	29·774	29th	·193	81·9	90·6	+2·0	75·3	+0·2	83·0	+1·1	15·3	104·2	30th	70·7	14th	33·5
	Cuddalore	12	29·887	?	29·827	29·967	6th	29·779	29th	·188	79·9	90·1	?	72·5	?	81·3	?	17·6	101·3	30th	66·2	9th	35·1
	Trichinopoly	255	29·655	—·074	29·844	29·742	6th	29·565	29th	·177	80·9	99·9	+2·5	73·7	+1·3	86·8	+1·9	26·2	108·2	26th	67·9	10th	40·3
	Madras	22	29·877	—·092	29·831	29·956	6th	29·759	29th	·197	80·0	91·8	+2·2	72·3	+0·1	82·1	+1·2	19·5	102·0	25th	66·5	9th	35·5
Madras (East Coast, Central).	Nellore	71	29·809†	?	†29·814	29·908	6th	29·660	29th	·248	80·9	99·3	?	72·7	?	86·0	?	26·6	110·8	26th	67·6	11th & 13th.	43·2
	Masulipatam	15	29·883	—·087	29·833	29·985	6th	29·713	29th	·272	80·8	92·6	+1·0	71·8	—0·5	82·3	+0·3	20·8	107·7	30th	62·2	10th	45·5
Madras, (Central)	Cuddapah	433	29·447	?	29·817	29·542	6th	29·358	26th	·184	85·4	103·9	?	75·9	?	89·9	?	28·0	110·3	26th	68·5	11th	41·8
	Kurnool	923	28·959	?	29·821	29·073	6th	28·871	26th	·202	81·3	102·0	?	69·6	?	85·8	?	32·4	106·0	30th	58·8	7th	47·2
	Bellary	1,475	28·414	—·041	29·825	28·516	6th	28·345	26th	·171	81·2	101·4	+0·8	72·1	+0·3	86·8	+0·6	29·3	108·5	27th	66·0	7th & 15th.	42·5

* Mean of 30 days. † Mean of 24 days.

I—*continued.*

in India, Burma, etc., in March 1892—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st March	Normal rainfall for period from 1st to 31st March.	Variation from normal of period.	Station.	Meteorological Province or District.
10	4	1	1	...	2	1	7	5	4	5	− 20	29	·253		0	0·18	−0·18	0	0·07	−0·07	0	0·07	−0·07	Khandwa .	Central Provinces (West).
...	...	8	7	2	3	6	4	1	4	2	+100	38	·305	0 3	0	0·36	−0·36	0	0·14	−0·14	0	0·14	−0·14	Hoshangabad	
3	16	2	1	1	...	...	1	7	5	5	0	30	·294	0	0	1·00	−1·00	0	0·49	−0·49	0	0·49	−0·49	Nagpur.	
...	6	6	2	2	3	3	3	6	2	3	− 33	27	·242	0	0	1·73	−1·73	0	0·53	−0·53	0	0·53	−0·53	Seoni .	Central Provinces (Central).
18	...	...	...	3	5	2	3	...	1	3	− 66	40	·287	0·2	0	0·82	−0·82	0	0·32	−0·32	0	0·32	−0·32	Jubbulpore.	
13	2	...	3	5	1	3	1	3	3	3	0	31	·238	0	0	0·64	−0·64	0	0·14	−0·14	0	0·14	−0·14	Saugor.	
2	3	1	1	...	...	5	11	8	5	5	0	32	·300	0·2	1	1·00	0	0·14	0·60	−0·46	0·14	0·60	−0·46	Raipur .	Central Provinces (East).
4	4	...	...	...	1	...	9	13	6	6	0	35	·265	0·1	0	0·91	−0·91	0	0·25	−0·25	0	0·25	−0·25	Sutna.	
8	2	8	2	2	3	5	...	1	5	?	?	26*	·254*	0	0		?	0	0·06	−0·06	0	0·06	−0·06	Aurangabad	Hyderabad (North).
5	7	1	...	3	4	1	2	8	7	?	?	36	·356	0·1	0	?	?	0	0·27	−0·27	0	0·27	−0·27	Indur.	
...	6	2	1	...	4	14	1	2	7	?	?	31†	·345†	0	0	?	?	0	0·34	−0·34	0	0·34	−0·34	Beeder.	
12	2	2	2	3	2	2	2	4	8	?	?	44	·474	0·2	0	?	?	0	0·21	−0·21	0	0·21	−0·21	Gulburga.	Hyderabad (South).
...	1	1	2	3	8	5	5	6	8	?	?	41	·410	1·5	0	?	?	0	0·22	−0·22	0	0·22	−0·22	Raichur.	
7	2	5	5	1	1	4	2	4	6	5	+ 20	42	·403	0·6	0	1·09	- 1·09	0	0·37	−0 ·37	0	0·37	−0·37	Secunderabad	
14	1	1	2	3	1	1	6	2	5	?	?	46	·448	0·4	0	?	?	0	0·26	−0·26	0	0·26	−0· 26	Hyderabad (Deccan).	
3	...	...	2	14	11	...	...	1	?	?	?	73†	·743†	1·1	0	?	?	0	?	?	0	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·72	0·39	+0·48	...	...	...	**X.—West Coast.**	
...	7	6	5	5	3	2	...	3	10	11	− 9	77	·745	1·6	0	0·09	−0·09	0	0	0	0	0	0	Bombay .	Konkan.
10	3	4	1	4	2	3	1	3	7	10	− 30	61	·715	1·9	0	0	0	0	0	0	0	0	0	Ratnagiri.	
1	6	4	6	7	...	5	1	1	9	?	?	79	·822	2·8	0	?	?	?	?	?	0	?	?	Mormugao.	
5	4	15	3	...	...	2	2	...	3	?	?	72	·746	0·9	0	0	0	0	0	0	0	0	0	Karwar.	
6	6	9	8	...	1	...	1	...	3	3	0	79	·830	2·3	0	0·10	−0·10	0	0	0	0	0	0	Mangalore .	Malabar.
3	9	10	4	...	1	1	...	3	16	?	?	75	·815	2·8	2	0·63	+1·37	1·03	0·49	+0·54	1·03	0·49	+0·54	Calicut.	
2	1	23	1	1	...	...	2	1	7	?	?	77	·853	3·0	5	2·45	+2·55	4·13	1·82	+2·31	4·13	1·82	+2·31	Cochin.	
...	14	6	8	1	...	1	...	1	7	?	?	79	·819	2·4	0	?	?	0·57	?	?	0·57	?	?	Trivandrum.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·01	0·50	−0·48	...	...	...	**XI.—South India.**	
5	...	6	8	7	4	1	...	...	6	?	?	76	·846	3·4	0	1·30	−1·30	0	0·79	−0·79	0	0·79	−0·79	Pamban. .	Madras, South.
...	5	1	1	2	...	1	9	12	6	?	?	70	·751	4·6	0	2·40	−2·40	0	1·65	−1·65	0	1·65	−1·65	Tumevelly	
7	11	5	...	1	1	1	...	5	3	4	− 25	69	·748	1·2	0	0·36	−0·36	0	0·19	−0·19	0	0·19	−0·19	Madura.	
18	1	6	1	1	3	1	...	...	?	6	?	68	·694	0·5	0	1·64	−1·64	0	0·96	−0·96	0	0·96	−0·96	Salem .	Madras, South Central.
...	9	1	3	...	14	2	1	1	6	3	+100	78	·738	3·4	0	1·18	−1·18	0	0·61	−0·61	0	0·61	−0·61	Coimbatore.	
...	10	1	9	...	...	...	7	4	5	3	+ 66	71	·538	5·1	0	2·00	−2·00	0·04	0·96	−0·92	0·04	0·96	−0·92	Mercara .	Coorg.
...	1	2	6	5	6	6	5	...	3	4	− 25	72	·625	2·1	1	0·82	+0·18	0·18	0·52	−0·34	0·18	0·52	−0·34	Bangalore .	Mysore.
7	...	...	4	3	5	5	1	6	8	4	+100	73	·804	3·9	0	0·73	−0·73	0	0·43	−0·43	0	0·43	−0·43	Negapatam.	Madras East Coast, South.
...	3	1	...	...	6	5	8	8	3	?	?	85	·873	0·7	0	1·50	−1 50	0	0·31	−0·31	0	0·31	−0·31	Cuddalore.	
5	3	5	2	1	5	1	5	4	4	4	0	69	·729	2·7	0	0·82	−0·82	0	0·57	−0·57	0	0·57	−0·57	Trichinopoly.	
...	2	...	3	2	15	6	...	3	7	6	+ 17	78	·808	2·0	0	0·64	−0·64	0	0·21	−0·21	0	0·21	−0·21	Madras.	
2	...	...	2	20	5	1	1	...	7	?	?	77	·816	2·9	0	0·40	−0·40	0	0·26	−0·26	0	0·26	−0·26	Nellore .	Madras East Coast, Central.
13	3	1	...	5	7	1	...	1	3	7	−133	87	·921	1·8	0	0·27	−0·27	0	0·08	−0·08	0	0·08	−0·08	Masulipatam	
...	...	4	10	10	2	3	1	1	?	?	?	47	·573	0·7	0	0·20	−0·20	0	0·14	−0·14	0	0·14	−0·14	Cuddapah .	Madras, Central.
29	...	...	...	...	...	...	2	...	?	?	?	58	·617	0·5	0	0·67	−0·67	0	0·34	−0·34	0	0·34	−0·34	Kurnool.	
22	...	...	...	...	1	3	...	5	5	5	0	40	·433	0·1	0	0·73	−0·73	0	0·21	−0·21	0	0·21	−0·21	Bellary.	

* Mean of 30 days.

† Beeder wind observationts of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 173 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 (East Coast, North).	Rajahmundry	112	29·780	?	29·830	29·871	6th	29·635	29th	·236	80·5	98·3	?	74·3	?	86·3	?	24·0	106·6	25th	68·0	12th	38·6
	Cocanada	26	29·873	?	29·834	29·967	6th	29·730	29th	·237	78·9	93·1	?	72·7	?	82·9	?	20·4	102·8	25th	66·7	11th	36·1
	Vizagapatam	31	29·857	—·083	29·826	29·943	1st	29·715	29th	·228	74·9	86·8	+0·5	78·0	+1·9	82·4	+1·2	8·8	91·9	26th	69·9	11th	22·0
	Gopalpur	21	29·840	—·057	29·802	29·958	1st	29·682	29th	·276	75·4	87·2	+3·6	70·8	—4·1	79·1	—0·3	16·4	97·2	14th	63·9	11th	33·3
XII.—Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beluchistan	Quetta	5,502	24·670	+·036	?	24·767	27th	24·483	2nd	·284	54·4	70·8	+6·3	*41·0	+1·1	*55·7	+3·7	29·8	84·2	24th	27·8	3rd	56·4
	Shwebo	?	...	?	?	?	?	?	?	?	*54·8	*72·0	?	c 50·8	?	(b) 61·8	?	21·2	85·5	23rd & 24th.	24·6	1st	60·9
Northern India	Srinagar	5,204	24·896	?	?	25·009	5th	24·483	29th	·526	45·8	62·9	?	39·9	?	51·4	?	23·0	77·8	26th	31·1	5th	46·7
	Murree	6,344	23·820	—·022	?	23·911	23rd	23·531	29th	·380	52·2	64·4	+5·4	46·9	+2·5	55·7	+4·0	17·5	78·6	24th	27·7	4th	50·9
	Simla	7,274	23·032	—·032	?	23·113	11th	22·837	29th	·276	53·4	61·3	?	48·8	?	55·1	?	12·5	75·3	26th	31·3	4th	44·0
	Mussooree	?	23·554	?	?	23·647	10th	23·35$_4$	29th	·293	55·1	67·0	?	49·1	?	58·1	?	17·9	78·3	25th	30·0	4th	48·3
	Ranikhet	6,069	24·048	—·054	?	24·116	10th	23·85$_3$	29th	·263	58·9	71·3	+5·9	54·3	+5·1	62·8	+5·5	17·0	80·0	28th	37·5	4th	42·5
	Gnatong	?	(a) 19·154	?	?	19·243	25th	19·010	28th	·233	(c) 45·9	(a) 55·3	?	22·0	?	(c) 38·6	?	33·3	69·3	24th	12·0	1st	57·3
	Darjeeling	7,421	22·912	—·080	?	23·009	23rd	22·757	29th	·252	50·2	55·3	—1·5	44·2	+0·9	49·8	—0·3	11·1	60·8	24th	34·7	1st	26·1
	Kalimpong	?	26·026	?	?	26·132	1st & 3rd.	25·843	29th	·289	†59·8	71·6	?	56·4	?	64·0	?	15·2	80·0	25th	50·2	2nd	29·8
Central India	Mount Abu	3,945	26·070	—·019	?	26·162	6th	25·962	29th	·200	73·1	81·3	+2·2	65·7	+3·7	73·5	+3·0	15·6	92·2	27th	46·0	3rd	46·2
	Pachmarhi	3,511	26·482	—·028	?	26·571	6th	26·350	29th	·221	76·8	86·5	+1·7	59·2	—1·4	72·9	+0·2	27·3	96·7	28th	41·3	5th	55·4
South India	Wellington	6,200	24·275	—·023	?	24·339	6th	24·229	15th	·110	65·3	75·3	+1·5	52·8	—0·1	64·1	+0·7	22·5	81·2	26th	46·2	12th	35·0
	Kodaikanal	?	?	?	?	?	?	?	?	?	60·3	70·3	?	53·6	?	62·0	?	16·7	76·2	27th	48·6	9th	27·6
	Kotagiri	...	23·860	?	?	23·917	6th	23·815	15th	·102	*64·4	76·2	?	55·0	?	65·6	?	21·2	85·0	27th	49·2	10th	35·8
XIII.—Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Meshed	?	?	?	?	?	?	?	?	?	44·7	58·2	?	40·4	?	17·8	?	14·6	76·0	31st	24·0	2nd	52·0
	Bushire	14	29·941	?	29·912	30·162	2nd	29·726	21st	·436	69·7	78·8	?	*64·1	?	*71·3	?	14·7	96·5	30th	50·3	2nd	46·2
Arabia	Aden	94	29·889	?	29·916*	30·001	3rd	29·796	17th	·205	*77·2	85·2	?	*73·0	?	*79·1	?	12·2	94·7	30th	69·3	11th	25·4
	Perim.	?	29·737	?	?	29·846	2nd	29·648	17th	·198	78·4	85·1	?	†75·4	?	†80·3	?	9·7	89·1	30th	73·8	15th	15·3
Arabian Sea Islands.	Minicoy	10	29·931	?	29·866	30·009	6th	29·875	21st	·134	82·6		?	?	?	?	?	?	?	?	?	?	?
Africa	Zanzibar	73	29·885	?	29·885	29·944	31st	29·841	20th	·103	81·7	86·2	?	79·1	?	82·7	?	7·1	89·0	29th	72·3	4th	6·2

(a) Mean of 26 days.
(c) " of 25 "

* Mean of 30 days.
† " " 28 "

(b) Mean of 24 days.

I—*concluded.*

in India, Burma, etc., in March 1892—concluded.

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 to 31st March 1892.	Normal rainfall for period from 1st to 31st March.	Variation from normal of period.	Station.	Meteorological Province or District.
7	14	7	...	2	...	...	...	1	?	?	?	73	·771	4·1	0	0·05	−0·05	0	0·38	−0·38	0	0·38	−0·38	Rajahmundry	Madras (East Coast, North).
5	10	2	...	1	...	2	3	8	6	?	?	78	·774	1·2	0	0·60	−0·60	0	0·23	−0·23	0	0·23	−0·23	Cocanada.	
...	...	...	...	...	...	5	22	4	1	3	−66	69	·749	2·8	0	1·09	−1·09	0	0·40	−0·40	0	0·40	−0·40	Vizagapatam.	
1	9	...	...	...	5	7	...	8	16	12	+33	75	·661	0	0	1·13	−1·13	0	0·67	−0·67	0	0·67	−0·67	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XII.—Hill Stations.**	
31	...	...	...	...	...	...	...	...	2	5	−60	47	·198	1·3	1	4·91	−3·91	0·78	1·95	−1·17	0·78	1·95	−1·17	Quetta.	Beluchistan.
...	2	3	...	...	3	19	1	1	7‡	?	?	78§	·364§	0*6	2	?	?	1·07	?	?	1·07	?	?	Shwebo	
9	3	...	2	4	4	1	5	3	6	?	?	79	·245	4·8	5	...	...	2·13	?	?	2·13	?	?	Srinagar	Northern India.
7	1	1	2	8	...	...	...	12	10	9	+11	38	·145	3·3	6	5·36	+0·64	2·97	3·61	−0·64	2·97	3·61	−0·64	Murree.	
3	20	3	...	1	4	...	...	...	?	3	?	27	·103	2·1	0	4·64	−4·64	0·09	2·75	−2·66	0·09	2·75	−2·66	Simla.	
3	7	...	2	3	1	...	6	9	?	?	?	42	·187	1·4	0	4·80	−4·80	0	2·25	−2·25	0	2·25	2·25	Mussooree.	
20	...	...	...	...	...	11	...	...	4	3	+33	46	·227	1·4	0	4·00	−4·00	0	2·46	−·246	0	2·46	−2·46	Ranikhet.	
...	...	...	...	...	...	...	...	...	?	?	?	64c	199c	...	...	?	?	?	?	?	?	?	?	Gnatong	
4	...	4	6	5	1	7	4	...	8	7	+14	70	·258	2·4	2	4·29	−2·29	0·92	1·85	−0·93	0·92	1·85	−0·93	Darjeeling.	
2	2	7	1	5	1	3	5	3	?	?	?	65†	338†	3·3	2	?	?	0·48	?	?	0·48	?	?	Kalimpong.	
7	5	7	...	...	1	...	6	5	6	7	−14	22	·175	0·6	0	0·27	−0·27	0	0·06	−0·06	0	0·06	−0·06	Mount Abu	Central India.
3	5	...	6	1	1	1	9	5	?	5	?	15	·138	0·3	0	0·73	−0·73	0	0·31	−0·31	0	0·31	−0·31	Pachmarhi.	
23	2	4	...	2	...	...	...	...	3	3	0	50	·315	0·4	0	3·13	−3·13	0·04	2·21	−2·17	0·04	2·21	−2·17	Wellington	South India.
3	6	13	2	4	...	...	...	3	(a) 8	?	?	41*	·221*	0·6	1	3·30	−2·30	0·38	3·02	−2·64	0·38	3·02	−2·64	Kodaikanal.	
3	4	3	11	4	5	...	...	1	5	?	?	50*	304*	2·2	0	2·30	−2·30	0·09	1·63	−1·54	0·09	1·63	−1·54	Kotagiri	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XIII.—Extra India.**	
3	3	...	5	12	1	2	1	4	?	?	?	?	?	6·8	5	?	?	1·06	?	?	1·06	?	?	Meshed.	Persia.
...	5	11	2	5	...	...	1	7	6	9	−33	64	·469	...	0	?	?	0	0·72	−0·72	0	0·72	−0·72	Bushire	
9	...	6	13	1	...	1	...	...	13§	15	−13	73*	·679*	3·1*	0	?	?	0	0·57	−0·57	0	0·57	−0·57	Aden	Arabia.
1	1	2	1	17	3	2	...	4	19	?	?	77	·754	4·2	0	?	?	0	?	?	0	?	?	Perim.	
...	8	...	...	...	...	...	8	13	8	?	?	77	861	3·9	1	?	?	0·75	?	?	0·75	?	?	Minicoy	Arabian Sea Islands.
...	2	6	3	6	8	5	...	1	7	6	+17	83	·890	6·2	9	?	?	6·74	?	?	6·74	?	?	Zanzibar	Africa.

Shwebo wind observations, 29 days. Aden wind 30 days. ‡ Mean of 27 days. § Mean of 29 days. Minicoy wind observations 29 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 Stations

Meteorological Province.	Station.	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 hrs.	Temperature, Wet-bulb. Mean 16 hrs.	Temperature, Wet-bulb. Mean daily
Burma Coast and Bay Island.	Port Blair	29·850	29·734	·116	29·781	—·078	29·773	89·5	76·4	13·1	92·9	71·2	21·7	84·4	87·3	81·3	+ 0·1	72·3	77·0	77·6	75·6
	Mergui	29·813	29·682	·131	29·737	—·081	29·764	90·1	67·3	22·8	94·4	62·5	31·9	83·5	86·9	77·9	— 3·2	65·8	76·3	77·2	73·1
	Rangoon	29·854	29·704	·150	29·781	—·089	29·759	96·3	70·2	26·1	100·8	64·6	36·2	82·0	91·4	80·3	+ 0·2	67·2	72·1	73·5	70·9
	Diamond Island	29·884	29·764	·120	29·813	—·078	29·789	86·4	70·2	16·2	91·6	66·9	24·7	81·9	82·7	76·3	— 2·3	67·8	73·8	74·1	71·9
	Cocos Island	29·836	29·735	·101	29·774	?	?	87·2	?	?	91·7	?	?	83·1	83·3	?	?	70·6	74·8	74·1	73·1
	Akyab	29·899	29·775	·124	29·832	—·073	29·795	88·5	64·2	24·3	91·9	56·6	35·3	81·2	84·1	75·8	— 2·2	63·1	71·5	72·8	69·1
Assam.	Silchar	29·790	29·633	·157	29·708	—·100	29·764	89·2	61·6	27·6	97·6	51·4	46·2	77·7	88·7	75·0	+ 1·6	59·4	67·8	68·4	65·2
	Sibsagar	29·528	29·378	·150	29·453?	—·140?	29·749	80·9	60·6	20·3	91·6	51·2	40·4	72·3	79·3	69·4	+ 1·8	59·9	66·6	68·6	65·0
	Dhubri	29·741	29·576	·165	29·656	—·105	29·726	87·8	64·1	23·7	97·1	53·8	43·3	77·1	86·9	74·7	+ 0·2	60·1	66·6	68·0	64·9
Bengal and Orissa.	Chittagong	29·826	29·698	·128	29·756	—·077	29·791	88·9	65·9	23·0	93·6	56·0	37·6	83·0	84·7	76·9	+ 0·1	64·8	72·6	73·6	70·4
	Dacca	29·846	29·696	·150	29·767	—·092	29·737	93·1	67·1	26·0	99·8	53·8	46·0	82·7	90·6	79·3	+ 0·8	63·8	71·1	71·6	68·8
	Calcutta (Alipore)	29·843	29·698	·145	29·764	—·093	29·731	93·9	68·4	25·5	100·8	53·8	47·0	84·3	92·1	80·3	+ 1·0	64·1	70·4	69·6	68·0
	Calcutta (Chowringhee).	29·852	?	?	?	?	?	95·6	68·8	26·8	103·2	53·9	49·3	86·1	?	82·2	?	66·7	72·7	?	?
	Saugor Island	29·850	29·715	·135	29·776	—·084	29·745	87·1	75·3	11·8	91·2	57·4	33·8	82·4	84·2	79·4	— 0·2	70·9	75·2	76·5	74·2
	Burdwan	29·762	29·607	·155	29·676	—·087	29·721	97·1	67·7	29·4	104·7	52·3	52·4	84·5	94·8	81·7	+ 0·7	62·6	66·1	66·8	64·5
	Berhampore	29·770	29·617	·153	29·685	—·107	29·700	95·5	66·4	29·1	104·7	53·2	51·5	84·6	94·9	80·7	+ 2·0	59·1	68·5	67·8	65·2
	False Point	29·877	29·741	·136	29·808	—·080	29·771	87·3	71·4	15·9	94·5	60·8	33·7	84·0	83·9	77·3	— 0·7	71·0	75·7	76·8	74·5
	Cuttack	29·794	29·636	·158	29·719	—·086	29·742	100·0	70·7	29·3	106·4	62·3	44·1	87·3	97·6	83·3	+ 1·3	68·0	72·8	72·3	71·0
Gangetic Plain and Chota Nagpur.	Hazaribagh	27·842	27·743	·099	27·787	—·081	29·729	91·8	65·4	26·4	101·8	53·4	48·4	85·4	90·4	78·6	+ 3·2	51·2	58·9	60·8	57·0
	Patna	29·638	29·502	·136	29·565	—·115	29·702	92·3	64·6	27·7	101·7	53·4	48·3	86·5	92·9	79·0	+ 1·8	55·9	66·1	67·3	63·1
	Darbhanga	29·690	29·542	·148	29·611	—·083	29·733	89·2	59·7	29·5	98·0	51·7	46·3	78·7	89·7	75·0	— 1·1	56·1	63·1	64·6	61·2
	Allahabad	29·535	29·400	·135	29·457	—·100	29·722	97·3	62·2	35·1	107·2	47·8	59·4	85·6	95·6	79·4	+ 1·0	52·1	62·1	63·3	59·2
	Ghazipur	29·614	29·475	·139	29·537	—·103	29·712	97·5	64·7	32·8	106·2	51·1	55·1	87·7	94·2	80·6	+ 3·8	58·3	67·5	68·2	64·7
	Lucknow	29·452	29·331	·121	29·384	—·117	29·713	95·0	61·3	33·7	105·3	46·0	59·3	84·8	93·5	78·6	+ 2·1	?	65·7	68·1	?
Upper Sub-Himalayas.	Dehra Dun	27·586	27·503	·083	27·536	—·095	29·736	86·5	56·9	29·6	98·6	43·7	54·9	76·7	83·0	70·7	+ 3·5	48·0	57·7	58·5	54·7
	Roorkee	28·913	28·810	·103	28·855	—·115	29·720	90·8	55·3	35·5	102·4	46·2	56·2	77·1	89·3	72·6	+ 2·7	49·5	60·1	61·5	57·0
	Meerut	29·088	28·986	·102	29·029	—·090	29·741	91·2	58·8	32·4	103·8	46·6	57·2	81·2	90·2	74·6	+ 3·0	53·2	61·2	62·5	59·0
	Lahore	29·120	29·025	·095	29·067	—·105	29·750	91·4	56·3	35·1	106·3	42·3	64·0	81·5	90·9	73·5	+ 5·6	49·9	60·2	62·1	57·4
	Ludhiana	28·993	28·886	·107	28·934	—·124	29·724	92·3	58·5	33·8	105·3	46·4	58·9	80·7	89·9	74·6	+ 5·7	52·3	62·0	65·2	59·8
Indus Valley, N.W. Rajputana.	Peshawar	28·780	28·676	·104	28·722	—·094	29·838	82·9	55·7	27·2	98·5	38·1	60·4	74·9	82·1	68·9	+ 5·6	48·4	58·9	61·3	56·2
	Mooltan	29·424	29·316	·108	29·365	—·101	29·756	93·8	61·2	32·6	108·0	45·3	62·7	78·4	92·6	77·0	+ 6·0	?	64·1	73·8	?
	Jacobabad	29·685	29·550	·135	29·611	—·077	29·758	98·4	61·6	36·8	111·6	39·6	72·0	87·9	97·5	79·6	+ 4·6	49·7	61·8	65·8	59·1
	Hyderabad (Sind)	29·761	29·647	·114	29·701	—·075	29·770	98·9	66·6	32·3	112·0	52·2	59·8	87·7	96·9	82·4	+ 4·5	55·2	61·7	64·0	60·3
	Kurrachee	29·861	29·757	·104	29·806	—·075	29·808	89·7	67·0	22·7	106·1	55·2	50·9	81·3	85·2	77·3	+ 1·8	61·2	69·1	72·5	67·6
E. Rajputana, Central India and Guzerat.	Jeypore	28·456	28·339	·117	28·392	—·060	29·783	95·4	62·2	33·2	108·8	44·4	64·4	85·9	94·0	78·4	+ 3·6	49·7	61·8	64·7	58·7
	Ajmere	28·288	28·176	·112	28·228	—·058	29·801	94·0	61·8	32·2	107·5	47·3	60·2	85·1	93·1	78·2	+ 5·1	55·3	64·3	69·1	62·9
	Deesa	29·435	29·305	·130	29·363	—·064	29·783	102·2	65·0	37·2	114·6	47·0	67·6	90·0	100·4	84·2	+ 3·4	52·8	62·9	65·0	60·2
	Nowgong	29·104	28·981	·123	29·035	—·081	29·752	95·2	59·3	35·9	106·1	45·4	60·7	85·7	94·2	77·2	— 0·1	52·1	64·5	68·3	61·6
	Agra	29·311	29·190	·121	29·239	—·081	29·756	95·8	64·7	31·1	108·6	53·6	55·0	85·1	95·2	79·6	+ 4·7	53·9	64·7	68·7	62·5
Deccan.	Belgaum	27·394	27·259	·135	27·326	—·058	29·749	94·3	63·1	31·2	103·3	53·1	50·2	84·6	90·4	77·2	0	58·7	61·9	66·5	62·3
	Sholapur	28·313	28·151	·162	28·229	—·061	29·738	103·3	68·5	34·8	110·8	55·6	55·2	91·2	101·1	85·3	+ 1·1	54·4	66·9	69·4	63·6
	Poona	28·070	27·926	·144	28·004	—·053	29·767	99·9	63·5	36·4	109·1	47·5	61·6	89·0	96·8	81·2	+ 1·3	55·8	61·0	65·0	60·6
	Akola	28·963	28·808	·155	28·881	—·055	29·756	101·1	64·8	36·3	111·4	48·9	62·5	90·7	100·5	83·7	+ 0·8	51·7	63·6	66·6	60·7

II.

in India, Burma, etc., in March 1892.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·740	·831	·819	·797	− ·073	81	70	63	72	− 5	3·7	3·8	3·8	+ 1·0	...	6	20	8	14	3	2	4	5	N. 68° E.	N. 56° E.	40	69	153	101	Port Blair	Burma Coast and Bay Island.
·618	·812	·795	·742	− ·089	92	71	63	75	− 2	4·9	5·6	5·2	+ 1·3	...	17	4	2	5	6	3	2	23	N. 26° W.	N. 53° W.	43	43	63	49	Mergui	
·630	·660	·600	·630	− ·042	85	61	42	62	− 2	2·0	2·8	2·4	+ 0·2	...	5	3	...	6	14	12	11	3	S. 41° W.	S. 22° W.	37	56	109	121	Rangoon	
·653	·729	·729	·704	− ·072	88	67	65	73	− 3	4·5	4·2	4·4	+ 2·1	...	24	1	...	...	4	2	4	27	N. 32° W.	N. 42° W.	72	85	210·	189	Diamond Island.	
?	·754	·724	?	?	?	66	64	?	?	2·1	1·9	2·0	?	...	33	6	2	..	4	2	7	3	N. 7° W.	?	60	?	418*	?	Cocos Island	
·556	·653	·658	·623	− ·057	87	61	56	68	− 4	1·2	0·6	0·9	− 1·1	...	10	12	9	1	4	5	15	6	N. 18° W	N. 58° W.	24	26	98	91	Akyab	
·489	·557	·429	·491	− ·092	87	59	33	60	− 12	2·3	1·8	2·0	− 2·3	43	...	1	1	1	1	9	5	1	S. 56° W.	S. 60° E.	19	22	3	78	Silchar	Assam.
·512	·581	·560	·551	+ ·006	96	74	57	76	− 3	4·8	5·7	5·2	− 0·9	1	3	42	7	4	1	3	...	1	N. 53° E.	N. 57° E.	74	59	48	66	Sibsagar	
·479	·522	·442	·481	− ·036	78	55	36	56	− 6	1·5	1·6	1·6	− 0·8	2	1	12	15	3	1	22	5	1	S. 27° E.	S. 81° E.	16	14	175	151	Dhubri	
·585	·673	·685	·634	− ·049	89	59	57	67	− 7	3·1	1·2	2·2	− 0·9	8	1	4	...	3	15	17	8	4	S. 38° W.	S. 54° W.	47	20	125	139	Chittagong	Bengal and Orissa.
·571	·622	·535	·576	− ·058	82	55	37	58	− 9	2·5	1·9	2·2	− 0·9	...	3	...	...	4	29	13	9	4	S. 28° W.	S. 23° W.	63	54	185	112	Dacca	
·560	·574	·435	·523	− ·148	78	47	29	51	− 19	0·7	0·8	0·8	− 1·6	...	...	1	1	...	11	20	19	10	S. 66° W.	S. 32° W.	68	49	158	126	Calcutta (Allpore).	
·650	·640	?	?	?	89	50	?	?	?					Not	reco	rded.								?		?	?	?	Calcutta (Chowringhee).	
·713	·790	·817	·773	− ·049	79	70	69	73	− 6	2·3	2·2	2·2	− 1·4	...	3	1	...	10	31	12	5	...	S. 7° W.	S. 33° W.	69	60	406	295	Saugor Island	
·522	·418	·302	·396	− ·141	73	34	18	40	− 14	0·6	0·6	0·6	− 1·7	1	1	...	1	3	7	24	19	6	S. 61° W.	S. 78° W.	69	43	110	80	Burdwan	
·422	·502	·328	·418	− ·096	63	42	20	42	− 15	0·6	0·3	0·4	− 2·4	...	1	...	4	...	13	19	22	3	S. 55° W.	S. 76° W.	66	44	111	82	Berhampore	
·760	·785	·835	·793	+ ·024	96	67	71	78	− 4	1·2	1·2	1·2	− 1·8	...	1	1	1	5	35	10	5	2	S. 11° W.	S. 38° W.	72	58	307	267	False Point	
·662	·626	·471	·586	− ·073	86	48	27	54	− 8	0·5	0·4	0·5	− 1·9	3	6	3	3	...	15	14	12	6	S. 59° W.	S. 16° W.	39	43	81	82	Cuttack	
·208	·175	·167	·183	− ·107	33	14	12	20	− 14	0	0·2	0·1	− 2·4	...	7	...	...	1	2	1	19	30	N. 58° W.	N. 75° W.	74	61	275	178	Hazaribagh	Gangetic Plain and Chota Nagpur.
·345	·385	·336	·355	− ·053	56	31	22	36	−10	0·2	0·1	0·2	− 2·5	...	...	3	8	...	...	3	43	5	N. 85° W.	N. 74° W.	63	48	128	83	Patna	
·413	·379	·277	·357	− ·104	79	38	21	46	− 8	0·6	0·3	0·5	− 0·9	3	...	1	6	2	...	7	20	9	N. 88° W.	S. 70° W	46	27	96	109	Darbhanga	
·263	·251	·156	·223	− ·151	48	21	9	26	− 16	0·1	0·3	0·2	− 1·7	2	5	...	...	...	1	4	22	28	N. 65° W.	N. 65° W.	79	34	139	72	Allahabad	
·412	·413	·350	·392	+ ·064	68	31	21	40	+ 6	0	0	0	− 1·4	3	1	...	2	2	...	12	38	4	S. 82° W.	S. 83° W.	74	51	101	68	Ghazipur	
?	·394	·361	?	?	?	32	22	?	?	0·1	0·2	0·2	− 2·5	2	...	...	2	1	3	20	26	8	S. 75° W.	N. 54° W.	72	49	138	97	Lucknow	
·228	·246	·194	·223	?	49	27	17	31	?	1·6	1·1	1·4	− 2·1	16	4	2	...	2	6	13	14	4	S. 70° W.	N. 78° W.	40	25	35	55	Dehra Dun	Upper Sub-Himalayas.
·286	·300	·181	·256	− ·080	66	33	14	38	− 11	1·6	1·2	1·4	− 1·1	8	1	2	2	3	3	3	27	13	N. 82° W	N. 58° W.	63	23	86	70	Roorkee	
·338	·280	·202	·273	− ·099	68	26	14	36	− 14	1·1	0·7	0·9	− 1·7	...	...	...	...	2	...	3	48	9	N. 87° W.	N. 51° W.	88	44	93	65	Meerut	
·280	·242	·180	·234	− ·122	62	24	13	33	− 16	2·0	2·1	2·1	− 1·1	8	12	6	1	3	2	1	13	16	N. 38° W.	N. 10° W.	47	33	51	73	Lahore	
·312	·315	·301	·310	− ·058	64	30	21	39	− 15	2·6	1·9	2·3	− 1·6	26	2	...	...	2	3	...	18	11	N. 77° W.	N. 47° W.	40	33	30	44	Ludhiana	
·257	·310	·296	·288	− ·046	60	38	29	42	− 15	1·9	4·3	3·1	− 1·8	8	6	9	5	4	4	3	10	13	N. 30° W.	N. 15° E.	23	14	136	88	Peshawar	Indus Valley and N.-W. Rajputana.
?	·419	·594	?	?	?	43	40	?	?	1·5	1·8	1·6	− 0·8	3	...	49	...	2	...	2	...	6	N. 40° E.	N. 11° W.	76	21	58*	49	Mooltan	
·208	217	·222	·215	− ·106	39	16	12	22	− 17	1·6	1·7	1·7	− 1·4	21	3	1	8	6	2	3	1	17	N. 16° W.	N. 67° E.	13	26	66	93	Jacobabad	
·297	·213	·167	·225	− ·170	45	15	9	23	− 19	1·6	1·5	1·6	0	...	...	6	...	5	...	43	...	8	S. 50° W	N. 83° W.	60	39	174*	198	Hyderabad (Sind)	
·479	·562	·638	·560	− ·034	70	53	53	59	− 7	1·0	0·6	0·8	− 2·1	...	3	11	...	...	...	18	25	5	N. 88° W.	S. 69° W.	53	64	244	283	Kurrachee	
·212	·260	·253	·242	− ·070	36	21	15	24	− 13	0·9	1·1	1·0	− 1·7	3	3	2	2	2	2	2	17	29	N. 59° W.	N. 20° W.	64	34	103	131	Jeypore	E. Rajputana, C. India and Guzerat.
·364	·353	·422	·379	+ ·041	63	29	27	40	0	0·7	0·7	0·7	− 1·6	2	6	4	...	5	...	4	28	13	N. 71° W	S. 61° W.	58	28	125	90	Ajmere	
·248	·224	·153	·209	− ·107	39	17	8	21	− 9	0·8	0·7	0·7	− 1·6	...	3	5	4	12	14	15	4	5	S. 5° W.	N. 88° W.	39	35	206	213	Deesa	
·299	·332	·356	·329	− ·005	60	27	22	36	− 2	0·1	0·2	0·2	− 2·8	2	4	...	3	1	...	3	39	10	N. 79° W.	N. 63° W.	72	34	68*	54	Nowgong	
·286	·349	·355	·330	+ ·004	47	29	21	32	− 6	0·2	0·3	0·2	− 1·9	...	1	...	...	3	...	16	3	39	N. 69° W.	N. 70° W	68	39	109	109	Agra	
·447	·278	·361	·362	− ·046	76	24	26	42	+ 1	0·1	0·3	0·2	− 1·9	...	9	6	5	8	7	9	14	4	S. 71° W.	S. 88° W.	14	8	299	279	Belgaum	Deccan.
·258	·362	·327	·315	− ·010	36	25	16	25	− 5	0·1	0·6	0·4	− 2·1	...	5	6	4	12	10	5	10	10	S. 34° W.	N. 51° E.	11	9	181	181	Sholapur	
·365	·195	·230	·263	− ·060	60	14	13	29	0	0·1	1·2	0·7	− 1·7	13	3	3	6	3	...	1	16	17	N. 52° W.	N. 41° W.	37	42	198	199	Poona	
·218	·233	·203	·218	− ·071	35	16	11	21	− 7	0	0	0	− 1·4	5	7	2	5	5	...	2	9	27	N. 41° W.	N. 43° W.	48	44	118	104	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 Stations

Meteorological Province.	Station.	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	27·773	27·645	·128	27·704	—·060	29·736	96·5	72·1	24·4	105·7	60·0	45·7	88·7	94·4	84·6	+2·2	53·2	60·1	61·4	58·3
	Khandwa	28·840	28·710	·130	28·770	—·056	·766	99·1	64·8	34·3	109·7	46·6	63·1	90·7	98·1	82·1	+0·9	52·4	62·7	66·1	60·4
	Hoshangabad	28·878	28·728	·150	28·799	—·069	·775	97·6	65·0	32·6	108·5	49·8	58·7	86·4	97·7	81·7	+1·2	52·6	64·3	68·3	61·7
	Nagpur	28·847	28·691	·155	28·764	—·061	·733	100·4	67·5	32·9	112·6	55·2	57·4	90·3	99·0	84·5	+1·0	53·4	65·5	68·6	62·5
	Sironcha	29·485	29·328	·157	29·402	—·094	·742	102·5	70·7	31·8	110·4	55·3	55·1	89·0	100·6	87·0	+0·1	60·4	70·4	70·2	67·0
	Chanda	29·259	29·097	·162	29·173	—·050	·749	102·2	64·7	37·5	112·2	52·1	60·1	89·5	100·5	83·9	+0·1	56·9	68·1	71·3	65·4
	Seoni	27·870	27·744	·126	27·803	—·050	·756	95·1	61·9	33·2	104·4	49·9	54·5	88·1	93·9	79·6	+0·1	52·4	60·1	62·9	58·5
	Jubbulpore	28·554	28·414	·140	28·479	—·057	·765	95·1	58·0	37·1	106·0	45·9	60·1	84·2	94·6	76·9	0	45·1	61·9	64·6	59·3
	Saugor	28·125	28·009	·116	28·095	—·015?	·768	95·2	62·7	32·5	106·0	47·9	58·1	87·5	94·4	79·2	+1·1	51·2	60·6	63·1	58·3
	Raipur	28·911	28·760	·151	28·831	—·062	·730	98·6	68·6	30·0	110·3	58·4	51·9	88·5	97·6	84·3	+2·4	54·2	63·6	66·4	61·4
	Sutna	28·810	28·683	·127	28·739	—·086	·745	93·3	59·5	33·8	104·3	45·7	58·6	85·8	93·3	76·6	0	50·3	60·1	61·3	57·2
	Sambalpur	29·389	29·241	·148	29·319	—·062	·730	99·9	61·1	38·8	108·6	52·4	56·2	88·6	98·4	80·2	—1·5	55·8	65·8	67·3	63·0
	Secunderabad	28·114	27·972	·142	28·039	—·059	·738	100·6	69·6	31·0	109·4	61·5	47·9	89·5	97·9	84·7	+1·9	59·7	67·4	69·9	65·8
	Hyderabad (Deccan).	28·211	28·073	·138	28·142	?	·751	100·1	69·3	30·8	108·2	59·8	48·4	89·5	97·5	84·1	?	57·3	67·5	67·8	63·8
West Coast.	Bombay	29·889	29·768	·121	29·821	—·055	·798	84·7	74·1	10·6	91·8	66·0	25·8	81·0	83·1	79·2	+0·5	69·8	73·6	74·7	72·7
	Ratnagiri	29·788	29·682	·106	29·729	—·064	·777	87·2	72·8	14·4	92·0	61·2	30·8	85·1	84·8	79·6	—0·1	69·3	74·8	76·1	73·4
	Karwar	29·879	29·763	·116	29·815	—·058	·791	88·3	72·8	15·5	90·3	64·0	26·3	83·8	85·8	80·1	—0·1	71·3	75·0	76·1	74·2
	Cochin	29·922	29·793	·129	29·854	—·045	·792	91·4	75·1	16·3	93·3	71·2	22·1	86·9	88·4	82·7	—0·5	75·4	78·3	78·9	77·5
South India.	Salem	29·001	28·825	·176	28·918	—·072	·784	101·7	72·8	28·9	107·3	64·9	42·4	87·3	97·8	85·1	+3·6	67·3	74·1	75·8	72·4
	Mercara	26·241	26·128	·113	26·190	—·097	·799	85·9	61·7	24·2	89·3	58·2	31·1	76·5	80·5	72·9	+1·4	58·6	64·5	66·9	63·3
	Trichinopoly	29·663	29·494	·169	29·584	—·079	·770	100·1	73·7	26·4	108·3	67·9	40·4	88·3	98·1	85·2	+2·1	69·7	73·7	74·0	72·5
	Madras *	29·895	29·774	·121	29·834	—·075	·784	91·7	72·5	19·2	102·0	66·5	35·5	86·8	86·1	81·2	+0·4	?	76·7	76·9	76·0
	Bellary	28·425	28·265	·160	28·342	—·047	·735	101·7	72·1	29·6	108·5	66·0	42·5	88·9	99·1	86·3	+0·5	57·9	67·5	67·4	64·3
	Vizagapatam	29·852	29·740	·112	29·789	—·090	·758	87·0	78·0	9·0	91·8	70·0	21·8	85·6	86·7	84·7	+1·4	70·4	74·4	76·2	73·7
Hill Station, Beluchistan.	Quetta	24·683	24·598	·085	24·634	+·010	?	70·8	40·9	29·9	84·4	28·0	56·4	63·4	68·8	55·4	+4·0	37·6	47·7	48·9	44·8
Hill Stations, Northern India.	Leh	19·712	19·626	·086	19·674	+·003		48·4	24·9	23·5	60·9	10·3	50·6	38·6	44·5	36·2	+3·8	23·1	30·2	33·3	28·9
	Srinagar	24·912	24·791	·121	24·852	?	?	62·9	39·8	23·1	77·8	31·1	46·7	51·8	62·4	51·2	?	37·9	46·2	51·0	45·0
	Murree	23·847	23·818	·029	23·826	—·026	?	64·4	46·9	17·5	78·2	27·8	50·4	58·4	61·6	55·2	+4·9	37·9	44·8	46·9	43·2
	Chamba	26·878	26·775	·103	26·837	—·102	?	81·5	53·9	27·6	96·4	43·0	53·4	67·0	79·2	66·1	+5·3	46·5	53·7	57·0	52·4
	Kailang	20·812	20·747	·065	20·790	—·027	?	48·0	27·0	21·0	63·7	8·0	55·7	39·2	45·3	35·9	+5·8	24·3	31·2	35·6	30·4
	Simla	23·061	23·010	·051	23·029	—·038	?	61·3	48·9	12·4	75·3	31·3	44·0	56·6	59·8	54·9	+3·9	37·1	41·7	43·7	40·8
	Chakrata	23·315	23·268	·047	23·285	+·034	?	69·6	49·6	20·0	81·7	31·1	50·6	61·5	63·0	58·2	+6·7	38·7	46·6	47·2	44·2
	Ranikhet	24·068	24·014	·054	24·034	—·053	?	71·6	54·3	17·3	79·8	37·5	42·3	64·8	68·6	62·4	+5·5	43·9	51·5	54·8	50·1
	Pithoragarh	24·734	24·652	·082	24·686	—·034	?	75·9	53·6	22·3	84·2	40·4	43·8	68·4	75·3	64·8	+5·2	43·9	53·3	54·7	50·7
	Katmandu	25·580	25·481	·099	25·532	—·095	?	80·4	47·3	37·1	85·4	36·2	49·2	67·1	75·5	62·7	+1·0	45·7	56·1	58·8	53·5
	Darjeeling	22·937	22·854	·083	22·896	—·055	?	55·3	44·3	11·0	60·8	34·7	26·1	53·9	55·1	49·8	+1·5	41·1	48·2	49·1	46·2
	Pedong	25·251	25·147	·104	25·198	—·084	?	69·9	53·0	16·9	76·5	43·3	33·2	63·2	66·3	60·4	+1·8	48·4	55·0	56·4	53·3
	Demagiri		Not	recorde	d,		?	87·2	58·5	28·9	94·3	52·3	42·0	76·8	86·0	72·4	—1·1		Not	recorded	
	Tura			Ditto,			?	86·6	66·7	19·9	94·9	57·4	37·5	76·1	84·1	76·2	+1·7	?	63·6	65·7	?

II—*continued.*

in India, Burma, etc., in March 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·178	·168	·147	·164	—·128	22	12	9	15	—13	0	0·3	0·2	—2·0	3	6	19	6	3	1	...	13	11	N. 2° E.	N. 28° W.	39	50	209	178	Buldana.	Deccan—*contd.*
·254	·231	·249	·245	—·064	40	15	13	23	— 8	0·1	0	0	—1·7	1	13	9	4	...	5	4	13	13	N. 35° W.	N. 46° W.	40	48	104	112	Khandwa.	
·251	·333	·327	·304	—·015	40	27	19	29	— 4	0·1	0	0·1	—1·8	3	6	9	7	4	4	9	11	9	N. 54° W.	N. 55° W.	15	15	101	59	Hoshangabad.	
·239	·323	·320	·294	—·038	36	24	18	26	— 5	0	0·3	0·2	—2·3	1	18	11	6	5	4	2	6	9	N. 8° E.	N. 20° W.	39	6	127	108	Nagpur.	
·396	·506	·339	·414	—·087	52	37	17	36	— 9	0·6	0·7	0·7	—1·1	30	8	1	1	3	7	2	3	7	N. 61° W.	S. 2° W.	11	36	46	76	Sironcha.	
·367	·405	·378	·383	—·019	60	30	20	37	— 2	0	0·5	0·2	—2·1	2	3	6	9	10	...	2	...	30	N. 7° W.	S. 52° W.	32	9	74	77	Chanda.	
·280	·180	·196	·220	—·093	51	14	12	26	— 8	0	0·3	0·1	—3·2	...	10	7	8	4	4	3	8	18	N. 21° W.	N. 71° W.	32	16	45	83	Seoni.	
·306	·282	·242	·277	—·054	64	24	15	34	— 4	0·2	0·1	0·1	—2·2	12	5	3	1	1	7	7	11	15	N. 77° W.	N. 69° W.	37	22	34	70	Jubbulpore.	
·256	·204	·147	·203	—·047	51	17	10	26	— 5	0	0·1	0	—1·9	3	4	2	...	...	3	2	12	36	N. 55° W.	N. 55° W.	74	39	124	135	Saugor.	
·237	·200	·191	·209	—·069	42	16	12	23	— 8	0	0	0	—1·4	...	6	4	2	5	5	14	6	20	N. 78° W.	N. 53° W.	35	33	67	78	Raipur.	
·234	·261	·233	·243	—·123	34	19	13	22	—15	0·1	0·3	0·2	—1·6	3	9	7	2	...	1	8	17	15	N. 56° W.	N. 79° W.	52	20	128	116	Sutna.	
·380	·332	·254	·322	—·197	70	25	14	37	—13	1·0	1·2	1·1	—0·6	...	1	9	1	1	12	27	1	10	S. 48° W.	N. 88° W.	42	29	110*	49	Sambalpur.	
·373	·405	·388	·398	+·060	54	29	21	35	— 5	0·4	0·7	0·6	—1·1	3	6	7	20	3	4	4	5	9	N. 56° E.	S. 63° E.	24	26	155	122	Secunderabad.	
·352	·404	·312	·348	?	50	29	18	32	?	0·2	0·6	0·4	?	15	7	4	7	10	6	2	6	5	S. 78° E.	?	10	?	124	?	Hyderabad (Deccan).	
·682	·740	·752	·725	+·009	79	69	66	71	— 2	0·7	0·3	0·5	—1·3	...	3	7	5	1	6	9	15	16	N. 74° W.	N. 28° W.	37	55	236	272	Bombay.	West Coast.
·684	·733	·787	·735	+·023	83	61	65	70	+ 2	0·7	0·9	0·8	+0·2	...	2	...	...	...	21	11	16	12	S. 60° W.	N. 72° W.	60	60	172	231	Ratnagiri.	
·750	·755	·774	·761	+·002	92	65	63	73	— 1	0·7	0·8	0·8	—0·8	...	...	...	...	...	...	5	38	19	N. 80° W.	N. 80° W.	90	70	74	?	Karwar.	
·846	·853	·858	·852	+·013	88	67	64	73	— 2	1·8	1·7	1·8	—1·1	4	1	4	...	...	1	4	21	27	N. 64° W.	N. 81° W.	71	47	182	?	Cochin.	
·601	·670	·599	·623	+·003	75	52	34	54	0	1·0	3·6	2·3	+0·2	22	...	14	11	5	6	3	1	...	S. 85° E.	S. 55° E.	35	42	51	132	Salem.	South India.
·463	·477	507	·482	+·012	83	52	49	61	0	5·5	6·5	6·0	+2·5	...	14	4	12	...	...	...	22	10	N. 31° W.	N. 42° W.	45	18	119	81	Mercara.	
·677	·637	·517	·610	—·059	81	48	29	53	— 6	2·1	1·9	2·0	—1·2	6	3	11	10	12	5	2	7	6	N. 89° E.	S. 85° E.	22	50	102	94	Trichinopoly.	
?	·783	·806	·803	+·039	?	62	64	75	+ 1	2·1	1·6	1·9	—0·5	...	1	3	11	25	14	6	2	...	S. 37° E.	S. 50° E.	66	81	162	151	*	
·311	·400	·280	·330	—·044	39	28	15	27	— 6	0·3	1·5	0·9	—1·3	22	3	1	14	6	3	4	3	6	S. 77° E.	S. 26° E.	14	20	130	110	Bellary.	
·642	·710	·771	·708	—·035	66	57	60	61	— 5	1·9	1·9	1·9	0	...	...	...	2	3	22	23	11	1	S. 31° W.	S. 45° W.	74	58	25	67	Vizagapatam.	
·194	·143	·150	·174	—·040	76	32	23	44	—13	1·7	3·5	2·6	—1·6	45	...	...	...	1	1	1	7	7	N. 78° W.	S. 65° W.	19	36	59	111	Quetta.	Hill Station, Beluchistan.
·112	·100	·097	·103	+·004	83	45	37	55	— 2	6·1	7·6	6·9	+0·5	11	5	6	4	2	6	13	9	6	S. 17° W.	S. 37° W.	22	18	22	50	Leh.	Hill Stations, Northern India.
·211	·256	·255	·241	?	85	66	47	66	?	3·9	4·6	4·3	?	4	8	10	6	7	4	3	7	13	N. 1° W.	?	24	?	96	?	Srinagar.	
·142	·160	·174	·158	—·036	45	35	35	38	—16	3·1	4·7	3·9	—2·1	3	2	1	4	27	4	2	5	14	S. 34° E.	S. 35° E.	23	28	211	214	Murree.	
·228	·254	·196	·226	—·060	56	40	22	39	—16	3·1	4·5	3·8	—1·6	17	6	...	...	1	2	3	7	26	N. 54° W.	N. 15° E.	53	17	109	115	Chamba.	
·115	·111	·131	·119	?	76	48	47	57	?	4·0	6·8	4·9	—1·4	...	1	1	...	...	3	32	17	8	S. 68° W.	S. 64° W.	77	71	50	31	Kailang.	
·102	·114	·122	·113	—·087	31	26	24	27	—25	1·9	2·3	2·1	—2·7	7	27	13	...	2	8	1	...	4	N. 14° E.	S. 42° W.	48	31	?	?	Simla.	
·134	·168	·166	·156	—·040	39	32	30	33	—20	1·1	1·0	1·1	—2·9	21	...	1	3	...	...	21	16	...	S. 62° W.	S. 56° W.	50	8	61	138	Chakrata.	
·184	·251	·293	·243	+·009	43	40	42	42	—11	1·2	1·3	1·3	—2·4	8	...	2	2	...	1	47	1	1	S. 44° W.	S. 56° W.	72	44	108	68	Ranikhet.†	
·191	·253	·219	·221	—·038	46	36	25	36	—16	1·3	2·1	1·7	—2·0	23	...	...	2	...	16	21	...	...	S. 23° W.	S. 29° E.	53	29	91	75	Pithoragarh.	
·303	·328	·309	·315	0	90	49	35	58	— 4	1·5	2·1	1·8	—1·9	7	4	1	8	6	3	2	29	2	S. 82° W.	N. 78° W.	31	69	16	?	Katmandu.	
·227	·282	·201	·266	+·008	77	67	66	69	— 4	3·0	5·1	4·1	—1·1	...	5	10	3	1	3	22	7	1	S. 62° W.	S. 77° W.	27	43	202	160	Darjeeling.	
·292	·346	·350	·330	—·024	71	59	54	62	— 9	2·3	5·4	3·9	—1·4	...	2	6	4	10	27	7	1	1	S. 15° E.	?	59	?	?	?	Pedong.	
?	?	?	?	?	?	?	?	?	?	0·3	0·2	0·2	—1·3	...	...	...	...	18	19	17	2	...	S. 2° W.	S. 88° W.	77	21	?	?	Demagiri.	
?	·481	·439	?	?	?	55	38	?	?	2·5	2·4	2·5	—0·4	...	1	1	11	4	2	17	1	2	S. 1° E.	S. 13° W.	22	69	?	?	Tura.	

* Corrected.

† The means are as given in the registers sent by Government Astronomer, Madras.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 Stations

Meteorological Province.	Station.	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, Central India.	Mount Abu	26·094	26·008	·086	26·045	−·030	?	81·3	65·6	15·7	92·4	46·0	46·4	76·7	79·9	73·1	+3·5	49·2	54·1	55·5	53·0
	Pachmarhi	26·502	26·406	·096	26·449	−·035	?	86·5	59·1	27·4	96·9	41·3	55·6	81·0	85·2	74·4	+0·5	47·2	54·8	56·2	52·7
	Chikalda	26·363	26·253	·110	26·303	−·055	?	88·3	69·2	19·1	97·5	53·3	44·2	80·9	87·1	80·3	+2·6	52·3	56·7	59·2	56·0
	Makhla			Not recorded.			?	93·2	70·6	22·6	102·4	55·1	47·3	84·6	90·4	82·1	+3·4	56·3	61·9	63·1	60·4
Hill Stations, S. India.	Wellington	24·161	24·075	·086	24·118	−·057	?	75·5	52·6	22·9	81·2	46·0	35·2	70·2	71·0	64·6	+2·5	49·3	54·7	57·6	53·9
	Kodaikand	?	?	?	?	?	?	70·3	53·6	16·7	76·2	48·6	27·6	64·5	64·7	60·9	?	45·2	50·8	53·4	49·8
	Kotagiri	23·873	23·781	·092	23·827	?	?	76·2	55·0	21·2	85·0	49·2	35·8	70·7	70·0	64·0	?	49·4	55·6	57·3	54·1
Extra India.	Aden	29·899	29·770	·129	29·835	−·036	29·861	85·2	73·1	12·1	94·7	69·3	25·4	80·6	82·9	78·6	−0·4	66·7	71·7	71·1	69·8
	Perim	29·737	29·621	·116	29·679	?	?	85·2	75·4	9·8	89·1	73·8	15·3	81·6	81·5	79·4	?	71·0	74·3	74·5	73·3
	Minicoy	29·947	29·833	·114	29·880	?	...	...	...	...	...	...	...	85·2	86·3	...	...	Rejected	78·3	78·8	?
	Zanzibar	29·888	29·756	·132	29·822	?	·820	86·2	79·1	7·1	89·0	72·8	16·2	83·2	85·5	82·5	?	76·0	78·4	78·4	77·6

II—*continued.*

in India, Burma, etc., in March 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·169	·164	·165	·166	−·038	27	19	17	21	− 8	0·3	0	0·2	−2·4	2	16	7	2	4	1	8	10	12	N. 36° W.	S. 85° W.	39	39	135	161	Mount Abu.	Hill Stations, Central India.
·194	·132	·123	·149	−·099	39	13	10	21	−11	0·2	0·1	0·2	−1·9	...	3	8	3	2	1	4	23	18	N. 60° W.	N. 57° W.	53	36	?	109	Pachmarhi.	
·202	·188	·184	·191	−·106	28	18	15	20	−13	0·3	0·3	0·3	−1·8	13	19	...	1	5	5	1	2	16	N. 24° W.	N. 53° W.	37	34	167	169	Chikalda.	
?	?	?	?	?	?	?	?	?	?	0·3	0·2	0·3	−3·1	...	9	1	...	2	6	7	12	25	N. 66° W.	N. 77° W.	58	39	?	?	Makhla.	
·321	·273	·340	·311	−·019	80	37	45	54	− 5	1·9	3·9	2·9	0	...	8	6	3	33	8	2	1	1	S. 55° E.	S. 43° E.	55	65	64	66	Wellington.	Hill Stations, S. India.
·218	·288	·298	·251	?	51	39	50	47	?	0·8	2·9	1·9	?	2	11	31	6	10	1	...	...	1	N. 53° E.	?	69	?	179	?	Kodaikand.	
·300	·284	·349	·311	?	69	39	47	52	?	2·9	5·0	3·9	?	...	4	4	22	21	6	3	...	2	S. 68° E.	?	63	?	129	?	Kotagiri.	
·574	·661	·612	·614	−·086	70	64	55	63	− 8	2·1	0·4	1·2	−2·1	6	1	9	35	5	5	1	...	...	S. 88° E.	N. 83° E.	71	73	382	359	Aden.	Extra India.
·706	·751	·761	·738	?	80	70	71	73	?	1·2	0·4	0·8	?	...	1	1	1	42	6	1	1	9	S. 39° E.	?	69	?	537	?	Perim.	
?	·876	·884	?	?	?	72	71	?	?	3·5	3·6	3·6	?	...	16	...	...	...	1	...	10	31	N. 41° W.	?	85	?	198	?	Minicoy.	
·841	·908	·879	·876	?	81	80	72	78	?	6·5	3·7	5·1	?	...	4	6	5	13	13	17	2	2	S. 7° E.	N. 39° E.	40	12	147	148	Zanzibar.	

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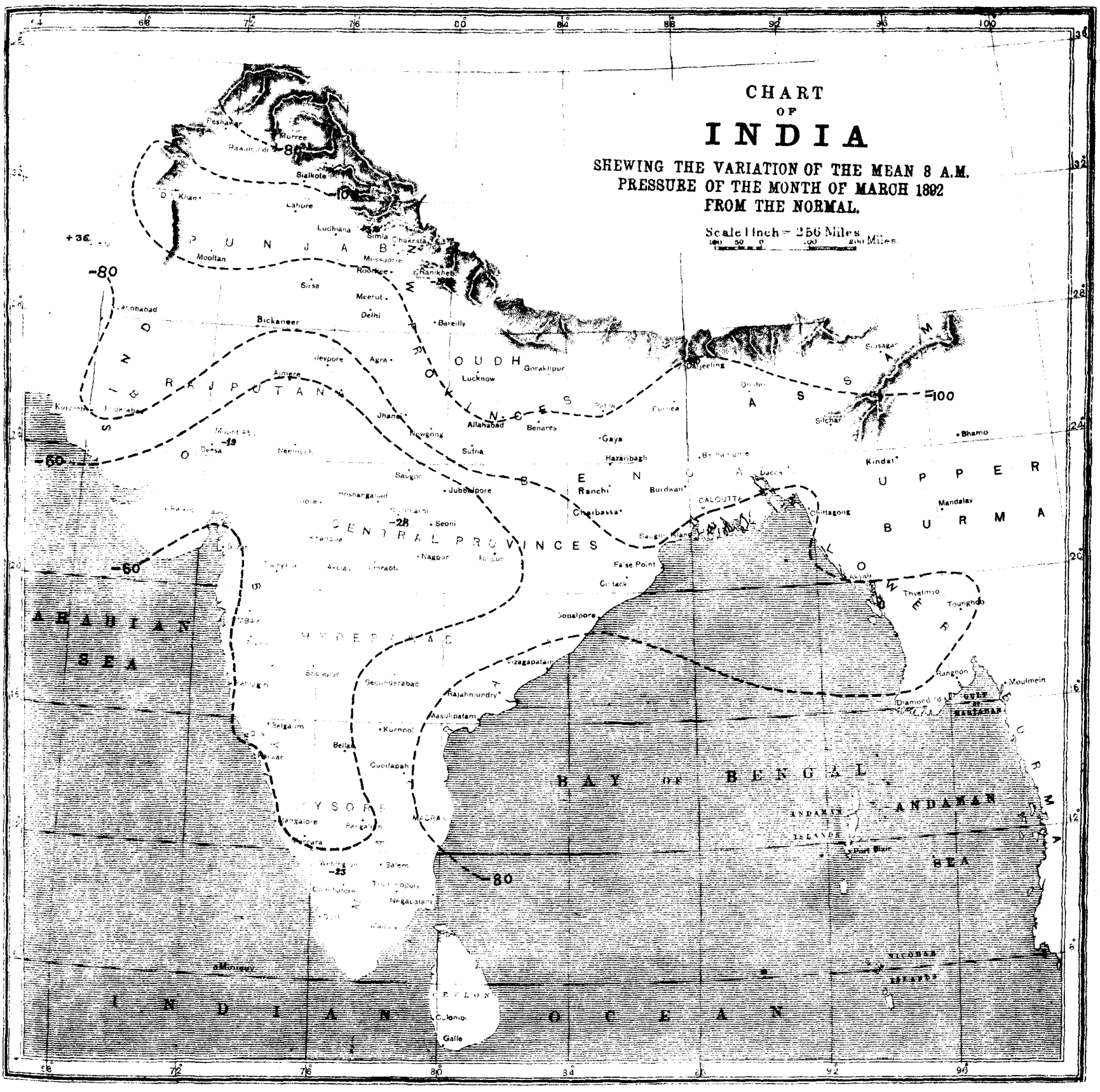
Explanation.

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.

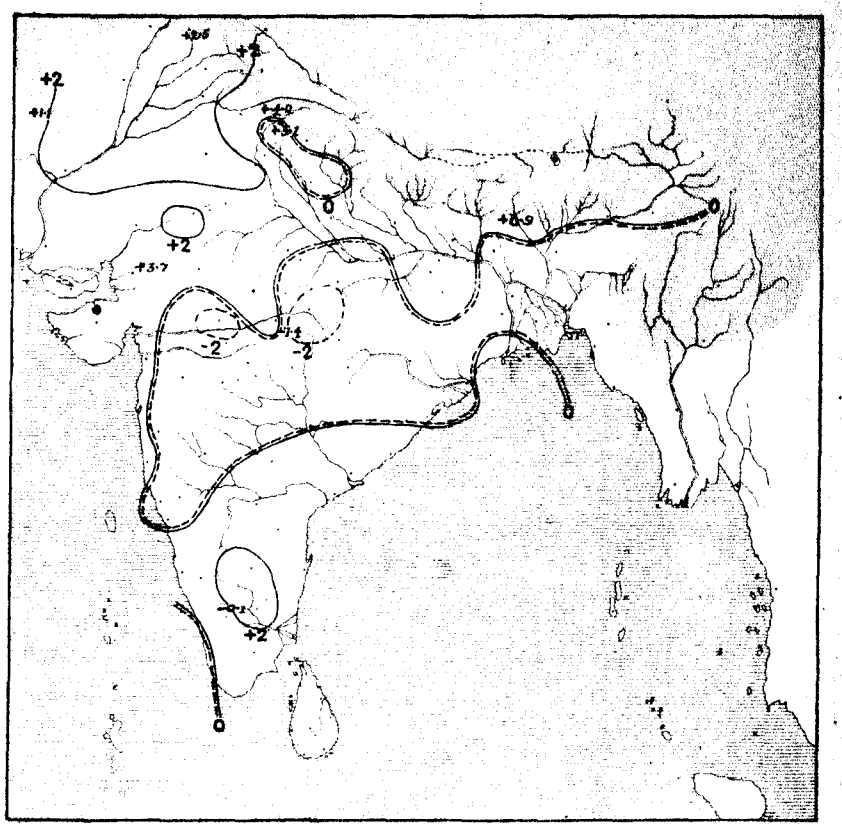


Explanation.

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

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

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



Explanation.

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

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

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

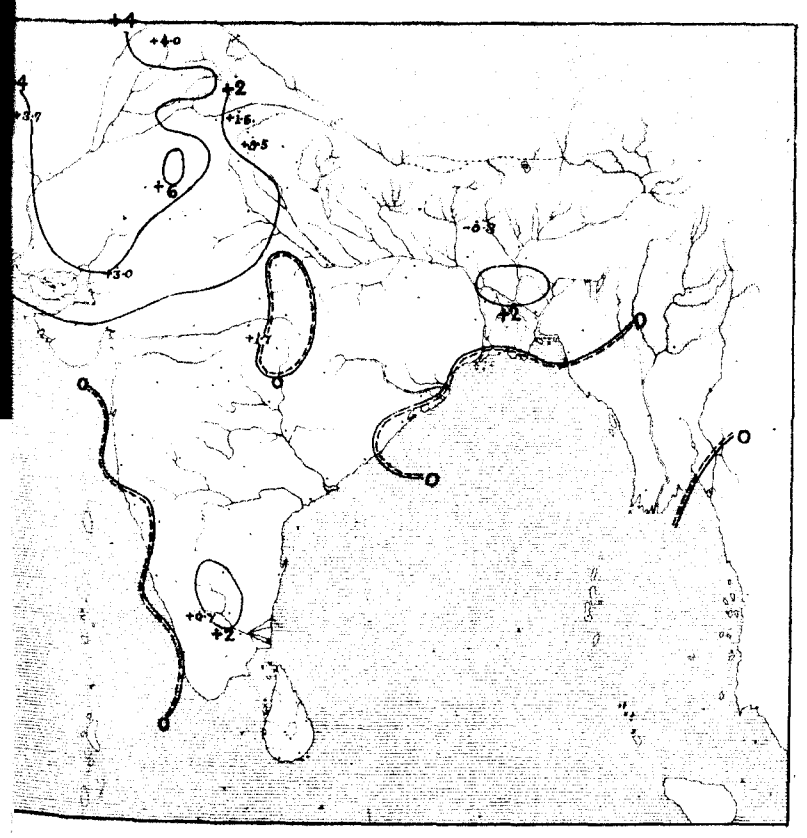
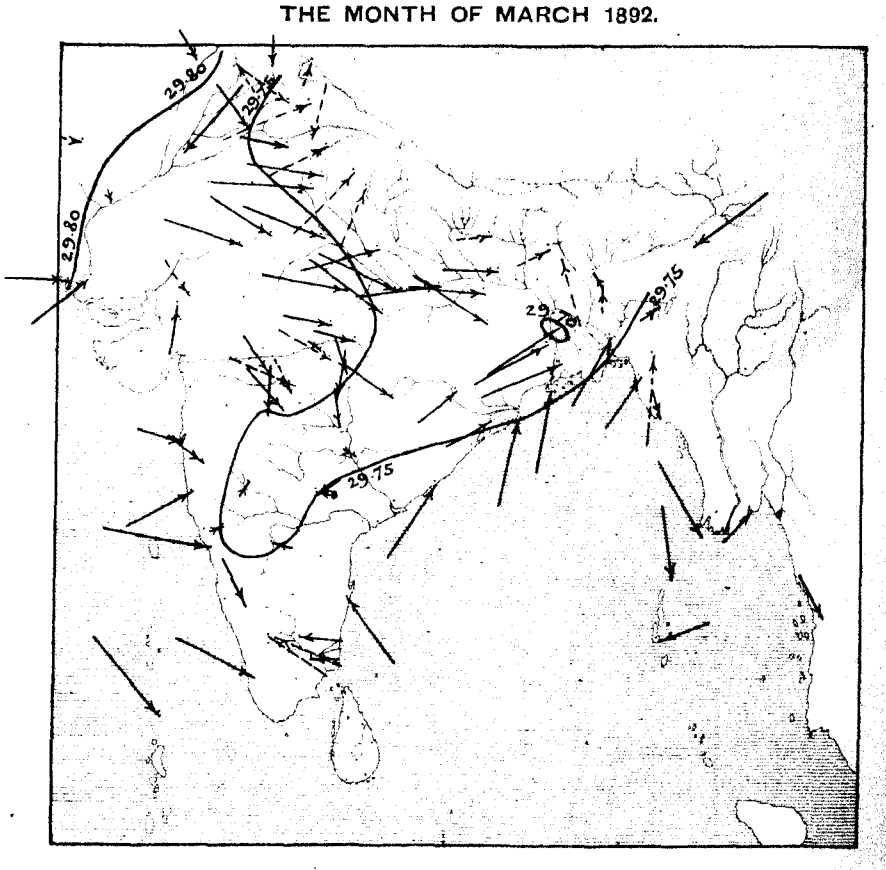


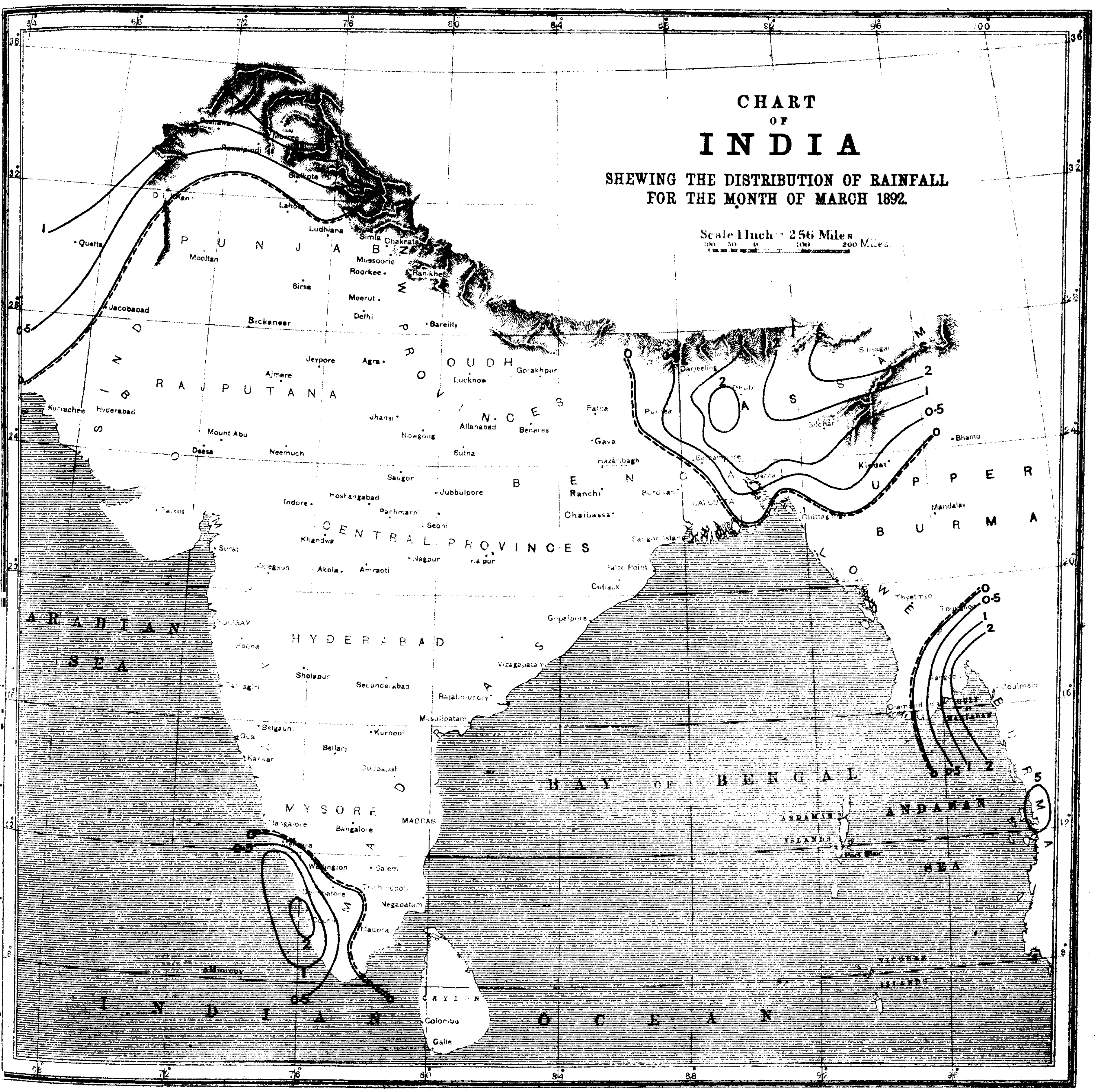
CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MARCH 1892.



Explanation.

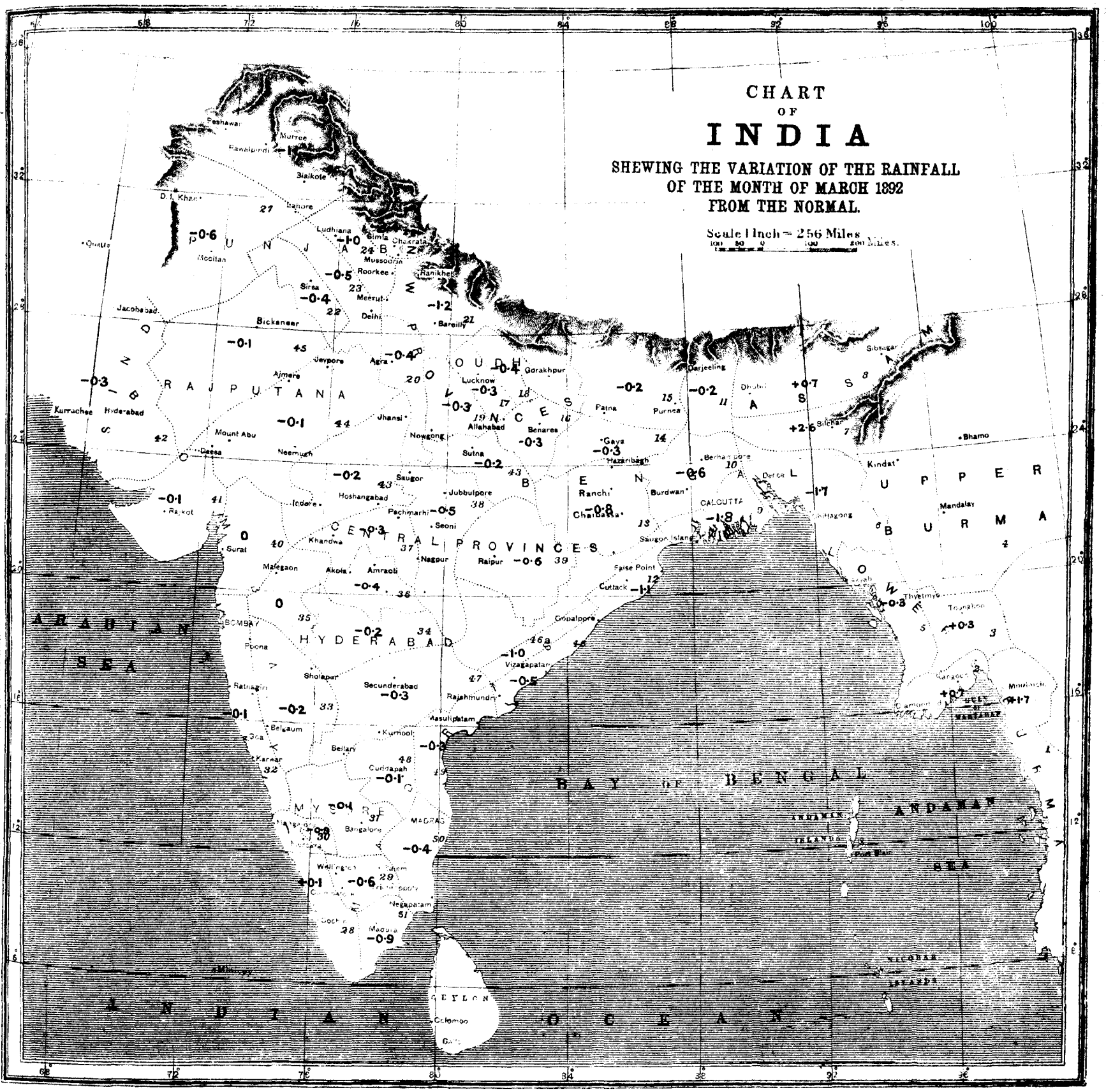
Continuous lines indicate that the mean daily temperature of month [illegible] in excess by amounts indicated by the attached numbers. Broken [illegible]r dotted lines that it was in defect by the amounts indicated by the [illegible]ttached numbers. Double lines are the lines of no variation, the broken [illegible]ne 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.



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.



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)

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

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INTRODUCTION.

THIS review of the weather in India during the month of April 1892 is based on observations taken at 8 A.M. daily at 174 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 93 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and on the rainfall telegrams received during the month from District Officers throughout India or the rainfall statements of the month published by the Provincial Governments. 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 April 1892.

April is the second month of the hot-weather period or season in Northern and Central India. The most important meteorological feature of the month is the more or less steady increase of temperature which occurs during the month. At the end of March the area of maximum temperature covers the Central and North Deccan. The mean temperature in that area at that time averages 92°. Temperature increases about 10° in Upper India, 5° in Central India, and remains practically unchanged in Ceylon and Southern India. Hence the area of maximum temperature is slowly transferred northwards, 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 mean temperature in that area at the end of the month usually slightly exceeds 92°, and maximum temperatures exceeding 110° are generally registered at the hotter and drier stations in it before the end of the month.

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 coasts.

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 usually a permanent feature of the month and is generally more pronounced at 4 P.M. than at 8 or 10 A.M. 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.

April 1892 was hotter and drier than usual over the whole of North-Western and Central India. Thunderstorms were of somewhat frequent occurrence in Burma, Bengal and Assam and Southern India, and all these areas obtained larger amounts of rain than usual.

Fine dry weather prevailed over the whole of India at the commencement of the month. From the 1st to the 6th pressure was generally in excess, more especially in North-East Bengal. From the 7th to the 15th it was in moderate defect, but the variations were not apparently of importance. The range of pressure over India was less than two-tenths of an inch at the commencement of the month. Pressure was lowest in Upper India, the hot weather low pressure area in Upper Sind and the South-West Punjab being fairly well-marked. No large or important change of pressure conditions occurred until the 16th, when pressure began to decrease very rapidly in Upper India.

During this period, from the 1st to the 16th, temperature was more or less excessive over the whole of Northern and Central India. The 5th, 12th, 13th, and 14th were especially hot days. For example, the maximum or day temperature was 22·7° above the normal on the 5th at Rawalpindi. On the 12th, the day temperature at the four stations of Rawalpindi, Peshawar, Dera Ismail Khan, and Mooltan averaged 16·4° above the normal, and the night temperature 16·3° above it. In this case a very hot day was followed by a night in which skies were more or less clouded, and hence the night temperature was as largely in excess as the preceding day temperature. As is usually the case in these periods of exaggerated hot weather conditions in North-Western India, the temperature at the hill stations was almost as largely in excess as at the adjacent plain stations.

Thunder showers were of frequent occurrence in Southern India, and in Burma, Bengal, and Assam during this period. The rainfall due to these storms was heaviest and most general in Bengal and Assam on the 3rd, 10th, and the 15th to the 18th, and in South India (chiefly Malabar) on the 11th and 16th.

As already noted, pressure decreased rapidly on the 16th, and continued to decrease steadily from the 17th to the 20th. The deficiency of pressure was large in Upper India from the 17th to the 23rd. It was greatest on the 20th, when it amounted to ·3″ at Peshawar. The range of pressure over India on that day exceeded four-tenths of an inch.

The barometric changes were very irregular during the next few days, and the position of the area of lowest pressure shifted considerably from day to day. On the 24th and 25th pressure was very low in Bengal and in the Arabian Sea off the Malabar and Konkan coasts. Weather was very disturbed off the west coast on these days, more especially on the 25th, when it blew a gale of wind for some hours. During the remainder of the month pressure was very low in Upper India, the seat of lowest pressure being in the North Punjab and the abnormal range of pressure ·3″. The gradients were in fact such as usually obtain at the end of May, immediately before the advance of the monsoon. During this period very strong sea winds blew across the Bengal coast and the North Bombay coast.

Bengal and Assam received frequent rain from the 21st to the 23rd, and again on the 27th, 28th and 29th, and Burma on the 28th and 29th. Malabar, Konkan and South Madras obtained frequent thunder showers on the 23rd, 24th, 25th, and also on the 28th, 29th and 30th.

Numerous duststorms occurred in North-Western and Central India during the disturbed period from the 20th to the end of the month.

The rainfall of the month was practically *nil* over a large part of India, including Sind, Rajputana, Central India, Kathiawar, North Bombay, and nearly the whole of the North-Western Provinces, West Bihar, the Central Provinces and Birar.

Burma and North-Eastern India received frequent thunder showers, and the rainfall was more or less in excess over the whole of that area. The excess was greatest in Assam,

more especially in the Cachar district. The Peninsula south of Lat. 18° N. obtained on the whole larger amounts of rain than usual. The excess was most marked in the South Canara, Malabar, Tinnevelly and the Nilgiri districts of Madras, where thunderstorms were abormally frequent during the month. The following table gives a brief statement of the average rainfall and its variations from the normal in each of the eleven meteorological divisions of the Empire, based on the rainfall data of the meteorological observatories :—

METEOROLOGICAL PROVINCE.	Average actual rainfall of month.	Average normal rainfall of month.	Variation.
	Inches.	Inches.	Inches.
Burma coast	4·76	2·66	+2·10
Burma, inland	2·64	0·98	+1·66
Assam	14·53	9·58	+4·95
Bengal and Orissa	3·69	2·43	+1·08
Gangetic plain and Chota Nagpur	0·24	0·40	—0·16
Upper Sub-Himalayas	0·04	0·66	—0·63
Indus valley and North-West Rajputana	0·01	0·40	—0·40
Rajputana, Central India and Guzerat	0	0·05	—0·05
Deccan	0·60	0·41	+0·21
West coast	3·85	1·21	+1·94
South India	1·22	0·93	+0·27

No snow appears to have fallen during the month in the Afghan Highlands and the Western Himalayas, and the snow line in the latter mountain area was much higher than usual, thus indicating a large deficiency in the amount of snowfall. A heavy fall appears to have occurred over the higher elevations of the Sikkim and Assam Himalayas on the 15th and 18th of April. The snowfall in that mountain area during the month was, however, probably below the normal to some extent.

The effect of the prolonged scanty snowfall in the Himalayan area and of the abnormally dry weather in the plains was greatest in April, in which month the excess of temperature due to these conditions reached its maximum.

The mean day or maximum temperature was in excess over the whole of India, except the areas of greatest excess of rainfall (*viz.* Bengal, Assam, Tenasserim, Malabar, and Tinnevelly). The excess increased in amount westwards and northwards, and was above 10° in the West Punjab at Peshawar (+11·3°), Dera Ismail Khan (+11·3°) and Mooltan (+10·3°). The minimum or night temperature was above the normal over the whole of India except Malabar. The excess was less marked than in the day temperature, but ranged between 6° and 8° in Rajputana and the West Punjab, where it was greatest.

The mean temperature of the month was slightly in defect in the Central Bengal, Cachar, Tenasserim, and Malabar. It was in excess by amounts which increased fairly steadily northwards and westwards to the West Punjab where the excess was greatest. The excess was most marked at Murree (+8·9°), Peshawar (+8·9°), Dera Ismail Khan (+8·6°) and Mooltan (+8·7°). The following table gives temperature variation data of the eleven meteorological provinces of the Empire :—

METEOROLOGICAL PROVINCES.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma coast	−0·3	+0·3	0
Burma, inland	−1·9	+2·1	+0·1
Assam	−0·8	+1·7	+0·4
Bengal and Orissa	−0·1	+2·3	+1·1
Gangetic plain and Chota Nagpur.	+1·5	+3·5	+2·6
Upper Sub-Himalayas	+7·1	+4·5	+5·8
Indus valley	+8·5	+5·3	+6·9
East Rajputana, Central India and Guzerat.	+5·1	+5·2	+5·2
Deccan	+3·3	+4·1	+3·7
West coast	+0·8	+1·4	+1·1
South India	+1·0	+1·3	+1·2

Winds were lighter than usual in Burma, and southerly winds prevailed in the south-east of the Bay much further north than usual. The mean direction at Port Blair for the month was hence S.21°E., the normal being N.84°E. Very strong southerly winds blew across the Bengal coast and were continued as easterly winds further up the Gangetic plain along the foot of the hills than usual.

The hot westerly day winds were even steadier and stronger than usual in the North-Western Provinces, and also in the Central Provinces and the Deccan.

Winds were abnormal in direction and less steady than usual in Upper India in consequence of the abnormal pressure conditions in that area.

Strong westerly winds blew across the Sind, Cutch and Kathiawar coasts. Further south on the Konkan and Malabar coasts winds were either normal in force or slightly weaker than usual.

The strongly marked hot weather conditions of the month hence strengthened the normal winds of the season over the greater part of the country. Winds were unusually strong during the fourth week of the month, and blew with the force of a gale on the 25th on the Bombay coast.

The air contained more vapour than usual over the greater part of the Peninsula (*i.e.* except Berar and the western and northern districts of the Central Provinces) and North-Eastern India in consequence of the increased strength and influence of the sea breezes of the month. This increase was most largely shown in Bihar and the Deccan, where the influence of the sea winds in normal years is usually small. The humidity variations were generally moderate in amount as the increased temperature of the month counteracted, to some extent, the tendency of the increased amount of vapour to make the air damper. The inrease

of humidity was greatest at Belgaum (+13), Durbhanga (+10), and Dhubri (+9).

The air was drier and contained less vapour in the Gangetic Doab, the Punjab and Sind, and also to a less extent in Berar and the western and northern districts of the Central Provinces. The mean humidity of the month was 10 or upwards below the normal at Peshawar (—17), Jacobabad (—17), Lahore (—14), Ludhiana (—10) and Raipur (—10).

In the Eastern Himalayas, the air was much damper than usual. Thus at Darjiling the mean humidity of the month was 11 above the normal. The air was even drier at the hill stations in the Western Himalayas than in the adjacent plain districts. Thus the mean humidity of the month was 20 in defect at Simla and 25 at Murree. The increased dryness of the air apparently extended over Baluchistan and South Arabia, and probably also over Afghanistan and Eastern Persia. The mean humidity of the month was 12 in defect at Quetta and Aden.

The amount of cloud was larger than usual in the Peninsula (except Berar and the Central Provinces) and in North-Eastern India and Burma. The excess was most marked in East Bengal and the Madras coast districts. There was less cloud than usual over the whole of North-Western and Central India. In an area including nearly the whole of the North-Western Provinces, Baghelkand, and Central India, the cloud amount averaged less than 0·5, and hence skies in that area were practically free from cloud throughout the month. In the Eastern Himalayas the amount of cloud was slightly greater than the normal, but in the Western Himalayas, Baluchistan, and at Aden and also probably in Afghanistan and East Persia, the amount of cloud was very largely in defect, and the abnormal conditions of humidity and cloud which had characterised the cold weather months of 1891-92 were continued in April 1892 and were even more strongly marked than in the preceding four months. The following table gives mean aqueous vapour pressure, humidity and cloud amount variation data of the month for ten meteorological provinces :—

Meteorological Province.	Variation of		Cloud Amount.	
	Aqueous vapour pressure from normal.	Relative humidity from normal.	Mean actual.	Variation from normal.
	Inch.	%		
Burma coast and Bay islands	—·16	— 1	4·9	+1·2
Assam	+·069	+ 5	6·0	+0·9
Bengal and Orissa	+·048	0	4·0	+0·7
Gangetic plain and Chota Nagpur	+·080	+ 4	0·7	—1·0
Upper Sub-Himalayas	—·033	—10	0·9	—1·6
Indus valley and North-West Rajputana.	—·003	— 9	2·2	—0·3
East Rajputana, Central India, and Guzerat.	+·093	+ 1	0·7	—1·2
Deccan	+·018	— 2	2·2	—0·2
West coast	+·039	— 2	3·2	+1·0
Southern India	+·030	+ 2	5·1	+1·5

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for April 1892 is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean 8 A.M. 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 variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart, No. 4 of Plate III, gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts given hitherto in the annual reports on the meteorology of India. The data on which this chart is based are given in Table II. It should be noted that the pressure data in this table are not only reduced to sea-level, but also to constant gravity (that of Lat. 45°).

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 this discussion are the 8 A.M. reduced observations and the variations derived from a comparison of these observations and the normal daily means. It should be noted that the monthly means in the fourth column of Table I are not only reduced or corrected to sea-level, but also to constant gravity. The normal means are obtained from observations of the the period 1878—88 and in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The mean pressure of the whole of India was ·044″ below the normal. The general deficiency of pressure over the whole Indian area was hence less marked than in the two preceding months. It was, however, a very prominent feature of the whole season from the beginning of February.

Pressure was relatively to the general condition in local defect in North-Western and Central India (or in South Bihar, Chota Nagpur, the North-Western Provinces, North Rajputana, Sind, and the eastern districts of Central India and the Central Provinces. The local deficiency was small over the greater part of that area, but was large in the Punjab, over the greater part of which it exceeded ·04″.

The following gives the largest negative anomalies :—

STATION.	Variation of mean pressure of the month from the normal.	Negative anomaly.
	"	"
Mooltan	—·100	—·056
Dera Ismail Khan	—·122	—·078
Peshawar	—·086	—·042
Rawalpindi	—·088	—·044
Lahore	—·087	—·043
Ludhiana	—·087	—·043

Pressure was, relatively to the general condition, in local excess in the Peninsula and also in Burma, Bengal, and Assam (except at Sibsagar). The positive anomalies exceeded ·03" in two areas :—

1st.—In the West Deccan at the following stations :—

STATION.	Variation of the mean pressure of the month from the normal.	Positive anomaly.
	"	"
Bellary	—·013	+·031
Sholapur	—·012	+·032

2nd.—In part of Burma and East Bengal, represented by the following stations :—

STATION.	Variation of the mean pressure of the month from the normal.	Positive anomaly.
	"	"
Moulmein	—·011	+·033
Bassein	—·012	+·032
Chittagong	—.003	+·041

Pressure was in April, as in the preceding four months, very largely in excess at the hill stations as compared with the neighbouring plain stations. The following table gives data for this excess, as measured by the differences between the pressure variations at the hill stations and neighbouring plain stations :—

STATION.	Variation of mean pressure of month from the normal.	STATION.	Variation of mean pressure of month from the normal.	Excess of pressure at hill station as compared with neighbouring plain station.
	"		"	"
Quetta	+·028	Jacobabad	—·067	+·095
Leh	+·096	Lahore	—·087	+·183
Kailang	+·009	Sialkot	—·083	+·092
Murree	—·007	Rawalpindi	—·088	+·081
Simla	+·011	Ludhiana	—·087	+·098
Ranikhet	—·006	Bareilly	—·060	+·054
Darjeeling	—·018	Dhubri	—·016	—·002
Mount Abu	+·026	Deesa	—·035	+·061
Pachmarhi	—·014	Hoshangabad	—·054	—·040

The more important abnormal features of the distribution of pressure in April 1892 may be summed up as follows :—

1st.—General deficiency of pressure over the whole Indian area and averaging ·044" for the month.

2nd.—Local deficiency of pressure in North-Western and Central India, largest in amount in the Punjab, where it averaged ·045."

3rd.—Local excess of pressure in the Peninsula, largest in the Western Deccan (at Bellary and Sholapur).

4th.—Local excess of pressure, generally small in amount, in Burma and North-Eastern India. The only exception to the excess in this area was Upper Assam, where pressure was persistently in defect.

5th.—A large excess of pressure at the hill stations in North-Western and Central India and Baluchistan, as compared with the neighbouring plain stations. The excess was as pronounced as in the previous five months, and was, as hitherto, greatest at Leh, Simla and Quetta.

It will be seen by referring to the pressure section of the Weather Review for March 1892, that the chief features of the pressure distribution in April were identical in character with those of March, except in one respect, *viz.* the excess of pressure in Bengal and Burma.

Barometric depressions of the month.

The pressure distribution at the commencement of the month did not differ to any considerable extent from the normal. A very shallow depression covered Upper Sind. It was transferred north-eastwards into the Central and East Punjab during the next 48 hours and filled up on the evening of the 3rd. It gave duststorms in Upper India, but was otherwise of no importance.

The pressure changes of the next two days were irregular. The only important feature was the formation of a low pressure area in Upper India due to hot weather conditions and actions. Pressure gave way generally on the 5th and 6th, and the depression intensified and was in the East Punjab on the morning of the 7th. Duststorms occurred in the plains, and thunderstorms in and near the hills and

were followed by a rapid increase of pressure in Upper India, whilst pressure continued to give way over the remainder of India.

The pressure changes of the next two days were somewhat irregular, but on the 10th pressure gave way generally, and a shallow low pressure area appeared in Sind on the morning of the 11th. A series of thunderstorms in Bengal on the evening of the 11th was followed by a rise of pressure in that area, and pressure was lowest on the 12th and 13th in the Central Provinces and Upper India. No change of importance occurred until the 16th, when pressure began to diminish over the whole of India. Pressure on the 17th was in general defect by amounts increasing from ·02″ in Burma to ·17″ in the West Punjab. A well-defined depression covered the Punjab from the 17th to the 23rd. Pressure decreased in Upper India relatively to the remainder of India, and the pressure gradients were very steep on the 20th, 21st, and 22nd, the total range of pressure over India on these days being nearly four-tenths of an inch. Large and irregular changes took place during the next two days, and on the morning of the 25th the Punjab depression had disappeared and shallow depressions had formed in Bihar and off the Konkan coast in the Arabian Sea. A very rapid fall of pressure on the 25th in Upper India re-established on the 26th the pressure conditions prevailing on the 22nd or 23rd. A local fall of pressure in the North Punjab on the 26th intensified the depression in the Punjab and gave very steep gradients in North-Western and Western India on the 27th, 28th and 29th. Pressure ranged between 29·83″ on the Malabar coast and 29·39″ at Peshawar on the morning of the 27th.

Pressure increased in Upper India slightly and fell briskly to rapidly in the Peninsula and North-Eastern India on the 29th. This diminished gradients to some extent on the 30th, and gave rise to local shallow depressions in Bihar and Madras (between Madras and Masulipatam).

The following table gives the mean variations of pressure from the normal in different provinces on the 14th (*i.e.* during the first period of the month, when the pressure distribution did not depart much from the normal) and on the 25th, when the abnormal distribution of the latter half of the month was most marked, and also on the 30th:—

PROVINCE.	Mean variation from the normal of the pressure at 8 A.M. of the		
	14th.	25th.	30th.
	″	″	″
Burma	+·021	—·090	—·037
Bengal	+·012	—·184	—·132
North-Western Provinces	—·043	—·141	—·079
Punjab	—·056	—·067	—·067
Sind and Rajputana	—·056	—·068	—·013
Guzerat and Central India	—·063	—·106	—·003
Berar and Central Provinces	—·050	—·087	—·007
Bombay	—·056	—·140	+·019
Madras	—·048	—·078	—·025

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

Arabian Sea.—Weather was fine with light to moderate winds over the Arabian Sea at the beginning of the month. Winds were strong in the Gulf of Aden and in the north of the Arabian Sea off the Sind and Baluchistan coasts. East to north-east winds prevailed generally except in the neighbourhood of the West India coast. The mean force of the reported winds was 1·4 on the 1st. The air movement increased steadily for some days. On the 6th the mean force was 2·4, and on the 9th 3·7. Weather was very squally off the Malabar coast on the 6th and following days. Thus the S. S. *Rajputana* off Cochin on the evening of the 8th had hard squalls and heavy rain, and the S. S. *Lucina* in Lat 11½° N. and Long. 75½° W. on the 9th had heavy squalls from north-west.

Winds decreased in strength during the next four or five days and on the 14th their average force had decreased to 2·2. No change of importance apparently occurred for some days afterwards. The winds reported by vessels on the 20th averaged 2·4 in force. They ranged from force 1 (light airs) in the neighbourhood of the equator to force 6 off Kurrachee. Weather was again squally off the Malabar coast. Thus the S. S. *Damascus* in Lat. 11° N. and Long. 68° E. on the 20th had heavy rain squalls, the I. M. S. S. *Mayo* in Lat. 11° N. and Long. 75° E. on the 24th had heavy squalls, and the S. S. *Nawab* proceeding northwards along the Malabar coast on the 24th and 25th had rain squalls and variable winds. On the 22nd the reported winds averaged 2·5 in force, and on the 24th 2·3 in force. Winds were changing in character at this time in the south of the Arabian Sea, and light westerly to south-westerly winds prevailed generally to the south of Lat. 8° to 10° N. The information of the last week of the month for the greater part of the Arabian Sea is as yet very scanty, and is not sufficient to show how a cyclonic storm which crossed the coasts of Kathiawar and Cutch on the morning of the 1st of May originated. The Ship *Roma* encountered a cyclonic storm on the 28th in Lat. 15½° N. and Long. 61° E, and the S. S. *St. Fillans* on the 28th and 29th in about Lat. 18° N. and between Long. 61° E. and Long. 64° E. The strongest winds experienced by the latter vessel were of force 9, but it is probable she was at some distance from the centre. The S. S. *Melpomene* in Lat. 16° N. and Long. 62° E. on the morning of the 29th had a deluge of rain and south-west winds, force 8, and was hence also within the storm area on that day. A complete account of the storm, based on the available information, will be given in the Weather Review for May.

Bay of Bengal.—The weather in the Bay was normal in character throughout the month. Light winds prevailed in the centre and south of the Bay, and moderate to strong sea breezes near the Bengal and Madras coasts. At the commencement of the month winds ranged in force from 1 to 5. They averaged 2·1 in force on the 1st. They became slightly feebler and more variable over the centre and south of the Bay on the 4th and 5th.

Weather was occasionally squally with rain showers in the equatorial belt (*i.e.* south of Lat. 6° N.). The Ship *Volga* in Lat. 2°44′ N. and Long. 88° E. at noon of the 9th had westerly squalls, and in Lat. 5° N. on the 12th had calms and squalls alternately during the day. The mean force, on the winds on the 11th, deduced from the logs of 25 vessels, was 1·8, and on the 13th it was 2·0 (determined from observations on board of 27 vessels). Winds ranged in force at this time from calms and light airs (1) to force 5 at the head of the Bay. The S. S. *Gulf of Venice* in Lat. 3°28′ N. and Long. 86°31′ E. at noon of the 14th had hard squalls and heavy rain, and the S. S. *Chamois*, *Baghdad* and *Japan* between Lat. 7° and 8° N. on the 16th had heavy rain during the day.

Winds began to increase in force on the 18th. On the 19th they were of force 6 at the head of the Bay. The wind observations of 25 vessels on the 20th gave an average force of 3·3. At the same time weather became apparently more squally in the equatorial belt. The S. S. *Hereford* experienced squalls with tremendous rain on the 22nd in Lat. 7°36 N. and Long. 81°30′ E., and the Ship *Majestic* in Lat. 3°5′ S. and Long. 85°34′ E. at noon had heavy squalls and rain during the day. Winds were now of force 5 to 7 in the north of the Bay and still increasing in force. The S. S. *Mount Tabor* in Lat. 20°51′ N. and Long. 87°49′ E. at noon of the 26th had south-west winds force 8, and a mountainous sea during the day.

Winds moderated to some extent at the head of the Bay on the 27th and 28th, and were of force 4 to 6 during the remainder of the month. The average force of the winds in the Bay on the 24th (determined from observations taken on board 23 vessels) was 4·1. On the 29th the mean force had decreased to 3·0. Fine clear weather obtained at the end of the month over the greater part of the Bay, but weather was cloudy with occasional squalls in the equatorial belt.

Summary of Special Storm Reports.

The following gives a statement of the more important local storms during the month of which reports were submitted by the observers. These storms were all of the ordinary hot-weather type, *viz.* thunderstorms with heavy rain or hail in Bengal, the North-Western Provinces and the West Deccan, and thunderstorms or duststorms in the driest and hottest parts of the country. On the whole, the month appears to have been unusually free from severe local storms, notwithstanding the exceptional temperature conditions:—

3rd.—Duststorm at Bhuj at 4-40 P.M.

4th.—Thunderstorm at Belgaum at 4 P.M.

8th.—Thunderstorm at Pedong, 3-15 P.M. to 5 P.M.

11th.—Severe hailstorm at Belgaum. Storm lasted from 2-15 P.M. to 3-15 P.M. and occasioned some damage to property in the city and neighbourhood.

12th.—Violent thunderstorm at Belgaum from 6 P.M. to 7 P.M. Storm came down from north-west. The winds were very violent, and uprooted and broke many trees in the station.

13th.—Thunderstorm at Belgaum at 4 P.M.

14th.—Thunderstorm at Chikalda at 4 P.M.

15th.—Duststorm at Neemuch from 5-15 to 5-40 P.M., and thunderstorm at Pedong at 6-45 P.M.

16th.—Thunderstorm and hailstorm at Belgaum from 4 to 6 P.M.

17th.—Violent duststorm at Gopalpore at 4 P.M. The storm came down from north, and lasted 20 minutes. Several waterspouts formed off the harbour during its existence. Duststorm at Hyderabad from 1 P.M. to 3-10 P.M.; average velocity of wind during storm 48 miles per hour; greatest observed velocity 66 miles per hour.

18th.—Duststorm at Neemuch at 1-30 P.M. Violent thunderstorm at Mangalore. Storm came up from south-west. Duststorm at Hyderabad from 9-40 A.M. to 11-55 A.M.

19th.—Thunderstorm at Karwar, 3-15 to 4 P.M. Storm came down from the north-west quarter. Violent thunderstorm at Mangalore. Violent duststorm at Pachpadra. The observer reports that the winds were exceptionally severe. Duststorm at Hyderabad from 11-30 A.M. to 3 P.M.; greatest velocity of wind 60 miles per hour.

20th.—Violent hailstorm at Burdwan from north-east. It lasted from 6-30 P.M. to 7-15 P.M.; rainfall during storm 1-58 inches.

21st.—Thunderstorm and hailstorm at Ranikhet (2-30 to 3-30 P.M.). Temperature fell from 76° at 1 P.M to 59° at 3 P.M.

23rd.—Duststorm at Sirsa from 5-40 P.M. to 6-30 P.M.

24th.—Thunderstorm at Karwar, 7-30 P.M. to 8 P.M. Heavy thunderstorms occurred along the coast as far north as Kumpta.

25th.—Storm at Karwar with very strong winds, described by observer as "very terrific." Thunderstorm at Poona at 5 P.M.

27th.—Thunderstorm and duststorm at Coconada, 3-30 P.M. to 4-30 P.M.

29th.—Hailstorm at Madura, 7-30 P.M. to 8-15 P.M. Duststorm at Sutna at 5-25 P.M.

30th.—Severe hailstorm at Aurangabad at 7 P.M. It uprooted many trees in the neighbourhood. Thunderstorm at Karwar at 8 P.M.

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

I.—THE AFGHAN HIGHLANDS.

(*a*) *Mountains west of Kohat.*—No snowfall occurred on the Spinghar or neighbouring mountains during the month of April 1892.

(*b*) *Mountains west and north of the Peshawar district.*—The Assistant Commissioner, Mardan, reports that no snow fell in the adjacent mountains during April.

II.—THE PUNJAB AND KASHMIR HIMALAYAS.

Kulu.—The following table gives the depth of the snow on the chief passes of the Kangra district on the 25th of April 1892, and comparative data for the 25th of April of the previous four years:—

District.	Name of Pass.	Height.	Approximate depth of snow on the 25th of April 1892.	Depth of Snow on April 25th			
				1891.	1890.	1889.	1888.
				Feet.	Feet.	Feet.	Feet.
Kulu .	Rotang . . .	13,000	3	10	6	15½	4
	Hamta . . .	14,500	2½	?	8	13	3
	Chandar Khani .	?	3½	10	3	7	5
	Barsai . . .	?	2	5	3	1½	1
	Bujadhar . .	?	½	4	3½	1	2
	Lori Achri . .	?	*Nil*	3	2	3	3
	Pushtari . .	?	,,	3	½	1	...
	Bhubhu . . .	10,000	,,	5	1½	2	4
	Majang . . .	?	,,	...	½	...	...
Plach .	Chul . . .	?	,,	4	2	1	1
	Sirikand . .	15,000	6	36	17	55	14
	Maghian . .	?	*Nil*	4	2	2	1
	Tikkar . . .	?	,,	...	...	...	...
	Dundku . .	?	,,	7	4	2	3½
	Ramgarh . .	?	,,	...	...	...	...
	Nuna . . .	?	,,	2	...	...	...
	Jalori . . .	10,500	,,	4	1	1	...
	Raghopur . .	?	,,	5	2	1	...
	Himri . . .	?	,,	4	1	1	...
	Sakiran . . .	?	,,	5	1	...	...
	Suphakun . .	?	,,	12	5	1	5
	Gargarason . .	17,000	,,	12	8	2	7
	Bashleo . . .	11,000	,,	4	2	2	1
	Plach . . .	?	,,	7	6	...	2
	Tirath . . .	?	,,	10	7	11	7

III.—THE SIKKIM HIMALAYAS.

Surgeon Captain A. Pearse, in charge of the Station Hospital at Gnatong (elevation about 12,000 feet), sends the following interesting and valuable information respecting the snowfall in Sikkim:—

"I send herewith a rough statement of the snowfall as recorded at Gnatong during the last two years. The records for 1890, such as they are, are very scanty, and do not go further back than the April of that year. I have not had anything more to go on than these old records, which I have simply copied into the accompanying table.

"A few days ago I was at the Jalap pass (15,000 feet). The snow there is still very deep, especially on the Sikkim side. There is also some snow on the mountain ridges around Gnatong, though at Gnatong itself the snow has all disappeared, although it is only 100 to 200 feet lower than some of the ridges.

"As to the information which I have been able to gather from travellers it is indeed very scanty. So far as I can gather, the snowfall this season has been rather less than the last three years. The passes about this part have not been blocked at all this year, and neither the British nor Chinese dâk has missed a day in getting through to this place and thence to Thibet. In Thibet also the snowfall is said to have been less than usual.

The following table gives a statement of the precipitation at Gnatong in the cold weather seasons of 1890-91 and 1891-92:—

Month.	1890-91.		1891-92.	
	Total precipitation or amount of melted snow water in inches.	Number of days on which snow fell.	Total precipitation or amount of melted snow water in inches.	Number of days on which snow fell.
October	11·85	3	3·29	9
November . . .	*Nil*	0	1·05	3
December . . .	0·22	1	*Nil*	0
January	2·40	1	0·64	5
February . . .	·92	3	12·24	11
March	5·66	10	3·61	5
April	6·94	7	8·06	11
TOTAL .	27·99	25	28·89	44

"The Reverend Father Desgodins, head of the Mission at Pedong, forwarded the following account of the snow-

fall in Sikkim during the past two winters based on the observations he was able to make at Pedong:—

Snowfall in Sikkim during cold weather season 1890-91.

Date.	Character of Fall.	Elevation to which snow line descended.
		Ft.
21st November .	Heavy storm in North Sikkim . .	9,000
24th January .	Ditto . .	7,000
19th February .	Light snowstorm in North Sikkim . .	...
21st, 22nd, 23rd „ .	Heavy snowstorm	3,500
25th „ .	Character of storm not ascertained . .	7,000
2nd March .	Ditto . . .	8,000
7th „ .	Heavy snowstorm in North Sikkim . .	10,000
13th „ .	Ditto . . .	8,500
17th „ .	Snowstorm	10,000
April . .	Rain fell on 13 days at Pedong, and heavy snow during the month in North Sikkim, but the hills were not visible during the greater part of month. When the weather cleared up at the end of the month, it was seen that heavy and deep snow was lying on the Sikkim mountains, and it lay much longer than in normal years.	

Snowfall in North Sikkim during the cold weather season, 1891-92.

Date of storm.	Character of Storm.	Height to which snow-line descended during the storm.
12th January .	Light snowstorm on North Sikkim hills .	13,000
15th, 16th February .	Very heavy snowstorm; 7 to 9 feet of snow is reported to have fallen in the passes which were blocked for some time afterwards.	8,000
25th, 28th March .	Light snowstorm	12,000
2nd, 3rd April	Ditto	13,000
12th . „ .	Ditto	10,000
15th . „ .	Heavy snowstorm	...
18th . „ .	Heavy snowstorm. The higher passes were said to be blocked for some time afterwards.	12,000

He also notes that "the most striking feature of the past winter was the clear dry weather of the period from the 16th February to the 25th March. It is usually a stormy period, giving much snow to the Sikkim hills. The heavy snow of the 15th and 16th February melted away very rapidly during this period. So far as can be judged from my own experience and from what I hear from the hillmen, the snowfall has been under the average to some extent."

IV.—THE ASSAM HIMALAYAS.

The Deputy Commissioner, Kamrup, reports that during his visit to Darrang, Dewangiri, and Subankhata he made the usual enquiries regarding snowfall in the Himalayas, and was informed by the Bhutias and Khampas that the fall of snow was much heavier than in the previous year.

The Deputy Commissioner, Darrang states (as the result of his enquiries into the snowfall of the winter of 1891-92) that according to the Charduar Bhutia Sib Rajas, there has been deficient rain and snowfall throughout the year, but that when they left the hills about the middle of February, heavy snow was falling on the hills. The Sub-Divisional Officer states that the snowfall towards the Koriapara side of the district has been very much greater than it was last year.

The Assistant Political Officer, Sadiya, reports that the snowfall on the adjacent Himalayas during the cold season 1891-92 was somewhat less than in previous years. The season too was very late.

Summary of the snowfall information relating to the cold weather season of 1891-92.—The following statement gives the chief features of the snowfall of the past winter in the Himalayan and Afghan mountain districts:—

1st.—The past winter was exceptionally mild in the Afghan mountain districts, and the snowfall much below the normal.

2nd.—The snowfall in the Punjab and Kashmir Himalayas was abnormally small in amount, and the smallest since snowfall data began to be collected by the Department (in 1883). In some parts of the mountain area the snowfall of the past winter is the least that has fallen during the past 25 or 30 years. The data appear to indicate that the precipitation was in defect to a much greater extent on the higher elevations than on the first line of hills (as represented by the hill stations). Some light to moderate falls of snow occurred at intervals, but the whole season from November to May was exceptionally dry and the precipitation abnormally small in amount.

According to accounts received from Kashgar in Central Asia, the snowfall there was considerably above the average.

3rd.—No accounts have been received of the snowfall in the hill districts of Kamaun and Garhwal in the North-Western Provinces, but it is almost certain from the meteorological data of the Ranikhet and Mussoorie observatories that the snowfall was as largely below the average in these districts as in the Punjab Himalayas.

4th.—Full and interesting information has been received for the first time for the Nepal and Sikkim Himalayas. So far as can be judged, the snowfall in that area was probably in slight to moderate defect.

5th.—The information for the Assam Himalayas is very meagre, but appears to indicate that it was normal in amount or slightly below the average.

It hence appears that the snowfall over the whole mountain area to the north and north-west of India was more or less below the average. The deficiency was small in amount in the Eastern Himalayas, but increased westwards and was very large in the North-Western Himalayas (*i.e.* the Punjab, Kashmir, and the North-Western Provinces Himalayas), where it was certainly the smallest that has been received during the past 10 years, and probably less than during the past 25 years. The deficiency was probably nearly as large relatively to the normal in the Afghan mountains as it was in the North-Western Himalayas. It is hence almost certain that the snowfall during the past winter in the Afghan and North-West Himalayan region was even more markedly in defect in the past winter than it was in excess in the preceding winter.

Temperature of the Air.

The distribution of temperature in India for April 1892 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 difference 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 data by means of which these charts have been prepared are given in Table I. The mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years *viz.* 1878 to 1888. The mean daily temperature in this tableis 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 very 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.

The mean maximum temperature of the month was more or less in excess over the whole of India, except three areas, in which rain, due to thunder showers, fell at frequent intervals during the month. These areas are Malabar and South Madras, Bengal and Cachar, and Burma (except Arakan and perhaps the northern districts of Upper Burma).

The excess increased from Bengal and Madras westwards and northwards, and was greatest in West Punjab where it exceeded 10°. It was more than 6° in amount over the whole of Rajputana and the Punjab, and the greater part of Sind, and was absolutely greatest at the following stations:—

Station.	Temperature.		
	Actual mean maximum of month.	Normal mean maximum.	Variation of actual from normal.
	°	°	°
Peshawar	97·5	86·2	+11·3
Dera Ismail Khan . . .	105·1	93·8	+11·3
Mooltan	107·3	97·0	+10·3

The excess was nearly as large at the hill stations as at the adjacent plain stations. Thus, at Murree it was 8·4° and at Quetta 7·7°.

The deficiency in the areas of heavy rainfall during the month exceeded 2° in a portion of Central Bengal and in Tenasserim. The following gives data:—

District.	Station.	Temperature.		
		Actual mean maximum.	Normal mean maximum.	Variation of actual from normal.
		°	°	°
Central Bengal and Cachar.	Silchar . .	85·3	87·6	—2·3
	Bogra . .	92·1	96·3 ?	—4·2
	Purneah . .	95·2	97·4	—2·2
Tenasserim	Tounghoo . .	97·9	100·2	—2·3
	Moulmein . .	92·0	94·3	—2·3

Maximum temperatures exceeding 115° were recorded at four stations during the month, *viz.*, Sironcha, Jacobabad, Sirsa and Khushab. The following gives the highest

temperatures observed at each of these stations during the month:—

DISTRICT.	STATION.	Highest maximum temperature recorded at station during April 1892.	Date.
		°	
CENTRAL PROVINCES	Sironcha	115·1	28th
SIND	Jacobabad	116·3	27th
PUNJAB	Sirsa	117·4	19th
	Khushab	116·1	23rd

The highest maximum temperatures at all stations in the interior of India differed little from the highest that have hitherto been registered since the commencement of the work of regular meteorological observation in India, in the majority of cases being slightly less and in others somewhat greater. The following table gives temperature data for those stations at which the highest temperature in April 1892 was greater than had been previously recorded in April:—

AREA.	STATION.	Highest maximum temperature recorded during April 1892.	Highest maximum temperature recorded in April previous to 1892.	Year.
		°	°	
PUNJAB	Lahore	111·8	111·5	1880
	Dera Ismail Khan	113·8	110·5	1880
SIND	Jacobabad	116·1	115·5	1880
RAJPUTANA	Deesa	114·5	111·5	1880
	Jeypore	111·3	110·7	1886
CENTRAL PROVINCES.	Nagpur	114·9	114·5	1879
	Raipur	113·7	111·6	1879
BERAR	Amraoti	112·9	112·4	1876
DECCAN	Sholapur	111·2	110·7	1881
MADRAS	Masulipatam	111·7	111·4	1875
	Rajahmundry	112·1	108·9	1888
	Trichinopoly	108·7	107·9	1876

The mean minimum temperature of the month was above the normal over the whole of India excepting the South Malabar coast. The excess increased in amount from Burma and East Bengal and Southern India in which it was less than 1° in amount westwards and northwards to Upper India. It exceeded 4° over the whole of North-Western India, Central India, the Central Provinces, Berar and Khandesh, and was greater than 6° at the following stations:—

DISTRICT.	STATION.	Actual mean minimum.	Normal mean minimum.	Variation of actual from normal.
		°	°	°
RAJPUTANA	Ajmere	78·1	69·9	+8·2
	Deesa	76·7	70·5	+6·2
CENTRAL INDIA	Neemuch	77·2	70·3	+6·9
	Jhansi	81·7	75·5	+6·2
PUNJAB	Mooltan	74·1	67·0	+7·1
	Peshawar	66·6	60·2	+6·4

The excess was even greater at the hill stations in the Western Himalayas. The following gives data:—

STATION.	MINIMUM TEMPERATURE.		
	Mean actual of April 1892.	Mean normal of April 1892.	Variation of actual from normal.
	°	°	°
Ranikhet	62·3	56·9	+5·4
Simla	60·3	52·2	+8·1
Murree	61·2	51·8	+9·4

The great increase in the night temperature was confined to the hill-stations nearest to the plains, as the excess at Kailang, Leh and, Quetta was in no case more than 3°.

The mean temperature of the month was normal in Central Bengal and Tenasserim, and in slight defect in Malabar.

It was in excess over the remainder of India, the amount of the excess increasing northwards and westwards to a maximum in the West Punjab, where it exceeded 8°. It was more than 4° over the whole of North-Western and Central India, and 6° in Upper Sind, Rajputana, and the Punjab. It was absolutely greatest at the following stations:—

DISTRICT.	STATION.	MEAN TEMPERATURE.		
		Actual of April 1892.	Normal, April.	Variation of actual from normal.
		°	°	°
Punjab (Hills)	Murree	68·8	59·9	+8·9
Punjab (Plains)	Peshawar	82·1	73·2	+8·9
	Dera Ismail Khan	88·1	79·5	+8·6
	Mooltan	90·7	82·0	+8·7

The following is a statement of the more important features of the temperature conditions throughout the month:—

At the commencement of the month temperature was more or less considerably above the normal over the whole of India except Assam, where it was in moderate defect. The following table gives temperature variation data of the 1st:—

PROVINCE.	VARIATION OF		
	Mean maximum from normal.	Mean minimum from normal.	Mean temperature from normal.
	°	°	°
Burma	−0·1	+0·2	+0·1
Bengal	+0·1	+1·9	+1·0
North-Western Provinces	+2·4	−1·3	+0·6
Punjab	+8·2	−0·4	+3·9
Sind and Rajputana	+9·6	+5·6	+7·6
Guzerat and Central India	+5·7	+2·6	+4·2
Berar and Central Provinces	+4·5	+3·7	+4·1
Bombay	+1·2	+0·5	+0·9
Madras	+3·1	+3·1	+3·1

Temperature increased steadily in North-Western India until the 6th. Skies were partially clouded in Burma, Bengal, and Assam, but were free from cloud over the

remainder of India. The following gives variation data of the 6th:—

Province.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean temperature from normal.
	°	°	°
Burma	− 1·3	+0·2	− 0·6
Bengal and Assam	− 3·0	+2·1	− 0·5
North-Western Provinces	+ 4·9	+6·8	+ 5·9
Punjab	+14·5	+8·7	+11·6
Sind and Rajputana	+ 8·4	+3·2	+ 5·8
Guzerat and Central India	+ 6·9	+4·8	+ 5·9
Berar and Central Provinces	+ 6·2	+5·9	+ 6·1
Bombay	+ 2·7	+4·3	+ 3·5
Madras	+ 2·8	+1·5	+ 2·2

Weather was disturbed with numerous duststorms from the 7th to the 9th in North-Western India. This caused a moderate reduction of temperature. On the 10th the mean temperature was in excess over the whole of India by average amounts ranging from 1° in Burma to 5° in Sind and Rajputana. Temperature increased very rapidly during the next two days, and was excessive in Upper India, more especially the West Punjab. The following table gives temperature variation data of the 13th:—

Province.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean temperature from normal.
	°	°	°
Burma	− 0·6	+0·6	0
Bengal and Assam	− 0·1	+1·1	+ 0·5
North-Western Provinces	+ 3·7	+1·7	+ 2·7
Punjab	+14·4	+9·5	+12·0
Sind and Rajputana	+ 9·3	+4·4	+ 6·9
Guzerat and Central India	+ 6·6	+3·5	+ 5·1
Berar and Central Provinces	+ 4·9	+5·1	+ 5·0
Bombay	+ 1·2	+0·9	+ 1·1
Madras	+ 1·0	−0·1	+ 0·5

Temperature was more or less largely in excess in Northern and Central India from the 14th to the 20th. Bengal received fairly general rainfall on the 16th and 17th, which caused a considerable reduction of temperature, and Malabar and South Madras from the 16th to the 20th. The following gives variation data of the 20th at the end of this period:—

Province.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean temperature from normal.
	°	°	°
Burma	−0·5	+0·8	+0·2
Bengal and Assam	−3·5	+2·7	−0·4
North-Western Provinces	+3·1	+6·1	+4·6
Punjab	+11·0	+8·0	+9·5
Sind and Rajputana	+4·2	+9·2	+6·7
Guzerat and Central India	+2·5	+4·4	+3·5
Berar and Central Provinces	+2·2	+6·0	+4·1
Bombay	+0·3	+2·6	+1·5
Madras	+2·1	+1·7	+1·9

The weather was more or less disturbed during the remainder of the month. Pressure decreased considerably in Upper India, and steep gradients obtained in North-Western and Western India. Hence strong winds prevailed for some days, and duststorms were of frequent occurrence in North-Western India and thunderstorms in North-Eastern India and the southern half of the Peninsula. Temperature varied somewhat irregularly from the normal from day to day, but was more or less considerably in excess from the 20th to the 24th over nearly the whole of India. It was below the normal to a moderate extent in Burma, Assam, East Bengal, South Madras, the West Deccan and Malabar from the 26th to the 29th. The following gives variation data of the 28th, a day fairly representative of this period:—

Province.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean temperature from normal.
	°	°	°
Burma	−0·7	−1·6	−1·2
Bengal and Assam	+0·9	+3·4	+2·2
North-Western Provinces	+2·4	+10·6	+6·5
Punjab	+6·3	+7·3	+6·8
Sind and Rajputana	+2·8	+7·0	+4·9
Guzerat and Central India	+1·4	+5·1	+3·3
Berar and Central Provinces	+2·9	+5·3	+4·1
Bombay	−1·1	+1·0	−0·1
Madras	+3·9	+0·2	+2·1

The preceding data show that over the whole of Central and North-Western India temperature was considerably above the normal, and that the excess was much more uniform than in the earlier part of the month.

The weather was very disturbed during the last two days of the month and thundershowers and duststorms (with rain) occurred over a large extent of the country. These storms caused a large decrease of temperature, as is fully shown by comparison of the following temperature data of the 30th with those given above for the 28th:—

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

Winds.

The mean wind directions at 8 A.M. during the month of April 1892 are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind point. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P. M. are given in the small chart, No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

The chief features of the air movement or atmospheric circulation over India in April 1892 are, at once, explained by the abnormal pressure and temperature conditions of the month. The prolonged excessive temperature diminished pressure over the whole of India and more especially in North-Western India very considerably below the normal. The temperature and pressure conditions were in fact such as usually obtain in the latter half of May. They hence emphasized the hot-weather conditions of the period and consequently gave increased strength to the local sea breezes in the coast districts and to the hot dry winds in the interior. They also tended to give earlier advances, than usual, of southerly winds in the south of the Bay of Bengal and Arabian Sea. It will be seen that these features were all present in a marked degree.

The early advance of southerly winds in the Bay is shown by the increased strength and decreased steadiness of the winds at Port Blair, and also even more clearly by the mean wind direction of the month, which was S. 21° E., the normal wind direction being N. 84° E.

In Burma winds were lighter and more unsteady than usual in April.

Winds were remarkably steady and much stronger than usual at the head of the Bay.

The following gives data for the Bengal coast stations:—

Station.	Mean Steadiness, Percentage.			Mean Wind Amount (miles per diem).		
	Actual, April 1892.	Normal, April.	Variation of actual from normal.	Actual, April 1892.	Normal, April.	Percentage variation of actual from normal.
False Point	91	79	+12	436	332	+31
Saugor Island	92	76	+16	503	401	+25
Chittagong	62	37	+25	162	169	— 4

Winds were also more directly from the south than usual and contained an abnormally feeble westerly component.

Winds were more or less above the normal strength in Bengal. They were more directly from the south than usual in West and Central Bengal. These winds were continued as easterly winds in Bihar and along the foot of the hills in the North-Western Provinces to a much greater distance into the interior than usual. The following data show the abnormal prevalence of easterly winds in that area:—

Station.	Mean Wind Direction.		Mean Steadiness Percentage.	
	Actual, April 1892.	Normal, April.	Actual, April 1892.	Normal, April.
Patna	N 65° E	N 38° W	30	27
Durbhanga	S 70° E	S 24° E	57	8
Ghazipur	S 22° E	N 82° W	5	43
Lucknow	S 36° W	N 53° W	10	44
Bareilly	S 50° E	N 57° W	7	38

The influence of the abnormal deflection of the winds in Bengal (giving a strong westward set to the air movement in the Gangetic Delta) is strikingly shown by the wind data of Silchar, where winds were unusually variable and feeble. The following gives data for that station:—

Station.	Mean Steadiness.		Mean Wind Amount miles) per diem).	
	Actual, April 1892.	Normal, April.	Actual, April 1892.	Normal, April.
Silchar	7	21	15	83

Winds were practically normal in direction and strength in the Assam valley.

A similar unsteadiness of the wind was shown at stations in the debatable ground between the area of westerly winds in the Gangetic Doab and the area to which the influence of the southerly winds from the head of the Bay extended during the month. This is strongly shown by contrasting the mean wind data of Ghazipur and Allahabad, and of Lucknow and Durbhanga:—

Station.	Mean direction, April 1892.	Mean Steadiness.		Mean Wind Amount (miles per diem.)	
		Actual, April 1892.	Normal, April.	Actual, April 1892.	Normal, April.
Ghazipur	S 22° E	5	43	87	87
Allahabad	N 48° W	52	25	111	84
Lucknow	S 36° W	10	44	93	106
Durbhanga	S 70° E	57	8	151	138

The preceding data show very clearly that the debatable ground of unsteady variable winds occupied Oudh and the eastern districts of the North-Western Provinces in April 1892, and was hence considerably to the west of its normal position in April, which includes North and Central Berar.

In the western districts of the North-Western Provinces, the Punjab, and Rajputana winds were generally somewhat stronger and steadier than usual. They were approximately normal in direction in the North-Western Provinces, but were largely influenced in Sind and the Punjab in the latter half of the month by the displacement of the hot weather depression from its normal position in Upper Sind to the North Punjab. South-west winds were hence unusually prevalent. The following gives three examples, showing the large deflection of the mean wind direction of the month from the normal due to this cause :—

Station.	Mean Wind Direction.	
	Actual, April 1892.	Normal, April.
Roorkee	S 34° W	N 73° W
Ludhiana	S 67° W	N 59° W
Jacobabad	S 37° W	S 84° E

Winds were stronger and steadier in Sind and West Rajputana. They were on the average of the month somewhat lighter at the Bombay coast stations and had a slight southerly component. Thus the mean wind direction at Bombay was S. 85° W., the normal being N.52°W. This deflection was probably due to the abnormal pressure conditions in the Punjab.

Winds were stronger and steadier in the Deccan, Berar and the Central Provinces, and were approximately normal in direction. In the majority of cases the northerly element in the prevailing north-west winds of the month was slightly weaker than usual. The following gives data for a representative station in each of these areas :—

Station.	Mean Wind Direction.		Mean Wind Amount (miles per diem).	
	Actual, April 1892.	Normal, April.	Actual, April 1892.	Normal, April.
Poona . . .	N 59° W	N 35° W	265	235
Akola . . .	N 43° W	N 48° W	164	130
Raipur . . .	N 63° W	N 88° W	204	148

In Madras and Mysore winds were approximately normal in steadiness and direction, and slightly stronger than usual.

Winds were unusually steady at the hill stations in the Western Himalayas, but were, as is usual in prolonged fine weather, very light.

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 the minimum of the 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 five to twenty 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 5 to 25 years of the available cloud data for the same hours.

The air contained slightly less moisture in Burma, but the variations in the mean aqueous vapour pressure and humidity were, in all cases, small and of little importance.

In Bengal, Assam and Bihar the air contained a much larger amount of aqueous vapour than usual. This was due to the increased strength of the sea winds prevailing in Bengal, and to their extension into Bihar, earlier in the month than usual. The increase was most marked in the western districts of Bengal and Behar, where the air is usually very dry in April. The following gives data for four stations :—

Station.	Aqueous Vapour Tension.			Humidity.		
	Mean actual, April	Mean normal, April 1892.	Variation from normal.	Mean actual, April	Mean normal, April 1892.	Variation from normal.
	"	"	"	%	%	%
Dacca . .	·818	·805	+·013	73	73	0
Dhubri . .	·756	·650	+·106	77	68	+9
Burdwan . .	·718	·652	+·066	56	54	+2
Patna . .	·601	·467	+·134	46	41	+5

A slight increase due apparently to the same cause was shown at the stations of Roorkee and Lucknow in the North-Western Provinces. The air was even drier than usual in May in the Gangetic Doab and the greater part of the Punjab. Thus the mean humidity of the month was 5 in defect at Allahabad, 9 at Meerut, 10 at Ludhiana, 14 at Lahore, and 17 at Peshawar. The increased dryness was due in part to increased temperature and in part to actual deficiency in the amount of vapour. Similar conditions obtained in Sind, the deficiency being most marked at Jacobabad, where the mean humidity of the month was 17 below the normal (35).

The humidity conditions of Rajputana and Central India were very abnormal. The amount of vapour present in the air was considerably in excess in these two areas except locally at Jeypore and Deesa, where it was practically normal. The following gives data for stations at which the excess was most noteworthy:—

Station.	Aqueous Vapour Pressure.			Humidity.		
	Mean actual, April 1892.	Mean normal, April 1892.	Variation from normal.	Mean actual, April 1892.	Mean normal, April 1892.	Variation from normal.
	"	"	"	%	%	%
Agra . .	·541	·340	+·201	34	28	+6
Nowgong .	·485	·380	+·105	33	31	+2
Ajmere . .	·579	·394	+·185	41	35	+6

In the districts to the south of these areas, including Berar and the Central Provinces, there was a moderate deficiency of aqueous vapour in the western and north-eastern districts, and a slight excess in the central and south-eastern districts, more especially at those represented by the stations of Hoshangabad and Sironcha.

The following gives data for four stations, illustrating these features:—

District.	Station.	Aqueous Vapour Pressure.			Humidity.		
		Mean actual, April 1892.	Mean normal, April.	Variation from normal.	Mean actual, April 1892.	Mean normal, April.	Variation from normal.
		"	"	"	%	%	%
Berar . .	Buldana .	·251	·319	—·0	18	26	—8
Central Provinces.	Khandwa .	·329	·346	—·0	22	27	—5
	Raipur .	·351	·414	—·0	23	33	—10
	Sironcha .	·624	·551	+·0	41	40	+·1

There was a slight or moderate increase in the amount of aqueous vapour in the west coast districts and over nearly the whole of the Peninsula, due, as in North-Eastern India, to the increased indraught from the adjacent seas caused by the abnormal pressure and temperature conditions in the interior of India. The humidity variations were generally small, as temperature was above the average to a moderate extent over nearly the whole of the Peninsula.

The unusual dryness of the air which characterised the meteorology of the month in Upper India (*i.e.* Sind and the Punjab) appears to have been nearly as prominent a feature of the adjacent hill stations. The greatest variations of the humidity from the normal conditions were exhibited at the hill stations in the Western Himalayas, where the air was remarkably dry. The following gives the most noteworthy variations:—

Station.	Aqueous vapour pressure.			Humidity.		
	Mean actual, April 1892.	Mean normal, April.	Variation from normal.	Mean actual, April 1892.	Mean normal, April.	Variation from normal.
	"	"	"	%	%	%
Murree . .	·164	·232	—·068	24	49	—25
Chamba . .	·245	·319	—·074	28	49	—21
Kailang . .	·146	·161	—·015	49	59	—10
Simla . .	·158	·253	—·095	24	48	—24
Chakrata .	·218	·219	—·001	34	43	—9

The deficiency was hence greatest at Murree and decreased in amount eastwards.

In the Eastern Himalayas the amount of aqueous vapour was, on the contrary, in largish excess, and the mean humidity of the month was 11 above the normal at Katmandu and Darjiling.

The abnormal dryness of the air appears to have been as marked a feature of the month in the countries to the west of Northern India as in Upper India. Thus, the mean humidity of the month was 12 in defect at Quetta (normal 43) and Aden (normal 70), and 5 at Leh (normal 43).

The preceding discussion has shown that over nearly the whole of the Peninsula and North-Eastern India, the amount of aqueous vapour present in the air was more or less in excess of the normal in consequence of the increased influence of the sea breezes or winds prevailing on the Bengal and Bombay coasts. In the greater part of North-Western India, including Sind, the Punjab, and the North-Western Provinces, and also in parts of Berar and the Central Provinces, the humidity conditions of April were similar to those of the preceding three months. There was less vapour present in the air, and the humidity was more or less considerably in defect in consequence of the abnormally high temperature.

Very low humidities were hence registered in those districts, more especially at 4 P.M. The following table gives data for a few stations giving the mean 4 P.M. humidity of the month and the lowest recorded humidity:—

Area.	Station.	Mean 4 P.M. humidity	Lowest registered humidity at 4 P.M.	Day on which lowest 4 P.M. humidity was registered.
		%	%	
Sind . . .	Jacobabad . .	10·4	4	20th.
Punjab . .	Lahore . .	11	5	10th.
Rajputana . .	Deesa . .	11·3	5	25th.
North-Western Provinces.	Roorkee . .	13	5	9th, 26th, and 27th.
	Allahabad . .	10	4	2nd and 9th.
Central India .	Sutna . .	10	3	25th and 26th.
Central Provinces.	Raipur . .	16	2	1st.
	Seoni . .	10	5	11th.
Berar . .	Akola . .	14	2	22nd.

The lowest humidity during the month was observed at Neemuch at 8 A.M. of the 15th and at Seoni at 4 P.M. of the 22nd, when the humidity was only 1 per cent.

The variations of the mean cloud amount of the month from the normal ran approximately parallel with those of the amount of aqueous vapour, and were due to the same general actions and features of the air movement of the month.

The mean cloud amount was more or less in excess in Burma, Assam and Bengal. The excess was greatest in East Bengal, as represented by Dacca (+3·0) and Chittagong (+2·2). It was more or less in defect in Bihar, Chota Nagpur, the North-Western Provinces, the Punjab, Upper Sind, Rajputana, Central India, and the Central Provinces. The amount of the deficiency in each of these districts is shown in the following table:—

District.	Mean Cloud Amount.		
	Actual, April 1892.	Normal, April.	Variation of actual from normal.
Bihar	0·7	1·6	—0·9
Chota Nagpur	2·1	2·6	—0·5
North-Western Provinces	0·4	1·9	—1·5
Punjab	1·8	3·0	—1·2
Rajputana	0·9	2·0	—1·1
Central India	0·8	2·1	—1·3
Central Provinces	1·6	2·4	—0·8
Upper Sind	1·4	2·7	—1·3

The actual amount of cloud was less than 0·5 (or skies were practically free from cloud) in the area represented by the following stations, and including Central Bihar and nearly the whole of the North-Western Provinces and Baghelkhand:—

Station.	Mean Cloud Amount.		
	Actual, April 1892.	Normal, April.	Variation of actual from normal.
Agra	0	1·4	—1·4
Meerut	0·1	2·0	—1·9
Lucknow	0·1	2·0	—1·9
Sutna	0·3	1·9	—1·6
Patna	0·3	2·0	—1·7
Allahabad	0·4	1·4	—1·0
Ghazipur	0·4	0·9	—0·5

The amount of cloud was greater than the normal in the Peninsula, except in Berar and the Central Provinces. The increase was greatest in the Madras coast districts at Madras (+4·1), and at Vizagapatam (+2·2) and at Bellary in the South Deccan (+2·0).

The mean cloud amount of the month was in slight excess in the Eastern Himalayas, but was largely in defect in the Western Himalayas, the deficiency increasing in amount westwards. It was absolutely greatest at Chakrata (—2·2) and Chamba (—3·1). The deficiency was nearly as large at Quetta (+1·7) and Aden (+1·6), and was very probably large over the whole of Afghanistan, Baluchistan, East Persia and Arabia.

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 April 1892 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 monthly rainfall statements published by the Provincial 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 160 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.

The rainfall of the month of April in India is usually small in amount, and is generally due to local storms. Two areas, as a rule, receive moderately heavy rain during this month. The first is Assam and the greater part of Bengal, where thunderstorms are of almost daily occurrence and frequently give very heavy showers. The second area is Southern India, and more especially Malabar and Travancore, which receive frequent showers, sometimes from local thunderstorms and sometimes from brief and partial advances of southerly moist winds—the forerunner of the winds of the south-west monsoon.

Chart IV, giving the distribution of rainfall, as indicated by the returns of the meteorological observatories, shows that over more than half of India no rain fell during the month. Over the area including the Punjab and North-Western Provinces (excepting the hill districts), Sind, Rajputana, Central India, Kathiawar, North Bombay, Berar, the Central Provinces, East Hyderabad, Orissa, the greater part of Bihar and Chota Nagpur, the rainfall of the month was actually or practically *nil*.

On the other hand, in the two areas which usually receive moderate to heavy rain from hot-weather storms in

North-Eastern India and Southern India, the storms were more numerous than usual, and the rainfall generally above the average. The following gives the chief periods of disturbance in these two areas :—

(*a*)—In North-Eastern India (*i.e.* Bengal, Assam, and Burma) there were two periods of fairly general rain, *viz.*, from the 15th to the 22nd and from the 27th to the 30th.

(*b*)—In Southern India, there were also two periods of fairly general rainfall, *viz.*, from the 15th to the 19th, and from the 24th to the 26th.

The following statement gives comparative rainfall data for the 52 rainfall divisions of the Empire :—

Province.	Division.	Average actual number of rainy days.	Normal number of rainy days.	Average actual rainfall of month.	Normal rainfall of month.	Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	8·06	3·33	+ 4·73
	Lower Burma*	?	?	1·63	1·50	+ 0·13
	Central do.*	?	?	3·73	1·44	+ 2·29
	Upper do.*	?	?	2·68	?	?
	Arakan*	?	?	1·95	1·34	+ 0·61
Bengal and Assam	Eastern Bengal	6·6	5·4	6·69	4·05	+ 2·64
	Assam (Surma)*	?	?	31·48	13·93	+ 17·55
	Do. (Brahmaputra)*	?	?	11·13	6·93	+ 4·20
	Deltaic Bengal	3·5	3·7	2·16	2·56	− 0·40
	Central do.	3·6	2·4	2·32	1·42	+ 0·90
	North do.	7·4	4·9	6·14	3·38	+ 2·76
	Orissa	0·4	2·1	0·32	1·29	− 0·97
	Chota Nagpur	0·4	1·1	0·21	0·43	− 0·22
	Bihar (South)	0·3	0·7	0·19	0·29	− 0·10
	Do. (North)	1·8	1·3	0·93	0·82	+ 0·11
North-Western Provinces and Oudh.	North-Western Provinces (East)	0	0·4	0	0·20	− 0·20
	Oudh (South)	0	0·3	0	0·12	− 0·12
	Do. (North)	0	0·4	0	0·17	− 0·17
	North-Western Provinces (Central)	0	0·3	0	0·10	− 0·10
	Do. do. (West)	0	0·4	0	0·12	− 0·12
	Do. do. (Sub-montane)	0·7	0·8	0·21	0·45	− 0·12
Punjab	Punjab (South)	0·1	0·7	0·02	0·30	− 0·24
	Do. (Central)	0	0·8	0	0·34	− 0·34
	Do. (Sub-montane)	0·1	1·3	0·03	0·61	− 0·58
	Do. (Hill Districts)	1·1	3·5	0·30	2·51	− 2·21
	Do. (North-West)	0	2·2	0·02	1·25	− 1·23
	Do. (West)	0	1·0	0·01	0·49	− 0·48
Bombay and Malabar Coast Districts (Madras).	Malabar	9·6	3·4	6·32	2·28	+ 4·04
	Madras (South Central)	5·6	3·0	2·69	2·01	+ 0·68
	Coorg	7·3	?	3·16	?	?
	Mysore*	?	?	2·68	1·14	+ 1·54
	Konkan	1·0	0·6	0·56	0·31	+ 0·25
	Bombay Deccan	3·3	1·8	1·44	0·80	+ 0·64
	Hyderabad (North)	0·9	?	0·26	0·44	− 0·18
	Khandeish	0·4	0·3	0·16	0·10	+ 0·06
Central Provinces and Berar.	Berar*	?	?	0	0·26	− 0·26
	Central Provinces (West)*	?	?	0	0·23	− 0·23
	Do. (Central)*	?	?	0·16	0·31	− 0·15
	Do. (East)*	?	?	0·01	0·57	− 0·56
Bombay (North)	Guzerat	0	0	0·01	0·01	0
	Kathiawar	0	0	0	0·01	− 0·01
	Sind	0	0·1	0	0·20	− 0·20
Rajputana and Central India.	Central India (East)	0	?	0	0·12	− 0·12
	Rajputana (East), Central India (West)	0	?	0	0·09	− 0·09
	Rajputana (West)	0	?	0	0·06	− 0·06
Madras	East Coast (North)	1·3	1·2	0·49	0·60	− 0·11
	Do. (do.) (*a*)*	?	?	0·45	?	?
	Hyderabad (South)	1·7	?	0·70	0·50	+ 0·20
	Madras (Central)	1·4	0·9	0·46	0·45	+ 0·01
	East Coast (Central)	0·2	0·4	0·13	0·20	− 0·07
	East Coast (South)	1·5	0·9	0·04	0·60	+ 0·04
	Madras (South)	5·0	2·7	3·75	2·07	+ 1·68

* Averages deduced from the weekly Statements of rainfall published in the *Gazette of India*.

The data are, except in the case noted, obtained from the rainfall statements of the month published by the Provincial Governments. In the remaining cases it was necessary to utilise the district averages given in the weekly weather reports published in the *Gazette of India*. These averages are based on weekly telegrams received from District Officers and are hence less accurate than the more complete data of the monthly rainfall statement.

Baluchistan and Kashmir received some showers during the first week of the month. The amounts were very small in all cases except Iskardo, where, if the rainfall returns be correct, a total of 16·60 inches fell on three days, *viz.* 3rd, 7th, and 8th.

The following extract from a letter received from a traveller in the Kashmir Himalayas gives another example of very heavy local rainfall in the Kashmir Himalayas:—" From April 21st to April 28th I was travelling in two valleys leading north from the hills dividing Ladakh and Kashmir, and meeting at Kargil, situated about halfway between Leh and Srinagar. During all these days there was incessant rain and heavy low-lying clouds driving down the valleys before a strong wind. On April 29th in Dras near the Zoji pass there was a peculiarly, luminous white fog all day the sun being nearly invisible. Objects did not cast any shadow, the light appearing to come from all parts. The natives stated that the rain was quite abnormal, and the fog seemed to be quite an unknown occurrence, at least a fog of this peculiar description."

Fine, though unusually damp, weather obtained at the commencement of the month in Bengal. A change, however, commenced on the 4th, on which day the dry westerly current of Upper and Central India became more pronounced and extended down into Bengal. The result was a series of local storms, attended with rain in North Bengal. The rainfall of the first week of the month was hence fairly general, but very irregularly distributed. The conditions began to change again on the 12th, but they were not fully developed until the 18th, when a series of local storms with rain occurred over the greater part of South-West Bengal, the whole of North Bengal, the Purneah, North Bhagalpur and Durbhanga districts of North Bihar, the Monghyr and South Bhagalpur districts of South Bihar, the Sonthal Parganas, and a considerable part of Chota Nagpur. Frequent showers continued to be received in East and North Bengal, and a large part of South-West Bengal and Orissa, until the 22nd, when the conditions became again unfavourable. A favourable change again set in on the 25th, and lasted to the end of the month. There were hence many local storms during the period from the 25th to the 30th in East and North Bengal, and North-East Bihar, which gave fairly general rain to these areas.

The rainfall of the month was hence fairly above the average in North and East Bengal, normal in South-West Bengal and North and South Behar, and below the normal in Orissa and Chota Nagpur. In North and East Bengal all districts received fairly abundant rainfall. In South-West Bengal, Murshidabad, Burdwan, 24-Parganas, Howrah, Hooghly, Nadia, Jessore, and Khulna obtained good rain, Midnapore, Birbhum and West Burdwan moderate rain, and Bankurah light rain. In North Bihar rainfall was confined to the Purneah and North Bhagalpur districts, and in South Bihar to the South Bhagalpur and Monghyr districts, and the Sonthal Parganas.. In Chota Nagpur Manbhum and Singbhum received light rain.

Assam obtained unusually heavy rain during the month. Cachar received daily thunder showers from the 1st to the 5th. The Brahmaputra valley districts obtained fairly general rain on the 1st and 2nd, and again from the 9th to the 11th. Rain fell atmost daily from the 15th to the end of the month in every district.

Cherra Punji received 14·5 inches on the 22nd and 15·9 inches on the 23rd. Its total rainfall during the month was 85·84 inches., or 57·91 inches above the normal (27·93 inches).

Falls exceeding 5 inches in 24 hours were received at a large number of stations in Cachar and Sylhet, where the thunder showers of the last fortnight of the month were unusually heavy. The most remarkable was a fall of 12·23 inches at Lalakhal in Sylhet on the 21st, and of 7·17 inches at Koyah in Cachar on the 20th.

The rainfall of the month was more or less in excess in all districts except Nowgong, where there was a slight deficiency. The excess was greatest in Cachar and Sylhet, where the rain-gauge stations generally received from two to three times their normal fall. The following statement gives comparative data for the plain districts :—

Meteorological Division.	District.	Rainfall in inches.			Number of rainy days.		
		Actual average, April 1892.	Normal average, April.	Variation from normal.	Actual average, April 1892.	Normal average, April.	Variation from normal.
Surma	Sylhet	21·25	11·51	+ 9·74	16·6	11·9	+4·7
	Cachar	21·59	10·71	+10·88	14·6	13·1	+1·5
Brahmaputra	Goalpara	9·99	6·14	+ 3·85	11·0	8·8	+2·2
	Kamrup	12·81	7·20	+ 5·61	13·5	10·9	+2·6
	Darrang	8·37	6·43	+ 1·94	13·5	11·6	+1·9
	Nowgong	4·94	5·23	— 0·29	11·0	9·3	+1·7
	Sibsagar	13·63	8·56	+ 5·07	13·6	13·9	—0·9
	Lakhimpur	14·84	10·53	+ 1·31	13·0	14·3	—1·3

The rainfall of the month was very abnormally distributed in Burma. Tenasserim received frequent showers throughout, which gave it an average amount of 7·96 inches or nearly five inches in excess of the normal fall of the month.

In Lower Burma light showers were of occasional occurrence, chiefly in the first and second weeks of the month.

The rainfall was very irregularly distributed, but was on the whole slightly above the normal (1·5 inches).

In Central Burma showers were received during the same periods as in Lower Burma. Showers were of much more frequent occurrence in Upper than in Central and Lower Burma, and the chief period of rainfall was from the 10th to the 21st. The rainfall was heavy in the Mandalay district, which received an average total of 5·6 inches, and also (to a somewhat less extent) in the Yemethin, Pyinmana, and Shwebo districts.

The following gives averages based on the rainfall statements of the month published in the *Burma Gazette* (received after the comparative table in page 135 was prepared) :—

Province.	Division.	Rainfall in inches.			Number of Rainy Days		
		Average actual, April 1892.	Average normal, April.	Variation from normal.	Average actual, April 1892.	Average of normal, April.	Variation from normal.
Burma	Tenasserim	7·96	?	?	10·4	?	?
	Lower Burma	1·36	?	?	3·1	?	?
	Central do.	1·99	?	?	3·6	?	?
	Upper do.	3·42	?	?	6·1	?	?
	Arakan	2·28	?	?	4·7	?	?

These averages differ considerably in the cases of Central and Upper Burma from the averages given in the table page 125. This was due to the rainfall of eight districts not having been properly telegraphed during the month.

Frequent showers were received in the Bombay Deccan districts during the month, more especially in Dharwar, Bijapur, Belgaum, and Sholapur. Showers fell almost daily during the first fortnight and also during the last three days of the month. The following gives rainfall data of the Bombay Deccan districts, and shows the average amounts of the excess in each district :—

District.	Number of Rainy Days.		Variation of actual from normal.	Rainfall.		Variation of actual from normal.
	Actual.	Normal.		Actual.	Normal.	
Dharwar	4·4	2·6	+1·8	1·95	1·21	+0·74
Bijapur	2·3	1·7	+0·6	0·82	0·78	+0·04
Belgaum	5·5	2·5	+3·0	2·68	1·12	+1·56
Sholapur	2·1	0·9	+1·2	0·99	0·31	+0·68
Poona	0·9	0·8	+0·1	0·34	0·33	+0·01

Little or no rain fell in the Konkan or North Bombay.

The northern and central coast districts of Madras received a few local showers during the month. The rainfall of the month, as is usual in April, was very small in amount, and in several districts below the small normal fall of the month. The rainfall was smallest in amount in Nellore and was practically *nil*.

The chief periods of rainfall in South Madras were from the 15th to 17th, and the 24th and 25th. The districts of Madura and Tinnevelly also received general rain from the 28th to the 30th. The rainfall of the month was especially heavy in the Tinnevelly, Malabar, and South Canara districts and the Nilgiris. Falls of four inches or upwards in 24 hours were registered at four stations during the month. These were :—

Date.	District.	Station.	Rainfall in 24 hours preceding 8 A. M. of date.
17th	Madura	Terushuli	5·21
20th	Tinnevelly	Badagora	4·90
22nd	South Canara	Bantwal	4·55
25th	Madura	Kodaikanal	4·10
25th	Tinnevelly	Satur	4·05

The following table giving average rainfall data for each district in Madras, shows fully the distribution of the rainfall in that presidency during the month :—

District.	Number of Rainy Days.		Variation of actual from normal.	Rainfall.		Variation of actual from normal.
	Actual.	Normal.		Actual.	Normal.	
Ganjam	1·3	1·6	—0·3	0·48	0·77	—0·29
Vizagapatam	1·8	1·5	+0·3	0·67	0·75	—0·08
Godavery	0·6	0·5	+0·1	0·27	0·28	—0·01
Kistna	0·5	0·4	+0·1	0·24	0·21	+0·03
Nellore	0	0·4	—0·4	0·02	0·19	—0·17
Chingleput	0·6	0·5	+0·1	0·13	0·26	—0·13
North Arcot	1·0	0·7	+0·3	0·48	0·35	+0·13
South Arcot	1·4	0·7	+0·7	0·42	0·42	0
Tanjore	2·6	1·2	+1·4	1·19	0·91	+0·28
Trichinopoly	1·5	1·5	0	0·87	1·18	—0·31
Madura	4·7	2·7	+2·0	2·75	2·25	+0·50
Tinnevelly	5·5	2·9	+2·6	5·56	1·73	+3·83
Malabar	11·8	4·3	+7·5	7·47	3·01	+4·46
South Canara	6·1	2·0	+4·1	4·53	1·16	+3·37
Salem	3·4	1·9	+1·5	1·32	1·17	+0·15
Coimbatore	5·3	2·5	+2·8	2·46	1·87	+0·59
Nilgiri	9·5	5·5	+4·0	5·25	3·58	+1·67
Cuddapah	0·9	0·7	+0·2	0·22	0·34	—0·12
Anantapur	1·9	0·9	+1·0	0·76	0·45	+0·31
Bellary	1·6	1·3	+0·3	0·54	0·54	0
Kurnool	1·3	0·9	+0·4	0·37	0·48	—0·11

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 174 stations in India during the month of April 1892.

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 utilised 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 93 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 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.

Table

Abstract of Observations taken at 8 A.M. at

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.
I.—Burma Coast and Bay Islands.		...	...	—·019	...	...	...	...	...	...	...	92·5	−0·3	75·6	+0·3	84·1	0	16·9	...	...	...	...	23·9
Bay Islands	Port Blair	61	29·829	?	29·821	29·937	2nd	29·762	22nd	·175	83·6	91·5	?	79·5	?	85·5	?	12·0	93·8	16th	77·8	11th	16·0
	Camorta*	?	29·893	?	?	30·003	2nd	29·825	21st	·178	82·5	87·7	?	77·5	?	82·6	?	10·2	89·7	27th	75·9	4th, 10th	13·8
Tenasserim	Mergui	96	29·795	?	29·823	29·874	2nd	29·721	26th	·153	79·2	89·1	?	68·7	?	78·9	?	20·4	93·6	14th	66·4	17th	27·2
	Tavoy	26	29·893	?	29·850	29·981	2nd	29·813	26th	·168	80·1	90·5	?	74·7	?	82·6	?	15·8	93·2	4 days	72·2	3rd	21·0
	Moulmein	94	29·807	—·011	29·839	29·910	2nd	29.704	26th	·206	80·9	92·0	−2·3	76·1	+0·5	84·1	−0·9	15·9	97·4	4th	72·8	30th	24·6
	Toungoo	181	29·686	—·016	29·811	29·803	4th	29·567	26th	·236	82·6	97·9	−2·3	75·8	+2·7	86·8	+0·2	22·1	101·7	2nd	69·2	5th	32·5
Lower Burma	Rangoon	41	29·844	—·025	29·822	29·957	4th	29.744	25th	·213	81·0	97·6	−0·3	77·3	+1·5	87·5	+0·6	20·3	102·6	26th	74·4	4th	28·2
	Bassein	21	29·868	—·012	29·831	29·984	4th	29·778	26th	·206	82·0	96·4	+0·7	75·8	+0·7	86·1	+0·7	20·6	98·7	28th	70·4	4th	28·3
	Diamond Island.	41	29·860	—·024	29·835	29·968	2nd	29·777	26th	·191	84·8	90·4	+1·8	75·7	−2·8	83·1	−0·5	14·7	93·3	30th	72·5	2 days	20·8
Arrakan	Akyab	20	29·862	—·026	28·825	30·006	2nd	29·761	26th	·245	84·0	92·2	+0·4	74·6	−0·8	83·5	−0·2	17·4	94·6	24th	68·2	27th	26·4
II.—Burma Inland		...	...	+·003	...	...	...	...	...	...	...	98·6	−1·9	73·8	+2·1	86·2	+0·1	24·7	...	...	...	...	38·6
Central Burma	Thayetmyo	134	29·726	+·003	29·800	29·855	4th	29·612	26th	·243	85·0	101·1	−1·9	77·5	+2·1	89·3	+0·1	23·6	104·7	8th	70·0	1st	34·7
Upper Burma	Mandalay	?	29·593	?	?	29·761	5th	29·469	26th	·292	83·6	100·3	?	76·0	?	88·0	?	24·3	106·9	9th	68·7	16th	38·2
	Kendat	?	29·428	?	?	29·609	5th	29·276	22nd	·333	78·1	98·8	?	57·3	?	78·0	?	41·5	103·7	26th	46·0	20th	57·7
	Bhamo	?	29·431	?	?	29·616	5th	29·307	25th	·309	75·7	94·2	?	68·0	?	81·2	?	2·62	10·11	4 days	58·2	6th	42·9
III.—Assam		...	...	—·035	...	...	...	...	...	...	...	85·4	−0·8	70·3	+1·7	77·9	+0·4	15·1	...	...	...	...	30·8
Assam (Surma)	Silchar	104	29·747	—·029	29·804	29·887	5th	29·568	22nd	·319	74·3	85·3	−2·3	69·9	+1·0	77·6	−0·7	15·4	93·7	9th	57·6	22nd	36·1
Brahmaputra	Sibsagar	333	29·494	—·059	29·787	29·624	2nd	29·369	25th	·255	73·2	84·4	+1·7	68·6	+2·3	76·6	+2·0	15·8	93·6	8th	64·7	2 days	28·9
	Dhubri	115	29·699	—·016	29·769	29·886	5th	29·451	22nd	·435	76·1	86·5	−1·8	72·4	+1·7	79·5	−0·1	14·1	94·8	14th	67·4	2nd	27·4
IV.—Bengal and Orissa		...	...	—·028	...	...	...	...	...	...	...	93·5	−0·6	75·8	+2·3	84·7	+0·7	17·7	...	...	...	...	31·1
East Bengal	Chittagong	867	29·776	—·003	29·810	29·920	4th	29·610	26th	·280	81·7	89·6	+1·2	74·3	+0·8	82·0	+1·0	15·3	93·2	9th	68·1	19th	25·1
	Lungleh	?	?	?	?	?	?	?	?	?	68·0	68·3	?	62·9	?	65·6	?	5·4	72·9	9th, 15th & 16th	51·5	17th	21·4
	Noakhali	43	29·794	?	29·784	29·946	4th	29·645	26th	·301	82·7	88·8	?	74·8	?	81·9	?	14·0	92·3	13th & 14th	66·4	18th	25·9
	Comilla	35	29·799	?	29·782	26·959	4th	29·622	26th	·337	80·4	90·7	?	73·9	?	82·3	?	16·8	97·3	13th	66·8	18th	30·5
	Sirajganj‡	46	29·750	?	29·747	29·917	5th	29·548	22nd	·369	78·7	90·8	?	73·0†	?	81·8†	?	17·8	96·7	1st	62·8	17th	33·9
	Dacca	22	29·791	—·025	29·761	29·949	5th	29·612	26th	·337	80·5	92·9	−0·3	75·5	+1·1	84·2	+0·4	17·4	98·6	15th	68·2	28th	30·4
	Barisal	12	29·809	—·016	39·766	29·953	2 days	29·649	26th	·304	82·9	91·4	+1·7	76·3	+2·0	83·9	+1·9	15·1	96·3	13th	68·9	29th	27·4
	Mymensingh	55	29·758	—·013	29·769	29·914	5th	29·538	22nd	·376	77·2	88·3	−2·6	73·0	+1·9	80·7	—0·4	15·3	93·8	9th	66·4	17th	27·4
Deltaic Bengal	Faridpur	39	29·776	?	29·763	29·950	4th	29·579	26th	·371	80·2	91·8	?	74·4	?	83·1	?	17·4	94·5	5 days	68·9	16th & 18th	25·6
	Jessore	33	29·760	—·035	29·740	29·930	5th	29·568	26th	·362	82·4	95·9	−1·5	75·9	+0·9	85·9	−0·3	20·0	102·2	26th	69·0	18th	33·2
	Calcutta	21	29·762	—·036	29·729	29·910	2 days	29·581	26th	·329	83·5	94·1	—1·5	77·5	+1·9	85·8	+0·2	16·6	102·5	27th	71·2	16th	31·3
	Saugor Island	25	29·769	—·038	29·738	29·910	3rd	29·572	26th	·338	84·3	90·6	−0·2	81·5	+1·8	86·1	+0·8	9·1	92·7	2 days	78·0	12th	14·7
	Krishnagar	46	29·726	?	29·721	29·896	5th	29·533	26th	·363	82·8	98·2	?	77·1	?	87·7	?	21·1	108·2	26th	70·0	16th	38·2
	Midnapore	149	29·627	?	29·722	29·772	3rd & 5th,	29·460	26th	·312	85·5	102·9	?	78·5	?	90·7	?	24·4	112·4	26th & 27th	69·2	19th	43·2
Central Bengal	Bankura	298	29·439	?	29·684	29·603	5th	29·280	26th	·323	83·9	103·9	?	79·0	?	91·4	?	24·9	110·6	26th	71·6	16th	39·0
	Raniganj*	345	29·436	?	29·727	29·609	5th	29·269	25th	·340	84·3	103·7	?	77·8	?	90·8	?	25·9	111·1	23rd	70·1	16th	41·0
	Burdwan	99	29·678	—·034	29·723	29·839	5th	29·497	26th	·342	83·5	101·3	+0·7	79·1	+3·7	90·2	+2·2	22·2	108·7	26th	74·4	17th	34·3
	Naya Dumka	490	29·257	?	29·700	29·443	5th	29·084	26th	·359	83·5	100·5	?	77·6	?	89·1	?	22·9	110·2	23rd	70·3	16th	39·9

* Mean of 29 days. † Mean of 26 days. ‡ Mean of 27 days.

I.

174 stations in India, Burma, etc., in April 1892.

Wind direction. Number of Winds from: Calm.	N.	NE.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8A.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 1892.	Normal rainfall for period 1st March to 30th April.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·76	2·66	+2·10	...	...	...	**I.—Burma Coast and Bay Islands.**	
1	3	1	1	3	3	6	5	7	7	5	+ 40	83	·953	4·1	5	?	?	2·56	2·18	+0·38	2·56	2·65	−0·09	Port Blair	Bay Islands.
24	...	1	1	...	2	1	...	...	‡3	?	?	†83	†·924	9·4	10	?	?	6·61	4·85	+1·76	?	?	?	Camorta*.	
...	7	4	3	3	1	2	2	7	2	2	0	87	·866	7·0	18	?	?	15·22	5·46	+9·76	20·31	7·94	+12·37	Mergui	Tenasserim.
29	...	...	...	...	...	...	...	1	1	?	?	87	·894	3·4	7	?	?	5·49	3·83	+1·66	10·44	4·57	+5·87	Tavoy.	
7	2	6	5	6	1	...	2	1	3	3	0	82	·870	3·7	9	4·00	+5·00	7·51	2·64	+4·87	8·28	3·05	+5·23	Moulmein.	
1	2	1	2	12	12	...	...	...	1	4	− 75	83	·937	3·2	8	2·82	+5·18	6·96	1·89	+5·07	6·99	1·93	+5·06	Toungoo.	
...	...	1	1	...	6	14	7	1	5	6	− 17	80	·858	2·3	2	2·18	−0·18	0·33	1·75	−1·42	2·37	1·82	+0·55	Rangoon	Lower Burma.
1	1	...	1	...	1	5	4	17	6	5	+ 20	80	·881	3·3	1	2·09	−1·09	1·41	1·40	+0·01	1·41	1·43	−0·02	Bassein.	
...	7	2	...	...	3	4	3	11	6	7	− 14	72	·861	4·6	0	1·09	−1·09	0·02	1·34	−1·32	0·02	1·34	−1·32	Diamond Island.	
...	5	11	2	2	3	3	1	3	4	4	0	77	·896	3·8	4	1·00	+3·00	1·44	1·25	+0·19	1·44	1·62	−0·18	Akyab	Arrakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·64	0·98	+1·66	...	...	...	**II.—Burma Inland.**	
...	1	1	1	...	19	7	1	...	7	7	0	62	·748	2·3	3	1·09	+1·91	1·46	0·69	+0·77	1·46	0·69	+0·77	Thayetmyo	Central Burma.
3	...	...	...	6	12	8	1	...	7	?	?	62	·714	3·2	9	?	?	4·36	0·76	+3·60	4·36	0·94	+3·42	Mandalay	Upper Burma.
20	3	1	...	...	1	2	1	2	2	?	?	83	·806	0·9	7	?	?	2·11	0·96	+1·15	2·32	1·46	+0·86	Kendat.	
4	...	4	...	...	...	11	1	10	...	?	?	74	·657	5·1	6	?	?	2·64	1·51	+1·13	2·67	2·32	+0·35	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14·53	9·58	+4·95	...	...	...	**III.—Assam.**	
20	...	1	7	1	...	1	...	...	1	3	− 67	87	·743	7·2	16	14·55	+1·45	24·90	15·07	+9·83	27·07	24·36	+2·71	Silchar	Assam (Surma).
...	1	15	7	3	...	3	1	...	2	3	− 33	93	·762	7·0	12	13·55	−1·55	15·19	8·64	+6·55	23·63	13·37	+10·26	Sibsagar	Brahmaputra.
3	2	6	13	1	...	2	1	2	8	8	0	85	·762	6·3	8	6·71	+1·29	3·49	5·02	−1·53	5·17	7·74	−2·57	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·69	2·43	+1·08	...	...	...	**IV.—Bengal and Orissa.**	
4	...	...	3	13	9	1	...	...	*6	7	− 14	81	·884	6·2	8	4·18	+3·82	11·66	3·56	+8·10	11·71	6·43	+5·28	Chittagong	East Bengal.
...	...	...	...	...	...	...	...	...	...	...	...	*95	*·656	...	11	?	?	8·80	?	?	9·70	?	?	Lungleh.	
2	1	...	3	7	12	4	1	...	7	?	?	81	...	3·0	8	4·35	+3·65	7·48	4·23	+3·25	7·50	7·78	−0·28	Noakhali.	
1	...	...	6	8	15	...	...	...	5	?	?	83	...	4·2	9	6·47	+2·53	10·75	5·20	+5·55	12·24	8·96	+3·28	Comilla.	
...	...	3	5	8	8	2	...	1	4	?	?	87	...	6·8	9	4·21	+4·79	7·95	2·78	+5·17	9·01	4·06	+4·95	Sirajganj.	
2	1	3	3	4	14	2	1	...	9	7	+ 29	84	·871	7·1	5	6·30	−1·30	3·61	5·10	−1·49	4·90	8·84	−3·94	Dacca.	
9	...	...	...	3	11	7	...	...	7	?	?	82	·925	6·6	4	4·65	−0·65	2·44	3·47	−1·03	2·65	5·98	−3·33	Barisal.	
1	...	4	11	11	2	1	...	...	7	?	?	86	·798	5·5	9	5·90	+3·10	8.17	4·05	+4·12	9·48	6·24	+3·24	Mymensingh	
1	...	...	6	4	15	3	1	...	7	?	?	87	...	5·5	10	5·70	+4·30	3·21	3·74	−0·53	4·01	6·67	−2·66	Faridpur	Deltaic Bengal.
2	...	...	...	10	12	4	2	...	5	4	+ 50	82	·910	5·9	4	4·82	−0·82	1·83	3·67	−1·84	1·83	6·54	−4·71	Jessore.	
...	...	...	...	4	12	14	...	...	9	7	+ 29	78	·892	4·0	3	2·73	+0·27	1·65	1·71	−0·06	1·65	3·11	−1·46	Calcutta.	
...	...	...	...	...	18	12	...	...	24	17	+ 41	81	·956	5·7	0	2·36	−2·36	0·03	1·25	−1·22	0·03	2·80	−2·77	Saugor Island	
...	...	...	3	8	12	6	1	...	9	?	?	76	...	4·2	5	3·35	+1·65	4·18	2·49	+1·69	4·18	3·97	+0·21	Krishnagar.	
...	...	...	...	5	23	2	...	...	13	?	?	70	...	1·7	2	2·85	−0·85	1·68	1·50	+0·18	1·68	2·96	−1·28	Midnapore.	
3	...	...	1	3	20	...	2	1	6	?	?	72	...	2·7	2	2·80	−0·80	0·84	1·46	−0·62	0·84	2·71	−1·87	Bankura	Central Bengal.
...	...	3	2	7	8	7	1	1	5	?	?	70	...	2·7	2	2·15	−0·15	2·01	1·26	+0·75	2·01	1·91	+0·10	Raniganj*.	
...	...	...	...	2	16	12	...	...	8	5	+ 60	70	·810	3·4	2	3·09	−1·09	1·92	1·99	−0·07	1·92	3·36	−1·44	Burdwan.	
...	1	...	12	8	6	2	1	...	8	?	?	68	...	1·3	2	2·44	−0·44	0·50	0·99	−0·49	0·50	1·69	−1·19	Naya Dumka.	

* Mean of 29 days. † Mean of 27 days. ‡ Mean of 28 days.

Table

Abstract of Observations taken at 8 A. M. at 174 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.
Central Bengal —*concld.*	Berhampore	66	29·703	−·038	29·718	29·887	5th	29·509	26th	·378	80·7	98·7	−1·6	77·4	+3·1	88·1	+0·8	21·3	108·7	26th	69·2	16th	39·5
	Rampur Boalia.	70	29·705	?	29·724	29·881	5th	29·498	26th	·383	80·6	92·8	?	75·5	?	84·2	?	17·3	104·8	26th	66·7	16th	38·1
	Malda	80	29·691	?	29·723	29·896	5th	29·483	22nd	·413	81·6	94·7	?	74·6	?	84·7	?	20·1	104·1	10th	67·3	18th	36·8
	Bogra	61	29·715	−·012	29·728	29·886	5th	29·512	22nd	·374	78·9	92·1	?	72·9	+0·9	82·5	?	19·2	100·3	26th	66·2	19th	34·1
North Bengal	Dinajpur	9	29·661	−·049	29·731	29·854	5th	29·450	26th	·404	77·6	91·6	?	? 73·4	?+3·5	? 82·7	?	18·2	100·6	26th	69·2	19th	31·4
	Rangpur	123	29·690	?	29·768	29·887	5th	29·466	22nd	·421	77·9	89·8	?	73·0	?	81·4	?	16·8	96·4	9th	67·9	18th & 27th	28·5
	Jalpaiguri	284	29·519	−·016	29·758	29·710	5th	29·286	22nd	·424	78·0	90·1	?	71·4	+4·3	80·8	?	18·7	95·4	9th	67·6	13th	27·8
Orissa	Balasore	54	29·717	−·050	29·719	29·865	3rd	29·548	26th	·317	84·9	99·6	?	79·3	+3·8	89·5	?	20·3	112·5	26th	72·8	17th	39·7
	False Point	21	29·796	−·026	29·758	29·929	3rd	29·615	26th	·314	83·8	88·9	−2·1	*79·2	+1·6	84·1	−0·3	9·7	90·5	2 days.	72·6	25th	17·9
	Cuttack	80	29·713	−·032	29·736	29·841	4th	29·561	26th	·280	85·8	102·2	−0·1	80·5	+2·6	91·3	+1·3	21·7	112·4	27th	78·4	13th	34·0
	Short's Island	?	..	...	...	...		...	...	...	...	...	?	...	...	...	...	...	...	...	...	...	...
	Puri	9	29·795	?	29·744	29·926	4th	29·645	26th	·281	82·3	87·7	?	79·7	?	83·7	?	8·0	89·7	18th	77·6	17th	12·1
V.—Gangetic Plain and Chota Nagpur.		...	...	−·050	..	...	...	...	...	...	...	102·3	+1·5	75·6	+3·5	88·9	+2·6	26·7	...	...	...	...	41·9
Chota Nagpur	Hazaribagh	2,007	27·757	−·055	29·674	27·916	5th	27·621	22nd	·295	84·2	102·0	+3·8	75·0	+2·9	88·5	+3·4	27·0	107·1	24th & 25th	67·8	16th	39·3
	Ranchi	2,128	27·649	?	29·677	27·783	5th	27·529	22nd	·254	84·5	101·6	?	74·3	?	88·0	?	27·3	106·0	28th	66·4	16th	39·6
	Chaibassa	760	28·982	−·051	29·677	29·107	6th	28·847	26th	·260	87·6	107·1	+2·7	79·2	+4·2	93·2	+3·5	27·9	112·3	28th	72·7	16th	39·6
Bihar (South)	Gaya	375	29·343	−·073	29·666	29·526	5th	29·169	22nd	·357	86·6	105·5	+1·9	79·9	+5·9	92·7	+3·9	25·6	112·6	25th	74·2	2nd	38·4
	Dehri	351	29·376	?	29·675	29·520	5th	29·202	22nd	·318	88·2	105·7	?	77·0	?	91·4	?	28·7	112·5	26th	68·5	3rd	44·0
	Patna	183	29·557	−·050	29·690	29·753	5th	29·370	26th	·383	85·0	100·8	−0·2	76·4	+3·2	88·7	+1·5	24·4	109·1	25th	70·6	1st	38·5
	Arrah	190	29·539	?	29·679	29·722	5th	29·348	22nd	·374	84·7	103·7	?	77·1	?	90·4	?	26·6	111·9	24th	68·0	2nd	43·9
	Buxar	239	29·492	?	29·684	29·656	5th	29·301	22nd	·355	85·3	102·7	?	77·8	?	90·2	?	24·9	109·9	24th & 25th.	68·3	2nd	41·6
Bihar (North)	Purnea	125	29·664	−·007	29·743	29·870	5th	29·448	22nd	·422	80·1	95·2	−2·2	74·3	?	84·7	?	20·9	102·3	9th & 26th.	66·7	1st	35·6
	Bhagalpur	161	29·586	?	29·700	29·788	5th	29·368	22nd	·420	81·6	97·8	?	74·9	?	86·6	?	22·9	108·8	24th	69·0	16th	39·8
	Darbhanga	166	29·607	−·023	29·726	29·798	5th	29·414	22nd	·384	81·7	96·1	−0·2	*72·3	+0·5	*84·2	+0·2	23·8	104·5	25th & 26th.	63·2	1st	41·3
	Muzaffarpur	178	29·573	?	29·705	29·760	5th	29·389	22nd	·371	80·9	98·2	?	74·3	?	86·3	?	23·9	106·7	24th	63·8	1st	42·9
	Motihari	224	29·522	?	29·704	29·706	5th	29·330	26th	·376	81·6	98·9	?	72·4	?	85·6	?	26·4	106·2	25th & 26th.	62·8	1st	43·4
	Chapra	181	29·551	?	29·684	29·740	5th	29·358	22nd	·382	83·9	101·8	?	75·9	?	88·9	?	25·9	110·7	24th	67·6	2nd	43·1
N.-W.P. (Eastern Districts).	Benares	267	29·457	−·061	29·679	29·589	2nd & 6th.	29·299	22nd	·290	84·0	105·8	+2·2	75·9	+3·7	90·9	+3·0	29·9	111·8	24th	67·1	2nd & 3rd	44·7
	Allahabad	309	29·409	−·073	29·670	29·554	2nd	29·254	22nd	·300	86·6	107·3	+3·3	76·1	+4·1	91·7	+3·7	31·2	112·4	24th	68·8	2nd	43·6
N.-W. P. (East Sub-montane).	Gorakhpur	256	29·484	−·034	29·698	29·690	6th	29·271	26th	·419	82·1	101·4	+0·4	75·4	+3·1	88·4	+1·8	26·0	108·3	24th	65·2	2nd	43·1
Oudh (South)	Lucknow	369	29·348	−·068	29·674	29·504	4th	29·170	26th	·334	84·2	105·7	+3·5	73·6	+2·6	89·7	+3·1	32·1	112·3	24th	63·9	1st & 3rd	48·4
N.-W. Provinces (Central).	Cawnpur	416	29·304	?	29·675	29·444	3rd	29·146	22nd	·298	86·6	105·6	?	74·0	?	89·9	?	31·6	110·1	24th	64·5	2nd	45·6
VI.—Upper—Sub-Himalayas.		...	...	−·072	...	...	...	...	...	...	...	103·0	+7·1	71·1	+4·5	87·1	+5·8	31·9	...	...	..	...	48·5
N.-W. Provinces (Sub-montane).	Bareilly	568	29·134	−·060	29·664	29·296	6th	28·938	26th	·358	81·7	103·1	+3·7	73·3	+4·8	88·2	+4·3	29·8	109·4	24th	62·7	2nd	46·7
	Dehra Dun	2,232	27·526	?	29·684	27·676	6th	27·326	26th	·350	78·5	98·2	?	69·9	?	84·1	?	28·3	105·0	27th	60·5	1st	44·5
	Roorkee	887	28·814	−·066	29·664	28·969	5th	28·596	26th	·373	80·2	103·7	+5·8	70·9	+4·3	87·3	+5·1	32·8	108·2	28th	59·3	1st	48·9
	Meerut	737	28·976	−·053	29·674	29·118	6th	28·794	26th	·324	82·8	103·5	+5·2	71·5	+3·6	87·5	+4·4	32·0	108·2	28th	61·0	1st	47·2
Punjab (Central).	Delhi	718	29·008	−·049	29·680	29·147	3rd	28·845	26th	·302	86·1	105·6	+5·2	78·7	+5·5	92·2	+5·4	26·9	111·5	28th	71·1	1st	40·4
	Lahore	702	28·979	−·087	29·645	29·142	8th	28·807	21st	·335	83·6	105·9	+9·6	68·9	+2·6	87·4	+6·1	37·0	111·8	20th & 27th	58·0	1st	53·8
Punjab (Sub-montane).	Ludhiana	812	28·871	−·087	29·642	29·009	3rd	28·718	26th	·291	84·9	106·1	+9·0	72·0	+5·6	89·2	+7·3	34·4	111·8	20th	59·6	1st	52·2

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in April 1892—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st March to 30th April 1892.	Normal rainfall for period 1st March to 30th April.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	1	6	3	16	4	...	...	6	5	+20	82	·864	4·8	3	2·45	+0·55	2·25	1·41	+0·84	2·32	2·61	−0·29	Berhampore.	Central Bengal —*concld.*
...	...	1	5	7	11	6	...	...	6	?	?	82	...	3·4	5	2·56	+2·44	3·62	1·42	+2·20	4·72	2·23	+2·49	Rampur Boalia.	
1	...	2	2	18	3	3	...	1	4	?	?	81	...	3·3	6	1·55	+4·45	6·10	0·94	+5·16	7·07	1·68	+5·39	Malda.	
...	...	2	12	13	1	...	2	...	5	?	?	83	·812	4·5	9	3·50	+5·50	4·65	2·29	+2·36	5·85	3·13	+2·72	Bogra.	
...	1	6	20	2	2	...	...	...	2	?	?	84	·792	6·2	5	2·60	+2·40	2·60	1·89	+0·71	3·70	2·79	+0·91	Dinajpur	North Bengal.
2	...	1	22	2	3	...	...	...	2	?	?	85	...	1·8	8	4·40	+3·60	5·79	3·14	+2·65	9·49	4·44	+5·05	Rangpur.	
1	2	6	5	16	...	...	...	...	6	?	?	82	·780	1·8	8	5·79	+2·21	3·31	4·20	−0·89	3·81	6·03	−2·22	Jalpaiguri.	
...	...	...	...	...	15	15	...	...	13	?	?	73	·874	2·6	0	3·85	−3·85	0·04	2·54	−2·50	0·04	3·92	−3·88	Balasore	Orissa.
...	...	...	1	...	14	13	2	...	18	14	+29	82	·948	5·1	0	1·18	−1·18	0	0·64	−0·64	0·01	2·02	−2·01	False Point.	
...	...	...	...	...	14	15	1	...	7	5	+40	71	·869	4·3	0	1·00	−1·00	0·02	0·65	−0·63	0·24	1·79	−1·55	Cuttack.	
...	...	...	...	...	1	28	1	...	20	?	?	87	...	2·3	0	0·90	−0·90	0	0·55	−0·55	0	1·07	−1·07	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·24	0·40	−0·16	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
...	1	...	...	2	14	8	2	3	10	8	+25	45	·509	0·7	0	0·73	−0·73	0	0·31	−0·31	0	1·13	−1·13	Hazaribagh.	Chota Nagpur.
6	...	...	...	2	2	14	4	2	9	?	?	48	...	0·7	1	1·75	−0·75	0·15	0·64	−0·49	0·27	1·73	−1·46	Ranchi.	
5	...	...	1	2	5	11	4	2	2	?	?	57	·743	0·5	1	1·55	−0·55	0·24	0·67	−0·43	0·24	1·88	−1·64	Chaibassa.	
1	1	1	12	1	9	2	2	1	6	4	+50	59	·736	0·7	0	0·27	−0·27	0	0·15	−0·15	0	0·79	−0·79	Gaya	Bihar (South).
...	1	...	8	7	4	4	6	...	7	?	?	39	...	0·1	1	0·29	+0·71	0·17	0·11	+0·06	0·17	0·81	−0·64	Dehri.	
1	...	1	21	1	...	...	5	1	7	4	+75	54	·641	0·5	0	0·36	−0·36	0	0·18	−0·18	0	0·59	−0·59	Patna.	
...	...	4	9	7	...	...	7	2	5*	?	?	52	...	0·7	0	0·50	−0·50	0	0·22	−0·22	0	0·56	−0·56	Arrah.	
...	...	2	17	...	...	...	8	3	7	?	?	49	...	0·2	0	0·40	−0·40	0	0·17	−0·17	0	0·45	−0·45	Buxar.	
...	..	14	15	1	...	...	...	...	3	4	−25	76	·782	3·3	6	1·64	+4·36	2·62	1·14	+1·48	2·70	1·63	+1·07	Purnea	Bihar (North).
7	1	3	12	2	3	2	...	...	3	?	?	69	...	2·5	2	1·35	+0·65	0·66	0·77	−0·11	1·23	1·10	+0·13	Bhagalpur.	
...	...	5	17	8	...	...	...	...	6	6	0	69	·743	1·5	2	1·45	+0·55	0·56	0·58	−0·02	0·59	0·92	−0·33	Darbhanga.	
1	...	5	14	9	...	...	1	...	8	?	?	70	...	1·0	0	1·05	−1·05	0	0·58	−0·58	0	1·00	−1·00	Muzaffarpur.	
...	...	5	17	7	...	...	1	...	7	?	?	63	...	2·1	1	1·35	−0·35	0·16	0·78	−0·62	0·16	1·15	−0·99	Motihari.	
3	...	...	17	4	...	5	1	...	6	?	?	57	...	0	0	0·65	−0·65	0	0·28	−0·28	0	0·57	−0·57	Chapra.	
6	...	4	8	1	...	2	8	1	5	5	0	61	·372	0·2	0	0·27	−0·27	0	0·13	−0·13	0	0·30	−0·30	Benares	N.-W. P. (Eastern Districts).
1	2	6	5	1	...	3	7	5	4	4	0	35	·443	0·5	0	0·55	−0·55	0	0·17	−0·17	0	0·37	−0·37	Allahabad	
3	2	3	9	4	3	...	5	1	2	4	−50	57	·633	0·1	0	0·73	−0·73	0	0·48	−0·48	0	0·74	−0·74	Gorakhpur	N.-W. P. (East Submontane).
6	1	...	9	1	...	1	8	4	4	4	0	47	·533	0	0	0·27	−0·27	0	0.08	−0·08	0	0·31	−0·31	Lucknow	Oudh (South).
1	1	...	5	4	2	2	11	3	4	?	?	45	·575	0·3	0	0·50	−0·50	0	0·11	−0·11	0	0·35	−0·35	Cawnpur	N.-W. Provinces (Central).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·04	0·66	−0·63	..	...	...	**VI.—Upper-Sub-Himalayas.**	
15	...	...	1	11	...	...	...	3	1	5	−80	56	·605	0	0	0·45	−0·45	0	0·16	−0·16	0	1·15	−1·15	Bareilly	N.-W. Provinces (Submontane).
27	...	2	...	...	...	...	1	...	2	3	−33	35	·344	1·0	1	1·45	−0·45	0·11	0·65	−0·54	0·11	2·20	−2·09	Dehra Dun.	
12	1	...	3	8	3	1	1	1	4†	3	+33	38	·395	1·4	0	1·18	−1·18	0·07	0·46	−0·39	0·07	1·29	−1·22	Roorkee.	
11	...	...	2	5	...	2	7	3	2	2	0	36	·400	0·2	0	0·73	−0·73	0	0·31	−0·31	0	1·33	−1·33	Meerut.	
7	1	2	...	2	...	4	11	3	3	4	−25	37	·460	0·6	0	0·64	−0·64	0	0·21	−0·21	0	0·77	−0·77	Delhi	Punjab (Central).
7	3	1	2	7	2	2	1	5	3	3	0	29	·322	1·2	0	1·45	−1·45	0	0·38	0·38	0·06	1·07	−1·01	Lahore.	
21	...	...	...	5	2	...	1	1	1	2	−50	34	·408	1·4	1	1·55	−0·55	0·14	0·84	−0·70	0·24	1·88	−1·64	Ludhiana	Punjab (Submontane).

* Mean of 29 days. † Mean of 28 days. Arrah wind observations 29 days.

Table

Abstract of Observations taken at 8 A.M. at 174 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.
Punjab (North)	Sialkot	829	28·850	—·083	29·645	29·011	8th	28·694	20th	·317	82·6	104·0	+ 9·2	71·2	+5·3	87·6	+7·3	32·8	110·3	19th	59·4	1st	50·9
	Rawalpindi	1,649	28·056	—·088	29·638	28·225	9th	27·885	28th	·340	76·5	96·8	+ 8·8	63·9	+4·5	80·4	+6·7	32·9	104·5	20th	52·6	1st	51·9
VII.—Indus Valley and North-West Rajputana.		...	...	—·082	...	...	...	...	...	...	...	105·2	+ 8·5	72·9	+ 5·3	89·0	+ 6·9	32·2	...	...	...	...	46·7
Punjab (West)	Peshawar	1,110	28·639	—·086	29·678	28·821	3rd	28·378	27th	·443	80·1	97·5	+11·3	66·6	+6·4	82·1	+8·9	30·9	105·0	20th	58·0	1st & 8th	47·0
	Khushab	612	29·057	?	29·630	29·227	8th	28·858	20th	·369	84·3	106·5†	?	67·0‡	?	86·2§	?	38·5	116·1	23rd	59·1	9th	57·0
	Montgomery	558	29·128	?	29·645	29·288	1st	28·934	20th	·354	88·1	107·3	?	72·0	?	89·7	?	35·3	113·9	19th	61·8	1st	52·1
	D. I. Khan	573	29·112	—·122	29·654	29·261	1st & 9th	28·923	26th	·338	81·4	105·1	+11·3	71·1	+5·9	88·1	+8·6	34·0	113·5	19th	61·8	1st, 5th & 8th.	51·7
	Mooltan	420	29·276	—·100	29·662	29·426	1st	29·080	20th	·346	84·1	107·3	+10·3	74·1	+7·1	90·7	+8·7	33·2	112·3	19th	67·1	3rd	45·2
	Sirsa	662	29·040	—·076	29·659	29·191	2nd	28·893	20th	·298	85·8	108·8	+ 8·7	73·0	+5·1	90·9	+6·9	35·8	117·4	19th	65·8	1st	51·6
Sind and Cutch	Jacobabad	186	29·538	—·067	29·684	29·652	8th	29·361	26th	·291	88·6	110·0	+ 8·4	72·7	+4·3	91·4	+6·4	37·3	116·1	27th	67·3	4th & 5th	48·8
	Hyderabad	117	29·643	—·061	29·712	29·771	2nd	29·506	22nd	·265	84·4	107·5	+ 5·9	76·2	+4·6	91·9	+5·3	31·3	113·2	27th	71·6	2nd	41·6
	Kurrachee	49	29·752	—·063	29·752	29·907	4th	29·608	26th	·299	81·6	92·9	+ 3·7	75·9	+3·7	84·4	+3·7	17·0	99·9	26th	70·9	25th	29·0
	Bhuj	395	29·413	?	29·758	29·531	4th	29·277	26th	·254	84·9	104·3	?	73·9	?	89·1	?	30·4	111·0	27th	68·3	15th	42·7
Rajputana (West)	Bickaneer	744	28·977	?	*29·679	29·118	2nd	28·829	20th	·289	87·9	105·5	?	79·7	?	92·6	?	25·8	114·9	16th	71·7	1st	43·2
	Pachpadra	380	29·386	?	29·717	29·532	4th	29·229	22nd	·303	87·4	109·7	?	72·3*	?	91·0*	?	37·4	114·5	27th	64·2	29th	50·3
East Rajputana, Central India and Guzerat.		...	...	—·043	...	...	...	...	...	...	...	104·6	+ 5·1	75·9	+ 5·2	90·3	+ 5·2	28·7	...	...	...	...	40·5
Rajputana (East)	Jeypóre	1,431	28·351	—·041	29·721	28·499	3rd	28·210	26th	·289	85·9	106·6	+ 6·4	74·0	+5·0	90·3	+5·7	32·6	111·3	27th	68·0	5th & 12th.	43·3
	Sambhar	1,251	28·509	—·046	29·710	28·639	3rd	28·364	26th	·275	84·9	105·0	+ 6·1	75·3	+5·0	90·2	+5·6	29·7	109·0	27th	66·4	3rd	42·6
	Ajmere	1,611	28·192	—·032	29·736	28·326	3rd & 4th.	28·070	26th	·256	87·8	104·4	+ 6·3	78·1	+8·2	91·3	+7·3	26·3	108·5	27th	69·1	2nd & 12th.	39·4
	Deesa	466	29·356	—·035	29·773	29·496	4th	29·233	26th	·263	86·8	110·0	+ 7·6	76·7	+6·2	93·4	+6·9	33·3	114·5	26th	72·8	2nd & 20th.	41·7
Kathiawar	Rajkot	429	29·415	—·037	29·797	29·542	4th	29·294	26th	·248	80·9	106·3*	+ 4·4	71·8	+3·0	89·1	+3·7	34·5	110·4	27th	67·8	4 days	42·6
	Veraval	?	29·825	?	29·785	29·933	2nd	29·720	25th	·213	81·9	90·1	?	74·1	?	82·0*	?	16·0	103·6	9th	67·3	10th	36·3
	Bhavnagar	?	29·815	?	29·801	29·936	3rd	29·707	26th	·229	85·6	101·5	?	77·1	?	89·3	?	24·4	107·4	21st & 24th.	70·5	2nd	36·9
Central India	Nowgong	757	28·392	—·058	29·695	29·135	2nd	28·872	26th	·263	85·8	106·6	+ 2·8	74·1	+3·1	90·4	+3·0	32·5	109·1	16th & 26th.	67·4	2nd	41·7
	Indore	1,823	27·996	—·035	29·730	28·123	2nd	27·908	22nd & 26th.	·215	86·9	104·3	+ 4·3	72·6	+3·9	88·5	+4·1	31·7	107·1	6 days	65·1	3rd & 10th.	42·0
	Neemuch	1,630	28·184	—·028	29·736	28·324	2nd	28·074	26th	·250	88·7	104·8	+ 4·6	77·2	+6·9	91·0	+5·8	27·6	107·5	11th & 15th.	70·6	3rd & 10th.	36·9
Guzerat	Surat	36	29·817	—·042	29·796	29·937	29th	29·702	26th	·235	83·9	102·7	+ 2·7	76·0	+4·5	89·4	+3·6	26·7	111·0	26th	70·5	2nd	41·5
N.-W. P. (West)	Agra	555	29·184	—·062	29·693	29·333	3rd	29·042	26th	·291	85·8	108·0	+ 5·5	78·2	+4·9	93·1	+5·2	29·8	112·5	27th & 28th.	70·0	2nd	42·5
	Jhansi	840	28·901	—·058	29·677	29·042	2nd	28·768	22nd	·274	91·0	109·2	+ 5·7	81·7	+6·2	95·5	+6·0	27·5	113·5	28th	74·9	1st & 2nd	38·6
Deccan.		...	...	—·039	...	...	...	...	...	...	...	105·1	+ 3·3	77·4	+ 4·1	91·3	+ 3·7	27·6	...	...	...	...	38·3
Bombay (Deccan)	Belgaum	2,521	27·318	—·027	29·782	27·451	4th	27·259	25th	·192	75·7	94·1	— 2·6	69·0	+2·3	81·6	—0·2	25·1	101·9	24th	61·4	13th	40·5
	Sholapur	1,590	28·257	—·012	29·760	28·397	29th	28·190	25th	·207	86·6	107·6	+ 2·5	78·4	+3·7	93·0	+3·1	29·2	111·2	11th	71·0	28th	40·2
	Poona	1,840	28·026	—·022	29·784	28·115	2nd & 4th.	27·928	25th	·187	83·2	104·9	+ 4·2	73·0	+3·4	89·0	+3·8	31·9	108·6	25th	65·9	1st	42·7
	Bijapur	?	27·909	?	...	28·002	4th	27·848	25th	·154	84·1	93·1	?	81·4	?	87·3	?	11·7	98·3	20th	78·0	9th	20·3
Khandeish	Malegaon	1,430	28·414	—·028	29·766	28·524	4th	28·314	26th	·210	88·9	106·1	+ 3·4	77·1	+6·7	91·6	+5·1	29·0	109·3	26th	68·7	1st	40·6
	Ahmednagar	2,152	27·715	?	29·759	27·806	2nd	27·640	26th	·166	86·2	103·3	?	73·5	?	88·4	?	29·8	107·2	26th	65·4	29th	41·8
Berar	Akola	930	28·871	—·032	29·727	28·984	3rd	28·765	26th	·219	90·9	109·7	+ 4·2	79·3	+5·5	94·5	+4·9	30·4	112·6	27th	69·7	3rd	42·9
	Amraoti	1,216	28·566	—·048	29·701	28·675	4th	28·463	26th	·209	90·5	110·0	+ 4·4	81·5	+6·5	95·8	+5·5	28·5	112·9	27th	75·8	2nd	37·1
Central Provinces (West.)	Khandwa	1,044	28·761	—·036	29·715	28·877	2nd	28·650	26th	·227	87·2	107·6	+ 3·4	79·6	+5·6	93·6	+4·5	28·0	110·2	14th & 26th.	73·1	3 days	37·1
	Hoshangabad	1,020	28·773	—·054	29·737	28·910	3rd	28·676	26th	·234	88·2	108·0	+ 3·2	78·2	+5·3	93·1	+4·3	29·8	110·5	17th	71·7	2nd	38·8
	Nagpur	1,025	28·747	—·050	29·701	28·873	3rd	28·644	26th	·229	92·2	109·9	+ 4·1	80·4	+4·7	95·2	+4·4	29·5	114·9	27th	72·6	4th	42·3

* Mean of 29 days. † Mean of 21 days. ‡ Mean of 25 days. § Mean of 18 days.

II—*continued.*

in India, Burma, etc., in April 1892—continued.

Wind direction. Number of winds from: Calm.	N.	NE.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity: Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry 8 P.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 1892.	Normal rainfall for period 1st March to 30th April.	Variation from normal of period.	Station.	Meteorological Province or District.
11	4	3	7	2	1	...	1	1	2	2	0	39	·417	0·8	0	2·09	−2·09	0	0·94	−0·94	0·49	2·18	−1·69	Sialkot	Punjab (North).
7	3	2	...	...	1	...	...	17	4	3	+33	35	·315	1·7	0	3·27	−3·27	0	2·02	−2·02	0·73	3·97	−3·24	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·01	0·40	−0·40	...	...	...	**VII.—Indus Valley and North-West Rajputana.**	
10	1	3	4	1	3	2	3	3	5	4	+25	46	·467	2·6	0	3·36	−3·36	0·03	2·01	−1·98	1·08	3·85	−2·77	Peshawar	Punjab (West).
9	6	7	3	1	...	1	2	1	4	?	?	23	·279	2·2	0	1·30	−1·30	0·01	0·62	−0·61	0·08	1·16	−1·08	Khushab.	
4	2	4	2	4	6	4	2	2	7	?	?	41	·555	0·9	0	0·70	−0·70	0	0·11	−0·11	0·26	0·52	−0·26	Montgomery.	
17	1	5	2	...	...	...	...	5	1	2	−50	46	·501	0·9	0	1·64	−1·64	0·05	0·79	−0·74	0·05	1·37	−1·32	D. I. Khan.	
2	1	10	1	10	...	2	...	4	3	2	+50	36	·419	0·5	0	0·36	−0·36	0	0·04	−0·04	0	0·53	−0·53	Mooltan.	
1	4	1	2	1	1	6	10	4	7	4	+75	32	·389	1·7	0	0·64	−0·64	0	0·39	−0·39	0	0·75	−0·75	Sirsa.	
3	2	2	1	7	5	4	1	5	5*	4	+25	25	·332	1·7	0	0·27	−0·27	0	0·07	−0·07	0	0·18	−0·18	Jacobabad	Sind and Cutch.
...	...	...	...	...	...	30	...	...	10	10	0	44	·507	2·4	0	0	0	0	0	0	0	0·17	−0·17	Hyderabad.	
...	...	1	...	...	...	14	15	...	11	14	−21	78	·840	2·5	0	0·45	−0·45	0	0·44	−0·44	0·07	0·62	−0·55	Kurrachee.	
1	...	...	...	...	...	1	18	10	10	11	− 9	64	·761	0·8	0	?	?	0	0·14	−0·14	0	0·23	−0·23	Bhuj.	
1	1	2	...	1	5	18	...	2	7	5	+40	26	·340	0·5	0	...	...	0	0·22	−0·22	0	0·37	−0·37	Bickaneer	Rajputana (West).
11	...	...	2	...	5	10	1	1	9	5	+80	36	·442	1·5	0	?	?	0	0·01	−0·01	0	0·08	−0·08	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·05	−0·05	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
7	2	1	...	...	1	1	9	9	5	6	−17	29	·368	0·5	0	0·30	−0·30	0	0·10	−0·10	0	0·17	−0·17	Jeypore	Rajputana (East).
7	2	1	...	...	...	2	14	4	9	7	+29	23	·292	0·5	0	0·30	−0·30	0	0·07	−0·07	0	0·43	−0·43	Sambhar.	
4	2	1	1	...	...	6	11	5	9	5	+80	37	·480	0·6	0	0·18	−0·18	0	0·10	−0·10	0	0·11	−0·11	Ajmere.	
...	...	2	4	7	6	3	5	3	11	9	+22	37	·456	1·2	0	0	0	0	0	0	0	0·06	−0·06	Deesa.	
2	2	...	...	...	...	4	15	7	11	10	+10	76	·795	0·8	0	0·10	−0·10	0	0	0	0	0	0	Rajkot	Kathiawar.
2	10	...	...	1	1	1	9	6	9†	?	?	71	·763	2·2	0	...	...	0	?	?	0	?	?	Veraval.	
...	2	1	...	1	2	14	7	3	13	?	?	72	·882	1·9	0	?	?	0	?	?	0	?	?	Bhavnagar.	
5	2	...	...	...	1	3	16	3	3	3	0	41	·499	0·6	0	0	0	0	0	0	0	0·17	−0·17	Nowgong	Central India.
1	9	1	...	...	...	...	6	13	5	4	+25	28	·356	0·9	0	0	0	0	0	0	0	0	0	Indore.	
...	...	1	...	...	...	5	8	16	11	10	+10	22	·290	0·3	0	0·09	−0·09	0	0·14	−0·14	0	0·15	−0·15	Neemuch.	
...	1	...	...	1	1	21	3	3	...	?	?	79	·890	1·9	0	0	0	0	0	0	0	0	0	Surat	Guzerat.
2	...	...	...	1	...	15	...	12	5	5	0	39	·488	0·1	0	0·55	−0·55	0	0·11	−0·11	0	0·35	−0·35	Agra	N.-W. P. (West).
6	4	...	...	...	2	6	3	9	4	4	0	21	·310	0·3	0	0·55	−0·55	0	0·07	−0·07	0	0·40	−0·40	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·60	0·41	+0·21	...	...	...	**IX.—Deccan.**	
6	1	...	1	1	1	8	7	5	?	13	?	75	·667	3·3	8	3·36	+4·64	6·60	1·33	+5·27	6·60	1·81	+4·79	Belgaum	Bombay (Deccan).
1	3	2	3	2	2	2	3	12	10	8	+25	43	·544	3·3	4	1·20	+2·80	2·41	0·41	+2·00	2·41	0·53	+1·88	Sholapur.	
3	...	...	...	...	...	...	16	11	11	10	+10	46	·484	1·9	1	1·09	−0·09	0·14	0·45	−0·31	0·14	0·52	−0·38	Poona.	
1	...	2	1	1	1	8	11	5	7	...	...	60	·699	3·8	2	1·80	+0·20	0·36	0·76	−0·40	0·59	0·84	−0·25	Bijapur.	
2	1	1	1	...	...	3	9	13	9	8	+13	59	·790	2·3	0	0·18	−0·18	0	0·07	−0·07	0	0·07	−0·07	Malegaon	Khandeish.
2	8	4	...	2	1	1	1	11	8‡	?	?	66	·790	1·2	1	...	...	0·30	0·18	+0·12	0·30	0·22	+0·08	Ahmednagar.	
5	2	1	...	...	...	1	3	18	7	5	+40	23	·330	1·7	0	0·36	−0·36	0	0	0	0	0·42	−0·42	Akola	Berar.
...	2	6	2	1	2	6	10	1	5	4	+25	22	·323	1·5	0	0·45	−0·45	0	0·02	−0·02	0	0·25	−0·25	Amraoti.	
1	1	1	...	...	1	...	12	14	6	6	0	29	·365	1·3	0	0·18	−0·18	0	0·06	−0·06	0	0·30	−0·30	Khandwa	Central Provinces (West).
6	...	3	3	2	5	6	5	...	5	3	+67	33	·441	0·5	0	0·09	−0·09	0	0	0	0	0·14	−0·14	Hoshangabad	
1	5	2	1	3	6	5	2	5	8	5	+60	25	·381	1·4	0	0·82	−0·82	0·02	0·32	−0·30	0·02	0·81	−0·79	Nagpur.	

* Mean of 23 days. † Mean of 29 days. ‡ Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 174 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.
Central Provinces (Central).	Seoni	2,030	27·784	−·039	29·730	27·906	3rd	27·689	22nd	·217	89·2	104·5	+3·1	74·0	+2·4	89·2	+2·8	30·5	108·2	27th	68·1	3rd	40·1
	Jubbulpore	1,327	28·452	−·040	29·714	28·594	3rd	28·345	22nd	·249	85·9	105·9	+4·2	72·3	+1·7	89·1	+3·0	33·6	108·5	28th	65·2	3rd	43·3
	Saugor	1,762	28·034	−·042	29·712	28·160	2nd	27·930	26th	·230	86·7	106·2	+4·8	75·1	+2·8	90·7	+3·8	31·1	108·4	28th	68·7	3rd	39·7
Central Provinces (East).	Raipur	960	28·797	−·048	29·695	28·928	4th	28·703	22nd	·225	90·6	108·4	+4·2	81·8	+5·1	95·1	+4·7	26·6	113·7	29th	76·6	3rd	37·1
	Sutna	1,040	28·697	−·062	29·678	28·836	2nd	28·596	19th	·24(	88·5	105·1	+3·6	73·1	+2·2	89·1	+2·9	32·0	107·7	18th & 25th.	67·6	3rd	40·1
Hyderabad (North).	Aurangabad	?	28·002	?	?	28·111	2nd	27·904	26th	·207	89·2	106·1	?	76·4	?	91·3	?	29·7	108·2	7th	70·2	4th	38·0
	Indur	?	?	?	?	?	?	?	?	?	88·1	106·0	?	†80·0	?	†93·1	?	26·0	108·6	27th	74·6	4th	34·0
	Beeder	?	27·681	?	?	27·828	2nd	27·611	25th	·217	87·0	102·2	?	77·8	?	90·0	?	24·4	105·4	24th	67·1	30th	38·3
Hyderabad (South).	Gulburga	?	28·330	?	?	28·518	3rd	28·259	22nd	·259	86·9	105·4	?	78·0	?	91·7	?	27·4	109·3	24th	62·6	15th	46·7
	Raichur	?	28·452	?	?	28·552	3rd	28·365	23rd	·187	85·0	104·6	?	80·9	?	92·8	?	23·7	109·5	23rd	74·9	30th	34·6
	Secunderabad	1,787	28·059	−·046	29·759	28·161	2nd	27·960	22nd	·201	84·8	104·8	+2·7	77·9	+3·0	91·4	+2·9	26·9	108·3	3 days	72·9	27th	35·4
	Hyderabad (Deccan.)	1,690	28·152	?	29·758	28·260	2nd	28·052	22nd	·208	85·2	104·1	?	78·6	?	91·4	?	25·5	108·4	23rd	75·2	7th	33·2
	Kamamet	?	29·454	?	?	29·572	2nd	29·350	22nd	·222	85·1	103·7	?	†80·5	?	†92·1	?	23·2	112·7	30th	†77·3	13th	35·4
V.—West Coast.		...	...	**−·042**	...	...	...	...	...	...	...	**90·3**	**+0·8**	**79·2**	**+1·4**	**84·8**	**+1·1**	**11·1**	...	...	...	...	**18·5**
Konkan	Bombay	37	29·830	−·039	29·806	29·941	4th	29·685	25th	·256	84·5	89·9	+1·8	81·1	+4·0	85·5	+2·9	8·8	92·9	7th	76·5	1st	16·4
	Ratnagiri	110	29·728	−·048	29·775	29·857	4th	29·562	25th	·295	86·7	91·8	+2·0	81·0	+4·4	86·4	+3·2	10·8	94·9	25th & 26th.	75·9	1st	19·0
	Mormugoa	60	29·810	?	29·805	29·932	4th	29·671	25th	·261	85·5	91·8	?	82·0	?	86·9	?	9·8	96·0	26th	79·4	1st	16·6
	Karwar	44	29·816	−·049	29·791	29·929	2nd & 4th	29·673	25th	·256	83·9	91·0	+1·3	79·4	+1·7	85·2	+1·5	11·6	93·8	25th	74·2	19th	19·6
Malabar	Mangalore	26	29·856	−·030	29·813	29·968	4th	29·743	25th	·225	82·5	90·9	+0·2	78·8	0	84·9	+0·1	12·1	93·3	9th	71·9	20th	21·4
	Calicut	27	29·844	−·050	29·800	29·954	4th	29·717	24th	·237	83·0	90·5	?	77·4	?	84·0	?	13·1	91·8	4 days	73·0	23rd	18·8
	Cochin	11	29·872	−·033	29·810	29·977	4th	29·750	24th	·227	82·7	90·0	−1·1	75·3	−3·1	82·7	−2·1	14·7	92·9	8th	70·7	28th	22·1
	Trivandrum	?	29·677	?	29·806	29·777	3rd	29·572	24th	·205	81·6	86·1	?	78·6	?	82·4	?	7·5	89·0	11th	75·0	25th	14·0
XI.—South India.		...	...	**−·039**	...	...	...	...	...	...	...	**96·8**	**+0·8**	**77·8**	**+1·6**	**87·3**	**+1·2**	**19·1**	...	...	...	...	**30·2**
Madras (South)	Pamban	37	29·821	?	29·784	29·935	4th	29·714	22nd	·221	84·7	90·3	?	80·2	?	85·3	?	10·1	94·3	22nd	72·2	25th	22·1
	Tinnevelly	168	29·691	?	29·787	29·788	3rd	29·582	21st	·206	83·2	97·9	?	79·2	?	88·6	?	18·7	103·9	1st & 11th.	72·9	24th	31·0
	Madura	447	29·408	−·043	29·787	29·520	4th	29·298	23rd	·222	85·1	99·0	−1·5	78·1	+2·0	88·6	+0·3	20·9	104·0	9th	67·1	30th	36·9
Madras (South Central).	Salem	940	28·946	−·040	29·816	29·051	4th	28·853	23rd	·198	83·6	102·1	+1·1	77·7	+2·2	89·9	+1·7	24·4	107·0	23rd	73·5	29th	33·5
	Coimbatore	1,348	28·509	−·052	29·794	28·619	4th	28·409	22nd	·210	79·3	97·2	−0·9	73·5	−0·4	85·4	−0·7	23·7	100·8	4 days	68·6	23rd & 30th.	32·2
Coorg	Mercara	3,781	26·206	?	29·812	26·308	4th	26·104	25th	·204	70·6	83·4	−1·3	65·4	+1·0	74·4	−0·2	18·0	90·2	6th	62·2	28th	28·0
Mysore	Bangalore	2,985	26·969	−·023	29·830	27·068	4th	26·898	23rd	·170	75·9	93·4	+0·2	69·8	+0·6	81·6	+0·4	23·6	98·2	1st & 4th.	67·0	9th	31·2
	Bangalore Fort*	3,015	26·921	−·039	29·817	27·025	4th	26·848	25th	·177	76·0	94·3	?	70·0	?	82·2		24·3	99·1	4th.	67·0	9th	32·1
Madras (East Coast, South).	Negapatam	31	29·826	−0·42	29·786	29·940	4th	29·716	21st	·224	85·6	97·8	+5·4	80·1	+1·3	89·0	+3·4	17·7	106·2	8th.	75·7	17th	30·5
	Cuddalore	12	29·837	?	29·778	29·964	4th	29·746	21st	·218	85·2	*93·7	?	78·7	?	*86·2	?	15·0	102·8	30th	72·7	13th	30·1
	Trichinopoly	255	29·604	−·045	29·790	29·723	4th	29·497	21st	·226	85·0	102·2	+1·2	79·4	+2·2	90·8	+1·7	22·8	108·7	22nd	75·4	6th	33·3
	Madras	22	29·830	−·049	29·783	29·950	4th	29·726	22nd	·224	85·8	93·5	+0·6	78·5	+1·3	86·0	+1·0	15·0	104·0	30th	73·5	2nd	30·5
Madras (East Coast, Central).	Nellore	71	29·747	?	29·751	29·863	2nd	29·649	22nd	·214	87·1	103·5	?	79·8	?	91·7	?	23·7	111·8	28th	75·6	14th	36·2
	Masulipatam	15	29·823	−·054	29·772	29·951	4th	29·730	22nd & 26th	·221	86·3	96·9	+2·1	79·7	+2·6	88·3	+2·4	17·2	111·7	28th	76·1	3 days	35·6
Madras (Central)	Cuddapah	433	29·404	?	29·769	29·500	4th	29·320	22nd	·180	89·8	106·9	?	82·8	?	94·9	?	24·1	109·3	6th	78·4	14th	30·9
	Kurnool	923	28·908	?	29·757	29·026	3rd	28·827	22nd	·199	87·5	104·8	?	81·0	?	92·9	?	23·8	108·1	29th	75·0	30th	33·1
	Bellary	1,475	28·372	−·013	29·769	28·466	3rd & 4th.	28·293	23rd	·173	85·6	104·8	+0·8	78·4	+1·4	91·6	+1·1	26·4	107·0	3 days	73·9	29th	33·1
Madras (East Coast, North).	Rajahmundry	112	29·726	?	29·774	29·836	2nd.	29·638	26th	·198	85·7	101·2	?	80·2	?	90·7	?	21·0	112·1	28th	74·1	28th	38·0
	Cocanada	26	29·820	?	29·781	29·942	4th	29·725	26th	·217	85·2	97·3	?	79·1	?	88·2	?	18·2	107·3	28th	75·6	2nd	31·7

† Mean of 29 days.

I.

in India, Burma, etc., in April 1892 —continued.

Wind direction. Number of winds from: Calm.	N.	NE.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity: Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8 A.M.: Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st March to 30th April 1892.	Normal rainfall for period 1st March to 30th April.	Variation from normal of period.	Station.	Meteorological Province or District.
...	5	4	1	1	4	7	1	7	4	4	0	25	·350	0·3	2	0·45	+1·55	0·32	0·21	+0·11	0·32	0·74	—0·42	Seoni.	Central Provinces (Central).
12	1	...	...	...	8	2	7	...	2	3	−33	31	·391	0·2	1	0·27	+0·73	0·15	0·13	+0·02	0·15	0·45	—0·30	Jubbulpore.	
6	1	2	1	4	1	8	6	1	4	4	0	22	·282	0·4	0	0·09	—0·09	0	0	0	0	0·14	—0·14	Saugor.	
...	1	3	2	1	...	13	6	4	8	6	+33	30	·429	1·0	0	1·00	−1·00	0·10	0·48	—0·38	0·24	1·08	−0·84	Raipur .	Central Provinces (East).
1	12	...	...	...	...	...	12	5	8	7	+14	23	·312	0·2	0	0·27	−0·27	0	0·95	—0·95	0	1·20	—1·20	Sutna.	
2	7	4	...	1	1	5	2	8	6	?	?	28*	·382*	1·2	0	?	?	0	0·18	−0·18	0	0·24	−0·24	Aurangabad.	Hyderabad (North).
1	2	...	2	8	7	3	2	5	9	?	?	48	·644	1·4	0	?	?	0	0·31	—0·31	0	0·58	—0·58	Indur.	
...	3	2	1	...	6	9	5	4	7	?	?	56	·713	0·6	4	?	?	0·81	0·83	—0·02	0·81	1·17	—0·36	Beeder.	
7	3	1	...	4	3	4	3	4	11	?	?	62	·778	2·7	3	?	?	2·31	0·71	+1·60	2·31	0·92	+1·39	Gulburga .	Hyderabad (South).
...	...	...	...	4	6	10	6	4	10	?	?	52	·622	5·3	1	?	?	0·50	0·69	—0·19	0·50	0·91	—0·41	Raichur.	
3	1	2	6	2	3	3	5	5	8	5	+60	53	·638	2·8	0	1·55	—1·55	0·06	0·79	—0·73	0·06	1·16	—1·10	Secunderabad.	
7	...	1	4	5	2	2	8	1	6	?	?	56	·674	2·3	1	...	...	0·18	0·61	—0·43	0·18	0·87	—0·69	Hyderabad (Deccan).	
6	1	...	...	11	12	...	...	...	16	?	?	70	·841	2·5	0	?	?	0·03	?	?	0·03	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·85	1·21	+1·94	...	...	...	**X.—West Coast.**	
...	4	3	1	5	8	5	3	1	10	11	− 9	75	·899	2·7	0	0	0	0	0	0	0	0	0	Bombay .	Konkan.
2	5	...	...	5	9	4	3	2	8	11	−27	67	·840	2·1	0	0·09	—0·09	0·02	0·05	—0·03	0·02	0·05	—0·03	Ratnagiri.	
2	4	1	3	5	2	6	4	3	9	?	?	74	·916	4·6	0	...	...	0·06	?	?	0·06	?	?	Mormugoa.	
...	4	7	2	1	...	8	6	2	4	?	?	74	·861	4·6	2	0·36	+1·64	0·43	0·28	+0·15	0·43	0·28	+0·15	Karwar.	
8	8	3	6	1	1	1	1	1	3	4	−25	81	·901	6·3	8	1·00	+7·00	5·36	0·61	+4·75	5·36	0·61	+4·75	Mangalore .	Malabar.
2	10	7	4	3	...	...	1	3	15	?	?	79	·882	6·0	10	3·13	+6·87	3·63	2·81	+0·82	4·93	3·30	+1·63	Calicut.	
...	4	17	2	2	2	...	1	2	7	?	?	80	·901	4·4	11	5·55	+5·45	9·43	3·48	+5·95	13·56	5·30	+8·26	Cochin.	
...	13	3	3	1	1	1	1	7	8	?	?	82	·884	4·7	7	...	...	11·90	?	?	13·07	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·22	0·93	+0·27	...	...	...	**XI.—South India.**	
1	...	1	5	6	11	3	1	2	7	?	?	77	·917	3·2	4	1·30	+·270	2·17	4·13	—1·96	2·17	4·92	—2·75	Pamban .	Madras (South).
...	5	3	3	1	1	2	4	11	6	?	?	72	·827	4·9	7	3·40	+3·60	5·93	1·92	+4·01	5·93	3·57	+2·36	Tinnevalley.	
2	4	1	2	7	2	1	...	11	3	4	—25	66	·802	2·6	5	1·82	+3·18	3·20	1·01	+2·19	3·20	1·20	+2·00	Madura.	
3	1	9	2	...	6	7	1	1	5	5	0	71	·825	2·8	4	2·27	+1·73	1·41	1·44	—0·03	1·41	2·40	—0·99	Salem . .	Madras (South Central).
...	11	..	1	1	9	7	1	...	6	3	+100	84	·850	4·5	6	2·18	+3·82	2·43	1·41	+1·02	2·43	2·02	+0·41	Coimbatore.	
...	17	...	1	...	1	...	6	5	5	3	+66	83	·620	3·3	6	4·70	+1·30	2·66	2·19	+0·47	3·36	3·15	+0·21	Mercara .	Coorg.
...	...	2	3	3	4	8	10	...	4	4	0	78	·706	5·2	7	1·18	+5·82	1·46	0·78	+0·68	1·64	1·30	+0·34	Bangalore .	Mysore.
3	...	...	2	3	3	8	8	2	7	?	?	73	·651	3·3	7	?	?	1·74	?	?	?	?	?	Bangalore Fort.*	
7	1	...	2	2	11	5	2	...	9	5	+80	76	·928	4·0	3	0·55	+2·45	1·16	0·34	+0·82	1·16	0·77	+0·39	Negapatam .	Madras (East Coast, South).
...	2	...	1	5	8	7	3	4	3	?	?	81	·985	2·9	1	0·60	+0·40	0·31	0·88	—0·57	0·31	1·19	—0·88	Cuddalore.	
1	...	3	4	5	4	3	7	3	5	4	+25	64	·771	3·8	2	1·27	+0·73	0·67	1·40	—0·73	0·67	1·97	—1·30	Trichinopoly.	
1	...	...	1	8	14	6	...	...	8	8	0	73	·912	4·0	2	0·27	+1·73	0·69	0·21	+0·48	0·69	0·42	+0·27	Madras.	
1	...	...	2	20	3	...	...	4	9	?	?	73	·929	5·9	0	0·30	−0·30	0	0·11	—0·11	0	0·37	—0·37	Nellore .	Madras (East Coast, Central).
...	...	...	...	7	19	2	1	1	5	9	—44	83	1·042	5·7	1	0·27	+0·73	0·28	0·08	+0·20	0·28	0·16	+0·12	Masulipatam	
...	...	...	2	10	4	12	2	...	...	?	?	50	·701	3·0	0	0·70	−0·70	0·11	0·39	—0·28	0·11	0·53	—0·42	Cuddapah .	Madras (Central).
24	...	...	...	...	...	2	4	...	...	?	?	55	·715	1·3	1	1·33	−0·33	0·21	0·60	—0·39	0·21	0·94	—0·73	Kurnool.	
19	...	...	...	...	2	1	2	6	6	5	+20	54	·664	3·3	2	1·27	+0·73	0·45	0·44	+0·01	0·45	0·65	—0·20	Bellary.	
3	2	...	...	2	15	1	7	...	?	?	?	73	·912	6·3	1	0·70	+0·30	0·55	0·31	+0·24	0·65	0·56	+0·09	Rajahmundry	Madras (East Coast, North).
4	...	...	2	4	1	17	1	1	6*	?	?	75	·920	3·2	0	0·50	−0·50	0	0·24	—0·24	0	0·47	—0·47	Cocanada.	

* Mean of 29 days. Gulbarga 29 days wind observations.

Table

Abstract of Observations taken at 8 A.M. at 174 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.
	Vizagapatam	31	29·809	−·036	29·777	29·917	2nd	29·709	26th	·208	86·1	89·3	+0·6	83·0	+2·0	86·2	+1·3	6·3	92·4	29th	81·4	2nd	11·0
	Gopalpur	21	29·777	−·035	29·738	29·912	4th	29·637	26th	·275	81·8	88·0	?	78·3	?	83·2	?	9·7	89·2	5 days	73·8	18th	15·4
XII.—Hill Stations.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Quetta	5,502	24·635	+·028	...	24·727	9th	24·489	22nd	·238	65·2	80·9	+7·7	47·7	+1·6	64·3	+4·7	33·2	88·1	19th	39·9	30th	48·2
	Quetta	?	?	?	?	?	?	?	?	?	?	82·2	?	39·2	?	?	?	43·0	92·4	17th	30·0	30th	62·0
Northern India	Sheho§	?	...	...	...	...	...	...	...	...	67·3	83·5	?	?	?	?	?	?	9·12	13th	?	?	?
	Srinagar	5,204	24·878	?	...	25·031	3rd	24·675	27th	·356	56·9	75·6	?	47·1	?	61·4	?	28·5	84·8	19th & 20th.	39·6	1st & 10th.	45·2
	Murree	6,344	23·816	−·007	...	23·972	3rd	23·671	27th	·301	67·5	76·4	+8·4	61·2	+9·4	68·8	+8·9	15·2	84·7	19th & 20th.	47·8	7th	36·9
	Simla	7,274	23·074	+·011	...	23·237	3rd	22·950	26th	·287	64·8	74·3	?	60·3	+8·1	67·3	?	14·0	79·7	28th	51·0	24th	28·7
	Mussoorie	?	23·582	?	...	23·695	5th	23·418	22nd	·277	66·1	78·9	?	57·1	?	68·0	?	21·8	86·3	26th & 27th.	47·0	29th	39·3
	Ranikhet	6,069	24·071	−·006	...	24·186	5th	23·904	26th	·282	68·0	80·1	+6·0	62·3	+5·4	71·2	+5·7	17·8	86·1	27th	51·0	29th	35·1
	Gnatong	?	19·281	?	...	19·350	8th	19·132	26th	·218	55·2†	68·6	?	30·3	?	49·4	?	38·3	89·8	30th	27·1	4th & 7th.	62·7
	Darjeeling	7,421	22·953	−·018	...	23·093	5th	22·787	22nd	·306	55·6	60·2	−1·2	50·9	+4·0	55·6	+1·4	9·3	67·1	25th	46·8	18th	20·3
Central India	Mount Abu	3,945	*26·077	+·026	...	26·161	2nd	26·017	13th	·144	79·3	89·0	+3·5	72·7	+4·8	80·9	+4·2	16·3	93·2	27th	64·8	29th & 30th.	28·4
	Pachmarhi	3,511	26·439	−·014	...	26·552	3rd	26·344	26th	·208	85·4	96·3	+4·1	73·2	+4·1	84·8	+4·1	23·1	98·7	3 days	64·2	3rd	34·5
South India	Wellington	6,200	24·266	+·004	...	24·351	4th	24·195	25th	·156	68·4	75·9	0	56·7	+0·6	66·3	+0·3	19·2	80·2	4th	51·2	15th	29·0
	Khodai Kanal	?	...	...	...	...	...	...	...	...	63·1	67·8	?	55·5	?	61·6	?	12·3	76·0	25th	49·6	26th	26·4
	Kotagiri	?	23·844	?	...	23·935	4th	23·749	25th	·186	65·8	75·8	?	56·9	?	66·4	?	18·9	80·4	10th	47·5	25th	32·9
XIII.—Extra India.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Meshed	?	...	?	...	...	...	...	...	...	56·0	71·7	?	50·8	?	61·3	?	20·9	84·0	24th	43·0	8th	41·0
	Bushire	14	29·859	?	29·830	30·007	1st	29·699	16th	·308	75·0	82·0	?	68·2	?	75·1	?	13·8	93·5	11th	57·2	3rd	36·3
Arabia	Aden†	94	29·802	?	29·828	29·883	1st	29·676	17th	·207	82·2	91·8	?	77·5	?	84·6	?	14·3	100·9	30th	73·4	12th	27·5
	Perim	?	29·659	?	?	29·737	3rd	29·564	16th	·173	83·1	89·8	?	80·0‡	?	84·9‡	?	9·8	95·6	30th	77·2	13th	18·4
Arabian Sea Islands.	Minicoy	10	29·900	?	29·835	30·010	4th	29·788	25th	·222	82·3	87·9	?	?	?	?	?	?	91·2	10th	?	?	?
Africa	Zanzibar	73	29·924	?	29·924	29·998	29th	29·875	9th	·123	79·7	84·6	?	77·8	?	81·2	?	6·8	87·7	3rd	73·9	21st	13·8

* Mean of 17 days, † Mean of 29 days, ‡ Mean of 28 days, § Mean of 27 days.

I—*concluded.*

in India, Burma, etc., in April 1892—concluded.

Wind direction. Number of winds from: Calm.	N.	NE.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st March to 30th April 1892.	Normal rainfall for period 1st March to 30th April.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	5	10	15	...	3	4	−25	74	·920	5·2	0	0·36	−0·36	0	0·05	−0·05	0	0·45	−0·45	Vizagapatam.	
...	...	...	...	...	19	11	...	...	25	15	+67	86	·933‡	0·3	1	0·78	+0·22	0·15	0·60	−0·45	0·15	1·27	−1·12	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XII.—Hill Stations.**	
29	...	...	...	...	...	...	1	...	2	4	−50	42	·266	1·0	0	3·55	−3·55	0·07	1·20	−1·13	0·85	3·15	−2·30	Quetta.	Baluchistan.
...	...	...	...	...	...	10	...	20	?	?	?	?	?	?	?	?	?	0·18	?	?	0·54	?	?	Quetta.	
...	2	5	1	...	2	14	3	...	8*	?	?	82	·552	1·5	0	?	?	0·05	?	?	1·12	?	?	Shebo.§	Northern India.
9	2	2	1	6	5	...	1	4	4	§	?	71	·335	4·6	1	...	...	0·47	?	?	2·60	?	?	Srinagar.	
8	2	...	2	10	...	...	...	8	8	9	−11	24	·161	3·4	0	6·64	−6·64	0·13	3·79	−3·66	3·10	7·40	−4·30	Murree.	
2	17	3	...	...	8	...	...	...	...	3	?	25	·155	1·9	1	4·09	−3·09	0·22	2·05	−1·83	0·31	4·80	−4·49	Simla.	
4	1	1	8	2	1	2	6	5	...	?	?	38	·217	1·4	3	...	...	0·46	1·59	?	0·46	4·35	−3·89	Mussoorie.	
23	...	...	...	...	1	6	...	...	4	3	+33	45	·305	1·2	2	2·55	−0·55	0·71	1·32	−0·61	0·71	3·78	−3·07	Ranikhet.	
...	...	...	...	...	...	...	...	...	...	...	...	79†	·352†	?	23	?	?	15·38	?	?	15·38?	?	?	Gnatong.	
1	...	3	3	3	2	12	6	...	9	8	−13	87	·387	6·0	15	6·86	+8·14	8·55	4·73	+3·82	9·48	6·58	+2·90	Darjeeling.	
...	6	2	...	...	...	2	11	9	8	8	0	31	·285	0·9	0	0·09	−0·09	0	0	0	0	0·06	−0·06	Mount Abu.	Central India.
4	2	1	3	2	1	...	10	7	...	5	?	16	·189	0·5	0	0·45	−0·45	0	0·08	−0·08	0	0·39	−0·39	Pachmarhi.	
24	...	5	...	...	...	1	...	...	3	3	0	62	·431	2·5	10	4·50	+5·50	5·81	2·03	+3·78	5·85	4·24	+1·61	Wellington.	South India.
3	3	5	1	8	2	1	...	7	7	?	?	60	·335	2·7	9	5·80	+3·20	8·84	6·14	+2·70	9·22	9·16	+0·06	Khodai Kanal.	
5	6	1	2	6	4	2	...	4	6	?	?	67	·421	4·0	13	4·80	+8·20	7·99	3·36	+4·63	8·08	4·99	+3·09	Kotagiri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XIII.—Extra India.**	
2	2	2	7	8	3	1	...	5	1	?	?	...	...	4·4	3	?	?	0·99	?	?	?	?	?	Meshed.	Persia.
...	7	7	1	2	1	3	...	9	10	?	?	56	·486	...	0	?	?	0·02	0·68	−0·66	0·02	1·40	−1·38	Bushire.	
8	1	5	12	2	...	...	...	1	17‡	15	+13	73	·802	2·0	0	?	?	0	0·43	−0·43	0	1·00	−1·00	Aden.†	Arabia.
2	...	3	7	13	1	...	...	4	19	?	?	77	·872	3·5	0	?	?	0	?	?	0	?	?	Perim.	
...	1	1	...	...	3	5	14	6	10	?	?	79	·866	5·8	10	?	?	7·79	?	?	8·54	?	?	Minicoy.	Arabian Sea Islands.
2	...	...	1	2	16	7	1	...	10	7	+43	85	·863	5·9	10	?	?	7·07	?	?	13·81	?	?	Zanzibar.	Africa.

* Mean of 24 days. † Mean of 29 days. ‡ Mean of last 28 days. § Mean of 27 days.

Shebo wind observations 27 days.
Zanziber wind observations 29 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 stations

Meteorological Province.	Station.	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	29·835	29·726	·109	29·774	−·027	29·766	91·7	79·4	12·3	93·8	77·9	15·9	87·7	88·8	84·0	+ 0·3	76·2	80·8	81·0	79·3
	Mergui	·810	·685	·125	·740	−·028	·767	88·9	68·7	20·2	93·6	66·4	27·2	83·2	85·3	77·9	− 3·9	67·2	77·6	78·7	74·5
	Rangoon	·845	·686	·159	·770	−·033	·748	97·6	77·3	20·3	102·4	74·3	28·1	87·2	90·8	84·7	+ 0·2	73·9	77·4	78·1	76·5
	Diamond Island	·871	·750	·121	·803	−·023	·779	90·7	75·7	15·0	93·4	72·4	21·0	86·9	87·0	81·5	− 0·6	72·9	78·2	78·1	76·4
	Cocos' Island															Not received					
	Akyab	·874	.747	·127	·808	−·025	·771	92·2	74·8	17·4	94·8	68·2	26·6	88·7	87·9	82·6	− 0·1	72·3	79·7	79·3	77·1
Assam.	Silchar	·757	·622	·135	·691	−·032	·747	85·3	69·7	15·6	93·7	57·6	36·1	78·8	83·6	76·9	− 0·8	68·1	73·7	75·1	72·3
	Sibsagar	·499	·354	·145	·424	−·075	·715	84·6	68·7	15·9	93·6	64·7	28·9	76·9	83·4	75·8	+ 2·8	67·9	73·4	76·0	72·4
	Dhubri	·711	·551	·160	·625	−·034	·694	86·5	72·4	14·1	94·8	67·4	27·4	79·8	85·6	78·4	+ 0·1	70·5	74·5	75·7	73·6
Bengal and Orissa.	Chittagong	·781	·671	·110	·720	−·028	·754	89·7	74·0	15·7	93·1	67·9	25·2	86·2	84·9	80·9	+ 0·4	72·4	79·3	78·4	76·7
	Dacca	·801	·657	·144	·728	−·034	·698	93·3	75·5	17·8	98·4	68·4	30·0	85·0	89·0	83·0	+ 0·7	72·0	77·6	79·0	76·2
	Calcutta (Alipore)	·768	·635	·133	·700	−·051	·666	94·3	77·3	17·0	102·7	71·2	31·5	88·4	91·3	85·1	+ 0·4	73·8	78·7	78·1	76·9
	Do. (Chowringhee)	·772	?	?	?	?	?	96·2	77·5	18·7	105·0	71·8	33·2	90·2	?	86·8	?	75·1	81·3	?	?
	Saugor Island	·780	·649	·131	·709	−·048	·678	90·7	81·5	9·2	92·6	78·1	14·5	87·4	87·3	84·5	+ 1·1	77·2	81·1	81·4	79·9
	Burdwan	·681	·524	·157	·601	−·051	·645	101·3	79·0	22·3	108·7	74·4	34·3	89·2	98·2	88·5	+ 1·3	73·4	77·3	76·7	75·7
	Berhampore	·707	·549	·158	·626	−·052	·641	98·7	77·3	21·4	108·7	69·2	39·5	87·4	96·6	86·6	+ 0·4	71·6	78·2	76·7	75·5
	False Point	·808	·680	·128	·742	−·041	·705	89·0	79·5	9·5	90·5	72·7	17·8	86·9	85·8	82·6	+ 0·6	77·8	80·7	80·5	79·7
	Cuttack	·711	·566	·145	·643	−·054	·665	102·2	80·5	21·7	112·4	78·4	34·0	93·7	97·6	88·5	+ 2·1	76·6	79·8	80·6	79·0
Ganges Plain and Chota Nagpur.	Hazaribagh	27·765	27·666	·099	27·717	−·057	·617	102·2	75·0	27·2	107·1	67·8	39·3	93·2	99·1	88·3	+ 4·4	62·4	68·6	67·5	66·2
	Patna	29·561	29·410	·151	29·484	−·072	·616	101·0	76·4	24·6	109·2	70·6	38·6	93·6	100·9	88·5	+ 1·9	68·6	75·6	75·6	73·3
	Darbhanga	·617	·464	·153	·539	−·033	·656	96·1	72·1	24·0	104·5	63·2	41·3	88·2	95·4	83·7	− 0·7	70·0	75·6	75·3	73·7
	Allahabad	·425	·287	·138	·351	−·075	·607	107·3	76·1	31·2	112·1	68·8	43·3	96·7	105·7	91·8	+ 4·2	63·3	70·5	69·8	67·9
	Ghazipur	·519	·382	·137	·447	−·091	·617	105·2	78·3	26·9	111·2	70·2	41·0	95·8	102·0	91·5	+ 4·6	69·5	75·4	75·1	73·4
	Lucknow	·364	·230	·134	·295	−·073	·615	105·7	73·6	32·1	112·3	63·9	48·4	93·5	108·9	90·5	+ 3·1	63·5	72·5	71·2	69·1
Upper Sub-Himalayas.	Dehra Dun	27·540	27·437	·103	27·477	−·055	·620	98·5	69·9	28·6	105·2	60·6	44·6	88·6	94·6	83·8	+ 6·9	55·7	63·9	65·2	61·6
	Roorkee	28·832	28·705	·127	28·759	−·090	·595	103·7	70·9	32·8	108·4	59·3	49·1	92·5	102·1	87·5	+ 6·3	59·4	68·8	69·0	65·7
	Meerut	·995	·867	·128	·924	−·071	·613	103·5	71·4	32·1	108·2	61·0	47·2	94·0	101·6	87·5	+ 5·3	61·2	67·8	69·0	66·0
	Lahore	·994	·889	·105	·937	−·108	·596	106·0	68·9	37·1	111·8	58·0	53·8	97·2	104·2	87·0	+ 7·9	56·8	67·2	68·7	64·2
	Ludhiana	·875	·763	·112	·814	−·113	·579	106·5	71·9	34·6	111·8	59·6	52·2	96·1	103·2	88·9	+ 8·6	62·1	70·7	74·0	68·9
Indus Valley and N.-W. Rajputana.	Peshawar	·656	·548	·108	·597	−·093	·680	97·7	66·6	31·1	105·2	58·0	47·2	89·2	95·2	81·9	+ 9·7	56·1	67·7	70·3	64·7
	Mooltan	29·286	29·179	·107	29·228	−·106	·605	107·3	74·1	33·2	112·3	67·2	45·1	91·0	106·0	90·8	+ 9·6	61·3	71·9	79·8	71·0
	Jacobabad	·552	·419	·133	·481	−·073	·623	110·0	73·0	37·0	116·3	67·0	49·3	100·4	107·8	91·3	+ 6·4	57·0	69·1	70·7	65·3
	Hyderabad (Sind)	·657	·535	·122	·595	−·065	·662	107·5	76·3	31·2	113·0	71·5	41·5	95·4	103·3	90·1	+ 4·9	66·2	70·6	72·6	69·8
	Kurrachi	·762	·659	·103	·709	−·071	·711	92·8	76·0	16·8	99·8	70·9	28·9	85·9	87·3	82·2	+ 3·1	72·4	77·2	78·7	76·1
East Rajputana, Central India and Guzerat.	Jeypore	28·364	28·243	·121	28·299	−·050	·656	106·6	74·0	32·6	111·2	67·8	43·4	97·4	104·2	90·3	+ 5·7	57·0	68·4	70·0	65·1
	Ajmere	·202	·088	·114	·138	−·048	·666	104·6	78·0	26·6	108·5	68·9	39·6	95·7	102·7	92·0	+ 8·3	68·6	72·9	77·3	72·9
	Deesa	29·357	29·226	·131	29·286	−·042	·696	110·0	76·5	33·5	114·7	72·8	41·9	97·8	107·8	93·5	+ 6·2	63·8	69·8	71·1	68·2
	Nowgong	28·998	28·873	·125	28·931	−·064	·625	106·7	74·1	32·6	109·1	67·4	41·7	98·1	104·8	90·3	+ 3·0	61·5	74·1	76·7	70·8
	Agra	29·198	29·076	·122	29·128	−·064	·628	108·4	78·3	30·1	112·5	70·2	42·3	98·4	106·8	93·2	+ 6·8	64·1	75·6	78·8	72·8
Deccan.	Belgaum	27·353	27·229	·124	27·295	−·030	·707	93·7	69·0	24·7	101·9	61·4	40·5	83·8	86·4	79·0	− 0·3	66·3	70·7	72·3	69·8
	Sholapur	28·251	28·086	·165	28·167	−·038	·654	107·6	78·4	29·2	111·0	70·8	40·2	95·7	104·0	91·8	+ 3·0	65·9	72·0	72·8	70·3
	Poona	·020	27·881	·139	27·956	−·034	·693	104·8	73·1	31·7	108·6	65·9	42·7	94·0	99·7	88·2	+ 3·6	64·6	67·8	69·2	67·2
	Akola	·866	28·710	·156	28·782	−·056	·636	109·7	79·1	30·6	112·5	69·7	42·8	101·0	108·4	94·9	+ 4·7	60·7	69·1	70·6	66·8

II.

in India, Burma, etc., for April 1892.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		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.		
·861	·958	·953	·924	−·009	86	73	70	76	−2	3·7	4·1	3·9	−0·1	1	1	6	3	21	10	3	9	6	N. 84° E.	N. 84° E.	32	45	160	111	Port Blair.	Burma Coast and Bay Islands.
·648	·872*	·895	·805	−·075	92	77	74	81	+2	6·5	7·6	7·1	+1·8	...	15	8	5	4	4	5	3	16	N. 12° W.	N. 56° W.	37	44	45	53	Mergui.	
·807	·811	·802	·807	+·016	85	63	56	68	+1	4·2	5·4	4·8	+1·5	...	2	2	3	8	15	16	10	4	S. 29° W.	S. 21° W.	48	59	120	140	Rangoon.	
·776	·849	·842	·822	−·039	87	66	66	73	−3	4·4	4·8	4·6	+1·5	...	6	2	...	1	9	10	14	18	N. 84° W.	N. 58° W.	53	73	148*	171	Diamond Island.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	...	...	...	...	...	...	...	?	?	...	?	...	?	Cocos' Island.	
·752	·897	·885	·845	+·029	84	66	67	72	−1	5·7	2·9	4·3	+1·3	...	1	3	3	5	17	14	13	4	S. 35° W.	S. 75° W.	50	40	93	98	Akyab.	
·672	·768	·761	·734	+·017	92	79	68	80	+4	7·0	7·0	7·0	+1·8	27	2	4	11	1	1	3	8	3	N. 37° E.	S. 86° E.	7	21	15	83	Silchar.	Assam.
·674	·779	·800	·751	+·085	96	85	71	84	+3	6·6	6·6	6·6	−0·3	2	2	36	6	3	...	10	...	1	N. 54° E.	N. 58° E.	53	51	51	68	Sibsagar.	
·719	·785	·759	·756	+·106	90	78	63	77	+9	5·5	3·1	4·3	+1·1	3	3	13	21	1	2	15	1	1	S. 89° E.	N. 74° E.	31	32	184	192	Dhubri.	
·778	·915	·889	·864	+·047	92	74	74	80	+3	7·7	4·7	6·2	+2·2	6	1	1	...	7	16	21	7	1	S. 27° W.	S. 12° W.	62	37	162	169	Chittagong.	Bengal and Orissa.
·744	·849	·863	·818	+·013	84	71	64	73	0	7·4	6·2	6·8	+3·0	...	1	4	6	9	25	12	2	1	S. 6° E.	S. 4° E.	60	60	217	163	Dacca.	
·789	·855	·788	·811	0	84	64	54	67	−4	4·0	2·6	3·3	+0·6	...	...	1	...	3	31	24	1	...	S. 17° W.	S. 3° W.	87	73	222	177	Calcutta (Alipore).	
·845	·947	?	?	?	90	67	?	?	?	Not recorded													?	?	?	?	?	?	Do. (Chowringhee).	
·878	·981	·996	·952	+·012	81	75	77	78	−2	5·9	3·4	4·7	+0·2	...	...	...	...	5	40	15	...	...	S. 7° W.	S. 20° W.	92	76	503	401	Saugor Island.	
·753	·778	·637	·718	+·066	75	57	36	56	+2	3·5	2·8	3·2	+0·8	3	...	1	1	7	23	23	2	...	S. 15° W.	S. 40° W.	75	40	180	113	Burdwan.	
·702	·846	·658	·735	+·109	76	66	41	61	+2	3·8	2·0	2·9	−0·2	2	3	3	11	6	23	7	3	2	S. 18° E.	S. 23° W.	45	32	138	124	Berhampore.	
·933	·965	·970	·956	+·065	93	75	78	82	−2	3·0	3·3	3·2	+0·1	...	...	...	...	1	35	23	1	...	S. 18° W.	S. 38° W.	91	79	436	332	False Point.	
·865	·831	·813	·836	+·070	83	53	46	61	−1	1·3	1·8	1·6	−1·2	...	...	...	...	3	36	20	1	...	S. 14° W.	S. 17° W.	90	62	166	124	Cuttack.	
·415	·402	·282	·366	+·068	49	27	15	30	+1	1·1	3·0	2·1	−0·5	...	9	1	...	2	11	6	15	16	N. 81° W.	N. 74° W.	48	49	250	201	Hazaribagh.	Gangetic Plain and Chota Nagpur.
·598	·653	·552	·601	+·134	66	43	29	46	+5	0·5	0·1	0·3	−1·7	3	...	6	30	1	...	...	14	6	N. 65° E.	N. 38° W.	30	27	164	107	Patna.	
·710	·721	·611	·680	+·119	90	54	39	61	+10	1·1	0·9	1·0	−0·1	1	...	5	22	19	2	3	3	3	S. 70° E.	S. 24° E.	57	8	151	138	Darbhanga.	
·420	·406	·250	·359	−·038	46	24	10	27	−5	0·3	0·4	0·4	−1·0	1	5	4	4	4	1	2	13	26	N. 48° W.	N. 52° W.	52	25	111	84	Allahabad.	
·614	·615	·514	·580	+·171	63	38	26	42	+8	0·4	0·3	0·4	−0·5	3	1	2	19	7	...	7	15	6	S. 22° E.	N. 82° W.	5	43	87	87	Ghazipur.	
·459	·525	·331	·438	+·026	56	35	16	36	+2	0·1	0·1	0·1	−1·9	...	3	6	13	5	4	11	14	4	S. 36° W.	N. 53° W.	10	44	93	106	Lucknow.	
·271	·288	·258	·272	?	37	21	16	25	?	0·7	0·4	0·6	−2·2	8	5	1	1	2	7	22	12	2	S. 57° W.	N. 79° W.	50	21	45	62	Dehra Dun.	Upper Sub-Himalayas.
·361	·391	·269	·340	+·020	48	26	13	29	−5	0·6	0·5	0·6	−1·5	6	...	1	2	16	2	15	13	5	S. 34° W.	S. 73° W.	40	10	No records.	76	Roorkee.	
·412	·334	·274	·340	−·064	54	21	14	29	−9	0	0·2	0·1	−1·9	8	1	...	3	8	2	3	25	10	S. 87° W.	N. 53° W.	43	44	62	59	Meerut.	
·305	·269	·228	·267	−·119	43	15	10	23	−14	1·7	1·6	1·7	−0·8	...	9	4	4	5	5	7	10	16	N. 46° W.	N. 19° W.	23	26	72	80	Lahore.	
·436	·415	·455	·435	+·031	55	25	22	34	−10	1·3	1·5	1·4	−1·5	26	2	...	...	5	7	...	17	3	S. 67° W.	N. 59° W.	23	27	21	50	Ludhiana.	
·326	·411	·436	·391	−·020	50	31	27	36	−17	2·9	4·0	3·5	−1·1	2	10	14	6	2	...	1	8	17	N. 7° W.	N. 10° E.	50	19	123	101	Peshawar.	Indus Valley and Rajputana.
·377	·534	·670	·527	+·094	45	36	29	37	−7	0·2	0·8	0·5	−1·2	3	...	19	...	17	...	10	...	11	N. 80° E.	N. 26° W.	18	13	72*	59	Mooltan.	
·246	·300	·258	·249	−·134	30	16	10	18	−17	1·2	1·6	1·4	−1·3	6	1	2	1	12	8	13	5	12	S. 37° W.	S. 84° E.	32	18	133	94	Jacobabad.	
·516	·419	·388	·441	−·063	57	25	15	34	−8	4·2	4·1	4·2	+3·1	...	...	...	...	2	...	57	1	...	S. 44° W.	S. 53° W.	97	58	260*	245	Hyderabad (Sind).	
·754	·823	·871	·816	+·107	84	67	67	73	+4	1·5	0·9	1·2	−0·8	...	...	1	...	...	...	29	30	..	S. 68° W.	S. 62° W.	90	80	279	342	Kurrachi.	
·260	·332	·311	·301	−·013	30	18	15	21	−7	0·6	1·0	0·8	−1·3	...	2	1	...	...	2	12	25	18	N. 84° W.	N. 39° W.	77	56	136	134	Jeypore.	East Rajputana, Central India & Guzerat, N.-W. Rajputana.
·590	·528	·620	·579	+·185	61	33	30	41	+6	0·5	0·9	0·7	−1·3	...	2	2	...	...	1	5	36	14	N. 81° W.	S. 74° W.	82	52	212	129	Ajmere.	
·429	·359	·271	·353	−·013	47	21	11	26	−2	1·0	1·2	1·1	−0·6	...	...	...	4	22	18	12	3	1	S. 10° E.	N. 89° W.	70	53	264	225	Deesa.	
·382	·522	·549	·485	+·105	46	29	24	33	+2	0·6	1·1	0·9	−1·3	...	3	...	2	1	...	1	39	14	N. 76° W.	N. 76° W.	80	54	86	68	Nowgong.	
·416	·584	·623	·541	+·201	42	32	27	34	+6	0	0	0	−1·4	...	1	1	...	2	...	26	1	29	N. 86° W	N. 84° W.	62	44	124	114	Agra.	
·617	·590	·621	·610	+·096	87	52	50	63	+13	2·9	5·3	4·1	+1·5	1	2	4	3	3	3	16	23	4	S. 73° W.	S. 88° W.	53	25	368	314	Belgaum.	Deccan.
·485	·492	·418	·466	+·096	50	29	19	33	+4	2·1	6·4	4·3	+1·0	...	5	11	10	6	3	2	8	15	N. 8° E.	N. 18° E.	23	14	201	203	Sholapur.	
·500	·355	·335	·400	+·021	61	23	18	34	+4	2·0	4·2	3·1	+0·7	2	2	1	3	3	...	...	20	29	N. 59° W.	N. 35° W.	68	49	265	235	Poona.	
·293	·286	·244	·275	−·009	29	15	10	18	−4	2·3	4·0	3·2	+1·7	5	6	...	...	2	...	2	1	44	N. 43° W.	N. 48° W.	78	57	164	130	Akola.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 stations.

Meteorological Province.	Station.	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.	Temprature, wet-bulb. Mean minimum.	Temprature, wet-bulb. Mean 10 hours.	Temprature, wet-bulb. Mean 16 hours.	Temprature, wet-bulb. Mean daily.
Deccan—*concld.*	Buldana	27·711	27·583	·128	27·642	−·041	29·640	103·5	80·4	23·1	106·3	75·0	31·3	94·2	101·3	92·2	+ 4·3	60·3	65·5	66·0	64·0
	Khandwa	28·766	28·628	·138	28·692	−·041	·662	107·4	79·6	27·8	110·2	73·1	37·1	97·8	105·2	93·9	+ 4·7	61·9	68·7	70·0	66·9
	Hoshangabad	·783	·636	·147	·704	−·062	·652	108·4	78·2	30·2	110·5	71·9	38·6	99·2	106·8	93·9	+ 4·5	62·1	72·9	74·4	69·8
	Nagpur	·749	·593	·156	·667	−·056	·612	109·9	80·8	29·1	114·6	73·0	41·6	100·7	107·1	95·4	+ 5·1	62·1	71·0	72·3	68·5
	Sironcha	29·418	29·247	·171	29·328	−·064	·660	108·6	83·6	25·0	115·1	74·4	40·7	93·9	106·5	96·4	+ 3·1	72·2	77·9	76·1	75·4
	Chanda	·156	28·987	·169	·067	−·051	·625	110·5	80·7	29·8	114·4	71·0	43·4	99·0	108·5	95·9	+ 4·7	66·4	72·4	73·8	70·8
	Seoni	27·789	27·666	·123	27·723	−·053	·633	104·4	74·0	30·4	108·4	68·1	40·3	97·3	101·4	89·6	+ 3·6	59·2	67·9	67·9	65·0
	Jubbulpore	28·457	28·322	·135	28·384	−·047	·634	106·0	72·3	33·7	108·6	65·1	43·5	97·4	103·7	89·6	+ 3·4	60·7	70·3	71·0	67·3
	Saugor	·040	27·922	·118	27·976	−·048	·637	106·2	75·1	31·1	108·2	68·7	39·5	98·3	103·8	90·9	+ 4·2	59·4	66·7	66·8	64·3
	Raipur	·805	28·650	·155	28·723	−·059	·598	108·3	81·7	26·6	113·7	76·6	37·1	99·3	105·4	95·1	+ 5·2	64·2	71·0	70·8	68·7
	Sutna	·707	·576	·131	·637	−·069	·613	105·5	73·1	32·4	107·7	67·6	40·1	99·1	104·1	89·7	+ 3·2	58·2	67·9	67·6	64·6
	Sambalpur	29·278	29·112	·166	29·200	−·063	·598	108·5	78·6	29·9	113·0	70·0	43·0	98·2	106·4	93·0	+ 3·1	67·9	76·3	75·8	73·3
	Secunderabad	28·063	27·914	·149	27·988	−·041	·666	104·8	77·8	27·0	108·4	73·0	35·4	93·5	101·5	90·2	+ 2·4	69·2	74·2	73·8	72·4
	Hyderabad (Deccan)	·157	28·012	·145	28·085	?	·669	104·1	78·8	25·3	108·2	75·2	33·0	93·5	101·4	90·8	?	?	74·5	73·7	?
West Coast	Bombay	29·835	29·710	·125	29·771	−·040	·747	89·9	81·0	8·9	93·3	76·6	16·7	87·2	88·2	84·9	+ 2·3	76·0	79·3	79·1	78·1
	Ratnagiri	·731	·627	·104	·677	−·050	·723	92·0	81·0	11·0	95·1	76·0	19·1	90·3	88·9	85·6	+ 3·2	76·4	79·1	79·1	78·2
	Karwar	·827	·726	·101	·774	−·039	·750	91·2	79·7	11·5	93·8	74·4	19·4	87·2	88·3	84·6	+ 2·0	76·1	78·4	79·1	77·8
	Cochin	·884	·773	·111	·826	−·027	·764	90·1	75·3	14·8	92·8	70·7	22·1	86·6	87·0	81·8	− 2·6	75·6	79·6	79·6	78·3
South India.	Salem	28·949	28·783	·166	28·876	−·048	·735	102·5	77·6	24·9	107·0	73·5	33·5	89·7	97·8	87·7	+ 1·7	72·5	77·9	79·5	76·6
	Mercara	26·220	26·106	·114	26·163	−·084	·771	83·4	65·4	18·0	90·4	62·4	28·0	75·1	76·3	72·3	− 0·7	63·7	68·7	70·3	67·6
	Bangalore	·927	·796	·131	·862	?	·721	94·3	69·8	24·5	99·1	67·0	32·1	82·9	89·8	80·9	?	65·2	71·1	69·9	68·7
	Trichinopoly	29·618	29·445	·173	29·537	−·048	·720	102·2	79·4	22·8	108·8	75·5	33·3	91·2	99·7	89·0	+ 2·0	74·4	76·1	76·4	75·6
	Madras *	·838	·717	·121	·785	−·038	·735	93·9	78·8	15·1	104·2	73·5	30·7	89·9	88·1	85·1	+ 0·3	?	79·7	80·0	79·1
	Bellary	28·372	28·216	·156	28·293	−·027	·674	104·6	78·1	26·5	107·1	74·1	33·0	92·3	100·3	90·0	+0·5	67·3	73·6	72 2	71·0
	Vizagapatam	29·820	29·685	·135	29·750	−·039	·718	89·6	83·0	6·6	92·4	81·5	10·9	89·7	88·7	86·1	− 0·2	75·2	80·4	81·0	78·9
Hill Station, Beluchistan.	Quetta	24·649	24·558	·091	24·596	+·010	?	80·9	47·8	33·1	88·2	39·9	48.3	74·1	78·0	63·6	+ 4·9	42·9	54·4	55·6	51·0
Hill Stations, Northern India.	Leh	19·813	19·718	·095	19·772	+·096	?	60·0	33·6	26·4	67·4	29·0	38·4	50·3	54·8	46·8	+ 4·2	28·2	37·0	38·3	34·5
	Srinagar	24·885	24·778	·107	24·833	?	?	75·6	47·1	28·5	84·8	39·6	45·2	63·8	73·3	60·8	?	44·5	54·5	59·3	52·8
	Murree	23·838	23·797	·041	23·810	−·012	?	76·4	60·9	15·5	84·7	47·6	37·1	73·3	74·7	68·2	+ 9·8	45·9	51·5	53·0	50·1
	Chamba	26·818	26·709	·109	26·776	−·089	?	95·5	64·5	31·0	102·2	57·6	44·6	80·6	91·9	78·9	+ 9·9	52·9	59·6	61·3	57·9
	Kailang	20·837	20·768	·069	20·815	+·009	?	62·0	36·2	25·8	71·0	31·0	40·0	52·2	56·6	47·6	+ 7·4	32·6	40·4	41·5	38.1
	Simla	23·092	23·033	·059	23·054	+·002	?	74·3	60·3	14·0	79·7	51·1	28·6	68·7	71·6	66·6	+ 7·0	44·5	49·9	51·5	48.6
	Chakrata	·319	·258	·061	·280	+·042	?	?	58·8	?	?	49·1	?	71·6	73·1	?	?	48·4	52·9	53·5	51·6
	Ranikhet	24·088	24·024	·064	24·045	−·018	?	80·3	62·4	17·9	86·1	51·0	35·1	74·2	76·3	70·3	+ 5·6	50·1	57·7	59·3	55·7
	Pithoragarh	·738	·653	·085	·685	+·004	?	84·5	61·1	23·4	89·7	53·8	35·9	76·2	81·9	72·2	+ 5·6	51·3	60·1	61·3	57·6
	Katmandu	25·590	25·490	·100	25·538	−·014	?	82·1	58·8	23·3	87·8	51·6	36·2	72·8	77·0	69·0	+ 2·6	57·3	64·0	64·9	62·1
	Darjeeling	22·968	22·884	·084	22·924	−·015	?	60·2	50·6	9·6	67·1	46·8	20·3	57·5	58·7	55·0	+ 1·3	48·3	54·9	56·0	53·1
	Pedong	25·264	25·162	·102	25·212	−·003	?	73·2	59·8	13·4	78·3	56·2	22·1	67·2	69·1	65·5	+ 3·0	57·5	62·9	63·2	61·2
	Demagiri	Not recorded.						90·4	64·3	26·1	97·9	58·2	39·7	85·3	85·4	76 1	− 2·9	Not recorded.			
	Tura	Ditto.						86·3	71·3	15·0	92·1	65·5	26·6	78·4	83·9	78·2	+ 0·3	?	72·1	74·0	?
Hill Stns, C. India.	Mount Abu	Not recorded.					?	89·4	72·8	16·6	93·2	64·8	28·4	82·2	87·3	80·5	+ 4·7	55·4	61·1	63·0	59·8
	Pachmarhi	26·454	26·347	·107	26·396	−·023	?	96·3	73·2	23·1	98·7	64·4	34·3	89·5	94·1	85·7	+ 4·4	55·2	60·4	61·6	59·1

* The means are as given in the registers sent by Government Astronomer, Madras.

II—continued.

in India, Burma, etc., for April 1892.—continued.

Vapour tension.					Humidity.					Cloud.				Wind direction. Number of winds from											Winds 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.		
·274	·274	·202	·251	−·068	27	18	10	18	−8	1·4	2·0	1·7	−0·7	...	8	9	2	1	1	...	19	20	N. 42° W.	N. 31° W.	60	55	267	217	Buldana	Deccan—*concld.*
·349	·340	·298	·329	−·017	34	19	13	22	−5	1·1	1·8	1·5	−0·4	...	17	6	2	...	...	1	13	21	N. 32° W.	N. 49° W.	70	62	154	140	Khandwa	
·362	·481	·445	·429	+·093	37	25	19	27	−0	0·7	2·3	1·5	−0·7	...	9	8	5	2	5	9	14	8	N. 61° W.	S. 89° W.	27	32	114	69	Hosangabad	
·332	·391	·359	·361	+·004	31	20	15	22	−5	0·8	3·2	2·0	−1·0	1	7	4	4	5	9	7	10	13	N. 84° W.	N. 63° W.	23	20	192	127	Nagpur	
·639	·740	·493	·624	+·073	56	47	21	41	+1	0·9	2·5	1·7	−0·5	25	1	...	2	3	11	6	6	6	S. 41° W.	S. 14° W.	27	38	67	98	Sironcha	
·462	·437	·368	·423	0	44	24	15	28	−4	0·6	3·3	2·0	−0·8	3	4	3	2	23	2	2	...	21	N. 73° E.	S. 73° W.	7	21	103	93	Chanda	
·325	·319	·266	·303	−·043	39	18	14	24	−6	0·4	2·0	1·2	−2·4	...	8	4	4	2	5	9	10	18	N. 63° W.	N. 71° W.	38	29	95	91	Seoni	
·391	·405	·355	·383	+·054	49	23	16	29	0	0·3	1·7	1·0	−1·1	9	4	4	...	1	2	7	17	16	N. 71° W.	N. 66° W.	52	32	44	82	Jubbulpore	
·315	·263	·205	·261	−·040	36	14	10	20	−6	0·4	1·6	1·0	−0·4	...	1	1	...	4	4	30	12	8	S. 60° W.	N. 73° W.	68	47	92	90	Saugor	
·373	·385	·295	·351	−·063	34	20	13	23	−10	0·6	2·5	1·6	−0·7	...	8	8	2	2	0	11	18	11	N. 63° W.	N. 88° W.	45	35	204	148	Raipur	
302	·296	·223	274	+·024	37	16	10	21	−1	0·3	0·3	0·3	−1·6	1	10	...	2	1	...	1	13	32	N. 47° W.	N. 60° W.	77	55	180*	167	Sutna.	
·548	·614	·481	·548	+·002	55	34	21	37	−5	2·0	2·7	2·4	+0·2	...	2	2	...	3	9	32	5	7	S. 49° W.	S. 80° W.	65	40	107	65	Sambalpur.	
·603	·619	·490	·570	+·087	63	39	24	42	+4	2·4	5·2	3·8	+1·7	2	3	7	11	8	9	7	5	8	S. 45° E.	S. 21° E.	14	12	182	132	Secunderabad	
?	·617	·483	?	?	?	40	24	?	?	1·7	4·0	2·9	?	15	3	4	12	7	3	2	7	7	N. 75° E.	?	12	?	131*	?	Hyderabad (Deccan).	
·831	·898	·874	868	+·051	78	69	66	71	−4	2·1	2·2	2·2	0	...	1	1	1	2	10	7	22	16	S. 85° W.	N. 52° W.	60	55	248	271	Bombay	West Coast.
·850	·844	·863	·852	+·059	80	59	63	68	−2	0·9	1·9	1·4	+0·7	...	4	1	1	1	19	8	20	6	S. 59° W.	N. 76° W.	53	67	189	263	Ratnagiri	
·855	·855	·872	·859	+·033	84	66	65	72	−1	3·8	4·2	4·0	+1·7	...	1	...	...	...	...	14	27	18	N. 86° W.	N. 84° W.	84	75	101	?	Karwar	
·858	·920	·917	·898	+·011	90	72	72	78	+1	4·3	6·2	5·3	+1·5	...	4	2	1	1	3	5	20	24	N. 68° W.	N. 82° W.	67	55	176	?	Cochin	
·731	·794	·761	·762	+·042	77	57	44	59	+1	3·2	5·2	4·2	+0·7	5	...	14	7	7	11	11	5	...	S. 34° E.	S. 7° W.	28	37	112	115	Salem.	South India.
·567	·629	·671	·622	+·034	91	72	75	79	+6	6·2	7·5	6·9	+1·6	...	2	2	1	1	3	...	24	27	N. 65° W.	N. 70° W.	73	45	130	83	Mercara	
·565	·615	·484	·554	?	78	55	36	56	?	2·6	5·5	4·0	?	6	1	5	12	4	4	8	11	5	S. 23° W.	?	9	?	164	?	Bangalore	
·787	·699	·593	·693	−·032	78	48	32	53	−3	3·8	4·0	3·9	−0·6	1	1	5	8	16	7	8	10	4	S. 15° E.	S. 50° E.	28	18	131	98	Trichinopoly	
?	·876	·918	·916	+·052	?	62	69	76	+2	6·4	7·6	7·0	+4·1	...	1	...	4	40	11	3	1	...	S. 36° E.	S. 40° E.	84	83	188	188	Madras†	
·537	·591	·442	·523	+·052	56	39	23	39	+4	2·8	7·5	5·1	+1·9	27	3	1	9	1	2	3	3	11	N. 20° W.	S. 37° W.	12	11	141	127	Bellary	
·762	·920	·961	·881	+·043	67	65	71	68	+1	3·6	5·7	4·7	+2·2	...	...	...	...	...	29	26	5	...	S. 26° W.	S. 48° W	89	64	68	92	Vizagapatam	
·234	·222	·212	·223	−·032	69	26	22	39	−12	1·2	2·2	1·7	−1·7	47	...	...	...	...	1	1	6	5	N. 80° W.	N. 81° W.	18	36	20	106	Quetta	Hill Station Beluchistan.
·112	·107	·092	·104	−·001	59	31	23	38	−5	4·9	7·1	6·0	−0·3	1	6	4	2	1	2	13	19	12	N. 80° W.	S. 54° W.	53	19	44	73	Leh	Hill Stations, Northern India.
·269	·321	·354	·315	?	82	55	44	60	?	3·8	5·8	4·8	?	4	10	8	4	8	8	3	5	10	N. 9° E.	?	12	?	92	?	Srinagar	
·157	·157	·179	·164	−·068	30	20	22	24	−25	3·0	3·9	3·5	−1·9	9	...	...	...	22	11	6	2	10	S. 5° E.	S. 40° E.	40	16	210	212	Murree	
·272	·272	·190	·245	−·074	45	26	14	28	−21	2·5	4·3	3·4	−3·1	14	8	1	...	4	2	1	5	25	N. 43° W.	N. 7° E.	48	15	105	113	Chamba	
·155	·151	·132	·146	−·015	73	41	33	49	−10	3·7	7·0	5·4	−0·6	...	1	...	...	8	5	29	12	5	S. 49° W.	S. 61° W.	67	72	59	50	Kailang.	
·133	·166	·175	·158	−·088	26	24	23	24	−23	1·8	3·4	2·6	−1·5	3	15	21	...	2	10	1	...	8	N. 23° E.	S. 69° W.	42	38	?	?	Simla.	
·235	·210	·210	·218	−·001	48	27	26	34	−9	1·2	1·6	1·4	−2·2	6	1	5	4	...	1	19	23	1	S. 73° W.	S. 68° W.	52	19	89	143	Chakrata	
·238	·307	·329	·292	+·034	43	37	37	39	−5	1·3	1·8	1·6	−1·6	15	1	...	1	...	...	37	3	3	S. 53° W.	S. 62° W.	63	47	103	81	Ranikhet	
·278	·353	·329	·320	+·045	52	39	30	41	−2	0·9	2·4	1·7	−1·7	20	...	2	3	1	11	23	...	...	S. 23° W.	S. 14° E.	48	31	92	88	Pithoragarh	
·462	·497	·477	·484	+·127	92	63	53	70	+11	3·9	5·4	4·7	+0·4	1	3	2	12	1	3	...	35	3	N. 83° W.	N. 87° W.	38	67	29	?	Katmandu	
·317	·408	·424	·383	+·063	85	86	86	86	+11	7·0	7·0	7·0	+0·9	3	4	6	6	3	4	19	13	2	S. 58° W.	S. 72° W.	30	49	205	202	Darjeeling	
·451	·526	·516	·497	+·071	87	79	73	80	+7	5·7	7·4	6·6	+1·2	28	2	8	2	2	9	3	...	5	S. 66° E.	?	7	?	?	?	Pedong	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	14	8	2	2	3	9	8	14	N. 39° W.	S. 36° W.	40	6	?	?	Demagiri	
?	·716	·727	?	?	?	74	64	?	?	3·4	3·1	3·3	−0·1	...	1	2	8	11	18	18	2	...	S. 4° E.	S. 5° W.	60	67	?	?	Tura	
·243	·299	·295	·279	+·038	31	28	23	27	−1	0·4	0·9	0·7	−1·6	1	8	2	...	...	...	9	21	19	N. 67° W.	S. 76° W.	72	53	186	185	Mount Abu	Hill Stns., C. India.
·233	·192	·172	·199	−·051	29	14	11	18	−8	0·3	1·6	1·0	−1·1	4	1	3	5	2	...	2	31	12	N. 75° W.	N. 58° W.	57	47	?	128	Pachmarhi	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 93 stations

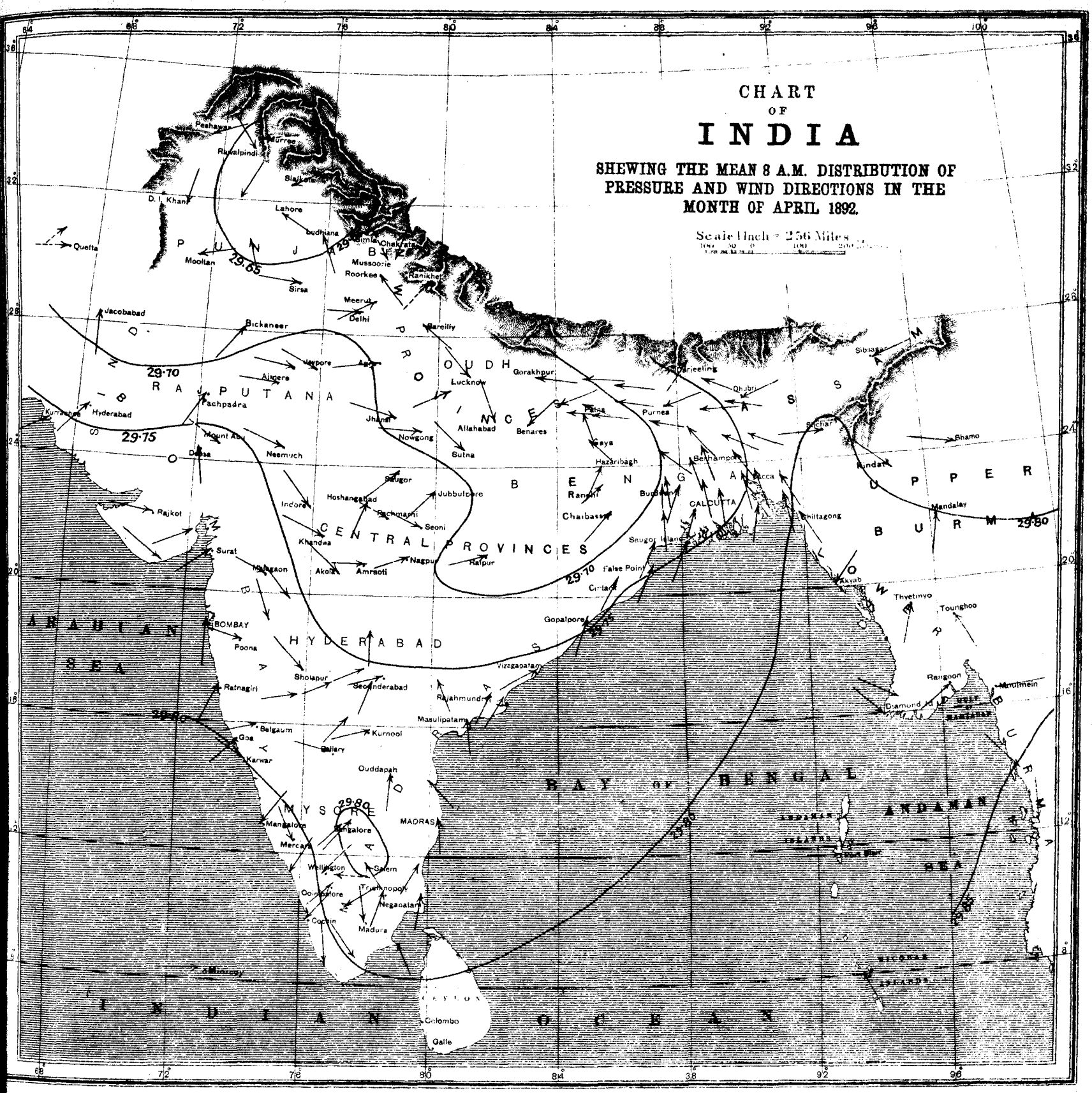
Meteorological Province.	Station.	Pressure.						Temperature of air.										Temperature, wet-bulb.			
		Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and to gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest 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 Stns., C. India.	Chikalda	26·310	26·200	·110	26·250	−·039	?	96·2	76·5	19·7	98·9	72·0	26·9	88·3	94·0	87·3	+ 4·4	58·1	62·2	63·4	61·2
	Makhla	?	?	?	?	?	?	101·6	78·9	22·7	104·1	75·3	28·8	90·3	96·6	89·0	+ 4·3	63·2	68·3	69·4	67·0
Hill Stations, South India.	Wellington	24·271	24·186	·085	24·229	−·009	?	76·2	567·	19·5	80·0	51·2	28·8	71·2	70·4	65·0	+ 0·1	54·4	59·4	61·1	58·3
	Kotagiri	23·858	23·766	·092	23·812	?	?	75·8	57·0	18·8	80·4	47·5	32·9	69·5	69·2	64·8	?	53·8	60·7	61·0	58·4
Extra India.	Aden	29·807	29·681	·126	29·744	−·053	29·769	92·2	77·5	14·7	100·9	73·4	27·5	85·5	89·3	84·1	+ 1·4	68·9	76·0	73·7	73·0
	Perim	·667	·544	·123	·605	?	?	90·1	80·1	10·0	95·6	77·2	18·4	86·0	87·1	84·4	?	74·8	78·3	78·2	77·1
	Minicoy	·913	·812	·101	·856	?	?	87·9	Imperfect.		91·2	?	?	84·9	85·4	?	?	76·0	78·4	78·3	77·6
	Zanzibar	·839	·821	·118	·830	?	·884	84·8	77·8	7·0	87·7	73·9	13·8	81·6	84·4	81·2	?	75·5	77·0	77·0	76·5

II—concluded.

in India, Burma, etc., for April 1892.—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Winds steadiness.		Wind velocity.		Station.	Meteorological Provinces.
														Number of winds from																
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Mean wind direction.	Normal mean direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.		
·274	·261	·231	·256	−·019	31	20	15	22	−4	2·2	4·1	3·2	+1·0	13	19	1	1	1	2	1	4	18	N. 27° W.	N. 42° W.	55	50	213	193	Chikalda . .	Hill Stns., C. India.
?	?	?	?	?	?	?	?	?	?	1·4	3·4	2·4	−1·0	0	11	4	3	1	2	6	12	21	N. 49° W.	N, 68° W.	55	40	?	?	Makhla . .	
·407	·389	·445	·414	+·023	90	52	60	67	+4	3·3	6·6	5·0	+0·4	1	8	11	6	18	9	2	...	5	S. 80° E.	S. 49° E.	37	68	71	66	Wellington .	Hill Stations, S. India.
·386	·441	·452	·418	?	82	62	64	69	?	4·4	6·7	5·6	?	...	4	3	8	20	10	9	2	4	S. 31° E.	?	42	?	148	?	Kotagiri . .	
·599	·774	·629	·673	−·105	63	64	47	58	−12	1·0	1·1	1·1	−1·6	7	...	9	29	3	8	2	2	...	S. 81° E.	N. 81° E.	59	61	393	367	Aden . . .	Extra India.
·796	·867	·849	·837	?	78	70	66	71	?	0·4	0·7	0·6	?	1	1	2	5	42	2	...	...	7	S. 52° E.	?	67	?	397	?	Perim . .	
?	·887	·877	?	?	?	74	72	?	?	5·5	5·5	5·5	?	...	1	2	1	1	1	9	26	17	N. 81° W.	?	72	?	235	?	Minicoy . .	
·836	·869	·830	·844	?	85	80	71	78	?	6·3	5·1	5·7	?	...	...	1	3	11	30	10	...	...	S. 6° E.	S. 12° W.	73	64	299	157	Zanzibar . .	

GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE.—No. 23 METEO.—21-7-92.—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.

No 33a, Wr., I—July 92.—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.

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

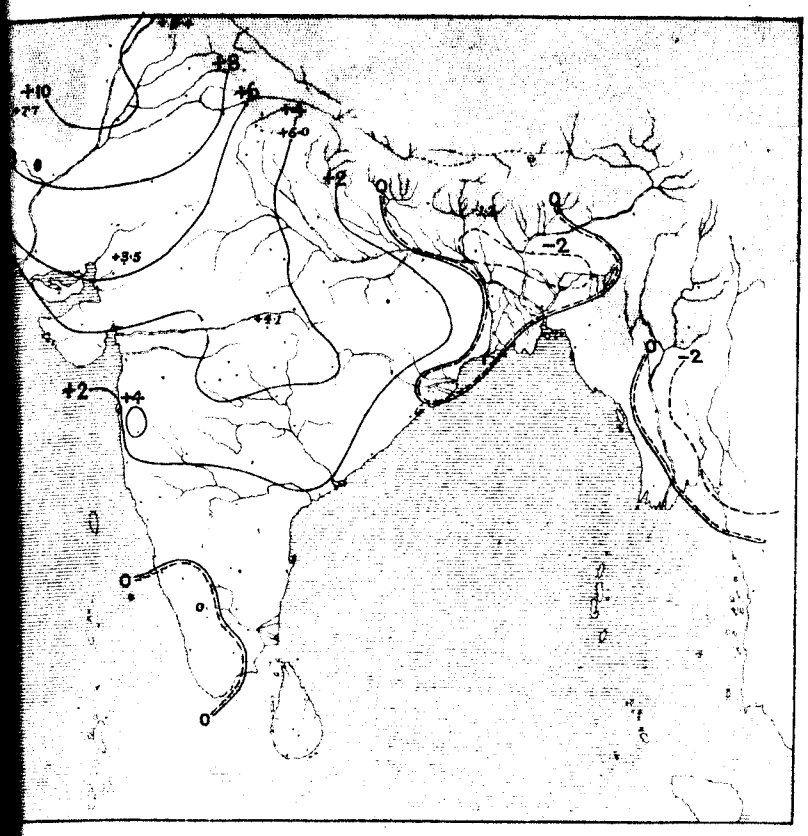
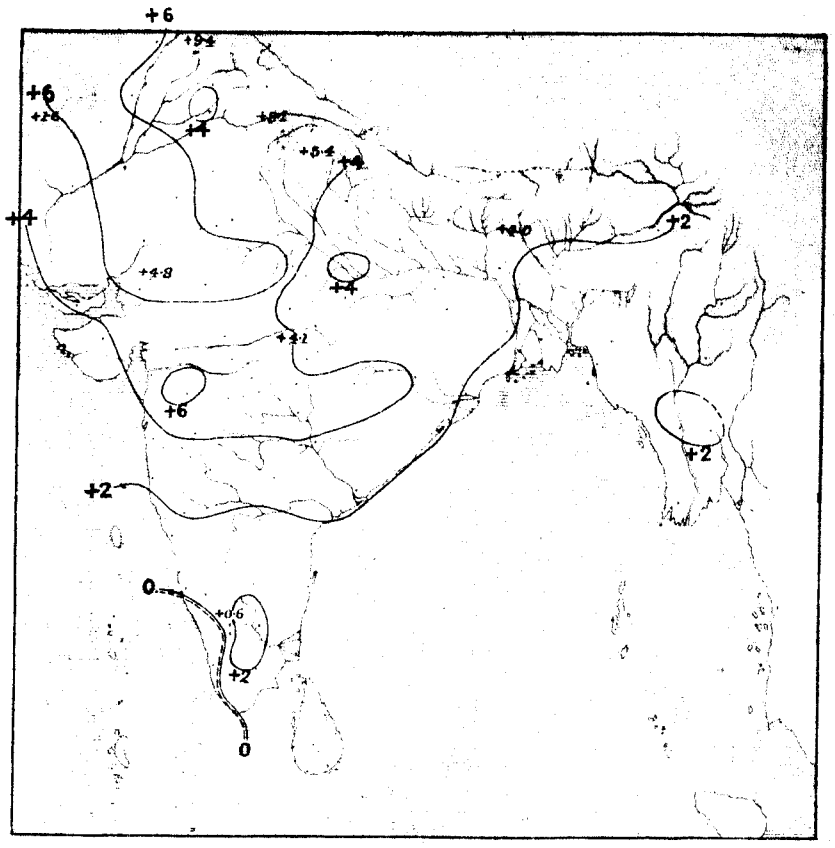


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

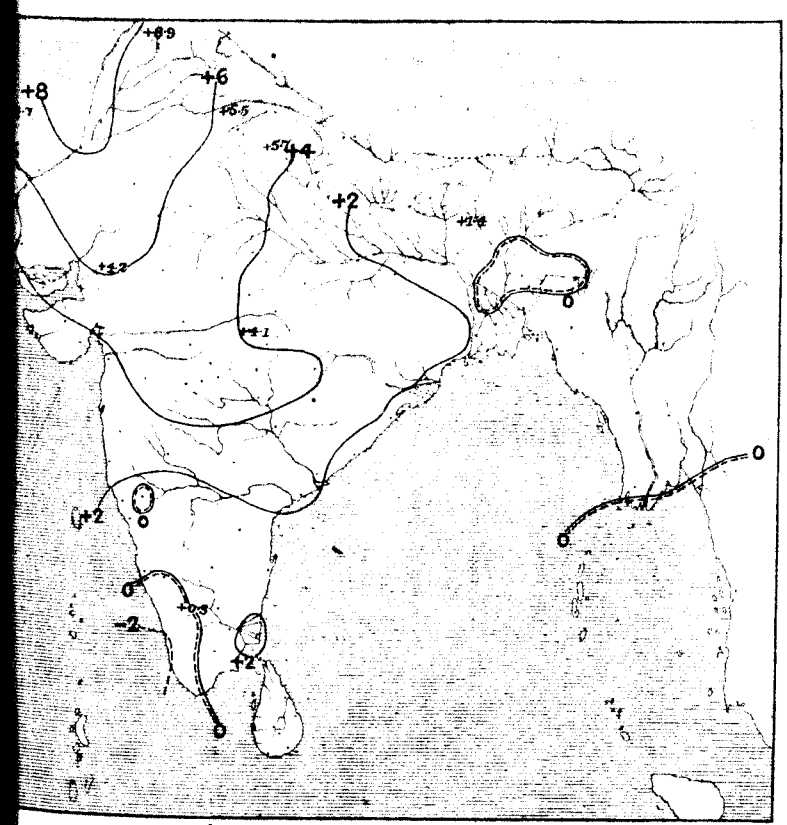
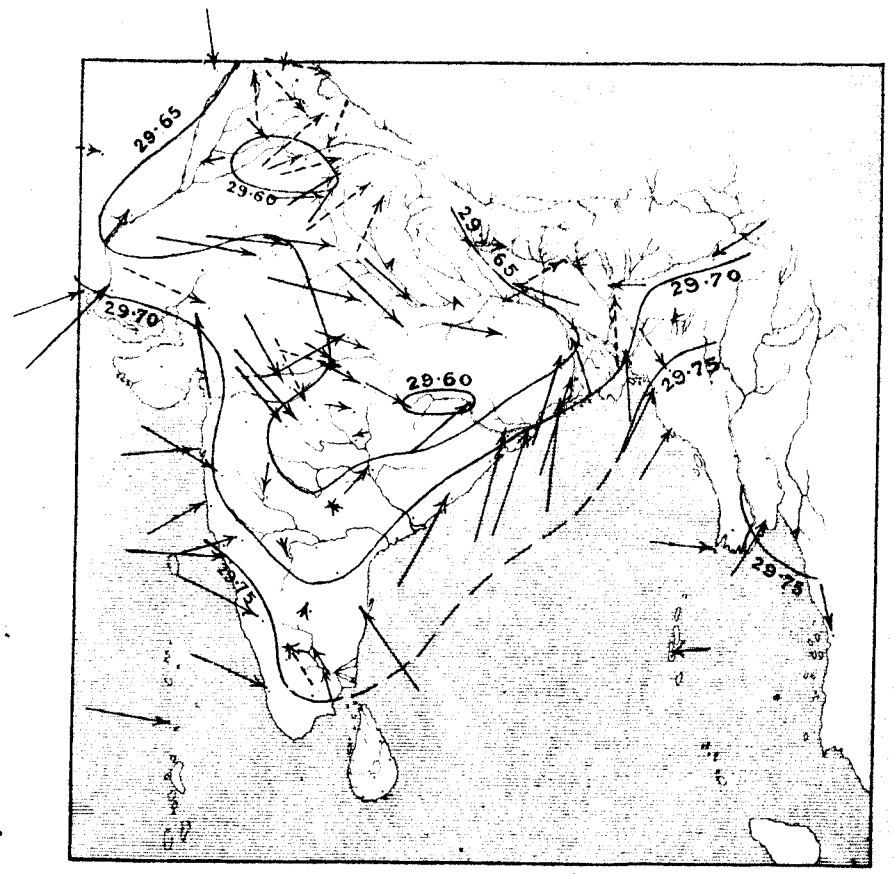


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF APRIL 1892.



Explanation.

ntinuous lines indicate that the mean daily temperature of month in excess by amounts indicated by the attached numbers. Broken dotted lines that it was in defect by the amounts indicated by the ched numbers. Double lines are the lines of no variation, the broken 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.

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. [illegible] (South)

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW,

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, MAY, 1892.

INTRODUCTION.

THIS review of the weather in India during the month of May 1892 is based on observations taken daily at 8 A.M. at 170 stations and on additional observations taken at 10 A.M. and 4 P.M. at 94 stations. The rainfall summary is based on 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. 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 May 1892.

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 eastern 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 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 no

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 Berar, the North-Western Province 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 Cherra Poonji, and averaging 10 inches for the whole area.

The weather during the preceding months of March and April 1892 had been unusually dry and hot. Pressure was very considerably below the normal at the end of April, more especially in North-Western India where the abnormal increase of temperature was greatest. Strong local sea winds hence prevailed on the coasts of the Arabian Sea and Bay of Bengal, more especially in Bengal, Sind and Cutch. An advance of south-westerly winds occurred over the south and centre of the Arabian Sea on the 25th, 26th and 27th of April, and gave rise to the formation of a cyclonic storm in about Lat. 16° N. and Long. 62° E. It marched in a north-easterly direction towards the Cutch coast, increasing in intensity and rate of motion as it advanced. The centre crossed the Cutch coast shortly after midday on the 1st of May. Its average rate of motion from the 28th of April to the 1st of May increased from about 6 to 12 miles an hour. The calm centre area of the storm passed over Bhuj at 1-30 P.M. of the 1st, when the barometer fell to 28·3″. It advanced with rapidly increasing velocity across Rajputana, and the centre was near Sirsa at 8 A.M. of the 2nd. It broke up during the day at the foot of the Simla hills. Its average rate of motion during the last 24 hours of its existence was upwards of 30 miles per hour—a greater rate than has been hitherto observed in any severe cyclone in India. It gave moderate rain to Cutch and the greater part of Kathiawar, which caused a large temporary reduction of temperature on the 2nd and 3rd. It was also followed by a very large increase of pressure, which reversed the pressure gradients over India for 48 hours. Temperature increase dvery rapidly, and pressure gave way with similar rapidity during the next five days, and on the 8th very hot and dry weather, with abnormally low pressure conditions, was again established over Northern and Central India. The strong southerly winds blowing across the Bengal coast gave heavy showers to Assam and frequent showers to North and East Bengal at this period. Thundershowers were also of frequent occurrence in Tenasserim, Lower Burma and Malabar at this time. No important change occurred until the 20th and 21st. Temperature had increased fairly steadily from the 8th, and was excessive over the whole of North-Western India on the 20th and 21st, when the highest temperatures of the month, and in some cases of the year, were recorded in the Punjab, Rajputana and the North-Western Provinces. Pressure gave way rapidly on the 20th and 21st, and very steep gradients obtained over the Peninsula and in Bengal and the north of the Bay (*i.e.*, to the south and east of the trough of low pressure which ran from Chota Nagpur to the Central Punjab, and hence lay further north than usual). On the 20th pressure was upwards of four-tenths of an inch lower in the Punjab than in the south of the Bay and Arabian Sea, almost as large a difference of pressure or total gradient as prevails in July and August during the strongest bursts of the monsoon. The first effect of these steep gradients was to give a period of disturbed weather and thundershowers in Bihar and the North-Western Provinces lasting from the 22nd to the 26th. A second and more important effect was to give the first large advance of south-west monsoon winds and of heavy general rain along the west coast. The south-west monsoon rains commenced on the following dates in the West Coast districts named below:—

Malabar	24th May.
South Canara	24th May.
North Canara	26th and 27th May.
Ratnagiri	28th and 29th May.

The most remarkable rainfalls during this advance were 10·40 inches at Karwar and 10·95 inches at Kumta on the 29th.

The whole of the Bombay Deccan received frequent showers from the 26th to the end of the month. The rainfall of the last two days of the month in Northern India and the Deccan caused a largish general reduction of temperature.

The variations of the mean maximum, mean minimum, and mean daily temperature of the month were generally similar in character. They were all more or less in defect in the areas of excessive rainfall (including the West Coast districts and Mysore, Tenasserim, Lower Burma, Assam and North Bengal) and were in excess over the remainder of India. The following gives data for these areas of decreased temperature:—

Province.	Variation of		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean daily temperature from normal.
	°	°	°
Burma Coast and Bay Islands	−1·7	−0·8	−1·3
Assam	−2·8	+0·4	−1·3

The deficiency in the mean temperature of the month was absolutely greatest at Coimbatore (—2·0°), Cochin (—1·6°), Moulmein (—2·0°) and Mergui (—4·9°).

Temperature was more or less considerably in excess over the remainder of India, the excess being greatest in the West Punjab, West Bengal, Chota Nagpur and South Bihar. The following gives variation data for the areas of higher temperature than usual:—

PROVINCE.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean daily temperature from normal.
	°	°	°
Burma Inland	−0·7	+0·9	+0·1
Bengal and Orissa	+1·7	+1·9	+1·8
Gangetic Plain and Chota Nagpur	+2·7	+2·5	+2·7
Upper Sub-Himalayas	+2·8	+4·2	+3·5
Indus Valley and North-West Rajputana	+3·5	+3·4	+3·5
East Rajputana, Central India and Guzerat	−0·3	+1·6	+0·7
Deccan	+0·7	+1·2	+1·0
South India	+1·5	+1·1	+1·3

The excess was absolutely greatest at the stations in the West Punjab, for which data are given in the following table:—

STATION.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean daily temperature from normal.
	°	°	°
Mooltan	+6·5	+5·2	+5·9
Dera Ismail Khan	+6·0	+3·7	+4·9
Peshawar	+6·6	+3·8	+5·2

Temperature was as largely in excess at the hill stations in North-Western India as at the adjacent plains. The greatest excess of temperature was registered at the hill stations of Ranikhet (+5·0°), Chakrata (+4·2°) and Murree (+4·6°).

The mean pressure of the month was ·022″ below the normal. Pressure was locally in defect in Northern India, the deficiency being greatest in Upper Assam and in the South-West and South Punjab, where it slightly exceeded ·04″. It was on the other hand in local excess in the Peninsula, Central India, West Rajputana, Kathiawar and Cutch. The excess was large in Kathiawar, Guzerat and Berar, and also in the South Deccan, where it ranged between ·04″ and ·05″. The abnormal features of the pressure were hence similar to those of the two preceding months, but were more strongly marked.

An important feature of the month was the displacement of the hot-weather trough of low pressure to a more northerly position than usual. It ran during the greater part of the month from Chota Nagpur to the Centra. Punjab, but was transferred for a short time from the 12th to the 16th to the foot of the hills between Ludhiana and Lucknow.

In consequence of the abnormal pressure conditions, very strong and steady sea winds blew across the Bengal, Sind, Cutch and Kathiawar coasts, and winds were steadier and stronger than usual in all the coast districts except Lower Burma. In the interior, including the North-Western Provinces, Rajputana, Central India and the Deccan, the hot westerly day winds were on the average of the month much stronger and steadier than usual. Winds were hence generally normal in direction, but were stronger and steadier in every part of India, except Burma and South India.

The air was damper and contained more aqueous vapour than usual in all districts to which the local sea winds of the month extended. The excess was largest and most marked in Bihar and in Rajputana and the West Deccan. On the other hand the air was drier in all the districts in which the usual hot land winds of the month prevailed. The increased dryness was most marked in the eastern and central districts of the North-Western Provinces and the eastern districts of the Central Provinces and at the hill stations in Upper India. The humidity was 12 or upwards below the normal at Raipur (—13) and Sambalpur (—12). and at the following hill stations:—Chamba (—14), Simla (—13) and Chakrata, Pithoragarh and Murree (each —12).

The amount of cloud was below the average over the whole of India with the exception of Lower Burma, East and North Bengal, Assam and the West Coast districts.

The following table gives the variations of the aqueous vapour pressure, humidity and amount of cloud from the normal in each of the eleven meteorological divisions of the Empire:—

DIVISION.	MEAN VARIATION OF		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	Inch.	%	
Burma Coast and Bay Islands	−·009	+3	+1·9
Assam	+·030	+5	+1·6
Bengal and Orissa	+·031	−3	+0·4
Gangetic Plain and Chota Nagpur	−·007	−3	−0·8
Upper Sub-Himalayas	−·027	−6	−0·9
Indus Valley and N.-W. Rajputana	−·004	−4	+0·3
East Rajputana, Central India and Guzerat.	+·022	+1	−0·1
Deccan	−·022	−3	−0·2
West Coast	−·011	−2	+0·3
South India	−·012	−3	−0·1

The rainfall of the month is usually due to two different sets of actions and conditions. In Northern and

Central India it generally accompanies hot-weather storms, *i.e.*, thunderstorms, hailstorms, nor'-westers, duststorms, etc., which usually occur during periods of general disturbance. In Burma and Southern India it is chiefly due to temporary advances of southerly humid winds, or to the permanent advance of the south-west monsoon current, which usually occur in the fourth week of the month.

Weather was unusually dry in Northern and Central India during the month. In consequence of the abnormal position of the trough of low pressure, the damp sea winds from the Head of the Bay were directed chiefly to Assam and North Bengal, and were cut off from the Gangetic plain during nearly the whole month. Hence the rainfall of the month was much heavier than usual in Assam and East and North Bengal. On the other hand little or no rain fell in South Bihar, Chota Nagpur, the North-Western Provinces, the Punjab, Central India and the Central Provinces. Rajputana obtained a moderate burst of rain from the cyclonic storm of the first week of the month.

The south-west monsoon rains set in slightly earlier on the Malabar coast than usual, and advanced rapidly northwards as far as Ratnagiri during the last week of the month. Hence the West Coast districts received much larger total amounts of rain than usual. The Bombay Deccan and the Salem and Coimbatore districts of Madras obtained frequent showers, more especially during the last week of the month, and the rainfall was in slight excess in these areas. Very little rain fell in the remaining districts of Madras, and the month was exceptionally dry in the districts of Nellore, Kristna and Chingleput. The following table gives comparative rainfall data of the eleven meteorological divisions of the Empire :—

Division.	Rainfall.		
	Mean actual for May 1892.	Mean normal for May.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	16·69	12·07	+4·62
Burma Inland	5·70	4·65	+1·05
Assam	22·90	14·64	+8·26
Bengal and Orissa	7·17	6·76	+0·18
Gangetic Plain and Chota Nagpur	1·08	2·07	—0·99
Upper Sub-Himalayas	0·95	1·12	—0·17
Indus Valley and North-West Rajputana.	0·45	0·47	—0·02
East Rajputana, Central India and Guzerat.	0·37	0·47	—0·04
Deccan	0·75	0·98	—0·28
West Coast	9·70	5·97	+4·98
Southern India	1·81	2·83	—1·11

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for May 1892 is shown by means of two charts. The first chart (Plate I) gives 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 variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts hitherto in Annual Reports on the meteorology of India. The data on which this chart is based are given in Table II. The pressure data in that table are, it should be noted, reduced to constant gravity (that of Lat. 45°) as well as to sea-level.

The more important barometric changes and movements during the month are fully 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 means. It should be noted that the monthly means in the fourth column of Table I are not only reduced or corrected to sea-level but also to constant gravity. The normal means are obtained from the observations of the period 1878—1888, and, in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The mean pressure of the Indian land area for the month of May was ·022″ below the normal. Pressure was steadily in defect during the previous four months in the Indian area. The following shows the amount of the deficiency month by month during this period and the excess in the corresponding months of the year 1891 :—

Month.	Mean variation of pressure from the normal in India.	
	1892.	1891.
	Inch.	Inch.
January	—·005	+·005
February	—·060	+·022
March	—·076	+·015
April	—·044	+·028
May	—·022	+·025

These figures show that the deficiency of pressure was much larger in amount than the excess in the corresponding period of the preceding year, and is more pronounced than has been registered since the commencement of the work of systematic meteorological observation in India.

Relatively to the general state, pressure was locally in defect in Northern India and the north of the Bay. The

negative anomalies exceeded ·02″ in the Punjab, the greater part of the North-Western Provinces, Bihar, North and Central Bengal and Assam. They exceeded ·04″ in three areas for which data are given below :—

No.	AREA.	STATION.	Variation of mean pressure from the normal.	Variation of the mean 8 A.M. pressure of month from the normal.	Pressure anomaly.
			Inch.	Inch.	Inch.
1	UPPER ASSAM	Sibsagar	−·073	−·067	−·045
2	SUBMONTANE DISTRICTS OF N.-W. INDIA.	Lucknow	−·063	−·068	−·046
		Bareilly	...	−·063	−·041
		Roorkee	−·070	−·063	−·041
		Ludhiana	−·100?	−·070	−·045
3	SOUTH-WEST PUNJAB.	Mooltan	−·077	−·067	−·045
		Dera Ismail Khan.	...	−·077	−·055

Pressure was relatively to the general condition in excess in the Peninsula, Central India, Rajputana, Sind, Cutch and Kathiawar. Over the western half of the area the positive anomalies exceeded ·02″. They were large in amount (exceeding ·04″) in the following areas :—

No.	AREA.	STATION.	Variation of mean daily pressure of month from the normal.	Variation of the mean 8 A.M. pressure of month from the normal.	Pressure anomaly.
			Inch.	Inch.	Inch.
1	KATHIAWAR	Rajkot	...	+·028	+·050
		Deesa	+·018	+·024	+·046
2	KHANDESH AND BERAR.	Malegaon	...	+·023	+·045
		Khandwa	+·007	+·026	+·043
		Akola	+·003	+·028	+·050
		Amraoti	...	+·021	+·043
3	MADRAS DECCAN (West)	Bellary	+·002	+·024	+·046

The preceding remarks have shown that the pressure distribution of the month was marked by very large variations from the normal. These were the continuation and development of features which had been present during the preceding four months and had hence been very persistent. The following gives a brief summary :—

1st.—Pressure was in moderate defect (—·022″) over the Indian land area.

2nd.—Pressure was locally in defect in Northern India, the deficiency being greatest in the South-West Punjab, the submontane districts of North-West India between Ludhiana and Lucknow and Upper Assam.

3rd.—Pressure was locally in excess in the Peninsula, Central India, Rajputana and Sind. The excess was most marked in Kathiawar, Guzerat, Khandesh and Berar.

The chief effects of these variations on the pressure distribution were—

1st.—To give a greater range of pressure over India, and hence steeper gradients, more especially in Rajputana, Central India and the north-west of the Peninsula. The mean total range of presure was three-tenths of an inch, or nearly a tenth of an inch above the normal range in May.

2nd.—To displace the position of the axis of the hot-weather trough of low pressure northwards. Its mean position in May 1892 was through Burdwan, Gya, Allahabad, Bareilly and Khushab. The normal position of the axis in May is through Sambalpur, Sutna, Agra, Bickaneer and Jacobabad.

Barometric Depression and Cyclonic Storm of the month.

The following gives an account of the more important changes in the distribution of pressure and of the depressions of the month.

The most important feature of the weather in India during the first two days of May was a cyclonic storm of considerable intensity, which formed in the centre of the Arabian Sea on the 26th and 27th of April and crossed the coast of Cutch about midday of the 1st of May. The following gives an account of this remarkable storm :—

Cyclonic Storm of 28th April to 2nd May.—This storm was remarkable in many respects. It formed some weeks before the establishment of the south-west monsoon, and at a time of the year when storms are of very rare occurrence in the Arabian Sea. It adopted a very unusual course, advancing by a north-east track from its place of origin in the centre of the Arabian Sea to the foot of the Punjab Himalayas. Its rate of motion in the Arabian Sea agreed approximately with the ordinary speed of storms in the Indian seas, but its velocity increased very rapidly after reaching land, and it advanced at a rate of nearly thirty miles an hour across Rajputana. It was contemporaneous with the Mauritius cyclone. This suggests that perhaps both storms might have had a common origin in the equatorial belt during a period of general disturbance This supposition is, however, negatived by the observations taken on board ships in the Arabian Sea at that time.

The storm originated on the 26th and 27th in about Lat. 15° N. and Long. 62°E. under the following conditions. The month of April was excessively hot in India, the temperature conditions being those normal to May and not to

April. Pressure had decreased much more rapidly than usual in March and April in Northern India, and was very considerably below the normal in April. The following table giving pressure data shows the chief features of the pressure distribution on the 25th April—a day fairly typical of the period immediately antecedent to the formation of this storm:—

PROVINCE.	8 A.M. PRESSURE.	
	Mean actual.	Variation from normal.
	"	"
Burma	29·756	—·089
Bengal and Assam	29·586	—·183
North-Western Provinces	29·572	—·141
Punjab	29·650	—·067
Sind and Rajputana	29·676	—·068
Guzerat and Central India	29·651	—·106
Central Provinces	29·657	—·086
Bombay	29·661	—·145
Madras	29·742	—·078

Pressure was hence on the 25th largely below the average, by average amounts ranging from ·07″ in Upper India to ·18″ in Bengal and Assam. The mean deficiency of pressure over the Indian land area was ·11″ or a ninth of an inch.

The range of pressure in the Indian land area for the week previous to the formation of the storm is given in the following table:—

DATE.	Highest pressure (in South India).	Lowest pressure (in Punjab).	RANGE.
	"	"	"
20th	29·82	29·38	·44
21st	29·80	29·32	·48
22nd	29·84	29·33	·51
23rd	29·84	29·37	·47
24th	29·84	29·44	·40
25th	29·79	29·41	·38

It will thus be seen that during this period very steep gradients favouring south-west winds steadily obtained, and that the total range of pressure over the Indian area was as large as the mean range during the south-west monsoon months of July and August, when it slightly exceeds a third of an inch.

On the 19th and 20th winds in the Arabian Sea were very light and variable in direction, but the prevailing direction was north-east in the open sea. Weather was generally fine and clear, but in the equatorial belt and off the Malabar coast weather was cloudy with occasional rain squalls. No important change occurred until the 24th and 25th, when south-west winds began to advance northwards from the equatorial belt. The history of the storm begins with the 26th, when the first indications of the commencement of rainy squally weather in front of the temporary advance of south-west winds were shown.

April 26th.—During the previous 24 hours pressure had decreased briskly to rapidly in Central and Northern India and risen on the Malabar and Konkan coasts. Skies were heavily clouded in the West Coast districts, and moderate rain had fallen during the day in Malabar.

The land observations gave no indication of the changes in progress in the Arabian Sea. In that area westerly winds had extended north to at least the 12th parallel of latitude. A large number of steamers were crossing between Socotra and Ceylon, and all experienced west to south-west winds. Winds were light and variable in the Gulf of Aden. For example, the S.S. *Ethelraida*, which was in Lat. 17° 9′ N. and Long. 63° 28′ E. or nearly midway between Socotra and Bombay, had light east by north winds (force 1) and fine weather.

The following is a summary of the available meteorological data of the south and centre of the Arabian Sea for the 26th:—

NAME OF VESSEL.	POSITION 8 A.M.		BAROMETER 8 A.M.		WIND.		State of sea.	WEATHER.
	Lat. N.	Long. E.	Actual.	Corrected.*	Direction.	Force.		
S.S. *Nurida*.	8° 44′	68° 32′	...	...	SW	2—4	...	Cloudy.
S.S. *Deepdale*	9° 41′	67° 40′	29·78	29·70	WSW	5	Moderate.	Cloudy.
S.S. *Legislator*.	9° 42′	63° 57′	...	29·76	W	2	...	Overcast.
S.S. *Ameer* .	10° 10′	62° 5′	...	29·79	W	4	...	Fine and clear.
S.S. *Scindia*.	10° 43′	58° 44′	30·02	29·65	WSW	1	Smooth	Light airs and calms.
S.S. *Rome* .	13° 32′ (noon)	49° 47′	29·99	...	Variable.	...	...	Fine.
S.S. *Larnaca*	14° 24′	52° 57′	...	...	Variable.	1	...	Fine.
St. Fillans .	14° 32′	53° 2′	30·04	...	Variable.	1	...	Sultry.
S.S. *Ethelraida*	17° 0′	63° 0′	...	...	E by N	1	...	Fine.

This information hence appears to establish that light to moderate westerly winds had advanced over the Arabian Sea as far north as Lat. 12°, and that the north-east winds which had previously prevailed in the south of the Arabian Sea had retreated northwards, but certainly continued to the north of Lat. 16° N.

Reports of the weather in the Arabian Sea on this day were received from 29 vessels, and all except one (the

* The corrected readings are obtained by the use of the corrections of the instruments determined by the comparison of the ship instrument with a secondary instrument. The corrected readings are in many cases very doubtful, and indicate in some cases at least that the instrument was not correctly read.

S.S. *Nizam*) had fine weather and light to moderate winds. The *Nizam* was proceeding northwards along the Malabar coast. She had variable winds and occasional squalls between Lat. 10° and 12° N. during the day.

The information for the intermediate area between La. 12° N. and Lat. 16° N., shows that it was an area of light variable winds.

April 27th.—No change of importance had occurred during the previous 24 hours in the Indian land area. Pressure was three-tenths of an inch below the normal in the North Punjab, and the range of pressure in India was ·45″, almost as large as during a strong burst of the south-west monsoon after it is fully established.

The following gives observations taken on board vessels in the centre and south of the Arabian Sea on the day :—

Name of Vessel.	Position at 8 A.M.		Barometer at 8 A.M.		Wind at 8 A.M.		State of Sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected.	Direction.	Force.		
S. *Towy* .	1° 42′	65° 11′	...	...	W	3	...	Fine.
S.S. *Legislator.*	8° 50′	68° 35′	...	29·75	SW	4	...	Cloudy.
S.S. *Ameer* .	9° 2[illegible]′	66° 14′	...	29·89	SW	5	...	Fine and clear.
S.S. *Scindia.*	10° 9′	61° 40′	30·04	29·67	WSW	2	Smooth.	Fine and clear.
S.S. *Larnaca*	15° 24′	56° 46′	...	...	Variable.	1	...	Fine.
S.S. *St. Fillans.*	15° 32′	57° 10′	...	...		...	...	Fine.
S.S. *Ethelraida.*	18° 9′ (noon)	67° 7′ (noon)	...	...	E	2	...	Fine.
S.S. *Chyebassa*	18° 16′ (noon.)	58° 5′	29·95	...	N	2	...	Fine.
S.S. *Lucina* .	18° 25′ (noon)	69° 21′	29·92	...	SSE	5	Long sea	Fine.

These observations show that weather was apparently unchanged in the Arabian Sea. South-west to west winds continued in the southern portion. Southerly winds were advancing up the eastern half of the Arabian Sea, as the S.S. *Lucina* had SSE winds (force 5) in Lat. 18° N. and Long. 67° E. She had fine weather during the day. The *Larnaca* and *St. Fillans* crossing from Aden to Bombay were in about Long. 57° E. at noon. In the logs of both vessels it is noted that winds increased steadily during the day and weather became gloomy and threatening. These observations point to the existence of an area of disturbed weather between these vessels and the *Lucina* and in about Lat. 15° N. and between Long. 60° and 64° E.

April 28th.—During the preceding 24 hours pressure had increased in the Peninsula and diminished in Upper India, thus further increasing the steepness of the gradients which prevailed at this time. Weather was unchanged in India, strongly marked hot-weather conditions obtaining over the whole of the interior.

The observations in the Arabian Sea show that a small cyclonic storm had developed during the preceding 24 hours. The following data enable its position to be fixed on this day :—

Name of Vessel.	Position at 8 A.M.		Barometer at 8 A.M.		Wind at 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.	Actual.	Corrected.	Direction.	Force.		
S.S. *Ameer* .	8° 30′	69° 59′	...	29·97	SSW	4	...	Cloudy.
S.S. *Scindia.*	9° 34′	64° 51′	30·08	29·71	WSW	6	Moderate.	Fine and clear.
S.S. *Europe* .	14° 48′	54° 21′	29·65	...	Variable.	1	...	Fine.
S.S. *Melpomene.*	15° 17′	57° 9′	30·00	...	WNW	2	...	Cloudy.
S.S. *Rome* .	15° 33′	61° 13′	29·89	...	NW	5	Rising.	Gusty.
S.S. *Larnaca*	16° 11′	59° 52′	...	...	NW	5	...	Unsteady winds and squally.
St. Fillans .	17° 1′	60° 59′	29·84	...	NE by N.	8	Cross sea rising rapidly.	Hard squalls.
S.S. *Lucina* .	17° 50′	66° 30′	...	...	S	5	...	Fine and clear and increasing wind.

These observations show that the S.S. *Rome*, *Larnaca* and *St. Fillans* were in the eastern half of a cyclonic storm, and were hence approaching the centre. The *Larnaca* had winds shifting from west to south and of force 8 to 10 during the night. She had torrents of rain and severe squalls. The *St. Fillans* passed through the northern quadrant, the wind shifting from N. E. to S. E. during the night. She was nearest the centre about 6 P.M. and experienced hard squalls, winds of force 9 and rain in torrents during the night. The S.S. *Rome* passed through the southern quadrant during the night and experienced hard squalls, heavy thunder and much rain, and a high confused sea.

The data hence show that a cyclonic storm, probably of small extent but of considerable intensity, had formed. Torrents of rain were falling near the centre. The data of the *St. Fillans* indicate that the centre was in about Lat. 16° 30′ N. and Long. 62° E. at 6 P.M. and the data of the *Larnaca* that it was in Lat. 17° 15′ N. and Long. 62° 15′ E. to 62° 30′ at midnight. It was hence probably travelling in a north-north-east direction with a velocity of between 8 to 10 miles per hour.

April 29th.—The barometric changes in India were generally small in amount, but were such as to increase slightly the pressure gradients. The difference of pressure between the west coast of the Peninsula and the North Punjab was nearly ·45 inch. Pressure was in slight excess in the south of the Peninsula, and was upwards of ·3″ in defect in the Punjab. The following gives the 8 A.M. observations taken on board vessels in

or near the storm area in the Arabian Sea on this day :—

Name of Vessel.	Position at 8 A.M.		Barometer at 8 A.M.		Wind at 8 A.M.		State of Sea.	Weather.
	Lat. N.	Long. E.	Actual.	Corrected.	Direction.	Force.		
S.S. *Ramore Head.*	9° 38′	64° 17′	...	...	S	2	...	Clear.
S.S. *Golconda.*	10° 30′	59° 29′	30·12	29·89	S	3	...	Fine.
S.S. *Lucina* .	17° 29′	64° 4′ (noon).	...	...	SSE	...	SW and W swell.	Showery in morning.
S.S. *Durham*	15° 15′	58° 11′	...	...	SW	4	Moderate.	Cloudy.
S.S. *Melpomene.*	16° 10′	61° 12′	29·82	...	SW	8	...	Deluge of rain.
S.S. *Rome* .	16° 21′	65° 49′	30·02	...	S	6	Considerable.	Passing clouds.
S.S. *Larnaca*	17° 9′	63° 0′	...	...	S	...	Heavy.	Torrents of rain.
S.S. *St. Fillans.*	18° 29′	63° 29′	30·05	...	SE by E	6	...	Thunder and torrential rain.
S. S. *Calder*.	20° 24′	68° 39′	...	29·76	WSW	5	S W swell.	...

These observations when charted indicate that the centre was in Lat. 18° 30′ N. and Long. 63° E. at 8 A.M. The *St. Fillans* was in the eastern quadrant and increasing her distance from the centre during the day. She had east-south-east winds force 7 in the early morning (with torrents of rain), and south winds force 5 and cloudy weather in the evening. The *Melpomene* passed eastwards through the southern quadrant at a considerable distance from the centre. She was about 170 miles south-south-west of the centre at 8 A.M. and had south-west winds force 8, and a deluge of rain from 4 A.M. to noon. The *Larnaca* was also in the southern quadrant and increasing her distance from the centre during the day. She had south-west winds force 10 at 4 A.M. with torrents of rain, and westerly winds force 6 in the afternoon with heavy rain.

The observations hence indicate that the storm had advanced between midnight and 8 A.M. a distance of about 80 miles in a north-east direction. The experience of the *Melpomene* appears to establish that the storm was increasing in area and probably also in intensity, as she had winds force 8 at a distance of at least 150 miles from the centre.

April 30th.—The barometric changes of the previous 24 hours were very irregular. The largest changes were registered in Bengal where the barometer was falling rapidly. The following 8 A.M. observations show the general character of the weather on the 30th in Lower Sind, Kathiawar and Guzerat :—

Station.	Barometer.			Wind.			Cloud amount.
	Reduced to sea-level and 45° Lat.	Change in past 24 hours.	Variation from normal.	Direction.	Average velocity per hour.	Percentage ratio of actual to normal.	
	Inches.	Inch.	Inch.				
Kurrachee .	29·709	—·101	—·037	WSW	9	51	8
Bhuj . .	29·745	—·076	?	W	3	20	0
Rajkot .	29·791	—·068	+·016	W	16	123	8
Veraval .	29·793	—·062	?	W	12	?	5
Deesa . .	29·765	—·044	+·015	SSE	16	123	7

These observations show that the storm had not yet begun to influence the weather in these areas to any appreciable extent. Westerly winds prevailed as hitherto, but were decreasing rapidly in intensity. Very dry hot weather generally prevailed, but skies had commenced to cloud over. The storm had now passed to the north of the usual steamer track between Aden and Bombay, and no vessel was within the storm area during the day.

The following gives the 8 A.M. observations taken on board vessels nearest to the storm during the day :—

Name of Vessel.	Position.		Barometer.		Wind.		State of Sea.	Weather.
	Lat. N.	Long. E.	Actual.	Corrected.	Direction.	Force.		
S.S. *Durham*	15° 53′ (noon.)	61° 39′	...	...	WSW	4	Moderate.	...
S.S. *Eastrys* .	15° 57′ (noon.)	60° 18′	...	...	SW	4	Confused.	...
S.S. *Europe* .	16° 17′	61° 10′	...	...	WSW	4	Very heavy.	...
S.S *Melpomene.*	16° 46′	65° 33′	29·92	...	SSW	7	Slight swell.	Fine.
S.S. *Larnaca*	17° 34′	67° 1′	...	...	WSW	5	Very nasty.	Cloudy.
S.S. *St. Fillans.*	18° 49′	67° 20′	30 08	...	S by W.	4	Cross	Fine.
S.S. *Calder* .	21° 52′	65° 44′	29·76	...	SW by S.	4	...	Dull, overcast.

The *St. Fillans*, 200 miles to the east-south-east of the storm centre at 8 A.M., had fresh southerly winds, cloudy weather and a heavy cross sea during the day.

The S.S. *Calder* was 120 miles to the north of the centre at the same hour, and advancing in a west-north-west course to the Persian Gulf. She had moderate to light south-west winds and dull cloudy weather until noon, after which the winds shifted to north-east (force 3 to 4) for some hours. The information shows that the storm

was as hitherto of comparatively small extent, and that the winds at the distance of 100 to 150 miles to the north of the centre were not stronger than the ordinary winds of the season (3 to 4).

The observations indicate that the centre was in about Lat. 20½° N. and Long. 65¼° or 65½° E. at 8 A.M. It had hence advanced about 205 miles during the previous 24 hours, and thus travelled with an average velocity of about 8½ miles.

May 1st.—The barometer had fallen during the previous 24 hours in Sind, Cutch, Kathiawar, North Bombay and Rajputana due to the approaching cyclone. It had risen over the remainder of the Indian land area.

The following gives observations taken on board ships in and near the storm area at 8 A.M. of the 1st:—

Name of Vessel.	Position, at 8 A.M.		Barometer.		Wind		State of Sea.	Weather.
	Lat. N.	Long. E.	Actual.	Corrected.	Direction.	Force.		
S.S. *Europe* .	17° 12′	64° 12′	29·65	...	WSW	4	Heavy NE swell	
S.S. *Larnaca*	18° 12′	70° 31′	...	...	ENE	2	Moderate.	
S.S. *Assam* .	18° 19′	69° 55′	29·84	29·81	WSW	5	Heavy SW sea.	
S.S. *St. Fillans.*	18° 47′	71° 40′	30·10	...	S by W	5	...	
S.S. *Pachumba.*	Near	Veraval.	29·66	...	S by E	...	...	Furious squalls of wind and rain.
S.S. *Calder* .	23° 15′	62° 16′	29·75		WSW	4	...	Passing clouds.
S.S. *Simla* .	25° 5′	61° 28′	29·70	...	S	1	...	Fine.

These observations when charted indicate that the centre was near to and approaching the Cutch coast. The centre at 8 A.M. was probably a little to the north-west of Dwarka in about Lat. 22½° N. and Long. 68° 50′ E.

The S.S. *Pachumba*, which was proceeding from Bombay to the Kathiawar and Cutch ports, was off Veraval in the morning and about 150 miles south-east of the centre at 8 A.M. She was nearest to the centre between that hour and 9 A.M. She had moderate winds in the early morning, but winds began to increase rapidly after 5 A.M. At 7-40 A.M. she had furious squalls of wind and rain. At noon she continued to experience furious squalls and had a terrific sea. The wind began to moderate in the afternoon, and at 11 P.M. she had a strong north-west wind and moderate swell.

The remaining vessels were all at distances of 300 to 500 miles from the storm centre in the morning. They had moderate to strong winds.

The following gives 8 A.M. observations taken at the land observatories nearest to the storm centre at that hour:—

Station.	Barometer.			Wind.			Weather.
	Reduced to sea-level and Lat. 45°.	Change in pas. 24 hours.	Variation from normal.	Direction.	Velocity in miles per hour.	Percentage ratio of actual to normal.	
Veraval .	29·632	—·161	?	S	?	...	Sea tremendous and severe gale of wind.
Rajkot .	29·629	—·162	—·135	S	16	133	
Deesa .	29·706	—·059	—·033	NE	14	127	
Bhuj .	29·593	—·152	?	ESE	20	154	Gale of wind.
Kurrachee .	29·645	—·064	—·091	WSW	12	75	

These observations indicate that a small cyclonic storm of considerable intensity was rapidly approaching the Cutch coast. The observer at Veraval notes that weather was fine at 6 A.M., and there was no sign of an approaching storm at that hour. The storm centre passed probably a few miles to the west of Cutch (Mandvi) about 10 A.M. No account of the storm has been received from that station. The storm centre passed over Bhuj at 1-30 P.M. The Superintendent of the observatory at that station states that the storm began at 10 A.M. and prevailed with fury till 1-30 P.M. from the south-east. A short period of calm followed until about 1-40 P.M. when squally violent north-west winds set in and continued till 5 P.M. The observatory shed was blown down during the storm. The storm caused great destruction of property in the town and neighbourhood.

The following gives barometric observations taken by the observer during the storm:—

Hour.	Barometer	
	Actual.	Reduced.
	Inches.	Inches.
8 A.M. . . .	29·382	29·59
11-55 ,, . . .	28·784	28·99
12-20 P.M. . . .	·650	·87
12-45 ,, . . .	·470	·68
1 ,, . . .	·450	·66
1-20 ,, . . .	·434	·64
1-38 ,, . . .	·426	·63
2-23 ,, . . .	·562	·77
2-45 ,, . . .	·702	·91
3-10 ,, . . .	·920	29·15
3-30 ,, . . .	29·060	·29
4-23 ,, . . .	·172	·41
6-30 , . . .	·428	·66

These observations show that the barometer fell an inch between 8 A.M. and 1-38 P.M., when the reduced reading was 28·63″ and increased an inch during the next 4½ hours.

The observer took one reading of the anemometer during the storm, *viz.*, at 1-38 P.M. This reading shows that 463 miles of wind were registered during the interval

between 8 A.M. and 1-38 P.M. As winds were almost certainly not very strong previous to 10 A.M., it is probable that their average velocity between 10 A.M. and 1-30 P.M. exceeded 100 miles per hour.

The storm continued to advance in a north-east direction, and its course hence directed it to Central Rajputana through which, as shown by the observations, it marched with a velocity averaging about 30 miles an hour.

May 2nd.—The following gives the observations at stations in and near the storm area at 8 A.M. of the 2nd :—

Station.	Barometer.			Wind.			Weather.
	Reduced to sea-level and lat. 45.	Change in past 24 hours.	Variation from normal.	Direction.	Average velocity during past 24 hours per hour.	Percentage ratio of actual to normal.	
Simla . .	?	+055	+·042	N	...	...	Dusthaze.
Ludhiana .	29635	+061	—·003	SE	0	...	
Lahore . .	29648	+072	+·026	N	4	133	Duststorm.
Montgomery .	29708	+116	?	NNW	6	...	Wind variable.
Deesa . .	29905	+199	+·159	SSE	...	...	Duststorm.
Meerut . .	29691	+078	+·045	SE	2	67	
Agra . .	29701	+065	+·039	SW	6	200	Duststorm.

These observations show tha the storm had advanced into the South-East Punjab and that the centre was to the north-east of Sirsa, probably in about Lat. 30° N. and Long. 75°40′ E. It had hence advanced a distance of 595 miles in a direction N. 41° E. during the preceding 18 hours, and marched during that interval with an average velocity of 32 miles per hour.

The data also show that the storm had filled up to a very large extent and was now a shallow depression. The storm gave very strong winds in the districts through which it passed, and weather was very stormy in the Simla hill districts in the afternoon. The following 4 P.M. observations show that the storm had almost entirely broken up before that hour :—

Station.	Barometer.			Wind.			Weather.
	Barometer corrected and reduced to 32° only.	Change in past 24 hours.	Variation from normal.	Direction.	Average actual during past 6 hours.	Percentage ratio of actual to normal.	
Simla . .	22·944	—·071	—·028	Variable.	?	?	Severe gale of wind.
Chakrata .	23·201	—·008	+·046	SW	6	100	Strong wind.
Lahore .	29·001	+·137	+·120	NW	6	200	Overcast, duststorm.
Ludhiana .	28·749	+·000	—·018	W	4	200	
Meerut .	28·921	+·051	+·138	SE	15	500	Strong wind and dusthaze.
Roorkee .	28·709	—·013	+·068	SW	20	500	

The observations at Leh and Kailang establish that the storm did not influence the weather there at all. Hence it is almost certain that it broke up in the outer ranges of the Simla hills during the afternoon and evening of the 2nd.

The storm gave fairly general rain to the districts through which it passed. It, however, advanced too rapidly to give large amounts. Cutch and Jodhpore obtained average total amounts during the storm slightly exceeding an inch.

The following gives data of the position and rate of motion of the storm centre :—

Date.	Lat. N.	Long. E.	Distance passed over in interval.	Average rate of motion during interval.
April 28th, 6 P.M. . .	16°30′	62°0′	...	...
29th, 8 A.M. . .	18°30′	63°0′	150	6¼
30th, 8 A.M. . .	20°30′	65°30′	210	8½
May 1st, 8 A.M. . .	22°30′	68°50′	260	11
1-30 P.M. .	23°15′	69°42′	80	14½
2nd, 8 A.M. .	30°0′	75°40′	595	32

Some of the more noteworthy features of this storm have been already stated. The most remarkable was the rapid acceleration of its rate of motion after reaching land, and its great velocity during its advance through Rajputana. The velocity of cyclones in India whilst they are filling up is usually greater than at any previous stage, but the acceleration in this case is greater than has been observed in any previous cyclonic storm in India.

A remarkably rapid increase of pressure followed the dispersion of the storm in North-Western India reversing the gradients for a brief period. On the 3rd pressure was highest in Rajputana and lowest in the south-west of the Bay. Pressure decreased very steadily and rapidly in North-West India during the next four days, and on the morning of the 8th the pressure conditions were similar to those which obtained on the 1st before the arrival of the cyclone in the Indian land area. The following table giving the variations of pressure in Northern and Central India on the 1st, 3rd and 8th illustrates the changes during this period :—

Area.	Variation of pressure from normal on		
	1st.	3rd.	8th.
	"	"	"
Bengal	—·061	+·077	—·065
North-Western Provinces .	—·050	+·240	—·091
Punjab	—·060	+·252	—·120
Sind and Rajputana . .	—·039	+218	—·150
Guzerat and Central India .	—·024	+·230	—·049

On the 8th pressure was lowest in the Central Punjab, and the trough of low pressure ran from that area to Chota Nagpur. Steep gradients obtained in the Peninsula. No change of importance occurred between

the 9th and the 19th. The chief effect of the small changes of this period was to displace the lowest pressure area to the foot of the hills from the 13th to the 16th. The pressure distribution at this time gave strong southerly winds and frequent thundershowers in Bengal and Assam (more especially in the northern districts).

From the 17th to the 19th pressure was lowest in the Central Punjab, and the trough of low pressure ran south-eastwards between that area and Chota Nagpur. Very steep gradients obtained in the Peninsula and the head of the Bay on the 17th, 18th and 19th. Pressure decreased rapidly on the 20th and 21st in Northern India and slowly in Southern India, and the range of pressure increased to five-tenths of an inch. These conditions preceded and accompanied a period of disturbed and showery weather in Northern India generally (Bengal, Bihar and the North-Western Provinces) lasting from the 22nd to the 25th. The changes of pressure were very irregular during this period as is usual in disturbed weather in April and May, but they did not apparently affect the general distribution of pressure. On the 26th pressure increased rapidly over the whole of the Indian area. The pressure distribution on the 27th was similar to that which had prevailed during the greater part of the month. The trough of low pressure ran from Chota Nagpur to the Central Punjab, where it terminated in the hot-weather depression of Upper India (displaced from its normal position in Upper Sind and the South-West Punjab). Steep gradients obtained to the south and south-west, the range of pressure exceeding five-tenths of an inch.

During the remainder of the month pressure decreased rapidly in the west of the Peninsula and the adjacent sea area. These changes accompanied the first large advance of monsoon winds in the Arabian Sea and the formation of a depression which gave very stormy weather to the east and north of the Arabian Sea. The history of this storm will be given in the June Review.

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

The following summary is drawn up from the extracts taken from the logs of vessels which entered the ports of Calcutta and Bombay during the month:—

Arabian Sea.—At the beginning of the month a cyclonic storm of moderate intensity, which had formed in the central and western portions of the Arabian Sea on the 26th and 27th of the preceding month, was approaching the Kathiawar coast. This storm has been fully described under the pressure section of the present review. Very squally weather with moderate to strong gales and high cross sea prevailed to the south and south-east of the central depression on the 1st. Its dispersion on the 2nd was followed by a very rapid increase of pressure in North-Western India and the north of the Arabian Sea, which reversed the pressure gradients and gave rise for a short time to light northerly winds in that sea area which extended rapidly southwards as far as the equatorial belt and westwards as far as the meridian of 60° E. Thus the Ship *Champensis* in Lat. 1°4′ S. and Long. 68°·27′ E. at 8 A.M. of the 3rd had north-east winds, and the S.S. *Arbile Brothers* in Lat. 10° 3′ N. and Long. 60° 18′ E. at noon of the same day experienced north-east breezes and clear skies throughout the day.

On the 5th weather began to be unsettled off the Malabar and Konkan coasts. The S.S. *Arbile Brothers* in Lat. 8° 28′ N. and Long. 70° 57′ E. at 8 A.M. of the 6th experienced strong southerly winds and heavy squalls accompanied with heavy rain. Squally weather continued in that area until the 10th. During this period weather was fine with gentle northerly breezes (force 2-3) in the north and centre of the Arabian Sea. Moderate north-westerly winds (force 3 to 4) set in over the central and eastern portions of the Arabian Sea on the 11th and continued until the 20th, when south-westerly winds began to advance over the south and centre of the Arabian Sea and increased steadily in strength, and weather hence became squally over that area. For example, the S.S. *Clio* in Lat. 18° 15′ N. and Long. 59° 5′ E. at noon of the 21st had strong south-westerly winds (force 6—7) and a rough sea. Further west winds were south-easterly, as the S.S. *Cedar Branch* in Lat. 16° 14′ N. and Long. 55° 29′ E. at noon of the 20th had strong south-east breezes (force 6) with frequent rain squalls.

The weather apparently moderated to a slight extent in this portion of the Arabian Sea during the next three days, but became again very unsettled on the 24th owing to the advance of south-west monsoon humid winds and the formation of a cyclonic storm off the Konkan coast. This gave very stormy weather for some time in the east and north of the sea, an account of which will be given in the next Monthly Review.

Bay of Bengal.—At the commencement of the month light variable or southerly winds prevailed over the centre and south of the Bay, moderate to strong south-westerly winds at the head of the Bay, and northerly winds in the Andaman Sea. Weather was fine over almost the whole of the Bay area except in the extreme south where it was showery or squally with strong southerly winds (force 4 to 5). No change of importance occurred until the 7th when south-westerly winds (force 5 to 6) advanced as far north as Lower Burma, and the weather became squally in the Andaman Sea. For example, the

S.S. *Gladestry* in Lat. 14° 47′ N. and Long. 94° 58′ E. at noon experienced south-westerly winds (force 5 to 6) with frequent showers, and the S.S. *Gairloch* in Lat. 13° 17′ N. and Long. 91° 39′ E. at noon of the 8th had south-west winds (force 5) and occasional rain squalls. Winds continued to strengthen, especially in the centre and south-west of the Bay, until the 14th on which day they were of average force 7. Thus the S.S. *Gladestry* in Lat. 7° 24′ N. and Long. 83° 11′ E. on the morning of the 14th had south-west winds (force 7) and a heavy cross sea. Winds had decreased in force during the previous week in the Andaman Sea, and light variable airs now prevailed. At the head of the Bay strong south-westerly winds continued unchanged in general strength until the 23rd. Winds now began to strengthen rapidly at the entrance to the Bay. These strong humid south-west winds advanced northwards towards the Andaman Islands and into the Andaman Sea, and gave rise to squally unsettled weather in the centre and south of the Bay. This caused winds to shift to north-east or east-north-east and to fall off in strength at the head of the Bay on the 24th. The south-westerly winds continued to advance up the Bay, and before the end of the month south-west winds obtained over the whole of the Bay. They were strong (force 5 to 6) in the south and centre of the Bay and moderate in the north of the Bay (force 3 to 4).

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

No information has been received for by far the greater part of the mountain area bordering India. It is hence almost certain that no general snowfall occurred over any large part of that area during the month. The accounts that have been received and which are given below show that some unusual local falls of snow were received in the Afghan mountains and the Western Himalayas. The most remarkable of this was a heavy fall on the Sufed Koh about the 25th and 26th of the month. The data for Kulu show that the depth of the snow in the mountains in that district is much less than usual, and the snow line considerably above the normal elevation.

I.—AFGHAN MOUNTAIN DISTRICTS.

Colonel R. Warburton, Political Officer, Khyber Pass, has sent the following interesting information respecting the snowfall on the mountains west of Kohat:—

"About the 24th or 25th of May last a severe storm came on from west to east, and a heavy fall of snow was reported to have taken place on the Sufed Koh Range. It is stated that snow falling at this time of the year in the Sufed Koh range has never been heard of before in the memory even of the oldest man. For days after and even now, some of the tops of the Sufed Koh still remain white. No snow fell in the hills of the Khyber Range or Tirah."

II.—THE PUNJAB AND KASHMIR HIMALAYAS.

(*a*) *Kashmir.*—The following account of a heavy local precipitation is extracted from a letter received from F. B. Shawe, Esq., dated Leh, 14th June:—

"From April 21st to April 28th I was travelling in two valleys, leading north from the hills dividing Ladak and Kashmir and meeting at Kargil, situated about half way between Leh and Srinagar. During all these days there was incessant rain, heavy low-lying clouds driving down the valleys before a strong wind. On April 29th in Dras near the Zoji Pass there was a peculiarly luminous white fog all day, the sun being nearly invisible. Objects did not cast any shadow, the light appearing to come from all parts. The natives stated that the rain was quite abnormal and the fog seemed to be quite an unknown occurrence, at least a fog of this peculiar description. On my arrival in Srinagar I was informed that no rain had fallen on the days in question, but that heavy dust clouds from the Punjab had hung over the country. Returning here I find that no rainfall to speak of was registered here at the time."

(*b*) *Lahoul.*—The Reverend A. W. Heyde, Superintendent of the Kailang observatory, writing on the 17th June, describes the weather during May in Lahoul in the following terms:—"The weather here has been peculiar during May and June up to date. The month of May was warm, very dry, and the sky nearly always misty or hazy owing perhaps to duststorms in the plains whence much dust may have been driven by the wind even so far as Lahoul.

"But a great change took place in the beginning of June. On the 5th and 6th of this month fully 2 inches (2·18″) of rain fell at Kailang, the hills from 12,000 feet upwards being thickly covered with snow. After that till to-day it has always been cloudy, the clouds very low and hanging about as if we were going to have a regular rainy season in Lahoul, which is not what we wish for. Now and then it rains, though only little, down in the valley, but the quantity of snow which falls on the hills from 13,000 feet upwards seems to be much greater than that of the rain below. Since this wet weather has set in, the temperature of course has become low. The maximum of to-day was only 56·5° at 16 hours, though before the rain it rose to 79·0°. So much rain in the first half of June in Lahoul is unusual, but it has done a great deal of good to the crops which at present look very promising."

(*c*) *Kulu.*—The following table shows the reported depth of snow on the higher peaks and passes in the sub-division on the 25th of the month:—

District.	Name of Pass.	Height.	Depth of snow at the end of May.			
			1892.	1891.	1890.	1889.
		Ft.	Ft.	Ft.	Ft.	Ft.
KULU .	Rotang . .	13,000	1	9	5	10
	Hamta . .	14,500	½	12	6	7
	Chandarkhani	?	*Nil*	8	½	4
	Barsai . .	?	½	5	1	*Nil*
	Bujadhar .	?	*Nil*	2	3	"
	Lori Achri .	?	"	*Nil*	*Nil*	1
	Bushtari .	?	"	"	"	*Nil*
	Bhubhu .	10,000	"	"	"	1
	Majang .	?	"	"	"	*Nil*

District.	Name of Pass.	Height.	Depth of snow at the end of May.			
			1892.	1891.	1890.	1889.
		Ft.	Ft.	Ft.	Ft.	F.
PLACH .	Chul . .	?	*Nil*	*Nil.*	*Nil*	*Nil.*
	Sirikand .	15,000	4	32	12	50
	Maghian .	?	*Nil*	1	*Nil*	*Nil*
	Tikkar . .	?	"	1	...	...
	Dundku .	?	"	2	1½	1
	Ramgarh .	?	"	...	...	...
	Nunu . .	?	"	*Nil*	*Nil*	*Nil*
	Jalori . .	10,500	"	1	"	"
	Raghopur .	?	"	2	"	"
	Himri . .	?	"	1	"	"
	Sakiran .	?	"	*Nil*	"	"
	Suphakun .	?	"	4	1	4
	Gargarasan .	17,000	1	4	2	3
	Bashleo .	11,000	*Nil*	1	*Nil.*	*Nil*
	Plach . .	?	"	2	1	2
	Tirath . .	?	1	2	1	4

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:—

1st.—Thunderstorm at Chikalda, 2 P.M. to 2-45 P.M. Violent duststorm at Hoshangabad at 4-30 P.M., followed by severe thunderstorm at 7-55 P.M., which did much damage to life and property. Severe duststorm at Neemuch, 3-30 P.M. to 4 P.M. The observatory shed was blown down. Duststorm at Akola, (6 P.M.) and again at 7 P.M.

2nd.—Thunderstorm at Akola. Thunderstorm at Nagpur. Severe duststorms at Deesa and Khandwa.

4th.—Severe thunderstorm at Tinnevelly at 4-20 P.M. It caused some slight damage to property. Thunderstorm at Karwar, 5 P.M. to 5-35 P.M. passed from west to east.

5th.—Violent thunderstorm at Calicut at 4 P.M. A woman was killed in the district by lightning.

7th.—Severe thunderstorm at Saugor from 4-5 P.M. to 4-50 P.M. Temperature fell from 95·2° to 77·6° during the storm. Rainfall in 25 minutes 1·21 inches. Much damage was done to houses and trees in the station.

8th.—Duststorm at Agra at 8 A.M. and again at 4-20 P.M. Temperature fell from 102° at the beginning to 92° at the end of the first storm. Severe nor'wester at Berhampore, 4 P.M. to 5-5 P.M., which did much damage. Several boats were sunk in the river Bhagirati. Severe duststorm at Burdwan, 4-50 P.M. to 5-20 P.M. Violent thunderstorm at Mangalore. Nor'wester at Mymensingh, 8-30 P.M. to 9-20 P.M. Thunderstorm at Pedong, 3 P.M. to 4 P.M.

9th.—Nor'wester at Mymensingh, 9-55 A.M. to 10-30 A.M. Duststorm at Roorkee from 5-4 P.M. to 6-50 P.M. Duststorm at Peshawar from 4-30 P.M. to 5-45 P.M. (strongest winds 37 miles per hour).

10th.—Violent duststorm at Burdwan from 4-45 P.M. to 5-12 P.M. Total rainfall during storm was 0·03 inch. Temperature fell from 98° at 4-45 P.M. to 83° at 5-12 P.M. The storm caused great destruction to property in the district, more especially at villages 10 to 12 miles from Burdwan. Violent duststorm at Jacobabad. Storm came down from north-west at 5-30 P.M. lasting until 6-25 P.M.

11th.—Nor'wester at Burdwan from 4 P.M. to 4-30 P.M. Barometer fell from 29·688″ at 4 P.M. (when the storm was coming on) to 29·582″ at 4-30 P.M. During the same interval temperature decreased from 97° to 77°. The wind shifted from south at 4 P.M. to west at 4-15 P.M. and to north-east at 4-30 P.M Total rainfall during the storm 0·50 inch. Nor'wester at Berhampore from 3-40 P.M to 4-10 P.M. The barometer fell from 29·664″ at 3-40 P.M. to 29·576″ at 4 P.M. The velocity of wind from 3-40 to 3-50 P.M. was 40 miles per hour. Duststorm at Lahore, 10 P.M.

to 10-30 P.M. Violent duststorm at Sirsa at 6 P.M. Violent duststorm at Khushab from west. It began at 6-15 P.M. and lasted until 7-20 P.M.; 60·3 miles of wind were recorded during this interval of 65 minutes. Storm caused considerable destruction of property, especially to cattle.

12th.—Duststorm at Peshawar from the west at 3-30 P.M. Thunderstorm at Pedong at 3-15 P.M. Severe thunderstorm at Comilla. It lasted from 10-30 A.M. to 11-15 A.M. Rainfall during storm 1·6 inches. Much damage was done to property by the violent winds. Violent duststorm at Khushab from north-west (6 P.M. to 7 P.M.).

13th.—Duststorm at Peshawar from 3-25 P.M. to 4-30 P.M.

14th.—Violent thunderstorm with heavy rain at Jessore. The storm came down from east at 6 P.M. and lasted until 6-30 P.M. It is stated to have caused great destruction to property in the town.

19th.—Severe hailstorm at Kotagiri (7-30 P.M. to 8 A.M.). Winds were especially violent. Duststorm at Mymensingh at 10-55 P.M.

21st.—Duststorms at Lahore at 6 P.M., at Khushab (5 P.M. to 6 P.M.), and at Sirsa from 5 P.M. to 5-45 P.M. Rainfall at Sirsa 0·63 inch.

22nd.—Duststorm at Benares from 5-45 A.M. to 6-20 A.M. Violent hailstorm at Dehra Dun at 6 P.M., lasting until 6-15 P.M. Duststorm at Khushab (6-5 P.M. to 7-10 P.M.) Thunderstorm at Lahore (5-20 P.M. to 6 P.M.). Duststorms at Allahabad at 5 A.M. lasting until 6 A.M., and again at 7-5 P.M.

23rd.—Thunderstorm at Jubbulpore (at 1 P.M.). Velocity of strongest winds 42 miles per hour.

24th.—Duststorm at Allahabad (7-10 P.M. to 7-55 P.M.). Duststorm at Sutna from west lasting from 4-10 P.M. to 4-50 P.M. Velocity of strongest winds 33 miles per hour.

25th.—Duststorms at Hoshangabad at 4-30 P.M. and at Khandwa at 9 P.M. Violent hailstorm at Murree. Storm came down from north-west at 6 P.M. lasting until 6-45 P.M.

26th.—Duststorm at Malegaon at 3-45 P.M.

27th.—Thunderstorm at Ranikhet at 9 A.M. Violent thunderstorm at Belgaum lasting from 2-30 P.M. to 3-30 P.M. Four men were struck by lightning.

29th.—Thunderstorms at Ranikhet at 2-30 P.M. and at Pedong at 3-20 P.M. Duststorm at Akola at 4-30 P.M.

30th.—Thunderstorm at Ranikhet at 4 P.M. Duststorm at Benares from 6-25 P.M. to 7-25 P.M.

31st.—Thunderstorm at Pedong from 3-20 P.M. to 4 P.M. Duststorm at Neemuch from 1-50 P.M. to 2-20 P.M.

Temperature of the Air.

The distribution of temperature in India for May 1892 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 data by means of which these charts have been prepared are given in Table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.*, 1878 to 1888. 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 very 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.

The mean maximum temperature of May 1892 was above the normal except in Lower Burma, Assam, North Bengal and Bihar, Malabar, Canara, Rajputana, Cutch and Kathiawar. In the first three areas the decreased day temperature was due to more frequent thundershowers and heavier rain than usual throughout the month. In Rajputana, Cutch and Kathiawar the diminished mean day

temperature was chiefly due to the very large reduction of temperature during the first three or four days of the month, produced by the rainfall accompanying the cyclonic storm of the 1st and 2nd of May. The defect in these areas was less than 2° except in the districts represented by the following stations :—

District.	Station.	Mean maximum temperature. Actual, May 1892.	Normal, May.	Variation from normal.
		°	°	°
Tenasserim	Moulmein	86·3	90·2	—3·9
Assam and North Bengal.	Sibsagar	83·4	86·5	—3·1
	Dhubri	81·7	86·1	—4·4
	Mymensingh	85·8	89·0	—3·2
	Jalpaiguri	85·3	87·5	—2·2
	Dinajpur	88·6	91·3	—2·7
	Bogra	90·6	92·9	—2·3

and also locally at Coimbatore (—2·4°), Rajkot (—2·5°) and Khandwa (—2·1°).

(The variations of the Bengal stations given in the preceding table, *viz.*, Mymensingh, Jalpaiguri, Dinajpur and Bogra, are, it should be noted, determined from means of less than 10 years, as these observatories were only started in 1884.)

The mean maximum or day temperature of the month was in excess over the remainder of India. The excess was large in three areas, for which data are given in the following table :—

District.	Station.	Mean maximum temperature. Actual, May 1892.	Normal, May.	Variation from normal.
		°	°	°
West Punjab	Peshawar	103·8	97·2	+6·6
	Dera Ismail Khan	109·0	103·0	+6·0
	Mooltan	110·7	104·2	+6·5
West Bengal and Chota Nagpur.	Burdwan	102·0	96·9	+5·1
	Hazaribagh	103·7	98·0	+5·7
	Chaibassa	108·6	103·2	+5·4
	Balasore	99·0	94·9	+4·1
Madras Coast Districts.	Masulipatam	103·4	98·8	+4·6
	Madras	101·0	97·2	+3·8
	Negapatam	101·3	95·7	+5·6

The actual mean variations of the three Madras stations are very large, but appear to be correct and to be due to the unusual prevalence of dry westerly land winds.

Judging by the maximum temperature data, May was generally a hotter month than usual. The excess was, as in the previous months of March and April, greatest in the West Punjab, but it was not quite so large in amount as in April.

Maximum temperatures exceeding 118° were registered at all stations in the West and Central Punjab and Upper Sind. The following gives the highest maximum or day temperatures observed at those stations during the month :—

Station.	Highest maximum temperature recorded during the month.	Date on which recorded.	Highest recorded maximum temperature in May previous to 1892.	Year in which recorded.
	°		°	
Jacobabad	121·0	22nd	123·0	1888
Dera Ismail Khan	119·5	21st	119·0	1875
Khushab	119·1	21st	?	?
Montgomery	118·9	20th	?	?
Lahore	118·3	21st	120·3	1879
Mooltan	118·3	20th	119·0	1875 and 1876

These maximum temperatures were recorded during the very hot period extending from the 19th to the 23rd.

It is noteworthy that the maximum temperatures in the Rajputana arid area were very considerably lower than in the Punjab.

Station.	Highest maximum temperature recorded in May 1892.	Date on which recorded.	Highest maximum temperature recorded in May, previous to 1892.	Year in which recorded.
	°		°	
Bikaneer	112·4	21st & 31st	?	?
Pachpadra	113·5	22nd	?	?
Sambhar	109·0	21st	114·5	1886
Deesa	109·9	8th & 9th	117·4	1881
Jeypore	113·3	21st	115·8	1886

The relatively lower temperatures in the arid region of Rajputana in May as compared with the West Punjab were evidently due to the influence of the westerly local sea winds which prevailed in that area in May 1892. These westerly winds were abnormally strong in that month, and hence caused the contrast between the com-

paratively low day temperatures in West and Central Rajputana and the West Punjab which was much more strongly marked than usual in May.

The preceding data have shown that higher temperatures were registered in May 1892 at Dera Ismail Khan (as also at Peshawar), than in the same month of the past 15 years. The highest maximum temperatures of the month in Sind and Rajputana were in no way remarkable, and were in all cases considerably lower than the highest temperatures hitherto recorded. The difference was, as might be expected, greatest at Deesa and diminished in amount with distance from the Arabian Sea.

Occasionally in the hot-weather months excessively high temperatures are recorded in the Madras coast districts, more especially between Coconada and Nellore. They are usually registered during the prevalence of very dry north-west or west (and hence land) winds. The winds blow from the heated area of the Deccan and are also further heated by the act of descent. The following gives the highest maximum temperatures recorded during the month, firstly, in these Madras coast districts, and secondly at the hottest stations in the Deccan :—

PROVINCE.	STATION.	Highest maximum temperature recorded in May 1892.	Date on which recorded.	Highest maximum temperature recorded in May previous to 1892.	Year in which recorded.
		°		°	
Central Madras coast districts.	Rajahmundry .	116·1	14th	114·1	1887
	Masulipatam .	114·7	26th	114·4	1887
	Nellore . .	115·7	15th	?	?
	Coconada .	112·4	23rd & 24th.	?	?
Deccan . .	Cuddapah .	113	14th & 16th.	111·5	1886
	Kurnool . .	1116	19th	111·9	1883
	Bellary . .	107·5	2	110·3	1879
	Secunderabad .	109·8		110·4	1883

The maximum temperatures registered at the Central Madras coast stations (Rajahmundry, Masulipatam and Nellore) were higher than those registered during the month over the whole of India with the exception of Sind and the Punjab. These excessive temperatures in the Central Madras coast districts are usually registered when a depression exists in the Bay, and the Deccan has not been cooled down by general rain. They occur, hence, most frequently in May. They occurred under what may be termed the normal conditions of excessive temperature in that area in May 1892. The figures given show that the temperatures registered at the coast stations and also at Cuddapah were higher than any previously recorded in May.

The mean minimum or night temperature was above the normal over the whole of India with the exception of Lower Burma, North Bengal, Malabar, Mysore and an area including the stations of Sholapur, Akola, Khandwa and Indore. The variations in these areas of diminished night temperature were in almost all cases small, and exceeded 2° at Cochin only (—2·8°).

Over the remainder of India the night temperature was in excess, but generally by smaller amounts than the day temperature. The areas of greatest excess of night temperature approximately coincided with those of the greatest excess of day temperature. The following gives data for the two areas in which the mean excess of the month was above 4° :—

DISTRICT.	STATION.	MEAN MINIMUM TEMPERATURE.		
		Actual, May 1892.	Normal, May.	Variation from normal.
		°	°	°
WEST BENGAL, CHOTA NAGPUR AND CENTRAL PROVINCES EAST.	Hazaribagh .	78·9	74·0	+4·5
	Chaibassa .	82·5	78·4	+4·1
	Raipur . .	86·0	80·8	+5·2
PUNJAB . .	Delhi . .	84·5	78·9	+5·6
	Meerut . .	79·0	74·9	+4·1
	Sirsa . .	80·8	75·7	+5·1
	Ludhiana . .	78·8	73·4	+5·4
	Mooltan . .	80·7	75·5	+5·2
	Sialkot . .	78·3	73·6	+4·7

As the variations of both the day and night temperature were generally the same in character, differing only to some extent in amount, the variations of the mean temperature of the month from the normal were similar to those already described of the maximum and minimum temperatures of the month. The mean temperature of the month was below the normal in the three areas in which the rainfall of the month was in excess, *viz.*, Assam and North Bengal, Lower Burma and Tenasserim, and Malabar, Mysore and Coorg. The deficiency was generally small in amount and less than 2° at all stations in these areas except at Dhubri (—2·5°), Moulmein (—2·0°), Mergui (—4·9°) Coimbatore (—2·0°), and perhaps Diamond Island (—2·4°), but the temperature data of that station are at present doubtful. There was also a small deficiency in the area represented by Rajkot, Deesa, Indore, Khandwa and Akola. The deficiency in that area was greatest at Khandwa (—1·8°) and Rajkot (—1·5°).

The mean temperature of the month was in excess over the remainder of India. The excess was more than 2° in the Punjab, Upper Sind, the North-Western Provinces, South Bihar, Chota Nagpur, West Bengal, the eastern districts of the Central Provinces, Hyderabad, and the Madras coast districts. The mean temperature of the month was more than 4° in excess in the West Punjab, West Bengal, South Bihar, Chota Nagpur and the eastern districts of the Central Provinces. The following gives mean tem

perature data for these areas of greatest excess of temperature:—

District.	Station.	Mean Temperature.		
		Actual, May 1892.	Normal, May.	Variation from normal.
		°	°	°
West Punjab	Peshawar	88·3	82·2	+6·1
	Mooltan	95·7	89·9	+5·8
	Dera Ismail Khan	93·4	88·5	+4·9
	Lahore	91·6	86·4	+5·2
	Ludhiana	92·2	86·9	+5·3
West Bengal, Chota Nagpur and Central Provinces East.	Gya	95·1	90·9	+4·2
	Chaibassa	95·6	90·8	+4·8
	Sambalpur	96·8	93·0	+3·8
	Raipur	97·4	101·4	+4·0

The excessive temperature was on the whole even more strongly marked at the hill stations in Upper India than at the adjacent plain stations. The following gives data:—

Station.	Mean Temperature.		
	Actual, May 1892.	Normal, May.	Variation from normal.
	°	°	°
Leh	51·0	47·5	+3·5
Murree	71·9	66·4	+5·5
Simla	68·4	64·7	+3·7
Chakrata	68·7	64·5	+4·2
Ranikhet	72·4	67·6	+4·8

The following gives a brief statement of the larger temperature changes during the month over the Indian land area:—

At the end of the month of April temperature was generally slightly below the average in consequence of the occurrence of numerous thunderstorms and duststorms during the last three days of that month in Northern and Central India. The following table giving temperature variation data of the 24 hours ending 8 A.M. of the 1st illustrates the temperature conditions at this period:—

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

A cyclonic storm, which formed in the Arabian Sea in the last week of April, crossed the coast of Cutch on the afternoon of the 1st, and travelled in a north-easterly direction across Rajputana and the South-East Punjab to the foot of the hills. It gave moderate rain to the greater part of Cutch, Kathiawar, Rajputana and the South-East Punjab. This caused a large reduction of temperature over the whole of North-Western and Central India which was most marked on the 2nd. The following gives temperature variation data of the 24 hours preceding 8 A.M. of the 3rd, which should be compared with the corresponding data for the 1st:—

Province.	Variation of		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma	—0·6	—0·2	—0·4
Bengal and Assam	+2·7	+4·9	+3·8
North-Western Provinces	—1·4	—3·6	—2·5
Punjab	—8·4	—4·4	—6·4
Sind and Rajputana	—10·6	—5·0	—7·8
Guzerat and Central India	—9·2	—4·2	—6·7
Central Provinces	—5·7	—2·1	—3·9
Bombay	—3·0	+0·3	—1·4
Madras	+1·1	+0·7	+0·9

Temperature increased very rapidly on the 4th, 5th and 6th in North-Western India, and was considerably above the normal on the 6th over the whole of India except South Madras and Lower Burma. The following gives the variations of the mean temperature of the 3rd and 7th:—

Province.	Variation of		Increase of temperature relative to the normal during the period 3rd to 7th.
	Mean temperature of 24 hours preceding 8 A.M. of the 3rd.	Mean temperature of 24 hours preceding 8 A.M. of the 7th.	
	°	°	°
Burma	—0·4	—1·6	—1·2
Bengal and Assam	+3·8	+3·8	0
North-Western Provinces	—2·5	+2·9	+5·4
Punjab	—6·4	+6·6	+13·0
Sind and Rajputana	—7·8	+1·6	+9·4
Guzerat and Central India	—6·7	+0·7	+7·4
Central Provinces	—3·9	+3·0	+7·0
Bombay	—1·4	+2·4	+3·8
Madras	+0·9	+0·1	—0·8

The chief feature in the distribution of temperature on the 6th and 7th was the large excess in the West Punjab (averaging 9°) and in West Bengal, Chota Nagpur and South Bihar (averaging 6°).

Weather now became disturbed with frequent thundershowers in East and North Bengal, and rain was received almost daily in Assam, Lower Burma and Southern India.

Temperature was hence steadily below the average, but continued to increase over nearly the whole of Northern and Central India. The 10th, 11th and 12th were excessively hot days in Bihar, Chota Nagpur and the North-Western Provinces. A slight fall occurred during the next three days in North-Western India. The following gives comparative data of the 11th and 15th :—

PROVINCE.	VARIATION OF MEAN TEMPERATURE OF THE 24 HOURS PRECEDING 8 A.M. OF THE		Decrease of temperature relative to the normal conditions during the period 11th to 15th.
	11th.	15th.	
	°	°	°
Burma	+0·2	−0·1	−0·3
Bengal and Assam	+1·5	+0·9	−0·6
North-Western Provinces	+6·8	+4·3	−2·5
Punjab	+6·7	+3·7	−3·0
Sind and Rajputana	+3·8	+0·7	−3·1
Guzerat and Central India	+3·1	0	−3·1
Central Provinces and Berar	+3·2	+0·1	−3·1
Bombay	+0·5	+0·3	−0·2
Madras	+2·8	+3·2	+0·4

These figures show that a general and uniform fall of temperature relatively to the normal conditions occurred during this period over the whole of North-Western and Central India. The cause of this is not indicated by the observations at the plain stations.

Temperature increased from the 16th to the 20th over the whole of Northern and Central India except Assam and Bengal where heavy rainfall reduced temperature considerably below the normal. The following gives data of the 24 hours preceding 8 A.M. of the 21st :—

PROVINCE.	VARIATION OF		
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
	°	°	°
Burma	−2·3	−0·6	−1·5
Bengal and Assam	−2·9	0	−1·5
North-Western Provinces	+5·7	+8·5	+7·1
Punjab	+12·7	+11·3	+12·0
Sind and Rajputana	+3·7	+5·3	+4·5
Guzerat and Central India	+2·6	+4·0	+3·3
Central Provinces	+3·4	+4·7	+4·1
Bombay	−0·2	−0·1	−0·2
Madras	+0·5	+2·0	+1·3

The mean temperature of the 21st was 15·5° in excess of the normal at Peshawar and 14·8° in excess at Murree, at which stations the excess was greatest.

The weather was disturbed with numerous duststorms and thunderstorms in Northern and Central India during the next four days. This caused a large reduction of temperature which was most marked on the 24th. Variation data of that day are given in the following table :—

PROVINCE.	VARIATION OF		
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
	°	°	°
Burma	−0·7	−0·1	−0·4
Bengal and Assam	−3·6	−1·7	−2·7
North-Western Provinces	−8·3	−4·0	−6·2
Punjab	−4·5	0	−2·3
Sind and Rajputana	+1·4	+1·3	+1·4
Guzerat and Central India	−6·5	−0·8	−3·7
Central Provinces	−3·0	−1·0	−2·0
Bombay	−1·2	−0·1	−0·7
Madras	+3·4	+2·0	+2·7

Temperature again increased rather rapidly until the 27th when it was more or less largely in excess except in Burma and Bombay.

Heavy rain was at this time falling in the Malabar coast and advancing northwards. It extended to the Konkan and West Deccan on the 28th, and the influence of the advancing current caused a slight general reduction of temperature over India. The following table gives the variations of the mean daily temperature from the normal on the 29th and 31st :—

PROVINCE.	VARIATION OF		Change of temperature relative to the normal conditions during the period 29th to 31st.
	Mean temperature of 24 hours preceding 8 A.M. of the 29th.	Mean temperature of 24 hours preceding 8 A.M. of the 31st.	
	°	°	°
Burma	−1·1	−1·3	−0·2
Bengal and Assam	+1·0	+0·2	−0·8
North-Western Provinces	+4·1	+3·0	−1·1
Punjab	+4·1	+2·9	−1·2
Sind and Rajputana	+1·1	+2·0	+0·9
Guzerat and Central India	+1·3	+1·7	+0·4
Central Provinces	+2·5	+2·3	−0·2
Bombay	−0·9	−1·4	−0·5
Madras	+2·5	+0·3	−2·2

Winds.

The mean 8 A.M. wind directions of the month at all stations recording observations at that hour are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart, No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

Winds in May 1892 were slightly stronger and steadier

in Burma, and were on the average of the month approximately normal in character. The mean wind direction at Port Blair was S. 65° W., the normal being S. 34° W.

The strongly marked hot-weather conditions in the interior of Northern and Central India and more especially in West Bengal and Chota Nagpur gave unusually strong and steady winds in Bengal. The following gives data for four representative stations :—

STATION.	STEADINESS.			VELOCITY.		
	Average, May 1892.	Normal, May.	Variation.	Average daily air movement, May 1892.	Normal daily air movement, May.	Variation.
Saugor Island .	85	69	+16	485	367	+118
False Point .	86	71	+15	421	322	+ 99
Calcutta . .	85	66	+19	202	174	+ 28
Berhampore .	50	37	+13	113	132	− 19

As usually happens in periods of increased indraught in the hot-weather months across the Bengal coast, winds were more directly from the south than usual at the coast stations, whilst in the interior of Bengal the westerly component of the southerly winds was more strongly marked than usual. The following gives data in illustration of these features :—

STATION.	DIRECTION.		
	Average direction, May 1892.	Normal direction, May.	Westerly deflection.
False Point . . .	S 4° W	S 31° W	−27°
Saugor Island . . .	S 2° E	S 12° W	−14°
Calcutta	S 18° W	S 11° E	+39°
Burdwan	S 8° W	S 9° E	+17°
Berhampore . . .	S 22° E	S 36° E	+14°

The winds in the Assam valley were normal in direction, and were stronger and steadier than usual. The easterly winds of Assam and the southerly winds in Bengal were continued westwards as easterly winds in Bihar. The following shows the increased strength of the winds in that area :—

STATION.	STEADINESS.			VELOCITY.		
	Average, May 1892.	Normal, May.	Variation.	Average daily air movement, May 1892.	Normal daily air movement, May.	Variation.
Patna . .	35	38	− 3	176	115	+61
Darbhanga .	79	59	+20	199	144	+55

The hot dry westerly winds of the month blew with unusual strength and steadiness in the Gangetic plain. This increased strength was, as might be expected, most strongly exhibited at the more eastern stations. It was also further shown by the abnormal extension of the westerly winds across Chota Nagpur. The following gives data for four typical stations in these areas:—

DISTRICT.	STATION.	DIRECTION.		STEADINESS.			VELOCITY.	
		Average direction, May 1892.	Normal direction, May.	Average, May 1892.	Normal, May.	Variation.	Average daily air movement, May 1892.	Normal daily air movement, May.
CHOTA NAGPUR	Hazaribagh	N 81° W	S 77° W	47	15	+32	249	210
NORTH-WESTERN PROVINCES EAST.	Allahabad .	N 36° W	N 8° E	64	20	+44	119	96
DO. WEST .	Agra . .	N 73° W	N 72° W	58	30	+28	160	80
EAST PUNJAB .	Lahore .	N 64° W	N 7° E	12	21	− 9	90	78

Winds were less steady during the month in the area including Roorkee (steadiness percentage 10), Ludhiana (26) and Lahore (12).

In consequence of the displacement of the hot-weather low pressure area from Upper Sind to the Central Punjab, throughout by far the greater part of the month, winds, although stronger and steadier than usual in Sind, differed considerably in direction from the normal. The deflection was greatest at Jacobabad where the mean direction during the month was S. 66° W., the normal being S. 61° E.

In Rajputana and Central India winds were stronger and steadier than usual, and were on the average almost due west and contained an abnormally small northerly element. The average amount of wind per diem at Bhuj was 423 miles, at Rajkot 290 and at Pachpadra 384 miles. The indraught at the sea level was much stronger on the Cutch and Kathiawar coasts than on the Konkan coast.

Winds were slightly steadier than usual and approximately normal in strength and direction in the West coast districts.

They were considerably stronger and steadier in the Bombay Deccan and the Central Provinces across which areas westerly winds of unusual intensity blew during the month. The following data for typical stations illustrate these features :—

DISTRICT.	STATION.	STEADINESS.			VELOCITY.		
		Average, May 1892.	Normal, May.	Variation.	Average daily air movement, May 1892.	Normal daily air movement, May.	Increase expressed as a percentage.
DECCAN . .	Sholapur .	63	46	+17	262	241	+ 9
BERAR . .	Akola .	81	72	+ 9	272	203	+34
CENTRAL PROVINCES.	Raipur .	63	39	+24	247	185	+34
	Khandwa .	75	69	+ 6	250	221	+13
	Jubbulpore .	71	44	+27	?	105	...
RAJPUTANA	Deesa .	?	?	?	357	321	+11
	Ajmere .	89	63	+24	311	177	+75

The mean wind directions of the month in these areas agreed closely with the normal in the great majority of cases, and indicated a strong drift from west-north-west across the northern half of the Peninsula.

In Southern India the only feature of importance was the preponderance of north-westerly and westerly winds in the southern districts of Madras and Mysore. The following gives data in illustration:—

Station.	Direction.		Velocity.	
	Average direction, May 1892.	Normal direction, May.	Average daily air movement, May 1892.	Normal daily air movement, May.
Bangalore . . .	N 82° W	S 80° W	208	143
Trichinopoly . . .	N 89° W	S 71° W	202	133

The winds at the hill stations in the Punjab showed important deviations from the normal. Thus at Murree the mean wind direction of the month was S. 18° E. and at Simla the mean wind direction was N. 19° E., the normal being S. 66° W. At the hill stations in the North-Western Provinces and Sikkim windswere stronger and steadier than usual, but were approximately normal in direction.

The chief features of the air motion of the month were hence evidently due to the strongly marked hot weather conditions of the month. The local indraught from the adjacent seas was greater than usual, the increase being greatest across the Sind, Cutch, and Kathiawar coasts in the case of the Arabian Sea, and across the Bengal and Orissa coasts in that of the Bay of Bengal. Each of the three currents which converge towards the hot weather low pressure area in Chota Nagpur was much stronger than usual. The increase was least marked in the feeblest and the least important of the three currents, *viz.*, that in the Assam valley.

Humidity and Cloud.

The hygrometric data of the month employed in the following paragraphs are given in Table II. In that table are columns giving the monthly means of the wet bulb readings at 10 and 16 hours and the minimum and vapour tension and of the humidity at the same hours, and also the daily means of these elements. The hygrometric data are taken from the tables accompanying the Indian Meteorologist's Vade-Mecum, which 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 5 to 25 years of the available cloud data for the same hours.

The amount of aqueous vapour present in the air in May 1892 was slightly greater than usual in Lower Burma, Bengal and Bihar due to the larger indraught of local sea breezes than usual. The increase was greatest and most marked in Bihar. Humidity was also above the normal over the whole of the area except West Bengal, where the temperature was very largely above the average The following gives data for the Bihar stations where the excess was greatest:—

Station.	Mean aqueous vapour pressure.			Average Humidity.		
	Actual, May 1892.	Normal, May.	Variation from normal.	Actual, May 1892.	Normal, May.	Variation from normal.
	"	"	"	%	%	
Patna . .	·864	·684	+·180	62	54	+8
Darbhanga .	·795	·758	+·037	68	60	+8

The amount of aqueous vapour was less than usual over nearly the whole of the East Punjab, the North-Western Provinces and Chota Nagpur, in which the hot day winds of the period were even stronger and steadier than usual. The following gives data for the stations at which the deficiency was most noteworthy:—

Station.	Mean aqueous vapour pressure.			Mean Humidity.		
	Actual, May 1892.	Normal, May.	Variation from normal.	Actual, May 1892.	Normal, May.	Variation from normal.
	"	"	"	%	%	
Hazaribagh .	·385	·474	—·089	30	41	—11
Allahabad . .	·432	·532	—·100	28	38	—10
Lucknow . .	·473	·549	—·076	33	41	—8
Ludhiana . .	·457	·488	—·031	35	43	—8

The amount of aqueous vapour was also less than usual in Upper Sind at Jacobabad, but was on the other hand in slight excess in the West Punjab and Lower Sind. The mean humidity was 11 below the normal mean of the month (32) at Jacobabad.

The variations of the hygrometric conditions from the normal were small in the West coast districts, the West Deccan, Berar, and the western districts of the Central Provinces. There was a very large deficiency in the amount of aqueous vapour in the eastern districts of the Central Provinces where the air was abnormally dry. The following gives data for that area:—

Station.	Mean aqueous vapour pressure.			Mean Humidity.		
	Actual, May 1892.	Normal, May.	Variation from normal.	Actual, May 1892.	Normal, May.	Variation from normal.
	"	"	"	%	%	
Sironcha . .	·513	·605	—·092	30	41	—11
Raipur . .	·357	·477	—·120	21	34	—13
Sambalpur .	·598	·684	—·086	35	47	—12

The humidity variations were small in Mysore and Madras except in the South Coromandel coast districts as represented by Madras and Trichinopoly where the mean humidity of the month was 7 below the normal.

The humidity variations at the hill stations were generally the same in character as at the neighbouring plain stations, but were larger in amount. The humidity percentage was above the normal at Mount Abu (+10) and Darjeeling (+6), and was more or less largely below the normal at the hill stations in the Western Himalayas. The deficiency exceeded 10 at the following stations for which comparative humidity data are given :—

Station.	Mean Humidity.			Mean aqueous vapour pressure.		
	Actual, May 1892.	Normal, May.	Variation from normal.	Actual, May 1892.	Normal, May.	Variation from normal.
	%	%	%	"	"	"
Chamba . .	32	46	—14	·308	·349	—·041
Simla . .	35	48	—13	·233	·290	—·0
Chakrata . .	38	50	—12	·250	·275	—.025
Pithoragarh .	41	53	—12	·345	·362	—.017
Murree . .	32	44	—12	·235	·261	—.026

The hygrometric conditions of the month were hence less noteworthy than those of the preceding month. The air was drier than is usual in May in the Punjab, North-Western Provinces, the eastern districts of the Central Provinces and Chota Nagpur, which were beyond the influence of the sea winds blowing across the Bengal and Bombay coasts, whilst it was damper than usual in those districts to which the local sea breezes from the adjacent sea areas extended during the month (and more especially in Burma, Bengal, Assam, Lower Sind, Rajputana and the West Deccan).

The air was on the average driest and hottest in North-Western India on the 20th, 21st and 22nd immediately before the first great advance of south-west humid winds northwards along the Malabar and Konkan coasts. Very low humidities were registered at this time, but they are less noteworthy than the extremely low humidities registered in the driest districts of India in the preceding months of March and April. The following gives the lowest humidities registered during the month :—

Station.	Lowest humidity recorded during the month and date.
Jacobabad . . .	3 at 4 P.M., on 20th, 22nd, 23rd and 25th.
Ludhiana . . .	5 at 4 P.M., on 16th.
Deesa	6 at 4 P.M., on 5th.
Lucknow . . .	6 at 4 P.M., on 16th and 17th.
Raipur	6 at 4 P.M., on 12th.
Chamba . . .	6 at 4 P.M., on 1st.

The mean cloud amount was considerably above the normal in Lower Burma, East Bengal and Assam. The excess was greatest at Diamond Island (+3·7), Dacca (+2·7), Dhubri (+2 5) and Port Blair (+2·4). It was in slight excess in West Bengal, but was more or less below the average over the whole of Bihar, Chota Nagpur, the Gangetic plain and the Punjab. The deficiency was actually and relatively to the normal greatest in the area represented by the following stations :—

Station.	Mean Cloud Amount.		
	Actual, May 1892.	Normal, May.	Variation from normal.
Meerut	0·9	1·9	—1·0
Roorkee	1·0	1·8	—0·8
Ludhiana	1·2	2·2	—1·0
Dehra Dun	1·6	2·8	—1·2

It was also very large locally at Patna (—1·9) and Mooltan (—1·2). The average amount of cloud was practically normal in Sind, Rajputana and Central India, ranging between 1 and 2. It was in moderate defect in the Central Provinces and Berar, the deficiency being greatest at Jubbulpore (—1·2). It was normal in Berar and in moderate excess at the West coast stations except Bombay and in theDeccan. It was slightly above the normal in Mysore, but below it to a moderate extent in South and Central Madras. The cloud proportion was in moderate excess in the Eastern Himalayas and practically normal in the Western Himalayas except at Murree [where it was 1·4 below the normal amount (4·3)] and in Kumaon and Garhwal as represented by Pithoragarh (1·2 in defect) and Ranikhet (0·9 in defect).

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 Gazettes*. 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 May 1892,

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 or the provincial monthly rainfall statements published by the local Governments.

The first rainfall chart (Plate IV) illustrates 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. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the provincial monthly rainfall statements, so far as possible, and, where they were not available, from the rainfall information telegraphed by district officers. A comparative statement of the rainfall in each of the meteorological districts is given in the following table, and the actual figures utilized in the chart were those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall. A number given in a corner of each district in small slanting figures serves as an index by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

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 Cherra Punji.

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 following table gives comparative rainfall data of the month for each of the 52 meteorological districts into which India is divided. The means are obtained for all, except certain districts named, from the monthly rainfall statements published by the provincial Governments. The rainfall statements of the provinces of Punjab and Burma and of the native states of Mysore were not received in time, and hence the weekly rainfall data telegraphed to Simla were utilized for the divisions in these provinces.

Province.	Division.	Actual average number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	26·41	20·68	+ 5·73
	Lower Burma*	?	?	9·47	11·12	— 1·65
	Central do.*	?	?	7·01	8·52	— 1·51
	Upper do.*	?	?	5·20	?	?
	Arakan*	?	?	9·23	18·24	— 9·01
Bengal and Assam	Eastern Bengal	11·2	10·9	11·01	9·36	+ 1·65
	Assam (Surma)	?	?	21·77	18·94	+ 2·83
	Do. (Brahmaputra)	?	?	17·83	11·83	+ 6·00
	Deltaic Bengal	8·2	8·0	5·29	6·20	— 0·91
	Central do.	7·3	6·9	4·21	5·02	— 0·81
	North do.	17·4	10·7	19·33	10·24	+ 9·09
	Orissa	2·0	5·7	1·62	3·88	— 2·26
	Chota Nagpur	2·7	4·2	1·25	2·65	— 1·40
	Bihar (South)	0·8	2·6	0·25	1·90	— 1·65
	Do. (North)	4·2	4·1	2·62	3·20	— 0·58

* The figures entered against these divisions have been calculated from the data in the weekly reports of the month.

PROVINCE.	DIVISION.	Actual average number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
				Inches.	Inches.	Inches.
NORTH-WESTERN PROVINCES AND OUDH.	North-Western Provinces (East)	0·4	1·0	0·13	0·48	— 0·35
	Oudh (South)	0·5	1·1	0·16	0·57	— 0·41
	Do. (North)	0·4	1·8	0·22	0·95	— 0·73
	North-Western Provinces (Central)	1·1	0·9	0·38	0·39	— 0·01
	Do. do. (West)	1·2	1·1	0·51	0·41	+ 0·10
	Do. do. (Submontane)	1·3	2·3	0·44	1·34	— 0·90
PUNJAB	Punjab (South)*	?	?	0·58	0·59	— 0·01
	Do. (Central)*	?	?	0·67	0·65	+ 0·02
	Do. (Submontane)*	?	?	1·02	0·86	+ 0·16
	Do. (Hill Districts)*	?	?	2·25	3·12	— 0·87
	Do. (North-West)*	?	?	0·65	1·13	— 0·48
	Do. (West)*	?	?	0·04	0·50	— 0·46
BOMBAY AND MALABAR COAST DISTRICTS (MADRAS).	Malabar	13·6	8·2	17·02	7·29	+ 9·73
	Madras (South Central)	7·5	5·9	4·36	4·03	+ 0·33
	Coorg	12·9	?	9·86	?	+ ?
	Mysore	?	?	3·67	3·40	+ 0·27
	Konkan	2·6	2·4	3·86	1·72	+ 2·14
	Bombay Deccan	3·7	3·5	2·14	1·83	+ 0·31
	Hyderabad (North)	2·4	?	1·02	0·81	— 0·21
	Khandeish	1·2	1·7	0·44	1·07	— 0·63
CENTRAL PROVINCES AND BERAR.	Berar	?	?	0·18	1·22	— 1·04
	Central Provinces (West)	0·4	1·0	0·14	0·48	— 0·34
	Do. (Central)	0·4	1·1	0·12	0·51	— 0·39
	Do. (East)	0·1	1·6	0·03	0·85	— 0·82
BOMBAY (NORTH)	Guzerat	0·1	0·5	0·04	0·30	— 0·26
	Kathiawar	0·5	0·4	0·34	0·27	+ 0·07
	Sind	0·2	?	0·05	0·11	— 0·06
RAJPUTANA AND CENTRAL INDIA.	Central India (East)	0·7	?	0·27	0·42	— 0·15
	Rajputana (East) Central India (West)	?	?	0·38	0·90	+ 0·52
	Rajputana (West)	0·9	?	0·82	0·47	+ 0·35
MADRAS	East Coast (North)	2·2	3·7	0·80	2·44	— 1·64
	Do. (do.) (a)	5·0	5·3	1·44	2·98	— 1·54
	Hyderabad (South)	1·4	?	0·48	1·23	— 0·75
	Madras (Central)	2·0	3·0	0·82	1·89	— 1·07
	East Coast (Central)	1·1	2·1	0·42	1·69	— 0·27
	Do. (South)	2·1	3·4	1·00	3·21	— 2·21
	Madras (South)	2·0	3·5	0·94	2·16	— 1·22

* The figures entered against these divisions have been calculated from the data in the weekly reports of the month.

Baluchistan was practically rainless throughout the month. Kashmir obtained occasional showers chiefly during the second week of the month, but the total amounts were small ranging between *nil* at Leh and 2½ inches at Srinagar.

The south-eastern districts of the Punjab, more especially Hoshiarpur, Gurdaspur, Amritsar, Ferozepur, Lahore, Umballa, Guzerat and Sialkot and the hill districts received moderate to heavy rain on the 2nd and 3rd due to the cyclonic storm of the 1st. It was heaviest in the Gurdaspur, which received an average of 1·6 inches from the storm, and in the Kangra and Simla hill districts. The eastern and southern districts obtained light showers on the 23rd, 24th and 25th. The rainfall of the month was in moderate excess in the eastern and southern districts, but was practically *nil* in the western and south-western districts.

The following gives a summary of the rainfall data of the month as given in the Provincial Statement of the month received whilst this Review was in the press :—

DIVISION.	Actual average number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation.
			Inches.	Inches.	Inches.
Punjab, South	1·3	1·1	0·68	0·48	+ 0·20
Do. Central	1·7	1·5	0·72	0·55	+ 0·07
Do. Submontane	1·4	1·9	1·09	0·84	+ 0·25
Do. Hill districts	3·7	5·3	1·94	2·70	— 0·76
Do. North-west	1·0	2·0	0·57	1·05	— 0·48
Do. West	0·3	1·0	0·07	0·46	— 0·39

There were two periods of rainfall in Rajputana. During the first period, including the 1st and 2nd of the month, the western and northern states received moderately heavy rain due to the remarkable storm described in the pressure section. The rainfall was heaviest and most

general in the states of Jodhpore, Sirohi, Jeysulmere, Oodeypore and Ajmere-Merwara. Several stations in Jodhpore received total amounts exceeding 2 inches during the storm.

The second period of rainfall was from the 22nd to the 26th. This was almost restricted to the eastern states of Jeypore, Bhurtpore and Ulwar.

The following gives a statement of the rainfall data of the larger states :—

	Rainfall.		
	Mean actual, May 1892.	Normal, May.	Variation from normal.
	Inch.	Inch.	Inch.
Jodhpore	0·87	0·52	+0·35
Jeypore	0·25	0·50	—0·25
Bhurtpore	0·68	0·61	+0·07
Dholepore	*Nil.*	*Nil.*	*Nil.*
Kerowlee	0·25	0·54	—0·29
Kotah	0·65	0·96	—0·31
Ajmere-Merwara	0·35	0·58	—0·23
Oodeypore	0·27	0·51	—0·24

The rainfall of the month was small in amount in Central India. Over a large part, including nearly the whole of Gwalior and Rewah, the rainfall was practically or absolutely *nil*. Bundelkhand received light showers on the 23rd, 24th and 25th which gave it an average of ·6 inch, or double the small normal rainfall of the month.

The North-Western Provinces and Oudh received frequent thundershowers during the disturbed period from the 22nd to the 26th of the month. The falls accompanying the thunderstorms were generally light. The largest amount in 24 hours was 1·5 inches on the 23rd at Dehra. The average rainfall of the province in May varies from four-tenths of an inch in the western districts to an inch in North Oudh. The rainfall of the month was normal in amount in the central and western districts, but was considerably in defect in North Oudh and the hill districts of Kumaon and Garhwal. The following gives data for the latter districts :—

District.	Rainfall.			Number of Rainy Days.		
	Actual, May 1892.	Normal, May.	Variation from normal.	Actual, May 1892.	Normal, May.	Variation from normal.
	Inches.	Inches.	Inches.			
Almora	1·07	2·67	—1·60	3·0	6·5	—3·5
Garhwal	0·82	3·16	—2·34	1·0	5·3	—4·3
Naini Tal	0·52	1·60	—1·08	1·2	2·8	—1·6

The hill districts as a whole hence received less than a third of their normal rainfall during the month.

The first week of the month was rainless over the whole of Bengal with the exception of the northern districts of North Bengal and Sikkim which received moderate showers. In the second week (*i.e.*, from the 7th to the 14th) rain fell daily in every district of North and East Bengal and in the Nadia, Khulna and Jessore districts. Rain continued to fall daily in the Jalpaiguri, Kuch Bihar and Darjeeling districts during the remainder of the month. Frequent thundershowers were also received in East and South-West Bengal, the 24th, 26th and 31st more especially being days of general and moderately heavy rain. The amounts registered in 24 hours were not so heavy as are sometimes recorded in April and May. The only reported falls exceeding 5 inches during the month were the following :—

District.	Station.	Heaviest rainfall during the month.
Mymensingh	Kishoreganj	5·32 inches on 22nd.
Jalpaiguri	Alipore Duar	5·55 inches on 20th.
Darjeeling	Buxa	5·65 inches on 20th.

The month was practically rainless in Orissa (except in Balasore) and in South and Central Bihar. Chota Nagpur received some showers between the 24th and 27th.

The chief feature of the precipitation of the month was the excessive rain in North Bengal and more especially in the Rangpur, Jalpaiguri, Kuch Bihar and Darjeeling districts.

The following gives data for these districts :—

Station.	Average number of Rainy Days.			Average Total Rainfall.		
	Actual, May 1892.	Normal, May.	Variation from normal.	Actual, May 1892.	Normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Rangpur	16·0	11·0	+ 5·0	18·00	11·00	+ 7·00
Jalpaiguri	21·0	12·0	+ 9·0	27·60	12·00	+ 15·60
Kuch Bihar	25·0	13·0	+ 12·0	36·20	13·00	+ 23·20
Darjeeling	19·	13·0	+ 6·4	16·20	10·50	+ 5·70

The neighbouring Assam districts of Goalpara, Kamrup and Darrang shared in this very heavy rainfall, and Kuch Bihar appears to have been the centre of this excessive precipitation. It received an average of 36·2 inches, or nearly three times its normal amount.

The rainfall of the month was unequally distributed over the remainder of Bengal, but was on the whole in moderate excess in East Bengal and in slight defect in South-West Bengal. It was more or less in defect in Bihar, Chota Nagpur and Orissa. The deficiency was greatest in the Gaya, Patna, Lohardaga, Palamau and Puri districts which received less than a fifth of their normal fall during the month.

In Assam rain fell almost daily throughout the whole Province. The only short breaks were from the 1st to 5th in the Brahmaputra valley districts, and from the 15th to the 19th in Cachar and Sylhet, and from the 26th to the

28th over the whole province. The rainfall was not so heavy as in the preceding month, and few large amounts in 24 hours were registered. At Cherra Punji amounts exceeding 5 inches were registered on only four days during the month, *viz.*:—

5th	5·13 inches.
12th	9·35 ,,
18th	5·70 ,,
31st	5·63 ,,

The total rainfall of these four days was 25·81 inches, and of the month 57·47 inches, so that more than half the rainfall of the month fell on these four days.

The following amounts exceeding 5 inches were recorded in the plain districts:—

District.	Station.	Date.	Heaviest rainfall.
			Inches.
Cachar . . .	Silchar . . .	12th	5·06
	Bikrampur . .	12th	6·20
Kamrup . .	Dorakahara . .	11th	5·83
	Rangiya . . .	11th	5·52
	Mandakata . .	12th	6·10
	Bajali . . .	12th	5·50
Sylhet . . .	Chandpur . .	21st	5·08
Goalpara . . .	Kachungaon . .	19th	5·47

The following table gives a comparative statement of the rainfall in each of the plain districts in Assam, based upon the weekly returns received from these districts, as the Provincial Monthly statement was not received in time for use in this Review:—

District.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
	Inches.	Inches.	Inches.
Sylhet	23·22	20·70	+ 2·52
Cachar	19·36	17·17	+ 2·19
Goalpara	29·63	15·39	+ 14·24
Kamrup	19·56	9·51	+ 10·05
Darrang	16·25	10·54	+ 5·71
Nowgong	7·96	9·25	— 1·29
Sibsagar	11·51	11·27	+ 0·24
Lakhimpur	23·12	13·79	+ 9·33

This statement shows that the rainfall was excessive in the western and central districts of the Brahmaputra valley, and was practically normal in the eastern districts and in Cachar. Goalpara and Kamrup received double their normal amounts.

The Burma Provincial Statement for May has not been received up to date. So far as can be judged from the weekly telegrams from the district officers fairly general and steady rain fell throughout the month.

Tenasserim received heavier rain than usual throughout the month. It obtained an average total of 26·41 inches or 28 per cent. above its normal amount. Lower and Central Burma received frequent showers throughout the month, but the total rainfall was in moderate defect (less than 20 per cent.). In Upper Burma an average of 5·2 inches was received, considerably more than the averages of the corresponding months of the past two years and probably slightly in excess of the normal.

Arakan obtained light to moderate showers chiefly during the first three weeks of the month which gave it an average total of 9·23 inches, barely 50 per cent. of its normal amount in May, *viz.*, 18·24 inches.

May 1892 was unusually dry in the Central Provinces. A few light thundershowers were received in the central and western districts, chiefly on the 2nd and 26th. At 46 out of 66 raingauge stations the total rainfall of the month was less than a tenth of an inch, and it was absolutely *nil* at 34 stations. The average normal rainfall of the Central Provinces in May is six-tenths of an inch, and the average actual rainfall of May 1892 was barely a tenth of an inch.

Hyderabad (Deccan) was practically rainless until the last week of the month when it shared in the moderate burst of rain received in the Peninsula south of Lat. 18°N. The rainfall was chiefly due to thundershowers and was hence very irregularly distributed. So far as can be judged from the rainfall returns received from that state, the total rainfall of the month was on the whole in moderate excess in the northern districts, normal in the central districts, and in defect in the southern districts, more especially in the districts of Lingsugur, Raichur and Gulburga.

The first burst of the south-west monsoon rains commenced in the North Canara and Ratnagri districts in the last week of the month, but did not extend to Bombay until the beginning of June. The rains commenced in North Canara on the 27th and 28th, and in Ratnagiri on the 29th and 30th. The following gives the heaviest falls:—

District.	Station.	Date of occurrence.	Heaviest fall.
			Inches.
North Canara . .	Karwar . .	29th	10·40
	Kumta . . .	29th	10·95
Ratnagiri . . .	Devgad . .	31st	5·79
	Malvan . .	31st	5·15

The districts of Belgaum, Dharwar and Kolhapur had frequent local thundershowers during the first week of the month, and the whole of the Deccan obtained fairly general but moderate rain from the 27th to the end of the month.

The northern districts of Bombay including Khandeish, Surat and Guzerat, and Sind were practically rainless throughout the month. Cutch and Kathiawar received light to moderate rain on the 1st and 2nd from the cyclonic storm which passed through these districts on the 1st. The only noteworthy rainfall due to the storm was 5·76 inches at Nalia on the Cutch coast.

The rainfall of the month was in slight excess in the Deccan districts. It was largely above the normal in North Kanara which received an average of 9·1 inches, the normal being 3·2 inches. The rainfall of the month at Karwar was 18·43 inches, or 15·61 inches above the normal. The rainfall of the month was normal or in slight defect in Khandeish, Guzerat, Kathiawar and Sind.

May 1892 was an unusually dry month over the greater part of the Madras Presidency. Malabar and South Canara received frequent showers during the first fortnight of the month, and heavy rain during the last week. The south-west monsoon rains proper commenced on the 26th in these districts. Cannanore obtained 14·42 inches, and Tellicherry 18·4 inches during the last six days of the month.

Occasional light rain was received in the remaining districts during the month (chiefly during the first three weeks). The showers were most frequent and heaviest in the Salem and Coimbatore districts. Tanjore, Chingleput, Nellore, Kistna and Godavari were the driest districts during the month, receiving average rainfalls of less than half an inch. The rainfall of the month in each of these districts was less than a fourth of the normal amount and was very deficient. It was more or less in defect in all other districts except Salem and Coimbatore which obtained their normal amount, and Malabar and South Canara where it was very largely in excess. The following gives comparative rainfall data for each district in Madras, and shows fully the distribution of the rainfall of the month :—

DISTRICT.	Average actual number of rainy days.	Normal number of rainy days.	Average actual rainfall of month.	Normal rainfall of month.	Variation from normal.
			Inches.	Inches.	Inches.
Ganjam	2·3	4·0	1·02	2·57	− 1·55
Vizagapatam	2·8	4·3	1·00	2·78	− 1·78
Godavari	1·5	2·8	0·40	1·99	− 1·59
Kistna	1·1	2·6	0·37	1·73	− 1·36
Nellore	1·2	1·8	0·45	1·66	− 1·21
Chingleput	0·7	2·0	0·26	2·53	− 2·27
North Arcot	3·5	3·4	1·39	2·94	− 1·55
South Arcot	2·1	3·4	1·23	3·31	− 2·08
Tanjore	0·9	3·5	0·48	3·34	− 2·86
Trichinopoly	2·7	4·6	1·52	4·03	− 2·51
Madura	2·3	3·8	1·03	2·33	− 1·30
Tinnevelly	1·5	3·1	0·77	1·85	− 1·08
Malabar	13·6	9·0	16·47	8·50	+ 7·97
South Canara	13·6	7·2	17·87	5·40	+ 12·47
Salem	8·3	6·2	4·70	4·31	+ 0·39
Coimbatore	6·6	5·5	3·99	3·70	+ 0·29
Nilgiris	10·9	9·8	4·85	630	− 1·45
Cuddapah	1·9	2·8	0·76	1·92	− 1·16
Anantapur	1·8	3·2	0·64	2·39	− 1·75
Bellary	2·9	3·5	1·14	1·94	− 0·80
Kurnool	1·6	2·4	0·79	1·30	− 0·51

Travancore and Cochin obtained frequent showers during the first week of the month and fairly steady rain during the last ten days of the month. The following gives mean data for these areas and for Coorg :—

	Average total rainfall of the month of May 1892.
	Inches.
Travancore	5·90
Cochin	10·03
Coorg	9·86

The falls were in no case heavy, the largest amount recorded in 24 hours in Travancore being 3·85 inches at Meenachal on the 7th, and in Cochin 3·10 inches at Trichoor on the 16th.

The following reports of the damage caused by the cyclone of the 1st in Cutch were received too late for insertion in the body of the Review :—

The Diwan of Cutch sent the following report of the storm to the Political Agent —'On the 1st instant, a heavy cyclonic gale passed over this town and other parts of Cutch. Early in the morning it began to rain heavily here with thunder and lightning followed by strong winds which grew into a tremendous force from about 11 o'clock and continued till near evening. In the afternoon the force of the winds was so great that numbers of trees were uprooted, many lost their branches, and a great many others were denuded of their leaves altogether. The destruction in the gardens of His Highness, which were the work of years, is particularly heavy. Many houses in the town have lost their roofs and been damaged in other ways.

'At Mandvi also there has been much damage done to houses and other property and five of the passengers of a vessel that was on its way from Nawanagar to Karachi lost their lives, the rest about 10 in number were saved by the commendable energy and exertions of several men of the Bunder. One man living in a hut on the Bunder was killed by the hut being blown away along with him.

'Similar accounts have been received from other places, and it is believed that the effects of the storm, particularly as regards trees and vegetable gardens, have been ruinous and will tend to add to the distress caused by the last three years' scarcity of rainfall.'

The Political Agent reported as follows to the Government of Bombay :—

'On Sunday, the 1st instant, heavy rain fell between 7 and 9 A.M., with thunder and lightning.

'About 10-30 A.M., the wind began to blow with great force from the south-east and continued increasing in velocity until about 1-30 P.M., when it fell for about an hour and recommenced equally strongly from about north-west, lasting until 4-30 P.M.

'The Government registration shed was blown down and all the instruments except the dry maximum thermometer were destroyed. The anemometer is reported to have ranged over 488 miles in five hours, but as the instrument was blown down, no reliance can be placed on that record.

'The Mail Steamer *Pachumba* experienced a very heavy cyclone on the way from Bombay to Mandvi and was unable to call at any of the Kathiawar ports. Five of the passengers were washed over board.'

In the whole of Cutch 38 persons were killed in the cyclone and 141 persons were wounded. About 98,000 houses were damaged, 30 boats were destroyed and 22 others were injured.

126,000 trees were uprooted and about 500,000 were much injured. Rupees 93,000 worth of fodder and grass was lost and about ₹2,00,000 worth of damage was done to goods. Crops suffered to the value of a lakh and the total amount of the value of the loss occasioned in the province is estimated at ₹12,60,000, of which perhaps half will have to be borne by the Darbar.

In Mandvi and Rapur four times as much damage was done as in Anjar. In Mundra, Bhuj and Bhachan the loss varied from ₹1,10,000 to ₹50,000.

In Abdasa, Nakhtrana and Khawda, the amount lies between ₹26,000 and ₹18,000.

In Adesir, Lakhpat and Khadir only from ₹700 to ₹300 worth of harm was done.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 170 stations in India during the month of May 1892.

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 utilised 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 94 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 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.

Table

Abstract of Observations taken at 8 A.M., at 170 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.
Burma Coast and Bay Islands.		...	...	—·020	...	...	...	...	...	...	...	88·5	—1·7	75·4	—0·8	81·9	—1·3	13·3	...	...	...	...	23·2
Bay Islands	Port Blair	61	29·780	?	29·772	29·865	8th	29·684	23rd	·181	82·0	87·6	?	78·2	?	82·9	?	9·4	92·8	1st	72·7	13th	20·1
Tenasserim	Mergui	96	29·769	?	29·797	29·817	3rd & 27th.	29·686	25th	·131	77·9	84·5	?	68·5	?	76·5	?	16·0	89·4	22nd	65·9	27th	23·5
	Tavoy	26	29·853	?	29·810	29·910	5th	29·704	25th	·206	79·7	86·6	?	74·7	?	80·7	?	11·9	92·2	4th	72·2	27th	20·0
	Moulmein	94	29·753	—·014	29·785	29·838	5th	29·585	25th	·253	78·6	86·3	—3·9	75·4	—0·1	81·0	—2·0	10·9	92·5	3 days	73·3	2 days	19·2
	Toungoo	181	29·633	—·009	29·756	29·735	5th	29·513	25th	·222	81·3	94·3	—1·9	76·1	—0·1	85·2	—1·0	18·2	100·2	26th	70·7	16th	29·5
Lower Burma	Rangoon	41	29·783	—·030	29·761	29·882	5th	29·637	25th	·245	79·8	?	?	77·0	—0·1	?	?	?	?	?	73·9	28th	?
	Bassein	27	29·802	—·015	29·765	29·905	5th	29·688	25th	·217	80·4	90·4	—1·6	76·4	—0·4	83·4	—1·0	14·0	97·7	2nd	73·8	13th	23·9
	Diamond Island	41	29·786	—·023	29·762	29·884	5th	29·662	24th	·222	82·5	87·4	—1·5	75·5	—3·2	81·5	—2·4	11·9	93·3	1st	67·6	9th	25·7
Arakan	Akyab	20	29·777	—·029	29·739	29·903	5th	29·662	21st	·241	83·8	90·9	+0·5	76·8	—0·6	83·9	—0·1	14·1	94·1	10th	70·2	11th	23·9
Burma, Inland		...	...	—·004	...	...	...	...	...	...	...	96·3	—0·7	75·5	+0·9	86·1	+0·1	21·0	...	...	...	...	32·1
Central Burma	Thayetmyo	134	29·667	—·004	29·741	29·770	5th	29·584	25th	·186	84·3	98·8	—0·7	78·2	+0·9	88·5	+0·1	20·6	104·7	3rd & 16th.	74·4	26th	30·3
Upper Burma	Mandalay	?	29·528	?	29·474	29·662	5th	29·402	23rd	·260	84·1	99·1	?	76·1	?	87·6	?	23·0	103·4	12th	67·7	14th	35·7
	Kindat†	?	29·356	?	29·305	29·473	4th	29·224	29th	·249	80·5	95·5	?	?58·9	?	?77·2	?	?36·6	102·3	2 days	?49·0	1st	?53·3
	Bhamo	?	29·373	?	29·323	29·527	5th	29·269	26th	·258	79·0	91·8	?	72·3	?	82·1	?	19·5	98·1	2 days	67·8	12th	30·3
Assam		...	...	—·042	...	...	...	...	...	...	...	84·0*	—2·8	72·5	+0·4	78·2	—1·3	11·5	...	...	...	...	23·6
Assam (Surma)	Silchar	104	29·681	—·027	29·737	29·848	5th	29·580	26th	·268	77·1	86·9	—1·0	73·0	+0·9	80·0	—0·1	13·9	93·5	28th	67·3	11th	26·2
Brahmaputra	Sibsagar	333	29·422	—·067	29·713	29·560	2nd	29·325	23rd	·235	75·4	83·4	—3·1	72·1	+0·7	77·7	—1·2	11·3	92·6	28th	68·4	1st & 9th	24·2
	Dhubri	115	29·637	—·033	29·707	29·792	2nd	29·548	29th	·244	74·6	81·7	—4·4	72·3*	—0·5*	76·9*	—2·5	9·4	89·2	2 days	68·8	13th	20·4
Bengal and Orissa		...	...	—·037	...	...	...	...	...	...		93·5	+1·7	77·0	+1·9	85·3	+1·8	16·5	...	...	...	...	29·5
East Bengal	Chittagong	87	29·694	—·026	29·728	29·832	5th	29·589	22nd	·243	82·2	89·1	+1·2	76·3	+1·3	82·7	+1·3	12·8	95·2	6th	68·6	1st	26·6
	Lungleh	?	...	...	...	...	...	...	...	...	69·8	70·1†	?	64·5	?	67·5†	?	5·6	73·9	3rd	59·4	10th 11th & 13th.	14·5
	Noakhali	43	29·713	?	29·703	29·866	3rd	29·624	25th	·242	83·4	89·4	?	76·5	?	83·0	?	12·9	91·5	7th	67·8	13th	23·7
	Comillah	35	29·718	?	29·703	29·871	5th	29·614	21st	·257	81·5	90·2	?	75·7	?	83·0	?	14·5	96·8	18th	68·3	10th	28·5
	Sirajganj	46	29·678	?	29·674	29·822	2nd	29·590	21st	·232	79·4	89·3	?	74·2	?	81·8	?	15·1	96·1	5th	70·2	14th	25·9
	Dacca	22	29·710	—·037	29·680	29·870	3rd	29·614	21st	·256	82·2	91·5	+0·6	76·4	+0·8	83·9	+0·7	15·1	94·1	8th	70·2	10th	23·9
	Bárisal	13	29·723	—·028	29·680	29·877	3rd	29·612	22nd	·265	84·3	92·2	+2·7	77·5	+1·4	84·9	+2·1	14·7	95·3	3rd	68·9	14th	26·4
	Mymensingh	63	29·689	—·040	29·702	29·844	6th	29·602	22nd	·242	78·0	85·8	—3·2	73·7	+2·0	79·8	—0·6	12·1	91·7	5th	68·6	3 days	23·1
Deltaic Bengal	Faridpur	46	29·694	?	29·688	29·849	3rd	29·587	22nd	·262	82·1	91·8	?	76·0	?	83·9	?	15·8	94·5	5 dates	67·4	12th	27·1
	Jessore	33	29·678	—·044	29·658	29·838	3rd	29·552	21st	·286	84·5	96·2	+2·0	77·2	+0·9	86·7	+1·5	19·0	101·2	5th	68·0	15th	33·2
	Calcutta	21	29·678	—·041	29·644	29·840	2 days	29·556	22nd	·284	85·6	95·3	+1·9	79·0	+2·2	87·2	+2·1	16·3	98·1	2 days	71·2	28th	26·9
	Saugor Island	25	29·683	—·039	29·652	29·846	5th	29·556	22nd	·290	86·8	92·9	+1·4	82·6	+2·3	87·8	+1·9	10·3	94·2	2 days	75·0	23rd	19·2
	Krishnagar	46	29·644	?	29·638	29·808	3rd	29·530	22nd	·278	84·8	98·7	?	77·9	?	88·3	?	20·8	102·2	6th	69·7	14th	32·5
	Midnapore	149	29·544	?	29·638	29·705	5th	29·416	22nd	·289	87·1	103·3	?	79·8	?	91·6	?	23·5	111·4	1st	72·2	15th	39·2
Central Bengal	Bankura	298	29·355	?	29·599	29·514	5th	29·224	21st	·290	85·4	104·3	?	79·6	?	92·0	?	24·7	112·1	13th	71·1	25th	41·0
	Raniganj†	345	29·345	?	29·635	29·508	3rd	29·220	21st	·288	85·6	105·1	?	77·5	?	91·3	?	27·6	113·0	13th	70·4	9th	42·6
	Burdwan	99	29·597	—·039	29·642	29·762	3rd	29·476	22nd	·286	85·6	102·0	+5·1	79·6	+2·6	90·8	+3·9	22·4	107·7	1st	69·4	24th	38·3

† Mean of 28 days.

* Mean of 30 days.

I.

in India, Burma, etc., in May 1892.

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 1892.	Normal rainfall for period, 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	..	...	...	..	...	...	...	...	...	...	16·69	12·07	+4·62	...	...	...	**Burma Coast and Bay Islands.**	
5	...	...	...	1	1	9	11	4	7	7	0	87	·948	8·3	18	?	?	17·73	15·74	+ 1·99	20·29	18·39	+ 1·90	Port Blair .	BAY ISLANDS.
...	3	1	...	1	7	10	3	6	2	2	0	93	·887	7·7	24	?	?	25·81	16·86	+ 8·95	46·12	24·80	+21·32	Mergui .	TENASSERIM.
25	...	...	...	...	1	5	...	...	1	?	?	89	·902	5·6	27	?	?	26·88	16·77	+10·11	37·32	21·34	+15·98	Tavoy.	
7	...	6	8	7	1	...	...	2	3	3	0	91	·894	6·4	20	15·45	+4·55	23·08	15·88	+ 7·20	31·36	18·93	+12·43	Moulmein.	
4	...	...	1	11	15	...	...	...	4	4	0	85	·917	7·7	9	9·36	−0·36	5·11	6·15	− 1·04	12·10	8·08	+ 4·02	Toungoo.	
...	1	2	2	3	6	11	6	...	4	5	−20	89	·906	8·0	12	12·27	−0·27	6·26	9·56	− 3·30	7·91	11·38	− 3·47	Rangoon .	LOWER BURMA.
3	...	...	1	6	8	3	4	6	4	4	0	90	·938	7·1	14	11·18	+2·82	11·70	7·92	+ 3·78	13·11	9·35	+ 3·76	Bassein.	
1	2	1	3	3	4	9	5	3	8	7	+14	80	·882	8·6	19	10·18	+8·82	22·68	8·76	+13·92	22·70	10·10	+12·60	Diamond Island.	
1	...	9	10	5	5	...	...	1	3	4	−25	84	·976	6	15	10·09	+4·91	11·00	10·99	+0·01	12·44	12·61	− 0·17	Akyab .	ARAKAN.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·70	4·65	+1·05	...	...	...	**Burma, Inland.**	
...	...	...	1	2	26	2	...	...	9	7	+29	72	·835	5·6	3	6·64	−3·64	1·94	3·64	− 1·70	3·40	4·33	− 0·93	Thayetmyo	CENTRAL BURMA.
...	...	...	...	7	8	16	...	...	7	?	?	69	·812	5·2	6	?	?	6·76	5·36	+ 1·40	11·12	6·30	+ 4·82	Mandalay .	UPPER BURMA.
25	2	...	...	...	...	...	...	1	2	?	?	81	·840	1·6	10	?	?	4·47	5·08	− 0·61	6·79	6·54	+ 0·25	Kindat.†	
3	...	4	...	...	...	10	2	12	...	?	?	82	·814	5·7	17	?	?	9·62	4·51	+ 5·11	12·29	6·83	+ 5·46	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22·90	14·64	+8·26	...	...	...	**Assam.**	
25	1	2	1	...	...	...	...	2	1	3	−67	89	·824	8·3	20	17·27	+2·73	20·24	18·05	+ 2·19	47·31	42·41	+ 4·90	Silchar .	ASSAM (SURMA).
1	1	17	6	1	...	5	...	...	2	3	−33	95	·829	9·4	23	16·91	+6·09	15·76	12·08	+ 3·68	39·39	25·45	+13·94	Sibsagar .	BRAHMAPUTRA.
5	4	5	8	4	...	3	2	...	7	7	0	92	·789	8·4	25	15·13	+9·87	32·70	13·80	+18·90	37·87	21·54	+16·33	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·17	6·76	+0·18	...	...	...	**Bengal and Orissa.**	
5	...	1	3	12	8	1	1	...	5	6	−17	83	·921	7·7	9	10·91	−1·91	11·67	10·63	+ 1·04	23·38	17·06	+ 6·32	Chittagong	EAST BENGAL.
...	...	...	...	...	...	...	...	...	...	...	...	93‡	·686‡	...	17	...	...	13·63	?	?	23·33	?	?	Lungleh.	
2	...	1	3	9	14	2	...	...	7	?	?	84	?	3·3	9	10·0	−1·0	7·19	9·82	− 2·63	14·69	17·60	− 2·91	Noakhali.	
...	...	2	6	12	11	...	...	...	4	?	?	84	?	3·6	11	11·5	−0·5	11·99	10·35	+ 1·64	24·23	19·31	+ 4·92	Comillah.	
5	...	2	8	7	8	1	...	...	3	?	?	89	?	7·7	11	10·0	+1·0	7·78	7·27	+ 0·51	16·79	11·33	+ 5·46	Sirajganj.	
...	...	1	5	7	14	4	...	...	9	6	+50	86	·949	7·9	10	10·55	−0·55	8·76	8·38	+ 0·38	13·66	17·22	− 3·56	Dacca.	
11	...	1	...	5	11	3	...	...	6	?	?	81	·960	8·3	10	10·00	0	7·45	8·06	− 0·61	10·09	14·04	− 3·95	Bárisal.	
...	...	1	16	12	1	...	...	1	7	?	?	88	·851	6·9	16	13·05	+2·95	18·48	11·12	+ 7·36	27·96	17·36	+10·60	Mymensingh.	
2	...	...	6	6	14	3	...	...	7	?	?	86	?	5·0	12	10·7	+ 1·3	7·64	8·90	− 1·26	11·65	15·57	− 3·92	Faridpur .	DELTAIC BENGAL.
4	...	...	1	13	11	2	...	...	6	5	+20	85	1·012	6·6	10	9·18	+0·82	8·12	7·36	+ 0·76	9·95	13·90	− 3·95	Jessore.	
...	...	...	1	1	19	9	1	...	9	7	+29	79	·973	6·6	8	7·82	+0·18	4·29	5·97	− 1·68	5·94	9·68	− 3·14	Calcutta.	
...	...	1	...	4	21	5	...	...	21	15	+40	80	1·032	7·2	5	7·09	−2·09	1·69	4·39	− 2·70	1·72	7·19	− 5·47	Saugor Island.	
...	...	...	4	10	13	3	1	...	9	?	?	76	?	5·3	6	7·6	−1·6	2·24	5·83	− 3·59	6·42	9·80	− 3·38	Krishnagar.	
...	2	...	...	9	19	1	...	...	12	?	?	72	?	2·4	7	7·1	−0·1	3·40	5·13	− 1·73	5·08	8·09	− 3·01	Midnapore.	
5	...	...	1	2	22	...	...	1	6	?	?	73	?	4·0	8	8·5	−0·5	5·30	3·87	+ 1·43	6·14	6·58	− 0·44	Bankura .	CENTRAL BENGAL.
...	1	1	6	6	7	6	...	1	5†	?	?	72	?	2·3	4	5·5	−1·5	2·68	3·13	− 0·45	4·69	5·04	− 0·35	Raniganj.†	
1	2	...	...	...	15	12	1	...	8	5	?	71	·868	4·0	7	7·18	−0·18	3·92	5·76	− 1·84	5·84	9·12	− 3·28	Burdwan.	

* Mean of 28 days. † Mean of 25 days. ‡ Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M., at 170 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	490	29·174	?	29·613	29·334	3rd & 5th.	29·048	21st	·286	85·6	102·5	?	79·1	?	90·9	?	23·4	111·7	13th.	68·8	30th	42·9
	Berhampore	66	29·620	—·054	29·635	29·786	3rd	29·504	22nd	·282	81·7	98·5	+3·0	77·6	+1·7	88·1	+2·4	20·9	104·7	1st	70·3	31st	34·4
	Rampur Boalia.	70	29·624	?	29·643	29·774	3rd	29·512	22nd	·262	82·3	91·9	?	76·5	?	84·2	?	15·4	97·3	5th	69·2	31st	28·1
	Malda	80	29·617	?	29·648	29·761	2nd	29·504	21st	·257	81·8	95·2	?	75·9*	?	85·4*	?	19·3	102·5	6th	72·5	13th & 24th.	30·0
	Bogra	61	29·646	?	29·659	29·782	2 days	29·558	22nd	·224	79·1	90·6	?	73·9	?	82·3	?	16·7	98·3	4 days	68·2	13th	30·1
North Bengal	Dinajpur	118	29·595	?	29·666	29·736	2nd	29·495	21st	·241	77·1	88·6	?	73·4	?	81·0	?	15·2	99·1	5th	68·3	2 days	30·8
	Rangpur	123	29·621	?	29·698	29·773	2nd	29·509	21st	·264	76·2	86·9	?	72·2	?	79·6	?	14·7	95·2	5th	66·2	20th	29·0
	Jalpaiguri	284	29·449	?	29·688	29·595	2 days	29·350	21st	·245	76·9	85·3	?	72·3	?	78·8	?	13·0	93·4	5th	69·1	30th	24·3
Orissa	Balasore	56	29·632	?	29·633	29·797	5th	29·509	22nd	·288	86·8	99·0	?	80·7	?	89·9	?	18·3	107·5	3 days	69·9	24th.	37·6
	False Point	21	29·701	—·027	29·663	29·857	3rd	29·584	25th	·273	86·4	91·4	+0·1	82·1	+3·0	86·8	+1·6	9·3	93·5	2 days	76·1	25th	17·4
	Cuttack	80	29·623	—·027	29·644	29·785	3rd	29·483	22nd	·302	88·0	104·7	+3·7	82·0	+2·6	93·4	+3·2	22·7	112·4	13th	71·8	15th	40·6
	Puri	9	29·694	?	29·624	29·856	5th	29·577	22nd	·279	84·8	90·2	?	82·1*	?	86·2*	?	8·1	94·2	21st	75·1	1st	19·1
Gangetic Plain and Chota-Nagpur.		...	...	—·048	...	...	...	...	...	...	...	103·3	+2·7	79·0	+2·5	91·2	+2·7	24·3	...	...	...	...	38·4
Chota-Nagpur	Hazaribagh	2,007	27·685	—·039	29·584	27·890	3rd	27·554	21st	·336	87·6	103·7	+5·7	78·5	+4·5	91·1	+5·1	25·2	109·1	20th	72·3	24th	36·8
	Ranchi	2,128	27·580	?	29·589	27·758	3rd	27·449	21st	·309	88·1	102·5	?	77·9	?	90·2	?	24·6	107·5	21st	70·9	23rd	36·6
	Chaibassa	760	28·890	—·048	29·582	29·061	3rd & 5th.	28·746	22nd	·315	88·5	108·6	+5·4	82·5	+4·1	95·6	+4·8	26·1	114·8	13th	73·7	7th	41·1
Bihar, South	Gaya	375	29·259	—·064	29·580	29·492	3rd	29·150	21st	·342	89·6	107·6	+3·5	82·5	+4·9	95·1	+4·2	25·1	114·1	20th	76·8	2nd	37·3
	Dehri	351	29·287	?	29·565	29·560	3rd	29·174	21st	·386	89·4	107·3	?	81·9	?	94·8	?	25·4	112·5	19th & 20th.	76·5	6th	36·0
	Patna	183	29·471	—·059	29·604	29·686	3rd	29·348	21st	·338	85·9	102·5	+3·0	78·5	+1·3	90·5	+2·2	24·0	109·6	18th	71·7	22nd	37·9
	Arrah	190	29·456	?	29·595	29·692	3rd	29·349	21st	·343	86·3	104·5	?	79·8	?	92·2	?	24·7	111·4	19th	72·0	22nd	39·4
	Buxar	239	29·410	?	29·600	29·668	3rd	29·306	21st	·362	87·1	104·5	?	80·0	?	92·3	?	24·5	109·9	18th	72·8	22nd	37·1
Bihar, North	Purnea	125	29·594	—·020	29·673	29·743	5th	29·512	21st & 29th.	·231	80·0	93·1	—1·5	73·1	—0·3	82·9	—0·9	20·0	105·3	6th	68·2	28th	37·1
	Bhagalpur	160	29·506	?	29·618	29·674	3rd	29·394	21st	·280	83·9	99·3	?	77·0	?	88·1	?	22·3	108·3	6th	74·0	11th & 13th.	34·3
	Darbhanga	166	29·531	—·035	29·650	29·710	3rd	29·426	21st	·284	82·7	95·6	+0·2	74·8	—1·0	85·2	—0·4	20·8	105·5	18th	70·5	1st	35·0
	Muzaffarpur	178	29·492	?	29·622	29·684	3rd	29·392	21st	·292	82·6	98·4	?	77·0	?	87·7	?	21·4	105·7	17th	64·3	1st	41·4
	Motihari	224	29·436	?	29·617	29·632	3rd	29·333	21st	·299	82·3	98·4	?	75·3	?	86·9	?	23·1	105·2	6th, 17th & 18th.	65·8	27th	39·4
	Chapra	181	29·469	?	29·602	29·699	3rd	29·362	21st	·337	85·3	102·6	?	78·9	?	90·8	?	23·7	110·2	18th	71·6	22nd	38·6
N.-W. Provinces (Eastern Districts).	Benares	267	29·375	—·046	29·593	29·675	3rd	29·251	21st	·424	88·3	107·6	+3·1	81·2	+2·6	94·4	+2·9	26·4	112·3	20th	73·0	2nd	39·3
	Allahabad	309	29·327	—·052	29·585	29·639	3rd	29·181	21st	·458	91·1	109·0	+2·8	82·5	+3·9	95·8	+3·4	26·5	115·4	20th	72·8	1st	42·6
N.-W. Provinces (East Submontane).	Gorakhpur	256	29·401	—·046	29·613	29·627	3rd	29·279	21st	·348	84·1	102·1	+1·5	78·2	+1·5	90·2	+1·5	23·9	107·8	18th	74·7	1st	33·1
Oudh, South	Lucknow	370	29·256	—·068	29·580	29·583	3rd	29·124	21st	·459	87·5	107·3	+3·2	80·4	+3·8	93·9	+3·5	26·9	112·3	18th & 19th.	70·8	3rd	41·5
N.-W. Provinces (Central).	Cawnpore	416	29·226	?	29·594	29·551	3rd	29·082	21st	·469	90·6	107·2	?	81·4	?	94·4	?	25·8	114·1	20th	69·0	1st	45·1
Upper—Sub-Himalayas		...	...	—·054	...	...	...	...	...	...	...	104·3	+2·8	77·5	+4·2	90·9	+3·5	26·8	...	...	...	...	50·3
N.-W. Provinces (Sub-montane).	Bareilly	568	29·049	—·063	29·570	29·362	3rd	29·924	21st	·438	87·3	104·7	+2·3	79·1	+3·9	91·9	+3·1	25·6	112·4	20th	66·7	3rd	45·7
	Dehra Dun	2,233	27·446	?	29·585	27·723	3rd	27·331	21st	·392	81·6	99·5	?	73·6*	?	86·6*	?	25·9	108·5	20th	63·5	23rd	45·0
	Roorkee	887	28·729	—·063	29·565	29·087	3rd	28·597	21st	·490	86·6	105·8	+3·8	77·0	+3·1	91·4	+3·5	28·8	113·7	21st	65·2	3rd	48·5
	Meerut	737	28·890	—·043	29·579	29·234	3rd	28·754	21st	·480	87·6	104·6	+2·8	79·0	+4·1	91·8	+3·5	25·6	111·2	20th	64·0	3rd	47·2
Punjab, Central.	Delhi	718	28·924	—·027	29·586	29·291	3rd	28·778	21st	·513	91·7	106·6	+2·2	84·5	+5·6	95·6	+3·9	22·1	114·0	20th	64·1	3rd	49·9
	Lahore	702	28·885	—·058	29·541	29·222	3rd	28·685	21st	·537	89·2	106·4	+3·4	76·6	+3·4	91·5	+3·4	29·8	118·3	21st	63·0	3rd	55·3

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in May 1892—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 1892.	Normal rainfall for period, 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Station.	Meteorological Province or District.
...	...	...	8	8	13	1	1	...	8	?	?	70	?	1·3	6	5·2	+ 0·8	3·13	3·48	− 0·35	3·63	5·17	− 1·54	Naya Dumka	Central Bengal.—*contd.*
3	...	...	8	6	12	1	1	...	5	5	0	88	·954	7·2	13	8·64	+ 4·36	4·64	5·85	− 1·21	6·74	8·46	− 1·72	Berhampore.	
2	...	2	4	12	8	2	1	...	6	?	?	82	?	4·5	10	7·9	+ 2·1	4·86	5·44	− 0·58	9·58	7·67	+ 1·91	Rampur Boalia.	
1	...	4	...	12	7	7	...	...	4	?	?	82	?	5·2	3	5·7	− 2·7	0·94	4·13	− 3·19	8·01	5·81	+ 2·20	Malda.	
...	...	6	12	11	...	2	...	...	‡5	?	?	86	·857	7·2	11	9·30	+ 1·70	6·13	8·66	− 2·53	14·44	11·79	+ 2·65	Bogra.	
...	...	8	17	3	2	...	1	...	3	?	?	87	·814	7·8	11	7·60	+ 3·40	7·51	7·20	+ 0·31	11·30	9·99	+ 1·31	Dinajpur	North Bengal.
...	...	4	23	4	...	...	...	...	2	?	?	90	?	3·5	16	10·4	+ 5·6	16·34	10·22	+ 6·12	25·83	14·66	+11·17	Rangpur.	
2	1	8	5	14	1	...	...	...	5	?	?	90	·836	3·2	23	12·00	+11·00	32·02	12·03	+19·99	35·83	18·06	+17·77	Jalpaiguri.	
...	...	...	...	...	14	16	1	...	12	?	?	73	·939	2·9	4	8·50	− 4·50	2·43	4·94	− 2·51	2·47	8·86	− 6·39	Balasore	Orissa.
...	...	1	..	3	13	13	1	...	17	13	+31	82	1·031	6·9	1	5·20	− 4·20	2·17	4·68	− 2·51	2·18	6·70	− 4·52	False Point.	
...	...	2	3	1	11	13	1	...	6	5	+20	71	·937	5·3	3	6·09	− 3·09	1·57	4·11	− 2·54	1·81	5·90	− 4·09	Cuttack.	
...	...	...	2	...	7	20	2	...	17	?	?	86	?	5·6	0	3·5	− 3·5	0·01	2·58	− 2·57	0·01	3·65	− 3·64	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·08	2·07	−0·99	...	...	...	**Gangetic Plain and Chota-Nagpur.**	
...	1	...	1	...	12	11	4	2	21	9	+133	38	·480	2·4	3	4·73	− 1·73	0·88	2·71	− 1·83	0·88	3·84	− 2·96	Hazaribagh.	Chota-Nagpur.
11	...	...	...	...	2	14	1	3	6	?	?	42	...	1·4	4	5·0	− 1·0	1·64	3·17	− 1·53	1·91	4·90	− 2·99	Ranchi.	
8	...	2	1	1	6	12	1	...	2	?	?	57	·779	1·8	3	6·11	− 3·11	2·26	4·17	− 1·91	2·50	6·05	− 3·55	Chaibassa.	
...	4	3	7	...	5	4	6	1	7	4	+75	56	·784	3·2	1	2·45	− 1·45	0·57	1·33	− 0·76	0·57	2·12	− 1·55	Gaya	Bihar, South.
...	...	2	10	3	...	10	6	...	7	?	?	62	...	1·1	1	1·6	− 0·6	0·16	1·42	− 1·26	0·33	2·23	− 1·90	Dehri.	
...	...	2	26	...	...	...	3	...	8	5	+60	73	·888	1·5	2	3·18	− 1·18	0·45	2·25	− 1·80	0·45	2·84	− 2·39	Patna.	
...	...	9	14	3	1	1	2	1	5	?	?	70	...	1·9	1	2·6	− 1·6	0·37	1·80	− 1·43	0·37	2·36	− 1·99	Arrah.	
...	...	4	18	2	1	...	5	1	7	?	?	53	...	1·5	1	2·2	− 1·2	0·15	1·03	− 0·88	0·15	1·48	− 1·33	Buxar.	
...	...	10	13	7	...	...	1	...	3	3	0	80	·821	5·5	8	5·45	+ 2·55	5·24	4·65	+ 0·59	7·93	6·28	+ 1·65	Purnea	Bihar, North.
7	...	6	14	3	...	...	1	...	5	?	?	70	...	4·0	2	4·2	− 2·2	0·47	2·59	− 2·12	1·70	3·69	− 1·99	Bhagalpur.	
...	...	5	19	6	...	...	1	...	8	6	+33	73	·808	2·3	3	4·73	− 1·73	2·00	3·50	− 1·50	2·59	4·42	− 1·83	Darbhanga.	
1	...	3	14	10	...	...	1	2	9	?	?	74	...	2·7	3	3·4	− 0·4	1·35	2·72	− 1·37	1·35	3·72	− 2·37	Muzaffarpur.	
...	2	7	15	5	...	1	1	...	9	?	?	70	...	2·5	5	4·3	+ 0·7	3·54	2·50	+ 1·04	3·70	3·65	+ 0·05	Motihari.	
...	...	4	20	3	...	1	2	1	7	?	?	66	...	1·2	1	2·2	− 1·2	0·48	1·52	− 1·04	0·48	2·09	− 1·61	Chupra.	
8	...	5	4	...	...	1	13	...	5	5	0	54	·715	1·6	0	1·45	− 1·45	0	0·78	− 0·78	0	1·08	− 1·08	Benares	N.-W. Provinces (Eastern Districts).
4	...	1	4	2	...	3	10	7	5	4	+25	38	·517	2·0	1	1·18	− 0·18	0·22	0·37	− 0·15	0·22	0·74	− 0·52	Allahabad.	
1	...	2	10	8	6	...	4	...	3	4	−25	63	·745	1·3	3	2·64	+ 0·36	0·48	1·45	− 0·97	0·48	2·19	− 1·71	Gorakhpur	N.-W. Provinces (East Sub-montane).
3	1	...	8	2	...	1	12	4	5	4	+25	43	·546	2·0	1	1·91	− 0·91	0·13	0·98	− 0·85	0·13	1·29	− 1·16	Lucknow	Oudh, South.
...	...	1	1	4	2	4	15	4	6	?	?	51	·723	3·8	0	1·1	− 1·1	0·06	0·56	− 0·50	0·06	0·91	− 0·85	Cawnpore	N.-W. Provinces (Central).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·95	1·12	−0·17	...	...	...	**Upper—Sub-Himalayas.**	
13	2	...	1	7	...	...	...	8	2	5	−60	53	·697	1·0	1	2·27	− 1·27	0·46	0·95	− 0·49	0·46	2·10	− 1·64	Bareilly	N.-W. Provinces (Sub-montane).
27	...	1	1	...	...	...	2	...	2	2	0	39	·422	2·5	2	4·09	− 2·09	1·39	1·94	− 0·55	1·50	4·14	− 2·64	Dehra Dun.	
17	...	...	1	5	3	...	1	4	4†	4	0	39	·476	1·9	1	2·00	− 1·00	0·26	0·91	− 0·65	0·33	2·20	− 1·87	Roorkee.	
13	...	...	2	2	1	2	9	2	3	3	0	37	·470	0·5	1	1·64	− 0·64	0·20	0·72	− 0·52	0·20	2·05	− 1·85	Meerut.	
8	1	...	1	1	...	5	13	2	3	4	−25	38	·546	1·5	4	1·64	+ 2·36	1·19	0·60	+ 0·59	1·19	1·37	− 0·18	Delhi	Punjab (Central).
6	3	2	8	4	1	...	6	1	4	3	+25	35	·450	2·0	1	2·00	− 1·00	0·72	1·08	− 0·36	0·78	2·15	− 1·37	Lahore.	

‡ Mean of 28 days. * Mean of 30 days. † Mean of 23 days.

Table

Abstract of Observations taken at 8 A.M., at 170 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).	Ludhiana	812	28·779	−·070	29·541	29·153	3rd	28·613	21st	·540	89·1	106·8	+2·8	78·8	+5·4	92·8	+4·1	28·0	117·3	21st	62·6	3rd	54·7
Punjab, North	Sialkot	829	28·769	−·053	29·551	29·102	3rd	28·586	21st	·516	88·7	104·1	+1·7	78·3‡	+4·7	91·2‡	+3·2	25·8	116·4	21st	62·9	3rd	53·5
	Rawalpindi	1,649	27·980	−·056	29·539	28·285	3rd	27·808	21st	·477	82·6	100·4	+3·2	70·7	+3·2	85·6	+3·2	29·7	110·5	21st	57·6	1st	52·9
Indus Valley and North-West Rajputana.		...	...	−·042	...	...	...	...	...	...	...	105·7	+3·5	79·1	+3·4	92·9	+3·5	27·5	...	...	...	...	48·8
Punjab, West	Peshawar	1,110	28·537	−·051	29·558	28·823	3rd	28·367	22nd	·456	86·7	103·8	+6·6	73·1	+3·8	88·5	+5·2	30·7	112·5	20th	58·5	1st	54·0
	Khushab	612	28·970	?	29·532	29·341	3rd	28·758	21st	·583	91·1	107·7	?	79·1	?	93·4	?	28·6	119·1	21st	66·0	4th & 5th.	53·1
	Montgomery	558	29·022	?	29·533	29·403	3rd	28·837	26th	·566	91·7	110·1	?	79·0	?	94·6	?	31·1	118·9	20th	63·8	4th	55·1
	D. I. Khan	573	29·015	−·077	29·549	29·342	3rd	28·824	21st	·518	86·8	109·0	+6·0	77·8	+3·7	93·4	+4·9	31·2	119·5	21st	64·8	1st	54·7
	Mooltan	420	29·164	−·067	29·545	29·489	3rd	28·960	22nd	·529	89·0	110·7	+6·5	80·7	+5·2	95·7	+5·9	30·0	118·3	20th	69·2	3rd	49·1
	Sirsa	662	28·943	−·051	29·555	29·306	3rd	28·759	22nd	·547	89·5	108·0	+1·9	80·8	+5·1	94·4	+3·5	27·2	114·4	4 days	62·3	3rd	52·1
Sind and Cutch.	Jacobabad	186	29·437	−·020	29·579	29·712	4th	29·252	22nd	·460	93·2	114·1	+3·8	79·5	+3·4	96·8	+3·6	34·6	121·0	22nd	70·7	1st	50·3
	Hyderabad	117	29·551	−·016	29·620	29·797	3rd	29·361	22nd	·436	85·1	106·6	−0·2	79·1	+0·7	92·9	+0·3	27·5	116·7	9th	70·1	2nd	46·6
	Kurrachee	49	29·673	−·014	29·673	29·917	3rd	29·460	23rd	·457	84·8	93·0	0	80·3	+2·0	86·7	+1·0	12·7	97·0	24th	76·8	2nd & 4th.	20·2
	Bhuj	395	29·345*	?	29·696	29·583	3rd	29·170	23rd	·413	?	96·0†	?	?	?	?	?	?	99·2	8th	?	?	?
Rajputana, West	Bickaneer	753	28·885	?	29·584	29·183	3rd	28·710	22nd	·473	88·7	105·8	?	83·2	?	94·5	?	22·6	112·4	21st & 31st.	62·9	2nd & 3rd.	49·5
	Pachpadra	380	29·317	?	29·649	29·511	2nd	29·128	23rd	·383	82·6	104·0	?	77·5	?	90·8	?	26·5	113·5	22nd	61·2	2nd	52·3
East Rajputana, Central India and Guzerat.		...	...	−·002	...	...	...	...	...	...	...	102·8	−0·3	79·4	+1·6	91·1	+0·7	23·4	...	...	...	...	42·5
Rajputana, East	Jeypore	1,431	28·272	−·015	29·635	28·563	3rd	28·141	31st	·422	87·4	105·2	−0·3	77·7	+1·6	91·5	+0·7	27·5	111·3	10th & 21st.	62·1	3rd	49·2
	Sambhar	1,254	28·428	−·016	29·621	28·720	3rd	28·289	21st	·431	86·8	104·0	−0·5	80·6	+2·6	92·3	+1·1	23·4	109·0	21st	61·4	3rd	47·6
	Ajmere	1,611	28·118	−·002	29·660	28·392	3rd	27·964	23rd	·428	86·4	103·2	0	81·0	+3·8	92·1	+1·9	22·2	107·5	21st	62·2	3rd	45·3
	Deesa	466	29·308	+·024	29·727	29·545	3rd	29·148	23rd	·397	84·0	105·4	−0·7	77·9	+0·5	91·7	−0·1	27·5	109·9	8th & 9th	65·8	2nd	44·1
Kathiawar	Rajkot	429	29·370	+·028	29·751	29·582	3rd	29·233	31st	·349	82·1	103·1	−2·5	74·9	−0·4	89·0	-1·5	28·2	108·9	8th	63·9	2nd	45·0
	Veraval	?	29·979	?	29·757	29·977	3rd	29·638	31st	·339	82·8	88·6†	?	79·2‡	?	84·0†	?	9·4	104·1	5th	72·3	6th	31·8
	Bhavnagar	?	29·785	?	29·770	29·963	3rd	29·631	31st	·332	86·6	100·4	?	79·3	?	89·8	?	21·1	107·4	10th	68·5	2nd	38·9
Central India	Nowgong	757	28·922	−·017	29·615	29·236	3rd	28·783	21st	·453	90·6	106·7	−0·8	79·9	+0·8	93·3	0	26·8	112·6	20th	72·0	3rd	40·6
	Indore	1,823	27·958	−·016	29·697	28·167	3rd	27·814	31st	·353	84·7	101·9	−0·5	74·4	−1·1	88·1	−0·8	27·5	106·1	7th	62·6	3rd	43·5
	Neemuch	1,630	28·127	+·016	29·688	28·370	3rd	27·984	31st	·386	84·7	103·5	−0·6	77·8‡	+1·3	90·8‡	+0·4	25·7	109·1	31st	68·2	3rd	40·9
Guzerat	Surat	36	29·782	+·001	29·761	29·955	3rd	29·628	31st	·327	84·6	97·6	−0·4	79·3	+1·6	88·5	+0·6	18·3	109·1	7th	71·0	2nd	38·1
N.-W. P., West	Agra	555	29·105	+·030	29·607	29·440	3rd	28·943	21st	·497	91·0	108·3	+1·8	84·4	+3·8	96·4	+2·8	23·9	115·5	20th	69·5	3rd	46·0
	Jhansi	840	28·828	−·022	29·599	29·151	3rd	28·669	21st	·482	93·3	108·8	+·13	85·5	+3·6	97·2	+2·5	23·3	114·5	20th & 21st	72·4	3rd	42·1
Deccan		...	...	+·005	...	...	...	...	...	...	...	104·1	+0·7	78·6	+1·2	91·3	+1·0	25·5	...	...	...	...	38·0
Bombay, Deccan	Belgaum	2,524	27·335	+·005	29·762	27·418	3rd	27·129	31st	·289	76·3	91·6	−1·6	68·7	+0·9	80·2	−0·4	22·9	104·8	18th	65·3	2nd	39·5
	Sholapur	1,590	28·225	+·015	29·733	28·348	2nd	28·095	31st	·253	83·8	105·6†	+1·4	75·6†	−0·3	90·6†	+0·6	30·0	109·2	19th & 20th,	70·5	2nd	38·7
	Poona	1,840	28·002	+·013	29·765	28·132	3rd	27·833	31st	·299	81·6	99·9	+1·8	72·2	+0·3	86·0	+1·1	27·7	107·6	6th	68·9	3 days	38·7
	Bijapur	?	27·887	?	...	27·997	3rd	27·744	31st	·253	83·1	92·7	?	80·4	?	86·6	?	12·3	97·2	17th	76·0	31st	21·2
Khandeish	Malegaon	1,430	28·385	+·023	29·744	28·548	3rd	28·239	31st	·309	85·5	103·3	−0·5	75·4	+0·8	89·4	+0·2	27·9	107·3	7th & 8th	71·2	2nd	36·1
	Ahmednagar	2,152	27·666	?	29·742	27·827	3rd	27·542	31st	·285	82·6	100·5	?	70·9	?	85·7	?	29·6	105·2	7th	66·4	2nd & 15th.	38·8
Berar	Akola	930	28·847	+·028	29·705	29·027	3rd	28·746	21st	·281	88·9	106·9	−0·2	80·2	−0·4	93·6	−0·3	26·7	111·1	7th	69·7	3rd	41·4
	Amraoti	1,216	28·542	+·021	29·687	28·726	3rd	28·435	21st	·291	87·2	107·4	+0·2	79·8	+0·9	93·6	+0·6	27·6	112·3	8th	74·8	3rd	37·5

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

I —*continued.*

in India, Burma, etc., in May 1892 —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 1892.	Normal rainfall for period, 1st March to 31st May.	Variation from normal of period.	Station.	Meteorological Province or District.
12	1	1	1	8	3	...	5	...	1	2	−50	37	·479	1·3	2	1·91	+0·09	0·94	0·83	+0·11	1·18	2·71	−1·53	Ludhiana.	Punjab (Sub-montane).
8	9	5	4	1	...	...	3	1	3	3	0	42	·549	1·5	2	2·73	−0·73	2·35	1·19	+1·16	2·84	3·37	−0·53	Sialkot .	Punjab, North.
13	2	6	1	6	...	...	...	3	3	3	0	41	·469	1·5	1	3·00	−2·00	1·03	1·83	−0·80	1·76	5·80	−4·04	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·45	0·47	−0·02	...	...	...	**Indus Valley and North-West Rajputana.**	
7	5	1	2	5	3	2	2	4	5	5	0	40	·511	1·1	1	2·09	−1·09	0·50	0·92	−0·42	1·58	4·77	−3·19	Peshawar .	Punjab, West.
8	2	5	6	1	2	2	4	1	5	?	?	25	·374	0·5	0	1·0	−1·0	0	0·41	−0·41	0·08	1·57	−1·49	Khushab.	
3	2	6	1	4	6	5	1	3	8	?	?	38	·562	1·1	1	1·1	−0·1	0·40	0·45	−0·05	0·66	0·97	−0·31	Montgomery	
13	1	4	1	2	...	2	...	8	1	2	−50	44	·566	0·4	0	0·82	−0·82	0	0·40	−0·40	0·85	1·77	−1·72	D. I. Khan.	
3	...	7	...	1	...	14	...	6	3	3	0	40	·539	0·4	0	0·82	−0·82	0·09	0·36	−0·27	0·09	0·89	−0·80	Mooltan.	
...	1	...	1	3	3	9	14	...	9	5	+80	42	·574	3·6	2	1·82	+0·18	0·97	0·68	+0·29	0·97	1·43	−0·46	Sirsa.	
...	1	1	2	8	5	8	...	6	6	5	+20	31	·455	1·0	1	0·45	+0·55	0·21	0·07	+0·14	0·21	0·25	−0·04	Jacobabad	Sind and Cutch.
...	...	...	...	...	...	16	15	...	13	13	0	59	·697	1·1	0	0·45	−0·45	0	0·13	−0·13	0	0·30	−0·30	Hyderabad.	
...	...	...	...	3	3	25	...	...	12	17	−28	75	·914	3·6	0	0	0	0	0	0	0·07	0·62	−0·55	Kurrachee.	
...	...	...	...	1	...	10	15	3	18*	15	+20	?	?	1·6	2	?	?	1·05	0·15	+0·90	1·05	0·38	+0·67	Bhuj.	
...	...	1	1	4	6	17	1	1	10	7	+43	44	·589	0·6	0	...	...	0·09	1·27	−1·18	1·29	1·64	−0·35	Bickaneer .	Rajputana, West.
4	...	...	...	...	9	17	1	...	16	9	+78	71	·792	3·5	1	?	?	2·10	0·83	+1·27	2·10	0·91	+1·19	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·37	0·47	−0·04	...	...	...	**East Rajputana, Central India and Guzerat.**	
...	1	...	1	...	1	4	18	6	7	7	0	43	·559	1·3	1	1·20	−0·20	0·81	0·40	+0·41	0·81	0·57	+0·24	Jeypore .	Rajputana, East.
1	...	1	...	...	2	2	23	2	15	10	+50	45	·567	0·7	1	1·27	−0·27	0·60	0·64	−0·04	0·60	1·07	−0·47	Sambhar.	
...	...	...	...	...	...	7	24	...	13	7	+86	51	·637	1·0	1	2·09	−1·09	0·40	0·75	−0·35	0·40	0·86	−0·46	Ajmere.	
...	6	8	2	...	3	3	6	3	15†	13	+15	62	·721	4·3	0	0·55	−0·55	0	0·20	−0·20	0	0·26	−0·26	Deesa.	
...	2	...	...	...	1	10	15	3	14	13	+ 8	74	·817	2·8	1	0·36	+0·64	0·45	0·18	+0·27	0·45	0·18	+0·27	Rajkot .	Kathiawar.
...	4	...	...	1	1	5	16	4	11	?	?	79	·892	4·2	1	?	?	0·10	?	?	0·10	?	?	Veraval.	
...	4	...	...	1	...	19	5	2	19	?	?	71	·904	2·8	0	?	?	0·04	?	?	0·04	?	?	Bhavnagar.	
2	1	...	...	...	...	2	23	3	6	3	0	38	·527	1·5	1	1·09	−0·09	0·81	0·36	+0·45	0·81	0·53	+0·28	Nowgong .	Central India.
...	1	2	1	...	1	4	16	6	7	6	+13	65	·782	1·6	0	1·36	−1·36	0·05	0·80	−0·75	0·05	0·80	−0·75	Indore.	
...	...	2	1	...	1	14	13	...	16	12	+33	60	·720	0·9	1	1·18	−0·18	0·11	0·60	−0·49	0·61	0·75	−0·14	Neemuch.	
...	2	3	...	...	1	23	1	1	...	13	...	72	·868	3·5	0	0·45	−0·45	0·12	0·29	−0·17	0·12	0·29	−0·17	Surat .	Guzerat.
1	...	1	...	1	...	18	...	10	7	3	+133	35	·483	1·1	3	1·91	+1·09	0·86	0·59	+0·27	0·86	0·94	−0·08	Agra .	N.-W. P., West.
1	6	...	...	...	1	6	4	13	4	5	−20	62	·496	0·9	2	1·36	+0·64	0·51	0·31	+0·20	0·51	0·71	−0·20	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·75	0·98	−0·23	...	...	...	**Deccan.**	
10	1	...	1	...	1	3	10	5	?	18	?	70	·623	4·0	6	4·36	+1·64	3·36	2·23	+1·13	9·94	4·04	+5·90	Belgaum .	Bombay, Deccan
...	1	...	1	1	...	3	11	12	14	10	+ 4	50	·567	3·1	2	2·18	−0·18	1·53	0·95	+0·58	3·94	1·48	+2·46	Sholapur.	
...	...	2	2	...	...	3	13	11	15	14	+ 4	52	·559	5·9	1	2·00	−1·00	0·26	1·71	−1·45	0·40	2·23	−1·83	Poona.	
...	...	1	1	...	1	6	12	10	10	...	...	60	·672	3·5	4	3·10	+0·90	1·00	1·15	−0·15	1·59	1·99	−0·40	Bijapur.	
...	2	2	...	...	...	6	16	5	12	10	+20	77	·927	2·6	1	1·27	−0·27	0·16	0·78	−0·62	0·16	0·85	−0·69	Malegaon .	Khandeish.
1	9	4	1	...	...	2	6	8	10	?	?	55	·604	2·5	3	?	?	1·66	1·04	+0·62	1·96	1·26	+0·70	Ahmednagar	
1	2	...	...	1	...	...	8	19	11	8	+38	36	·483	1·7	0	0·91	−0·91	0·15	0·44	−0·29	0·15	0·86	−0·71	Akola .	Berar.
...	...	2	2	...	...	1	17	9	8	6	+33	37	·475	1·7	2	1·73	+0·27	0·90	0·96	−0·06	0·90	1·21	−0·31	Amraoti.	

* Mean of 25 days. † Mean of 23 days.

Table

Abstract of Observations taken at 8 A.M. at 170 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	28·732	+·026	29·719	28·932	3rd	28·590	31st	·342	85·2	104·1	−2·1	78·7	−1·5	91·4	−1·8	25·4	109·2	7th	64·1	2nd	45·1
	Hoshangabad	1,020	28·736	+·006	29·693	28·970	3rd	28·620	31st	·350	89·7	106·4	−1·3	81·0	+1·4	93·7	+0·1	25·4	110·0	9th	74·7	3rd & 6th.	35·3
	Nagpur	1,025	28·694	−·002	29·643	28·892	3rd	28·572	21st	·320	94·2	110·1	+1·5	84·2	+3·4	97·2	+2·5	25·9	114·9	20th	78·5	4th & 5th.	36·4
Central Provinces, Central.	Seoni	2,030	27·730	0	29·663	27·932	3rd	27·617	21st	·315	91·6	104·2	+1·0	77·7	+1·3	91·0	+1·2	26·5	109·2	20th & 22nd.	71·1	2nd & 6th.	38·1
	Jubbulpore	1,327	28·394	+·006	29·645	28·645	3rd	28·268	21st	·377	89·9	105·7	+0·9	79·2	+0·7	92·5	+0·8	26·5	110·5	21st	68·2	1st	42·3
	Saugor	1,762	27·975	0	29·642	28·223	3rd	27·848	31st	·375	88·6	105·6	+1·0	78·7	+1·2	92·2	+1·1	26·9	109·9	20th & 21st.	69·6	3rd & 4th.	40·3
Central Provinces, East.	Raipur	960	28·727	−·017	29·611	28·924	3rd	28·598	21st	·326	96·2	110·0	+3·6	86·0	+5·2	98·0	+4·4	24·0	114·2	22nd	79·5	5th	34·7
	Sutna	1,040	28·624	−·028	29·597	28·919	3rd	28·471	21st	·448	93·2	105·9	+1·3	80·1	+2·1	93·0	+1·7	25·8	111·2	21st	72·1	1st & 4th.	39·1
Hyderabad, North.	Aurangabad	?	27·976	?	?	28·214	3rd	27·837	31st	·377	84·8	103·2	?	73·0	?	88·2	?	30·2	108·0	7th	67·6	2nd	40·4
	Indur	?	...	...	...	...	...	...	...	...	87·8	106·0	?	81·7	?	93·9	?	24·3	109·4	18th	75·2	3rd	34·2
	Beeder	?	27·645	?	?	27·765	3rd	27·533	31st	·232	85·6	101·6	?	77·3	?	89·5	?	24·3	105·4	18th	65·2	31st	40·2
Hyderabad, South.	Gulburga	?	28·298	?	?	28·413	3rd	28·196	31st	·217	86·0	104·3	?	77·5‡	?	91·0‡	?	26·8	109·3	19th	64·6	2nd	44·7
	Raichur	?	28·436	?	?	28·521	2nd	28·333	31st	·188	86·1	104·3	?	80·8	?	92·5	?	23·5	109·9	20th	74·6	1st	35·3
	Secunderabad	1,787	28·012	−·019	29·700	28·117	2nd	27·913	21st	·204	87·7	105·7	+2·9	80·2	+2·6	93·0	+2·8	25·5	109·8	22nd	71·9	8th	37·9
	Hyderabad (Deccan).	1,690	28·102	?	29·700	28·213	2nd	28·005	21st	·208	87·1	104·2	?	81·7	?	92·9	?	22·5	108·9	18th	73·7	29th	35·2
	Kamamet	?	29·375	?	?	29·502	3rd	29·276	22nd	·226	90·9*	108·8	?	85·1	?	96·9	?	23·7	115·2	18th	74·9	31st	40·3
West Coast		...	...	**+·001**	...	...	...	...	...	...	...	**89·5**	**+0·1**	**78·5**	**−0·2**	**84·0**	**0**	**11·0**	...	...	...	...	**18·9**
Konkan	Bombay	37	29·812	−·001	29·788	29·922	3rd	29·611	31st	·311	85·5	90·6	+0·6	82·2	+1·4	86·4	+1·0	8·4	95·4	6th	79·5	2nd	15·9
	Ratnagiri	110	29·714†	−·013†	29·760	29·787	3rd	29·493	31st	·294	87·2	92·2	+1·3	81·0	+2·1	86·6	+1·7	11·2	94·9	4th	75·9	30th	19·0
	Mormugoa	60	29·798	?	29·793	29·882	2nd	29·569	31st	·213	85·4	91·4	?	81·3	?	86·4	?	10·1	95·0	5th	75·4	31st	19·6
	Karwar	44	29·809	−·007	29·785	29·878	2nd	29·640	31st	·238	83·4	89·9	+0·2	79·1	+0·1	84·5	+0·2	10·8	92·3	4 days	73·7	29th	18·6
Malabar	Mangalore	26	29·859	+·011	29·817	29·913	27th	29·769	31st	·144	80·2	88·9	−1·0	76·5	−2·0	82·7	−1·5	12·4	92·3	6th	71·9	8th & 16th.	20·4
	Calicut	27	29·856	0	29·812	29·929	27th	29·787	20th	·142	80·6	88·7	?	76·1	?	82·4	?	12·6	93·4	6th	72·6	16th & 27th.	20·8
	Cochin	10	29·885	+·014	29·823	29·929	28th	29·834	20th	·095	80·8	88·9	−0·4	74·4	−2·8	81·7	−1·6	14·5	92·3	3 days.	71·2	6th	21·1
	Trivandrum	198	29·692	?	29·822	29·733	27th & 28th.	29·621	15th	·112	80·3	85·2	?	77·6	?	81·4	?	7·6	88·0	19th	72·0	31st	16·0
South India		...	...	**−·011**	...	...	...	...	...	...	...	**98·7**	**+1·5**	**79·1**	**+1·1**	**88·9**	**+1·3**	**19·6**	...	...	...	...	**30·4**
Madras, South	Pamban	37	29·796	?	29·758	29·863	7th	29·723	21st	·140	85·1	90·9	?	81·9	?	86·4	?	9·0	93·3	27th	77·2	17th	16·1
	Tinnevelly	168	29·680	?	29·775	29·725	3rd & 7th	29·596	15th	·129	85·6	98·8	?	80·9	?	89·9	?	17·9	102·9	16th	71·9	5th	31·0
	Madura	447	29·377	−·012	29·755	29·443	3rd	29·298	21st	·145	85·9	99·4	−0·8	78·1	+1·6	88·8	+0·4	21·3	104·0	16th & 17th.	73·5	17th & 18th.	30·5
Madras, South Central.	Salem	940	28·915	−·011	29·787	28·978	3rd	28·848	15th	·130	82·4	100·7	+1·8	75·8	+0·6	88·2	+1·2	24·9	105·4	16th	68·4	20th	37·0
	Coimbatore	1,348	28·487	−·014	29·775	28·550	3rd	28·418	21st	·132	78·0	92·7	−2·4	72·1	−1·5	82·4	−2·0	20·6	96·8	10th	68·1	14th	28·7
Coorg	Mercara	3,781	26·203	?	29·821	26·248	3rd & 12th	26·122	31st	·126	68·9	79·4	−1·7	64·4	−0·2	71·9	−1·0	15·0	86·2	4th	61·2	10th	25·0
Mysore	Bangalore	2,982	26·945	+·005	29·811	27·003	1st	26·884	31st	·119	74·8	91·4	+0·3	68·3	−0·8	79·9	−0·3	23·1	95·2	16th & 18th.	64·0	12th	31·2
	Bangalore Fort	3,019	26·899	?	29·769	26·959	1st	26·796	31st	·163	74·6	91·2	?	68·3	?	79·8	?	22·9	95·9	8th	64·7	3rd	31·2
Madras, East Coast, South.	Negapatam	31	29·781	−·006	29·740	29·858	7th	29·701	21st	·157	88·7	101·3	+5·6	81·2	+1·4	91·3	+3·5	20·1	106·7	15th	72·7	31st	34·0
	Cuddalore	12	29·790	?	29·731	29·874	7th	29·694	21st	·180	87·5	99·9	?	80·9	?	90·4	?	19·0	106·3	23rd	77·2	12th	29·1
	Trichinopoly	255	29·566	−·017	29·751	29·637	7th	29·481	21st	·156	85·3	103·7	+2·8	80·0	−2·0	91·8	+2·4	23·7	108·7	16th	73·9	16th	34·8
	Madras	22	29·764	−·018	29·716	29·860	6th	29·669	21st	·191	89·7	101·0	+3·8	82·5	−1·0	91·8	+2·9	18·5	108·5	23rd & 29th.	79·0	4th	29·5
Madras, East Coast, Central.	Nellore	71	?29·669	?	?29·673	29·776	6th	29·556	21st	·220	92·4	108·7	?	84·4	?	96·6	?	24·3	115·7	15th	80·1	4th & 6th.	35·6
	Masulipatam	15	29·736	−·029	29·685	29·865	6th	29·624	22nd	·241	90·9	103·4	+4·6	84·1	+3·0	93·8	+3·8	19·3	114·7	26th	81·1	5th & 15th.	33·6
Madras, Central	Cuddapah	433	29·371	?	29·735	29·464	2nd	29·278	31st	·186	91·6	108·3	?	85·3	?	96·8	?	23·0	113·3	14th & 16th.	80·9	31st	32·4
	Kurnool	923	28·879	?	29·726	28·966	3rd	28·785	31st	·181	88·2	105·4	?	81·9	?	93·7	?	23·5	111·6	19th	73·0	28th	38·6
	Bellary	1,475	28·357	+·024	29·755	28·450	2nd	28·237	31st	·213	84·5	103·4	+0·8	78·3	+1·2	90·8	+1·0	25·1	107·5	19th	73·9	2nd & 20th	33·6
Madras, East Coast, North.	Rajahmundry	112	29·632	?	29·678	29·761	3rd	29·506	23rd	·255	90·3	108·1	?	84·3	?	96·2	?	23·8	116·1	14th	78·6	21st	37·5

* Mean of 30 days. † The winds are for 28 days. ‡ Mean of 29 days.

I —*continued.*

in India, Burma, etc., in May 1892 —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 1892.	Normal rainfall for period, 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Station.	Meteorological Province or District.
...	2	1	1	...	...	...	22	5	11	9	+ 22	49	·542	1·3	1	1·09	−0·09	1·06	0·49	+ 0·57	1·06	0·62	+ 0·44	Khandwa .	Central Provinces, West.
1	...	1	1	...	5	12	11	...	7	4	+ 75	39	·539	0·8	1	1·18	- 0·18	0·13	0·54	− 0·41	0·13	0·68	− 0·55	Hoshangabad.	
...	3	1	1	...	2	3	14	7	11	7	+ 59	31	·491	2·2	0	2·09	−2·09	0·01	1·15	− 1·14	0·03	1·96	− 1·93	Nagpur.	
...	4	3	1	...	1	3	5	14	5	5	0	28	·407	0·9	0	2·36	−2·36	0·07	1·23	− 1·16	0·39	1·97	− 1·58	Seoni .	Central Provinces, Central.
4	...	1	...	...	1	4	17	4	2	4	− 50	33	·464	1·5	0	1·45	−1·45	0·14	0·80	− 0·66	0·29	1·25	− 0·96	Jubbulpore.	
...	...	2	...	...	3	10	13	3	6	4	+ 50	32	·429	0·6	1	1·27	−0·27	0·19	0·65	− 0·46	0·19	0·79	− 0·60	Saugor.	
...	2	2	...	...	...	8	9	10	10	8	+ 25	24	·397	3·7	0	2·91	−2·91	0·13	1·15	− 1·02	0·37	2·23	− 1·86	Raipur .	Central Provinces, East.
...	1	...	...	...	2	...	20	8	9	8	+ 12	22	·335	0·9	0	1·64	−1·64	0·06	0·40	− 0·34	0·06	1·60	− 1·54	Sutna.	
4	2	2	...	1	...	3	8	11	7	?	?	45	·517	1·3	4	?	?	0·79	0·75	+ 0·04	0·79	0·99	− 0·20	Aurangabad	Hyderabad, North.
...	1	2	...	1	2	2	3	20	11	?	?	47	·599	2·0	2	?	?	1·71	0·33	+ 1·38	1·71	0·91	+ 0·80	Indur.	
...	12	2	...	...	1	5	4	7	8	?	?	48	·579	0·5	2	?	?	0·75	1·07	− 0·32	1·56	2·24	− 0·68	Beeder.	
1	8	2	...	2	1	2	3	11	16	?	?	63	·762	3·8	2	?	?	0·46	1·39	− 0·93	2·77	2·31	+ 0·46	Gulburga .	Hyderabad, South.
...	3	...	...	1	2	5	10	10	13	?	?	49	·595	6·3	0	?	?	0·07	1·14	− 1·07	0·57	2·05	− 1·48	Raichur.	
1	1	1	1	1	...	3	8	15	10	8	+ 25	42	·545	3·8	3	2·55	+0·45	0·76	1·30	− 0·54	0·82	2·46	− 1·64	Secunderabad.	
4	2	...	1	...	...	...	17	7	8	?	?	47	·581	2·9	2	?	?	0·77	0·98	− 0·21	0·95	1·85	− 0·90	Hyderabad (Deccan).	
5	1	...	...	7	6	1	5	6	10	?	?	54	·776*	2·0	2	?	?	1·94	?	?	1·97	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·70	5·97	+4·98	...	...	...	West Coast.	
...	6	2	...	1	3	4	7	8	11	10	+ 10	70	·867	3·5	1	1·00	0	0·11	0·97	− 0·86	0·11	0·97	− 0·86	Bombay .	Konkan.
3	9	...	...	1	3	5	2	8	10	11	− 9	64	·828	2·4	1	1·64	−0·64	2·88	1·57	+ 1·31	3·09	1·62	+ 1·47	Ratnagiri.	
2	10	...	1	...	6	3	1	8	11	?	?	75	·921	4·5	5	?	?	9·23	?	?	9·29	?	?	Mormugoa.	
5	3	10	...	1	...	7	2	3	5	?	?	87	·872	5·1	9	4·09	+4·91	17·02	3·70	+13·32	17·45	3·98	+13·47	Karwar.	
12	5	2	4	1	...	4	1	2	3	5	− 40	86	·890	7·7	15	6·80	+8·20	14·81	7·77	+ 7·04	20·17	8·38	+11·79	Mangalore .	Malabar.
7	9	3	3	3	1	...	...	5	15	?	?	83	·860	6·7	14	9·00	+5·00	19·77	7·44	+12·33	24·70	10·74	+13·96	Calicut.	
...	...	19	2	5	2	...	2	...	6	?	?	82	·862	7·1	13	13·45	−0·45	11·10	14·36	− 3·26	24·66	19·66	+ 5·00	Cochin.	
...	10	1	1	1	1	...	1	16	9	?	?	83	·867	6·6	5	...	...	2·71	?	?	15·89	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·81	2·83	−1·11	...	...	...	South India.	
...	...	...	...	5	16	7	3	...	9	?	?	75	·914	2·9	0	2·3	−2·3	0	2·21	− 2·21	2·17	7·13	− 4·96	Pamban.	Madras, South.
...	...	1	...	3	3	6	9	9	7	?	?	63	·776	7·1	2	3·8	−1·8	2·39	2·04	+ 0·35	8·32	5·61	+ 2·71	Tinnevelly.	
...	6	2	1	...	3	5	1	13	1	4	− 75	62	·777	3·8	5	4·00	+1·00	1·29	3·58	− 2·29	4·49	4·78	− 0·29	Madura.	
1	...	...	...	1	15	12	2	...	5	4	+ 25	73	·818	4·0	8	8·64	−0·64	5·84	5·68	+ 0·16	7·25	8·08	− 0·83	Salem .	Madras, South Central.
...	...	...	...	...	20	6	5	...	5	5	0	85	·825	4·8	7	6·45	+0·55	2·70	2·81	− 0·11	5·13	4·83	+ 0·30	Coimbatore.	
...	7	...	2	...	...	...	15	7	3	5	− 40	84	·587	7·7	12	10·00	+2·00	9·62	6·80	+ 2·82	12·97	9·95	+ 3·02	Mercara .	Coorg.
...	1	...	...	1	1	13	13	2	5	6	− 17	79	·685	5·9	8	7·55	+0·45	3·65	4·72	− 1·07	5·29	6·02	− 0·73	Bangalore	Mysore.
...	1	...	...	...	1	15	12	2	8	?	?	76	·653	4·7	9	?	?	3·75	?	?	?	?	?	Bangalore Fort.	
7	...	...	...	...	5	7	12	...	7	7	0	65	·881	3·9	1	2·18	−1·18	0·52	2·01	− 1·49	1·68	2·78	− 1·10	Negapatam	Madras, East Coast, South.
...	1	...	...	...	5	8	12	5	4	?	?	75	·985	1·9	0	1·5	−1·5	0	2·24	− 2·24	0·31	3·43	− 3·12	Cuddalore.	
2	...	...	...	...	2	4	20	3	9	6	+ 50	60	·738	4·7	2	3·91	−1·91	1·66	3·28	− 1·62	2·33	5·25	− 2·92	Trichinopoly.	
...	...	...	...	2	9	10	10	...	10	9	+ 11	54	·757	4·4	0	1·45	−1·45	0	1·50	− 1·50	0·69	1·92	− 1·23	Madras.	
2	...	...	2	5	...	...	13	9	9	?	?	60	·902	6·8	1	2·1	−1·1	0·32	1·88	− 1·56	0·32	2·25	− 1·93	Nellore .	Madras, East Coast, Central.
2	...	...	...	6	9	1	2	11	9	9	0	76	1·099	5·9	1	2·73	−1·73	0·10	1·95	− 1·85	0·38	2·11	− 1·73	Masulipatam.	
...	1	...	...	5	3	10	10	2	...	?	?	48	·704	3·7	2	3·40	−1·40	0·48	2·16	− 1·68	0·59	2·69	− 2·10	Cuddapah.	Madras, Central.
20	...	...	...	...	...	5	...	6	...	?	?	54	·716	1·5	1	2·67	−1·67	2·67	1·07	+ 1·60	2·88	2·01	+ 0·87	Kurnool.	
10	...	...	...	...	...	2	8	11	10	8	+ 25	56	·668	3·1	4	3·36	+0·64	0·77	1·86	− 1·09	1·22	2·51	− 1·29	Bellary.	
3	2	...	3	1	12	2	8	...	...	?	?	63	·901	5·4	2	4·20	−2·20	0·35	2·80	− 2·45	1·00	3·49	− 2·49	Rajahmundry	Madras, East Coast, North.

Gulburga wind observations, 30 days.

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M., at 170 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.
Madras East Coast, North —*concld.*	Coconada	26	29·721	?	29·682	29·859	3rd	29·571	22nd	·288	88·6	102·1	?	82·8	?	92·5	?	19·3	112·4	23rd & 24th.	79·6	4 days	32·8
	Vizagapatam	31	29·712	−·027	29·680	29·867	3rd	29·572	22nd	·295	88·9	92·4	+2·2	85·4	+2·6	88·9	+2·4	7·0	97·9	2nd & 30th.	79·9	8th	18·0
	Gopalpur	21	29·677	?	29·638	29·842	3rd	29·552	22nd	·290	84·4	90·8	?	80·5	?	85·7	?	10·3	96·2	25th	78·3	2nd	17·9
Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beluchistan	Quetta	5,502	24·594	+·030	...	24·745	4th	24·500	21st	·245	72·6	85·5	+3·0	51·6	−0·5	68·6	+1·3	33·9	93·1	31st	41·4	2nd	51·7
Northern India	Srinagar	5,204	24·830	?	...	24·943	3rd	24·677	23rd	·266	62·1	77·8	?	51·8	?	64·8	?	26·0	89·8	20th & 21st.	42·2	1st	47·6
	Murree	6,344	23·764	−·021	...	23·907	3rd	23·657	23rd	·250	70·9	81·7	+6·1	62·2	+3·1	72·0	+4·6	19·5	94·7	20th	51·8	3rd	42·9
	Simla	7,274	23·014	−·021	...	23·118	6th	22·892	23rd	·226	67·0	76·5	?	60·0	+2·7	68·3	?	16·5	85·3	21st	46·2	3rd	39·1
	Mussoorie	?	23·501	?	...	23·642	3rd	23·384	23rd	·258	68·3	81·7	+6·6	60·3	+2·8	71·0	+4·7	21·4	92·3	19th	48·0	3rd	44·3
	Ranikhet	6,069	24·009	−·025	...	24·135	3rd	23·893	23rd	·242	72·0	81·4	+4·8	64·5	+5·2	73·0	+5·0	16·9	89·1	19th & 20th.	54·5	30th	34·6
	Gnatong*	?	19·282	?	...	19·370	14th	19·219	23rd	·151	48·8‡	63·5	?	33·8	?	48·7	?	29·7	92·0?	10th	28·0	8th	64·0
	Darjeeling	7,421	22·909	?	?	23·039	2nd	22·905	20th	·134	57·0	63·0	+0·4	53·3	+2·9	58·2	+1·7	9·7	67·6	31st	48·6	8th	19·0
	Kalimpong	?	25·972*	?	...	26·133	15th	25·852	21st	·281	65·6‡	72·9*	?	63·3†	?	68·1†	?	9·6	78·8	14th	54·7	8th	24·1
Central India	Mount Abu	3,945	...	...	...	...	...	...	...	...	75·7	84·7	−4·0	67·5	−3·6	76·1	−3·8	17·2	89·2	31st	52·4	2nd	36·8
	Pachmarhi	3,511	26·392	+·023	...	26·574	3rd	26·284	31st	·290	82·0	95·0	+0·5	75·5	+0·9	85·3	+0·7	19·5	98·7	9th & 21st	66·2	3rd	32·5
South India	Wellington	6,200	24·250	+·026	...	24·301	3rd	24·165	31st	·136	68·6	75·5	0	57·7	−0·8	66·6	−0·4	17·8	80·2	16th	53·7	24th	26·5
	Kodaikanal	?	...	...	...	...	...	...	...	...	64·7	71·7	?	56·8	?	64·3	?	14·9	75·5	14th	54·0	12th & 16th.	21·5
	Kotagiri	?	23·822	?	...	23·880	11th	23·749	31st	·131	65·2	74·2	?	57·4	?	65·8	?	16·8	77·7	16th	53·0	19th	24·7
Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Meshed	...	?	?	?	?	?	?	?	?	67·7	82·0	?	57·8	?	69·9	?	24·2	89·0	20th	45·0	1st	44·0
	Bushire†	14	29·745	?	29·715	29·881	7th	29·618	31st	·263	83·7	88·2	?	76·7	?	82·5	...	11·5	98·5	7th	86·1	7th	32·4
Arabia	Aden	94	29·746	?	29·770	29·845	8th	29·603	31st	·242	86·7	94·4	?	81·6	?	88·0	?	12·8	101·1	2nd	76·1	15th	25·0
	Perim	?	29·607	?	?	29·699	7th	29·540	27th	·159	86·8	93·4	?	83·6§	?	88·4§	?	9·8	99·0	27th	82·2	14th	16·8
Arabian Sea Island.	Zanzibar	73	30·008	?	30·008	30·099	30th	29·925	5th	·174	77·6	83·0	?	75·6	?	79·3	?	7·4	86·0	2nd	72·6	14th & 15th	13·4

* Mean of 30 days. † Mean of 26 days. ‡ Mean of 29 days. § Mean of 28 days.

I —*concluded.*

in India, Burma, etc., in May 1892 —concluded.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st March to 31st May 1892.	Normal rainfall for period, 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Station.	Meteorological Province or District.
...	...	2	1	6	1	9	9	3	8	?	?	70	·953	3·5	0	3·6	−3·6	0·11	2·49	− 2·38	0·11	2·96	− 2·85	Cocanada.	Madras East Coast, North —*concld.*
...	1	...	...	...	...	16	12	2	4	4	0	69	·935	6·7	1	4·36	−3·36	0·27	3·26	− 2·99	0·27	3·71	− 3·44	Vizagapatam.	
2	...	...	...	...	14	15	...	...	21	13	+61	85	·997	1·7	2	3·44	−1·44	1·52	2·17	− 0·65	1·67	3·44	− 1·77	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**Hill Stations.**	
31	...	...	...	...	...	...	...	...	2	5	−60	35	·286	0·2	0	1·18	−1·18	0	0·39	− 0·39	0·85	3·54	−2·69	Quetta	Beluchistan.
6	3	3	2	8	6	2	...	1	4	...	...	69	·390	3·7	6	...	...	2·55	?	?	5·15	?	?	Srinagar	Northern India.
8	3	3	2	3	...	1	...	11	7	8	−13	34	·249	3·2	3	5·55	−2·55	2·05	3·41	−1·36	5·15	10·81	−5·66	Murree.	
4	15	2	...	...	10	...	...	...	...	3	...	38	·242	1·9	4	6·18	−2·18	1·98	4·23	−2·25	2·29	9·03	−6·74	Simla.	
...	1	3	9	3	...	1	7	7	...	12	...	42	·285	4·9	5	4·55	+0·45	1·39	2·42	−1·03	1·85	5·69	−3·84	Mussoorie.	
18	...	...	2	...	...	11	...	...	4	3	+33	50	·390	2·2	4	6·00	−2·00	1·60	2·76	−1·16	2·31	6·54	−4·23	Ranikhet.	
...	...	...	...	...	...	...	...	...	...	...	...	86	·303	...	28	?	?	24·95	?	?	40·33	?	?	Gnatong.§	
5	...	...	1	1	1	17	6	...	8	6	+33	95	·442	8·5	17	13·29	+3·71	12·79	9·02	+3·77	22·27	15·60	+6·67	Darjeeling.	
14	...	2	2	2	1	3	3	3	...	...	...	94†	·596†	7·8	20	?	?	9·71	?	?	10·19‡	?	?	Kalimpong.	
...	...	1	...	...	...	15	13	2	9	9	0	42	·356	1·2	1	1·45	−0·45	1·92	0·89	+·103	1·92	0·95	+0·97	Mount Abu	Central India.
...	1	1	2	1	...	4	20	2	8*	7	+14	34	·362	1·7	0	2·09	−2·09	0	0·76	−0·76	0	1·15	−1·15	Pachmarhi.	
13	6	2	...	2	1	5	...	2	4	3	+33	61	·421	3·6	11	8·78	+2·22	3·30	4·22	−0·92	9·15	8·46	+0·69	Wellington.	South India.
7	3	3	...	...	...	...	5	13	12	?	?	62	·376	4.2	10	10·8	−0·8	4·70	4·86	−0·76	13·32	14·02	−0·70	Kodaikanal.	
5	13	1	...	1	1	2	4	4	6	?	?	70	·433	5·7	11	10·5	+0·5	4·88	7·41	−2·53	12·96	12·40	+0·56	Kotagiri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**Extra India.**	
8	5	1	1	...	...	3	...	11	?	?	?	?	?	2·2	4	?	?	1·09	?	?	3·14	?	?	Meshed	Persia.
...	1	3	3	...	...	1	2	16	9	?	?	56	·641	...	0	?	?	0·13	0·01	+0·12	0·15	1·41	−1·26	Bushireh.	
12	...	3	12	...	2	1	1	...	13	11	...	75	·956	3·0	0	?	?	0	0·14	−0·14	0	1·14	−1·14	Aden	Arabia.
2	...	2	6	11	1	2	2	5	15	?	?	78	1·002	5·0	0	?	?	0	?	?	0	?	?	Perim.	
0	...	...	...	...	14	8	...	...	10	7	+43	86	·814	6·8	12	?	?	9·24	?	?	23·05	?	?	Zanzibar	Arabian Sea Island.

* Mean of 24 days. † Mean of 27 days. ‡ Rainfall for the month of April wanting, Kalimpong 30 days, wind observations. § Mean of 30 days. ‖ Mean of 26 days.

Table

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

Meteorological Province.	Station.	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	29·791	29·700	·091	29·744	−·009	29·736	87·4	77·9	9·5	92·4	72·7	19·7	83·8	84·3	81·6	−0·7	74·7	79·7	79·6	78·1
	Mergui	·786	·685	·101	·734	−·015	·762	84·6	68·5	16·1	89·4	65·9	23·5	80·3	82·1	75·9	−4·9	67·0	77·4	78·4	74·3
	Rangoon	·784	·671	·113	·732	−·027	·709	?	76·9	?	?	74·1	?	84·2	83·7	?	?	74·5	79·0	78·1	77·2
	Diamond Island	·803	·706	·097	·752	−·019	·707	87·1	75·3	11·8	93·3	67·4	25·9	83·5	83·7	80·1	−3·0	?	78·1	78·2	?
	Cocos Island	...	...	...	...	...	...	...	...	...	...	...	Not	received.		...	...	...	...	...	...
	Akyab	·793	·679	·114	·740	−·022	·703	90·8	76·8	14·0	94·1	70·0	24·1	86·7	87·7	82·9	−0·3	74·6	81·1	80·9	78·9
Assam.	Silchar	·687	·565	·122	·626	−·026	·681	87·3	72·7	14·6	93·5	67·5	26·0	81·1	83·8	78·9	−0·5	71·2	76·4	77·5	75·0
	Sibsagar	·424	·288	·136	·356	−·073	·646	83·6	72·1	11·5	92·8	68·2	24·6	78·4	82·3	77·0	−0·2	71·3	75·6	77·4	74·8
	Dhubri	·646	·506	·140	·571	−·034	·657	81·6	72·3	9·3	89·2	68·8	20·4	76·5	81·0	75·4	−2·1	70·6	74·0	76·5	73·7
Bengal and Orissa.	Chittagong	·706	·599	·107	·655	−·019	·689	89·0	76·3	12·7	95·2	68·6	26·6	86·1	85·4	81·7	+0·6	74·3	80·0	79·7	78·0
	Dacca	·726	·600	·126	·665	−·030	·635	91·3	76·2	15·1	93·9	70·0	23·9	86·2	87·5	83·1	+0·4	73·5	80·4	80·5	78·1
	Calcutta (Alipore)	·686	·563	·123	·626	−·036	·592	95·0	78·7	16·3	97·9	71·0	26·9	89·8	91·9	86·5	+1·5	75·1	81·0	80·1	78·7
	Calcutta (Chowringhee)	·691	?	?	?	?	?	97·2	79·2	17·9	100·0	72·6	27·4	91·9	?	88·3	?	76·4	83·1	?	?
	Saugor Island	·696	·574	·122	·638	−·034	·607	92·8	82·7	10·1	94·3	75·0	19·3	89·4	89·9	86·7	+1·6	78·2	82·7	82·9	81·2
	Burdwan	·592	·445	·147	·522	−·056	·562	101·6	79·6	22·0	107·7	69·4	38·3	90·9	98·5	88·9	+3·0	74·3	79·3	79·7	77·9
	Berhampore	·625	·477	·148	·554	−·050	·569	98·5	77·4	21·1	104·7	70·3	34·4	88·0	94·5	86·1	−0·1	73·4	81·4	80·3	78·5
	False Point	·708	·588	·120	·651	−·043	·611	91·4	82·1	9·3	93·5	76·1	17·4	89·4	88·8	85·8	+2·1	80·0	82·8	83·0	81·9
	Cuttack	·622	·487	·135	·564	−·047	·585	104·3	82·1	22·2	112·4	71·8	40·6	95·5	100·3	90·8	+3·2	77·1	82·0	82·4	80·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	27·694	27·599	·095	27·651	−·037	·539	103·7	78·4	25·3	108·9	72·3	36·6	95·4	99·7	90·0	+4·9	64·5	68·9	69·2	67·5
	Patna	29·471	29·328	·143	29·397	−·073	·528	102·5	78·5	24·0	109·7	71·6	38·1	94·0	102·5	90·1	+2·9	73·9	82·1	82·6	79·5
	Darbhanga	·537	·406	·131	·470	−·036	·588	95·4	74·6	20·8	105·5	70·5	35·0	87·6	94·2	84·3	−0.2	72·6	77·6	78·8	76·4
	Ghazipur	·486?	·363?	·123	·424?	+·010?	·592?	106·3	81·5	24·8	110·9	71·1	39·8	96·9	103·8	93·2	+3·7	69·9	76·2	75·3	73·8
	Allahabad	·340	·211	·129	·276	−·050	·530	108·9	82·4	26·5	115·4	72·6	42·8	99·3	106·9	95·7	+3·8	67·5	73·2	72·5	71·1
	Lucknow	·275	·155	·120	·211	−·063	·528	107·3	80·6	26·7	112·3	70·8	41·5	96·8	105·2	94·0	+3·3	67·3	73·3	73·9	71·4
Upper Sub-Himalayas.	Dehra-Dun	27·459	27·367	·092	27·403	−·059	·518	99·7	73·6	26·1	108·4	63·5	44·9	89·9	95·8	86·2	+3·8	60·1	66·7	67·1	64·7
	Roorkee	28·744	28·624	·120	28·678	−·070	·505	105·9	77·1	28·8	113·5	65·2	48·3	95·7	103·6	91·2	+3·6	64·4	71·6	72·1	69·4
	Meerut	·901	·788	·113	·837	−·047	·519	104·6	79·0	25·6	111·2	64·0	47·2	96·7	101·5	91·3	+3·1	67·2	71·6	72·0	70·3
	Lahore	·897	·794	·103	·839	−·079	·489	106·8	76·6	30·2	118·1	63·0	55·1	98·3	105·0	91·6	+6·2	64·2	71·7	72·4	69·4
	Ludhiana	·775	·671	·104	·716	−·100	·471	106·8	78·5	28·3	117·3	62·6	54·7	97·0	103·2	92·1	+5·2	67·3	71·5	73·0	70·6
Indus Valley and N. W. Rajputana.	Peshawar	·540	·425	·115	·476	−·075	·541	103·8	73·2	30·6	112·5	58·7	53·8	95·3	101·3	88·2	+6·0	61·1	70·8	73·0	68·3
	Mooltan	29·170	29·072	·098	29·114	−·077	·489	110·8	80·7	30·1	117·9	69·2	48·7	95·1	109·5	95·7	+5·8	66·2	76·6	82·4	75·3
	Jacobabad	·443	·310	·133	·370	−·043	·508	114·1	79·5	34·6	121·2	70·7	50·5	104·7	113·2	96·9	+3·7	62·6	72·9	72·1	69·2
	Hyderabad (Sind)	·564	·449	·115	·505	−·019	·571	106·8	79·1	27·7	116·6	70·1	46·5	95·4	102·6	90·9	0	72·2	75·4	76·9	74·8
	Kurrachee	·680	·582	·098	·630	−·021	·631	93·2	80·5	12·7	97·0	76·8	20·2	88·2	89·1	84·9	+0·9	76·7	80·4	81·4	79·5
E. Rajputana, Central India and Guzerat.	Jeypore	28·280	28·172	·108	28·225	−·021	·572	105·1	77·7	27·4	111·3	61·9	49·4	94·9	102·8	91·0	+0·8	63·9	71·9	71·5	69·1
	Ajmere	·125	·022	·103	·072	−·010	·597	103·4	81·1	22·3	107·5	62·2	45·3	92·2	101·3	91·8	+2·3	?	74·8	77·0	?
	Deesa	29·314	29·184	·130	29·248	+·018	·659	105·4	77·9	27·5	109·9	65·6	44·3	91·2	104·3	91·2	+0·2	70·1	74·6	73·1	72·6
	Nowgong	28·924	28·805	·119	28·865	−·025	·553	106·9	79·9	27·0	112·6	72·0	40·6	98·4	104·2	93·1	+0·1	66·4	74·8	75·9	72·4
	Agra	29·111	·993	·118	29·043	−·037	·538	108·6	84·5	24·1	115·3	69·5	45·8	99·8	105·4	96·2	+3·7	67·2	73·7	73·4	71·4
Deccan.	Belgaum	27·339	27·234	·105	27·290	−·002	·713	91·6	68·7	22·9	104·8	65·4	39·4	83·1	83·3	76·9	−1·0	66·5	70·0	71·9	69·5
	Sholapur	28·226	28·065	·161	28·145	−·006	·638	105·3	75·6	29·7	109·1	70·6	38·5	91·2	100·7	88·9	−0·2	67·0	70·7	70·7	69·4
	Poona	27·998	27·882	·116	27·948	+·003	·695	99·7	72·1	27·6	107·6	68·7	38·9	90·5	95·0	84·9	+0·6	66·0	69·1	70·9	68·7

II.

at 94 Stations in India, Burma, etc., for May 1892.

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.		
·820	·967	·947	·915	—·029	86	83	80	83	0	8·5	8·8	8·7	+2·4	...	...	1	...	4	8	17	26	6	S 65° W	S 34° W	69	48	172	165	Port Blair	Burma Coast and Bay Islands.
·644	·902	·927	·824	—·058	92	88	85	88	+ 5	8·3	9·0	8·7	+1·1	...	7	1	...	4	12	17	8	13	S 69° W	S 68° W	45	34	45	49	Mergui	
·822	·921	·889	·877	+·009	89	79	78	82	+ 6	8·0	8·7	8·4	+1·7	...	1	3	4	3	18	22	8	3	S 30° W	S 17° W	56	56	98	121	Rangoon	
?	·890	·893	?	?	?	78	78	?	?	8·8	9·3	9·1	+3·7	1	4	2	1	7	9	20	11	7	S 52° W	S 76° W	47	45	177*	165	Diamond Island	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	?	...	?	...	...	Cocos Island	
·819	·990	·966	·925	+·042	86	78	73	79	+ 2	6·6	5·0	5·8	+0·5	...	1	6	7	5	13	12	13	5	S 32° W	S 33° W	31	31	81	87	Akyab	
·747	·850	·862	·830	+·028	93	80	75	83	+ 3	8·0	7·7	7·9	+1·7	40	1	3	4	1	2	2	6	3	N 66° W	N 75° E	5	10	19	80	Silchar	Assam.
·760	·853	·878	·830	+·048	97	88	80	88	+ 5	8·6	7·7	8·2	+0·4	...	1	39	7	4	...	11	...	...	N 59° E	N 56° E	56	37	50	68	Sibsagar	
·731	·810	·856	·799	+·014	89	92	81	87	+ 7	8·2	6·0	7·1	+2·5	15	3	13	21	2	...	7	1	...	N 78° E	N 70° E	42	21	172	168	Dhubri	
·827	·942	·942	·902	+·039	91	76	77	81	+ 1	8·0	6·2	7·1	+2·0	6	...	...	1	9	18	24	2	...	S 16° W	S	72	38	123	153	Chittagong	Bengal and Orissa.
·799	·963	·950	·904	+·017	87	77	73	79	− 1	8·3	7·7	8·0	+2·7	...	...	5	4	12	32	8	...	1	S 13° E	S 19° E	69	60	206	150	Dacca	
·831	·940	·872	·881	—·013	84	67	59	70	− 6	4·3	2·1	3·2	−1·3	...	...	...	1	2	33	24	1	1	S 18° W	S 11° E	85	66	202	174	Calcutta (Alipore).	
·875	1·014	?	?	?	87	68	?	?	?	Not	record	ed.		?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	Calcutta (Chowringhee).	
·909	1·034	1·034	·992	+·007	81	74	73	76	− 4	7·2	5·8	6·5	+1·0	...	1	...	1	10	41	9	...	...	S 2° E	S 12° W	85	69	485	367	Saugor Island.	
·784	·852	·764	·806	—·010	78	59	42	60	− 6	3·6	4·7	4·2	+0·2	1	1	...	...	12	29	13	6	...	S 8° W	S 9° E	74	52	189	131	Burdwan	
·771	·984	·856	·873	+·071	82	75	55	70	− 2	4·9	5·0	5·0	−0·3	1	1	5	13	6	24	8	3	1	S 22° E	S 36° E	50	37	113	132	Berhampore	
1·002	1·035	1·050	1·029	+·086	91	75	77	81	− 2	5·1	3·2	4·2	−0·2	...	...	1	1	4	44	11	...	1	S 4° W	S 31° W	86	71	421	322	False Point	
·870	·911	·869	·883	+·054	79	55	45	60	− 4	2·7	3·2	3·0	−1·0	1	...	1	1	6	34	19	...	...	S 8° W	S 5° W	84	61	135	125	Cuttack	
·439	·381	·333	·385	—·089	46	24	20	30	−11	1·5	3·8	2·7	−0·8	0	11	...	1	2	9	10	13	16	N 81° W	S 77° W	47	15	249	210	Hazaribagh	Gangetic Plain and Chota Nagpur.
·788	·945	·859	·864	+·180	81	61	43	62	+ 8	1·1	0·7	0·9	−1·9	0	2	4	36	...	...	...	15	5	N 67° E	N 54° E	35	38	176	115	Patna	
·783	·816	·783	·795	+·037	91	63	50	68	+ 8	1·7	1·4	1·6	−0·5	...	1	13	32	12	...	...	3	1	N 68° E	S 86° E	79	59	199	144	Durbhunga	
·588	·634	·491	·571	+·006	55	37	24	39	− 2	0·6	0·3	0·5	−0·9	10	4	3	8	5	1	3	15	13	N 56° W	N 10° W	24	9	86	83	Ghazipur	
·483	·475	·337	·432	—·100	44	26	15	28	−10	0·9	1·5	1·2	−0·4	2	6	2	3	2	...	3	17	27	N 36° W	N 8° E	64	20	119	96	Allahabad	
·498	·514	·421	·473	—·076	49	31	19	33	−.8	1·8	1·4	1·6	−0·4	...	2	3	8	4	1	11	18	15	N 83° W	N 15° E	39	15	118	102	Lucknow	
·353	·368	·312	·342	?	43	28	20	30	?	1·5	1·6	1·5	−1·3	6	3	5	1	2	4	14	21	6	S 81° W	S 76° W	50	17	?	59	Dehra Dun	Upper Sub-Himalayas.
·444	·451	·366	·420	+·005	48	28	18	31	− 4	1·3	0·7	1·0	−0·8	21	2	1	3	10	5	2	7	11	S 61° W	S 68° W	10	6	?	88	Roorkee	
·515	·442	·392	·450	—·055	53	26	21	33	− 8	0·7	1·0	0·9	−1·0	10	...	1	3	2	...	12	30	4	S 80° W	N 32° W	60	24	77	63	Meerut	
·440	·424	·364	·409	—·026	49	25	18	31	− 2	2·2	1·5	1·9	−0·4	5	7	3	6	9	7	1	12	12	N 64° W	N 7° E	12	21	90	78	Lahore.	
·527	·432	·412	·457	—·031	55	27	22	35	− 8	1·1	1·3	1·2	−1·0	21	6	...	3	5	4	...	20	3	N 88° W	N 57° W	26	10	36	54	Ludhiana	
·397	·453	·463	·438	+·011	49	28	24	34	− 6	0·7	4·1	2·4	−0·5	4	9	15	10	1	3	5	8	7	N 15° E	N 25° E	29	25	115	117	Peshawar	Indus Valley and N. W. Rajputana.
·456	·672	·747	·632	+·062	44	41	29	38	− 4	0	0	0	−1·2	1	...	18	..	1	...	36	...	6	S 60° W	S 35° W	31	35	99*	66	Mooltan	
·347	·386	·234	·322	—·136	35	19	9	21	−11	0·9	1·3	1·1	−0·1	1	2	...	2	7	11	15	3	21	S 66° W	S 61° E	39	17	144	110	Jacobabad	
·705	·614	·581	·633	—·002	71	37	28	45	0	4·1	3·5	3·8	+3·2	...	...	2	...	8	10	41	...	1	S 28° W	S 47° W	77	72	312	304	Hyderabad (Sind).	
·871	·933	·968	·924	+·044	84	70	71	75	+ 2	2·4	1·4	1·9	−0·1	...	...	...	...	..	...	33	29	...	S 66° W	S 60° W	92	85	286	420	Kurrachee	
·430	·514	·384	·443	+·015	45	32	19	32	0	1·1	2·4	1·8	−0·3	...	1	...	...	...	3	12	33	13	S 88° W	N 45° W	82	50	165	159	Jeypore	E. Rajputana, Central India and Guzerat.
?	·647	·625	?	?	?	44	32	?	?	0·9	1·5	1·2	−0·4	2	...	...	...	...	...	7	44	9		S 60° W	89	63	311	177	Ajmere	
·635	·637	·400	·557	—·030	66	44	19	43	+ 3	2·0	1·2	1·6	+0·1					Do	ubtf	ul.			N 7° W	S 55° W	?	76	357	321	Deesa	
·476	·549	·517	·514	+·105	47	31	25	34	+ 3	1·6	2·5	2·1	−0·2	1	2	1	...	1	2	...	43	12	N 80° W	N 70° W	82	44	72*	81	Nowgong	
·440	·483	·397	·440	—·004	39	27	19	28	− 3	1·3	1·5	1·4	+0·1	...	...	3	...	4	...	19	1	35	N 73° W	N 72° W	58	30	160	80	Agra	
·625	·574	·642	·616	+020	89	52	58	67	+ 7	3·3	5·4	4·4	+0·8	...	3	3	1	1	3	13	30	8	S 87° W	S 88° W	66	73	409	435	Belgaum	Deccan.
·563	·499	·378	·477	+·019	64	35	21	40	+ 4	2·7	6·4	4·6	+0·6	...	6	2	2	1	2	5	17	22	N 62° W	N 41° W	63	46	262	241	Sholapur	
·565	·447	·458	·490	—·022	72	32	29	44	0	2·7	3·1	2·9	−0·2	...	1	5	2	1	...	3	28	22	N 66° W	N 55° W	69	66	352	337	Poona	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 94 Stations

Meteorological Province	Station.	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.*	Akola	28·840	28·688	·152	28·763	+·003	·618	107·2	80·2	27·0	111·1	69·7	41·4	96·1	105·4	93·5	−0·1	65·0	71·9	71·7	69·5
	Buldana	27·675	27·551	·124	27·612	−·006	·622	100·7	77·1	23·6	105·0	72·4	32·6	90·1	98·3	88·6	0	62·9	69·2	67·9	66·6
	Khandwa	28·735	28·571	·164	28·652	+·007	·626	104·3	78·7	25·6	109·2	64·1	45·1	91·7	102·5	90·9	−1·4	64·3	72·0	70·7	69·1
	Hoshangabad	·736	·593	·143	·663	−·012	·610	106·1	81·0	25·1	110·1	74·7	35·4	96·9	105·2	93·2	+0·1	66·6	74·4	74·1	71·7
	Nagpur	28·699	28·553	·146	28·625	−·010	29·566	110·0	84·5	25·5	114·9	78·7	36·2	100·4	107·2	96·9	+2·8	67·0	73·3	73·3	71·2
	Sironcha	29·341	29·189	·152	29·264	−·041	·595	110·8	86·8	24·0	116·1	77·9	38·2	99·0	108·9	98·7	+3·9	70·5	75·4	75·8	73·9
	Chanda	·102	28·946	·156	·023	−·006	·579	110·8	82·9	27·9	114·3	76·0	38·3	99·5	107·7	96·4	+2·3	67·7	73·3	74·7	71·9
	Seoni	27·733	27·618	·115	27·674	−·006	·578	104·3	77·6	26·7	109·2	71·1	38·1	97·5	101·5	90·5	+1·9	63·0	69·1	69·1	67·1
	Jubbulpore	28·395	28·263	·132	28·328	−·007	·569	105·9	79·2	26·7	110·3	68·3	42·0	97·6	103·8	91·9	+1·0	66·7	72·2	72·3	70·4
	Saugor	27·981	27·859	·122	27·919	+·003	·575	105·7	78·7	27·0	110·0	69·6	40·4	97·2	103·1	91·5	+1·9	63·0	70·5	69·7	67·7
	Raipur	28·724	28·582	·142	28·652	−·033	·521	109·8	85·9	23·9	114·0	79·5	34·5	102·8	106·8	97·4	+4·0	66·8	71·3	71·9	70·0
	Sutna	·636	·512	·124	·574	−·028	·542	105·9	80·1	25·8	111·4	71·9	39·5	100·5	104·8	92·9	+1·9	63·6	69·8	69·5	67·7
	Sambalpur	29·191	29·037	·154	29·124	−·048?	·517	111·6	83·9	27·7	117·3	75·2	42·1	101·7	108·9	96·0	+3·0	70·5	78·5	78·4	75·8
	Secunderabad	28·012	27·875	·137	27·946	−·012	·617	105·6	80·2	25·4	109·7	71·8	37·9	95·8	101·7	91·5	+2·3	70·1	72·2	72·9	71·7
	Hyderabad (Deccan)	·109	·972	·137	28·041	?	·618	103·9	81·6	22·3	109·0	73·6	35·4	94·0	102·1	92·3	?	?	73·5	74·2	?
West Coast.	Bombay	29·815	29·715	·100	29·763	−·003	·739	90·6	82·2	8·4	95·4	79·6	15·8	88·1	88·5	85·8	+1·1	76·1	78·6	78·9	77·9
	Ratnagiri	·721	·631	·090	·674	−·014	·720	92·1	80·9	11·2	94·9	75·9	19·0	89·8	89·1	85·7	+1·3	75·7	78·8	78·9	77·8
	Karwar	·823	·733	·090	·776	+·004	·751	89·8	79·0	10·8	92·5	73·7	18·8	86·2	87·0	83·6	−0·1	75·6	78·2	79·0	77·6
	Cochin	·894	·806	·088	·848	+·014	·786	88·5	74·4	14·1	92·3	71·2	21·1	84·3	85·3	80·6	−2·0	74·4	78·2	78·7	77·1
South India.	Salem	28·922	28·771	·151	28·859	−·021	·722	100·7	76·0	24·7	105·6	68·3	37·3	89·1	97·2	86·1	+1·6	72·1	77·6	81·4	77·0
	Mercara	26·214	26·115	·099	26·164	−·015	·790	79·4	64·4	15·0	86·2	61·0	25·2	72·7	73·2	70·4	−1·4	62·8	67·5	68·3	66·2
	Bangalore (Fort)	·905	·787	·118	·846	?	·715	90·8	68·3	22·5	95·9	64·7	31·2	80·8	87·9	78·8	?	65·2	70·7	70·7	68·8
	Trichinopoly	29·571	29·423	·148	29·510	−·027	·691	104·1	80·0	24·1	108·7	73·9	34·8	92·2	100·4	89·7	+2·6	73·4	76·4	77·5	75·8
	Madras†	·764	·651	·113	·718	−·018	·666	100·7	82·5	18·2	108·4	79·1	29·3	95·9	90·8	89·0	+1·8	?	78·7	79·5	78·3
	Bellary	28·354	28·199	·155	28·279	+·002	·659	103·4	73·2	25·2	107·7	73·9	33·8	91·2	99·7	89·5	+0·8	69·4	73·3	72·5	71·7
	Vizagapatam	29·723	29·592	·131	29·657	−·032	·625	92·3	85·5	6·8	98·0	80·0	18·0	91·5	91·9	90·3	+2·3	77·2	81·5	82·0	80·2
Hill Station, Beluchistan.	Quetta	24·602	24·522	·080	24·553	+·020	?	85·8	51·7	34·1	93·3	41·4	51·9	78·9	83·9	68·3	+1·6	45·4	56·7	58·3	53·5
Hill Stations, Northern India.	Leh	19·755	19·678	·077	19·729	+·046	?	66·1	38·9	27·2	72·2	31·9	40·3	54·9	60·0	51·3	+3·8	32·8	40·5	42·0	38·4
	Srinagar	24·835	24·751	·084	24·793	?	?	78·1	51·8	26·3	89·8	42·2	47·6	67·8	76·0	64·4	?	49·6	59·2	61·5	56·8
	Murree	23·782	23·744	·038	23·754	−·029	?	81·7	62·3	19·4	94·5	51·8	42·7	75·7	79·0	71·7	+5·3	49·3	56·4	57·0	54·2
	Chamba	26·729	26·655	·074	26·704	−·085	?	97·0	68·7	28·3	107·9	59·9	48·0	85·1	91·0	81·0	+6·8	56·7	62·7	64·1	61·2
	Kallang	20·784	20·750	·034	20·779	+·033	?	66·3	39·6	26·7	76·4	34·2	42·2	57·7	57·6	50·5	+3·4	37·1	45·9	45·1	42·7
	Simla	23·032	22·984	·048	23·000	−·015	?	76·5	60·4	16·1	85·3	46·2	39·1	70·5	74·0	68·2	+3·5	48·0	53·7	55·5	52·4
	Chakrata	·205	23·156	·049	·171	−·030	?	79·9	59·8	20·1	87·3	50·1	37·2	72·9	73·7	68·7	+4·2	50·1	55·0	54·8	53·3
	Ranikhet	24·026	·973	·053	·988	−·028	?	81·6	64·6	17·0	89·2	54·5	34·7	76·3	77·1	72·4	+4·8	54·1	61·4	62·5	60·4
	Pithoragarh	·679	24·612	·067	24·634	−·001	?	86·8	64·5	22·3	95·1	55·6	39·5	79·9	82·7	75·0	+5·7	54·2	61·8	62·6	59·5
	Katmandu	25·527	25·438	·089	25·479	−·020	?	84·8	62·5	22·3	89·2	57·7	31·5	78·1	79·0	71·9	+1·6	61·4	67·5	67·0	65·4
	Darjeeling	22·923	22·848	·075	22·882	−·033	?	62·9	53·3	9·6	67·6	48·6	19·0	58·6	60·4	57·5	+1·6	52·2	57·7	59·0	56·3
	Pedong	25·201	25·110	·091	25·151	−·044	?	72·3	61·7	10·6	78·2	57·9	20·3	67·9	68·8	66·2	+1·2	59·9	64·9	65·0	63·2
	Demagiri			Not recorded.				91·6	66·0	25·6	92·9	59·6	33·3	85·5	84·9	77·1	−2·9		Not recorded.		
	Tura			Ditto.				84·6	70·2	14·4	87·7	64·6	23·1	76·5	81·4	76·6	+0·6	?	72·9	·757	?

† The means are as given in the register sent by Government Astronomer, Madras.

II —*concluded.*

in India, Burma, etc., for May 1892 —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.		
·421	·459	·328	·403	+·002	40	27	15	28	+ 1	2·0	2·8	2·4	+0·2	1	8	2	...	2	...	...	9	40	N 43° W	N 51° W	81	72	272	203	Akola	Deccan—*continued.*
·402	·455	·305	·386	−·064	44	33	17	31	− 5	2·2	2·7	2·5	−0·3	...	7	5	...	...	1	1	23	25	N 55° W	N 53° W	74	51	327	283	Buldana	
·431	·545	·365	·447	−·038	44	37	17	33	− 1	1·0	1·4	1·2	−1·1	...	3	2	3	...	1	1	42	10	N 78° W	N 61° W	75	69	250	221	Khandwa	
·481	·576	·455	·504	+·056	45	33	21	33	+ 2	1·3	3·0	2·2	−0·3	1	2	2	2	...	6	13	30	6	S 79° W	W	66	54	160	91	Hoshangabad	
·448	·481	·396	·441	+·010	38	25	17	27	− 2	2·2	4·0	3·1	−0·8	...	6	...	2	2	3	15	24	10	S 87° W	N 41° W	62	44	264	168	Nagpur	
·528	·564	·445	·513	−·092	42	31	18	30	−11	1·5	4·1	2·8	0	17	10	1	...	2	3	1	11	17	N 51° W	S 30° W	45	19	97	110	Sironcha	
·481	·467	·416	·455	−·033	43	25	18	29	− 3	2·2	3·3	2·8	−0·8	...	5	1	...	1	2	9	22	22	N 74° W	N 76° W	71	31	139	118	Chanda	
·397	·360	·307	·355	−·080	42	21	16	27	− 7	1·5	3·4	2·5	− 0·9	...	14	3	3	1	1	5	12	23	N 44° W	N 58° W	61	39	121	111	Seoni	
·501	·474	·400	·458	+·053	51	27	19	32	+ 2	1·0	3·0	2·0	−1·2	5	7	1	...	...	...	6	23	20	N 67° W	N 62° W	71	44	58	105	Jubbulpore	
·387	·415	·310	·370	+·005	39	24	15	26	− 2	0·8	2·7	1·8	−0·1	...	6	1	...	...	...	26	21	8	S 82° W	N 87° W	72	60	?	185	Saugor	
·403	·353	·314	·357	−·120	33	18	14	21	−13	2·3	4·3	3·3	0	...	8	6	1	...	...	7	23	15	N 62° W	N 78° W	63	38	247	185	Raipur	
·389	·347	·282	·339	−·019	38	18	13	23	− 4	0·8	1·5	1·2	−1·2	1	5	1	...	...	1	1	26	27	N 63° W	N 50° W	82	52	174	198	Sutna	
·571	·661	·560	·598	−·086	49	33	23	35	−12	2·9	3·7	3·3	+0·6	...	1	4	...	5	6	29	9	8	S 54° W	S 62° W	56	37	107*	78	Sambalpur	
·613	·510	·453	·525	+·012	60	32	23	38	− 1	2·1	5·4	3·8	+1·0	...	8	4	4	...	1	8	9	28	N 49° W	N 76° W	60	34	250	182	Secunderabad	
?	·573	·497	?	?	?	37	25	?	?	1·0	4·1	2·5	?	6	9	5	2	2	2	3	19	14	N 55° W	?	48	?	189	?	Hyderabad (Deccan.)	
·819	·852	·861	·844	−·037	74	64	64	67	− 7	2·8	3·2	3·0	−1·0	...	2	...	1	...	3	13	21	22	N 83° W	N 82° W	72	67	275	248	Bombay	
·822	·835	·849	·835	+·009	78	60	62	67	− 2	1·8	2·2	2·0	+0·2	1	5	...	...	...	8	12	24	12	S 86° W	N 73° W	66	64	233	265	Ratnagiri	West Coast.
·842	·862	·886	·861	+ 008	85	69	69	75	+ 1	4·1	4·7	4·4	+1·2	...	1	...	...	...	...	11	23	27	N 76° W	N 69° W	82	81	110	?	Karwar	
·826	·888	·894	·869	−·024	90	76	73	80	− 1	6·1	6·8	6·5	+0·8	...	1	8	3	...	1	3	28	18	N 65° W	W	61	49	139	?	Cochin	
·739	·793	·862	·798	+·030	83	58	49	63	− 2	3·5	5·0	4·3	−0·3	2	...	3	1	1	32	17	5	1	S 18° W	S 50° W	71	61	102	101	Salem	South India.
·555	·615	·641	·604	−·011	91	77	79	82	+ 2	6·5	7·7	7·1	+0·3	...	4	1	3	...	...	...	32	22	N 65° W	N 68° W	77	65	78	119	Mercara	
·585	·626	·538	·582	?	85	60	42	62	?	3·8	5·5	4·7	?	...	4	5	3	1	1	16	24	8	N 89° W	?	55	?	202	?	Bangolare (Fort)	
·735	·698	·637	·690	−·052	72	46	33	50	− 7	3·7	5·3	4·5	−1·1	2	1	...	1	3	2	5	30	18	N 82° W	S 80° W	71	61	208	143	Trichinopoly	
?	·752	·854	·826	−·040	?	45	59	61	− 7	3·3	3·5	3·4	−0·6	...	2	...	3	27	10	6	11	3	S 9° E	S 15° E	48	66	226	220	Madras†	
·612	·596	·458	·555	−·008	64	41	25	43	0	2·7	6·7	4·7	− 0·1	12	2	...	4	...	2	5	7	30	N 57° W	N 76° W	53	52	242	200	Bellary	
·817	·918	·970	·912	+·007	66	64	65	65	− 3	4·8	5·7	5·3	+1·1	...	...	1	...	5	27	17	10	2	S 25° W	S 41° W	72	60	83	88	Vizagapatam	
·245	·231	·220	·231	−·058	63	24	18	35	− 8	0·6	1·6	1·1	+0·2	45	...	...	...	...	...	...	8	9	N 66° W	N 69° W	26	51	45*	110	Quetta	Hill Station Beluchistan.
·137	·129	·113	·126	+·003	58	31	23	37	− 3	5·4	8·0	6·7	+0·3	1	1	4	2	1	7	17	23	6	S 71° W	S 72° W	58	25	53	75	Leh	Hill Stations, Northern India.
·331	·409	·386	·375	?	86	61	45	64	?	3·3	6·0	4·7	?	6	4	7	6	8	12	2	10	7	S 2° E	?	8	?	97	?	Srinagar	
·215	·252	·237	·235	−·026	41	30	24	32	−12	2·2	3·5	2·9	−1·4	6	4	...	2	14	14	3	7	12	S 23° W	S 18° E	24	13	178	193	Murree	
·327	·311	·288	·308	−·041	48	27	22	32	−14	3·3	6·2	4·8	+0·3	3	5	...	1	6	3	4	5	35	N 54° W	N 2° E	55	11	110	114	Chamba	
·200	·209	·194	·201	+·021	82	45	45	57	0	4·5	8·4	6·5	+0·3	...	2	...	1	4	8	29	12	6	S 53° W	S 61° W	66	70	54	51	Kailang	
·208	·241	·250	·233	−·057	42	34	31	35	−13	2·7	4·1	3·4	−0·6	4	25	9	...	...	20	1	1	1	N 19° E	S 66° W	20	51	?		Simla	
·266	·246	·238	·250	−·025	51	32	31	38	−12	3·2	4·7	4·0	+0·3	4	2	3	8	1	4	2	24	4	S 76° W	S 63° W	40	29	153	146	Chakrata	
·294	·391	·420	·383	+·058	46	43	46	43	− 8	2·3	3·0	2·7	−0·9	11	5	...	3	...	1	35	6	1	S 55° W	S 63° W	56	46	108	84	Ranikhet	
·312	·362	·361	·345	−·017	52	36	35	41	−12	1·9	4·1	3·0	−1·2	20	...	1	3	1	6	30	...	1	S 34° W	S 13° E	52	34	99	88	Pithoragarh	
·531	·552	·526	·540	+·055	93	58	54	69	+ 1	3·8	6·4	5·1	−0·2	...	6	...	18	1	1	1	26	9	N 56° W	S 88° W	28	67	51	?	Katmandu	
·381	·468	·488	·446	+·048	93	95	93	93	+ 6	9·1	8·3	8·7	+1·4	1	2	...	4	1	2	30	18	2	S 60° W	S 79° W	66	46	197	149	Darjeeling	
·499	·584	·578	·554	+·039	90	86	82	86	+ 4	8·2	8·3	8·3	+1·6	Imperfect.									?	?	?	?	?	?	Pedong	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	2	5	4	3	9	26	9	4	S 43° W	S 11° E	47	6	?	?	Demagiri	
	·769	·823	?	?	?	84	77	?	?	6·6	3·7	5·2	+0·2	...	2	1	...	13	33	8	...	2	S 4° E	S 4° W	74	58	?	?	Tura	

* Mean of 28 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 94 Stations

Meteorological Province.	Station.	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, Central India.	Mount Abu	...	...	...	...	...	...	84·7	67·5	17·2	89·2	52·4	36·8	78·6	84·0	75·9	−3·7	57·8	63·3	65·9	62·3
	Pachmarhi	26·406	26·300	·106	26·352	+·012	?	95·4	75·5	19·9	98·9	66·0	32·9	86·7	92·9	84·9	+0·7	59·5	64·6	64·1	62·7
	Chikalda	·266	·166	·100	·215	−·006	?	93·4	72·7	20·7	98·3	66·3	32·0	83·8	91·0	82·5	−0·2	60·2	65·6	65·4	63·7
	Makhla	?	?	?	?	...	?	98·5	75·8	22·7	104·0	70·8	33·2	86·0	94·8	86·5	+0·3	64·7	73·8	77·7	72·1
Hill Station, South India.	Wellington	24·255	24·176	·079	24·215	+·013	...	75·5	57·7	17·8	80·0	53·8	26·2	71·0	69·2	65·0	−0·7	54·9	61·4	61·6	59·3
	Kodaikanal	?	?	?	?	?	?	71·7	56·7	15·0	75·5	54·0	21·5	66·4	63·6	62·2	?	51·9	58·2	58·2	56·1
	Kotagiri	23·838	23·741	·097	23·790	?	?	73·9	57·3	16·6	77·7	53·0	24·7	69·5	67·7	64·1	?	54·3	61·5	61·1	59·0
Extra India.	Aden	29·750	29·638	·112	29·695	−·026	29·718	94·2	81·6	12·6	101·1	76·1	25·0	88·6	91·4	87·5	+1·6	73·5	80·8	79·4	77·9
	Perim	·624	·505	·119	·565	?	?	93·4	83·6	9·8	99·0	82·2	16·8	89·6	90·1	87·6	?	78·0	81·8	82·2	80·7
	Minicoy																		Register	received	too late
	Zanzibar	30·019	·929	·090	·973	?	·973	83·0	75·4	7·6	86·0	72·6	13·4	79·1	81·6	78·9	?	72·6	75·1	74·8	74·1

II—*concluded.*

in India, Burma, etc., for May 1892—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.		
·368	·409	·433	·403	+·061	55	44	38	45	+10	0·4	0·4	0·4	−1·5	...	2	...	...	1	1	24	27	7	S 76° W	S 62° W	80	70	229	226	Mount Abu	Hill Station, Central India.
·321	·355	·260	·312	−·043	38	29	18	28	−4	1·4	2·6	2·0	−0·8	3	2	2	...	...	...	5	43	7	N 85° W	N 55° W	81	62	182	164	Pachmarhi	
·384	·421	·334	·380	+·009	48	37	24	36	+1	3·2	4·2	3·7	+1·0	4	13	...	...	1	4	1	8	31	N 46° W	N 38° W	68	65	254	222	Chikalda	
?	?	?	?	?	?	?	?	?	?	1·6	2·8	2·2	−1·5	...	14	2	...	1	4	8	15	18	N 60° W	N 78° W	58	43	?	?	Makhla	
·405	·446	·470	·440	−·004	85	59	66	70	0	5·0	7·0	6·0	+0·3	...	15	5	2	10	3	6	4	17	N 25° W	N 88° E	29	24	91	70	Wellington	Hill Station, South India.
·340	·411	·433	·395	?	74	62	74	70	?	4·3	7·4	5·9	?	4	6	19	2	3	1	1	3	23	N 4° W	?	52	?	236	?	Kodaikanal	
·393	·465	·471	·443	?	83	65	70	73	?	5·5	6·7	6·1	?	...	11	2	6	4	7	3	13	16	N 54° W	?	32	?	155	?	Kotagiri	
·721	·950	·847	·839	−·016	67	71	58	65	−4	1·3	0·7	1·0	−0·9	8	...	12	13	8	15	3	2	1	S 59° E	S 67° E	42	40	295	254	Aden	Extra India.
·890	·983	·997	·955	?	77	70	71	73	?	2·1	4·1	3·1	?	1	2	2	18	19	2	2	1	15	S 82° E	?	32	?	372	?	Perim	
for insertion.																								?	...	?	...	?	Minicoy	
·766	·819	·774	·785	...	87	82	72	80	?	6·4	6·9	6·7	?	...	...	...	...	10	39	10	...	...	S	S 17° W	87	69	273	181	Zanzibar	

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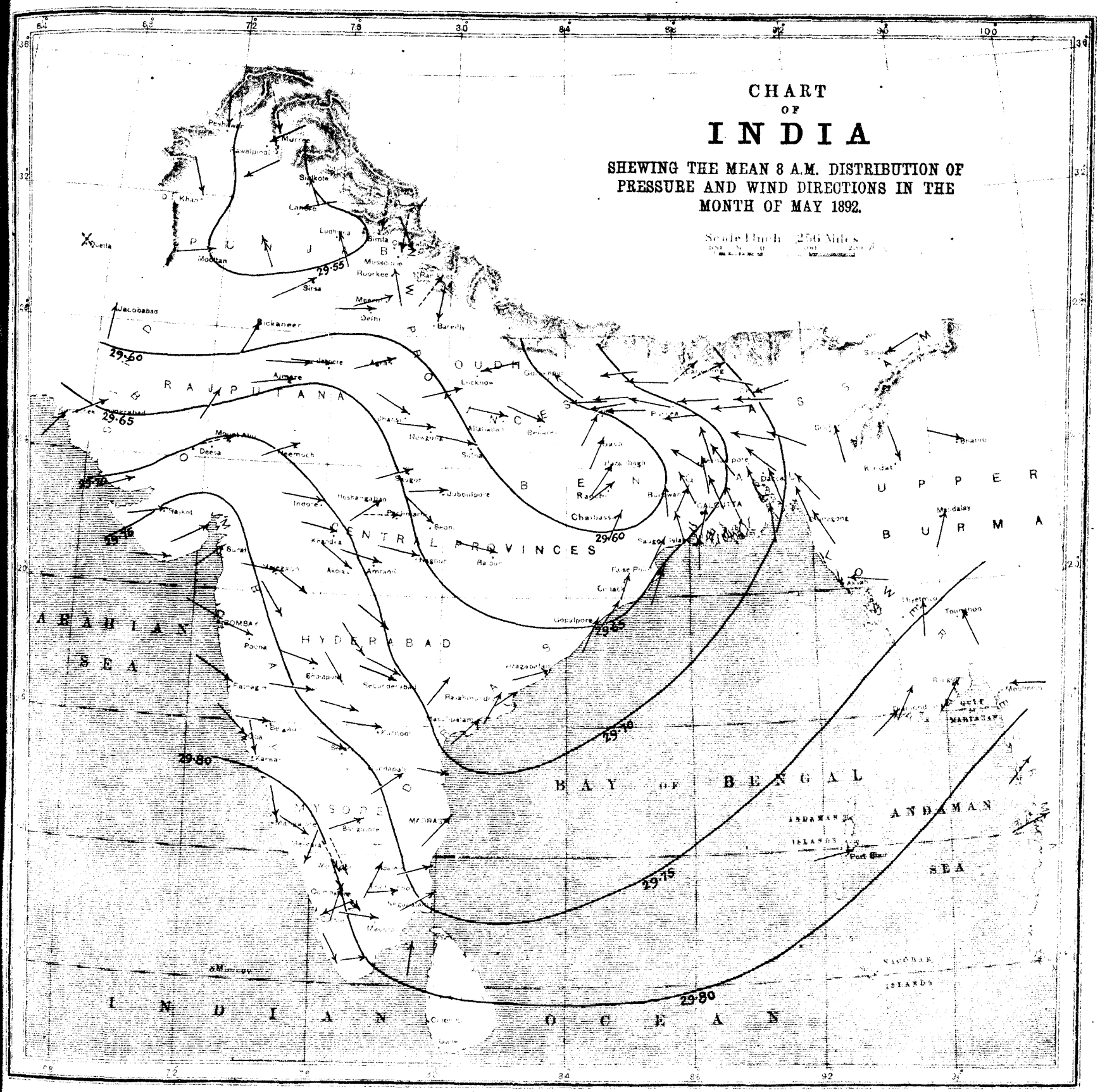


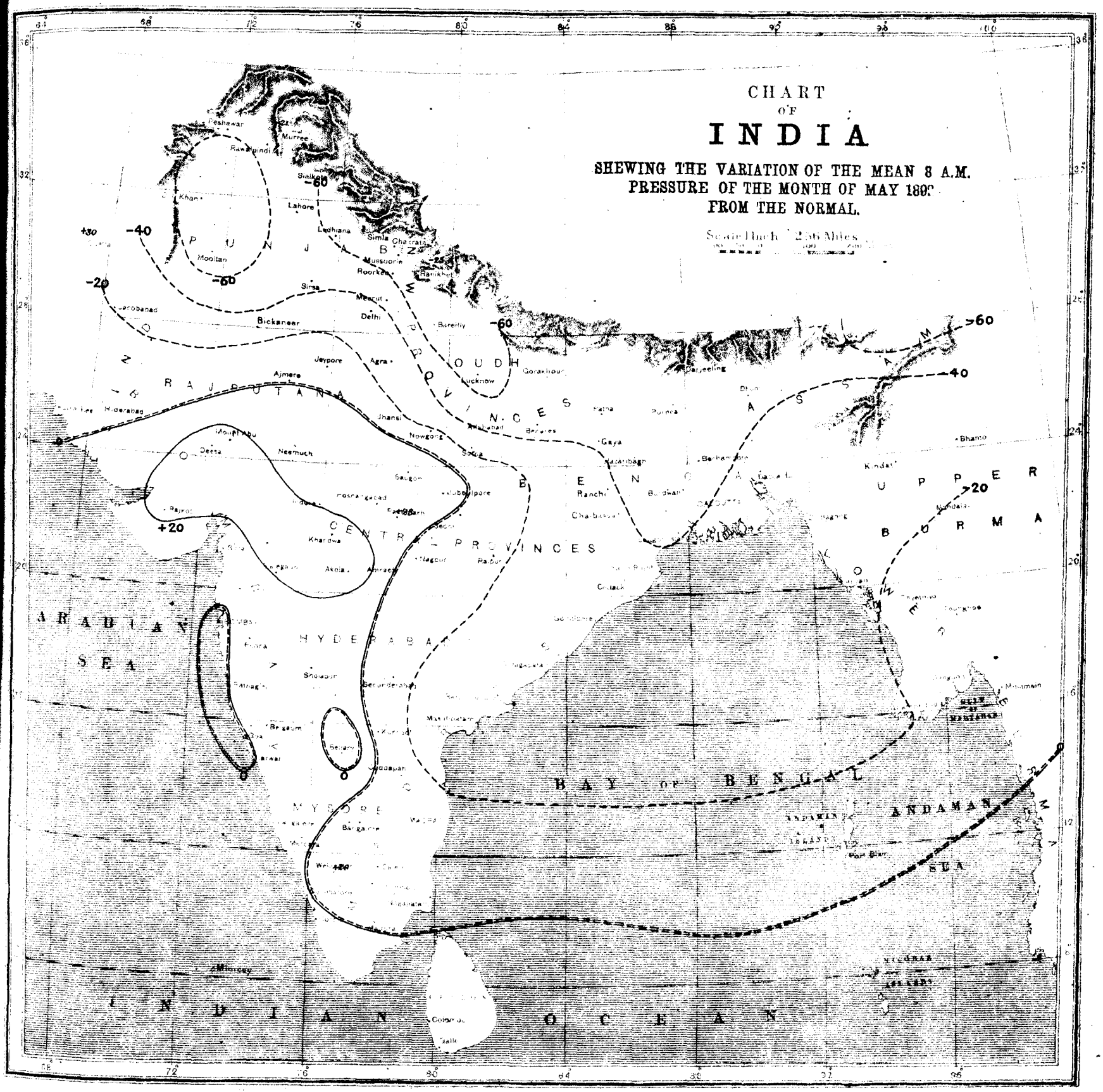
Explanation.

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. 422 Vol. I.—Aug. 92.—415.

Litho., S. I. O. Calcutta.



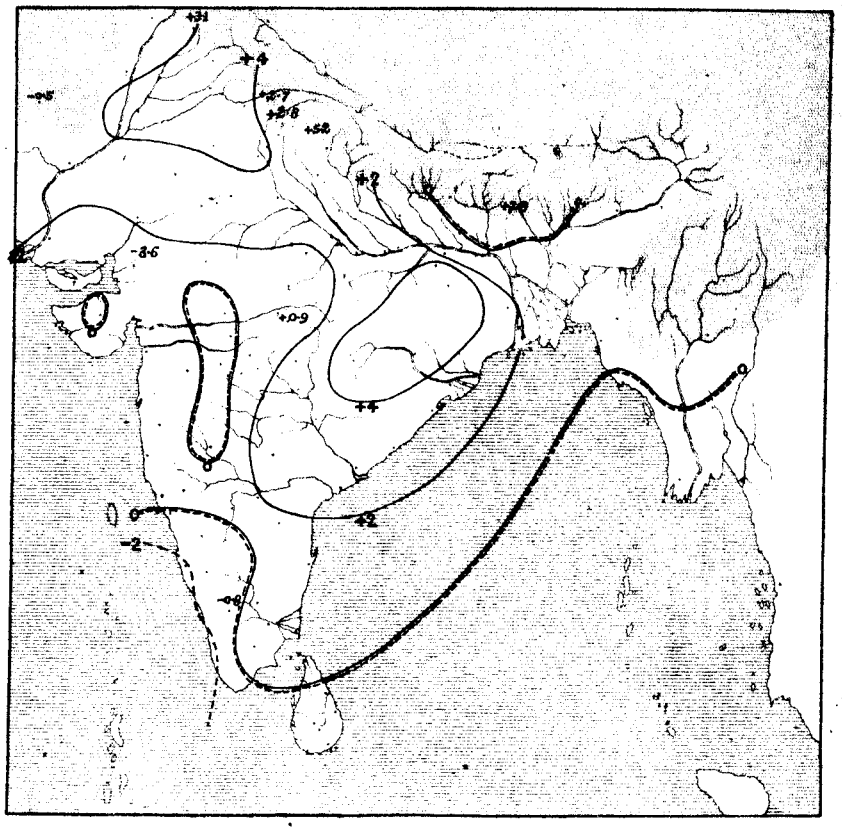
Explanation.

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.

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.

ontinuous lines indicate that the mean maximum of month was in xcess by amounts indicated by the attached numbers. Broken or dotted nes that it was in defect by the amounts indicated by the attached umbers. Double lines are the lines of no variation, the broken line facing e 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.

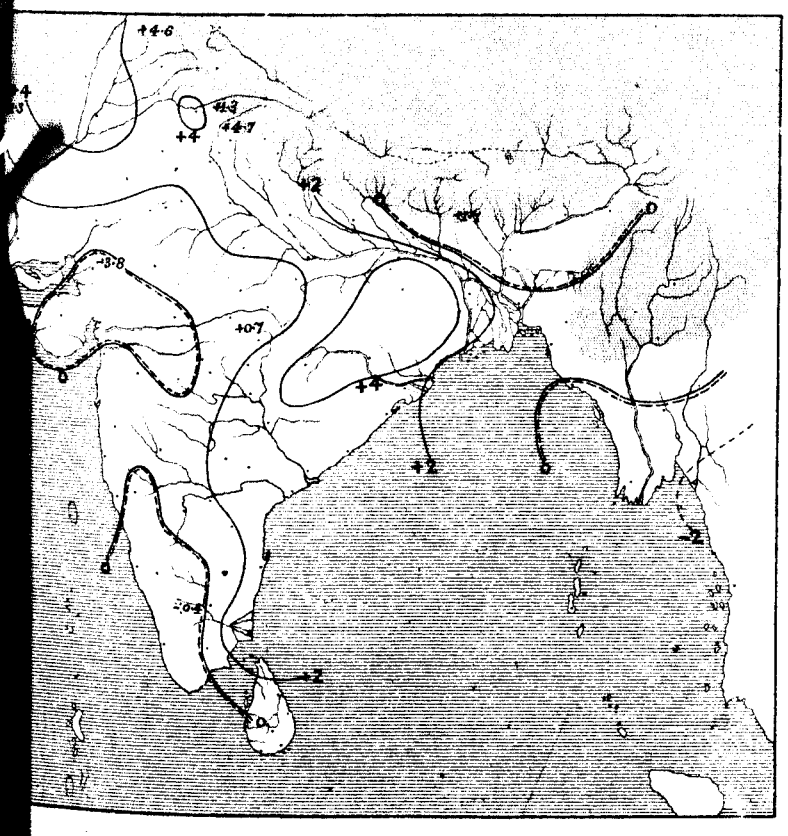
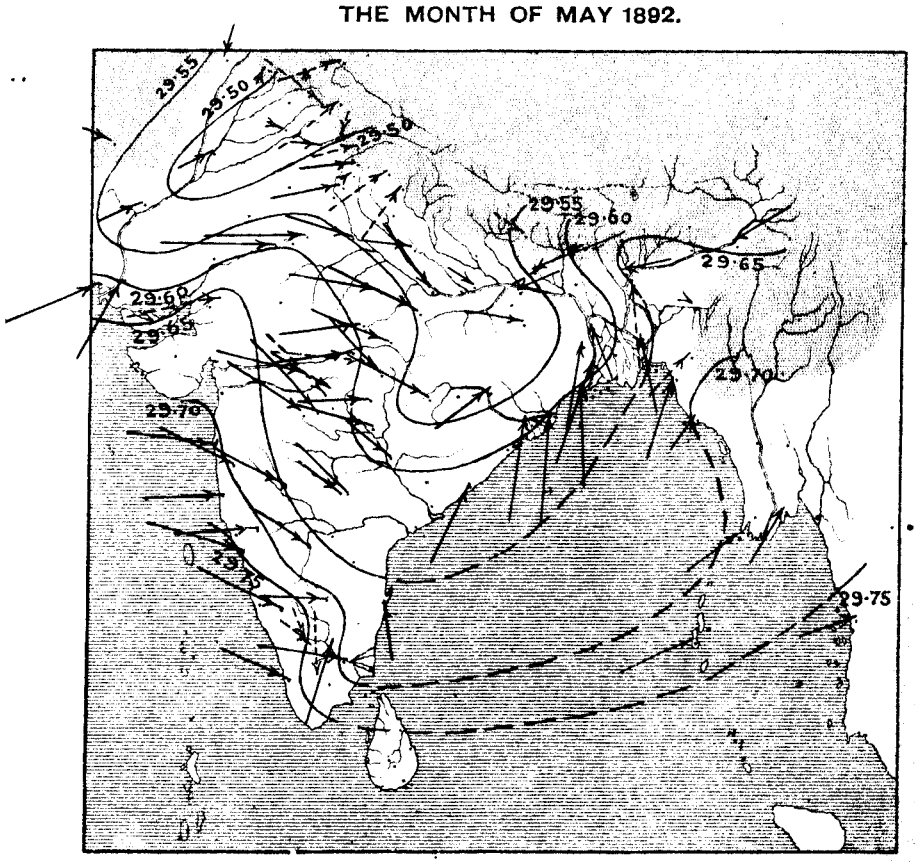


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MAY 1892.



Explanation.

tinuous lines indicate that the mean daily temperature of month in excess by amounts indicated by the attached numbers. Broken dotted lines that it was in defect by the amounts indicated by the ched numbers. Double lines are the lines of no variation, the broken 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.

No. 423, Wt. 1.—Aug. 92.—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)

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW.

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JUNE, 1892.

INTRODUCTION.

THIS review of the weather in India during the month of June 1892 is based on observations taken daily at 8 A.M. at 171 stations and on additional observations taken at 10 A.M. and 4 P.M. at 95 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 June 1892.

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 usually 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 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 north-westward 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.

The chief features of the month were:—

1st.—The earlier advance than usual of the monsoon currents in the first and second weeks of the month into the interior of India.

2nd.—The formation of cyclonic storms in front of the advancing monsoon currents in the Arabian Sea and the Bay of Bengal. The storm in the Arabian Sea was feeble and of little importance. That which formed in the Bay of Bengal was an unusually severe storm and formed the chief feature of the second week of the month.

3rd.—The retreat of the monsoon currents from North-Western and Central India in the beginning of the third week of the month and the weakness of the monsoon currents during the remainder of the month. Rain was hence chiefly restricted during the last fortnight of the month to Burma, North-Eastern India, the West coast districts, the Deccan and Southern India, and was moderate in amount.

At the commencement of the month, the monsoon current in the Arabian Sea had advanced along the west coast as far north as Ratnagiri and was giving heavy rain to the Konkan. A shallow depression formed off that coast on the 31st of May and 1st of June. It developed slightly on the 2nd, and passed rapidly west-north-westwards towards the entrance to the Persian Gulf, where it probably broke up on the 4th. A rapid extension of monsoon winds into the interior now followed and the Central Provinces, Central India, the North-Western Provinces and East Punjab began to receive moderate rain during the next 72 hours. This first burst of monsoon rainfall in Upper India was as usual immediately preceded by a very hot period, when the highest temperatures of the month were recorded in the Punjab. The following table gives data of the stations at which the excess of temperature was most noteworthy:—

STATION.	Actual maximum of 24 hours preceding 8 A.M. of 5th.	VARIATION OF		
		Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°	°
Mooltan	120·3	+13·8	+ 8·1	+11·0
Dera Ismail Khan	118·5	+12·2	+12·1	+12·2
Lahore	115·8	+ 9·3	+16·4	+12·9
Sirsa	116·4	+ 8·5	+13·8	+11·2
Montgomery	120·4	?	?	?
Khushab	118·1	?	?	?

The Central Provinces received its first general rain on the 4th and the North-Western Provinces on the 6th, and the East Punjab had local showers on the 6th and 7th. Bengal also received moderate rain from thunderstorms during this period, but the monsoon currents were not yet fully established in the north of the Bay. A rapid change occurred in the north-west of the Bay on the 7th and 8th, due to the advance of monsoon winds up the north of the Bay, and their interaction with westerly winds blowing across the Deccan and the North Madras coast districts into the Bay area. The area between Lat. 18° and 20° N. and between Long. 89°E. and the Orissa and Ganjam coasts, which was on the morning of the 7th characterized by light variable winds and fine weather, was covered by a fierce cyclonic storm on the morning of the 9th, with a central calm area and an inner storm area of hurricane winds. Exceedingly strong westerly winds, force 9 and upwards, prevailed over the whole Bay area to the north of Lat. 15° N., except in the northern quadrant of the storm, where winds were comparatively light. The storm centre moved very slowly north-westwards to the Balasore coast, which it crossed on the morning of the 10th about 7 A.M. It thence advanced through Chota Nagpur at an average rate of about 8 miles an hour and was in Baghelkhand near Sutna at 8 A.M. of the 12th. It then recurved and advanced into the central districts of the North-Western Provinces and Oudh, where it filled up during the next 36 hours. The storm gave a general burst of rain to the whole of Bengal and Bihar and heavy cyclonic rainfall to

Orissa and also to Baghelkhand and Bundelkhand and the adjacent districts of the North-Western Provinces and moderately heavy rainfall to Chota Nagpur. The most remarkable feature of the storm was the absence of hurricane or even of strong winds after it crossed the coast. Even at Balasore, where pressure fell to 28·7″, and at Saugor Island, which was less than 50 miles from the centre when crossing the coast near Balasore, the winds were not strong enough to cause any damage to trees and houses.

The breaking up of the storm was followed by an advance of humid winds to the South-East Punjab for a short period. The Bombay current had, however, fallen off considerably in strength during the previous four days, and rainfall diminished rapidly in amount in the interior on the 16th and 17th, whilst westerly winds set in over the Gangetic plain and gradually extended eastwards into West Bengal. The Bay current continued to give moderate general rain to Bengal during the next three days, or from the 18th to the 20th.

A general break in the rains over Northern and Central India was now established. The Arabian Sea current gave frequent showers to the Deccan and the greater part of Southern India during the remainder of the month. In consequence of this diversion of a portion of the monsoon current to that area, the Deccan received very favourable rain during the last ten days of the month. Conditions were very remarkable in the centre of the Arabian Sea at this period. Shallow depressions appeared and passed away, and in the intervals uniform pressure with very light winds and fine weather obtained. In the south of the Arabian Sea winds, although normal in direction, were much below their normal strength. The unusual conditions in the Arabian Sea were faintly indicated at the Bombay coast stations by the persistent south to south-east winds which prevailed at these stations from the 18th to the end of the month.

Winds strengthened slightly at the head of the Bay on the 24th and 25th, and general rain (moderate in amount) recommenced in Bengal and continued until the end of the month. During the whole of the period, from the 20th to the end of the month, the trough of low pressure was displaced northwards to the foot of the hills, a distribution of pressure during the rains invariably accompanied with absence of general rain and monsoon winds in the Gangetic plain. No change of importance occurred until the beginning of July. At the end of June rainfall and humid monsoon winds were still restricted to Burma, North-Eastern India, the west coast districts and the Deccan, and the monsoon currents were much below their normal strength. A rapid fall of pressure in Upper India on the 29th gave numerous thunderstorms in that area on the 29th and 30th.

The preceding remarks have stated the chief periods of rainfall and the general weather conditions determining the rainfall of the month. Rain was in genera defect in consequence of the weakness of the monsoon currents during the month, except in Orissa, Chota Nagpur, Bundelkhand, and some parts of the North-Western Provinces, due to heavy rain received from the cyclonic storm of the second week of the month and in the Deccan and the West Punjab. The deficiency was moderate in amount except in some parts of Bombay.

The following table gives a brief statement of the average rainfall and its variations from the normal in the eleven meteorological provinces:—

PROVINCE.	Rainfall of month.	Normal rainfall of month.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	22·17	28·46	— 6·29
Burma Inland	7·83	9·33	— 1·50
Assam	18·44	20·03	— 1·60
Bengal and Orissa	11·43	12·93	— 1·82
Gangetic plain and Chota Nagpur	6·62	6·51	+ 0·10
Upper Sub-Himalayas	2·27	3·86	— 1·59
Indus Valley and North-West Rajputana.	1·02	0·87	+ 0·15
East Rajputana, Central India and Guzerat.	3·71	4·00	— 0·08
Deccan	7·16	6·62	+ 0·52
West Coast	18·88	31·54	—11·29
South India	4·38	4·07	+ 0·24

The mean temperature conditions of the month differed to a moderate extent from the normal. This was due to the fact that in the interior the prevalence of humid monsoon winds during the first fortnight of the month counterbalanced to a considerable extent the moderately high temperature of the last fortnight. The following gives the mean temperature variation data for the eleven meteorological provinces:—

DIVISION.	VARIATION OF		
	Mean maximum temperature from the normal.	Mean minimum temperature from the normal.	Mean temperature from the normal.
	°	°	°
Burma Coast and Bay Islands	+0·3	+0·1	+0·2
Burma Inland	+0·2	—0·1	+0·1
Assam	—0·4	0	—0·2
Bengal and Orissa	—0·6	—0·2	—0·4
Gangetic plain and Chota Nagpur	—1·9	—0·1	—1·0
Upper sub-Himalayas	—0·9	+0·2	—0·4
Indus Valley and North-West Rajputana	+0·3	+0·4	+0·4
East Rajputana, Central India and Guzerat	+0·1	+0·4	+0·3
Deccan	+0·2	0	+0·1
West Coast	—0·3	+0·3	0
South India	—0·2	+0·4	+0·1

The table shows that there was a slight excess of temperature in North-Western India, Burma, the Deccan and

South India, and a slight deficiency in North-Eastern India and the North-Western Provinces. The variations of the mean temperature from the normal exceeded 2° at the following stations only:—

Division.	Mean Temperature.		
	Actual.	Normal.	Variation from normal.
	°	°	°
Sutna	88·3	90·4	—2·1
Nowgong	90·3	93·2	—2·9
Salem	86·2	83·7	+2·5
Mooltan	96·1	93·9	+2·2
Ajmere	92·2	90·1	+2·1

The chief features of the winds of the month have been already stated. The most noteworthy were:—

1st.—The prevalence of south-east winds on the Bombay coast during the last fortnight of the month.

2nd.—The prevalence of westerly winds in the Gangetic plain during the same period.

3rd.—The great weakness of the winds in the Bombay coast districts.

The variations of the humidity and cloud amount from the normal were not large. There was a slight deficiency in North-Western India and the hill districts, and a slight excess in the Deccan and Southern India. The deficiency in the amount of aqueous vapour and humidity was large at the hill stations in Upper India. The following gives data for three representative stations:—

Station.	Aqueous vapour pressure.		Humidity.	
	Mean actual, June 1892.	Variation from normal.	Mean actual, June 1892.	Variation from normal.
	Inch.	Inch.	%	
Quetta	·255	—·120	34	— 8
Simla	·339	—·074	51	—12
Chakrata	·378	—·028	59	— 6

The following table gives the mean variations of the aqueous vapour pressure, humidity and amount of cloud from the normal in June 1892:—

Division.	Mean variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	Inch.		
Burma Coast and Bay Islands	—·011	—1	+0·5
Assam	+·004	0	+0·5
Bengal and Orissa	—·011	—2	+0·5
Gangetic Plain and Chota Nagpur	—·008	+1	—0·1
Upper sub-Himalayas	—·035	—2	—0·1
Indus Valley and North-West Rajputana	—·030	—2	+1·1
East Rajputana, Central India and Guzerat	—·024	—2	—0·3
Deccan	+·029	+2	+0·4
West Coast	+·019	+1	—0·4
South India	+·019	+1	+0·1

Atmospheric pressure.

The distribution of mean 8 A.M. pressure for June 1892 is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean 8 A.M. 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 variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure of June. These values are obtained from the barometric readings reduced for temperature only. A small chart, No. 4 of Plate III, gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts given in the annual reports on the meteorology of India previous to the year 1891. The data on which this chart is based are given in Table II. It should be noted that the pressure data in this table are not only reduced to sea-level, but also to constant gravity (that of Lat. 45°).

The more important barometric changes and movements during the month are described in the account of the barometric depressions and cyclonic storms 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 and monthly means which have been obtained from the observations of the period 1878—88, and in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

It should be noted that in Plate II, the pressure variations from the normal in the case of the hill stations (*i.e.*, stations the elevations of which exceed 4,000 feet) are

given in small figures for the sake of ready comparison with the pressure variations at the neighbouring low-level stations.

The mean pressure of the whole of India differed little from the normal, being only ·007″ in excess.

The variations at the hill stations in Northern and Central India were small and approximately the same as at the neighbouring plain stations. The following gives data in illustration :—

HILL STATION.	Variation (a).	Plain Station.	Variation (b).	Vertical pressure anomaly or (a)−(b).
	Inch.		Inch.	Inch.
Quetta	+·023	Jacobabad	+·038	—·015
Murree	—·002	Rawalpindi	+·011	—·013
Leh	+·036	Lahore	+·016	+·020
Kailang	+·019	Lahore	+·016	+·003
Simla	+·009	Ludhiana	+·001	+·008
Ranikhet	+·016	Bareilly	+·012	+·004
Darjeeling	—·007	Dhubri	+·012	—·019
Pachmarhi	+·015	Hoshangabad	+·012	+·003
Wellington	+·002	Coimbatore	—·030	+·032

During the preceding six months pressure at the hill stations, as compared with the adjacent plain stations, had been largely in excess. This increased pressure was most strongly marked at the most elevated stations, *viz.*, Kailang and Leh and at Quetta in Baluchistan, and reached its maximum in the months of April and May. It was, as pointed out in previous Reviews, partly due to abnormal pressure and other conditions in Central Asia, and in part to the excessive temperature conditions of India, more especially North-Western India.

The preceding data show that there was a slight residual excess of pressure at Leh and Kailang, and also at the hill station of Wellington in Southern India. At the remaining hill stations the variations were small and almost identical in amount with those at the neighbouring low-level stations, thus indicating the re-establishment of normal pressure conditions with respect to elevation for a short time and a probable transition or passage to pressure variations with elevation opposite in character to those of the preceding six months.

Pressure was locally in excess over the whole of Northern India (with the probable exception of Upper Assam and the central districts of the North-Western Provinces) and in Upper Burma, Berar and the Central Provinces. The anomalies were small in amount and of little importance, except in two areas represented by the following stations :—

AREA.	Representative Station.	Variation of mean 8 A.M. pressure from normal.	Pressure anomaly.
Indus Valley	Peshawar	+·047″	
	Jacobabad	+·038″	
Guzerat and Central India	Deesa	+·032″	
	Neemuch	+·031″	+·024″

The following gives data for the two small areas of local deficiency of pressure in Northern India in June :—

AREA.	Representative Stations.	Variation of mean 8 A.M. pressure from normal.	Pressure anomaly.
		″	″
North-Western Provinces (Central).	Lucknow	—·009	—·016
	Allahabad	+·005	—·002
Central Bihar	Patna	+·005	—·002
	Gaya	+·006	—·001
Upper Assam	Sibsagar	—·025	—·032

The barometric observations at Ludhiana for the month are of doubtful accuracy, but apparently indicate the presence of a small local area of deficient pressure in the South-East Punjab, of which Ludhiana was the centre.

Pressure was in local defect or the baric anomalies were negative in the peninsula to the south of a line joining Surat and Masulipatam and increased in amount southwards. They were large in the southern half of that area and exceeded ·04″ in the west coast districts south of Ratnagiri and in Ceylon. The following gives data for stations at which the deficiency exceeded ·040″ :—

	TABLE I.		TABLE II.
	Variation of mean 8 A.M. pressure from normal.	Pressure anomally.	Variation of mean pressure from normal.
	Inch.	Inch.	Inch.
Goa	—·037	—·044	?
Karwar	—·039	—·046	—·027
Mangalore	—·042	—·049	?
Calicut	—·058	—·065(?)	?
Cochin	—·047	—·054	—·052
Colombo	—·047	—·054	?
Salem	—·036	—·043	—·041
Bangalore	—·032	—·039	—·049
Trichinopoly	—·030	—·037	—·039

It will thus be seen that, as occurs in at least three years out of four, the advance of the monsoon currents in June reversed the pressure anomalies or local pressure conditions.

Barometric Depression and Cyclonic storms of the month.

Depression and feeble cyclonic storm in the Arabian Sea from 1st to the 3rd of June.—Weather at the commencement of the fourth week of May was fine over the whole of the Arabian Sea, except in the south and south-

west, where moderate south-west winds and squally weather prevailed. In the centre and north light, and in some cases variable, winds obtained. On the 26th the force of the winds ranged from 1 to 6 and averaged 2·7. Winds were, however, steadily increasing in strength in the southern half of the sea area. Thus on the 27th they averaged 3·1, on the 29th 3·2, and on the 30th 4·3.

During this period rainfall which had previously been restricted to the Malabar coast and was comparatively light, extended northwards and increased in intensity. The first heavy rainfalls in the Konkan were received on the 28th and 29th. Karwar reported 10·3 inches on the 29th. Pressure gave way off the west coast and the sea began to rise. The observations of the 29th showed a slight tendency to the formation of a low pressure area off the Konkan coast, where heavy rain was falling due to an advance of monsoon winds northwards along that coast. The following gives the only available observations :—

Name of Vessel.	Position.			Wind.		State of sea.	Weather.
	Lat. N.	Long. E.	Barometer corrected.	Direction.	Force.		
S.S. *City of Cambridge.*	7°30′	74°6′	29·854	W	1	...	Fine.
S.S. *Assam* . .	18°35′	64°41′	·676	SW by S	5	Considerable SW swell.	Fine.
S. *Mobile* . .	8°38′	71°04′	·685	E	2	...	Fine.
S.S. *Shannon* .	Bombay		·751	NE	1 to 2	...	Fine.

These observations establish that weather was almost certainly fine off the Bombay coast, and that there was no storm as yet in existence, although there were faint indications (chiefly the east wind recorded by the *Mobile* and the north-east wind by the S. S. *Shannon*) of a tendency to the establishment of a cyclonic circulation in front of the advancing monsoon current.

30th May.—The barometer fell briskly in Western India, and moderately heavy rain had fallen over the west-coast districts as far north as Ratnagiri during the previous 24 hours. Gradients were very slight between Karwar and the Cutch coast. The sea was reported to be rising on the Malabar and Konkan coasts. The land observations given below, although they indicate the existence of conditions favourable to the formation of a storm, show that a storm area had not yet formed off these coasts :—

Station.	Pressure.			Wind.		Cloud.	Rainfall in past 24 hours.	Weather.
	8 A.M., reduced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction, 8 A.M.	Average hourly velocity in previous 24 hours.			
Karwar . .	29·713	—·064	—·052	Calm	2	10	0·89	Showery.
Ratnagiri .	·660	—·028	—·077	Calm	10	8	2·86	Thunderstorm.
Bombay .	·696	—·039	—·047	NW	12	4	*Nil*	
Veraval .	·678	—·051	?	WNW	12	2	*Nil*	Sea smooth.

The observations taken on board ships show that winds had strengthened considerably in the south-east of the Arabian Sea. Although few in number they appear to establish that, although weather was somewhat squally off the Malabar coast, there had been no marked change off the Konkan coast and no further development of the depression area.

31st May.—During the next 24 hours pressure gave way rapidly on the west coast, and the land observations for the first time indicate in a somewhat doubtful manner the existence of squally and perhaps stormy weather near the coast of the Konkan. The following gives 8 A.M. observations at the observing stations on the Bombay and Kathiawar coasts :—

Station.	Pressure.			Wind.		Cloud.	Rainfall in past 24 hours.	Weather.
	8 A.M., reduced to sea-level and constant gravity.	Change in preceding 24 hours.	Variation from normal.	Direction, 8 A.M.	Average hourly velocity preceding 24 hours.			
Karwar .	29·616	—·097	—·150	SW	7	10	2·61	Sea very rough.
Ratnagiri .	·539	—·121	—·196	N	16	10	0·19	Sea rough.
Bombay .	·587	—·109	—·152	NW	18	10	*Nil*	
Veraval .	·598	—·080	?	WNW	13	3	*Nil*	Sea smooth.

The wind directions of these stations were very abnormal and not explicable on the assumption of the existence of a depression off the Konkan coast.

The marine data for this date are extremely small. The average force of the winds, as determined from the observations on board the ships, was 4. Westerly winds prevailed over the centre and south of the Arabian Sea, and the data,

although small in amount, appear to be sufficient to establish that, although the area of almost uniform pressure and very slight gradients in front of the monsoon advance had extended northwards, no depression has as yet formed in it. The wind data also show clearly that the advance of monsoon winds off the west coast was comparatively feeble and hence not of sufficient strength to originate a large and vigorous depression and cyclonic storm.

1st June.—The barometer was now falling rapidly in Sind, Kathiawar and North Bombay and gradients were steep along the west coast south of Bombay Heavy rain was falling and the sea was very rough on the Malabar and Konkan coasts. The wind directions at the coast stations indicated that the depression which had formed during the previous 24 hours was to the west or west-north-west of Bombay. The following data extracted from the logs of vessels in the Arabian Sea on this day define its position and character :—

Name of Vessel.	Position. 8 AM.		Barometer corrected.	Wind. 8 A.M.		State of sea.	Weather.
	Lat., N.	Long., E.		Direction.	Force.		
S. *Columbus* .	14°0′	68°45′	?	WNW	8	High.	Steady gale.
S.S. *Caledonia* .	14°10′	51°12′	?	SW	2	S. W. swell.	Overcast.
S.S. *Electra* . .	18°0′	6)°17′	29·456	W	5	Heavy	Rainy.
H.M.S. *Brisk* .	19°35′	68°43′	·421	SW	:	W. swell	Cloudy.
S.S. *Henry Bolckow*	22°51′	67°54′	·457	W	5	Moderate.	Passing clouds.

The data show that a moderately strong monsoon prevailed to the south of Lat. 18° N., and that a depression lay to the south-west of the Kathiawar coast. Winds were moderate in this area and the weather cloudy, but was so far from being stormy that the depression did not modify the winds on the Kathiawar or Sind coasts, which continued to blow from the normal south-west direction as determined by the low pressure area in Upper India. The depression was hence quite in front of the advancing humid monsoon current. It produced a considerable deflection of the winds on the Bombay coast, but was otherwise of little importance.

2nd June.—Pressure had increased briskly to rapidly in Sind, Kathiawar and Bombay during the preceding 24 hours. Rain had fallen in small amounts along the west coast as far north as Bombay. The wind directions on the Bombay and Kathiawar coasts (S to SE), however, indicated the continued existence of a depression area to the south-west of Kathiawar. The depression was evidently of very feeble intensity, as it was not sufficiently strong to modify the winds in Lower Sind, where they continued to blow steadily from south-west. The marine data indicate that a moderate to strongish monsoon prevailed to the south of Lat. 18° N. The following gives 8 A.M. observations taken on board ships in or near the depression :—

Name of vessel.	Position.		Barometer corrected.	Wind.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
S. S. *Ursa* .	16° 56′	63° 43′	?	WSW	5	...	Dull, cloudy.
H. M. S. *Brisk*	19° 3′	72° 8′	29·623	ESE	4 to 5	...	Dark, gloomy.
S. S. *Pachumba.*	20° 49′ (no	69° 31′ on).	·470	SSE	5	High Beam sea.	
S. S. *Purulia* .	21° 31′ (no	69° 20′ on).	·388	SE	7	Considerable sea.	

The information is very scanty, but is sufficient to indicate that the depression was still in existence and unchanged in general character, except that winds were probably stronger than on the preceding day. They suggest that the centre of the depression had moved to the west-north-west or north-west and was perhaps in about Lat. 21° N. and Long. 69° E.

3rd June.—Pressure had increased very rapidly in Sind, Cutch, Kathiawar and North Bombay during the previous 24 hours, and the only evidence of the continued existence of the depression and feeble storm in the Arabian Sea area, as shown by the observations at the land stations was the continuance of abnormal south to south-east winds on the Bombay and Kathiawar coasts. Steady south-west winds prevailed as hitherto in Lower Sind. The centre of the depression at 8 A.M. on this day was approximately in Lat. 23° N. and Long. 65° E. The depression itself was of small extent and the storm of very slight intensity.

The information respecting the Arabian Sea for this day is less than for the 1st and 2nd. Strong monsoon winds, force 5 to 8, prevailed in the south-west of the Arabian Sea. Winds, force 4 to 6, obtained in the centre. Weather was generally finer than on the previous day. The following gives the whole of the information respecting the storm area in the north of the Arabian Sea :—

Name of vessel.	Position.		Barometer corrected.	Wind.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
S. S. *Ursa* .	17° 47′	67° 20′	?	SSW	4	...	Rain and lightning.
S. S. *Pemba* .	24° 47′	64° 33′	29·653	ESE	2	Heavy swell from SW to S	Hazy horizon.
S. S. *Henry Bolckow.*	24° 52′	66° 43′	·697	SW	2	...	Fine.

The preceding data give no indication of the existence of stormy weather in the north of the Arabian Sea. The feeble storm of the preceding day had hence passed rapidly north-westward towards the entrance of the Persian Gulf

and broke up rapidly during the day. No further information is available.

The storm is interesting as showing the very strong tendency to the origin of cyclonic whirls in front of the advancing monsoon currents. In the present instance, the barometric indications of the depression were nearly as strong as in the case of the storm in June 1891, which originated under similar circumstances. The storm failed to develop, apparently due to the weakness of the humid currents and not to the absence of favourable and predisposing conditions.

The dissipation of this storm was followed by a moderate advance of humid winds across the Deccan and Central Provinces. At the same time south-west monsoon winds were advancing up the Bay. The interaction of these currents in the north-west of the Bay originated a cyclonic storm in that area on the 7th and 8th. It was the chief feature of the meteorology of the second week of the month.

Cyclonic storm of the 8th to 13th of June.—The first indications of the peculiar conditions that originated and developed into the cyclone that formed the chief feature of the meteorology of the second week of June were given by the observations of the 4th and 5th of June. The depression in the Arabian Sea had passed westwards and filled up. Monsoon winds advanced across the Deccan and Central Provinces on the 3rd and 4th, and were giving general moderate rain. In consequence of the peculiar distribution of pressure and, more especially of the position of the trough of low pressure which ran from the Central Punjab to Ganjam, winds in the north of the Peninsula were much more northerly than usual, and at many stations in Berar and the Central Provinces were from north-west instead of west-south-west—the normal direction in June.

In the Bay of Bengal moderate south-westerly winds (force 4 to 5) with fine clear weather prevailed over the south and centre of the Bay to the south of Lat. 16° N. Winds were lighter to the north of Lat. 16° N. and in the eastern half were generally very light (force 1 to 2) with a smooth sea. In the western half of the north of the Bay weather was fine and clear, but the winds indicated that that area was under the influence of both the Bay and Arabian Sea currents. The following gives available data:—

Name of Vessel.	Position.		Barometer corrected.	Wind.		Weather.
	Lat., N.	Long., E.		Direction.	Force.	
S. Glenorchy .	16°33′	85°41′	29·59	NW	4	Fine and clear.
S.S. Scindia . .	19° 2′	84°48′	·66	Variable.	...	Fine throughout the day.
S.S. Pentakota .	19°56′	87°19	·75	ESE	3	Fine and clear.
S. Grecian . .	20°12′	86°56	·78	SE	2	Clear.

These observations are in accordance with those at the coast observatories. Thus winds at 8 A.M. at False Point were from south-east and at Vizagapatam and Coconada from west and west-north-west respectively. The area between the parallels of Lat. 16° and 20°N. and the meridian of 88° and the North Madras coast was hence under the influence of two humid currents and winds having a tendency to initiate a cyclonic circulation. The westerly winds in the southern portion of the area due to the monsoon currents across the Deccan were drier than the easterly and southerly winds in the northern half, due to the weakish monsoon current already established over the Bay area.

6th June.—During the previous 24 hours pressure had increased in the Punjab and North-Western Provinces and fallen over the remainder of India. The fall was greatest in South Bengal and the north of the Bay. These changes had, however, not modified the distribution of pressure. Pressure was lowest in the Central Punjab and the trough of low pressure ran south-eastwards across the Ganjam coast into the Bay of Bengal, terminating in the area of light variable winds and suspicious weather in the north-west angle of the Bay. The observations at the coast stations showed that the wind had shifted to east at Saugor Island, and easterly to east-south-easterly winds were now predominant in Bengal. Weather was cloudy, hot and sultry in Bengal and little rain was falling. The Bombay current had penetrated to the East Punjab and western districts of the North-Western Provinces, to which it had given moderate and fairly general rain during the previous 24 hours. In the north and centre of the Peninsula weather was less showery than on the preceding day and winds were increasing in force. The northerly element in the winds was even more strongly marked than on the previous day. The following data illustrate these features:—

Station.	Wind direction at 8 A.M. of		Average hourly air movement during 24 hours preceding 8 A.M. of	
	5th.	6th.	5th.	6th.
Sholapur . . .	NW	W	8	8
Secunderabad . . .	WSW	WNW	9	11
Malegaon . . .	WSW	NNW	9	8
Akola	NW	NW	9	10
Nagpur	W	NNE	11	6
Sambalpur . . .	SSE	ENE	7	6

The easterly shift of wind in Bengal and in the south-east of the Central Provinces indicates the increasing influence of the Bay of Bengal current and its diversion to the area of slight disturbance due to the peculiar pressure conditions of the period. In the south and centre of the Bay steady south-west winds continued and were increasing in force, ranging from 4 to 6 (Beaufort notation). The following gives a summary of the 8 A.M. meteorological data

extracted from the logs of vessels relating to the north-west of the Bay:—

NAME OF VESSEL.	POSITION. 8A.M.		Barometer corrected.	WIND. 8 A.M.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′				
S.S. Scindia . .	18-32	86-54	29·57	SSW	2	Fine.
S.S. Purneah .	18·40	90-44	29·62	SW	4	Squally.
S.S. Nawab . .	18-47	84-56 (Noon.)	29·51	SW	4	Fine.
S. Glenorchy .	18-25	85-57	29·53	N	2	Unsteady wind and fine.
S.S. Niemen . .	19-23	84-10	29·54	SW	1	
S.S. Palamcotta .	20-12	89-1	29·55	Variable.	1	Light airs and calms; S. W. swell.
S.S. Grecian . .	20-53	87-58	29·74	SE by S	2	

These observations, it will be seen, gave absolutely no indication of the commencement of stormy weather. Winds were light, variable and irregular over a part of the area between Lat. 18° and 21° N. and west of the 88th meridian. To the north of this area easterly winds due to the deflected monsoon current in the Bay prevailed and to the south of the area westerly winds, the continuation of the monsoon current blowing across the Bombay coast and Deccan. These two sets of winds were increasing in intensity, and there was a more clearly marked tendency to the establishment of a definite cyclonic circulation than on the 6th. The following extract from a report of the storm received from the commander of the F. L. V. *Canopus* stationed at the Pilot's Ridge describes the weather at the head of the Bay at this time:—"For days before the storm the weather was unsettled, heavy thunder clouds making up all round the horizon during the day and disappearing at night. Constant lightning from west round to south-south-west occurred at night. They looked like flashes from a gun. Winds were light and variable from south-south-west to east but strange to say we experienced no southerly swell before the morning of the 8th. Weather was sultry but very clear."

Mr. Elson, Branch Pilot, who was on board the pilot brig *Sarsuti* during the storm, describes the weather on the 5th and 6th in the following terms:—

"*Sunday, June 5th.*—Left Kulpee in the S. S *Nawab* bound for Bimlipatam. The weather presented what seamen term an easterly appearance, that is, a very clear atmosphere when objects in the distance are seen very sharply defined and overhead a bright blue sky with tufts of nimbo-cumulus which seem suddenly to spring out of nothing. Above these tufts were observed shreds of cirrus in the shape of delicately formed mare's tails, scrolls and long thready tangles which crossed and recrossed each other in all directions. All these were sure signs of an approaching change in the weather, showing that there was 'something' high up which was causing condensation of the vapour brought up by the winds. The towering pillar-like cumuli springing from a low vapour plane, raised their white heads high in the blue sky, and after condensing showers of rain below became capped with the usual sheet of stratus. This stratus in time evaporated and disappeared until recondensed again high up into the snowy cirrus above noted. These showers formed the base of the 'pile' clouds and were drifted across the south-south-east wind. So the weather continued right out to the pilot station. At about noon, when the sky appearances became much more pronounced, the cirrus seemed to have come closer down and to be of coarser texture. The dazzling white cumulus had its base surrounded in places with wrack, while showers seemed more readily formed from them and some patches high up were visibly turning into rain. But notwithstanding the barometer was high (two-tenths above the normal), and there was but very little sea swell on, the appearance of the sky certainly suggested that a great change in the weather was developing and was not far off. The wind at the pilot station at noon was south by east, force 2.

"*Monday, June 6th.*—Several showers fell during the day with south-easterly winds. At noon the barometer read 29·57″. The wind seemed inclined to settle in the east quarter as might be expected with a pending storm. It was south-east at noon; force 1 only."

7th June.—Pressure again increased in Upper India, but continued to fall in India generally, the fall being greatest in Bengal and the north of the Bay. Pressure was much more uniform over North-western India than it had been for some days past. Winds were lighter on the Bombay coast and the rainfall in the Deccan, Central Provinces and Central India was much smaller than on the preceding two days. The land observations showed that the trough of low pressure was changing its position. It however terminated as before in a shallow low pressure area in the north-west of the Bay. Easterly winds continued in Bengal and were slowly intensifying. They had given light to moderate showers to Bengal, Bihar and Chota Nagpur during the previous 24 hours. In the north of the Peninsula winds were less northerly than on the previous two days, but were stronger in the Deccan. The land observations gave little indication of the important changes in progress in the Bay. A considerable increase had occurred in the wind force in the centre and east of the Bay, thus indicating that the monsoon current was rapidly intensifying. The majority of vessels in that part of the Bay also reported more or less squally weather during the day. There was no vessel unfortunately in the area in which the storm formed during the day, but to the north and west of it, off the Orissa and Ganjam coasts, light winds with fine weather prevailed.

The following gives 8 A.M. data for the centre and north of the Bay:—

NAME OF VESSEL.	POSITION AT 8 A.M.		Barometer corrected. 8 A.M.	WIND		Weather remarks.
	Lat., N.	Long., E.		Direction. 8 A.M.	Force, 8 A.M.	
S.S. *Drumfell* .	13° 15′	84° 50	?	SW	6	Squally.
S.S. *Purneah* .	15° 45′	93° 52′	29·62	SW	5	Squally and cloudy.
S.S. *Shahzada* .	16° 4′	94° 7′	29 63	SSW	5	Squally.
S S. *Scindia* .	17° 17′	89° 57′	29·49	S	5	Squally.
S. *James Lane* .	18° 48′	85° 44′	29·48	WSW	2	Hard squalls and rain.
S. *Glenorchy* .	19° 48′	86° 29′	29·47	WNW	2	Fine and clear.
S. S. *Johannisberger.*	20° 45′	87° 45′	29·49	E	3	
S. S. *Manra* .	River	Hooghly	?	Variable.	2	Fine and clear.

The observations indicate that there was a shallow depression in the north of the Bay between Lat. 18° and 20° N. and Long. 88° and 90° E. The S S. *Scindia* which was nearest it in the morning was proceeding eastwards to Rangoon and hence increasing her distance from the central depression. Her log is instructive as it shows that the south-west winds in the centre of the Bay increased steadily in force during the evening and night of the 7th:—

Hour.	Barometer.	Wind		State of sea.	Weather remarks.
		Direction.	Force.		
4 A.M.	...	S	5	Moderate S.	Cloudy.
8 A.M.	29·487	S	5	.....	Occasional squalls.
Noon	...	S by W	5	S.W. Swell	Cloudy.
4 P.M.	...	SW	6	High S.W.	Frequent rain squalls.
8 P.M.	...	SW	5	Heavy swell	Ditto.
Midnight	...	SSW	6	High S.W.	Squally with passing clouds.

The observations of the 7th hence show that weather was becoming squally over the centre and north-east of the Bay, and that the humid south-west winds advancing towards the head of the Bay were increasing rapidly in strength—signs of the rapid development of the disturbance.

8th June.—The barometer had continued to rise in Upper India and had fallen in all other districts except Burma. The hot weather depression in Upper India had almost completely disappeared, and North-Western India was now an area of nearly uniform pressure. The 8 A.M. observations at the coast stations in the north of the Bay indicate that a deepish depression was in existence and giving very stormy weather. Skies had cleared in North-Western and Central India, and rain was now confined to the Peninsula, North-Eastern India and Burma.

The observations taken on board ships in the Bay show that winds had increased rapidly during the night, and at 8 A.M. of the 8th winds were of force 5 and upwards over the greater part of the Bay to the north of Lat. 16° N.

The following gives 8 A.M. observations for this part of the Bay:—

Name of Vessel.	Position.		Barometer.	Wind.		Weather remarks.
	Lat., N.	Long., E.		Direction.	Force.	
S. *Drumfell*	17° 0′	86° 37′	...	WSW	6	Heavy squalls.
S.S. *Dunera*	17° 5′	84° 49′	...	W	6	
S.S. *Japan*	17° 15	91° 8′	29·48	SW	6	Hard squalls.
S.S. *Chancellor*	18° 0′	86° 48′	...	SSW	4	Rainy and overcast.
S. *Africa*	19° 0′	84° 40′	29·40	W	2	Cloudy.
S. S. *Canara*	19° 24′	89° 58′	29·39	SE by S	5	Light rain squalls.
S.S. *Glenorchy*	19° 44′	86° 52′	29·33	W	4	Threatening.
S. *Louise*	19° 45′	88° 12′	...	NE	...	Squally.
S. *James Lane*	19° 50′	86° 41′	29·30	WNW	...	Very threatening.

These observations indicate that a well-defined cyclonic circulation was now established in the north of the Bay the centre of which was probably in Lat. 19½° N. and Long. 88½° E. It was, however, in the initial stage of storm formation and winds were lighter near, and in the central area, than they were at distances of 200 and 300 miles to the south and south-east, where intensified south-west monsoon winds were blowing. The S. S. *Canara* and ship *Louise* were each not more than 50 or 60 miles from the centre of the area at 8 A.M. The latter was advancing very slowly north-eastwards to the mouth of the Hooghly and the former steaming southwards.

The following gives full extracts from their logs:—

Name of Vessel.	Hour.	Position.		Barometer.	Wind		State of sea.	Weather remarks.
		Lat. N.	Long. E.		Direction.	Force		
S.S. *Canara*	4 A.M.	...	...	...	SE by S	4	Moderate head sea.	Passing squalls.
	8 A.M.	19° 24′	89° 58′	29·379	SE by S	5	...	Occasional light rain squalls; 10 A.M. continual rain and heavy wind squalls, with very heavy swell from SSW and W.
	Noon	19° 4′	90° 18′	...	S by E	6	Sea increasing	
	4 P.M.	...	...	...	S by E	9	Confused sea. Heavy SSW and SW swell.	Occasional heavy squalls of wind and rain.
	8 P.M.	...	...	...	SSW	9	Heavy SW swell.	Hard squalls from SW, overcast and cloudy.
	Midnight	...	...	...	SSW	5	Heavy swell from S and SSW.	Heavy squalls.
S. *Louise*	4 A.M.	...	...	...	ENE	...	...	Squally with rain.
	8 A.M.	19·45°	88·12′	...	NE	...	...	Squally and rainy.
	Noon	19·31°	88·13′	...	NE	...	...	Squally and rainy.
	4·8 P.M.	...	...	...	NNE	Unsteady	Heavy SW swell.	
	8·30 P.M.	...	...	...	SW	...	Heavy sea from S.	Heavy squalls. Thunder and lightning.
	Midnight	...	...	...	SW	...	Heavy	Hard heavy squalls.

9th June.—The land observations at 8 A.M. show that the barometric changes of the previous 24 hours were generally small and of little importance, except in the north of the Bay and the neighbouring coasts where the barometer was falling rapidly in consequence of the rapid development of the cyclonic storm. The distribution of pressure established in India outside the storm area is important as it undoubtedly determined the subsequent line of march of the storm. Very steep gradients obtained in the Bay and moderate gradients in the Peninsula and along the West coast. In consequence of the steady increase of pressure during the previous three days in Upper India, due to actions in no way related to the formation of the cyclonic storm, pressure was very uniform in North-Western India and the trough

of low pressure of which the cyclonic depression formed the eastern extremity ran from the Orissa coast through the eastern districts of the Central Provinces to Sutna and Lucknow and (perhaps) Meerut.

The following gives 8 A.M. observations at coast stations in the north-west of the Bay :—

STATION.	PRESSURE.			WIND 8 A.M.		Cloud.	Rain-fall in past 24 hours.	Weather.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction. 8 A.M.	Average hourly velocity.			
Saugor Island.	29·213	—·167	—·343	ENE	16	10	0·77	Drizzling.
Balasore .	·213	—·172	?	NNE	9	8	0·11	
False Point	·117	—·248	—·454	NW	26	10	4·18	Sea very rough.
Puri .	·238	—·127	...	W	16	10	2·87	Squally.
Gopalpore	·310	—·083	—·213	SW	15	10	1·02	Showery.

These observations show that the storm was now of considerable intensity, and that a vigorous cyclonic circulation was established in the north-west of the Bay. They also indicate that the centre was almost due east of False Point and probably in Lat. 20° 20′ N. and Long. 87° 45′ E.

The following 8 A.M. observations taken on board ships in the north of the Bay (*i.e.*, north of Lat. 16° N.) on this day show the increasing severity of the storm and enable its position to be exactly determined at that hour :—

NAME OF VESSEL.	POSITION. 8 A.M.		Barometer corrected. 8 A.M.	WIND 8 A.M.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
S.S. *Waverly*	11° 12′	84° 6′	?	WSW	2	...	Overcast and gloomy.
S.S. *Nawab* .	16° 19′	82° 25′	29·355	W	7	Rough	Overcast.
S.S. *Canara* .	16° 42′	92° 48′	·559	SW	10	Heavy SW swell and sea.	
S.S. *Maharani*	17° 07′	92° 39	·386	SW	5 to 9	...	Heavy squall.
S.S. *Lindula*	18° 15′ (no	87° 11′ on.)	·468	W	9	Heavy	Furious squalls.
S.S. *Japan* .	18° 32′	89° 25′	·314	SW	9	High disturbed.	Terrific squalls.
S. *Glenorchy* .	19° 10′	88° 17′	·172	W	9	Heavy	
S. *James Lane*	19° 51′	86° 33′	?	WSW	9	...	Hurricane squalls.
S.S. *Drumfell*	20° 45′	87° 57′	?	E	6	...	Heavy squalls.
S.S. *Africa* .	False	Point	29·260	WNW	...	High	

These observations show that very squally and stormy weather prevailed in the north of the Bay, over nearly the whole of which area winds were of force 9 or upwards. The storm gave very stormy weather and heavy rain on the Orissa coast during the day. The following interesting account of the storm was forwarded by the Port Officer, False Point :—

Day and date.	Hour.	Barometer, Aneroid, uncorrected.*	Wind.	State of the weather.
Tuesday, 7-6-92.	10 A.M.	29·48	North	Light winds, passing clouds and clear.
	4 P.M.	29·34	ENE	Ditto.
	8 P.M.	29·40	NE	Ditto.
	Mid-night .	29·42	NE	Ditto.
Wednesday, 8-6-92.	4 A.M.	29·38	"	Light squall with passing rain and cloudy.
	8 A.M.	29·38	"	Light squall with passing thunder and lightning.
	10 A.M.	29·39	"	Ditto.
	Noon	29·32	"	Strong breeze, cloudy and clear.
	4 P.M.	29·21	NW	Fresh breeze cloudy and clear.
	8 P.M.	29·21	"	Threatening look ; lightning from SW.
	Mid-night.	29·17	"	Blowing a heavy gale with heavy squalls of rain and wind and dark gloomy weather.
Thursday, 9-6-92.	4 A.M.	29·05	"	Blowing a heavy gale with heavy squalls of rain and dark gloomy weather.
	8 A.M.	29·06	"	Ditto wind and weather.
	10 A.M.	29·06	"	Wind increasing to strong gale with blinding rain. The sky has an ugly appearance with distant thunder and lightning to SW.
	11 A.M.	29·04	NW	Wind increasing to strong gale with blinding rain. The sky has an ugly appearance with distant thunder and lightning to SW.
	Noon.	29·02	NW	Ditto.
	1 P.M.	29·00	NW	Ditto with fine rain.
	2 P.M.	29·00	NW	Ditto.
	3 P.M.	28·96	NW	Ditto.
	4 P.M.	28·96	WNW	3·30 P.M. wind hauled to WNW.
	5 P.M.	28·98	WNW	Accompanied with blinding sheets of rain.
	6 P.M.	29·00	W	Ditto.
	7 P.M.	29·02	W	Ditto.
	8 P.M.	29·06	W	Storm seems to be travelling NE.
	9 P.M.	29·06	W	Wind less severe.
	10 P.M.	29·08	W	Ditto. Lightning to SW. 9 P.M., less severe wind and weather. 10 P.M. the weather has a milder appearance.
	11 P.M	29·10	W	Ditto wind and weather.
	Mid-night.	29·11	W	Ditto.
Friday, 10-6-92.	2 A.M.	29·08	SW	Weather still has a hard look and lightning from northwards.
	4 A.M.	29·04	SW	Ditto wind and weather.
	6 A.M.	29·11	SW	Blowing a gale from south-west.
	7 A.M.	29·12	SW	Ditto wind and weather.
	8 A.M.	29·14	SW	Ditto.
	9 A.M.	29·17	SW	Weather clearing up.
	10 A.M.	29·20	SW	Ditto.
	11 A.M.	29·20	SW	Strong breeze, cloudy and hazy weather.
	Noon.	29·20	SW	Ditto with small rain.
	1 P.M.	29·19	SW	Ditto wind and weather.
	2 P.M.	29·19	SW	Strong breeze with squalls of rain.
	3 P.M.	29·18	SW	Ditto.
	4 P.M.	29·16	SW	Fresh breeze, cloudy and hazy weather.
	8 P.M.	29·23	SW	Ditto.
	Mid-night.	29·30	SW	Strong breeze with squalls and showers of rain.

* The probable corrections to sea level and constant gravity is —·03.

The observations at the Port Office, False Point, show that the barometer was lowest at that station between 3 and 4 P.M and that the wind hauled from NW to WNW at that hour. They also establish that the storm was travelling very slowly northwards or north-westwards, and that it continued to increase in intensity during the day.

The following account of the storm as experienced at Shortt's Island was sent by the Light-house keeper, Mr. Tasker, an experienced and accurate observer.

"*June 9th.*—0·0 to 6·0 hours: moderate to strong steady north gale with light rain and very rough sea. At 6-10 sky broke to the north-east, but filled up again at 7-40 and light rain began to drive. 8·0 weather looking very wild all round; scud driving fast from northward, small driving rain which continued till 10 15, when squalls again began giving hard driving rain. 10 30 to 12·0: strong gale, rain again light. 13-20 to 14-0 strong gale, violent squalls in quick succession, moderately hard rain and very dirty appearance. 14-0 to 16-0: no change in the weather. At 17·20 wind shifted to north-north-west, strong gale, violent squalls: a terrific sea breaking on Palmyra Reef. 18·0 clouds broke to the north-east, but again rapidly filled up, appearance of the weather getting worse. 19·0: vivid lightning to east and south-east, 19·0 to 20·0; squalls very violent and almost incessant, though rain small; vivid lightning to north-north-east; 20·0 to 21·0 no change; 22-0 rain continuous and heavier; no lightning visible; wind blowing with terrific force. 22-20: after an exceptionally violent squall wind shifted to west-north-west, then squalls moderated for a time; barometer steadier. 22·50: wind shifted to west south-west, violent gusts, heavy rain, vivid lightning to south-west, west and north-west, 23·0: wind west-south-west, violent squalls with heavy rain and much lightning. 24·0 squalls of hurricane force, rain very heavy, atmosphere simply ablaze with lightning; no thunder during the past 24 hours, observed barometer pumping very much.

June 10th.—0·10 to 1·0 violent claps of thunder, no other change in weather. 1·0 to 2·0: hurricane with very heavy incessant rain and terrific flashes of forked lightning, but no thunder. 2·30 thunder and lightning very violent, otherwise no change in the weather. 3·0 no change. 4·0 no change in severity of squalls except a short lull between each. 4·30 weather moderating slightly. 5·0 weather moderating slightly, still blowing very hard, lightning very vivid, no thunder, light driving rain. 6·0 weather still looking dirty, vivid lightning to the westward, strong gale. 8·0 weather looking brighter to the eastward, light driving rain, strong gale. 8·0 to 10·0 hard squalls, small rain, sky again entirely overcast. 10·0 to 14·0 no change. 14·0 to 16·0 sky clear overhead, still blowing very hard, weather looking unsettled to the south-south-west. 16·0 to 20·0 weather improving, though still blowing very hard. 20·0 to 24·0 strong breeze, fine."

The storm centre was nearest to Shortts' Island between 6 P.M. and 4 A.M. of the 10th when the barometer oscillated between 29·02″ and 29·08″, and probably about midnight.

The storm centre passed over the P.V. *Fame* and *Sarsuti* and the F. L. V. *Canopus* during the afternoon and evening. It advanced over the P. V. *Fame* early in the afternoon. The following is the captain's account of the weather during the day:—

"At 5 A M. it was blowing a hard gale from east and I made every thing ready for a cyclone. The wind remained at east, and the vessel's head south up to 4 P.M. From 8 A M. to 4 P.M. the wind was blowing with hurricane force with a calm three times; the first and second time the storm recurved and the wind came from east again, and on the third time at 4 P.M., the wind came from north-east and veered through north and north-west to west at 8 P.M. and west-south-west at 10 P.M. It blew with hurricane force from 4 P.M. on the 9th to 2 A.M. of the 10th.

The following gives a summary of the meteorological observations taken on board during the storm:—

Hour.	Barometer unreduced.	Wind		Weather Remarks.
		Direction.	Force.	
2 A.M.	29·38	E	3	Overcast and squally.
4 A.M.	·30	ESE	5	Overcast. Lightning.
8 A.M.	·16	E by S	7	Squally and overcast.
10 A.M.	·13	E	8	Partial clouds.
Noon.	·17	E	8	Squally.
1 P.M.	28·95	E	5	Ditto.
2 P M.	·86	NE	1	Overcast and squally.
3 P.M.	·88	NE	1—2	Squally and overcast. Thunder.
4 P.M.	·92	N	10 to 11	Partial clouds and squally.
5 P.M.	·96	NW	11	Squally; continued rain.
6 P.M.	29·04	NW	11	Ditto Ditto
8 P.M.	·05	WSW	12	Ditto Ditto
10 P.M.	·15	SW	10	Ditto Ditto. Lightning.

The position assigned by the captain to the vessel at 4 P.M. when passing out of the centre was Lat. 20° 20′ N. and Long. 87° 40′ E. It is not stated in the account of the storm whether any allowance was made for currents in assigning their position to the ship. This position is almost due east of False Point, and in accordance with the inference already stated based on the observations at that station.

The various observations show that the storm was advancing very slowly, at an average rate not exceeding three miles during the morning and afternoon of the day. With respect to the captain's remarks that he passed in and out of the calm centre three times, it is not possible to decide with certainty whether this was due to the storm recurving (the captain's opinion) or to the movement of the vessel due to the strong sea currents set up by the storm, or to a kind of swaying motion, or perhaps extension of the inner storm area. It is hardly possible that a storm of such intensity would recurve and describe a kind of double loop which would be necessary to justify the captain's assumption. As the storm was moving with great slowness and increasing rapidly in intensity the second and third suppositions stated above appear to be sufficient to explain the facts.

The pilot vessel *Sarsuti* passed through the calm storm centre later in the afternoon, between 3-30 P.M. and 5-30 P.M. Accounts of the weather encountered by this vessel have been received from Messrs. Milner and Elson, pilots.

The following gives extracts from their letters.

Mr. Milner writes as follows :—

"The wind freshened up at 1-15 A.M. of the 9th from south-east. The wind kept to south-east or east-south-east and blew a moderate gale till 3 P.M., when it died away to a calm. Many different kinds of land birds approached the brig when we were in the calm. The wind veered to north-east round by north to the westward and was very light until 7-30 P.M., when it began to freshen and was very violent at 9 P.M. from west-south-west. The most furious squalls were experienced between midnight and 2 A.M., when it seemed doubtful whether the masts would not be blown out of the vessel. There was an enormously heavy sea during the whole night."

Mr. Elson describes the weather experienced on board the *Sarsuti* as follows :—

"*Thursday June 9th.*—At 0-45 A.M. the wind fell lighter, and veered to the south-south-east : force 2 to 3. About 4 A M. it became almost calm, but at 2 A.M. it backed into east-south-east, force 3; bar. 29·25. At 3-45 A.M. it veered again to south-south-east and freshened. About 5 A.M. the wind backed once more into east-south-east. Gradually, however, the wind grew stronger, and the glass fell more rapidly. By 2 P.M. all sail was taken in, and the vessel laid to under bare poles, the wind being now force 8 to 9 from south-east, with a very heavy sea running. At 3 P.M. we observed breaks in the sky to the south-west and west, but the sudden appearance of land birds of all descriptions—great cormorants, white storks, paraquets, curlews, pigeons, and little insect-catching yellowhammers—told us that worse weather was in store. About this time the dense cumulus had so far cleared overhead that it exposed a coarse mackerel-sky. But nowhere could I see any blue sky, and soon the wind began to fall lighter and lighter, until we realized that we were in the calm centre of the storm This was at 3-30 P.M., and evidently we had entered the storm centre with the wind at south-east at 4 P.M. Bar. 28·80 (the lowest fall); sky overhead covered with confused wrack, and all around heavy masses of leaden cumulus resting on the near horizon. These clouds towered to a height of about 25° above the horizon, except to the westward, where it did not look so dark until after we had been embayed in the central calm for about an hour. Then suddenly a bank of dark cumulus formed there like an oncoming nor-wester, extending from west to north, and as the first breeze came from the north-north-west we set a little sail, and stood down before it to the south-east for a time, until the nearer approach of the frowning bank warned us of danger. We again clewed up and made all snug aloft. All this time the birds kept hovering about. About 5-30 P.M. the westerly burst was heralded by a tremendous peal of thunder, which reverberated through the dark cloud masses, and shook our little vessel. The wind sprang in force to a hurricane at west and west-south-west. At 10 P.M. the glass had risen to 28·98, with heavy squalls and rain. At midnight bar. 29·09. Wind south-west by west 12. The sea was lashed by heavy gusts, and sky and sea all round were lit up by brilliant lightning flashes which revealed a scene of the wildest turmoil. Rain fell copiously in the squalls. At 2 A.M. the barometer was 29·20, and although the glass had risen a little, still the wind howled and whistled aloft in the rigging, and the squalls were as fierce as ever. But this rise of the glass, though slow like its fall, showed that the worst of the storm was over. At 4 P.M., the barometer was 29·19 and wind south-west 10. At 5 P.M. wind had decreased to about 8."

The experience of the *Sarsuti* was in many respects similar to that of the *Fame*, more especially with respect to the length of time she was involved in the calm central area and the force of the winds in the southern quadrant at some distance from the centre and the tremendous sea raised by the storm. There were peculiarities in the strength of the winds when passing out of the calm area due probably to the very slow rate at which the storm was advancing and to its rapid development and the probable extension of the calm area at this period.

The position assigned to the *Sarsuti* and the calm centre at 4 P.M. is almost identical with that given in the account of the P. V. *Fame*. If these positions be accepted, and they are probably correct within 10 miles it would appear that the storm centre had been almost stationary since 8th July, or been moving with a velocity not exceeding 2 miles per hour.

It appears to be very probable from the accounts of Messrs. Milner and Elson that the transition from the calm area to the hurricane winds in the inner storm area was by no means sudden, as is usually assumed to be the case. In fact the *Sarsuti* does not appear to have had the hurricane winds until about two hours after leaving the calm centre.

It may be noted that the observations on board of the *Sarsuti* furnish no evidence of the recurvature of the storm centre, and hence render it almost certain that the explanation of the thrice-repeated experience of the calm centre in the case of the *Fame* was not due to that cause.

The storm centre passed over the F. L. V. *Canopus* stationed at the Pilot's Ridge (Lat. 20° 49′ N., Long. 87°39′ E.) late in the evening about 10 P.M. The captain describes the weather he experienced during the day in the following terms :—

"The 9th commenced with a brisk easterly gale but increasing and by 8 A.M. it was blowing a hard gale accompanied by passing rain squalls, wind steady at east. By evening the southerly sea rose to a terrible height. This weather lasted till 10 P.M. when there was a lull for a few minutes and at 10-30 P.M. the wind shifted suddenly to the south-west and commenced to blow with terrible force from that hour up to 4 A.M. of the 10th accompanied with heavy thunder and lightning and heavy rain and a most terrific confused sea."

The following gives a summary of the observations taken on board during the height of the storm :—

DATE.	Hour.	Barometer uncorrected.	WIND Direction.	WIND Force.	State of sea.	Weather.
9th November .	Noon	29·294	E	10	...	Continuous squalls.
	2 P.M.	29·226	E	10	...	Ditto.
	6 P.M.	28·954	E	10	Terrific cross sea.	Cyclone.
	8 P.M.	·860	E	10	...	Ditto.
	10 P M.	·820	Calm	10	...	Calm.
	10-30	—	SW	12	Terrific-cross sea.	Cyclone.
10th " .	Midnigh	·720	SW	12	...	Ditto.
	2 A. M.	·780	S W	12	Terrific-cross sea.	Ditto.
	4 A. M.	·920	SW	12	Ditto	Ditto.
	6 A. M.	29·100	SW	10	Ditto	Hard gale.

These observations are very interesting as they give another example of what has been noticed in previous reports of cyclonic storms in the north-west angle of the Bay

during the rainy season, *viz.*, the occurrence of a lower pressure on board a vessel some time after the calm centre has passed over her. And so far as I am aware this has never been observed at our coast observatories; the only apparent explanation is that in some cases as, for example, the present, the development of the storm and the decrease of pressure in the storm centre occur so rapidly as to give rise to this apparent decrease of pressure in passing out of the storm area. It has only been observed in storms advancing very slowly and in a state of rapid growth. If, as appears to be the case, the *Canopus* remained at her station during the storm, this fixes the position of the storm centre at 10 P.M. as in Lat. 20° 49′ N. and Long. 87° 39′ E. As the storm crossed the coast a few miles to the east of Balasore about 6-30 A.M. of the 10th, it advanced over 56 miles in this interval, and hence travelled during the night at an average rate of between 6 and 7 miles almost exactly. Also as its position at 8 A.M. was very approximately (with a possible error not exceeding 10 miles) Long. 87¾° E. and Lat. 20° 20′ N., the centre advanced 36 miles in a north-westerly direction during this interval of 14 hours, giving an average velocity of only 2½ miles an hour.

10th June.—The barometric changes of the previous 24 hours were small, except in the area immediately affected by the cyclone. The distribution of pressure outside the storm area was hence practically unchanged, very steep gradients obtained in the Bay and moderate gradients in the Arabian Sea and Peninsula. Pressure was very uniform in North-Western India, and the trough of low pressure at the eastern extremity of which the storm depression was situated ran from the Orissa coast through the eastern districts of the Central Provinces to Sutna and Lucknow. Skies were clear in the Punjab, Rajputana and the western districts of the North-Western Provinces.

The storm crossed the North Orissa coast a little to the east of Balasore about 7 A.M. of this day. The following gives observations taken at Balasore and Saugor Island during the night of the 9th and early morning of the 10th:—

Hour.	Balasore.				Saugor Island.			
	Barometer.		Wind		Barometer.		Wind	
	Reduced to sea-level and constant gravity.	Change.	Direction.	Amount of wind since last observation.	Reduced to sea-level and constant gravity.	Change.	Direction	Amount of wind since 1 st observation.
8 P.M.	29·144	...	NNE	...	29·220	...	ENE	...
11 P.M.	29·106	...	N	...	29·224	...	E	71
2 A.M.	28·940	...	N	85	29·132	...	ESE	92·6
3-20 A.M.	28·870	—·659	...	...	...	...	...	...
3-40 A.M.	28·852	—·677	...	...	...	...	...	...
4 A.M.	28·854	—·675	...	...	...	...	...	...
4-10 A.M	28·840	—·689	...	...	...	...	...	...
4-20 A.M.	28·810	—·719	...	...	...	...	...	...
5 A.M.	28·770	...	N	110·8	29·150	...	SE	109
6 A.M.	28·696	—·833	...	...	...	...	...	...
6-30 A.M.	28·670	—·859	...	...	29·150	...	...	...
8 A.M.	28·730	...	S	...	29·183	...	...	...
1 A.M.	29·062	...	S	160·6	29·306	...	S	203·5
12 P.M.	29·112	...	S	72·8	...	...	...	...

A consideration of these observations shows that the storm centre crossed the coast a few miles to the east of Balasore, probably not more than 10 miles at about 7 A.M., and was then advancing in a north-westerly course immediately to the north of that station.

The following gives 8 A.M. observations at stations in the storm area:—

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.			
False Point	29·173	+·056	—·390	WSW	35	10	7·36	Severe gale of wind.
Balasore	28·730	—·483	?	S	20	5	2·64	Severe gale of wind.
Saugor Island	29·183	—·030	—·363	S	26	10	1·12	Sea rough.
Burdwan	·267	—·056	—·277	E	13	10	0·18	
Chaibasa	·189	—·105	?	NNW	8	10	1·12	Raining.
Ranchi	·312	—·062	?	NNE	15	10	2·20	Drizzling rain.
Sambalpur	·292	—·037	?	NW	8	10	1·47	

The chief features of the storm during this period had been:—

1st.—the rapidity of the growth,

2nd.—its intensity on the afternoon and night of the 9th; and

3rd—the strength of the hurricane winds (south-west to west) experienced in the southern quadrant at some distance from the storm centre.

The preceding observations show that the storm winds were decreasing rapidly in intensity. Thus at Saugor Island, when the storm centre was only 50 miles to the west, weather was squally but winds were by no means violent, and at 11 A.M. the observer reported that there were occasional strong puffs of stormy wind, but weather was fine, although still looking threatening to the south. One of the most remarkable features of the storm, in fact was the absence of violent winds after the storm centre crossed the coast. The following account of the storm received from the Executive Engineer, Balasore, is very interesting in connection with this point:—

"The storm of the 10th ultimo caused scarcely any damage to speak of along the river and coast line from the Russulpore river to the Matai river (Dhamrah). A little damage was done between points distant about 10 and 40 miles south of Balasore in the way of disarranging thatch, washing down mud and wattle and daub-walling by the driving rain, and owing to the very heavy rainfall of ten inches reported at Bhuddruk, the spill of the Salindee and Kansbans rivers crossing the canal line by the flood escapes slightly eroded the banks, the whole flood damage amounting to some ₹3,000 on a length of 30 miles possibly. Nowhere else in spite of the abnormally low barometer readings was any damage done to trees or buildings even on the especially exposed line of the coast, which is the first

work to receive damnge, being in places within 2 miles from the sea and absolutely unprotected by villages, trees, etc. My Assistant Engineer was out in camp on the line of the sea embankment near the mouth of the Suburnarekha, and reports that no damage at all was done by the storm. No unusually high tidal readings were observed on the river Ganges.

"The peculiarities of the cyclonic storm of the 10th June were the very marked cyclonic circulation of winds, the persistent low barometer readings, the moderate average wind velocities and the very small amount of damage done in these parts. It is true that for a short period a high wind velocity prevailed, but the fact remains that only a few small boughs of trees were broken off."

The following gives 4 P.M. observations at second class observatories in the storm area:—

Station.	Barometer.			Wind		Cloud.
	4 P.M.	Change in past 24 hours.	Variation from normal.	Direction.	Velocty per hour from 10 A.M. to 4 P.M.	
Raipur	29·227	—·045	—·177	SW	11	10
Sambalpur	29·210	—·022	—·370	NW	11	10
Burdwan	29·230	—·020	—·217	E	10	10
Hazaribagh	29·232	—·087	—·216	NE	10	10

Very heavy rain had been received during the 24 hours preceding 8 A.M. in front of the storm, and more especially in North and Central Orissa. The following gives a statement of the rainfall of Orissa during the previous 24 hours:—

Meteorological Division.	District.	Station.	Rainfall of 24 hours preceding 8 A.M. of 10th June.
			Inches.
Orissa	Puri	Puri	5·50
		Khurda	3·05
		Banpur	2·70
		False Point	7·36
		Gop	3·15
		Satpara	4·25
		Pepli	1·11
	Cuttack	Jagatsingpur	3·25
		Banki	1·96
		Cuttack	2·12
		Kendrapara	4·55
		Jagpur	2·88
		Dharmsalla	1·35
		Salipur	0·10
	Balasore	Akhyapada	3·96
		Chandbali	7·90
		Bhadrak	6·75
		Sorah	0·55
		Balasore	2·42
		Jellasore	0·08
		Barepadah	0·75

The area of hurricane winds of this cyclone was at least about 70 or 80 miles in diameter, when it crossed the Balasore coast. It may be noted that very few vessels were in the north-west angle of the bay at the time of the occurrence of the storm, and hence the casualties due to the storm were much less than was at first anticipated. The ship *Louise*, which left Calcutta on the 4th, met the cyclone on the night of the 8th and at 2 A.M of the 9th lost a man overboard. Two boats and the companion rooms were washed away by the sea. The S. S. *Manora* which left Calcutta on the 7th received some slight damage on her passage down to Madras. The area of strong westerly winds extended over a long distance to the south and east of the storm area. The Port Officer at Chittagong reported squalls of force 10 between 10 P.M of the 9th and 2 A.M. of the 10th.

The more intense cyclones in the Bay of Bengal are accompanied by storm waves, but the effect of a storm wave when it reaches the coast depends largely upon the state of the tides at that hour. In the present case the centre of the storm reached the Balasore coast at the time of low water, and hence did not flood the coast districts to any extent. The Collector of Balasore reported that by the action of the cyclone "some 650 acres of cultivated land were flooded with salt water on the sea coast and along the Burrobolong river."

11th June.—The barometric changes of the previous 24 hours were almost solely due to the advance of the storm and to the rapid increase of pressure in the storm area itself. A very rapid increase of pressure had taken place in the north of the Bay of Bengal and Orissa, and a slight to moderate fall in the western districts of Chota Nagpur to which the storm area was now transferred. The following observations define the position and character of the storm at 8 A.M.:—

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.			
Sambalpur	29·295	+·003	?	SW	14	10	3·50	Raining.
Chaibasa	·300	+·111	?	SE	10	10	1·18	Severe gale of wind.
Ranchi	·313	+·001	—·027	SE	10	10	3·15	Drizzling rain.
Hazaribagh	·338	—·036	—·187	E	27	10	3·01	Gale of wind.
Benares	·426	—·015	—·071	NNE	11	10	*nil.*	
Sutna	·478	+·066	—·050	NNE	14	10	0·30	

The observations indicate that the centre of the storm was about 50 miles to the west of Chaibasa, probably in Lat 22° 45′ N. and Long. 84° 45° to 85° E. It had hence passed over a distance of nearly 200 miles in the preceding 25½ hours and travelled at an average rate slightly exceeding 8 miles an hour. The barometer at the centre of the depression was probably not lower than 29·2 inches, and was hence ·7 inch higher than on the preceding day when the calm area was passing over the *Canopus*. The depression had hence decreased from 1·1 inch to less than ·4 inch. Strong winds prevailed in the storm area, but they nowhere approached in force to a gale.

The following summary of observations taken on board vessels in the north of the Bay shows that a very rapid improvement in the weather had taken place during the previous 24 hours:—

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.
	° ′	° ′					
H. M. I. M. S. *Clive.*	8 57	87 19	29·683	SSW	4 to 5	SW swell .	Cloudy.
S. *Rhine* . .	14 3	85 16	29·502	SSW	4	.....	Clear.
S. S. *Waverley* .	18 5	87 10	29·475	SSW	6	Moderate SW sea.	Overcast.
S. S. *Patna* .	19 54	89 13	29·516	SSW	5	High .	Passing clouds.
S. S. *Africa* .	20 50	87 52	29·590	SSW	4	Heavy cross	Clear.
S. S. *Kola* .	21 20	91 50	29·634	S by E	5	Heavy .	Squally and rainy.
S. S. *Maharaja*.	Saugor roads (noon.)		29·42c	SSE	4	.....	Squally.

The rainfall of the previous 24 hours in the storm area was much smaller in amount than on the 9th and 10th. The following gives a summary of the rainfall in the Central Provinces and Bengal. The rainfall, it will be seen by the table, was very general over the whole of Bengal, but was, on the whole, heaviest in front of the advancing storm, the largest amounts being recorded in the Manbhum, Lohardaga and Hazaribagh districts:—

Province.	Division.	Average actual rainfall during past 24 hours.	Rainfall exceeding 5 inches in 24 hours. Amount.	Rainfall exceeding 5 inches in 24 hours. Station at which recorded.
		Inches.		
Bengal . .	Orissa . . .	0·53		
	South-West Bengal .	0·78		
	East Bengal . .	0·59	6·29	Harishpur.
	North Bengal . .	0·65	5·65	Darjeeling.
	North Bihar . .	0·24		
	South Bihar . .	0·55		
	Chota Nagpur .	1·54		
Central Provinces and Berar.	Central Provinces (West).	*Nil.*		
	Central Provinces (Central).	*Nil.*		
	Central Provinces (East).	1·55		

The following gives 4 P.M. observations of the day in the storm area:—

Station.	Barometer. 4 P.M.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Velocity per hour from 10 A.M. to 4 P.M. of date.	Cloud.
Hazaribagh . .	29·354	+·124	—·082	SSE	25	10
Allahabad . .	·317	—·015	—·078	ENE	25	10
Sutna . .	·325	+·003	—·108	N	18	10
Jubbulpore . .	·439	+·138	—·003	Calm.	8	10
Raipur . .	·390	+·137	—·032	WNW	22	10
Sambalpur . .	·402	+·191	—·120	SW	15	10

These observations indicate that the storm was moving in a west-north-west direction, but as it was passing through the western and central districts of Chota Nagpur, an area at present unrepresented in the meteorological system, the observations do not permit the position to be defined with exactness.

12th June.—The barometric changes of the previous 24 hours were due, first, to a general moderate rise over the whole Indian area and, second, to the advance of the depression into Baghelkhand. Pressure had given way rapidly in Baghelkhand and the adjacent districts of the North-Western Provinces and had risen very rapidly in West Bengal, South Bihar, Chota Nagpur, Orissa and the eastern districts of the Central Provinces. The following data indicate the position of the storm at 8 A.M.:—

Station.	Barometer. 8 A.M.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity during past 24 hours.	Cloud.	Rainfall in past 24 hours.	Weather.
Benares . .	29·402	—·024	—·080	SE	15	7	0·80	Showery.
Allahabad . .	·340	—·117	—·144	ENE	20	10	1·58	Continuous rain for upwards of 12 hours.
Sutna . .	·335	—·143	—·176	N	14	10	5·72	Ditto.
Jubbulpore .	·465	+·023	—·072	NW	4	10	0·59	
Sambalpur .	·593	+·298	?	SW	12	8	1·63	

The centre was a little to the east or north-east of Sutna. The depression at the centre did not now exceed two-tenths of an inch, and hence the storm was slowly filling up. Very strong winds approaching in force to a gale were blowing in the north and east quadrants. Winds were comparatively light in the western quadrant.

Moderate rain had fallen in Bengal and heavy rain in the storm area during the previous 24 hours. The Bombay current had weakened considerably during the previous 24 hours, and winds had shifted to south and south-east on the Bombay coast. Rain had hence practically ceased in Berar, the Central Provinces and the North Deccan, and hence the storm was maintained at this stage wholly by the Bay current.

The following gives a summary of the rainfall data of Bengal, etc., for the previous 24 hours:—

Province.	Division.	Average actual rainfall during past 24 hours.	Rainfall exceeding 5 inches in 24 hours. Amount.	Rainfall exceeding 5 inches in 24 hours. Station at which recorded.
Bengal . .	Orissa . . .	0·01	...	
	South-West Bengal .	0·42	...	
	East Bengal . .	0·91	5·12	Chandpur.
	North Bengal . .	0·42	...	

Province.	Division.	Average actual rainfall during past 24 hours.	Rainfall exceeding 5 inches in 24 hours. Amount.	Station at which recorded.
Bengal—*concld.*	North Bihar	0·08	...	
	South Bihar	0·20	...	
	Chota Nagpur	0·14	...	
North-Western Provinces and Oudh.	North-Western Provinces (South-East)	0·94	...	
	North-Western Provinces (Central)	1·89	5·40 5·31	Karwi. Kulpahar.
	North-Western Provinces (North-East)	0·19	...	
	North-Western Provinces (West)	0·37	5·30	Mau.
	North-Western Provinces (Sub-montane)	0·09	...	
	Oudh (South)	1·25	5·54	Dalmau.
	Do. (North)	0·36	...	
Bundelkhand	...	5·49	6·14	Chatturpur.
Baghelkhand	...	4·02	7·80	Maihar.

The following gives 4 P M. observations in the storm area :—

Station.	Barometer. 4 P.M.	Change in past 24 hours.	Variation from normal.	Wind Direction.	Velocity per hour from 10 A.M. to 4 P.M.	Cloud.
Saugor	29·434?	+·017	0	WNW	17	10
Sutna	·360	+·029	—·058	WSW	9	10
Nowgong	·399	—·035	—·017	W	7	10
Lucknow	·381	—·060	—·009	NE	14	10
Allahabad	·335	+·018	—·046	ENE	18	10

These observations indicate that the storm centre was now to the north-west of Sutna and in the area included between the stations of Sutna, Nowgong, Lucknow and Allahabad. It was hence moving in a more northerly direction and at a slower rate than during the previous 48 hours.

13th June.—Pressure had given way during the previous 24 hours in Upper, and also in North-Eastern India and Burma, and was steady in the peninsula. It had increased rapidly in Baghelkhand, Bundelkhand and the adjacent districts of the North-Western Provinces. The depression at 8 A.M. occupied almost exactly the same position as at 4 P.M. of the previous day. The following observations define its position at that hour :—

Station.	Barometer. 8 A.M.	Change in past 24 hours.	Variation from normal.	Wind. Direction.	Average hourly velocity during past 24 hours.	Cloud.	Rainfall in past 24 hours.	Weather.
Sutna	29·445	+·110	—·051	W	8	10	0·26	Drizzling.
Allahabad	·460	+·120	—·010	ESE	9	9	0·61	
Lucknow	·479	+·044	—·002	NE	9	10	0·28	Distant lightning.
Nowgong	·533	+·103	+·027	W	5	10	2·52	

These observations show that the depression had almost entirely filled up and was now of little importance. Winds were still cyclonic in direction, but had fallen to nearly their normal strength in June in the depression area. The most important change in the meteorological conditions was the large decrease in the strength of the winds in Bengal, and the almost entire cessation of rainfall in that area. Hence the Bengal current practically ceased to feed into the storm area and the rainfall of the previous 24 hours in the storm area was small in amount. The following gives a summary of the rainfall data of the previous 24 hours in the Central Provinces, Baghelkhand, Bundelkhand, the North-Western Provinces and Bengal :—

Province.	Division.	Average actual rainfall during past 24 hours.
Bengal	Orissa	*Nil.*
	South-West Bengal	*Nil.*
	East Bengal	0·07
	North Bengal	0·03
	North Bihar	0·09
	South Bihar	0·01
	Chota Nagpur	*Nil.*
North-Western Provinces and Oudh.	North-Western Provinces (South-East)	0·09
	North-Western Provinces (Central)	0·68
	North-Western Provinces (North-East)	0·14
	North-Western Provinces (West)	0·31
	North-Western Provinces (Sub-montane)	0·17
	Oudh (South)	0·38
	Do. (North)	0·17
Baghelkhand	.....	0·29
Bundelkhand	.....	1·39

The 8 A.M observations of the 14th given below taken at stations in the North-Western Provinces show that the depression had filled up and light unsteady winds generally prevailed :—

Station.	Barometer. 8 A.M.	Change in past 24 hours.	Variation from normal.	Wind Direction.	Average hourly velocity during past 24 hours.	Cloud.	Rainfall in past 24 hours.	Weather.
Sutna	29·529	+·084	+·047	W	9	0	0·53	
Allahabad	·529	+·069	+·066	WNW	5	9	0·03	Showery.
Gorakhpur	·519	+·029	+·042	WNW	3	6	1·40	Do.
Lucknow	·532	+·053	+·058	NW	3	8	0·21	Do.
Nowgong	·535	+·002	+·042	W	2	6	*Nil.*	

Westerly winds prevailed generally in the Gangetic plain, due to the weakening of the monsoon current at the head of the Bay.

The storm hence began to form on the 7th in the north-west angle of the Bay, and was a vigorous storm with a fully developed calm centre area and an inner storm area of hurricane winds on the morning of the 9th. It drifted west-north-west into Baghelkhand and thence recurved and

passed into South Oudh, where it filled up on the evening of the 13th.

The following gives data of the position of the storm centre and average rate of motion from the 9th to the 13th:—

Date.	Hour.	Position of centre.		Distance passed over.	Average hourly velocity.
		Lat., N.	Long., E.		
		° ′	° ′		
8th	8 A.M.	19 30	88 15	...	...
9th	8 A.M.	20 20	87 45	70	3
9th	10 P.M.	20 49	87 40	...	...
10th	7 A.M.	21 45	87 0	90	4
11th	8 A.M.	22 45	84 45	170	7
12th	8 A.M.	24 30	81 0	270	11
13th	8 A.M.	25 30	80 20	80	3

The storm hence moved unusually slowly until after it crossed the coast when it gradually increased its rate of motion to an average of 11 miles per hour on the 11th.

The storm was a noteworthy one in many respects:—

1st.—It formed and developed in the north-west angle of the Bay with unusual rapidity. There was an area of light variable winds in this portion of the Bay on the 7th, westerly winds from the Deccan blowing across the south of the area, and south-easterly winds to the north. In 48 hours this area of light variable winds was covered with a cyclonic storm of exceptional intensity for the season.

2nd.—As the centre in the initial stage and when farthest from land was not more than 150 miles from land, it presented the characteristics of severe storms formed in the north-west angle in such a position to a marked extent. Winds were throughout light in the northerly quadrant, whilst exceedingly strong westerly winds (intensified south-west monsoon winds, force 9 or upwards) prevailed to distances of 300 and 400 miles to the south.

3rd.—It moved even more slowly across the north-west angle of the Bay than usual with this class of storms, and at an average rate not exceeding 3 miles per hour during the greater part of the 8th and 9th, and hence the changes of the barometer due to the progress of the storm took place with extreme slowness.

4th.—Partly in consequence of this and of the peculiar features of the north-west angle of the Bay the storm raised a sea of exceptional violence, which was higher and more dangerous in the opinion of the commanders of the pilot vessels than was experienced at the Sandheads during the passage of the Port Blair cyclone of November last.

5th.—Even more remarkable than the preceding features was the absence of hurricane winds at any of the land stations passed over by the storm. The cause of this appears to have been due to the fact that owing to the rapidity of its formation in a confined angle of the Bay the only strong winds were the westerly winds in the southerly quadrant. Hence after its advance across the Orissa coast these strong winds were for some time directed to East and Central Bengal and not to the inner storm area.

6th.—The phenomena of the calm centre were hence observed under peculiarly favourable circumstances on board of the three vessels over which it passed. It would, however, be unsafe to generalize from their experience as to the conditions generally fulfilled in the calm central area of cyclones.

The following interesting description of the appearance of the cyclonic cloud mass, as seen from Kedgeree in the River Hooghly, was received from Mr. C. G. Stock, Master Pilot, in charge of the ship *Britannia*, proceeding down the River Hooghly on the 8th, 9th and 10th. "On the night of the 9th and early morning of the 10th June we could distinctly see the storm's centre far away to the southward of us. To all appearance it looked just like a vast volcano in eruption, clouds lowering up to a peak on each side and a dip in the centre, which continually emitted a nasty-looking greenish kind of lightning."

The distribution of pressure on the 14th after the storm just described had filled up did not differ largely from the normal. Pressure was generally in excess and the trough of low pressure ran from West Bengal up the Gangetic Doab into Upper Sind and the South-West Punjab.

Conditions were very abnormal in the Arabian Sea; winds were very light at the west or Bombay coast stations; and were very abnormal in direction blowing from south to south-east instead of from the normal westerly monsoon direction. The marine data of which a summary is given later, show that this was due first to the prevalence of weak monsoon winds in the South Arabian Sea, and, second, to the existence of a shallow low pressure area between Bombay and Socotra. Its position varied from day to day, but weather continued fine throughout the remainder of the month in the north and centre of the Arabian Sea and the depression never even developed so far as to give squally weather.

Pressure increased rapidly in North-Western and Central India during the next two days and a shallow depression lay over West and Central Bengal from the 15th to the 19th, which determined moderate rainfall to the whole of Bengal during the next three days. On the 17th the trough of low pressure had been displaced to the foot of the hills in the North-Western Provinces, and westerly winds prevailed

as far east as Hazaribagh and Berhampore. Rainfall was almost confined to Bengal and Burma and the west-coast districts, and was light to moderate in amount. Small rapid oscillatory changes of pressure occurred over the whole Indian area for some days which made no important change in the distribution of pressure. Moderate gradients obtained in the Bay and very slight gradients in the Arabian Sea and Peninsula. The lowest pressure lay along the foot of the hills in Northern India, shifting slightly in position from day to day. This distribution of pressure in the Gangetic plain in the rains is almost invariably associated with the withdrawal of the monsoon humid currents from that area. On the 21st pressure began to give way in Upper India, and the fall extended to the whole of India on the 22nd and 23rd, but was greatest throughout in Upper India. During this period the increased gradients gave moderate monsoon winds in the Deccan and Central Madras.

On the 24th pressure decreased in Northern India and increased in Southern India, and winds strengthened at the head of the Bay. A shallow depression formed in Central Bihar and moderate general rain recommenced in Bengal. The trough of low pressure was at the same time shifted slightly southwards, but its position was still unfavourable to the advance of monsoon winds westwards up the Gangetic plain. General rain continued to fall in Bengal and Assam.

With the continuance of dry weather and westerly winds in North-Western India and the Gangetic plain, the barometric changes became large and irregular, and weather more or less disturbed. This did not accompany any large change in the Arabian Sea as winds at the coast stations continued to blow steadily from the same abnormal quarter as hitherto. The Deccan and Southern India obtained fairly general and moderate rain on the 26th and 27th.

Pressure decreased rapidly on the 28th in Upper India, and steep gradients obtained in North-Western India. The Punjab and North Western Provinces had light to moderate thunder-showers on the 29th, and the barometer hence rose very rapidly. At the same time heavy rain began to fall in North Bengal, which continued throughout the first week of July. Pressure was in moderate excess at the end of the month in Northern India, the excess being greatest in a belt of country stretching from Orissa to Lower Sind, and hence the trough of low pressure occupied a more northerly position than usual, running from Central Bengal through Lucknow and Sirsa to the Central Punjab. At the same time pressure was largely in defect in Southern India.

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, as it is quite exceptional for heavy snow to fall in the North-Western Himalayas. The snow on the higher elevations usually melts rapidly during the month and the snow water chiefly maintains and feeds the rivers in Upper India in this month. In consequence of the abnormally dry cold weather season of 1891-92 in the Himalayas and Afghan mountain area the snow accumulation was probably at the end of June 1892 less in amount than it had been for many years, and the supply of snow water to feed the rivers in Upper India greatly below the normal. The Punjab Irrigation report published in the *Gazette* of the 30th June states that the depth of water in the Indus was extraordinarily low and in the Sutlej and Chenab it was abnormally low, so that it was not possible to supply the quantities necessary for the crops in the districts irrigated by the canals dependent on these rivers.

The following gives the whole of the information received relating to snowfall and weather in the Himalayan area in June :—

(1) *Hills bordering Dera Ismail Khan.*—The Deputy Commissioner of Dera Ismail Khan states that no snow fell on the Takht-i-Suleiman or Pir Ghât in June.

(2) *Lahoul.*—The Rev. Mr. Heyde, Superintendent of the Observatory at Kailang, writing on the 17th June, says :—"The weather here has been peculiar during May and June up to date. The month of May was warm, very dry and the sky nearly always misty or hazy, owing perhaps to duststorms in the plains, whence much dust may have been driven by the wind even so far as Lahoul. But a great change took place in the beginning of June. On the 5th and 6th of this month 2·18 inches of rain fell at Kailang, and the hills from 12,000 feet upwards were thickly covered with snow. After that till to-day it has always been cloudy, the clouds very low and hanging about as if we were going to have a regular rainy season in Lahoul, which is not what we wish for. Now and then it rains, though only little, down in the valley, but the quantity of snow which falls on the hills from 13,000 feet upwards seems to be much greater than that of the rain below. Since this wet weather has set in the temperature of course has become low; the maximum of to-day was only 56·5°, though before the rain it rose to 79·0°. So much rain in the first half of June in Lahoul is unusual, but it has done a great deal of good to the crops which at present look very promising."

Summary of special Storm Reports.

The preceding discussion has shown that two cyclonic storms visited the Indian land and sea area during the month. The first of these storms formed in the Arabian Sea and the second in the Bay of Bengal in front of the advancing monsoon currents. The second storm was unusually severe, and full accounts were received from many observers. These storm observations have been utilized so far as possible in the discussion of the storm in question.

The advance of the humid monsoon currents into the interior of India almost invariably gives rise to thunderstorms, sometimes of exceptional severity. Numerous thunderstorms were hence reported during the first half of the month. Duststorms were of occasional occurrence in Upper India and West Rajputana during the periods of disturbance throughout the month. The following gives a statement of the local storms of which special reports were made by meteorological observers:—

2nd.—Duststorm with rain at Hoshangabad at 11-30 P.M. Duststorm at Ajmere at 1-45 P.M. Thunderstorm at Karwar at 5-10 P.M. The observer notes that weather was very squally with strong winds and high sea off the Malabar and Konkan coasts, and states that 22 native craft took shelter in the port. One of these vessels which came in on the 2nd was quite dismantled, and another had to cut away her mast and throw the greater part of her cargo overboard.

3rd.—Severe duststorm with rain at Hoshangabad from 5 P.M. to 5-25 P.M.; 15·6 miles of wind were registered by the anemometer between 5-5 P.M. and 5-15 P.M. Much damage was done to property by the violent winds Severe thunderstorm at Akola (4 P.M. to 5 P.M.). A man was killed by lightning during the storm. Very severe storm at Kapsi, 12 miles south-west of Akola. Thunderstorm at Chikalda from 2 P.M. to 4-20 P.M. Duststorm with rain at Neemuch (4-20 P.M. to 5-15 P.M.) Average wind velocity from 4 P.M. to 5-15 P.M. 49 miles per hour. Thunderstorm at Poona (7 P.M. to 7-35 P.M.). Violent thunderstorm at Bijapur from 4-15 P.M. to 4-30 P.M.

4th.—Duststorm at Lahore at 8-30 P.M. to 9 P.M. Thunderstorm at Dehra Dun. Violent thunderstorm at Aurangabad from midnight to 2 A.M. Rainfall during the storm 4·70 inches. Much damage was done to buildings in the town.

5th—Duststorms at Khushab at 5-30 A.M., Lahore at 6 P.M., and Sutna at 4-35 P.M. Hailstorm at Murree from north-west (2 P.M. to 3 P.M.) Duststorm at Jubbulpore from 5 P.M. to 5-20 P.M.

6th—Thunderstorms at Jubbulpore at 5 P.M., Nagpur at 4 P.M., and Khandwa at 9 P.M. Duststorm at Saugor at 4 P.M. to 5 P.M. Thunderstorm at Neemuch at 6 P.M.

7th.—Duststorm at Ajmere 4-30 P.M. to 4-45 P.M. Thunderstorms at Jubbulpore (3 P.M. to 3-16 P.M.), Nagpur at 3 P.M., and Akola at 5 P.M. with heavy rain.

8th.—Duststorms at Lahore at 5-15 P.M. and Ajmere at 6 P.M. Thunderstorm at Neemuch from 1-50 P.M to 3-10 P.M.

10th.—Duststorm at Khushab from 5-45 P.M. to 6-30 P.M.

13th.—Very severe duststorm at Khushab at 6 P.M. to 7 P.M. from south-east Duststorm at Peshawar from 2 P.M. to 4 P.M., and at Lahore at 5·20 P.M. Thunderstorm at Saugor from 2 P.M. to 3-30 P.M.

14th.—Thunderstorm at Pachpadra at 9 P.M. Duststorm at Hyderabad (Sind). Violent thunderstorm at Chikalda (5-30 P.M. to 6-20 P.M.). Severe thunderstorm at Jubbulpore.

15th.—Duststorm at Jacobabad at 6 A.M. and again at 3-20 P.M. Duststorm at Hyderabad from 7 P.M. to 7-50 P.M.

16th.—Dust and thunderstorms at Hyderabad (Sind) with heavy rain from 3-50 P.M. to 6-20 P.M. Severe thunderstorm at Allahabad 2-45 A.M. to 3-15 A.M. Thunderstorm at Pachpadra at 7-20 P.M.

19th.—Thunderstorm at Neemuch at 0·40 P.M. Norwester at Mymensingh at 5-15 P.M.

23rd.—Duststorm at Lahore from 1-5 P.M. to 2 P.M.

24th.—Violent duststorm at Jacobabad from west (5-10 P.M. to 5-16 P.M.)

27th.—Duststorms at Ajmere (5-30 P.M. to 6-15 P.M.) and Jubbulpore.

29th.—Violent duststorm at Khushab (10-30 A.M. to 11 A.M.). Violent duststorm at Jacobabad from 8-30 P.M. to 10-30 P.M. Storm came up from south-east. Severe duststorm at Sirsa lasted from 6 P.M. to 8 P.M. Duststorm with rain at Lahore (1-40 P.M. to 2-18 P.M.). Temperature fell from 93°·0 at 1-40 P.M. to 76° 0 at 2-7 P.M. Thunderstorm at Pachpadra from 2-10 A.M. to 2-50 A.M. Norwester at Burdwan from 4-20 P.M. to 4-40 P.M.

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

Arabian Sea.—As stated in the last monthly review the Bombay branch of the monsoon current advanced over the south of the Arabian Sea on the 26th and 27th May, and extended northwards along the Konkan coast on the 28th and 29th. A small depression and shallow cyclonic storm formed in front of the advancing current on the 1st of June. It proceeded in a north-westerly course on the 1st, 2nd and 3rd towards the entrance to the Persian Gulf where it broke up on the 3rd or 4th. During the existence of the storm the wind was south-easterly along the Konkan and Malabar coasts; while over the centre and north-east of the Arabian Sea the weather was squally with strong westerly winds or gales. Thus the ship *Columbus* in Lat. 14° N. and Long. 68° 45′ E. at 8 A.M of the 1st had a west-north west wind force 8, and a high sea, and the S. S. *Electra* in Lat. 18° N. Long. 69° 17′ E. at the same hour experienced west winds, force 5, with rainy weather and a heavy sea. A very shallow depression formed to the east of Socotra and in the centre of the Arabian Sea on the 5th.

Winds had fallen off considerably in strength during the previous 24 hours, so much so that the average wind force for the whole of the Arabian Sea at 8 A.M. of the 4th as determined from the wind data of 27 vessels was only 2·1 as compared with 4·1 on the 2nd and 3·7 on the 3rd. South-westerly winds obtained on the North Malabar coast and on the Sind coast and south-easterly winds off the Bombay coast. Weather was fine over nearly the whole sea area. The winds again strengthened during the next 48 hours, and on the morning of the 6th averaged 3·9 in force for the whole of the Arabian Sea. No change of importance occurred until the 10th when the south-west winds in the centre of the Arabian Sea fell off rapidly in strength, and the shallow depression which had been in existence since the 6th disappeared. The average wind force for the whole sea area on the 11th and 12th as determined from the wind data of 31 and 23 vessels, respectively, was 2·9. During this period, from the 6th to the 11th, the weather was squally and rainy over the central area defined by the parallels of 10° and 18° N. and the meridians of 58° and 73° E.

As the normal strength of the monsoon winds in the centre and south of the Arabian Sea in June is between 5 and 6, it will be seen that the monsoon winds were weak and also very unsteady. Another feature which had already been somewhat marked now came into especial prominence. This was the appearance of large shallow depressions in the centre of the Arabian Sea which shifted their positions from day to day and occasionally disappeared and then reappeared in a day or two. During the night of the 11th a large diffused depression developed over the centre of the Arabian Sea. The winds strengthened slightly under its influence and weather became slightly more squally to the east and south of the area, whilst fine clear weather obtained in the depression itself. Thus the S. S. *Emir* in Lat. 18° 2′ N. and Long. 68° 34′ E. on the morning of the 12th had light variable winds and fine weather, while the S. S. *Goorkha* in Lat. 10° 8′ N. and Long. 64° 54′ E. at the same hour experienced W. N. W. winds with rain squalls.

The diffused depression filled up during the next 72 hours, and the winds again decreased slightly in strength, and the weather improved in the south of the Arabian Sea. The average wind force for the whole area as determined from the data of 24 vessels on the morning of the 15th was 3·0 as compared with 3·4 on the previous day. Another depression formed in the centre and west of the Arabian Sea on the 16th, and the winds again increased somewhat in the south and the weather became more squally. The depression continued practically unchanged in position until the 18th, on which day the winds again began to fall off in strength and the weather to improve and the depression to fill up. The average wind force on the morning of the 20th, as deduced from the wind data of 25 vessels, was 2·7 as compared with 3 3 on the 18th. Another shallow depression appeared during the next 24 hours over the centre of the Arabian Sea which influenced the winds and weather during the next five days in a similar manner. The winds, which were light and variable on the 20th, increased in strength and shifted slightly in direction in such a manner as to indicate a tendency towards the establishment of a cyclonic circulation over the area of depression. The strength of the winds during this period increased from an average of 2·7 on the 20th to 4·1 on the 25th. The depression filled up on the 26th, and pressure was very uniform over nearly the whole of the centre of the sea area from the 26th to the 28th, and winds again decreased in force during this period. The average wind force on the 28th as deduced from the data of 22 vessels was only 2·9 as compared with 4·1 on the 25th. The weather was fine during this period in the south and south-east of the sea where moderate to strong but somewhat unsteady southerly winds prevailed. Thus the S S. *Rewa* in Lat. 9° 37′ N. and Long. 67° 23′ E. at 8 A.M. of the 27th had south-west winds (force 4 to 6), and the S S. *Taif* in Lat. 9° 2′ N. and Long. 68° 14′ E. had south-east winds (force 6) with terrific squalls of wind and rain and a mountainous sea.

A rapid increase in the strength of the winds occurred in the south of the sea area on the 28th, and on the morning of the 29th the average force as deduced from the data of 18 vessels was 3 9. Winds were now blowing from their normal directions except on the Konkan coast where

abnormal south-easterly winds still continued. Weather was fine or cloudy over nearly the whole area. Winds fell off again in strength during the next 24 hours (to average force 3·1), but continued to blow from the same abnormal directions off the Bombay and Kathiawar coasts.

Bay of Bengal.—Moderate south-west monsoon winds prevailed over nearly the whole of the Bay at the commencement of the month. Winds ranged in force from 2 to 5 (and averaged 3·1) and weather was generally fine except near the Arakan coast and in the Andaman Sea where it was squally and showery. Winds began to strengthen in the south of the Bay on the 3rd. The S.S. *Pentakota* in Lat. 12° 26′ N. and Long. 84° 9′ E. had westerly winds, force 5, with heavy rain, and the ship *James Lane* in Lat. 9° 42′ N. and Long. 85° 25′ E. had south-west winds (force 5) with squally weather. At the same time winds became light and variable in the north of the Bay, and the average wind force in the whole Bay area was only 2·7. Winds continued to strengthen steadily but slowly during the next four days in the south and centre of the Bay, and were light and variable in the north of the Bay. The average wind force as determined from the logs of 30 vessels was 3·5 on the morning of the 7th. The weather was cloudy and showery with occasional squalls in the south and east of the Bay. Thus the S.S. *Drumfell* in Lat. 13° 15′ N. and Long. 84° 50′ E. at 8 A.M. on the 7th had south-west winds, force 6, and squally weather. A very rapid change occurred in the weather, due to the formation of a small cyclonic storm of considerable intensity. Conditions had been favourable for the development of a storm in the north of the Bay during the previous three days, and on the night of the 7th it began to develop rapidly. On the morning of the 8th it was a deep depression and winds increased with unusual rapidity during that and the following day. Nearly every ship to the north of Lat. 16° N., reported winds, of force 9 or upwards, on the 9th, and the mean force of the winds in the Bay at 8 A.M. of the 9th as determined from observations of 31 vessels was 5·4. The storm continued to intensify rapidly during the day, and on the afternoon and evening of the 9th it had a calm centre of at least 3 or 4 miles in diameter, outside of which the winds were of hurricane force. The centre passed over the P. V. *Sarsuti* and *Fame* and the P. L. V. *Canopus*. In consequence apparently of the development of the storm in the north-west of the Bay and its slow motion during this period, the sea was exceptionally dangerous, even more so in the opinion of the commanders of the Pilot Vessels than was raised during the advance of the Port Blair cyclone of November 1891 across the Sandheads. The storm crossed the North Orissa coast on the 10th and drifted slowly north-westwards into the North-Western Provinces, where it broke up on the 14th. Strong south-west winds with very squally weather prevailed in the Bay from the 10th to the 15th.

On the 11th the mean force of the wind (determined from observations on board 29 vessels) was 4·7, and on the 14th it had decreased to 4·4, and on the 17th to 3·2. Weather steadily improved during this period in the Bay. It was fine over the greater part of it from the 17th to the end of the month, squalls and rain being chiefly experienced in the south of the Bay and off the Arakan and Bengal coasts. No change of importance occurred until nearly the end of the month, light to moderate monsoon winds ranging in force from 2 to 5 prevailing over the Bay area. The mean force of the winds in the Bay area on the 24th (determined from the wind data of 30 vessels), a day fairly typical of this period, was 3·4. Three of these vessels reported variable winds, and the great majority experienced cloudy, dull weather with a smooth sea and in a few instances light showers. At the end of the month (on the 30th) the mean wind force (deduced from the observations of 32 vessels) was 2·8. Six vessels had calms or variable winds. Weather was fine and clear over the greater part of the Bay area. One vessel only, the S.S. *Kistna*, in Lat. 19° 13′ N. and Long. 93° 18′ E. reported rain. A light monsoon with unusually fine weather hence obtained over the whole Bay area at the end of the month.

Temperature of the Air.

The distribution of temperature in India for June 1892 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 actual figures for the hill stations (*viz.*, stations which are over 3,000 feet in elevation) are given in small figures in these charts.

The data, by means of which these charts have been prepared, are given in Table I. The mean maximum and minimum temperatures have been obtained for each

station from the observations of the same number of years, *viz.*, 1878 to 1888. The mean daily temperature in that 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 very 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.

The following gives a statement of the mean temperature conditions of the month.

The mean maximum temperature of the month was above the normal in the South Punjab, Sind, Rajputana, and the greater part of Central India and the Central Provinces, and at the majority of stations in Burma and Mysore and Malabar. The variations were generally small in amount and less than 1°. They exceeded 2° in the following areas :—

District.	Station.	Mean maximum temperature.		
		Actual, June 1892.	Normal, June.	Variation from normal.
		°	°	°
South and Central Madras.	Salem	96·9	94·2	+2·7
	Trichinopoly	100·7	98·3	+2·4
Central India	Nowgong	99·3	103·4	−4·1?
	Sutna	97·2	99·4	−2·2
Bihar and Chota Nagpur.	Gorakhpur	96·4	98·8	−2·4
	Patna	93·0	97·0	−4·0
	Purnea	90·7	92·7	−2·0
	Hazaribagh	90·5	92·7	−2·2

and locally at Madura (−2·2°), Masulipatam (−2·8°), Nagpur (+2·1°), Deesa (+3·0°), and Mooltan (+2·3°).

The mean minimum temperature of the month differed even less from the normal than the maximum, and the variations were less than 1° at by far the greater number of observing stations. The mean minimum temperature was generally in defect except in Upper India. The variation was 2° or upwards at the following stations : —

District.	Station.	Mean Minimum Temperature.		
		Actual, June 1892.	Normal, June.	Variation from normal.
		°	°	°
Punjab	Rawalpindi	72·6	74·7	−2·1
	Ludhiana	82·0	80·0	+2·0
	Mooltan	83·8	81·8	+2·0
Rajputana	Ajmere	83·6	80·2	+3·4
Central India	Sutna	79·3	81·3	−2·0
Madras	Salem	75·5	73·3	+2·2

The variations of the mean temperature from the normal were generally small in amount and of little importance. The mean temperature of the month was above the normal in the South and Central Punjab, Sind, Rajputana, Central India, and the western districts of the Central Provinces, and in the greater part of Assam, Burma and Southern India.

The variations were less than 2° except locally at Mooltan (+2·2°), Deesa (+2·0°), Ajmere (+2·1°), Salem (+2·5°), Patna (−2·2°), Nowgong (−2·9°) and Sutna (−2·1°). The first four stations were in areas of partial drought during the month, and the last three were centres of heavy rainfall.

The following gives a *resumé* of the more important temperature changes based upon the data published in the *India Daily Weather Report* during the month.

At the commencement of the month heavy rain had advanced northwards along the west coast as far as Ratnagiri, and local showers were falling in Burma and Bengal. Over the whole of the interior hot-weather conditions obtained. Temperature was hence below the normal in the areas in which rain was falling, and more or less above it in the interior, the increased temperature being exhibited as strongly in the minimum as in the maximum readings. The following gives temperature variation data for the 1st :—

District.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
	°	°	°
Burma	−2·7	−0·8	−1·8
Bengal and Assam	−1·5	−2·6	−2·1
North-Western Provinces	+5·0	+2·8	+3·9
Punjab	+6·2	+6·7	+6·5
Sind and Rajputana	+4·2	+4·6	+4·4
Guzerat and Central India	+3·3	+2·3	+2·8
Central Provinces	+1·8	+2·7	+2·3
Bombay	−4·4	−2·6	−3·5
Madras	−2·0	−0·1	−1·1

The Arabian Sea monsoon current began to advance across the Deccan and Central India on and from the 3rd, and a general reduction of temperature hence set in.

The highest temperatures of the month were registered in the Punjab, whilst this advance was in progress, on the 4th and 5th.

Also, as frequently occurs during that change, the first influx of aqueous vapour caused a remarkable increase in the night temperature, and hence the mean temperature of the 24 hours preceding 8 A.M. of the 5th, including the preceding hot clear day and the dampish night, was excessive. The following gives variation data of this 24 hours period in the same form as for the 1st with which they should be

compared) and full data for the area of greatest excess of temperature in the Punjab :—

District.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
	°	°	°
Burma	+3·3	+ 0·7	+ 2·0
Bengal and Assam	+0·7	+ 2·2	+ 1·5
North-Western Provinces	+0·6	+ 3·0	+ 1·8
Punjab	+7·7	+12·3	+10·0
Sind and Rajputana	+2·4	+ 4·0	+ 3·2
Guzerat and Central India	−1·3	+ 0·2	− 0·6
Central Provinces	+0·1	− 1·2	− 0·6
Bombay	−1·5	− 3·0	− 2·3
Madras	−3·4	− 2·1	− 2·8

District.	Station.	Actual maximum temperature.	Variation data for 24 hours preceding 8 A.M. of 5th.			Cloud amount at 8 A.M. of	
			Maximum temperature from normal.	Minimum temperature from normal.	Mean temperature from normal.	4th.	5th.
		°	°	°	°		
Punjab Hot Area.	Sirsa	116·4	+ 8·5	+13·8	+11·2	7	10
	Lahore	115·8	+ 9·3	+16·4	+12·9	0	10
	Dera Ismail Khan.	118·5	+12·2	+12·1	+12·2	0	0
	Mooltan	120·3	+13·8	+ 8·1	+11·0	0	0
	Montgomery	120·4	?	?	?	0	0

The clouding over of the skies which accompanied the advance of the monsoon winds over Northern India on the 4th, 5th, and 6th was immediately followed by general rain in all districts except the Western Punjab, Sind and West Rajputana The following table giving mean variation data of the 7th shows the great effect the moderate rainfall of the previous 48 hours exercised in reducing temperature :—

District.	Variation for 24 hours preceding 8 A.M. of 7th of			Variation of mean temperature of 5th from normal.	Change of mean temperature in 48 hours preceding 8 A.M. of the 7th.
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.		
	°	°	°	°	°
Burma	+ 3·0	+ 0·5	+ 1·8	+ 2·0	− 0·2
Bengal and Assam	− 4·9	− 1·5	− 3·2	+ 1·5	− 4·7
North-Western Provinces	−15·9	− 7·1	−11·5	+ 1·8	−13·3
Punjab	− 7·5	− 3·9	− 5·7	+10·0	−15·7
Sind and Rajputana	− 0·4	− 1·0	− 0·7	+ 3·2	− 3·9
Guzerat and Central India	− 7·0	− 3·5	− 5·3	− 0·6	− 4·7
Central Provinces	− 4·5	− 2·9	− 3·7	− 0·6	− 3·1
Bombay	− 3·6	− 0·4	− 2·0	− 2·3	+ 0·3
Madras	+ 0·1	− 0·4	− 0·2	− 2·8	+ 2·6

A storm formed on the 7th and 8th in the north-west angle of the Bay, and crossed the North Orissa coast near Balasore on the 10th. It drifted during the next two days across Chota Nagpur and the eastern districts of the Central Provinces into Baghelkhand and the south-eastern and central districts of the North-Western Provinces and Oudh. Whilst it was forming rain diminished in amount in the Gangetic plain, but as it advanced westwards it gave excessive rain which produced a great fall of temperature in the areas over which it passed. The following variation data of the 8th, 10th and 13th will show the temperature changes which occurred during the formation and progress of the storm :—

District.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	8th.	10th.	13th.
	°	°	°
Burma	+0·8	−1·8	− 0·7
Bengal and Assam	−2·4	−3·8	− 0·9
North-Western Provinces	−8·7	−3·5	−12·2
Punjab	−6·7	−3·1	+ 1·9
Bombay	−2·5	−1·9	− 0·3
Central Provinces	−4·5	−2·4	− 5·1
Guzerat and Central India	−4·3	−1·8	− 7·0
Sind and Rajputana	−1·7	−1·1	+ 0·1
Madras	−0·1	−2·7	+ 1·6

The following variation data for three stations at which the temperature effect of the storm was greatest on each day are instructive :—

Date.	Station.	Variation of		
		Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
		°	°	°
11th	Hazaribagh	−14·8	− 7·2	−11·0
12th	Sutna	−26·6	−13·1	−19·9
13th	Jhansi	−26·9	−12·3	−19·6

The preceding data illustrate the very great reduction of temperature which accompanies the first heavy burst of rain in the parched plains of India at the commencement of the monsoon.

Rain continued to fall in decreasing amounts in the interior until the 15th, when the monsoon humid currents withdrew for a time from the whole of North-Western and Central India. The monsoon currents weakened still further during the next four days and on the 20th rain was confined to Burma, East Bengal, Assam, the West coast

districts, and Southern India. Hence a general and steady increase of temperature occurred during this period over the interior. The following gives temperature data for the 15th and 20th :—

DISTRICT.	VARIATION OF MEAN TEMPERATURE FROM NORMAL ON		Change of mean temperature during the period 15th to 20th.
	15th.	20th.	
	°	°	°
Burma	+0·6	+0·6	*Nil.*
Bengal and Assam	—1·2	+1·8	+3·0
North-Western Provinces	—7·0	+0·1	+7·1
Punjab	—4·0	—4·7	—0·7
Sind and Rajputana	+0·3	+0·2	—0·1
Guzerat and Central India	—3·4	—0·8	+2·6
Central Provinces	—1·6	+2·0	+3·6
Bombay	+0·8	+0·7	—0·1
Madras	+2·4	+0·6	—1·8

No change of importance occurred during the next week. Little or no rain fell in the interior. Skies were partially clouded except in Upper India. Temperature hence continued to increase, and was considerably above the normal during the whole period. The 27th was the hottest day of this period, and the highest temperatures were registered in the North Punjab at Khushab (117·1°), Sialkot (115·9°), and Dera Ismail Khan (115·5°). The following gives temperature variation data of the 27th :—

DISTRICT.	VARIATION OF		
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
	°	°	°
Burma	—0·1	+0·7	+0·3
Bengal and Assam	—0·3	-0·8	—0·6
North-Western Provinces	+8·5	+6·0	+7·3
Punjab	+8·1	+4·9	+6·5
Sind and Rajputana	+2·6	+0·4	+1·5
Guzerat and Central India	+6·4	+3·3	+4·9
Central Provinces	+6·7	+3·7	+5·2
Bombay	+3·6	+1·5	+2·6
Madras	+0·4	+0·3	+0·4

The weather was more or less disturbed with num erou duststorms and thunderstorms in Northern and Central India during the last two days of the month, and hence temperature decreased rapidly. The following gives variation data of the 30th :—

DISTRICT.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma	—0·7	+0·1	—0·3
Bengal and Assam	—2·0	—1·3	—1·7
North-Western Provinces	+2·6	0	+1·3
Punjab	—0·7	—5·1	—2·9
Bombay	+3·1	+1·8	+2·5
Central Provinces	+1·8	+2·0	+1·9
Guzerat and Central India	+4·0	+2·7	+3·4
Sind and Rajputana	+1·6	+0·1	+0·9
Madras	+0·3	+1·0	+0·7

Winds.

The mean 8 A.M. wind directions during the month of June 1892 are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind-point. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart, No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

Winds were on the average of the month normal in strength and direction at Port Blair in the Andamans and the Burma coast stations.

Winds were of normal steadiness, but much stronger than usual at the head of the Bay, as is shown by the following data :—

	VELOCITY.			STEADINESS.		
	Mean daily air movement, June 1892.	Normal daily air movement, June.	Percentage variation.	Actual percentage, June 1892.	Normal percentage, June.	Variation.
Saugor Island	477	350	+36	68	69	—1
False Point	369	288	+28	59	63	—4

In consequence chiefly of the unusual prevalence of westerly winds and their extension across Chota Nagpur into West Bengal during the second fortnight of the month, the mean wind directions at stations in Central and West

Bengal had an abnormally strong westerly component or a largish westerly deflection, and, as is almost invariably the rule in the hot weather and rains, this westerly deflection in the interior accompanied decreased westing at the coast stations. It may be noted that the same was the case in June 1891, when the deflections were on the whole even more strongly marked than in the month under discussion.

The following gives data in illustration :—

Area.	Station.	Direction. Mean, June 1892.	Normal, June.	Westerly deflection.	Westerly deflection, June 1891.
Bengal Coast	False Point.	S 18°	S 45° W	−27°	−33°
	Saugor Island.	S 6° W	S 15° W	− 9°	−12°
South Bengal	Calcutta .	S 9° W	S 4° E	+13°	+16°
	Burdwan .	S 17° W	S 2[illegible]° E	+37°	+26°
East Bengal .	Dacca .	S 10° E	S 16° E	+ 6°	+ 2°

Winds were much steadier and stronger during the month in the eastern districts of the North-Western Provinces, Bihar and Chota Nagpur :—

District.	Station.	Velocity. Mean daily air movement, June 1892.	Normal daily air movement, June.	Percentage variation.	Steadiness. Actual percentage, June 1892.	Normal percentage, June.	Variation.
Behar . .	Patna .	171	106	+61	57	45	+12
	Darbhanga	169	139	+22	70	71	−1
Chota Nagpur .	Hazaribagh	281	213	+32	22	19	+ 3
North-Western Provinces.	Allahabad .	190	102	+86	44	12	+32
	Lucknow .	122	102	+20	13	17	− 4
	Agra .	165	138	+20	18	28	−10

Winds were very variable and irregular in the South-East Punjab and the western districts of the North-Western Provinces :—

Station.	Direction. Mean direction, June 1892.	Normal direction, June.	Steadiness. Actual percentage, June 1892.	Normal percentage, June.
Lahore	N 71° W	N 19° W	3	11
Roorkee . . .	S 10° W	S 4° E	14	11
Lucknow . . .	N 45° E	N 51° E	13	17
Agra	N 57° W	N 60° W	18	28

Winds were less steady and more irregular in the South-East Punjab and the western districts of the North-Western Provinces than in any part of India. Winds were on the average of the month approximately normal at the eastern stations within this area of variable winds, whilst at the western stations westerly winds were more frequent than usual.

Easterly winds obtained in Bihar and along the foot of the hills as far west as Bareilly, but in the Gangetic Doab north-westerly winds prevailed to a greater extent than usual. This unusual westing of the winds was very strongly shown at Hazaribagh, where the mean wind direction of the month was S. 73° W., the normal being S. 36° W., and at Benares and Ghazipore where the mean wind directions were W. and N. 71° W., respectively, the normal directions being N. 56° W. and N. 74° E. Winds differed little from the normal in strength or steadiness in Rajputana, Central India and the Central Provinces.

The most marked feature of the air movement of the month was the abnormal weakness of the winds on the West India coast north of Karwar, and the West Deccan. The following gives data illustrating this feature :—

District.	Station.	Velocity. Actual daily air movement, June 1892.	Normal daily air movement, June.	Percentage variation.
West Coast Districts.	Ratnagiri . .	169	278	−39
	Bombay . .	288	389	−26
	Kurrachee .	264	447	−41
West Deccan .	Belgaum . .	381	583	−35
	Poona . .	249	375	−33

The mean percentage variation of the strength of the winds at these five stations was —35.

The mean wind directions also varied considerably from the normal, in consequence of the unusual prevalence of south and south-easterly winds at the Bombay coast stations, due to the very abnormal pressure conditions in the Arabian Sea in the second half of the month.

The following data illustrate this feature :—

Station.	Direction. Mean, June 1892.	Normal, June.	Westerly deflection.	Steadiness. Average, June 1892.	Normal, June.
Bombay . .	S 38° W	S 63° W	−25°	60	66
Ratnagiri . .	S 16° W	S 53° W	−37°	58	66
Belgaum . .	S 44° W	S 73° W	−29°	86	86

The same general causes which produced these large abnormal features in the winds at the west coast stations from Ratnagiri to Kurrachee and in the West Deccan also largely modified the winds in Southern India. Winds were less steady and weaker than usual (conditions favourable for rainfall in the flow of a humid-current), and the westerly element was less strongly marked than usual.

The following table gives data for four representative stations in Southern India of the first and second features :—

STATION.	VELOCITY.			STEADINESS.		
	Average daily air movement, June 1892.	Normal daily air movement, June.	Percentage variation.	Average, June 1892.	Normal, June.	Variation.
Salem . .	89	113	—21	57	82	—25
Trichinopoly .	149	228	—35	73	84	—11
Madras . .	178	213	—16	48	58	—10
Bellary . .	192	256	—25	59	80	—21

The decreased westing of the winds was most strongly exhibited at Madras where the mean direction was S 10° W, the normal being S 36° W, and Salem where the mean direction was S 34° W, the normal being S 58° W.

The wind data of the month are very interesting, more especially as exhibiting the contrast between the air movement on the Bengal and Bombay coasts. The strongest winds (on the average) on the Bengal coast are experienced in the hot weather months of April and May, and not in the rains. On the Bombay coast winds are comparatively light in the hot weather months and very strong during the monsoon months. Hence the effect of the continuance of hot-weather conditions in June usually is to give increased strength to the winds at the head of the Bay and in North-Eastern India, and decreased strength on the West coast of India and in the West Deccan. June 1891 was also a conspicuous example of this, as is seen from data extracted from the Weather Review for June 1891, given in the following table with corresponding data for June 1892 :—

COAST.	Stations.	VELOCITY.				
		Average daily air movement, June 1891.	Normal daily air movement, June.	Percentage variation.	Average daily air movement, June 1892.	Percentage variation.
BENGAL COAST	False Point . .	343	288	+19	369	+28
	Saugor Island .	410	350	+17	477	+36
BOMBAY COAST	Bombay . .	298	389	—23	288	—26
	Ratnagiri . .	225	278	—19	169	—39
	Belgaum . .	514	583	—12	381	—35

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 readings of the wet bulb at 10 and 16 hours and of the minimum wet-bulb and of the 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 five to twenty 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 amounts at 10 and 16 hours, and the normal means, with which the actual daily means of the month are computed, are the means for periods varying from five to twenty-five years of the available cloud data for the same hours.

The mean humidity conditions of the month differed little from the normal. This was due to the fact that a burst of monsoon winds extended from both the Arabian Sea and Bay of Bengal into Upper India unusually early in the month, and hence gave much damper weather over the whole of the interior during the first fortnight of the month. The monsoon currents retreated again during the third week of the month, and were restricted during the latter part of the month chiefly to Burma and North-Eastern India and the West coast districts. Hence over a large portion of the interior, including the Central Provinces, Central India, Bihar and the eastern districts of the North-Western Provinces in which the monsoon conditions of humidity and moderate to heavy rainfall are usually fully established in the second or third week of the month, the air was considerably drier than usual. The opposite conditions during these two periods hence gave practically normal mean conditions for the whole month.

The air contained somewhat less vapour than usual, and the mean humidity was slightly below the normal in Burma and Bengal, but the variations were small and of little importance. They were even smaller in Bihar and the North-Western Provinces. The air was considerably drier than usual in the Punjab, Upper Sind and West Rajputana. The following gives data for these areas :—

DISTRICT.	Station.	AQUEOUS VAPOUR TENSION.			HUMIDITY.		
		Mean actual, June 1892.	Normal, June.	Variation from normal.	Mean actual, June 1892.	Normal, June.	Variation from normal.
		Inch.	Inch.	Inch.	%	%	
PUNJAB	Lahore .	·539	·608	—·069	37	38	—1
	Ludhiana .	·588	·633	—·045	40	47	—7
	Mooltan .	·701	·744	—·043	43	48	—5
SIND . .	Jacobabad .	·558	·668	—·110	35	40	—5
WEST RAJPUTANA.	Deesa .	·655	·731	—·076	46	52	—6
	Jeypore .	·585	·670	—·085	43	50	—7

The air was much drier than usual at the hill stations in North-Western India. It was considerably damper at Leh and Kailang chiefly due to the decreased temperature at these two stations. The following gives data :—

Hill station.	Aqueous vapour tension.			Humidity.		
	Mean actual, June 1892.	Normal, June.	Variation from normal.	Mean actual, June 1892.	Normal, June.	Variation from normal.
	Inch.	Inch.	Inch.	%	%	
Leh	·179	·169	+·010	44	38	+6
Kailang	·253	·236	+·017	62	53	+9
Murree	·301	·361	—·060	45	46	—1
Simla	·339	·413	—·074	51	63	—12
Quetta	·255	·375	—·120	34	42	—8

The air contained a somewhat larger quantity of aqueous vapour in the peninsula and the humidity was more or less above the normal. The increase in these features was generally greatest at the southern stations. The following gives data of those stations where the increased dampness of the air was most marked :—

Station.	Aqueous vapour tension.			Humidity.		
	Mean actual, June 1892.	Normal, June.	Variation from normal.	Mean actual, June 1892.	Normal, June.	Variation from normal.
	Inch.	Inch.	Inch.	%	%	
Madras	·868	·799	+·069	72	64	+8
Bellary	·696	·658	+·038	65	58	+7
Secunderabad	·692	·646	+·046	66	61	+5

There was a larger amount of cloud in Burma, Bengal, Orissa, Chota Nagpur and Assam. The excess in that area was greatest at Chittagong (+ 1·6), Akyab (+1·1), Diamond Island (+1·1), and Port Blair (+1·1) or along the north-east coast of the Bay.

The mean cloud amount of the month was slightly below the normal in the North Western Provinces, Rajputana and the Punjab (except locally at Roorkee (+ 1·4) and Peshawar (+1·9). It was largely in excess in Upper Sind at Jacobabad (+ 1·5) and Hyderabad (+3·6). It was in moderate defect in the area represented by Sutna (—1·5), Agra (—1·1), and Nowgong (—1·1), and considerably in excess in Berar, for which data are given in the following table :—

Station.	Cloud amount.		
	Actual average, June 1892.	Normal average, June.	Variation from normal.
Akola	8·2	6·5	+1·7
Buldana	8·8	6·3	+2·5
Chikalda	7·3	6·8	+0·5

The variations were generally small in the Central Provinces (where there was a slightly larger amount of cloud than usual) and in the west coast districts where skies were somewhat less heavily clouded than usual in June. There was generally more cloud in the Deccan and Southern India, the excess being most marked at Secunderabad (+2·4) and Vizagapatam (+ 1·5). Skies were more clouded at the hill stations in the Eastern Himalayas and less clouded in the North-Western Himalayas, except at Murree and the higher stations of Leh and Kailang. The variations in the cloud amount thus corresponded with those of the humidity conditions. The following gives data for six hill stations :—

Station.	Cloud amount.		
	Actual average, June 1892.	Normal average, June.	Variation from normal.
Darjeeling	9·3	8·7	+0·6
Pedong	8·9	7·1	+1·2
Chakrata	3·8	5·1	+1·3
Simla	4·7	5·9	—1·2
Kailang	6·8	5·6	—1·2
Leh	6·3	5·0	—1·3

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 offices of the Meteorological Reporter, Director of Land Records, or other officer in the province, and published in the provincial gazettes. 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 June 1892 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 statements of the rainfall of the month published by the Local Governments.

The first rainfall chart (Plate IV) gives the actual distribution of the rainfall of the month so far as it is indicated by the returns of upwards of 160 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.

At the commencement of the month heavy rain was

falling in Malabar and Konkan, and moderate general rain in Burma, and frequent showers in Bengal. The Arabian Sea current began to advance into the interior on the 3rd. It gave the first burst of monsoon rain to Berar and the Central Provinces on the 4th, to the North-Western Provinces on the 6th and 7th and showers in the East Punjab on the 7th. The Deccan also received moderate rain during this period.

The Bombay current was weak, and gave little rain in the interior during the next three days, whilst a storm formed in the Bay and advanced across the Balasore coast. This storm marched north-westwards into the central districts of the North-Western Provinces, and gave heavy cyclonic rainfall over its track and general rain over the whole of Northern India (*i.e.*, Bengal, Chota Nagpur, Bihar, the North-Western Provinces and the East Punjab) until the 15th or 16th when the humid winds retreated down the Gangetic plain. Bengal and Assam continued to have moderate general rain until the 20th, when the break in the rains, which had commenced in the Gangetic plain on the 16th, extended to these areas also. The Bombay current which had been very weak for some days withdrew from Upper and Central India about the same tme, thus emphasizing the break in the rains due to the retreat of the Bay current. The Arabian Sea current gave frequent showers to the Deccan and Madras districts during the remainder of the month, and these districts hence received favourable and timely rain during the prolonged continuance of the break in the rains over North-Western India. No important change occurred in the strength or extension of the Arabian Sea current, from the 20th to the end of the month, and hence the break in the rains continued uninterruptedly in North-Western India throughout the remainder of the month. Upper India had a series of thunderstorms on the 28th and 29th due to local disturbance, and the accompanying showers were exceptionally heavy in the Indus Valley districts.

The Bay current began to strengthen again on the 24th, and Bengal and Assam received moderately heavy and general rain during the last week of the month. This burst of rain was heaviest in the Jalpaiguri, Kuch Bihar and Darjeeling districts.

The following table gives comparative rainfall data of the 52 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 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.	Average actual number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	28·22	39·19	—10·97
	Lower Burma*	?	?	17·67	18·71	— 1·04
	Central do.*	?	?	18·34	17·46	+ 0·88
	Upper do.*	?	?	7·01	?	?
	Arakan*	?	?	44·83	44·66	+ 0·17
Bengal and Assam	Eastern Bengal	15·2	16·9	15·78	18·93	— 3·15
	Assam (Surma)	21·1	20·2	25·55	22·63	+ 2·92
	Do. (Brahmaputra)	16·2	17·0	14·24	15·84	— 1·60
	Deltaic Bengal	11·6	12·8	8·64	10·66	— 2·02
	Central do.	10·9	12·0	8·86	10·12	— 1·26
	North do.	15·8	16·7	18·32	22·44	— 4·12
	Orissa	9·5	9·9	11·04	8·79	+ 2·25
	Chota Nagpur	8·8	10·7	8·74	7·80	+ 0·94
	Bihar (South)	7·9	7·5	4·78	6·01	— 1·23
	Do. (North)	9·4	8·9	9·50	8·72	+ 0·78
North-Western Provinces and Oudh.	North-Western Provinces (East)	4·5	5·1	3·72	4·28	— 0·56
	Oudh (South)	3·9	4·6	3·84	4·38	— 0·54
	Do. (North)	5·4	5·6	4·04	4·93	— 0·89
	North-Western Provinces (Central)	3·8	4·2	3·75	3·47	+ 0·28
	Do. do. (West)	2·1	3·7	2·06	2·72	— 0·66
	Do. do. (Sub-montane)	5·1	6·0	3·81	5·54	— 1·73
Punjab	Punjab (South)	1·4	2·0	0·42	1·40	— 0·98
	Do. (Central)	2·4	2·7	1·14	2·18	— 1·04
	Do. (Sub-montane)	2·5	3·1	1·12	2·84	— 1·72
	Do. (Hill Districts)	6·2	6·9	2·96	4·81	— 1·85
	Do. (North-West)	2·5	1·9	1·21	1·34	— 0·13
	Do. (West)	2·7	1·2	1·47	0·64	+ 0·83

Provinces.	Division.	Average actual number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	16·49	33·81	−17·32
	Madras (South Central)*	?	?	3·94	2·46	+ 1·48
	Coorg	16·7	?	8·97	24·55	−15·58
	Mysore*	?	?	4·60	3·43	+ 1·17
	Konkan*	?	?	19·40	32·10	−12·70
	Bombay Deccan*	?	?	7·49	5·30	+ 2·19
	Hyderabad (North)	11·0	?	8·40	5·71	+ 2·69
	Khandeish*	?	?	6·24	5·26	+ 0·98
Central Provinces and Berar.	Berar*	?	?	6·29	7·75	− 1·46
	Central Provinces (West)*	?	?	4·64	7·75	− 3·11
	Do. (Central)*	?	?	4·45	9·59	− 5·14
	Do. (East)*	?	?	8·68	10·11	− 1·43
Bombay (North)	Guzerat*	?	?	4·50	7·35	− 2·85
	Kathiawar*	?	?	1·44	3·63	− 2·19
	Sind*	?	?	0·22	0·25	− 0·03
Rajputana and Central India.	Central India (East)	5·0	?	5·60	6·02	− 0·42
	Rajputana (East), Central India (West)	3·2	?	1·67	3·08	− 1·41
	Rajputana (West)	2·4	?	0·99	1·57	− 0·58
Madras	East Coast (North)*	?	?	6·16	4·59	+ 1·57
	Do. (do.) (a)*	?	?	8·54	10·41	− 1·87
	Hyderabad (South)	10·6	?	6·49	4·21	+ 2·28
	Madras (Central)*	?	?	5·20	2·28	+ 2·92
	East Coast (Central)*	?	?	3·70	3·22	+ 0·48
	Do. (South)*	?	?	3·70	1·78	+ 1·98
	Madras (South)*	?	?	1·12	1·09	+ 0·03

NOTE.—The figures entered against divisions marked* have been taken from the telegraphic Weekly Reports for want of monthly returns.

The rainfall statement of Burma has not yet been received. The rainfall data telegraphed by District Officers show that the rainfall of the month was considerably below the average (28 per cent. in Tenasserim), and was practically normal in Lower and Central Burma and Arakan.

There were three periods of more or less general and moderate to heavy rainfall in Bengal during the month, *viz* :—

1st.—June 6th to the 12th, accompanying the first advance of monsoon winds into Bengal and the formation and march of the cyclonic storm of the second week of the month. The rainfall of the period was on the whole heaviest in Orissa.

2nd.—June 15th to the 19th, during the retreat of the monsoon current down the Gangetic plain after the breaking up of the cyclonic storm in the North-Western Provinces on the 13th and 14th. This burst of rain was fairly general, but was not heavy.

3rd.—June 24th to the 30th. During this period moderate monsoon winds blew across the coast, and were directed chiefly to East and North Bengal by the peculiar pressure conditions. East and North Bengal obtained heavy rain during this period, South-west Bengal moderate rain, and Bihar and Chota Nagpur occasional local showers, chiefly on the 29th and 30th. This burst of rain was heaviest in the districts of Kuch Bihar, Jalpaiguri and Darjeeling. The following gives a statement of the average daily rainfall in these districts from the 24th to the 30th :—

District.	Average rainfall in the district of the 24 hours preceding 8 A.M. of the						
	24th.	25th.	26th.	27th.	28th.	29th.	30th.
Kuch Bihar	0·26	4·49	3·68	1·72	1·11	1·52	0·53
Jalpaiguri	1·19	1·09	2·29	1·17	1·36	0·85	2·00
Darjeeling	1·50	0·17	1·32	1·83	0·76	0·85	5·41

The following table gives a summary of the rainfall data of the province for the month :—

Division.	Number of rainy days.			Rainfall.		
	Actual average, June 1892.	Normal average, June.	Variation from normal.	Actual average, June 1892.	Normal average, June.	Variation from normal.
				Inches.	Inches.	Inches.
Eastern Bengal	15·2	16·9	−1·7	15·78	18·93	−3·15
Deltaic Bengal	11·6	12·8	−1·2	8·64	10·66	−2·02
Central Bengal	10·9	12·0	−1·1	8·86	10·12	−1·26
North Bengal	15·8	16·7	−0·9	18·32	22·44	−4·12
Orissa	9·5	9·9	−0·4	11·04	8·79	+2·25
Chota Nagpur	8·8	10·7	−1·9	8·74	7·80	+0·94
Bihar (South)	7·9	7·5	+0·4	4·78	6·01	−1·23
Bihar (North)	9·4	8·9	+0·5	9·50	8·72	+0·78

The data show that the rainfall of the month was in moderate excess in Orissa (26 per cent.) and in slight excess in Chota Nagpur (11 per cent.) and North Bihar (9 per cent). It was in moderate defect in the remaining divisions of the province. The deficiency exceeded 30 per cent. in the districts named below :—

District.	Station.	Rainfall.		
		Normal district rainfall for June.	Actual district rainfall for June 1892.	Percentage defect.
		Inches.	Inches.	Inches.
South-West Bengal	Hooghly	9·75	6·34	—35
	Khulna	12·4	7·78	—37
East Bengal	Chittagong	26·32	15·83	—40
	Dacca	12·91	8·07	—37
	Tippera	17·21	11·74	—32
North Bengal	Malda	10·60	5·84	—45
	Dinajpur	13·25	8·49	—36
	Jalpaiguri	29·12	18·46	—37
South Bihar	South Bhagalpur	7·77	4·46	—43
	Sonthal Parganas	8·59	5·76	—33

There was a fairly well-marked break in the rains in Assam at the commencement of the month which lasted until the 7th or 8th. It was on the whole most marked in Cachar and the Assam hills. For example, the total rainfall of Cherrapunji, from the 1st to the 9th, was only 1·64 inches. General rain recommenced with the advance inland of the cyclonic storm of the second week of the month. In consequence of the indraught to the storm area, the rainfall was moderate in amount during its existence. No change of importance occurred until the 23rd or 24th when the influx of humid winds increased and heavy rain was received in all districts during the remainder of the month. The most noteworthy rainfalls of this period were :—

Cherrapunji	9·62 inches	on the	21st.
	14·54	ditto	24th.
	6·70	ditto	25th.
	8·84	ditto	27th.
	8·25	ditto	28th.
	6·60	ditto	30th.

The total rainfall of the month differed little from the normal, and was fairly well distributed.

Fairly general rain was received in the North-Western Provinces on the 6th and 7th, due to the first advance of monsoon winds from the Arabian Sea. A partial break followed until the 11th, when the second cyclonic storm of the month advanced into the south eastern districts of the province. This storm gave a general burst of rain over the greater part of the province. It was heaviest in the districts of Banda, Fatehpur, Hamirpur, Cawnpore, Jalaun and Etawah. The following gives data of the rainfall in these districts from the 12th to the 14th :—

District.	Average rainfall of 24 hours preceding 8 A.M. of the		
	12th.	13th.	14th.
Banda	3·43	0·46	0·09
Fatehpur	3·25	0·24	0·03
Hamirpur	3·97	1·42	0·29
Cawnpore	1·23	0·64	0·09
Jalaun	1·45	1·21	0·36
Etawah	1·34	1·73	0·10

Light local showers were received, chiefly in the hill districts and sub-montane districts, on the last three days of the month, but the total amounts were, with few exceptions, small.

The rainfall of the month was in slight excess in the central districts which received heavy rain during the second week of the month. It was in defect over the remainder of the province, the deficiency being less than 16 per cent. over the greater part of the area of deficient rainfall. The deficiency was greatest in the sub-montane districts, where it averaged 30 per cent., and in the following plains districts, for which data are given :—

District.	Average rainfall of month.	Variation from normal.	Highest in district.	Lowest in district.
	Inches.	Inches.	Inches.	Inch.
Agra	0·85	—1·41	1·87	0·06
Muttra	0·51	—1·51	1·55	0·13
Aligarh	1·48	—1·02	2·20	0·70

The Punjab received no general rain during the month. The large advance of monsoon winds into the interior in the first week of June extended to the South-East Punjab, and gave some showers, chiefly to the hill districts and in the Gurgaon, Umballa and Gurdaspur plain districts on the 6th and 7th. The breaking up of the second storm of the month was followed by a brief advance of easterly humid winds into the Punjab which gave moderate showers to the Gurgaon, Lahore, Umballa, Hoshiarpur, Amritsar, Rawalpindi and Peshawar districts and to the hill districts. The western districts also received local showers chiefly due to duststorms and thunderstorms. Showers were again received on the 29th and 30th due to local thunderstorms. The rainfall of the month was hence light in character and very irregularly distributed, as it chiefly occurred during local storms. It was in general defect, the deficiency being most marked in the hill districts and diminishing, westwards, in amount both absolutely and relatively to the normal. It was more or less in excess in the Indus Valley or western districts where some local

heavy falls were received, of which the following were the most remarkable :—

District.	Station.	Rainfall.		
		Actual in June 1892.	Normal in June.	Variation from normal.
		Inches.	Inches.	Inches
Muzaffargarh	Alipur	5·28	0·35	+ 4·93
Dera Ghazi Khan	Fort Monro	6·64	1·08	+ 5·56
Dera Ismail Khan	Bhakhar	1·96	0·32	+ 1·64
Shahpur	Khushab	2·45	0·60	+ 1·85

In these western districts the rainfall was very irregularly distributed, but was on the average of all stations very considerably in excess.

In British Baluchistan showers were received between the 14th and 20th and also on the 29th and 30th. Nasak obtained a total of 4·5 inches and Hernai of 3 inches. Kashmir obtained moderate rain on the 5th and 6th, and light showers from the 15th to the 19th. The total amounts were not large, ranging from ·12 inch at Leh to 3·98 inches at Poonch.

Rain occurred in Rajputana during two periods. The first was from the 5th to the 8th, due to the first influx of humid winds from the Arabian Sea. The largest amounts were received in the Jeypore, Ulwar, and Bhurtpur states and in Ajmere-Merwara. The rainfall of the second period (from the 14th to the 17th) accompanied and followed the breaking up of the cyclonic storm of the second week of the month in Baghelkhand and was moderate in amount. The following gives average data of the month for the larger states :—

District.	Actual average rainfall.	Normal rainfall.	Variation from normal.
	Inches.	Inches.	Inches.
Jodhpur	0·92	1·63	—0·71
Jeypore	1·25	2·54	—1·29
Ulwar	1·87	3·36	—1·49
Bhurtpur	1·30	1·83	—0·53
Ajmere	1·86	2·18	—0·32
Kerowlee	1·65	2·91	—1·26
Kotah	2·63	3·34	—0·71

The rainfall in Central India was received during three periods, *viz.*:—

1st.—From the 4th to the 7th.

2nd—From the 11th to the 16th. Baghelkhand and Bundhelkhand obtained very heavy rain on the 11th, 12th and 13th, due to the cyclonic storm of the second week of the month. The following gives the most noteworthy falls :—

State.	Station.	Heaviest rainfall.	Date.
		Inches.	
Nagode	Nagode	7·42	12th.
Maihar	Maihar	7·80	12th.
Bundelkhand	Chatturpur	6·14	12th.
	Panna	7·01	12th.

3rd.—From the 27th to the 30th, when light showers were received, chiefly in Bundelkhand and Baghelkhand.

The rainfall was small in amount and considerably below the average in the western states of Indore, Rutlam and Bhopal. It was, on the other hand, considerably in excess in Bundelkhand and in slight defect in Baghelkhand and Gwalior, for which data are given in the following table :—

Districts.	Average actual rainfall.	Normal rainfall.	Variation from normal.
	Inches.	Inches.	Inches.
Nagode	9·06	4·92	+ 4·14
Maihar	9·36	6·13	+ 3·23
Rewah	6·43	7·13	— 0·70
Bundelkhand	7·38	4·84	+ 254
Gwalior	2·95	4·59	—1·64

The rainfall was very generally deficient in the Central Provinces. The eastern districts of Sambalpur, Bilaspore and Raipur received some heavy showers on the 10th and 11th. Light to moderate rain fell generally over the province during the next week until the 18th, when a break set in, which lasted until the 27th or 28th. Showers were received during the last three days of the month, but the amounts were generally small, except in the eastern and south-eastern districts.

The following gives a summary of the rainfall data in the provincial rainfall statement of the month, which was received after Plate V was sent to Press :—

Meteorological Division.	Average actual number of rainy days.	Normal number of rainy days.	Average actual rainfall of month.	Normal rainfall of month.	Variation from normal.	Percentage variation.
Central Provinces (East)	9·7	9·0	8·88	8·19	+ 0·69	+ 9
Ditto (Central)	8·1	9·2	5·02	8·27	— 3·25	— 39
Ditto (West)	8·2	8·8	5·19	7·49	— 2·30	— 28

The preceding table shows that there was a slight excess in the eastern districts. The average rainfall of the month was 39 per cent. below the normal in the central division, and 28 per cent. in the western division.

Hyderabad (Deccan) received frequent showers throughout the month. The chief periods of fairly general rainfall were from the 3rd to the 8th and from the 16th to the end of the month. The total rainfall of the month was more or less in excess over the whole state

The following gives average data for the two divisions of the state :—

DIVISION.	Actual average rainfall.	Normal, rainfall.	Variation from normal.
	Inches.	Inches.	Inches.
Hyderabad (North) . .	8·40	5·71	+2·69
Ditto (South) . .	6·49	4·21	+2·28

The excess was greatest at the following stations (and probably in the districts of which they are the sudder stations) :—

STATION.	RAINFALL.		
	Mean actual, June 1892.	Normal, June.	Variation from normal.
	Inches	Inches.	Inches.
Aurangabad	11·86	6·34	+5·52
Bheer	11·42	5·19	+6·23
Hingoli	14·88	6·95	+7·93
Raichur	8·12	3·90	+4·22
Lingsugar	3·09	0·83	+2·26
Gulburga	8·28	4·82	+3·46

The rainfall was hence very favourable in the driest districts of the state, and more especially in Raichur and Gulburga, where the rainfall of the previous twelve months had been very scanty, and which had hence suffered from drought.

The Bombay coast districts received daily rain from the 1st to the 19th and again from the 22nd to the 25th, and light showers during the last week of the month. Rainfall was light to moderate in amount, except from the 7th to the 11th, when heavy downpours were generally received. In the Deccan districts the chief periods of rain were from the 1st to the 10th and the 20th to the 25th. The rainfall during these periods was general and well distributed. In Guzerat and Kathiawar light showers of little importance were received from the 4th to the 9th, and fairly general moderate rain from the 15th to the 17th. The last fortnight of the month was practically rainless.

The following gives a comparative statement of the rainfall data compiled from the rainfall statement of the month published by the Local Government :—

METEOROLOGICAL DIVISION.	Average actual number of rainy days.	Normal number of rainy days.	Average actual rainfall of month.	Normal rainfall of month.	Variation from normal.
Konkan	18·2	19·2	19·05	27·15	−8·10
Bombay-Deccan . .	10·3	8·2	6·43	5·75	+0·68
Khandeish . . .	8·6	7·6	6·33	5·69	+0·64
Guzerat	7·1	6·7	5·01	6·27	−1·26
Kathiawar . . .	3·3	3·6	2·27	3·26	−0·99
Sind	0·5	?	0·25	0·20	+0·05

The preceding statement shows that the rainfall of the month was 30 per cent. in average defect in the Konkan and Kathiawar and 20 per cent. in Guzerat. It was, on the other hand, in moderate excess in the Bombay-Deccan districts and Khandeish (11 per cent.).

Travancore, Cochin, and Coorg received daily rain from the 1st to the 12th. Occasional showers fell between that date and the 24th, when heavy general rain set in over the coast districts of Travancore and continued until the end of the month. The following gives average data for these states :—

DISTRICT.	Actual average rainfall.	Normal rainfall.	Variation from normal.
	Inches.	Inches.	Inches.
Travancore	9·96	?	?
Cochin	16·51	?	?
Coorg	8·97	24·55	−15·58

The rainfall of the month of June was unusually abundant and favourable in the Madras Presidency, and more especially in the districts which had suffered more or less severely from drought during the previous year. This rainfall in fact terminated the drought in those areas, refilled tanks and enabled cultivation to be generally resumed. The chief periods of rain were the following :—

1st.—From the 2nd to the 11th. The rainfall accompanied the first large advance of the monsoon winds across the west coast. The rainfall during this period was heaviest in the northern and central coast districts and in the Deccan districts of Kurnool, Bellary, and Cuddapah. It was moderate in amount in the southern districts, except Tinnevelly and Madura, which were almost rainless during this period.

2nd.—From the 15th to the 18th. The rainfall of this period was more general and uniformly distributed than the preceding burst. It was small in amount in the southern districts of Tinnevelly, Salem, Madura, and Trichinopoly.

3rd.—From the 23rd to the 30th. The Coromandel coast districts received moderately heavy rain during this period. The Salem, Coimbatore, Bellary, Kurnool, Anantpur, and Cuddapah districts also obtained a general and moderately heavy burst of rain.

The following gives a comparative statement of the rainfall of June for all districts in Madras :—

DISTRICT.	Average actual number of rainy days.	Normal number of rainy days.	Average actual rainfall of month.	Normal rainfall of month.	Variation from normal.	Percentage variation.
Ganjam	8·4	6·8	6·80	5·08	+1·72	+34
Vizagapatam	11·0	8·1	6·56	5·89	+0·67	+11
Godavari	8·6	5·9	5·97	4·53	+1·44	+32
Kristna	10·0	5·9	5·94	4·23	+1·71	+40
Nellore	4·4	3·1	1·84	1·65	+0·19	+12
Chingleput	4·5	4·7	3·79	3·10	+0·69	+22
North Arcot	6·9	4·6	5·31	2·84	+2·47	+98
South Arcot	4·6	4·0	3·30	2·16	+1·14	+52
Tanjore	4·5	3·2	3·59	1·96	+1·63	+83
Trichinopoly	3·2	2·1	1·36	1·18	+0·18	+15
Madura	3·0	2·3	2·39	1·21	+1·18	+98
Tinnevelly	1·4	2·0	0·58	0·86	—0·28	—32
Malabar	17·5	23·9	14·87	32·11	—17·24	—54
South Canara	20·0	26·2	14·82	44·96	—30·14	—67
Salem	6·6	4·4	4·59	2·54	+2·05	+79
Coimbatore	5·0	3·0	2·09	1·42	+0·67	+47
Nilgiris	12·4	13·8	6·03	10·64	—4·61	—43
Cuddapah	7·7	4·4	6·67	2·30	+4·37	+19
Anantapur	7·4	4·4	6·74	2·32	+4·42	+190
Bellary	7·9	5·2	4·50	2·90	+1·60	+55
Kurnool	8·9	5·5	6·06	3·08	+2·98	+99

The preceding statement shows that the rainfall of the month was very considerably in defect in the Malabar coast districts and in Tinnevelly. It was more or less in excess in all other districts, the excess being greatest in Cuddapah and Anantapur, which received nearly three times the normal average, and Kurnool, North Arcot, Tanjore, Madura, and Salem, which obtained nearly double the normal rainfall of the month.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 171 stations in India during the month of June 1892.

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 fairy uniform, and they, hence are presumed to form suitable areas for the discussion of the relations between disease and meteorology. The names of the 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 subdivided into smaller meteorological areas or districts, of which there are 51 in all. This subdivision 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 subdivision 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 utilised 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 rainfall 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 95 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 Appendix A of the Annual Reports 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 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.

Table

Abstract of Observations taken at 8 A.M. at 171

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.
I.—Burma Coast and Bay Islands.		...	...	+·008	...	...	...	...	...	...	...	86·1	+0·1	75·2	+0·2	80·7	+0·1	10·0	...	...	...	...	17·5
Bay Islands	Port Blair	61	29·751	?	29·743	29·836	16th	29·650	7th	·186	82·1	86·5	?	78·1	?	82·3	?	8·4	90·5	29th	74·6	6th & 13th	15·9
Tenasserim	Mergui	96	29·750	?	29·778	29·822	16th	29·672	7th	·150	78·7	86·8	?	67·4?	?	77·1	?	19·4?	91·9	29th	65·0?	9th	26·9
	Tavoy	26	29·839	?	29·796	29·915	16th	29·773	7th	·142	78·8	85·7	?	74·7	?	80·2	?	11·0	89·7	3 days	73·2	5 days	16·5
	Moulmein	94	29·733	+·005	29·765	29·804	16th	29·641	7th	·163	78·1	85·6	+1·6	75·4	+1·0	80·5	+1·3	10·2	88·5	4 days	73·3	3 days	15·2
	Tounghoo	181	29·600	+·005	29·724	29·680	3rd	29·504	13th	·176	78·6	88·6	+0·5	75·0	−0·1	81·8	+0·2	13·6	93·2	3rd	72·7	10th	20·5
Lower Burma	Rangoon	41	29·761	0	29·739	29·828	16th	29·655	8th	·173	79·0	85·7	−0·2	76·5	+0·1	81·1	0	9·2	89·0	2nd	72·9	10th	16·1
	Bassein	27	29·778	+·014	29·740	29·851	3rd	29·656	8th	·195	79·6	86·0	−0·1	75·8	−0·4	81·0	−0·3	10·2	89·2	7th	72·9	10th	16·3
	Diamond Island.	41	29·759	+·007	29·735	29·837	2 days	29·625	8th	·212	82·4	85·2	−0·2	77·7	+1·8	81·5	+0·8	7·5	87·4	2 days	73·4	13th	14·0
Arakan	Akyab	20	29·723	+·017	29·686	29·850	3rd	29·513	9th	·337	79·7	84·8	−1·1	76·4	−1·3	80·6	−1·2	8·4	89·7	3rd	73·7	2 days	16·0
II.—Burma, Inland		...	...	+·015	...	...	...	...	...	...	...	91·6	+0·2	75·6	−0·1	83·7	+0·1	16·2	...	...	...	...	25·1
Central Burma	Thayetmyo	134	29·630	+·015	29·705	29·733	3rd	29·525	8th	·208	81·2	91·0	+0·2	76·3	−0·1	83·7	+0·1	14·7	96·7	6th	72·9	10th	23·8
Upper Burma	Mandalay	?	29·462	?	29·408	29·614	3rd	29·367	13th	·247	82·0	93·9	?	75·5	?	84·6	?	18·4	98·0	28th	69·2	5th	28·8
	Kendat	?	29·278	?	29·230	29·473	3rd	29·198	13th	·275	81·4	91·0	?	?55·0	?	?73·0	?	?36·0	95·8	6th	?50·0	?2 days	?45·8
	Bhamo	?	29·315	?	29·265	29·451	3rd	29·228	13th	·223	80·2	90·4	?	75·0	?	82·7	?	15·4	95·1	2 days	72·3	2nd	22·8
III.—Assam		...	...	−·001	...	...	...	...	...	...	...	87·8	−0·4	76·5	0	82·1	−0·2	11·3	...	...	...	...	20·8
Assam (Surma)	Silchar	104	29·589	+·009	29·644	29·754	3rd	29·384	9th	·370	80·4	89·3	+0·6	76·3	+0·2	82·8	+0·4	13·0	96·1	11th	72·3	23rd	23·8
Brahmaputra	Sibsagar	333	29·323	−·025	29·609	29·485	3rd	29·229	10th	·256	81·2	89·9	−0·1	77·1	+0·5	83·5	+0·2	12·8	94·6	11th	73·5	7th	21·1
	Dhubri	115	29·540	+·012	29·609	29·740	3rd	29·395	9th	·345	78·5	84·1	−1·8	76·0	−0·6	80·0	−1·2	8·1	89·2	3 days	71·8	8th	17·4
IV.—Bengal and Orissa		...	...	+·020	...	...	...	...	...	...	...	89·8	−0·6	77·9	−0·2	83·9	−0·4	11·9	...	...	...	...	22·9
East Bengal	Chittagong	87	29·622	+·024	29·655	29·775	3rd	29·379	9th	·396	81·5	86·7*	+0·6	76·2	−0·2	81·4	+0·2	10·5	91·7	4th	72·1	2 days	19·6
	Lungleh	?	?	?	?	?	...	?	...	?	69·8	71·0	?	66·1	?	68·5	?	4·9	76·9	4th	62·4	1st & 2nd	14·5
	Noakhali	43	29·642	?	29·632	29·805	3rd	29·400	9th	·405	81·6	86·7	?	77·6	?	82·1	?	9·1	90·5	4th	72·8	20th	17·7
	Comilla	35	29·638	?	29·621	29·816	3rd	29·445	9th	·371	81·6	88·1	?	77·2	?	82·6	?	10·9	93·3	4th	73·8	26th	19·5
	Sirajganj	46	29·595	?	29·591	29·804	3rd	29·417	10th	·387	81·6	89·0	?	77·2	?	83·2	?	11·8	93·1	1st & 20th	71·7	1st	21·4
	Dacca	22	29·633	+·019	29·603	29·829	3rd	29·434	10th	·395	82·4	89·2	+0·2	78·7	+0·4	84·0	+0·3	10·5	93·6	20th	74·2	26th	19·4
	Barisal	13	29·649	+·026	29·605	29·832	3rd	29·411	9th	·421	82·1	88·4	+0·2	78·3	+0·9	83·4	+0·6	10·1	92·3	4 days	71·9	12th	20·4
	Mymensingh	63	29·647	?	29·661	29·786	3rd	29·414	9th	·372	80·7	86·9	?	77·5	?	82·2	?	9·4	91·7	2 days	73·6	2 days	18·1
Deltaic Bengal	Faridpur	46	29·618	?	29·612	29·836	3rd	29·397	10th	·439	82·2	88·8	?	77·9	?	83·4	?	10·9	93·5	20th	72·9	25th	20·6
	Jessore	33	29·603	+·015	29·583	29·802	3rd	29·330	10th	·472	83·5	90·4	−1·3	78·8	0	84·7	−0·7	11·6	94·7	3 days	73·4	2 days	21·3
	Calcutta	21	29·606	+·027	29·572	29·807	3rd	29·268	10th	·539	82·9	90·4	−1·0	78·3	−0·5	84·4	−0·8	12·1	95·1	2 days	72·7	25th	22·4
	Saugor Island	25	29·600	+·019	29·569	29·779	3rd	29·216	10th	·563	85·0	89·7	−1·1	81·6	−0·4	85·7	−0·8	8·1	93·7	2 days	75·5	1st	18·2
	Krishnagar	47	29·568	?	29·562	29·784	3rd	29·303	10th	·481	83·5	92·9	?	78·6	?	85·8	?	14·3	98·7	5th & 6th	72·7	19th	26·0
	Midnapore	149	29·474	?	29·568	29·671	3rd	29·088	10th	·583	83·4	93·4	?	78·4	?	85·9	?	15·0	99·3	20th & 24th	71·2	1st	28·1
Central Bengal	Bankura	298	29·285	?	29·531	29·495	3rd	29·000	10th	·495	82·8	94·5	?	78·9	?	86·7	?	15·6	102·6	27th	70·1	1st	32·5
	Raniganj	345	29·283	?	29·575	29·492	3rd	29·010	10th	·482	82·4	94·5	?	78·8	?	86·7	?	15·7	102·5	22nd	74·4	1st	28·1
	Burdwan	99	29·523	+·025	29·568	29·742	3rd	29·222	10th	·520	82·6	93·1	−1·3	79·2	−0·2	86·2	−0·8	13·9	99·7	2 days	73·9	1st	25·8

* Mean of 27 days.

I.

Stations in India, Burma, etc., in June 1892.

Wind Direction. Number of winds from: Calm.	N	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 30th June 1892.	Normal rainfall for period 1st to 30th June 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22·17	28·46	—6·29	...	...	...	**I.—Burma Coast and Bay Islands.**	
2	...	...	...	2	9	10	7	...	8	10	— 20	88	·957	8·4	14	P	P	9·39	18·79	— 9·40	9·39	18·79	— 9·40	Port Blair .	Bay Islands.
...	3	1	...	1	2	9	3	11	2	2	0	91	·896	7·9	18	P	P	15·45	31·44	—15·99	15·45	31·44	—15·99	Mergui .	Tenasserim.
26	...	...	...	...	...	3	...	1	1	P	P	91	·894	6·0	19	P	P	21·38	40·02	—18·64	21·38	40·02	—18·64	Tavoy.	
3	...	1	8	7	8	2	1	...	4	3	+ 33	93	·892	6·5	26	27·00	—1·00	23·12	36·21	—13·09	23·12	36·21	—13·09	Moulmein.	
2	...	...	1	18	9	...	...	...	4	5	— 20	92	·914	9·4	24	20·91	+3·09	19·88	15·17	+ 4·71	19·88	15·17	+ 4·71	Tounghoo.	
...	...	1	1	...	9	11	6	2	4	5	— 20	94	·936	9·0	24	23·27	+0·73	16·02	18·10	— 2·08	16·02	18·10	— 2·08	Rangoon .	Lower Burma.
3	...	...	...	3	11	11	2	...	4	4	0	93	·945	7·8	23	24·82	—1·82	17·73	22·31	— 4·58	17·73	22·31	— 4·58	Bassein.	
1	...	...	...	1	13	13	2	...	9	9	0	82	·905	8·8	17	21·73	—4·73	10·91	23·63	—12·72	10·91	23·63	—12·72	Diamond Island.	
...	3	2	6	3	11	1	4	..	4	4	0	92	·933	9·1	27	23·09	+3·91	52·88	40·79	+12·09	52·88	40·79	+12·09	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·83	9·33	—1·50	...	...	...	**II.—Burma, Inland.**	
...	...	...	...	5	25	...	...	...	10	8	+25	83	·883	8·5	10	15·00	—5·00	5·47	7·04	— 1·57	5·47	7·04	— 1·57	Thayetmyo .	Central Burma.
2	...	...	...	3	18	7	...	...	9	P	P	76	·831	6·5	6	P	P	8·15	6·60	+ 1·55	8·15	6·60	+ 1·55	Mandalay .	Upper Burma.
24	1	...	1	...	2	1	1	...	0	P	P	86	·922	6·4	16	P	P	10·63	7·97	+ 2·66	10·63	7·97	+ 2·66	Kendat.	
4	...	2	...	...	...	11	3	10	P	P	P	87	·897	7·1	15	P	P	7·07	15·72	— 8·65	7·07	15·72	— 8·65	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18·44	20·03	—1·60	...	...	...	**III.—Assam.**	
26	...	...	1	1	1	...	1	...	1	3	—67	89	·923	8·9	22	19·91	+2·09	22·41	21·36	+ 1·05	22·41	21·36	+ 1·05	Silchar .	Assam (Surma).
...	...	10	6	4	1	8	...	1	2	3	—33	89	·950	9·2	9	16·27	—7·27	3·70	13·36	— 9·66	3·70	13·36	— 9·66	Sibsagar .	Brahmaputra.
3	3	7	7	3	...	6	1	...	6*	5	+20	92	·894	8·7	23	17·25	+5·75	29·20	25·38	+ 3·82	29·20	25·38	+ 3·82	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·43	12·93	—1·82	...	...	...	**IV.—Bengal and Orissa.**	
2	...	...	3	16	8	1	...	...	5	7	—29	85	·914	9·7	13	16·18	—3·18	9·33	23·44	—14·11	9·33	23·44	—14·11	Chittagong .	East Bengal.
P	P	P	P	P	P	P	P	P	P	P	P	92	·673	P	17	P	P	20·35	P	P	20·35	P	P	Lungleh.	
...	...	...	8	10	11	1	...	...	6	P	P	88	P	4·7	18	18·15	—0·15	25·37	26·07	— 0·70	25·37	26·07	— 0·70	Noakhali.	
1	...	...	11	10	6	2	...	...	4	P	P	88	P	5·7	17	17·35	—0·35	17·18	19·13	— 1·95	17·18	19·13	— 1·95	Comilla.	
7	1	2	3	5	12	...	...	...	3	P	P	90	P	8·3	14	12·55	+1·45	11·63	11·40	+ 0·23	11·63	11·40	+ 0·23	Sirajganj.	
...	...	...	4	7	13	4	1	1	9	7	+29	87	·966	8·7	12	13·64	—1·64	7·90	12·25	— 4·35	7·90	12·25	— 4·35	Dacca.	
16	1	...	1	3	7	2	...	...	5	P	P	87	·961	9·1	11	17·15	—6·15	13·12	16·23	— 3·11	13·12	16·23	— 3·11	Barisal.	
1	...	3	6	11	7	2	...	...	6	P	P	91	·952	7·8	18	18·25	—0·25	14·87	18·78	— 3·91	14·87	18·78	— 3·91	Mymensingh.	
6	...	...	5	4	14	1	...	...	6	P	P	85	P	6·4	14	14·40	—0·40	8·70	12·49	— 3·79	8·70	12·49	— 3·79	Faridpur .	Deltaic Bengal.
6	...	...	3	7	9	4	1	...	5	5	0	89	1·022	8·2	14	14·55	—0·55	10·54	11·69	— 1·15	10·54	11·69	— 1·15	Jessore.	
1	...	1	4	4	8	9	2	1	7	6	+17	85	·956	7·1	10	12·00	—2·00	8·59	9·27	— 0·68	8·59	9·27	— 0·68	Calcutta.	
...	1	2	2	2	10	10	2	1	20	15	+33	83	1·003	8·7	9	11·64	—2·64	7·44	9·29	— 1·85	7·44	9·29	— 1·85	Saugor Island.	
...	...	1	3	4	12	8	2	...	8	P	P	81	P	7·1	12	11·95	+0·05	8·61	8.81	— 0·20	8·61	8·81	— 0·20	Krishnagar.	
1	3	1	...	3	18	4	...	...	11	P	P	82	P	4·5	12	10·80	+1·20	6·99	8·82	— 1·83	6·99	8·82	— 1·83	Midnapore.	
1	1	3	4	3	10	3	5	...	6	P	P	81	P	5·4	9	12·40	—3·40	10·03	9·35	+ 0·68	10·03	9·35	+ 0·68	Bankura .	Central Bengal.
3	...	3	4	2	6	8	1	3	4	P	P	83	P	5·4	11	11·30	—0·30	13·39	8·38	+ 5·01	13·39	8·38	+ 5·01	Raniganj.*	
...	...	1	4	3	14	7	1	...	6	5	+ 20	80	·895	8·0	16	11·27	+4·73	10·73	7·64	+ 3·09	10·73	7·64	+ 3·09	Burdwan.	

* Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 171 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.
Central Bengal —*contd.*	Naya Dumka	489	29·108	P	29·550	29·316	3rd	28·908	10th	·408	83·7	94·7	P	79·5	P	87·1	P	15·2	103·2	22nd, 23rd & 26th.	73·8	27th	29·4
	Berhampore	67	29·548	+·012	29·563	29·768	3rd	29·323	10th	·445	81·8	92·7	+0·1	78·7	+0·2	85·7	+0·2	14·0	99·7	21st	74·8	1st	24·9
	Rampur Boalia.	70	29·552	P	29·571	29·766	3rd	29·356	10th	·410	83·1	90·9	P	78·5	P	84·6	P	12·4	95·8	21st & 24th.	72·2	1st	23·6
	Malda	80	29·537	P	29·568	29·754	3rd	29·382	10th	·372	84·2	93·5	P	78·7	P	86·1	P	14·8	98·9	24th	71·5	1st	27·4
	Bogra	61	29·559	+·023	29·572	29·762	3rd	29·397	2 days	·365	82·0	89·2	P	77·0	P	83·2	P	12·2	96·3	21st	69·2	1st	27·1
North Bengal	Dinajpur	118	25·515	+·003	29·585	29·714	3rd	29·369	9th	·345	80·6	88·5	P	77·1	P	82·9	P	11·4	95·1	21st	71·2	1st	23·9
	Rangpur	123	29·530	P	29·606	29·734	3rd	29·384	9th	·350	80·3	88·1	P	76·4	P	82·3	P	11·7	92·8	15th	71·7	26th	21·1
	Jalpaiguri	284	29·356	—·005	29·593	29·562	3rd	29·232	9th	·330	79·8	87·1	P	75·8	P	81·4	P	11·3	92·4	2 days	73·6	1st	18·8
Orissa	Balasore	56	29·541	+·002	29·542	29·750	3rd	28·730	10th	1·020	83·3	91·7	P	78·4*	P	85·2	P	13·3	96·4	20th	72·8	1st	23·6
	False Point	21	29·617	+·020	29·579	29·787	3rd	29·155	9th	·632	84·6	90·0†	—1·0	79·3*	—0·9	84·7	—1·0	10·7	96·5	20th	71·1	11th	25·4
	Cuttack	80	29·555	+·030	29·577	29·721	3rd	29·188	9th	·533	84·3	94·5	—1·6	79·0	—1·2	86·8	—1·4	15·5	101·4	1st	73·8	1st	27·6
	Puri*	9	29·637	P	29·586	29·770	3rd	29·289	9th	·481	84·1	89·3	P	80·5	P	84·9	P	8·8	92·7	6th	75·6	15th	17·1
V.—Gangetic Plain and Chota Nagpur.		...	...	+·012	...	...	...	...	...	...	...	96·5	—1·9	79·5	—0·1	88·0	—1·0	16·9	...	...	...	...	33·5
Chota Nagpur	Hazaribagh	2,007	27·623	+·016	29·543	27·801	3rd	27·407	11th	·394	80·7	90·5	—2·2	75·3	—0·8	82·9	—1·5	15·2	102·7	1st	69·8	7th & 12th	32·9
	Ranchi	2,128	27·503	P	29·542	27·681	3rd	27·267	11th	·414	79·0	89·6	P	74·3	P	81·9	P	15·3	101·5	1st	68·4	12th	33·1
	Chaibassa	760	28·819	+·009	29·518	29·003	3rd	28·491	10th	·512	82·9	96·0	P	79·1	P	87·6	P	16·9	108·8	1st	72·7	12th	36·1
Bihar (South)	Gaya	375	29·203	+·006	29·525	29·355	3rd	29·048	11th	·307	86·5	98·5	—1·9	82·3	+3·1	90·4	+0·6	16·2	108·6	24th	75·8	7th & 16th.	32·8
	Dehri	351	29·223	P	29·521	29·380	3rd	29·077	11th	·303	86·7	98·2	P	80·5	P	89·4	P	17·7	110·4	1st	72·0	11th	38·4
	Patna	183	29·406	+·005	29·538	29·586	3rd	29·288	9th	·298	85·3	93·0	—4·0	79·9	—0·3	86·5	—2·2	13·1	103·7	23rd	74·2	6th	29·5
	Arrah	190	29·389	P	29·527	29·568	3rd	29·274	11th	·294	86·1	98·1	P	80·9	P	89·5	P	17·2	108·9	26th	74·5	30th	34·4
	Buxar	239	29·350	P	29·540	29·514	3rd	29·243	9th	·271	85·4	97·3	P	80·4	P	88·8	P	16·9	107·4	23rd, & 27th.	72·8	29th	34·6
Bihar (North)	Purnea	125	29·508	+·032	29·586	29·737	3rd	29·380	25th	·357	81·6	90·7	—2·0	76·4	—0·5	83·6	—1·3	14·3	96·2	21st & 22nd.	71·2	1st	25·0
	Bhagalpur	160	29·435	P	29·547	29·641	3rd	29·299	10th	·342	84·4	95·1	P	79·2	P	87·2	P	15·9	104·8	22nd	73·0	7th	31·8
	Darbhanga	166	29·453	+·022	29·571	29·660	3rd	29·340	9th	·320	82·9	91·6	—0·8	78·2‡	—0·7	85·1‡	—0·8	13·4	98·0	22nd	73·0	1st & 6th.	25·0
	Muzaffarpur	178	29·425	P	29·554	29·590	2nd	29·303	9th	·287	82·9	94·3	P	78·9	P	86·7	P	15·4	100·7	22nd & 23rd	72·7	6th	28·6
	Motihari	224	29·369	P	29·549	29·575	2nd	29·255	9th	·320	82·0	93·2	P	76·5	P	84·9	P	16·7	100·2	22nd & 23rd	69·8	2nd	30·4
	Chapra	181	29·402	P	29·534	29·583	3rd	29·293	9th	·290	85·1	96·8	P	79·8	P	88·3	P	17·0	106·3	23rd & 26th	74·6	7th	31·7
N.-W. P. (Eastern Districts).	Benares	267	29·312	+·020	29·530	29·472	3rd	29·181	12th	·291	86·9	100·0	—1·4	82·0	—0·5	91·0	—1·0	18·0	110·8	23rd	74·0	13th	36·8
	Allahabad	309	29·257	+·005	29·515	29·405	3rd	29·078	12th	·327	88·3	101·1	—1·7	82·8	—0·5	91·9	—1·1	18·5	110·9	5th	75·3	13th	35·6
N.-W. P. (East Submontane).	Gorakhpur	256	29·331	+·018	29·543	29·518	3rd	29·239	9th	·279	84·4	96·4	—2·4	79·1	—0·9	87·7	—1·7	17·3	106·3	27th	75·2	14th	31·1
Oudh (South)	Lucknow	370	29·187	—·009	29·509	29·346	3rd	29·090	9th	·256	86·1	101·8	—0·3	81·7	+0·1	91·8	—0·1	20·1	112·3	23rd	74·8	13th & 28th.	37·5
Oudh (North)	Bahraich	403	29·162	P	29·517	29·236	16th	29·084	26th	·152	83·5	99·0	P	78·3	P	88·7	P	20·7	110·1	23rd	70·0	8th	40·1
N.-W. Provinces (Central).	Cawnpore	416	29·169	P	29·537	29·296	3rd	29·080	12th	·216	88·2	101·4	P	81·9	P	91·7	P	19·5	111·1	1st	74·0	13th	37·1
	Mainpuri	516	29·058	P	29·521	29·181	3rd	28·973	9th	·208	88·6	103·0	P	82·4	P	92·7	P	20·6	113·7	1st	72·0	8th	41·7
VI.—Upper Sub-Himalayas		...	...	+·016	...	...	...	...	...	...	..	101·9	—1·0	79·4	+0·3	90·7	—0·3	22·6	..	...	...	...	41·7
N.-W. Provinces (Submontane).	Bareilly	568	28·998	+·012	29·520	29·146	3rd	28·901	26th	·245	85·7	100·0‖	—1·5	79·6	—0·5	89·7‖	—1·0	20·4	109·4	23rd	69·2	7th	40·2
	Dehra Dun	2,233	27·399	P	29·439	27·554	3rd	27·322	10th	·232	80·2	94·5	P	74·3‖	P	84·5‖	P	20·2	102·0	1st & 23rd.	65·0	15th	37·0
	Roorkee	887	28·686	+·014	29·523	28·832	3rd	28·612	10th	·220	85·6	101·2	—0·2	79·3	+0·2	90·3	0	21·9	111·7	23rd	67·7	7th	44·0
	Meerut	737	28·837	+·024	29·526	28·976	3rd	28·748	8th	·228	86·7	100·7	—1·1	79·9	—1·2	90·3	—1·2	20·8	109·2	1st & 23rd.	69·0	7th	40·2
Punjab (Central)	Delhi	718	28·867	+·037	29·531	28·982	3rd	28·791	26th	·191	90·3	103·3	—1·5	84·9	+1·5	94·1	0	18·4	111·0	27th	78·1	7th	32·9
	Lahore	702	28·836	+·016	29·487	28·947	19th	28·716	5th	·231	90·9	106·9	+1·1	81·6	+2·0	94·2	+1·6	25·3	115·8	5th	72·9	3 days	42·9

* Mean of 29 days.
† „ of 28 „
‡ Mean of 27 days.
§ „ „ 23 „
‖ „ „ 29 „

I—*continued.*

in India, Burma, etc., in June 1892—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 to 30th June 1892.	Normal rainfall for period 1st to 30th June.	Variation from normal of period.		
1	1	1	6	7	7	3	2	2	9	?	?	78	?	2·1	10	11·89	−1·89	6·73	8·86	− 2·13	6·73	8·86	− 2·13	Naya Dumka.	Central Bengal —*concld.*
2	...	1	6	3	9	6	2	1	5	5	0	90	·973	8·0	13	10·64	+2·36	10·38	8·39	+ 1·99	10·38	8·39	+ 1·99	Berhampore.	
5	...	2	3	9	2	9	...	...	6	?	?	84	?	3·6	8	12·10	−4·10	6·26	9·65	− 3·39	6·26	9·65	− 3·39	Rampur Boalia.	
1	...	3	...	18	4	4	...	...	4	?	?	85	?	6·1	11	11·80	−0·80	7·66	11·14	− 3·48	7·66	11·14	− 3·48	Malda.	
4	...	...	10	15	1	...	...	...	4	?	?	88	·961	6·6	15	14·53	+0·47	9·49	13·82	− 4·33	9·49	13·82	− 4·33	Bogra.	
...	1	8	10	6	5	...	...	...	4	?	?	90	·945	9·2	17	14·00	+3·00	13·66	16·42	− 2·76	13·66	16·42	− 2·76	Dinajpur .	North Bengal.
2	...	1	18	2	6	...	1	...	2	?	?	90	?	3·3	18	15·35	+2·65	14·23	19·51	− 5·28	14·23	19·51	− 5·28	Rangpur.	
1	1	4	10	11	1	2	...	...	4	?	?	93	·944	3·6	20	19·40	+0·60	16·72	28·49	−11·77	16·72	28·49	−11·77	Jalpaiguri.	
...	1	1	2	1	15	8	...	2	9	?	?	83	·953	3·9	9	10·35	−1·35	9·36	8·80	+ 0·56	9·36	8·80	+ 0·56	Balasore .	Orissa.
...	...	...	1	3	6	14	3	3	16	12	+ 33	82	·973	7·4*	9	8·60	+0·40	15·69	6·54	+ 9·15	15·69	6·54	+ 9·15	False Point.	
3	1	1	4	1	4	14	2	...	4	4	0	75	·878	7·1	11	11·00	0	11·12	9·40	+ 1·72	11·12	9·40	+ 1·72	Cuttack.	
5	1	...	1	1	2	17	2	...	15	?	?	83	?	6·4	8	8·25	−0·25	5·28	7·98	− 2·70	5·28	7·98	− 2·70	Puri.*	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·62	6·51	+0·10	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
1	1	1	2	3	6	5	8	3	12	9	+ 33	72	·744	7·3	13	10·09	+2·91	9·48	7·37	+ 2·11	9·48	7·37	+ 2·11	Hazaribagh.	Chota Nagpur.
2	1	2	...	2	3	13	4	3	9	?	?	77	?	6·0	11	12·40	−1·40	13·43	8·65	+ 4·78	13·43	8·65	+ 4·78	Ranchi.	
3	1	1	3	3	4	12	2	1	3	?	?	75	·846	6·4	11	11·55	−0·55	6·48	8·30	− 1·82	6·48	8·30	− 1·82	Chaibassa.	
...	1	2	7	3	3	4	10	...	7	3	+133	81	·978	6·2	10	6·82	+3·18	5·33	6·51	− 1·18	5·33	6·51	− 1·18	Gaya . .	Bihar (South).
1	...	1	10	...	3	7	6	2	5	?	?	65	?	4·3	6	6·71	−0·71	6·98	4·65	+ 2·33	6·98	4·65	+ 2·33	Dehri.	
1	...	1	20	3	2	...	3	...	7	4	+ 75	75	·897	5·6	7	7·09	−0·09	5·29	6·80	− 1·51	5·29	6·80	− 1·51	Patna.	
...	1	6	7	7	2	1	5	1	5	?	?	73	?	3·0	9	7·35	+1·65	5·04	5·95	− 0·91	5·04	5·95	− 0·91	Arrah.	
...	1	3	10	3	...	...	10	3	8	?	?	70	?	4·8	9	7·55	+1·45	5·32	4·96	+ 0·36	5·32	4·96	+ 0·36	Buxar.	
10	...	4	15	1	...	...	...	..	2	3	− 33	88	·948	7·3	10	11·00	−1·00	8·36	11·85	− 3·49	8·36	11·85	− 3·49	Purnea .	Bihar (North).
13	...	3	7	4	2	1	...	...	3	?	?	78	?	6·6	10	9·30	+0·70	5·20	7·71	− 2·51	5·20	7·71	− 2·51	Bhagalpur.	
1	...	7	12	7	...	1	1	1	7	6	+ 17	92	·916	5·0	10	9·45	+0·55	7·80	9·42	− 1·62	7·80	9·42	− 1·62	Darbhanga.	
...	...	6	15	8	...	...	1	...	7	?	?	84	?	4·8	8	8·15	−0·15	9·41	7·53	+ 1·88	9·41	7·53	+ 1·88	Muzaffarpur	
1	2	10	13	4	...	...	...	...	8	?	?	80	?	5·3	9	8·94	+0·06	15·89	7·89	+ 8·00	15·89	7·89	+ 8·00	Motihari.	
	...	3	10	5	...	3	1	1	5	?	?	75	?	4·1	11	6·90	+4·10	7·34	6·02	+ 1·32	7·34	6·02	+ 1·32	Chapra.	
3	1	3	7	1	1	3	10	1	6	5	+ 20	68	·850	5·0	5	4·64	+0·36	2·41	4·53	− 2·12	2·41	4·53	− 2·12	Benares .	N.-W. P. (Eastern Districts).
...	1	5	7	2	...	4	7	4	8	4	+100	61	·783	5·2	4	4·73	−0·73	4·11	4·08	+ 0·03	4·11	4·08	+ 00·3	Allahabad.	
...	...	1	7	7	7	...	6	2	3	4	− 25	74	·857	4·0	8	7·00	+1·00	3·87	8·22	− 4·35	3·87	8·22	− 4·35	Gorakhpur .	N.-W. P. (East Submontane).
6	1	3	8	1	1	1	7	2	5	4	+ 25	66	·801	3·9	6	5·64	+0·36	2·10	4·62	− 2·52	2·10	4·62	− 2·52	Lucknow.	Oudh (South).
...	1	3	7	4	1	2	3	2	5	?	?	80	·904	5·0	7	?	?	9·32	5·64	+ 3·68	9·32	5·64	+ 3·68	Bahraich .	Oudh (North).
...	2	3	7	4	2	1	9	2	6	?	?	64	·834	5·8	5	4·3	+0·7	3·22	3·09	+ 0·13	3·22	3·09	+ 0·13	Cawnpore .	N.-W. Provinces (Central).
1	3	4	3	4	2	1	4	8	3	?	?	61	·803	6·2	4	?	?	2·60	3·60	− 0·40	2·60	3·00	− 0·40	Mainpuri.	
...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·27	3·86	−1·59	...	...	...	**VI.—Upper Sub-Himalayas**	
14	...	1	3	6	1	...	...	5	2	5	− 60	66	·795	3·2	4	4·91	−0·91	5·30	5·28	+ 0·02	5·30	5·28	+ 0·02	Bareilly .	N.-W. Provinces (Submontane).
25	...	...	1	1	2	...	1	...	2†	2	0	61	·628	2·8	6	8·91	−2·91	3·60	9·10	− 5·50	3·60	9·10	− 5·50	Dehra Dun.	
13	...	...	3	8	3	...	1	2	4	4	0	58	·691	4·3	5	5·64	−0·64	3·00	4·48	− 1·48	3·00	4·48	− 1·48	Roorkee.	
5	...	...	8	6	...	2	9	...	3	3	0	54	·675	3·2	2	3·64	−1·64	2·83	2·59	+ 0·24	2·83	2·59	+ 0·24	Meerut.	
3	...	...	2	12	...	1	10	2	4	5	−20	49	·671	4·1	1	4·00	−3·00	0·82	3·83	− 3·01	0·82	3·83	− 3·01	Delhi . .	Punjab (Central).
3	3	1	2	7	2	2	5	5	4	3	+ 33	43	·608	3·2	3	2·73	+0·27	0·99	1·84	− 0·85	0·99	1·84	− 0·85	Lahore.	

* Mean of 29 days.

† Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 171 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 (Submontane).	Ludhiana	812	28·729	+·001	29·488	28·848	3rd	28·650	28th	·198	89·8	105·2	−1·1	82·0	+2·0	93·6	+0·5	24·4	113·5	23rd	70·5	7th	43·0
Punjab (North)	Sialkot	829	28·714	+·016	29·492	28·836	3rd	28·593	28th	·243	90·0	105·8	+0·1	80·8	+0·7	93·3	+0·4	25·0	115·9	28th	69·3	9th	46·6
	Rawalpindi	1,649	27·924	+·011	29·478	28·038	3rd	27·787	28th	·251	82·9	99·3	−3·9?	72·6?	−2·1?	86·0	−3·0?	26·7	111·0	28th	62·6	9th	48·4
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·021	...	...	...	...	...	...	...	105·0	+0·3	82·1	+0·4	94·0	+0·4	23·7	...	...	...	...	44·4
Punjab (West)	Peshawar	1,110	28·478	+·047	29·495	28·633	3rd	28·305	28th	·328	87·5	104·0	−1·4	75·5	−0·9	89·8	−1·2	28·5	115·0	28th	64·5	19th	50·5
	Khushab	612	28·899	?	29·461	29·034	19th	28·742	5th	·292	92·1	107·1	?	82·8	?	95·0	?	24·3	118·1	5th	70·0	17th	48·1
	Montgomery	558	28·960	?	29·470	29·090	19th	28·824	5th	·266	91·9	108·7	?	82·5	?	95·7	?	26·2	120·4	5th	69·2	8th&16th	51·2
	D. I. Khan	573	28·937	−·001	29·467	29·090	19th	28·774	28th	·216	88·8	107·6	0	80·6	+0·2	94·1	+0·1	27·0	118·5	5th	68·8	16th & 17th	49·7
	Mooltan	420	29·101	+·016	29·480	29·263	20th	28·979	1st	·284	90·7	108·4	+2·3	83·8	+2·0	96·1	+2·2	24·6	120·3	5th	69·2	17th	51·1
	Sirsa	662	28·889	+·012	29·498	28·990	3rd	28·807	13th	·183	90·2	106·9	+0·2	84·4	+1·6	95·7	+0·9	22·5	116·4	3 days.	68·8	8th	47·6
Sind and Cutch	Jacobabad	186	29·351	+·038	29·493	29·467	3rd	29·253	29th	·214	92·2	111·8	+0·2	83·3	0	97·6	+0·1	28·5	120·0	5th	73·7	16th	46·3
	Hyderabad	117	29·443	+·024	29·511	29·598	3rd	29·347	8th	·251	86·7	103·7	+0·5	80·8	−0·8	92·3	−0·2	22·9	110·2	2nd	68·1	17th	42·1
	Kurrachee	49	29·559	+·012	29·558	29·689	3rd	29·406	1st	·283	87·0	93·9	+0·6	83·0	+1·0	88·5	+0·8	10·9	98·5	3rd	80·7	10th	17·8
	Bhuj	395	29·251	?	29·593	29·381	4th	29·097	1st	·284	?	96·9	?	?	?	?	?	?	103·7	2nd	?	...	?
Rajputana (West)	Bickaneer	753	28·816	?	29·511	28·927	20th	28·714	1st	·213	90·7	105·9	?	85·1	?	95·5	?	20·8	116·8	6th	72·7	16th	44·1
	Pachpadra	380	29·228	?	29·554	29·348	3rd	29·103	1st	·245	85·7	105·5	?	81·0	?	93·3	?	24·5	113·0	2nd	73·6	17th	39·4
VIII.—East Rajputana, Central India and Guzerat.		...	...	+·017	...	...	...	...	...	...	...	99·6	+0·1	80·8	+0·4	90·2	+0·3	18·8	...	...	...	...	34·6
Rajputana (East)	Jeypore	1,431	28·195	+·014	29·552	28·292	3rd	28·120	11th	·172	88·0	103·9	+0·7	80·8	+0·8	92·3	+0·8	23·1	113·3	2nd & 3rd	74·5	16th	38·8
	Sambhar	1,254	28·349	+·009	29·536	28·444	3rd	28·282	11th	·162	87·8	102·5	+0·5	83·0	+1·4	92·8	+1·0	19·5	112·5	2nd & 3rd	73·4	17th	39·1
	Ajmere	1,611	28·036	+·018	29·572	28·137	3rd	27·945	9th	·192	87·2	101·3	+0·8	83·0	+2·8	92·2	+1·8	17·7	111·5	2nd	72·6	16th	38·9
	Deesa	466	29·205	+·032	29·620	29·339	4th	29·098	7th	·241	86·7	104·7	+3·0	81·5	+1·0	93·1	+2·0	23·2	112·5	2nd	74·8	17th	37·7
Kathiawar	Rajkot	429	29·248	+·019	29·625	29·414	4th	29·117	1st	·297	84·3	101·1	+0·8	77·6	+0·3	89·4	+0·6	23·5	107·4	1st	73·7	19th	33·7
	Veraval	?	29·676	?	29·636	29·793	20th	29·511	1st	·282	84·7	87·8*	?	82·1*	?	84·9*	?	5·7	90·1	9th&22nd	78·3	15th	11·8
	Bhavnagar	?	29·675	?	29·660	?29·778	3rd	29·499	1st	·279	88·9	99·8	?	81·4	?	90·6	?	18·4	105·4	11th	78·5	18th	26·9
Central India	Nowgong	757	28·841	+·016	29·539	28·948	3rd	28·715	12th	·233	86·5	99·3	−4·1?	81·3	−1·7	90·3	−2·9	18·0	111·6	2nd	69·0	12th	42·6
	Indore	1,823	27·863	+·016	29·611	27·974	3rd	27·718	9th	·256	80·5	95·8	+1·2	74·2	−0·6	85·0	+0·3	21·6	105·6	1st	68·1	6th & 7th	37·5
	Neemuch	1,630	28·043	+·031	29·604	28·147	3rd	27·943	9th	·204	83·0	99·3	+0·9	77·3	+0·2	88·3	+0·6	22·0	107·5	2nd	71·6	7th	35·9
Guzerat	Surat	36	29·670	+·002	29·648	29·777	3rd	29·514	1st	·263	82·8	92·3	−1·8	78·4	−1·0	85·4	−1·4	13·9	102·2	1st	73·0	5th	29·2
N.-W. P. (West)	Agra	555	29·036	+·019	29·538	29·140	3rd	28·953	26th	·187	90·3	104·9	−0·4	85·7	+0·9	95·3	+0·3	19·2	113·5	1st & 23rd	77·9	16th	35·6
	Jhansi	840	28·745	+·011	29·519	28·850	3rd	28·657	9th	·193	89·7	102·7	−0·7	83·9	+0·1	93·3	−0·3	18·8	114·5	2nd & 4th	72·4	13th	42·1
IX.—Deccan	...	...	...	+·012	...	...	...	...	...	...	...	93·8	+0·2	75·4	0	84·7	+0·1	18·4	...	...	...	...	31·5
	Belgaum	2,524	27·256	−·013	29·699	27·342	16th	27·132	9th	·210	72·3	79·6	−1·4	67·7	−0·1	73·7	−0·8	11·9	84·3	26th & 27th	64·8	11th	19·5
Bombay (Deccan)	Sholapur	1,590	28·164	+·006	29·687	28·265	16th	28·051	8th	·214	77·9	92·8	−1·9	72·6	+0·1	82·7	−0·9	20·2	99·2	5th	69·0	12th	30·2
	Poona	1,840	27·911	+·006	29·681	28·012	21st	27·772	1st	·240	77·8	89·8	+1·1	71·7	−0·9	80·8	+0·1	18·1	97·5	4th	68·9	4th	28·6
	Bijapur	?	27·818	?	?	27·912	16th	27·704	9th	·208	77·1	82·8	?	75·8	?	79·3	?	7·0	86·3	3 days	73·0	1st	13·3
Khandeish	Malegaon	1,430	28·303	+·029	29·671	28·411	3rd	28·191	1st	·220	80·9	94·6	−0·3	74·8	+0·2	84·8	−0·1	19·8	102·3	1st	70·7	5th	31·6
	Ahmednagar	2,152	27·604	?	29·680	27·705	16th	27·480	9th	·225	76·2	88·3	?	71·3	?	79·8	?	17·0	95·3	4th	67·4	18th	27·9
Berar	Akola	930	28·758	+·017	29·625	28·856	16th	28·625	9th	·231	83·1	98·5	+0·5	77·8	+0·6	88·2	+0·6	20·7	107·2	4th	71·7	4th &8th	35·5
	Amraoti	1,215	28·462	+·018	29·614	28·558	16th	28·322	9th	·236	81·7	99·6†	+1·1†	77·4	+1·4	88·8†	+1·3	22·2	106·8	1st	73.3	3 days.	33·5

* Mean of 23 days.

† Mean of 24 days.

I—*continued.*

in India, Burma, etc., in June 1892—continued.

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 to 30th June 1892.	Normal rainfall for period 1st to 30th June.	Variation from normal of period.		
15	...	1	...	5	4	1	3	1	2	2	0	48	·650	1·7	1	3·64	−2·64	0·61	2·47	−1·86	0·61	2·47	− 1·86	Ludhiana .	Punjab, Submontane.
7	2	2	8	2	1	...	6	2	3	2	+50	39	·537	0·8	1	3·73	−2·73	0·44	3·51	−3·07	0·44	3·51	− 3·07	Sialkot .	Punjab, North.
9	4	7	2	2	...	...	...	6	3	3	0	51	·562	2·9	5	3·55	+1·45	2·87	1·66	+1·21	2·87	1·66	+ 1·21	Rawalpindi.	
...	...	...	...	...	..	...	...	...	...	..	...	...	...	...	...	...	...	1·02	0·87	+0·15	...	...	...	VII.—Indus Valley and N.-W. Rajputana.	
5	4	5	3	6	...	2	2	3	5	5	0	47	·600	2·5	2	0·73	+1·27	0·42	0·47	−0·05	0·42	0·47	− 0·05	Peshawar .	Punjab, West.
4	2	4	10	1	2	4	3	...	6	?	?	32	·457	1·8	2	1·2	+ 0·8	2·63	0·70	+1·93	2·63	0·70	+ 1·93	Khushab .	
...	2	2	1	5	7	7	5	1	10	?	?	42	·625	1·5	4	2·0	+ 2·0	1·04	1·29	−0·25	1·04	1·29	− 0·25	Montgomery.	
13	...	10	2	1	...	3	...	1	1	2	−50	49	·654	1·8	2	0·91	+1·09	0·64	0·52	+0·12	0·64	0·52	+ 0·12	D. I. Khan.	
3	1	2	...	3	1	12	1	7	4	4	0	46	·637	0·2	3	1·45	+1·55	1·20	0·68	+0·52	1·20	0·68	+ 0·52	Mooltan.	
2	5	...	2	5	2	4	8	2	8	5	+60	49	·676	7·3	2	3·18	−1·18	1·12	1·90	−0·78	1·12	1·90	− 0·78	Sirsa.	
...	1	2	1	13	4	4	1	4	7	5	+40	47	·703	2·6	2	0·09	+1·91	0·27	0	+0·27	0·27	0	+ 0·27	Jacobabad .	Sind and Cutch.
...	...	...	...	1	3	26	...	...	14	15	− 7	63	·793	6·1	1	0·45	+0·55	0·78	0·14	+0·64	0·78	0·14	+ 0·64	Hyderabad.	
1	...	...	...	...	...	12	17	...	11	19	−42	74	·949	4·6	0	0·18	−0·18	0	0·12	−0·12	0	0·12	− 0·12	Kurrachee.	
...	...	...	...	1	1	10	18	...	19	16	+19	?	?	3·9	0	?	?	0·06	2·17	−2·11	0·06	2·17	− 2·11	Bhuj.	
...	1	...	...	1	7	18	2	1	9	?	?	49	·683	2·4	3	?	?	3·01	1·78	+1·23	3·01	1·78	+ 1·23	Bickaneer .	Rajputana (West).
12	..	...	...	1	2	14	...	1	13	12	+ 8	67	·822	4·4	4	?	?	1·03	0·69	+0·34	1·03	0·69	+ 0·34	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·71	4·00	−0·08	...	...	...	VIII.—East Rajputana, Central India and Guzerat.	
1	1	2	1	1	2	2	13	7	5	8	−38	50	·651	4·1	4	3·70	+0·30	3·79	2·31	+1·48	3·79	2·31	+ 1·48	Jeypore .	Rajputana (East).
...	2	...	...	2	2	2	16	6	12	11	+ 9	51	·666	4·9	5	3·10	+1·90	1·69	1·31	+0·38	1·69	1·31	+ 0·38	Sambhar.	
...	...	...	...	...	...	1	25	4	11	9	+22	55	·700	2·8	4	3·73	+0·27	0·68	2·43	−1·75	0·68	2·43	− 1·75	Ajmere.	
...	...	...	1	1	6	11	10	1	?	17	?	62	·781	6·1	1	2·18	−1·18	0·29	1·73	−1·44	0·29	1·73	− 1·44	Deesa.	
...	...	...	...	2	...	10	15	3	12	14	−14	78	·916	4·5	5	5·27	−0·27	2·73	4·83	−2·10	2·73	4·83	− 2·10	Rajkot .	Kathiawar.
...	...	...	...	1	4	5	19	1	10	?	?	80	·961	5·7	2	?	?	1·78	?	?	1·78	?	?	Veraval.	
...	...	2	...	...	2	26	...	...	14	?	?	70	·949	3·9	5	?	?	3·38	?	?	3·38	?	?	Bhavnagar.	
4	...	1	1	...	...	2	21	1	5	4	+25	61	·767	4·9	5	5·91	−0·91	9·49	5·05	+4·44	9·49	5·05	+ 4·44	Nowgong. .	Central India.
2	1	...	...	...	1	4	16	6	3	7	−57	73	·765	6·6	6	8·27	−2·27	5·07	6·96	−1·89	5·07	6·96	− 1·89	Indore.	
...	...	2	...	...	...	12	15	1	14	14	0	70	·796	1·7	7	5·09	+1·91	1·69	4·09	−2·40	1·69	4·09	− 2·40	Neemuch.	
...	...	1	...	2	6	14	3	4	?	16	?	83	·942	5·7	11	8·18	+2·92	12·95	8·31	+4·64	12·95	8·31	+ 4·64	Surat . .	Guzerat.
1	...	1	...	12	...	10	...	6	7	6	+17	50	·689	2·3	2	3·64	−1·64	0·56	2·84	−2·28	0·56	2·84	− 2·28	Agra . .	N.-W. P. (West).
2	4	1	...	1	3	10	4	5	4	6	−33	51	·694	2·4	4	6·09	−2·09	4·17	4·12	+0·05	4·17	4·12	+ 0·05	Jhansi.	
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·16	6·62	+0·52	...	...	...	IX.—Deccan.	
5	...	...	...	1	5	10	8	1	?	24	?	89	·720	7·9	10	12·27	−2·27	6·67	7·47	−0·80	6·67	7·47	− 0·80	Belgaum .	Bombay (Deccan).
...	1	...	...	...	2	8	11	8	12	12	0	77	·735	7·4	8	7·82	+0·18	7·50	5·25	+2·25	7·50	5·25	+ 2·25	Sholapur.	
1	...	...	...	1	...	8	15	5	10	16	−31	75	·718	7·2	13	7·18	+5·82	5·89	4·35	+1·54	5·89	4·35	+ 1·54	Poona.	
..	1	...	...	...	...	13	14	2	10	?	?	79	·735	8·4	12	6·3	+5·7	6·60	2·79	+3·81	6·60	2·79	+ 3·81	Bijapur .	
1	3	...	1	1	1	6	12	5	9	12	−25	72	·753	5·2	8	7·82	+0·18	6·00	4·99	+1·01	6·00	4·99	+ 1·01	Malegaon .	Khandeish.
4	3	1	...	1	2	4	6	9	5	?	?	83	·753	6·2	17	?	?	15·92	4·95	+10·97	15·92	4·95	+10·97	Ahmednagar.	
...	1	...	..	...	2	...	4	23	10	9	+11	70	·779	6·9	10	8·55	+1·45	6·63	5·86	+0·77	6·63	5·86	+ 0·77	Akola . .	Berar.
...	...	...	...	...	2	5	17	6	8	7	+14	72	·767	5·3	8	10·36	−2·36	5·75	7·67	−1·92	5·75	7·67	− 1·92	Amraoti .	

Table

Abstract of Observations taken at 8 A.M. at 171 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.
Central Provinces (West).	Khandwa	1,044	28·640	+·021	29·631	28·754	3rd	28·565	9th	·249	81·5	97·8	−0·1	77·3	−0·8	87·5	−0·5	20·5	107·2	1st	69·6	9th	37·6
	Hoshangabad	1,020	28·644	+·012	29·609	28·744	3rd	28·515	10th	·229	83·8	99·4	+0·8	78·8	−0·1	89·2	+0·4	20·6	109·5	2nd	70·7	13th	38·8
	Nagpur	1,025	28·628	+·014	29·592	28·718	3rd	28·472	11th	·246	85·2	100·1	+2·1	78·4	+0·6	89·3	+1·4	21·7	105·8	1st & 5th.	73·1	22nd	32·7
Central Provinces (Central).	Seoni	2,030	27·642?	+·015?	?29·603	27·744	3rd	27·477	11th	·267	83·0	95·9	+1·9	74·7	−0·6	85·3	+0·7	21·2	103·7	1st	69·1	3rd	34·6
	Jubbulpore	1,327	28·306	+·021	29·566	28·424	3rd	28·159	9th	·265	84·1	97·2	−0·1	78·0	−0·2	87·7	−0·2	19·2	108·0	1st	71·1	15th	36·9
	Saugor	1,762	27·881	+·009	29·555	27·995	3rd	27·770	9th & 10th.	·225	85·1	100·1	+1·0	78·6	+1·7	89·4	+1·4	21·5	108·4	2nd	72·6	15th	35·8
Central Provinces (East).	Raipur	960	28·675	+·029	29·582	28·774	3rd	28·496	10th	·278	83·4	97·4	+0·2	77·6	−0·4	87·5	−0·1	19·8	107·8	1st	71·1	12th	36·7
	Sutna	1,040	28·542	+·006	29·526	28·667	3rd	28·335	12th	·332	86·4	97·2	−2·2	79·3	−2·0	88·3	−2·1	17·9	109·2	1st & 2nd	70·1	12th	39·1
	Sambalpur	463	29·153	?	29·557	29·274	3rd	28·887	10th	·387	85·4	97·0	?	79·7	?	88·4	?	17·3	110·0	1st	74·2	4 days	35·8
Hyderabad (North).	Aurangabad	?	27·886	?	?	28·000	3rd	27·755	8th	·245	79·1	92·0	?	72·8	?	82·4	?	19·2	102·9	3rd	70·0	5th	32·9
	Indur	?	?	?	?	?	...	?	...	?	80·6	93·8	?	76·1	?	85·0	?	17·7	99·7	3rd	72·7	18th	27·0
	Beeder	?	27·576	?	?	27·676	16th	27·459	9th	·217	76·3	88·7	?	72·0*	?	80·4*	?	16·7	94·7	5th	67·4	8th	27·3
Hyderabad (South).	Gulburga	?	28·237	?	?	28·329	16th	28·120	10th	·209	77·2	92·1	?	72·7	?	82·3	?	19·4	105·3	4th	70·3	4th	35·0
	Raichur	?	28·380	?	?	28·477	16th	28·273	10th	·204	78·0	91·4	?	73·7	?	82·6	?	17·7	98·3	3rd	68·9	9th	29·4
	Secunderabad	1,787	27·956	−·010	29·671	28·049	16th	27·831	10th	·218	78·6	93·2	−0·4	73·8	−0·2	83·5	−0·3	19·4	99·7	3rd	67·9	9th	31·8
	Hyderabad (Deccan).	1,690	28·050	?	29·673	28·141	16th	27·930	9th	211	78·0	91·0	?	75·0	?	83·0	?	16·0	99·4	3rd	74·7	9th	24·7
	Kamamet	?	29·336	?	?	29·438	16th	29·210	11th	·228	83·2	94·9	?	78·2	?	86·6	?	16·7	102·7	3rd	72·0	9th	30·7
X.—West Coast		...	...	−·036	...	...	...	...	...	...	...	85·2	−0·3	76·5	+0·3	80·9	0	8·7	...	...	...	...	15·6
Konkan	Bombay	37	29·707	−·007	29·684	29·811	16th	29·527	1st	·284	81·3	85·9	−1·7	79·3	−0·1	82·6	−0·9	6·6	93·9	1st	77·0	18th & 25th.	16·9
	Ratnagiri	110?	?29·640	−·020	29·688	29·728	16th	29·488	1st	·240	80·5	85·3	−1·1	76·6	−0·1	81·0	−0·6	8·7	89·4	12th	72·9	8th	16·5
	Mormugoa	60	29·722	?	29·717	29·814	16th	29·616	9th	·198	81·4	86·5	?	77·2	?	81·9	?	9·3	90·0	15th	72·4	9th	17·6
	Karwar	44	29·741	−·039	29·717	29·835	16th	29·628	1st	·207	79·6	84·5	−0·6	75·4	−0·1	80·0	−0·4	9·8	87·3	27th & 28th.	73·2	4th	14·1
Malabar	Mangalore	26	29·791	−·042	29·749	29·888	16rd	29·715	1st	·173	78·6	85·0	+0·6	75·2	+0·3	80·1	+0·5	9·8	88·3	26th & 27th.	71·9	5th	16·4
	Calicut	27	29·798	−·058	29·755	29·892	16th	29·728	26th	·164	79·0	85·5	?	75·7	?	80·6	?	9·1	89·8	26th	73·0	21st	16·8
	Cochin	10	29·837	−·047	29·775	29·913	16th	29·758	26th	·155	79·4	85·7	+1·1	75·8	+1·4	80·8	+1·3	9·9	88·7	16th	73·7	27th	15·0
	Trivandrum	198	29·637	?	29·771	29·723	16th & 17th.	29·554	26th	·169	79·8	83·0	?	76·5	?	79·8	?	6·5	85·5	30th	74·0	1st	11·5
XI.—South India		...	...	−·013	...	...	...	...	...	...	...	92·8	−0·2	76·6	+0·4	84·7	+0·1	16·2	...	...	...	...	26·5
Madras, (South)	Pamban	37	29·755	?	29·719	29·839	17th	29·696	28th	·143	83·8	89·0	?	80·1	?	84·5	?	8·9	92·3	30th	76·7	5th	15·6
	Tinnevelly	168	29·628	?	29·724	29·713	16th	29·564	27th	·149	84·6	98·3	?	80·6	?	89·5	?	17·7	102·4	15th & 16th.	76·9	27th	25·5
	Madura	447	29·336	−·031	29·713	29·430	16th	29·280	7th	·150	85·2	96·8	−2·2	78·0	+1·4	87·4	−0·4	18·8	103·0	15th	74·0	15th	29·0
Madras, (South Central).	Salem	940	28·870	−·036	29·743	29·003	16th	28·801	10th	·202	80·6	96·9	+2·7	75·5	+2·2	86·2	+2·5	21·4	101·4	15th	72·0	19th & 29th.	29·4
	Coimbatore	1,348	28·452	−·030	29·740	28·536	16th	28·394	9th	·142	77·1	90·1	+0·1	71·5	−0·2	80·8	−0·1	18·6	93·8	8th	68·6	1st & 30th	25·2
Coorg	Mercara	3,781	26·138	?	29·757	26·209	17th	26·076	11th	·133	67·5	73·6	+1·6	64·4	+1·0	69·0	+1·3	9·2	79·8	26th	62·2	1st & 23rd	17·6
Mysore	Bangalore	2,982	26·885	−·016	29·753	26·967	16th	26·806	9th	·161	73·0	86·2	+1·5	67·7	+1·3	77·0	+1·4	18·5	90·2	14th & 16th.	65·0	6th	25·2
	Bangalore Fort	3·019	26·837	?	29·742	26·921	16th	26·766	9th	·155	72·6	83·7	?	67·5	?	75·6	?	16·2	89·5	16th	64·1	6th	25·4
Madras (East Coast, South).	Negapatam	31	29·748	−·016	29·707	29·839	16th	29·690	9th	·149	85·0	95·1†	−1·6	78·4	−0·5	86·8†	−1·1	16·7	100·2	13th	73·7	5th	26·5
	Cuddalore	12	29·759	?	29·700	29·855	16th	29·652	7th	·203	84·9	95·8	?	79·1	?	87·4	?	16·7	102·8	13th	75·2	16th & 19th.	27·6
	Trichinopoly	255	29·527	−·030	29·713	29·616	16th	29·468	7th	·148	84·1	100·7	+2·4	78·8	+0·9	89·8	+1·7	21·9	105·7	29th	73·9	28th	31·8
	Madras	22	29·737	−·008	29·689	29·823	16th	29·652	7th	·171	85·0	96·5	−1·6	79·4	−0·9	88·0	−1·3	17·1	104·0	13th	73·0	18th & 22nd.	31·0
Madras (East Coast, Central).	Nellore	71	?29·649	?	29·647	29·733	16th & 17th.	29·543	9th	·190	86·8	100·2	?	80·2	?	90·2	?	20·0	107·3	3rd	74·1	23rd	33·2
	Masulipatam	15	29·704	+·012	29·653	29·836	16th	29·580	7th	·256	84·1	95·0	−2·8	78·9	−1·3	87·0	−2·1	16·1	105·3	15th	72·1	19th	33·2

* Mean of 28 days. † Mean of 29 days.

I—*continued.*

in India, Burma, etc., in June 1892—continued.

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 to 30th June 1892.	Normal rainfall for period 1st to 30th June.	Variation from normal of period.		
1	1	...	...	...	3	...	18	7	8	10	− 20	70	·743	5·1	5	7·91	−2·91	4·58	6·30	−1·72	4·58	6·30	−1·72	Khandwa	Central Provinces (West).
...	...	...	...	...	4	9	15	2	6	5	+ 20	74	·850	5·3	8	10·09	−2·09	5·62	8·43	−2·81	5·62	8·43	−2·81	Hoshangabad	
1	3	1	...	2	1	4	11	7	9	8	+ 13	66	·779	6·8	7	12·73	−5·73	6·17	9·74	−3·57	6·17	9·74	−3·57	Nagpur.	
...	...	...	1	1	3	11	6	8	7	6	+ 17	66	·740	5·0	9	13·00	−4·00	7·56	11·50	−3·94	7·56	11·50	−3·94	Seoni	Central Provinces (Central).
2	1	...	...	2	7	7	9	2	4	5	− 20	65	·754	4·5	8	11·18	−3·18	4·47	9·98	−5·51	4·47	9·98	−5·51	Jubbulpore.	
...	1	1	1	...	...	12	13	2	6	5	+ 20	57	·665	2·4	3	9·73	−6·73	1·87	6·32	−4·45	1·87	6·32	−4·45	Saugor.	
...	...	1	...	...	1	18	10	...	11	9	+ 22	72	·815	6·4	11	11·55	−0·55	7·17	11·54	−4·37	7·17	11·54	−4·37	Raipur	Central Provinces (East).
...	4	2	1	2	1	2	17	1	5	10	− 50	60	·728	2·7	5	5·91	−0·91	8·78	5·73	+3·05	8·78	5·73	+3·05	Sutna.	
...	1	...	1	3	6	13	4	2	6	?	?	74	·892	6·5	10	?	?	13·62	10·78	+2·84	13·62	10·78	+2·84	Sambhulpur.	
4	1	1	...	...	3	6	7	8	6	?	?	76	·749	5·6	11	?	?	9·82	6·34	+3·48	9·82	6·34	+3·48	Aurangabad	Hyderabad (North).
...	2	...	...	...	1	5	12	10	12	?	?	79	·811	7·4	12	?	?	6·74	4·60	+2·14	6·74	4·60	+2·14	Indur.	
...	2	...	...	...	..	7	13	8	11	?	?	86	·779	3·9	9	?	?	6·27	6·30	−0·03	6·27	6·30	−0·03	Beeder.	
3	3	...	...	1	...	4	8	11	13	?	?	84	·781	8·7	12	?	?	8·27	4·82	+3·45	8·27	4·82	+3·45	Gulburga.	Hyderabad (South).
...	...	...	...	...	2	11	12	5	10	?	?	78	·747	9·9	14	?	?	8·29	3·90	+4·39	8·29	3·90	+4·39	Raichur.	
1	...	...	...	...	...	5	15	9	10	12	− 17	71	·700	8·2	10	7·73	+2·27	5·71	4·68	+1·03	5·71	4·68	+1·03	Secunderabad	
2	...	...	...	...	...	3	23	2	7	?	?	77	·743	6·9	9	?	?	6·34	4·60	+1·74	6·34	4·60	+1·74	Hyderabad (Deccan).	
4	...	...	...	...	7	7	10	2	8	?	?	75	·841	2·7	10	?	?	7·54	?	?	7·54	?	?	Kamamet.	
...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	18·88	31·54	−11·29	...	...	...	**X.—West Coast.**	
...	...	1	2	7	12	2	4	2	12	16	− 25	86	·928	8·1	16	14·82	+1·18	13·30	19·91	−6·61	13·30	19·91	−6·61	Bombay	Konkan.
2	2	2	3	10	6	3	2	...	7	12	− 42	89	·928	8·0	21	21·45	−0·45	37·05	30·96	+6·09	37·05	30·96	+6·09	Ratnagiri.	
2	1	...	1	6	7	8	3	2	7	?	?	87	·938	6·4	19	?	?	21·40	?	?	21·40	?	?	Mormugoa.	
8	6	...	...	...	...	7	9	...	3	?	?	88	·884	6·8	27	24·36	+2·64	24·99	38·59	−13·60	24·99	38·59	−13·60	Karwar.	
13	...	1	6	6	1	2	1	...	2	4	− 50	91	·884	8·6	22	25·60	−3·60	16·06	36·29	−20·23	16·06	36·29	−20·23	Mangalore	Malabar.
7	...	7	5	3	2	2	2	2	12	?	?	89	·874	7·0	20	25·00	−5·00	12·66	33·97	−21·31	12·66	33·97	- 21·31	Calicut.	
...	...	9	6	4	1	3	3	4	5	?	?	87	·878	6·4	18	24·82	− 6·82	17·40	29·50	−12·10	17·40	29·50	−12·10	Cochin.	
...	16	3	1	...	...	...	1	9	5	?	?	88	·873	7·9	10	?	?	8·18	?	?	8·18	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·38	4·07	−0·24	...	...	...	**XI.—South India.**	
...	...	2	2	2	6	14	3	1	7	?	?	79	·918	2·8	0	0·30	−0·30	0	0·04	−0·04	0	0·04	−0·04	Pamban.	Madras, (South).
...	1	1	...	...	1	9	7	11	7	?	?	62	·735	7·6	2	1·6	+0·4	0·34	0·76	−0·42	0·34	0·76	−0·42	Tinnevelly	
...	5	...	1	1	1	3	2	17	3	5	− 40	63	·776	4·4	4	2·00	+2·00	1·99	1·19	+0·80	1·99	1·19	+0·80	Madura.	
6	...	...	...	1	13	7	3	...	4	5	− 20	78	·826	6·1	7	6·00	+1·00	4·40	3·60	+0·80	4·40	3·60	+0·80	Salem	Madras, (South Central).
...	1	...	...	...	18	9	2	...	5	8	− 38	87	·816	5·3	5	4·55	+0·45	1·80	1·56	+0·24	1·80	1·56	+0·24	Coimbatore.	
...	...	...	...	...	...	1	27	2	3	9	− 67	91	·615	8·1	23	25·00	−2·00	9·59	28·67	−19·08	9·59	28·67	−19·08	Mercara	Coorg.
...	...	...	...	...	2	14	12	2	4	8	− 50	83	·685	7·2	6	5·91	+0·09	4·24	2·73	+1·51	4·24	2·73	+1·51	Bangalore	Mysore.
1	...	...	...	...	...	20	8	1	8	?	?	83	·662	6·5	7	?	?	5·77	?	?	5·77	?	?	BangaloreFort	
1	...	...	...	...	9	13	7	...	6	8	− 25	68	·820	6·0	4	3·09	+0·91	1·28	1·87	−0·59	1·28	1·87	−0·59	Negapatam.	Madras (East Coast, South).
...	2	...	...	...	6	9	8	5	4	?	?	89	1·070	4·2	5	3·3	+1·7	3·48	1·70	+1·78	3·48	1·70	+1·78	Cuddalore.	
2	...	...	...	...	...	5	17	6	6	10	− 40	64	·746	6·3	4	2·00	+2·00	2·93	1·51	+1·42	2·93	1·51	+1·42	Trichinopoly.	
1	...	...	...	1	8	11	9	...	8	9	− 11	70	·837	6·4	7	4·18	+2·82	4·02	2·45	+1·57	4·02	2·45	+1·57	Madras.	
3	1	...	...	3	4	1	7	11	8	?	?	68	·865	8·1	7	3·1	+3·9	2·94	1·26	+1·68	2·94	1·26	+1·68	Nellore	Madras (East Coast, Central).
2	...	...	...	...	7	5	7	9	7	9	− 22	87	1·014	7·2	10	7·00	+3·00	7·62	5·22	+2·40	7·62	5·22	+2·40	Masulipatam	

Table

Abstract of Observations taken at 8 A.M. at 171 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.
Madras, (Central)	Cuddapah	433	29·330	?	29·700	29·423	16th	29·230	10th	·193	84·0	97·1	?	78·6	87·9	?	?	18·5	105·7	3rd	72·2	23rd	33·5
	Kurnool	923	28·836	?	29·696	28·938	16th	28·717	10th	·221	80·5	94·4	?	75·2	84·8	?	?	19·2	101·0	3rd	71·4	23rd & 25th.	29·6
	Bellary	1,475	28·300	+·004	29·708	28·390	16th	28·202	10th	·188	79·8	93·8	−1·2	74·8	84·3	−0·7	−1·0	19·0	98·5	5 days	71·9	23rd & 27th.	26·6
Madras (East Coast, North).	Rajahmundry	112	29·590	?	29·637	29·674	3rd	29·434	9th	·240	84·1	94·3	?	79·3	?	86·8	?	15·0	105·6	1st	73·6	17th	32·0
	Cocanada	26	29·674	?	29·635	29·790	16th	29·495	9th	·295	83·9	93·9	?	78·9	?	86·4	?	15·0	102·3	3 days	72·6	16th & 17th.	29·7
	Vizagapatam	31	29·647	+·026	29·615	29·751	3rd	29·432	9th	·319	86·3	89·2	−0·9	83·1	+0·7	86·2	−0·1	6·1	91·4	5 days	79·9	3 days	11·5
	Gopalpur	21	29·629	?	29·588	29·770	3rd	29·349	9th	·421	83·2	88·5	?	79·1	?	83·8	?	9·4	92·7	7th	74·8	10th	17·9
XII.—Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beluchistan	Quetta	5,502	24·487	+·023	?	24·643	3rd	24·398	9th	·245	73·0	88·5	−1·9	56·0	−3·2	72·3	−2·6	32·5	96·6	28th	47·9	1st, 7th & 8th.	48·7
Northern India	Srinagar	5,204	24·762	?	?	24·936	3rd	24·668	28th	·268	65·8	79·6	?	54·5	?	67·1	?	25·1	91·3	28th	49·2	8th	42·1
	Murree	6,344	23·721	−·002	?	23·877	3rd	23·657	9th	·220	70·0	80·6	−1·7	62·4	−2·3	71·5	−2·0	18·2	93·2	28th	47·3	17th	45·9
	Simla	7,274	22·977	+·009	?	23·109	3rd	22·902	7th	·207	66·7	76·3	?	60·2	?	68·3	?	16·1	82·3	26th	50·7	7th	31·6
	Mussooree	?	23·452	?	?	23·577	3rd	23·374	7th	·203	67·1	80·2	+4·5	61·0	+0·4	70·6	+2·5	19·2	92·3	21st	51·0	6th	41·3
	Ranikhet	6,069	23·971	+·016	?	24·083	3rd	23·874	9th	·209	69·6	78·9	+0·7	63·6	+0·3	71·3	+0·5	15·3	86·6	24th	54·0	7th	32·6
	Gnatong	?	*19·280	?	?	19·327	3rd	19·234	10th	·093	48·0	†57·5	?	37·2	?	†47·6	?	20·3	66·4	14th	29·5	1st	36·9
	Darjeeling	7,421	22·878	−·007	?	23·037	3rd	22·786	9th	·251	59·6	65·0	+0·3	56·1	+0·9	66·6	+0·6	8·9	68·1	30th	51·6	1st	16·5
Central India	Mount Abu	3,945	>25·780	−·094?	?	25·891	4th	25·706	9th	·185	73·0	83·6	−0·1	68·1	+0·2	75·9	+0·1	15·5	94·2	2nd	61·4	17th	32·8
	Pachmarhi	3,511	26·284	+·015	?	26·389	3rd	26·156	9th	·233	76·8	87·7	+1·9	71·9	+0·4	79·8	+1·2	15·8	96·7	1st & 2nd.	63·7	13th	33·0
South India	Wellington	6,200	24·189	+·002	?	24·277	16th	24·119	7th	·158	65·7	72·1	+0·4	56·9	−1·5	64·5	−0·6	15·2	76·2	14th	54·6	4 days	21·6
	Kodaikanal	?	?	?	?	?	...	?	...	?	61·9	?	?	55·4	?	?	?	?	?	...	54·0	4th & 29th.	?
	Kotagiri	?	23·773	?	?	23·843	16th	23·697	10th	·147	63·4	70·5	?	56·8	?	63·6	?	13·7	75·1	8th	54·2	1st	20·9
XIII.—Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Bushire	14	29·561	?	29·530	29·690	2nd	29·408	9th	·282	89·7	94·7	?	82·2	?	88·4	?	12·5	107·5	26th	75·9	10th & 11th.	31·6
Arabia	Aden	94	29·597	?	29·621	29·702	22nd	29·497	11th	·205	87·4	95·0	?	84·0	?	89·5	?	11·0	98·9	8th	80·4	14th	18·5
	Perim	?	29·481	?	?	29·590	16th	29·391	11th	·199	87·6	94·6	?	*83·9	?	*89·2	?	10·7	101·3	26th	80·6	21st	20·7
Africa	Zanzibar	73	30·026	?	30·026	30·073	29th	29·955	6th	·118	76·1	82·2	?	74·7	?	78·5	?	7·5	84·3	4th	70·8	26th	13·5

* Mean of 29 days. † Mean of 27 days.

I—*concluded.*

in India, Burma, etc., in June 1892—concluded.

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 to 30th June 1892.	Normal rainfall for period 1st to 30th June	Variation from normal of period.	Station.	Meteorological Province or District.
...	1	...	...	...	...	7	14	8	?	?	?	67	·767	7·4	11	5·50	+5·50	9·42	3·62	+5·80	9·42	3·62	+5·80	Cuddapah .	Madras (Central).
24	...	...	...	...	...	...	3	3	?	?	?	77	·798	6·6	11	5·50	+5·50	7·01	3·85	+3·16	7·01	3·85	+3·16	Kurnool.	
14	...	...	...	...	...	2	9	5	8	11	− 27	72	·729	6·9	9	3·64	+5·36	5·40	1·59	+3·81	5·40	1·59	+3·81	Bellary.	
5	...	...	1	...	4	...	19	1	?	?	?	77	·911	7·3	10	6·6	+3·4	6·47	4·85	+1·62	6·47	4·85	+1·62	Rajahmundry	Madras (East Coast, North).
...	1	...	1	1	1	10	11	5	8	?	?	78	·908	6·4	7	6·0	+1·0	3·36	4·10	−0·74	3·36	4·10	−0·74	Cocanada.	
...	...	...	...	...	...	6	20	4	3	4	−25	71	·888	7·8	3	6·64	−3·64	3·13	3·78	−0·65	3·13	3·78	−0·65	Vizagapatam.	
1	3	...	1	1	7	16	...	1	17	12	+42	83	·934	3·4	9	7·44	+1·56	6·73	7·00	−0·27	6·73	7·00	−0·27	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**XII.—Hill Stations.**	
30	...	...	...	...	...	...	...	...	2	4	−50	42	·345	0·5	1	0·36	+0·64	0·74	0·10	+0·64	0·74	0·10	+0·64	Quetta. .	Beluchistan.
9	2	2	1	4	3	...	4	5	4	?	?	73	·472	4·3	6	?	?	2·05	?	?	2·05	?	?	Srinagar .	Northern India.
9	...	1	1	12	...	...	1	6	10	7	+43	44	·305	4·2	7	4·55	+2·45	3·17	2·51	+0·66	3·17	2·51	+0·66	Murree.	
3	12	3	...	1	4	5	...	2	?	?	?	53	·340	4·3	5	10·00	−5·00	2·62	7·10	−4·48	2·62	7·10	−4·48	Simla.	
1	1	1	7	5	...	...	8	7	?	10	?	63	·417	6·4	10	9·36	+0·64	5·57	7·88	−2·31	5·57	7·88	−2·31	Mussooree.	
13	1	2	1	...	...	4	8	1	5	3	−67	64	·447	4·1	6	9·12	−3·06	3·45	5·58	−2·13	3·45	5·58	−2·13	Ranikhet.	
?	?	?	?	?	?	?	?	?	?	?	?	88	·299	?	27	?	?	28·79	?	?	28·79	?	?	Gnatong .	
9	1	2	5	2	1	7	3	...	6	5	+20	95	·488	8·9	20	19·71	+0·29	25·60	24·54	+1·06	25·60	24·54	+1·06	Darjeeling.	
...	...	1	2	...	1	13	9	4	9	10	−10	73	·574	5·6	8	6·70	+1·30	4·14	4·80	−0·66	4·14	4·80	−0·66	Mount Abu .	Central India.
...	...	...	...	1	2	5	20	2	8	8	0	66	·602	5·0	9	11·64	−2·64	8·40	10·58	−2·18	8·40	10·58	−2·18	Pachmarhi.	
15	...	2	...	1	10	2	...	...	3	5	−40	70	·446	6·0	12	7·22	+4·78	3·44	3·28	+0·16	3·44	3·28	+0·16	Wellington .	South India.
7	...	2	...	1	...	6	7	7	8*	?	?	75	·414	5·5	10	9·00	+1·00	8·49	3·90	+4·59	8·49	3·90	+4·59	Kodaikanal.	
6	5	...	2	2	3	2	5	5	7	?	?	76	·447	5·7	12	7·80	+4·20	6·11	2·43	+3·68	6·11	2·43	+3·68	Kotagiri .	
...	...	...	...	...	...	...	...	..	..	..	...	...	...	...	..	...	...	...	...	..		...	...	**XIII.—Extra India.**	
...	3	1	1	5	2	3	4	11	6	11	−45	62	·873	0	0	?	?	0	0	0	0	0	0	Bushire .	Persia.
13	...	4	5	...	1	6	1	...	10	8	+25	77	1·001	1·6	0	?	?	0	0	0	0	0	0	Aden .	
2	1	...	5	1	...	...	11	10	17	?	?	72	·933	1·6	0	?	?	0	?	?	0	?	?	Perim.	Arabia.
...	...	...	...	...	13	9	...	...	13	?	?	83	·744	5·4	4	?	?	1·32	?	?	1·32	?	?	Zanzibar .	Africa.

‡ Mean of 18 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95

Meteorological Province.	Station.	Elevation of bar cistern above sea-level.	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	...	29·760	29·680	·080	29·716	—·009	29·707	86·6	77·9	8·7	90·5	74·6	15·9	83·7	84·1	81·2	+ 0·4	75·4	79·8	79·6	78·3
	Mergui	...	29·760	29·668	·092	29·710	—·028	29·739	86·9	67·4?	19·5?	91·9	64·9?	27·0?	82·6	83·0	76·2	— 1·6?	66·0?	77·9	78·4	74·1?
	Rangoon	...	29·764	29·684	·080	29·734	—·004	29·712	85·7	76·2	9·5	89·0	72·9	16·1	81·7	80·6	78·9	— 0·4	74·3	78·9	77·6	76·9
	Diamond Island	...	29·770	29·694	·076	29·728	+·004	29·704	85·0	77·7	7·3	87·3	73·6	13·7	83·1	82·5	80·2	+ 1·0	75·2	78·3	77·9	77·1
	Cocos Island	111	29·726	29·659	·067	29·689	?	29·732	88·4	71·4	17·0	92·6	67·7	24·9	85·0	84·6	78·5	?	?	80·5	79·7	?
	Akyab	...	29·738	29·647	·091	29·696	+·019	29·659	84·8	76·4	8·4	89·9	73·5	16·4	81·3	82·5	79·7	— 1·6	74·3	78·8	79·2	77·4
Assam.	Silchar	...	29·592	29·484	·108	29·548	+·009	29·602	89·2	76·4	12·8	96·0	72·8	23·2	83·8	85·5	81·5	— 0·1	75·0	79·2	79·7	78·0
	Sibsagar	...	29·326	29·199	·127	29·265	—·042?	29·550	89·8	77·2	12·6	94·6	73·5	21·1	84·3	88·0	82·4	+ 0·9	75·8	79·7	81·0	78·8
	Dhubri	...	29·550	29·442	·108	29·505	+·005	29·574	83·9	75·8	8·1	89·2	72·3	16·9	79·7	82·4	78·7	— 0·6	74·3	77·2	78·7	76·8
Bengal and Orissa.	Chittagong	...	29·630	29·544	·086	29·591	+·024	29·626	86·9	76·5	10·4	91·9	72·0	19·9	84·0	83·6	80·6	+ 0·1	74·6	79·1	79·2	77·6
	Dacca	...	29·642	29·540	·102	29·598	+·018	29·568	89·1	78·7	10·4	93·8	74·2	19·6	84·7	85·4	83·3	+ 0·2	76·2	80·6	80·5	79·1
	Calcutta (Alipore)	...	29·608	29·516	·092	29·568	+·022	29·535	90·4	78·3	12·1	95·1	72·9	22·2	85·8	86·9	84·1	— 0·6	76·3	79·9	80·0	78·7
	Calcutta (Chowringhee).	...	29·617	Not recorded.					92·0	78·4	13·6	97·0	71·6	25·4	87·1	?	85·1	?	76·8	81·5	?	?
	Saugor Island	...	29·607	29·518	·089	29·569	+·021	29·538	89·8	81·8	8·0	93·6	76·0	17·6	87·2	87·4	84·7	— 0·1	78·3	82·0	82·1	80·8
	Burdwan	...	29·531	29·426	·105	29·486	+·024	29·531	93·0	79·2	13·8	99·5	73·9	25·6	85·7	89·3	84·5	— 0·8	76·5	79·0	80·0	78·5
	Berhampore	...	29·554	29·449	·105	29·509	+·023	29·523	92·6	78·7	13·9	99·7	72·3	27·4	86·0	89·4	84·1	— 0·7	76·3	81·0	81·6	79·7
	False Point	...	29·627	29·533	094	29·585	+·010	29·547	89·6	78·8	10·8	96·3	65·0	31·3	86·7	86·7	83·0	— 1·0	76·8	81·1	81·3	79·8
	Cuttack	...	29·559	29·455	·104	29·516	+·015	29·538	94·0	79·0	15·0	99·9	73·8	26·1	88·7	91·1	85·0	— 0·8	76·2	79·4	80·2	78·6
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·628	27·552	·076	27·599	+·022	29·517	90·3	74·9	15·4	100·2	69·7	30·5	84·4	85·8	81·1	— 1·1	70·6	74·2	73·7	72·9
	Patna	...	29·408	29·296	·112	29·358	+·009	29·491	94·3	79·6	14·7	103·7	74·2	29·5	90·6	92·5	85·5	— 1·7	75·8	79·6	80·4	78·5
	Darbhanga	...	29·459	29·348	·111	29·410	+·027	29·531	91·5	78·4	13·1	98·2	72·5	25·7	86·5	90·5	83·8	— 0·8	76·7	80·2	80·8	79·2
	Allahabad	...	29·262	29·148	·114	29·207	+·005	29·463	100·6	82·8	17·8	110·6	75·3	35·3	93·8	99·0	90·7	— 0·2	74·7	77·9	78·2	76·9
	Ghazipur	220	29·370?	29·269?	·101	29·324?	+·030?	29·493?	99·2	82·0	17·2	108·6	75·3	33·3	91·2	95·1	88·9	+ 1·3	75·8	78·9	78·5	77·7
	Lucknow	...	29·200	29·079	·121	29·141	—·009	29·458	101·6	81·6	20·0	112·3	74·8	37·5	93·0	99·6	91·5	— 0·1	73·6	77·5	78·0	76·4
Upper Sub-Himalayas.	Dehra Dun	...	27·403	27·323	·080	27·353	+·001	29·483	94·1	74·3	19·8	100·1	65·2	34·9	85·8	91·5	83·8	— 0·8	66·7	71·6	73·0	70·5
	Roorkee	...	28·692	28·576	·116	28·629	+·016	29·457	100·6	78·8	21·8	111·7	67·7	44·0	90·7	98·8	89·5	— 0·9	70·2	75·4	76·5	74·0
	Meerut	...	28·846	28·734	·112	28·781	+·022	29·463	100·3	80·2	20·1	109·2	69·2	40·0	92·4	97·9	89·9	— 1·2	73·4	75·1	75·8	74·7
	Lahore	...	28·837	28·743	·094	28·784	+·014	29·431	106·4	81·7	24·7	116·0	72·9	43·1	98·0	102·5	92·7	+ 1·7	69·0	75·4	74·8	73·1
	Ludhiana	...	28·724	28·613	·111	28·663	—·017	29·415	105·2	82·0	23·2	113·5	70·7	42·8	96·2	102·1	92·6	+ 1·2	71·6	75·0	75·8	74·1
Indus Valley and N.W. Rajputana.	Peshawar	...	28·479	28·384	·095	28·426	+·045	29·489	103·3	75·6	27·7	115·0	64·3	50·7	94·8	99·9	88·2	— 1·4	63·9	73·5	75·2	70·9
	Mooltan	...	29·106	29·005	·101	29·049	+·012	29·425	108·0	83·8	24·2	120·3	69·2	51·1	96·3	105·8	94·9	+ 0·8	70·6	78·5	82·2	77·0
	Jacobabad	...	29·352	29·222	·130	29·281	+·024	29·419	111·8	83·0	28·8	120·0	73·7	46·3	100·5	109·4	96·4	— 0·4	69·6	77·9	76·2	74·6
	Hyderabad (Sind)	...	29·457	29·350	·107	29·405	+·020	29·471	103·6	80·8	22·8	110·2	68·1	42·1	94·5	99·8	91·0	+ 0·2	75·1	77·7	78·6	77·1
	Kurrachee	...	29·566	29·479	·087	29·523	+·007	29·523	94·0	82·8	11·2	98·4	80·7	17·7	89·4	90·5	87·2	+ 0·3	78·3	81·1	81·6	80·3
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·200	28·100	·100	28·150	+·019	29·494	103·4	80·7	22·7	113·5	74·6	38·9	94·3	99·4	91·0	+ 0·3	69·7	74·8	74·9	73·1
	Ajmere	...	28·041	27·941	·100	27·997	+·015	29·524	100·9	83·0	17·9	111·2	72·8	38·4	92·3	99·2	90·8	+ 2·5	75·2	76·4	78·3	76·5
	Deesa	...	29·214	29·074	·140	29·149	+·026	29·558	105·1	81·5	23·6	112·4	74·8	37·6	92·3	103·0	92·2	+ 2·2	73·1	76·7	76·3	75·4
	Nowgong	...	28·841	28·734	·107	28·792	+·019	29·484	98·9	80·8	18·1	111·6	69·0	42·6	91·5	96·5	88·9	— 2·5	73·7	77·3	78·1	76·4
	Agra	...	29·039	28·933	·106	28·979	+·025	29·474	104·6	85·7	18·9	113·7	77·9	35·8	96·9	101·4	94·5	— 0·1	73·1	77·1	77·2	75·8
Deccan.	Belgaum	...	27·266	27·183	·083	27·228	—·021	29·666	79·6	67·7	11·9	84·3	64·8	19·5	75·3	75·6	72·3	— 0·1	66·9	71·0	70·9	69·6
	Sholapur	...	28·164	28·037	·127	28·110	—·007	29·626	92·8	72·5	20·3	99·3	68·8	30·5	82·4	88·7	80·7	— 0·9	70·6	73·7	74·6	73·0
	Poona	...	27·910	27·817	·093	27·870	—·006	29·634	89·8	71·7	18·1	97·4	68·9	28·5	82·3	83·4	78·9	— 0·4	69·4	73·1	73·6	72·0
	Akola	...	28·759	28·627	·132	28·698	+·008	29·564	98·5	77·2	21·3	107·3	71·5	35·8	88·8	94·1	85·9	+ 0·4	72·8	76·7	76·7	75·4

II.

Stations in India, Burma, etc., in June 1892.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·849	·965	·951	·922	+ ·009	89	83	81	85	− 1	8·5	8·0	8·3	+ 1·1	2	..	...	...	7	16	20	14	1	S. 35° W.	S. 38° W.	68	82	193	227	Port Blair	Burma Coast and Bay Island.
·621?	·892	·915	·809?	− ·040?	92?	80	81	85?	− 4	8·1	8·5	8·3	− 0·9	...	9	1	...	3	4	15	7	21	N. 75° W.	S. 48° W.	52	62	51	46	Mergui	
·823	·953	·908	·895	− ·007	91	88	87	89	0	8·8	9·0	8·9	+ 0·2	...	1	...	...	3	15	26	12	1	S. 42° W.	S. 19° W.	75	71	96	130	Rangoon	
·840	·904	·898	·881	− ·009	88	80	81	83	− 4	8·8	9·0	8·9	+ 1·1	...	...	...	2	3	22	26	5	2	S. 27° W.	S. 32° W.	77	75	213	207	Diamond Island.	
?	·984	·953	?	?	?	82	80	?	?	7·4	7·1	7·3	?	...	...	...	...	...	15	40	4	1	S. 38· W.	?	90	?	389	?	Cocos Island	
·821	·954	·954	·910	− ·006	90	90	86	89	+ 3	8·5	8·2	8·4	+ 1·1	...	4	2	4	4	31	12	3	..	S. 5° W.	S. 2° E.	62	58	96	96	Akyab	
·854	·938	·939	·910	+ ·003	94	81	77	84	− 1	8·3	8·5	8·4	+ 0·6	36	2	2	3	...	1	2	8	6	N. 60° W	N. 58° E.	18	9	14	72	Silchar	Assam.
·876	·955	·962	·931	+ ·014	94	81	73	83	− 1	8·6	8·1	8·4	0	...	...	19	13	6	2	18	1	1	S. 73° E.	S. 77° E.	28	11	57	62	Sibsagar	
·832	·906	·934	·890	− ·006	93	89	84	89	+ 1	8·4	7·7	8·1	+ 0·8	9	3	10	17	1	...	14	4	2	N. 84° E.	S. 84° E.	17	23	204	116	Dhubri	
·833	·931	·939	·901	+ ·053	91	80	82	84	− 2	9·3	8·8	9·1	+ 1·6	1	...	...	3	17	21	16	1	...	S. 3° E.	S. 31° E.	73	56	139	166	Chittagong	Bengal and Orissa.
·875	·995	·979	·950	− ·021	89	83	81	84	− 3	8·3	8·3	8·3	+ 0·7	...	...	...	6	13	31	8	1	1	S. 10° E.	S. 16° E.	76	75	220	172	Dacca	
·884	·946	·936	·922	− ·049	91	77	74	81	− 2	7·4	7·6	7·5	+ 0·4	...	...	2	5	7	23	18	4	1	S. 9° W.	S. 4° E.	65	59	159	146	Calcutta (Allpore).	
·903	1·006	?	?	?	92	79	?	?	?					Not recorded.									?	?	?	?	?	?	Calcutta (Chowringhee).	
·925	1·026	1·027	·993	− ·033	84	80	79	81	− 2	8·4	8·3	8·4	+ 0·9	...	1	3	2	7	28	17	...	2	S. 6° W.	S. 15° W.	68	69	477	350	Saugor Island	
·878	·903	·902	·894	− ·035	88	74	66	76	− 1	7·9	8·4	8·2	+ 0·9	1	2	1	6	7	16	19	7	1	S. 17° W.	S. 20° E.	54	58	133	118	Burdwan	
·878	·995	·977	·950	+ ·014	89	80	72	80	− 3	7·5	7·6	7·6	− 0·6	7	1	1	11	7	20	10	3	...	S. 12° E.	S. 33° E.	52	48	120	133	Berhampore	
·902	·990	·999	·964	− ·006	91	78	78	83	0	7·0	7·0	7·0	+ 0·1	1	1	2	2	7	22	16	5	4	S. 18° W.	S. 45° W.	59	63	369	288	False Point	
·872	·881	·890	·882	− ·008	88	66	62	72	− 1	6·3	7·3	6·8	+ 0·1	3	1	5	5	5	12	23	4	2	S. 21° W.	S. 31° W.	45	53	102	96	Cuttack	
·699	·722	·683	·701	+ ·016	81	63	59	68	+ 3	7·5	8·9	8·2	+ 0·9	...	3	4	6	6	10	6	13	12	S. 73° W.	S. 36° W.	22	19	281	213	Hazaribagh	Gangetic Plain and Chota Nagpur.
·844	·868	·876	·863	− ·011	84	62	60	69	0	5·0	6·5	5·8	0·3	1	1	7	34	5	2	...	6	4	N. 85° E.	N. 73° E.	57	45	171	106	Patna	
·906	·949	·923	·928	+ ·015	93	76	65	78	+ 1	4·7	4·4	4·6	− 0·1	..	1	16	26	12	...	2	2	1	N. 86° E.	S. 89° E	70	71	169	139	Darbhanga	
·752	·744	·687	·728	− ·035	68	50	40	53	− 2	4·5	4·6	4·6	0	...	1	13	10	2	...	...	10	24	N. 14° W.	N. 2° E.	44	12	190	102	Allahabad	
·812	·791	·736	·791	+ ·013	75	59	49	61	+ 3	4·3	3·9	4·1	− 0·2	7	3	5	13	6	2	4	16	4	N. 71° W.	N. 74° E.	2	12	109	73	Ghazipur	
·723	·739	·675	·713	− ·047	69	51	38	53	− 2	3·8	4·1	4·0	− 0·7	...	5	12	14	4	1	10	10	4	N. 45° E.	N. 51° E.	13	17	122	102	Lucknow	
·565	·600	·582	583	?	67	50	40	52	?	3·3	3·7	3·5	− 0·7	2	2	...	1	6	12	20	10	5	S. 42° W.	S. 66° W.	57	12	44	39	Dehra Dun	Upper Sub-Himalayas.
·627	·678	·614	·640	+ ·003	65	49	35	50	− 1	4·3	4·1	4·2	+ 1·1	23	2	1	...	13	7	1	5	8	S. 10° W	S. 4° E.	14	11	88	94	Roorkee	
·735	·636	·595	·655	− ·030	72	43	34	50	0	3·1	3·3	3·2	0	7	...	1	8	13	1	3	25	2	S. 46° W.	N. 26° W.	25	22	79	64	Meerut	
·543	·582	·493	·539	− ·069	51	33	26	37	− 1	2·7	3·4	3·1	− 0·1	7	7	2	10	7	6	3	11	7	N. 71° W.	N. 19° W.	3	11	100	85	Lahore	
·640	·585	·539	·588	− ·045	58	35	28	40	− 7	2·0	2·2	2·1	− 1·0	18	2	...	...	5	12	2	18	3	S. 54° W.	N. 74° W.	37	10	53	60	Ludhiana	
·453	·566	·576	·532	+ ·023	52	37	32	40	+ 3	2·4	5·3	3·9	+ 1·9	4	10	12	10	3	5	1	5	10	N. 24° E.	N. 44° E.	32	32	107	112	Peshawar	Indus Valley and N.-W. Rajputana.
·576	·740	·787	·701	− ·043	50	44	35	43	− 5	0·2	0·6	0·4	− 0·5	3	...	10	...	9	...	25	...	13	S. 60° W.	S. 25° W.	26	33	105*	87	Mooltan	
·552	·659	·465	·558	− ·110	49	35	20	35	− 5	2·4	2·2	2·3	+ 1·5	3	1	5	...	24	8	13	1	5	S 15° E.	S. 31° E.	45	46	158	117	Jacobabad	
·798	·725	·685	·736	− ·009	76	45	36	52	0	5·8	4·2	5·0	+ 3·6	...	...	2	...	9	1	47	1	...	S. 34° W.	S. 39° W.	78	78	333*	366	Hyderabad (Sind)	
·910	·947	·957	·938	− ·011	81	69	67	72	− 2	3·4	3·5	3·5	− 0·8	...	...	...	...	...	...	31	29	...	S. 67° W.	S. 58° W.	92	85	264	447	Kurrachee	
·584	·619	·552	·585	− ·085	56	39	33	43	− 7	3·7	5·6	4·7	+ 0·4	...	2	5	3	1	2	6	28	13	N. 77° W.	N 60° W.	59	47	129	178	Jeypore	E. Rajputana, Central India and Guzerat.
·793	·714	·705	·729	+ ·047	73	45	38	53	+ 2	2·5	4·0	3·3	− 0·1	...	2	2	1	...	...	2	42	11	N. 79° W	S. 61° W.	82	68	262	208	Ajmere	
·706	·708	·550	·655	− ·076	66	47	27	46	− 6	5·2	5·7	5·5	+ 0·5	...	...	1	1	4	13	14	6	1	S. 27° W.	S. 36° W.	67	72	415	403	Deesa	
·739	·750	·721	·737	+ ·020	72	53	44	56	+ 4	4·1	5·4	4·8	− 1·1	3	7	3	1	...	1	2	38	5	N. 76° W.	N. 72° W.	68	43	116*	107	Nowgong	
·650	·668	·613	·644	− ·026	54	40	32	42	− 3	2·5	2·2	2·4	− 1·1	...	...	9	1	13	...	12	...	25	N. 57° W.	N. 60° W	18	28	165	138	Agra	
·650	·706	·699	·685	+ ·021	95	81	79	85	+ 3	8·1	8·7	8·4	+ 0·5	...	...	...	...	...	10	26	7	1	S. 44° W.	S. 73° W.	86	86	381	583	Belgaum	Deccan.
·728	·724	·679	·710	+ ·086	91	66	52	70	+ 10	7·2	8·0	7·6	+ 0·4	...	1	...	1	...	2	15	34	7	S. 82° W.	N. 86° W.	82	66	280*	293	Sholapur	
·693	·701	·706	·700	+ ·015	89	64	63	72	+ 2	6·9	8·4	7·7	+ 0·2	...	...	...	...	2	...	15	30	13	S. 87° W.	S. 79° W.	81	73	249	375	Poona	
·748	·757	·685	·730	+ ·045	81	56	45	61	+ 3	7·5	8·9	8·2	+ 1·7	1	2	2	...	3	...	...	12	40	N. 51° W.	N. 71° W.	78	71	231	215	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level.	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.*	Buldana	2,132	27·000	27·494	·106	27·552	+·012	29·587	92·1	73·4	18·7	99·4	69·2	30·2	82·4	88·8	81·0	+0·4	69·7	73·7	73·4	72·3
	Khandwa	...	28·640	28·510	·130	28·580	+·012	·562	97·4	77·3	20·1	106·2	69·6	36·6	86·2	95·0	86·6	−0·3	71·2	75·6	76·1	74·3
	Hoshangabad	...	28·646	28·511	·135	28·584	−·002	·537	98·9	78·8	20·1	109·3	70·6	38·7	89·0	97·6	88·3	+0·6	73·7	78·9	80·2	77·6
	Nagpur	...	28·625	28·495	·130	28·566	+·003	·523	99·7	78·6	21·1	105·8	73·4	32·4	90·3	94·0	86·8	+1·0	72·3	77·3	76·6	75·4
	Sironcha	401	29·297	29·163	·134	29·235	−·021	·576	97·1	80·2	16·9	105·9	73·9	32·0	87·1	94·4	87·1	+0·1	74·8	78·9	79·4	77·7
	Chanda	634	29·034	28·904	·130	28·974	−·001	·542	98·1	78·2	19·9	106·2	72·0	34·2	89·4	94·3	86·3	−0·3	73·4	76·5	77·0	75·7
	Seoni	...	27·643	27·553	·090	27·603	+·015	·529	95·9	74·7	21·2	103·7	69·1	34·6	89·0	86·9	82·8	−0·3	69·8	74·7	73·6	72·7
	Jubbulpore	...	28·310	28·198	·112	28·259	+·023	·513	96·8	77·9	18·9	106·8	71·0	35·8	89·1	91·0	85·7	−1·2	72·0	76·3	75·2	74·5
	Saugor	...	27·885	27·780	·105	27·838	+·020	·498	100·1	78·4	21·7	108·4	72·6	35·8	91·3	94·7	87·7	+2·0	70·3	75·0	74·1	73·1
	Raipur	...	28·673	28·549	·124	28·616	+·013	·507	96·7	77·5	19·2	105·4	70·9	34·5	88·9	92·1	85·0	−0·7	72·6	77·7	77·5	75·9
	Sutna	...	28·549	28·442	·107	28·500	+·010	·476	96·9	79·2	17·7	109·2	70·3	38·9	90·9	95·2	87·2	−2·2	72·0	75·8	75·4	74·4
	Sambalpur	463	29·144	29·032	·112	29·097	+·019	·499	96·3	79·8	16·5	104·8	74·2	30·6	89·5	91·7	86·0	−1·2	73·5	80·3	80·3	78·0
	Secunderabad	...	27·956	27·838	·118	27·907	−·011	·609	93·6	73·8	19·8	99·8	67·9	31·9	83·7	88·5	81·5	−0·2	70·7	73·7	74·0	72·8
	Hyderabad (Deccan).	...	28·054	27·938	·116	27·996	?	·604	90·9	74·9	16·0	99·2	72·3	26·9	82·1	87·9	82·2	?	71·8	74·1	75·1	73·7
West Coast.	Bombay	...	29·711	29·627	·084	29·668	−·001	·645	86·3	78·9	7·4	90·9	76·4	14·5	82·9	84·6	82·4	−0·8	760	78·8	79·2	78·0
	Ratnagiri	...	29·645	29·568	·077	29·605	−·027	·653	85·3	76·6	8·7	89·0	73·1	15·9	81·9	83·0	80·6	−0·3	74·7	78·5	79·3	77·5
	Karwar	...	29·754	29·687	·067	29·720	−·027	·696	84·8	75·4	9·4	87·5	73·1	14·4	81·5	82·3	79·7	0	74·0	77·5	77·3	76·2
	Cochin	...	29·844	29·765	·079	29·803	−·052	·741	86·0	75·8	10·2	88·7	73·7	15·0	82·1	83·1	80·4	+1·1	74·5	77·7	77·6	76·6
South India.	Salem	...	28·879	28·748	·131	28·829	−·041	·694	97·0	75·4	11·6	101·2	71·9	29·3	86·3	91·6	84·3	+1·9	72·4	76·7	78·7	75·9
	Mercara	...	26·148	26·066	·082	26·107	−·051	·742	74·3	64·3	10·0	79·6	62·2	17·4	69·8	69·1	67·7	+1·1	63·1	67·1	66·8	65·7
	Bangalore (Mysore State).	3,019	26·845	26·746	·099	26·796	−·049	·676	85·8	67·5	18·3	90·2	64·1	26·1	77·6	83·5	76·1	+2·1	65·8	70·5	71·3	69·2
	Trichinopoly	...	29·528	29·396	·132	29·477	−·039	·659	100·6	78·8	21·8	105·4	74·1	31·3	90·2	96·3	88·0	+1·4	73·2	76·3	77·2	75·6
	Madras	...	29·738	29·631	·107	29·695	−·006	·647	96·3	79·1	17·2	103·9	72·7	31·2	89·8	89·8	85·5	−1·7	?	78·4	79·5	78·2
	Bellary	...	28·295	28·183	·112	28·249	−·017	·649	94·1	74·6	19·5	98·7	71·9	26·8	85·0	88·3	82·0	−0·8	70·7	74·3	74·1	73·0
	Vizagapatam	...	29·667	29·575	·092	29·625	+·033	·593	89·1	83·2	5·9	91·5	80·0	11·5	88·3	88·7	87·3	−0·3	75·5	79·4	79·8	78·2
Hill Station, Beluchistan.	Quetta	...	24·486	24·424	·062	24·448	+·016	?	88·8	56·0	32·8	96·7	48·0	48·7	81·2	86·9	71·9	−2·5	48·2	59·2	59·4	55·6
Hill Stations, Northern India.	Leh	11,503	19·712	19·626	·086	19·675	+·036	?	?	43·2	?	?	32·2	?	58·3	64·1	?	?	37·3	44·7	47·1	43·0
	Srinagar	...	24·763	24·680	·083	24·722	?	?	79·1	54·5	24·6	91·3	48·7	42·6	70·5	77·1	66·3	?	52·3	62·0	65·0	59·8
	Murree	...	23·735	23·707	·028	23·714	−·002	?	79·8	62·2	17·6	93·4	47·5	45·9	73·8	74·9	70·2	−2·6	51·4	57·9	58·2	55·8
	Chamba	3,005?	26·677	26·599	·078	26·650	+·008	?	94·3	68·9	25·4	104·1	59·7	44·4	83·5	88·9	79·7	−0·4	59·9	65·3	66·5	63·9
	Kailang	10,087?	20·740	20·[illegible]94	·046	20·729	+·019	?	66·2	43·1	23·1	78·5	36·2	42·3	58·8	61·6	52·9	−2·1	40·6	49·5	49·5	46·6
	Simla (Ridge)	...	22·989	22·940	·049	22·958	+·010	?	76·7	60·3	16·4	82·3	50·5	31·8	70·4	73·2	68·2	+0·1	51·3	58·0	59·7	56·3
	Simla (Chapslee)		Not recorded.					?	80·6	60·4	20·2	88·3	51·4	36·9	72·4	?	?	?	51·4	59·1	?	?
	Chakrata	7,052	23·156	23·103	·053	23·123	−·006	?	77·2	60·1	17·1	85·7	49·2	36·5	70·6	72·1	67·9	+0·6	54·1	58·9	59·8	57·6
	Ranikhet	...	23·980	23·923	·057	·940	+·004	?	78·8	63·9	14·9	86·6	54·0	32·6	72·7	75·8	71·1	+0·3	?	61·8	62·9	?
	Pithoragarh	5,363	24·638	24·566	·072	24·590	+·045	?	83·5	64·3	19·2	91·1	58·7	32·4	75·8	79·8	73·5	+1·0	59·8	66·1	67·4	64·4
	Katmandu	4,388	25·455	25·385	·070	25·418	+·018	?	83·2	67·0	16·2	87·0	63·7	23·3	77·0	79·3	73·7	−1·4	65·5	69·8	70·6	68·6
	Darjeeling	...	22·887	22·825	·062	22·854	−·005	?	64·9	56·0	8·9	67·9	51·4	16·5	61·6	62·4	59·8	0	55·2	60·6	61·1	59·0
	Pedong	...	25·142	25·069	·073	25·102	+·005	?	74·7	65·0	9·7	79·1	58·8	20·3	70·8	72·5	69·2	+0·9	63·5	67·9	68·9	66·7
	Demagiri	...	Not recorded.					?	92·7	68·2	24·5	92·9	65·7	27·2	84·1	84·0	78·3	−1·8	Not recorded.			
	Tura	...	Ditto.					?	84·1	73·0	11·1	86·8	65·6	21·2	78·1	81·2	77·9	?	?	75·1	76·6	?

II—*continued.*

in India, Burma, etc., in June 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·682	·722	·631	·678	+·003	83	66	48	66	0	9·0	8·6	8·8	+2·5	...	5	2	...	1	3	6	25	18	N. 74° W	N. 75° W.	68	65	262	253	Buldana.	Deccan—*contd.*
·692	·757	·666	·705	−·012	74	61	41	59	− 1	5·4	6·6	6·0	−0·1	...	7	...	1	2	2	2	33	13	N. 75° W	N. 77° W.	72	71	203	228	Khandwa.	
·770	·861	·813	·815	+·071	79	64	47	63	+ 3	4·8	5·9	5·4	−0·6	2	2	1	1	1	9	19	20	5	S. 64° W.	S. 88° W.	63	71	147	114	Hoshangabad.	
·716	·773	·695	·728	+·015	74	56	46	58	+3	6·3	8·2	7·3	+0·1	...	6	2	3	4	6	12	13	14	W.	N. 76° W.	40	52	211	183	Nagpur.	
·790	·881	·803	·825	+·048	77	69	51	66	+ 1	6·1	7·1	6·6	+0·4	31	...	1	1	...	4	6	13	4	S. 76° W.	S. 74° W.	32	52	54	109	Sironcha.	
·762	·742	·703	·735	+·003	80	54	46	60	0	5·0	7·1	6·1	−0·9	3	...	1	1	5	7	18	20	5	S. 58° W.	W.	62	54	156	151	Chanda.	
·649	·683	·668	·667	−·002	74	51	56	60	− 3	4·1	5·2	4·7	+0·5	...	4	10	1	3	7	16	10	9	S. 80° W.	S. 83° W.	30	47	148	137	Seoni.	
·712	·745	·680	·713	+·026	75	56	50	61	+ 2	3·8	6·9	5·4	−1·0	7	4	2	...	3	4	12	23	5	S. 80° W.	N. 80° W.	53	54	93	126	Jubbulpore.	
·645	·664	·586	·632	+·020	68	47	39	51	− 1	3·1	7·0	5·1	+0·9	...	2	6	1	1	1	22	16	11	S. 84° W.	S. 82° W.	57	63	150	126	Saugor.	
·744	·800	·751	·765	+·038	79	60	52	63	+ 1	5·7	8·2	7·0	+0·5	...	1	2	1	3	3	22	26	2	S 66° W.	S. 74° W.	70	66	263	220	Raipur.	
·698	·703	·632	·678	+·042	72	51	42	55	+ 6	3·0	3·4	3·2	−1·5	1	9	3	1	1	5	2	25	13	N. 67° W.	N. 59° W.	58	50	233*	241	Sutna.	
·744	·910	·882	·845	+·020	74	66	62	67	+ 2	6·2	7·0	6·6	+1·0	...	2	1	...	4	8	36	2	7	S. 45° W.	S. 59° W.	67	42	152	96	Sambalpur.	
·715	·705	·657	·692	+·046	86	62	51	66	+ 5	7·9	8·2	8·1	+2·4	2	...	...	...	...	1	8	24	25	N. 77° W.	S. 80° W.	82	82	236*	297	Secunderabad.	
·743	·748	·713	·734	?	86	69	55	70	?	7·1	7·2	7·2	?	10	2	1	...	...	...	3	37	7	N. 83° W.	?	73	?	188	?	Hyderabad (Deccan).	
·859	·934	·928	·907	−·020	87	83	78	83	+ 1	7·3	6·6	7·0	−0·9	...	...	2	1	5	18	16	14	4	S. 38° W.	S. 63° W.	60	66	288	389	Bombay.	West Coast.
·835	·929	·951	·905	+·058	91	85	84	87	+ 7	6·7	7·9	7·3	+0·7	1	1	2	2	8	18	15	6	2	S. 16° W.	S. 53° W.	58	66	169	278	Ratnagiri.	
·822	·890	·872	·861	+·019	93	83	79	85	+ 1	6·6	6·4	6·5	−0·7	9	1	...	...	...	...	15	35	...	S. 78° W.	S. 76° W.	77	76	65	?	Karwar.	
·836	·892	·888	·872	+·018	93	81	79	84	− 4	6·4	7·4	6·9	−0·7	1	3	6	1	3	2	7	27	10	N. 81° W.	S. 75° W.	53	42	113	?	Cochin.	
·758	·791	·809	·786	+·022	86	60	56	68	− 2	6·0	7·1	6·6	+0·8	10	...	1	1	2	18	17	8	3	S. 34° W.	S. 58° W.	57	82	89	113	Salem.	South India.
·565	·636	632	·611	+·010	93	87	89	90	− 3	7·7	8·8	8·3	−1·1	...	...	...	...	...	...	1	57	2	N. 89° W.	N. 81° W.	100	86	70	196	Mercara.	
·616	·657	·617	·631	+·014	91	70	55	72	− 2	6·4	5·9	6·2	+0·4	...	...	...	...	...	1	35	22	2	S. 63° W.	S. 71° W.	90	90	188	202	Bangalore (Mysore State.)	
·744	·722	·679	·715	+·003	76	51	40	56	− 1	5·6	6·8	6·2	−1·0	5	...	...	...	...	2	10	22	21	N. 83° W.	N. 87° W.	73	84	149	228	Trichinopoly.	
?	·820	·870	·868	+·069	?	59	63	72	+ 8	6·1	6·1	6·1	−0·3	...	1	...	5	18	9	13	12	2	S. 10° W.	S. 36° W.	48	58	176	213	Madras.	
·704	·717	·667	·696	+·038	82	60	52	65	+ 7	7·3	8·7	8·0	+0·5	19	1	...	...	...	...	7	23	10	N. 85° W.	S. 86° W.	59	80	192	256	Bellary.	
·778	·893	·904	·858	−·024	68	66	66	67	− 1	7·2	7·8	7·5	+1·5	...	...	...	2	2	21	16	18	1	S. 39° W.	S. 58° W.	70	63	77*	87	Vizagapatam.	
·262	·277	·224	·255	−·120	58	26	16	34	− 8	0·7	1·3	1·0	0	48	...	...	...	...	...	2	6	4	N. 82° W.	N. 69° W.	18	43	56	101	Quetta.	Hill Station Beloochistan.
·176	·181	·180	·179	+·010	63	38	30	44	+ 6	5·9	6·1	6·3	+1·3	4	2	...	...	...	4	15	25	10	S. 83° W.	S. 81° W.	72	26	44	57	Leh.	Hill Stations, Northern India.
·371	·460	·488	·410	?	87	62	53	67	?	4·2	6·9	5·6	?	2	6	11	6	6	4	3	8	12	N. 3° W.	?	20	?	101	?	Srinagar.	
·271	·316	·314	·301	−·060	53	41	41	45	− 1	4·2	5·8	5·0	+1·2	10	2	1	3	19	5	8	2	9	S. 12° E.	S. 2° W.	24	12	236	158	Murree.	
·410	·416	·393	·407	−·058	60	38	32	43	− 4	3·5	6·7	5·1	+0·8	16	3	1	1	8	...	1	5	25	N. 47° W.	N. 27° W.	37	25	95	123	Chamba.	
·235	·277	·249	·253	+·017	85	57	47	62	+ 9	5·6	8·0	6·8	+1·2	...	1	...	3	7	7	20	14	8	S. 53° W.	S. 66° W.	53	67	48	47	Kailang.	
·288	·355	·374	·339	−·074	56	49	47	51	−12	4·9	4·5	4·7	−1·2	2	23	6	...	...	11	10	2	4	N. 31° W	S. 76° W.	25	40	?	?	Simla (Ridge.)	
·283	·364	?	?	?	56	47	?	?	?	4·7	?	?	?	Not recorded.									?	?	?	?	?	?	Simla (Chapslee.)	
·364	·377	·389	·378	−·028	72	52	52	59	− 6	3·0	4·6	3·8	−1·3	2	...	2	2	1	2	7	41	2	S. 84° W.	S. 73° W.	72	50	143	140	Chakrata.	
?	·441	·445	?	?	?	57	51	?	?	4·9	4·1	4·5	−0·9	14	1	1	3	...	...	11	30	...	S. 80° W.	S. 65° W.	58	49	107	83	Ranikhet.	
·468	·542	·542	·515	−·005	78	63	55	65	− 2	3·8	4·6	4·2	−1·6	18	...	5	6	1	5	25	...	...	S. 21° W.	S. 19° E.	35	25	78	68	Pithoragarh.	
·619	·646	·654	·639	+·013	93	70	66	77	+ 2	7·1	6·8	7·0	+1·3	...	8	...	29	1	2	1	14	5	N. 55° E.	S. 87° W.	23	53	27	?	Katmandu.	
·429	·519	·529	·492	+·001	94	94	93	94	− 1	9·4	9·1	9·3	+0·6	10	...	6	10	4	1	15	13	1	S. 61° W.	S. 88° E.	33	5	143	113	Darjeeling.	
·570	·653	·668	·630	−·006	92	87	84	88	− 2	9·1	8·7	8·9	+1·2	Imperfect.									?	?	?	?	?	?	Pedong.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	2	3	19	2	16	12	5	1	S. 21° E.	S. 29° E.	38	23	?	?	Demagiri.	
?	·839	·866	?	?	?	87	81	?	?	6·3	4·5	5·4	−1·4	...	1	...	...	9	45	2	2	1	S. 3° E.	S. 3° W.	87	57	?	?	Tura.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level.	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, Central India.	Mount Abu	...	25·799	25·717	·082	25·763	−·094	?	83·8	68·0	15·8	94·2	61·4	32·8	76·0	81·0	75·2	−0·4	63·3	68·5	68·6	66·8
	Pachmarhi	...	26·300	26·210	·090	26·260	+·018	?	87·3	71·9	15·4	96·7	63·7	33·0	79·9	84·1	78·6	+0·3	65·3	69·7	69·6	68·2
	Chikalda	3·642	26·171	26·084	·087	26·132	+·004	?	85·5	68·9	16·6	92·5	65·9	26·6	76·1	80·3	75·7	+0·3	65·9	69·8	69·8	68·5
	Makhla	...	Not recorded.					?	89·7	71·7	18·0	99·3	68·5	30·8	77·6	82·4	78·0	+1·4	69·3	73·6	74·4	72·4
Hill Stations, S. India.	Wellington	...	24·196	24·123	·073	24·159	−·006	?	72·3	56·9	15·4	76·0	54·4	21·6	68·3	67·1	64·1	+0·3	55·2	61·8	61·7	59·6
	Kodaikanal	...	Not recorded.					?	68·7	55·3	13·4	72·5	54·0	18·5	63·8	61·9	60·3	?	52·4	58·7	58·2	56·4
	Kotagiri	...	23·788	23·701	·087	23·745	?	?	70·5	56·9	13·6	75·1	54·5	20·6	66·5	64·7	62·3	?	54·5	61·5	61·1	59·0
Extra India.	Aden	...	29·600	29·488	·112	29·544	−·062	29·567	95·1	84·0	11·1	98·9	80·4	18·5	89·9	92·2	88·8	+1·2	74·7	81·2	79·8	78·6
	Perim	...	29·490	29·379	·111	29·435	?	?	94·7	83·9	10·8	101·3	80·6	20·7	89·7	91·4	88·5	?	76·9	80·9	80·4	79·4
	Minicoy	...	29·860	29·788	·072	29·820	?	29·755	85·0†	81·9‡	6·3	88·5	75·0	13·5	82·7	82·8	81·8§	?	75·0†	77·7	78·1	77·0†
	Zanzibar	...	30·036	29·944	·092	29·990	?	29·990	82·2	74·7	7·5	84·3	70·8	13·5	77·5	80·9	78·1	?	71·2	72·8	72·4	72·1

† Mean of 29 days. ‡ Mean of 27 days. §Mean of 26 days.

II—*concluded.*

in India, Burma, etc., in June 1892—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·531	·613	·558	·567	−·001	78	70	54	67	0	5·8	5·7	5·8	+0·5	1	...	...	2	3	3	31	13	7	S. 59° W.	S. 42° W.	68	74	213	242	Mount Abu.	Hill Stations, Central India.
·547	·610	·560	·572	−·025	71	61	50	61	− 5	5·0	6·7	5·9	−0·7	8	2	1	...	2	2	11	27	7	S. 85° W.	N. 71° W.	63	63	205*	185	Pachmarhi.	
·603	·658	·608	·623	+·026	85	74	61	73	+ 1	6·5	8·1	7·3	+0·5	7	16	...	...	2	5	...	5	25	N. 38° W.	N. 45° W.	59	62	218	233	Chikalda.	
?	?	?	?	?	?	?	?	?	?	6·5	7·6	7·1	−1·0	...	5	1	...	2	4	10	22	16	N. 83° W.	N. 85° W.	65	51	?	?	Makhla.	
·421	·488	·495	·469	+·029	90	73	75	79	+ 4	6·6	8·4	7·5	0	4	1	4	2	13	15	19	2	...	S. 2° W.	N. 88° W.	56	52	70	123	Wellington.	Hill Stations, S. India.
·364	·442	·450	·419	?	82	75	81	79	?	6·2	8·5	7·4	?	7	2	10	...	10	...	5	2	24	N. 61° W.	?	29	?	160*	?	Kodaikanal.	
·403	·495	·503	·467	?	87	76	82	82	?	6·2	7·5	6·9	?	...	3	...	3	9	11	11	14	9	S. 50° W.	?	41	?	151*	?	Kotagiri.	
·736	·950	·855	·847	−·014	63	68	57	63	+ 5	0·7	0·8	0·8	−0·4	12	1	2	10	2	22	11	...	...	S. 10° E.	S. 2° E.	48	68	257	209	Aden.	Extra India.
·835	·928	·892	·884	?	72	65	61	66	?	1·3	2·9	2·1	?	3	1	2	7	3	...	...	16	28	N. 52° W.	?	54	?	398	?	Perim.	
·814†	·887	·902†	·873‡	?	82‡	79	80†	80§	?	7·7	7·8	7·8	?	...	...	...	...	...	...	8	35	16	N. 84° W.	?	89	?	?	?	Minicoy.	
·719	·744	·685	·716	?	84	79	65	76	?	5·7	5·1	5·4	?	...	...	...	...	10	26	8	...	...	S. 2° E.	S. 10° W.	39	73	269	198	Zanzibar.	

* Corrected.

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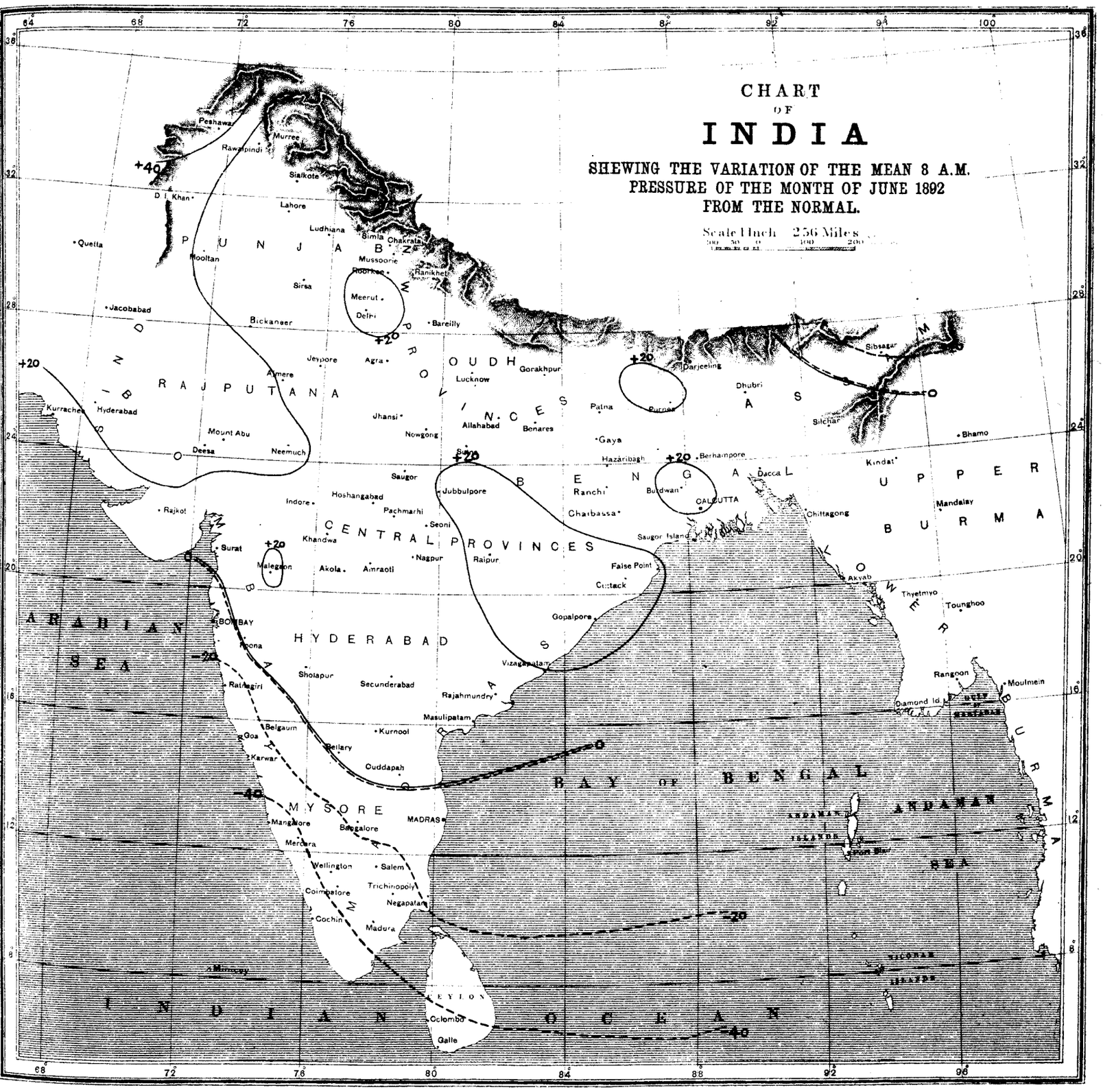
Explanation

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.



Explanation

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

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

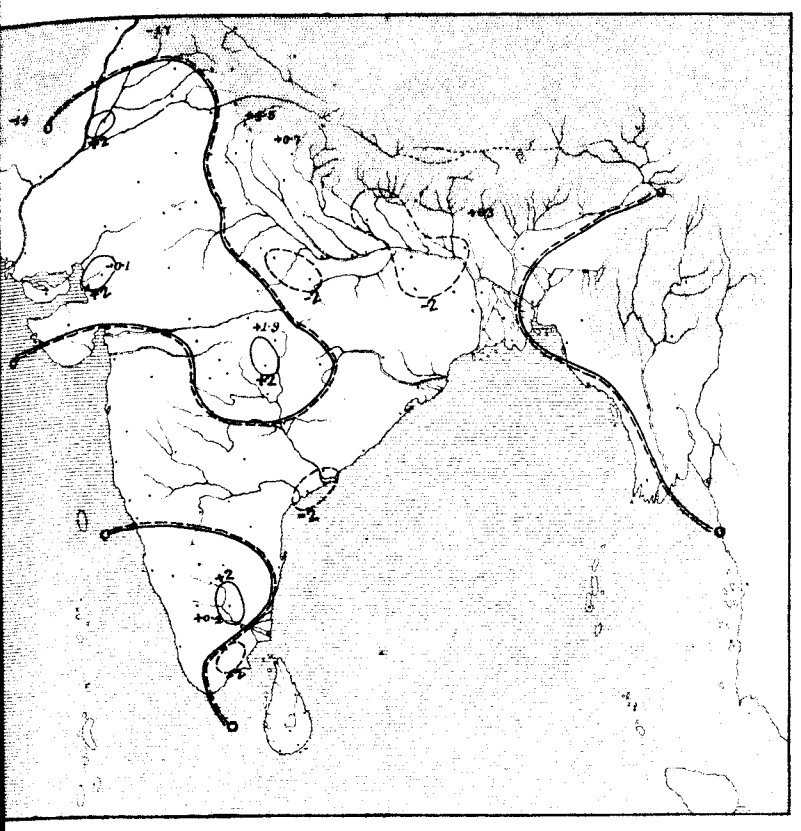
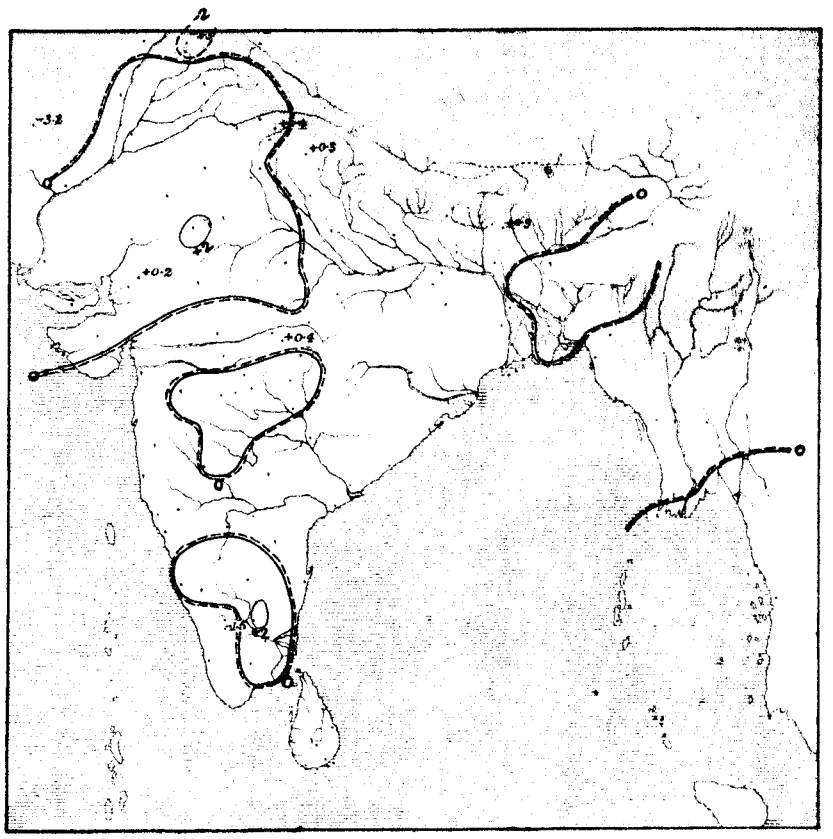


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

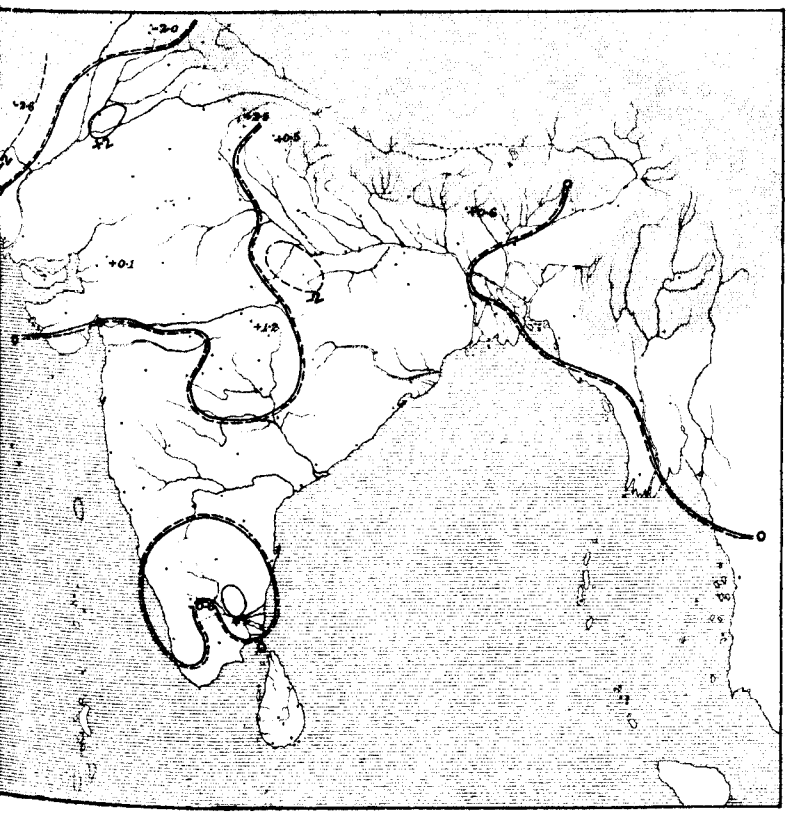
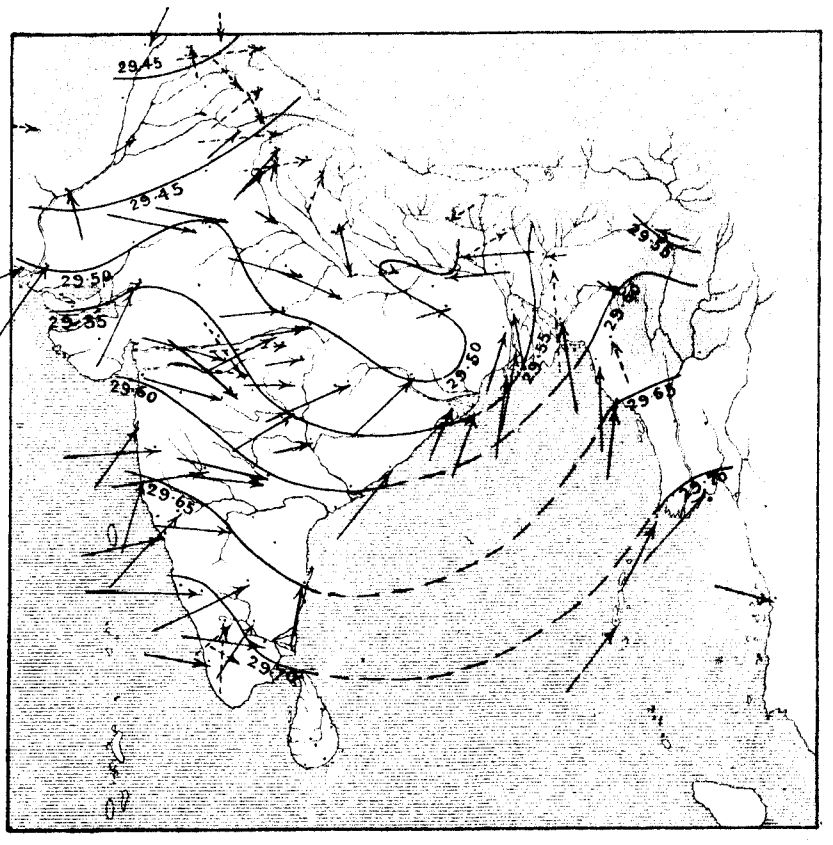


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JUNE 1892.



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.

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)

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW,

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THE GOVERNMENT OF INDIA.

CALCUTTA, JULY, 1892.

INTRODUCTION.

THIS review of the weather in India during the month of July 1892 is based on observations taken daily at 8 A.M. at 171 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 94 stations. The rainfall summary is based on 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. 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 July 1892.

The south-west monsoon circulation is usually fully established over nearly the whole of India before the end of June, and prevails with great steadiness during the whole of July. If the monsoon currents are feebler than usual the rains may be considerably delayed in North-Western and Central India and not be fully established until the middle or end of July.

The month is hence usually a period of frequent, and in some districts, of almost constant, rainfall and of comparative uniformity of temperature and of high humidity over the greater part of the country. The only areas in which the rainfall is small in amount, and in which hot weather conditions continue in a somewhat mitigated form, are Sind, North-West Rajputana, and the West Punjab.

The distribution of rainfall during the month depends largely upon the relative strength of the two branches of the monsoon current. The Bombay branch advances usually in an easterly direction across the Peninsula and in a north-easterly direction across Central India and Rajputana towards the East Punjab. The Bay of Bengal branch of the current in part advances over Burma and in part crosses the Bengal coast, and is deflected westwards up the Gangetic valley towards the Punjab. The goal of both branches of the monsoon current would hence appear to be the Punjab. But the greater part of the ascensional motion, which is the continuation of the horizontal 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 a 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.

At the commencement of the month under discussion the monsoon currents were very weak and were almost confined to the coast districts and the southern half of the Peninsula. Weather was very hot and dry in the interior and temperature was excessive in Upper India and more especially in the Indus valley or West Punjab. Thus the highest temperatures of the month were registered on the 8th at Dera Ismail Khan, Montgomery, Khushab and Peshawar in the West Punjab.

The monsoon currents in the south of the Arabian Sea and Bay of Bengal began to strengthen simultaneously on the 3rd and 4th of the month and to advance northwards In the Arabian Sea the advance of the current northwards along the west coast was immediately preceded by a shallow depression or trough of deficient pressure and followed by heavy rainfall. The trough of deficient pressure was in the latitude of Karwar on the 5th, Ratnagiri on the 6th, Bombay on the 7th, Kathiawar on the 8th, and Kurrachee on the 9th. It was absorbed into the area of permanent low pressure in Sind on the 10th. Heavy rain extended to Karwar on the 6th, Ratnagiri on the 7th, Bombay on the 8th, Surat and Kathiawar on the 9th, and Kurrachee on the 11th. This advance permanently established south-west monsoon winds on the Bombay coast. They advanced rapidly into the interior and extended into the Punjab on the 10th.

Weather was very squally in front of the advancing current in the Arabian Sea, but the conditions were not favourable to the development of a cyclonic storm. Hence the advance occurred quietly in the Arabian Sea.

Whilst the current was advancing up the Bay of Bengal, the northern districts of North Bengal and Bihar received a very heavy downpour of rain from the 5th to the 9th. The districts of Kuch Bihar and Jalpaiguri obtained an average of nearly 22 inches during this period.

As the strong current in the Bay advanced northwards, a depression developed in front of it. It was of little importance until the 9th, when it was near the head of the Bay. It intensified rather rapidly on that day and crossed the North Orissa coast on the 10th and drifted during the next three days across Chota Nagpur into Baghelkhand, and thence into the south-eastern districts of the North-Western Provinces, where it broke up on the 13th. This storm carried the monsoon current into the North-Western Provinces, and gave general and moderately heavy rain to Bengal, Bihar, Chota Nagpur, the North-Western Provinces, Bundelkhand and Baghelkhand.

The establishment of the monsoon currents in Northern and Central India between the 9th and 12th caused a large increase of humidity and cloud, and reduced temperature very considerably in the interior.

The only important features of the meteorology of the last fortnight of the month were three cyclonic storms, of which the following gives a brief account.

The second disturbance of the month was a land-formed depression and cyclonic storm. It originated in West Bengal on the 17th. The depression was in the eastern districts of Chota Nagpur on the morning of the 18th, the centre being a little to the north of Chaibassa. The storm drifted during the next 48 hours in a north-westerly direction into the central districts of the North-Western Provinces, where it filled up on the 20th. It gave a moderately heavy burst of rain to Bengal and the Gangetic plain. The indraught to the depression from the west coast gave very heavy rain on the 18th and 19th to the Central Provinces, more especially the eastern districts. Immediately after the previous depression had filled up, another feeble cyclonic storm formed in West Bengal on the 21st and 22nd. This was in some respects the most remarkable storm of the month. It advanced slowly west-north-westwards across the head of the Peninsula. It passed through Chota Nagpur on the 23rd, Baghelkhand on the 24th, Rajputana on the 25th and 26th, and was absorbed into the permanent low pressure area in Upper Sind on that day. That low pressure area hence developed to some extent and was a more prominent feature of the weather than usual during the next three days. The storm had, during its previous course, given a heavy burst of rain to the districts through which it had passed, and general rain in Northern India. The burst of rainfall was unusually heavy in the central and western districts of Rajputana, and practically terminated the drought which had obtained in that area during the previous 12 months. The intensified depression in Upper India determined a strong burst of monsoon winds from the Arabian Sea to that area. West Rajputana, Sind, and the West and Central Punjab, hence

received an unusually heavy burst of rain from the 26th to the 30th. Many stations, *e.g.*, Mooltan, Dera Ismail Khan and Peshawar, received larger amounts during this period than have ever been recorded in the month of July. This abnormal rainfall gave rise to serious floods in the Punjab, which breached the railways in many places.

Whilst this stationary depression was giving excessively heavy rain in Upper India, a shallow depression formed in the north of the Bay on the 26th and 27th. It crossed the Orissa coast on the 28th and passed into the North-Western Provinces on the 29th, when it filled up. It was throughout a very feeble disturbance and gave moderate rain to the districts through which it advanced.

Temperature was in general excess at the commencement of the month. It increased until the 8th in North-Western and Central India, and very high temperatures were recorded on that day. Higher day temperatures were registered in the Indus valley at Peshawar and Dehra Ismail Khan than have been previously recorded in the month of July at these stations.

The following table gives data for the stations in the Indus valley, at which the increase of temperature during this period was most strongly exhibited :—

STATION.	TEMPERATURE.			VARIATION OF		
	Actual maximum of 24 hours preceding 8 A.M. of 8th July.	Actual minimum of 24 hours preceding 8 A.M. of 8th July.	Actual mean of day.	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°	°	°	°
Peshawar . .	116·0	83·8	99·9	+11·1	+3·7	+7·4
Dera Ismail Khan	120·5	84·9	102·7	+14·7	+2·2	+8·5
Mooltan . .	115·3	93·0	104·2	+10·7	+9·4	+10·1

The permanent advance of the monsoon currents which took place during the second week of July caused a large reduction of temperature, and during the remainder of the month the variations of the temperature conditions were generally small in amount and dependent on the distribution of rainfall day by day.

The cyclonic storm which advanced from West Bengal to Upper Sind, the western districts of Rajputana and the Punjab from the 24th to the 30th, reduced temperature very largely below the normal for a brief period. The decrease was largest at the following stations in the Indus valley:—

DATE.	STATION.	VARIATION FROM NORMAL OF		
		Maximum temperature.	Minimum temperature.	Mean temperature.
		°	°	°
28th .	Mooltan . . .	−17·1	−7·2	−12·2
29th .	Dera Ismail Khan . .	−23·9	−18·7	−21·3
30th .	Peshawar . . .	−19·4	−7·5	−13·5

Hence the conditions in the first and last weeks of the month were most strongly contrasted in the West Punjab and Upper Sind. It was excessively hot and dry in the first week, and cool and very damp in the last week.

The mean temperature of the month varied very slightly from the normal. It was slightly below the normal mean in the Indus Valley, South India, North-Eastern India and Pegu. The variations from the normal were less than 2° except locally at Dhubri (−2·1°), and in the area represented by the following stations, where temperature was in moderate excess :—

STATION.	VARIATION OF		
	Mean maximum temperature of the month from the normal.	Mean minimum temperature of the month from the normal.	Mean temperature from the normal.
	°	°	°
Jhansi	+2·2	+1·8	+2·0
Agra	+2·5	+1·5	+2·0
Jeypore	+2·5	+2·3	+2·4
Sambhar	+3·7	+1·9	+2·8
Ajmere	+1·9	+2·9	+2·4
Neemuch	+4·2	+1·6	+2·9
Malegaon	+3·8	+1·8	+2·8

The data establish that both the day and night temperatures were in excess, and that the excess was on the whole slightly greater in the day than in the night temperature.

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

DIVISION.	VARIATION OF		
	Mean maximum temperature from the normal.	Mean minimum temperature from the normal.	Mean temperature from the normal.
	°	°	°
Burma Coast and Bay Islands . .	+0·1	+0·1	+0·1
Burma, Inland	−0·3	−0·2	−0·3
Assam	−1·4	−0·1	−0·8
Bengal and Orissa	−0·4	0	−0·2
Gangetic Plain and Chota Nagpur .	−0·2	−0·3	−0·3
Upper Sub-Himalayas . . .	+0·6	+0·5	+0·6
Indus Valley and North-Western Rajputana.	+0·2	+0·6	+0·4
East Rajputana, Central India and Guzerat.	+2·3	+1·5	+1·9
Deccan	+1·4	+0·8	+1·1
West Coast	+0·1	+0·3	+0·2
South India	−0·9	+0·2	−0·3

The air was, on the average of the month, damper than usual, except in Bengal, Rajputana, the Western Himalaya hill districts and Beluchistan. The increased humidity was most marked in the Madras Deccan. The variations were, however, in all cases small and of little importance. There was more cloud in all districts almost without exception. The increase was greatest in the west coast districts,

Mysore, South India and in Upper Sind and the West Punjab.

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

Division.	Mean variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
Burma Coast and Bay Islands	−·003	0	+1·0
Assam	+·001	+1	+0·2
Bengal and Orissa	−·015	−1	+0·6
Gangetic Plain and Chota Nagpur	−·009	−1	+0·5
Upper Sub-Himalayas	0	+1	+0·1
Indus Valley and North-Western Rajputana.	+·005	+1	+1·3
East Rajputana, Central India and Guzerat.	0	−1	+0·3
Deccan	+·016	0	+0·6
West Coast	+·007	+1	+1·2
Southern India	+·012	+1	+0·8

The rainfall of the month was abundant and even more widely and favourably distributed than usual.

At the commencement of the month the rainfall was very light and almost confined to the coast districts and the Peninsula. Both monsoon currents strengthened during the first week of the month. The Bombay current advanced along the west coast from the 5th to the 10th, and extended with unusual rapidity into the interior. It prevailed with unusual steadiness during the month and received its greatest extension in the fourth week of the month. It hence gave frequent general rain to the whole of North-Western and Central India and the northern half of the Peninsula during the last three weeks of the month.

The Bengal current blew strongly from the 9th but less steadily than the Bombay current. A series of depressions formed and advanced westwards, which largely modified the distribution of rainfall. These were as follows :—

1st.—Depression and cyclonic storm of the 6th to the 13th, which advanced from the north-west angle of the Bay to the central districts of the North-Western Provinces. It gave a moderate burst of rain to North-Eastern India and the Gangetic Plain and heavy rain to Bundelkhand and Baghelkhand. When this storm was forming in the Bay the districts of Jalpaiguri, Kuch Bihar, Darjeeling and Purnea received an excessive local fall from the 5th to the 9th. The first two districts received an average of 22 inches during that period of 96 hours.

2nd.—A depression formed in West Bengal on the 17th. It advanced into the central districts of the North-Western Provinces on the 20th and filled up there. It gave a moderate burst of rain to the Gangetic Plain and Bengal.

3rd.—A depression formed in West Bengal on the 21st which drifted slowly westwards across Central India and Rajputana into Upper Sind. It gave a general burst of rain to Northern and Central India, but was chiefly remarkable for the heavy rain it determined to Rajputana and the West Punjab.

4th.—A shallow depression formed in the north of the Bay on the 27th, and advanced north-westwards into the North-Western Provinces on the 29th. It gave a moderate burst of rain to the Gangetic Plain.

The rainfall of the month was normal or in moderate excess over nearly the whole of India. It was largely in excess in a few areas, *viz.*, North Bengal (78 per cent. in excess), Malabar (52 per cent. in excess), the Central Provinces West (80 per cent.), Central Provinces East (66 per cent.), Sind (184 per cent. in excess), West Rajputana (78 per cent.) and the West Punjab (213 per cent.). The only area in which the deficiency was more than 20 per cent. was Guzerat (24 per cent. in defect). The chief features of the rains in July were hence :—

1st.—The rainfall was normal or in slight excess over by far the greater part of India and was hence unusually favourably distributed.

2nd.—The Bombay monsoon gave a heavy burst of rain to West and Central Rajputana and terminated the prolonged period of drought that had prevailed in that area.

The following gives a summary of the rainfall data of the eleven meteorological provinces in India :—

Province.	Mean actual rainfall of July 1892.	Mean normal rainfall for July.	Variation from normal.
Burma Coast and Bay Islands	31·56	31·68	−0·12
Burma, Inland	9·44	11·39	−1·96
Assam	20·26	14·39	+5·7
Bengal and Orissa*	13·61	14·14	−0·94
Gangetic Plain and Chota Nagpur	12·97	11·89	+1·08
Upper Sub-Himalayas	11·03	12·25	−1·22
Indus Valley and North-Western Rajputana.	6·88	2·98	+3·89
East Rajputana, Central India and Guzerat.*	10·90	11·69	+0·46
Deccan*	12·62	10·95	+1·98
West Coast*	36·89	31·21	+9·24
Southern India*	6·43	5·42	+1·15

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

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for July 1892 is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean pressure of the month reduced to sea level and to constant gravity (that of latitude 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 variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts hitherto published in the annual reports on the meteorology of India. The data on which this chart is based are given in Table II. The pressure data in that table are, it should be noted, reduced to constant gravity (that of 45° latitude) as well as to sea level.

The more important barometric changes and movements during the month are fully 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 means.

It should be noted that the monthly means in the fourth column of Table I are not only reduced or corrected to sea level, but also to constant gravity. The normal means are obtained from the observations of the period 1878—1888, and, in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The distribution of pressure in July 1892 differed from the normal distribution of the month in the following respects:—

1st.—The mean pressure of the whole Indian area was below the normal by amounts averaging ·035.″

2nd.—Pressure was in slight excess relative to the general condition in the eastern half of the Peninsula, Bengal and Assam. The excess was everywhere small and was largest at Chittagong (+·019″).

3rd.—Pressure was in slight defect relative to the general state over the remainder of India. The deficiency exceeded ·020″ at the following stations:—

STATION.	Variation of the mean 8 A.M. pressure of month from the normal.	Pressure. anomaly.
	″	″
Kurrachee	—·058	—·023
Rajkot	— 065	—·030
Bombay	—·057	—·022

The pressure anomalies were hence very small and the general mean distribution of pressure of the month was hence very approximately normal, except that there was a general deficiency, a condition frequently accompanying strong monsoon currents.

Barometric depressions and cyclonic storms of the month.

The following gives an account of the more important changes in the distribution of pressure and of the depressions of the month.

At the commencement of the month pressure was very considerably below the normal in Southern India and Ceylon and the Bay, and above it in North-Western India. The deficiency at Colombo on the 1st was ·20″ and the excess at Peshawar ·08″. The range of pressure was less than a quarter of an inch. and the total gradient was hence much below its average amount. Heavy rain was falling on the Malabar coast and strongish westerly winds were blowing across the south of the Peninsula. In the south and centre of the Bay moderate monsoon winds (force 2 to 6) were blowing. Four vessels out of 36 in the Bay reported squalls during the day.

The pressure conditions in Southern India were such as frequently precede the advance of monsoon winds in the Arabian Sea and it was so on the present occasion.

The larger advances of monsoon current along the west coast of India are frequently, if not almost invariably, characterized by the following features:—

(1) Each advance invariably commences in the south of the Arabian Sea.

(2) A shallow depression forms immediately in front of the advancing current, usually off the Malabar coast. Weather is squally with more or less heavy rain to the south-east and east of the depression.

(3) This depression travels northward along the coast and, as it were, carries the monsoon current

with it. As it advances, heavy rain extends northwards along the line of the Ghats and in the west coast districts.

(4) This depression occasionally (but not necessarily) develops into a cyclonic storm. The development usually occurs in the angle between the Kathiawar and Konkan coasts. These cyclonic storms almost invariably advance to north-westwards across the north of the Arabian Sea towards the north-east coast of Arabia or the entrance of the Persian Gulf.

(5) When a storm does not form the depression apparently advances northwards to the coast of Sind and is absorbed into the permanent low pressure area in North-Western India.

The large advance of monsoon winds in the first week of July 1892 exhibited all these features except the fourth. The following table giving the variations of pressure day by day from the normal at the west coast stations shows clearly the advance of an area of deficient pressure northwards. The trough of the depression or of the greatest deficiency of pressure was in the latitude of Karwar on the 4th and 5th, in that of Ratnagiri on the 6th, Bombay on the 7th, Rajkot on the 8th, and Kurrachee on the 9th. It hence advanced with approximate uniformity from the 5th to the 9th and was absorbed into the Sind low pressure area on the 10th:—

Station.	Variation of 8 A.M. pressure from the normal on the							
	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.
	"	"	"	"	"	"	"	"
Cochin	−·122	−·116	−·096	−·108	−·118	−·102	−·072	−·042
Mangalore	−·134	−·128	−·110	−·144	−·068	−·118	−·084	−·063
Karwar	−·127	−·145	−·117	−·158	−·167	−·121	−·078	−·048
Ratnagiri	−·097	−·122	−·128	−·155	−·185	−·169	−·104	−·072
Bombay	−·072	−·058	−·063	−·115	−·150	−·175	−·167	−·088
Rajkot	−·013	+·015	+·020	−·013	−·089	−·098	−·199	−·129
Kurrachee	+·005	+·042	+·055	+·019	−·024	−·072	−·177	−·151

The following table giving the daily rainfall at the same stations during the period shows that heavy rainfall advanced along the west coast *pari passu*:—

Station.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.
Cochin	1·59	4·02	3·22	1·25	1·99	0·78	1·59	0·53	0·93	0·37
Mangalore	1·24	1·93	3·67	2·90	2·08	2·45	2·74	0·41	0·37	0·35
Karwar	0·51	1·11	1·04	1·18	7·29	5·77	2·54	1·45	0·94	1·19
Ratnagiri	*Nil*	*Nil*	*Nil*	0·26	3·16	4·42	1·59	4·33	1·57	0·46
Bombay	0·17	0·01	*Nil*	*Nil*	0·50	2·96	2·33	2·71	2·16	0·68
Rajkot	*Nil*	0·12	0·60	0·03	0·30	*Nil*	*Nil*	0·97	0·97	0·40
Kurrachee	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1·77	2·62

The preceding data illustrate clearly the advance of the humid current northwards in the rear of the shallow depression.

Weather was very squally in the front of the advancing current, and winds were somewhat irregular and occasionally indicated a tendency towards the establishment of cyclonic circulation, but it never advanced beyond the initial stage.

It may be pointed out that the phenomena of these advances stated above are a strong confirmation of the hypothesis that they commence in the south of the Arabian Sea, and are hence not immediately and primarily a strong indraught to a hot area in Northern India. The dynamics of the current is much more complicated and the high pressure area to the south is as essential a feature of the phenomena as low pressure conditions to the north in Upper India or Central Asia.

Cyclonic storm of the 7th to the 13th July.—Very light monsoon winds were blowing in the Bay at the beginning of the month and pressure was very uniform over the north-west of the Bay. Pressure, however, gave way steadily in Northern India from the 1st to the 7th, and hence gradients became gradually deeper in the Bay and the monsoon currents increased slightly in force. The increase was at first most marked in the south of the Bay, but gradually extended northwards. The following gives the strongest winds reported on each day from the 2nd to the 9th, and the position of the ship where these winds were experienced:—

Date.	Name of Vessel.	Position.		Wind.	
		Lat. N.	Long. E.	Direction.	Force.
		° ′	° ′		
2nd	S. *Avon*	0 10	87 8	Variable	7
3rd	Barque *Lamorna*	4 15	85 16	W	8
4th	S.S. *Cathay*	5 36	88 26	SW	5 to 6
5th	S.S. *Colaba*	6 13	83 4	WSW	5
6th	S.S. *Kohinur*	6 14	81 45	SW	7
7th	S. *Lamorna*	14 23	85 45	W	8
8th	S.S. *Benares*	16 0	82 54	SW	6
9th	S. *Lamorna*	16 26	85 25	W by S	9

At the same time rain began to fall in increasing amounts and the area of rainfall extended northwards. Five ships out of 39 reported rain showers on the 3rd. The mean force of the winds in the Bay on the morning of the 7th was 3·2.

As frequently happens, the advance of a strong burst of monsoon winds was accompanied with much squally weather in front of the current, and with a marked tendency to the formation of a shallow depression, which was transferred northwards with the northward progress of the monsoon winds. The indications of the existence of this depression were very feeble until the morning of the 6th, when a fairly well-defined depression lay between Lat. 14° N. and 18° N. and Long. 83° E. and 88° E. It was about 100 miles further to the north on the 7th and was as shallow and feeble as on

the 6th. The following gives 8 A.M. observations taken on board vessels in this area of shallow depression on the 7th :—

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	State of Sea.	Weather Remarks.
	° ′	° ′					
S.S. *Rewa*	15 12	82 16	29·53	NE	1 to 2	...	Cloudy.
S. *Osborne*	16 48	85 23	29·50	SW by W	...	...	
S. *Juteopolis*	17 42	86 10	...	Variable.	1	...	Very light airs.
S. *Kelat*	18 13	86 58	29·58	...	...	...	Heavy thunder.
S.S. *Shahzada*	18 28	91 8	29·57	Variable.	2	...	
S.S. *City of Vienna*	19 40	87 35	29·54	E	2	Slight	Fine and clear.

The observations show that a slight depression in which winds were light and variable had formed off the coasts of Ganjam and the Circars. Westerly winds prevailed to the south. These winds were the continuation of the strong monsoon winds blowing across the Peninsula. Moderate monsoon winds (force 4 to 6) prevailed in the south and east of the Bay. It is hence evident that at this stage the depression and cyclonic storm was in the initial stage.

July 8th.—Pressure was now increasing in the south of the Bay and the Peninsula, and was falling briskly to rapidly in Upper India and slowly in the north of the Bay. The depression in the north-west of the Bay had advanced northwards about 150 miles and developed very slightly during the previous 24 hours. It was now between Lat. 16° and Lat. 20° N. and between the North Madras coast and the meridian of 89° E. The following gives 8 A.M. data extracted from the logs of vessels in the depression area on the 8th :—

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Remarks.
	° ′	° ′				
S. *Lamorna*	15 58	85 19	29·59	WNW	5	
S.S. *Benares*	16 0	82 54	29·54	SW	6	
S. *Juteopolis*	17 20	87 22	29·49	NNE	?	Very threatening.
S. *Osborne*	18 14	86 1	29·46	NE by N	...	
S. *Kelat*	19 56	88 45	29·48	...	...	Torrents of rain.
S.S. *Africa*	19 42	89 49	29·47	SW	2	Fine.
S.S *Katoria*	21 21	90 48	29·63	SSW	2	Cloudy.

These observations show that there was a shallow depression, the centre of which was a little to the east of the position of the *Osborne* in about Lat. 18½° N. and Long. 86½° E. Winds were very light and feeble in this area, and the cyclonic circulation was as yet very imperfectly developed. Moderate to strong monsoon winds were blowing in the centre and east of the Bay, and squalls were experienced by several ships.

July 9th.—Pressure during the previous 24 hours had decreased in the north of the Bay and in Bengal and had increased over the remainder of India. Pressure ranged from 29·82″ at Colombo and Tavoy to 29·25″ at Dera Ismail Khan, giving a total gradient of 0·57″. Winds were of average force 4·0 in the Bay and 4·7 in the Arabian Sea. The trough of low pressure stretched in a south-easterly direction from the West Punjab to the Orissa coast, and terminated in a shallow depression in the north-west of the Bay. This depression was the continuation of the depression off the coast of Ganjam and the Circars on the previous day and had hence advanced or been carried forward about 150 miles during the previous 24 hours. The following gives 8 A.M. data of the depression area :—

(1) *Coast Stations.*

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours	Barometer. Variation from normal.	Wind. Direction.	Wind. Force.	Cloud.	Rainfall of previous 24 hours.
	″	″	″				
False Point	29·436	—·088	—·116	E	12	10	*Nil.*
Gopalpore	·432	—·069	?	NNW	14	8	0·22
Vizagapatam	·500	+·008	—·100	W	3	10	1·56

(2) *Ships.*

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Remarks.
	° ′	° ′				
S.S. *Lightning*	16 17	91 55	29·60	SW	5	Squally with high sea.
S. *Lamorna*	16 26	85 25	29·58	W by S	9	
S.S. *Benares*	18 53	85 32	29·40	NW	4 to 7	
S. *Osborne*	19 18	86 59	29·41	SE	...	
S. *Juteopolis*	19 28	89 22	29·42	SE	...	Rain squalls.
S.S. *Camorta*	19 59	86 26	29·39	NE	4	Squally.

The observations show that the depression had developed slightly, and that a fairly well-marked cyclonic circulation, the centre of which was in about Lat. 20°N. and Long. 88½°E. at 8 A.M., was now established. Winds had strengthened considerably to the south of the depression and moderate to fresh westerly gales were now experienced. The depression had hence developed into a cyclonic storm during the previous 24 hours, but was as yet of moderate intensity.

The log of the S. *Kelat*, which had passed through the depression during the previous three days, gives full and interesting information of the weather during this period from the 6th to the 8th, when the storm was slowly intensi-

fying. The following gives a summary of her observations :—

Date.	Hour.	Position. Lat. N.	Position. Long. E.	Wind direction.	Weather.
		° ′	° ′		
6th	4 A.M.	...	...	...	Very heavy thunder.
	8 A.M.	16 37	86 14	NW to WSW	Light baffling airs.
	Noon	16 59	86 23	...	
	2 P.M.	...	...	...	Heavy squall from S with torrents of rain. Wind shifted from SSE to SSW and W during squall. Lightning all round.
7th	2 A.M.	...	...	...	Hard squall.
	8 A.M.	18 13	86 58	SW to SSE	Light wind.
	Noon	18 28	87 5	NNW	Wind variable.
	4 P.M.	...	...		Light squall from SE.
	Mid-night.	...	...	ENE to ESE	
8th	Noon	20 15	89 4	ENE to ESE	Very unsettled weather during day; wind shifting from E to S and back to SE. Frequent rain showers.

July 10th.—Pressure gave way rapidly during the previous 24 hours in the storm area at the head of the Bay. A rapid rise in North-Western India diminished the total gradient favouring monsoon winds. The mean force of the winds in the Arabian Sea was practically unchanged (4·7). The depression now covered the north-west angle of the Bay. The following gives 8 A.M. observations at the coast stations in the storm area :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	″	″	″				
False Point .	29·408	—·028	—·137	W	13	10	1·06
Saugor Island .	·358	—·121	—·175	SE	15	9	0·84
Balasore . .	·285	—·174	—·250?	N	9	7	3·30
Calcutta . .	·419	—·090	—·114	E	8	10	0·29
Chaibassa .	·398	—·051	?	NE	3	8	0·02

The centre was probably not more than 20 miles to the south-east of Balasore. It was advancing at a rate of nearly 5 miles an hour. The depression at the centre did not exceed three or four tenths of an inch. Winds were by no means strong, and the storm was hence of moderate intensity only.

The following gives 8 A.M. observations taken on board ships in the north-west of the Bay :—

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Remarks.
	° ″	° ″				
S.S. *Umsinto*.	17 12	85 56	29·46	WSW	6	Heavy squalls.
S.S. *Lightning*	20 11	89 0	29·42	S	...	Strong squalls.
S. *Juteopolis* .	20 43	88 27	29·38	SW by S	4	...

Weather was squally over the Bay to the north of Latitude 16° N., but the squalls and westerly winds were by no means so severe as are frequently met with in these storms. Orissa had received general rain during the previous 24 hours, but the rainfall was not excessive, as no amounts exceeding 5 inches were registered at 8 A.M. of this day.

July 11th.—The barometer began to give way generally in Northern India, but the changes were nowhere large. The depression had advanced during the previous 24 hours in a north-westerly direction at a rate of about 5 miles per hour, and was at 8 A.M. passing through Chota Nagpur. The following observations define its position at that hour :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	″	″	″				
Calcutta . .	29·358	—·061	—·172	ESE	8	10	0·35
Burdwan . .	·379	—·072	—·153	ESE	7	10	0·85
Ranchee . .	·355	—·098	—·155	NE	8	9	0·71
Chaibassa .	·292	—·106	?	NE	2	10	1·80
Balasore . .	·310	+·025	?	SW	11	7	0·39

The storm was as hitherto of moderate intensity. The rainfall was nowhere excessive in the storm area. The largest amounts during the previous 24 hours were registered in Chota Nagpur in front of the storm area.

July 12th.—The storm had advanced at about the same rate as before (5 miles per hour), and was now passing through Chota Nagpur and the adjacent districts of the Central Provinces. The following observations define its position at 8 A.M. :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	″	″	″				
Chaibassa .	29·250	—·042	?	E	3	10	3·40
Ranchee . .	·303	—·052	—·211	NE	12	10	0·99
Hazaribagh .	·336	—·053	—·186	E	15	10	0·61
Raipur . .	·424	—·010	—·114	WSW	19	10	1·08
Sambalpur .	·297	—·067	?	SW	8	10	4·61

The centre was probably in Latitude 22½° N. and Longitude 84½° E. at 8 A.M.

Bengal and Orissa had received moderate rain and the southern districts of Sambalpur and Bilaspur heavy rain during the previous 24 hours.

July 13th.—The barometer was now rising briskly to rapidly in India. The depression had advanced in a north-westerly direction during the previous 24 hours at a rate of between 7 and 8 miles an hour, and was now in Baghelkhand and the adjacent districts of the North-Western Provinces.

The following observations define the position of the storm at 8 A.M. :—

STATION.	BAROMETER.			WIND.		Cloud, 8 A.M.	Rainfall of previous 24 hours.
	Actual, 8 A.M.	Change in previous 24 hours.	Variation from normal.	Direction, 8 A.M.	Average velocity of previous 24 hours.		
	"	"	"				Inches.
Benares . .	29·394	+ ·033	—·112	E	9	9	0·18
Allahabad .	·388	+ ·026	—·119	ENE	12	8	0·29
Sutna . .	·367	+ ·004	—·137	NNE	7	10	1·78
Jubbulpore .	·442	+ ·023	—·094	W	9	10	7·95

The centre was in Lat. 24½° N. and Long. 82½° at 8 A.M.

Light to moderate rain had fallen in the storm area during the preceding 24 hours. Very heavy rain was received at this time in the Central Provinces due to the increasing influence of the Bombay current.

The storm filled up during the next 24 hours.

The following table gives the position of the storm centre and its rate of motion from the 9th to the 13th :—

DATE.	POSITION OF CENTRE.		Distance passed over during previous 24 hours.	Rate of motion, miles per hour.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
9th	20 0	88 30	...	...
10th	21 20	87 10	120	5
11th	22 0	85 50	95	4
12th	22 30	84 30	95	4
13th	24 15	82 15	180	7½

On the 14th pressure was above the normal over the whole of India except the north-western districts of the North-Western Provinces. The excess was greatest in the north-east of the Peninsula, and the trough of low pressure ran westwards from West Bengal to Upper Sind. A rapid local fall occurred in North Bengal on the 14th which gave rise to a shallow depression in that area on the 15th and 16th. A general decrease of pressure, large in amount in Upper India gave very steep gradients on the 17th and displaced the trough of low pressure to the foot of the hills in the Punjab and North-Western Provinces. At the same time the shallow depression in North Bengal disappeared, after giving moderately heavy rain in that area for 48 hours. The pressure changes were somewhat irregular for a short period. Pressure increased rapidly near the hills in Northern India, and the trough of low pressure shifted southwards to its former position, running from West Bengal to Upper Sind. A shallow depression appeared in the eastern half of this trough on the morning of the 18th.

Shallow depression of the 18th to the 20th July.—The depression formed in the eastern districts of Chota Nagpur and the adjacent districts of West Bengal on the night of the 17th. Heavy rain had fallen during the previous 24 hours, and the barometer fell slightly in this area whilst it was rising in other districts. The following observations define the depression :—

STATION.	BAROMETER, 8 A.M. OF 18TH.			WIND.		Cloud.	Rainfall of previous 24 hours.
	Actual, 8 A.M.	Change in previous 24 hours.	Variation from normal.	Direction.	Average velocity of previous 24 hours.		
	"	"	"				Inches.
Chaibassa .	29·382	—·031	?	WSW	2	10	4·09
Burdwan . .	29·406	—·037	—·125	SSW	2	10	0·09
Bankura .	29·367	—·049	—·141	Calm	2	10	0·80
Hazaribagh .	29·430	—·017	—·089	N	11	10	1·01

The depression was transferred west-north-westwards into the centre of the Gangetic Plain on the 19th. The following observations indicate its position at 8 A.M. of the 19th :—

STATION.	BAROMETER.			WIND.		Cloud.	Rainfall of previous 24 hours.
	Actual, 8 A.M.	Change in previous 24 hours.	Variation from normal.	Direction.	Average velocity of previous 24 hours.		
	"	"	"				Inches.
Patna . .	29·420	—·007	—·107	ENE	10	10	0·44
Gorakhpur .	·453	—·012	—·064	ESE	1	6	0·80
Lucknow . .	·433	+ ·005	—·082	Calm	2	10	0·70
Cawnpore .	·457	+ ·014	?	NW	2	10	1·65
Allahabad .	·432	+ ·006	—·077	WSW	4	10	1·44

A very rapid increase of pressure had taken place in Upper India. Gradients were steep in the Peninsula, but pressure was very uniform in North-Western India. Moderate to heavy rain had fallen during the previous 24 hours in the Central Provinces, Bengal and the North-Western Provinces.

The depression was transferred westwards on the morn-

ing of the 20th into the area defined by the following stations :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	"	"	"				Inches
Benares	29·395	—·040	—·111	SW	5	10	0·70
Gorakhpur	·377	—·076	—·138	E	2	9	0·25
Bareilly	·413	—·066	—·104	NE	2	10	0·76
Agra	·472	—·012	—·047	NW	4	10	0·84
Allahabad	·375	—·057	—·130	WNW	5	10	2·06

Heavy rain had been received in Baghelkhand, Bundelkhand and the North-Western Provinces during the previous 24 hours.

A general decrease of pressure occurred in the Indian area during the next 24 hours. It was large in amount in Upper India, South Bengal and the north of the Bay. These changes accompanied the filling up of the depression in the Gangetic plain and the formation of another and more important depression in West Bengal.

Depression of the 22nd to the 29th July.—Pressure gave way generally over the whole of India during the 48 hours preceding 8 A.M. of the 22nd. The fall was very large in Upper India and unusually steep gradients obtained on the morning of the 22nd in Western and North-Western India. The fall was also very large in West Bengal and the north of the Bay, and a shallow depression formed in that area on the morning of the 22nd. The following 8 A.M. observations of the 22nd define its position at that hour :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	"	"	"				
Chaibassa	29·267?	—·032	?	W	3	10	0·13
Saugor Island	·305	—·026	—·216	SW	20	10	0·16
Calcutta	·291	—·027	—·227	WSW	4	10	0·25
Jessore	·301	—·020	—·237	SE	2	10	0·72
Burdwan	·307	—·014	—·210	E	1	10	0·03
Bankura	·280	—·029	—·216	Calm	2	9	0·34
Hazaribagh	·298	—·042	—·195	E	9	10	0·66

Steep gradients obtained in the Bay and strong west-south-west winds (force 6 to 8) were blowing in the north and centre of the Bay. Weather was very squally with heavy rain off the Arakan, Bengal and Orissa coasts.

July 23rd.—Pressure had increased very rapidly in North-Western India and rapidly in East Bengal during the previous 24 hours. The depression had moved westwards into the area defined by the following stations for which observations are given below :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	"	"	"				
Chaibassa	29·299	+·032	?	SE	1	10	3·05
Hazaribagh	·361	+·063	—·149	E	12	10	3·97
Benares	·336	+·007	—·159	NE	4	10	3·[illegible]2
Sambalpur	·372	+·039	?	SW	15	10	11·41
Cuttack	·375	+·027	—·156	SW	8	10	1·32

The chief feature of the meteorology of the storm area during the previous day was the excessive rain received in the Sambalpur district. The following gives complete rainfall data of the 22nd and 23rd for that district :—

Station.	Rainfall of 24 hours preceding 8 A.M. of 22nd.	Rainfall of 24 hours preceding 8 A.M. of 23rd.	Total Rainfall of period of 48 hours.
	Inches.	Inches.	Inches.
Sambalpur	8·18	9·19	17·37
Bargarh	7·66	9·81	17·47
Raigarh	1·72	4·45	6·17
Sarangarh	2·57	10·52	13·09

Moderately heavy rain had fallen in Chota Nagpur, Bihar and West Bengal, and heavy rainfall was extending westward into the North-Western Provinces.

July 24th.—The barometric changes of the preceding 24 hours were chiefly due to the westward advance of the storm area into Baghelkhand. Pressure had increased rapidly in West Bengal and had fallen rapidly in Baghelkhand and the neighbouring districts of the Central Provinces and North-Western Provinces. The following observations define the central depression at 8 A.M. of the 24th :—

Station.	Barometer. Actual, 8 A.M.	Barometer. Change in previous 24 hours.	Barometer. Variation from normal.	Wind. Direction, 8 A.M.	Wind. Average velocity of previous 24 hours.	Cloud, 8 A.M.	Rainfall of previous 24 hours.
	"	"	"				
Raipur	29·404	—·043	—·145	WSW	21	10	3·53
Benares	·355	+·019	—·142	E	8	7	0·21
Allahabad	·332	—·070	—·165	ENE	11	10	1·51
Sutna	·312	—·129	—·192	NNE	9	10	2·01
Jubbulpore	·328	—·110	—·203	W	8	10	3·95

The centre of the depression was at some distance south-west of Sutna in Lat. 24° N. and Long. 81¼° E. Heavy rain had fallen in the Central Provinces, Baghelkhand and Bun-

delkhand, and light to moderate rain in Bengal and the Gangetic plain.

July 25th.—The barometric changes of the previous 24 hours were chiefly due to the advance of the depression which at 8 A.M. was in South-East Rajputana. The following observations define its character and position at that hour:—

Station.	Barometer.			Wind.		Cloud, 8 A.M.	Rainfall of previous 24 hours.
	Actual, 8 A.M.	Change in previous 24 hours.	Variation from normal.	Direction, 8 A.M.	Average velocity of previous 24 hours.		
	"	"	"				
Neemuch	29·404	—·070	—·147	W	17	10	2·64
Jhansi	·345	—·038	—·160	SW	5	8	1·25
Agra	·377	—·076	—·134	SE	7	10	0·01
Jeypore	·350	—·099	—·155	NE	2	10	0·29
Ajmere	·399	—·062	—·145	NE	8	10	0·80

The observations show that the centre of the depression was nearly mid-way between Jhansi and Jeypore in Lat. 25½° N. and Long. 77½° E. The north-east districts of the Central Provinces and Central India States had again received heavy rain. Some very large falls were also obtained in Ajmere and Central Rajputana, amongst which the following were most noteworthy:—

District or State.	Station.	Rainfall of 24 hours preceding 8 A.M. of 25th.
		Inches.
Ajmere	Bhinai	5·90
	Goela	5·70
	Kekri	4·80
Jeypore	Malpura	4·00
Jodhpore	Marot	4·80

The storm had advanced at an average rate of 12 miles per hour during the previous 24 hours.

July 26th.—The barometric changes of the previous 24 hours were due to the continued west-north-westward advance of the depression, to its partial filling up and to the appearance or formation of a shallow depression at the head of the Bay. The depression at 8 A.M. was in Upper Sind and the adjacent districts of West Rajputana. The following observations fix its position at that hour:—

Station.	Barometer.			Wind.		Cloud, 8 A.M.	Rainfall of previous 24 hours.
	Actual, 8 A.M.	Change in previous 24 hours.	Variation from normal.	Direction, 8 A.M.	Average velocity of previous 24 hours.		
	"	"	"				
Ajmere	29·440	+·041	—·104	SW	8	8	1·50
Bickaneer	·352	+·007	?	S	6	6	0·61
Mooltan	·381	+·006	—·062	SE	7	6	0·59
Jacobabad	·386	+·019	—·048	NW	3	10	0·59

The depression was hence now very shallow and of little importance. It had given moderate rain to West Rajputana and Sind during the previous 24 hours.

The depression now covered the area which is usually the western extremity of the south-west monsoon trough of low pressure and where it is usually deepest. A well-marked depression with a vigorous cyclonic circulation covered this area during the next three days and determined frequent rain to Rajputana, Sind and the Punjab. It was unchanged in position from the 27th to the 30th. The following gives data showing its character on the 30th, on which day it filled up and disappeared:—

Station.	Barometer.			Wind.		Cloud.	Rainfall of previous 24 hours.
	Actual, 8 A.M.	Change in previous 24 hours.	Variation.	Direction.	Velocity.		
	"	"	"				
Mount Abu	?	?	?	SW	6	10	0·15
Bickaneer	29·499	—·015	?	SW	8	6	
Sirsa	·522	—·044	+·037	SE	3	1	
Mooltan	·538	—·008	+·072	NNE	3	10	
Jacobabad	·554	+·009	+·113	SE ?	4	4	

The depression at this stage gave, as already stated, an unusually heavy burst of rain to the West Punjab and Rajputana. The following data for certain selected stations illustrate this feature:—

District.	Station.	Rainfall of 24 hours preceding 8 A.M. of				Total rainfall of period of four days.	Normal rainfall of month of July.
		27th.	28th.	29th.	30th.		
Shahpur	Sakesar	3·10	2·00	2·55	0·20	7·85	3·57
	Shahpur	0·12	2·86	2·32	1·45	6·75	3·56
Jhang	Jhang	3·72	3·12	1·57	0·74	9·15	3·04
Dera Ismail Khan.	Bhukkar	2·26	6·72	4·58	1·06	14·62	2·25
Mooltan	Mooltan	0·59	4·93	3·55	0	9·07	2·10

It will be seen that the amounts received during this period were very largely in excess of the total normal rainfall of the month. Thus at Bhukkar the amount obtained was 14·62 inches, nearly seven times the normal fall of the month of July (*viz.*, 2·25 inches).

Depression of the 26th to 29th July.—This depression was of very slight intensity and of little importance and is hence very briefly described.

Pressure increased rapidly in North-Western India, and decreased slightly in the north of the Bay and Bengal during the 24 hours preceding 8 A.M. of the 26th. In consequence of these changes a very shallow depression was exhibited in the north of the Bay on the 26th. Moderate to fresh monsoon winds obtained in the Bay. Winds were light, irregular and unsteady in Bengal. Pressure continued to rise in Upper India and fall in the north of the Bay during the next 24 hours, and the depression was deeper and fairly well-defined on the morning of the 27th.

Winds had shifted to east and north-east in Lower Bengal. They had increased slightly in strength in the centre of the Bay but were light and unsteady near the head of the Bay. Pressure increased briskly in the north of the Bay during the next 24 hours and the depression was feeble on the morning of the 28th. It was then approaching the Orissa coast. The disturbance passed rapidly west-northwestwards during this day. It was at 8 A.M. of the 29th a diffuse and ill-defined shallow depression covering Bundelkhand, Baghelkhand, Chota Nagpur and the adjacent districts of the North-Western Provinces. It filled up during the next 24 hours. The storm gave a light to moderate burst of rain to Bengal, Chota Nagpur, Bihar and the North-Western Provinces.

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 Deputy Commissioner, Dera Ismail Khan, states that no snow fell on the ranges along the border of his district, not even on the higher ranges of the Takht-i-Suleiman or Pir Ghal mountains during the months of June and July.

II.—AFGHAN MOUNTAIN DISTRICTS.

Colonel R. Warburton, Political Officer, Khyber Pass, has sent the following interesting information respecting the snowfall on the mountains west of Kohat :—

"About the 24th or 25th of May last a severe storm came on from west, and a heavy fall of snow was reported to have taken place on the Sufed Koh range.

It is stated that snow falling at this time of the year on the Sufed Koh range has never been heard of before in the memory even of the oldest man. For days after and even now, some of the tops of the Sufed Koh still remain white. No snow fell on the hills of the Khyber range or Tirah."

III.—THE PUNJAB AND KASHMIR HIMALAYAS.

(*a*) *Kashmir.*—The following account of a heavy local precipitation in the Kashmir Himalayas is extracted from a letter received from F. B. Shawe, Esq., dated Leh, 10th August :—

"On a journey from Kyelang just accomplished I experienced a great amount of rain. I can mention the dates and the approximate hours of the rain as follows :—

July 26th.—Drizzle during night, increasing during the day to heavy rain, with fog, on crest of the Baralacha pass (16,000 feet) at mid-day. Wind from the west, *i.e.*, up the Bhaga valley. On north side of pass rain soon ceased at 2 P.M., but clouds observed hanging over the pass until sun-down.

July 27th.—Heavy hailstorm with strong west wind at 2 P.M. Rain after sunset.

July 28th.—The hill tops covered with fresh snow from 16,000 feet upwards. Dull day but no rain.

July 29th.—Cloudy morning. Sunshine from mid-day. At sunset a violent wind from the west followed by very heavy rain all night.

July 30th.—Continual rain with west wind, at times very excessive, till 3 P.M.

July 31st.—Occasional sunshine in the morning. No rain till sunset, when violent thunderstorm from the east with strong wind and very heavy rain lasting about half an hour. Showers during night.

August 1st.—Bright day but occasional smart showers. At midnight heavy thunderstorm with much rain lasting about 1½ hours.

"These notes were made between the last village of Lahoul and the first of Ladak whilst travelling along a route leading slightly east of a line drawn between Leh and Kailang. The average height of the country is 14,000 to 15,000 feet."

(*b*) *Lahoul.*—The Revd. A. W. Heyde, Superintendent of the Kailang Observatory, writing on the 15th August, describes the weather during June and July in Lahoul in the following terms :—

"Since the 8th of June we have till now had 28 rainy days on which nearly 3·88 inches of rain have been registered. It never snowed during this period except once or twice, when a sprinkling of snow was observable on the highest peaks around us To-day it rained for several hours and snow has fallen on the hills down to about 15,000 feet, and if it does not clear up, and it does not seem it will, the snow will soon reach the bottom of the valley.

"So much wet in Lahoul during the summer months is very unusual, and, no doubt, must be attributed to the heavy rains in Kulu and the plains, which this year reach far beyond their usual limit into the inner hills. The crops are suffering from being laid flat by the frequent rain."

(*c*) *Kangra.*—The Assistant Commissioner, Kulu, gives the following information of the depth of snow on the higher passes, from the 25th of May to the end of July :—

TAHSIL.	Name of pass.	Elevation.	DEPTH OF SNOW ON			
			25th May.	9th July.	16th July.	31st July.
		Feet				
KULU	Rotang	13,000	1 foot	½ foot	¾ foot	½ foot
	Hamta	14,500	½ "	¼ "	*Nil*	*Nil*
	Barsai	?	½ "	*Nil*	*Nil*	*Nil*
	Jagatsukh	?	*Nil*	*Nil*	¼ foot	*Nil*
	Chandarkhani	?	*Nil*	¼foot	¼ "	*Nil*
PLACH	Sirikhand	15,000	4 feet	*Nil*	1 "	1 foot
	Gargarasan	17,000	1 foot	"	*Nil*	*Nil*
	Tirath	?	1 "	"	*Nil*	*Nil*

The Assistant Commissioner adds that the snow in Lahoul is much below the average.

Summary.—The preceding information appears to indicate that although there have been heavy local falls (as on the Sufed Koh at the end of May and in North Kashmir in July) there has been no heavy general and extensive snowfall during the months of June and July. This is further confirmed by the appearance of the snows from Simla and by the Punjab Irrigation Report of the 30th June, which states that the water during the month of June was "extraordinarily low in the Jumna," and was "so abnormally low in the Sutlej and Chenab" that the dependent canals were not able to supply the water required for irrigating the crops.

It is hence almost certain that the depth of snow accumulation on the higher ranges and the extent of surface covered with snow were very much less than usual at the beginning of June, and that there has been no heavy general snowfall up to the end of July. The snow accumulation in the North-West Himalayan area was hence at the end of July almost certainly below the normal to a very unusual extent.

Summary of Special Storm Reports.

The following gives a statement of the chief local storms, of which reports were received during the month:—

1st.—Violent duststorm with rain at Jacobabad at 11-50 P.M. The storm came down from west and lasted 20 minutes.

2nd.—Duststorm at Peshawar at 4 P.M. and again at 5-3 P.M. The latter, which came down from west, is described by the observer as a "red duststorm."

4th.—Duststorm at Pachpadra at 5-45 P.M. Temperature fell from 105·5° at 6-5 P.M. to 92·5° at 6-35 P.M. Duststorm at Khushab, 6 P.M. to 7-30 P.M. Temperature fell from 109° at 6 P.M. to 103° at 7-15 P.M. and thence to 90° at 7-30 P.M.

6th.—"Terrific" thunderstorm at Masulipatam, which lasted 20 minutes.

8th.—Duststorm at Pachpadra at 5-15 P.M. to 6-45 P.M. Temperature was unchanged from 5-15 P.M. to 6-30 P.M., at which hour it was 99·5°. It fell to 80° at 6-45 P.M., at which hour a little rain fell. The neighbouring village had heavy rain during the evening.

9th.—Duststorm at Ajmere at 0-30 P.M. to 0-45 P.M.

10th.—Duststorm at Pachpadra at 6-40 P.M. to 7-50 P.M., followed by rain.

11th.—Violent duststorm, followed by rain, at Jacobabad at 7-30 P.M. Duststorm at Ajmere at 6-10 P.M. The storm came up from east and lasted about 10 minutes.

12th.—Violent thunderstorm with heavy rain and strong winds at Jubbulpore. Rainfall during day 7·95 inches.

18th.—Duststorm, followed by heavy rain, at Khushab. Duststorms at Lahore at 3·50 A.M. and 9-30 P.M.

19th.—Severe duststorm at Jacobabad at 7-30 P.M. Storm came down from north and lasted 30 minutes.

24th.—Duststorm at Jacobabad at 0-30 P.M. Storm came from west and lasted 15 minutes. Duststorm at Pachpadra.

27th.—Thunderstorm at Pedong from 2 P.M. to 4 P.M.

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

The following summary is drawn up from the extracts taken from the logs of vessels which entered the ports of Calcutta and Bombay during the month:—

Arabian Sea.—A light to moderate south-west monsoon obtained in the Arabian Sea at the commencement of the month. The mean force of the winds determined from the observations of 23 vessels was 3·6. Weather was fine except near Socotra where it was squally. The conditions in the centre and north of the sea were similar to those which had obtained during the last ten days of the month of June, and abnormal south to south-east winds continued on the Bombay coast. Winds now began to increase in strength in the south and west of the Arabian Sea and weather became more squally and disturbed. The S.S. *Baria* in Lat. 10°-52′ N. and Long. 55° 48′ E. at 8 A.M. of the 2nd had south-south-west winds of force 9. The S.S. *Landaura* in Lat. 11° N. and Long. 75° 14′ E. at 3 A.M. of the 3rd had incessant rain. Pressure was at this time very low off the Konkan coast, and this depression now began to advance slowly northwards, strong monsoon winds prevailing to the south of the depression. On the morning of the 4th moderate to strong monsoon winds with very squally weather obtained in the south and south-east of the Arabian Sea. Weather was fine and skies generally clear in the northern half of the sea. The mean force of the winds observed by 17 ships on this day was 3·6. The winds steadily increased

during the next four days. On the 5th the mean force was 3·8, on the 6th 4·3, on the 7th 4·6, and on the 8th 4·8. On the 6th fresh to strong monsoon winds obtained over the whole of the south and centre of the sea, and weather was very squally off the Malabar and Konkan coasts. South-east winds continued on the Bombay coast until the 8th, on which day the shallow depression immediately in front of the advancing monsoon was in the north of the sea off the Sind and Cutch coasts. Westerly winds set in on the Bombay coast on the 8th and on the Kathiawar coast on the 9th. A further increase of strength in the winds occurred during the next three days. On the 11th the average force of the winds (determined from observations of 23 vessels) was 5·4 and on the 12th 6·0. Very strong monsoon winds with a high sea now prevailed in the centre of the Arabian Sea. Winds fell off slightly in strength on the 13th. During the remainder of the month steady monsoon winds continued, ranging in average force between 4·0 and 5·2. The weather during this period was of the ordinary monsoon type and presented no features of unusual interest.

Bay of Bengal.—At the commencement of the month a very light monsoon obtained over the Bay, and the weather was fine to the north of Lat. 6° N. To the south of this latitude winds were of moderate force and the weather was rainy or squally. Thus the S.S. *Albion* in Lat. 5° 24′ N. and Long. 85° 6′ E. at 8 A.M. of the 1st had north winds (force 6) with heavy rain squalls. The mean wind force for the whole Bay area on this day, as determined from the wind data of 24 vessels, was 3·0.

Winds increased slightly in force during the next six days and squally weather advanced northwards to about Lat. 15° N. A storm was generated in front of these advancing strong monsoon winds on the 6th, 7th and 8th in the north of the Bay. It marched in a north-westerly direction across the Orissa coast, near Balasore, about noon of the 10th. Very squally weather prevailed in the centre and east of the Bay during its existence in the Bay, especially on the 9th and 10th, on which days moderate to fresh gales were experienced by several vessels The average wind force for the whole Bay area on the 9th was 4·0. The monsoon current continued to increase in strength during the next 48 hours, especially in the north and centre of the Bay, and on the morning of the 11th was blowing with a mean force of 4·6. Thirteen vessels out of 26 had winds of force 5 or upwards on the morning of the 12th. Winds were especially strong in the north of the Bay (to the north of Lat. 16° N.) where very squally weather and a high confused or mountainous sea prevailed. Thus the ship *Avon* in Lat 17° 40′ N. and Long. 86° 43′ at 8 A.M. of the 12th had winds of force 9 and a high mountainous sea, and the S. S. *Chelydra* in Lat. 19° 5′ N. and Long 89° 30′ at the same hour had south-westerly winds (force 8), a very high sea and squally weather with continuous rain. The monsoon current in the Bay fell off rapidly in strength on the 13th and the weather improved On the morning of the 14th only 2 vessels out of the 29 contributing wind data had winds of force 6 and upwards, and the weather was fine over the whole Bay area. The average wind force for the whole Bay area, as determined from the observations of 29 vessels, was only 3·3 on the morning of the 15th.

Winds again increased in force and the weather became squally in the north of the Bay during the next three days. The average wind force for the whole sea area increased from 3·4 on the 16th, to 4·0 on the 17th, 4·5 on the 18th and 5·0 on the 20th. Ten vessels out of the 28 contributing data for the 20th had winds of force 6 or upwards. Winds in the north of the Bay continued to strengthen and the mean wind force for the whole Bay was 5·3 on the morning of the 22nd, on which day very strong winds (ranging in force between 5 and 9) were blowing in the north of the Bay, and the weather was squally. Thus the S.S. *Maharaja* approaching the Sandheads at 8 A M. had west winds of force 9 with a high sea and heavy squalls.

Strong monsoon winds continued during the remainder of the month, and weather was of the ordinary monsoon type during the whole of that period.

Temperature of the Air.

The distribution of temperature in India for July 1892 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.

As usual in the rainy season, the variations of the temperature conditions from the normal in July 1892 were generally small in amount.

The mean maximum temperature of the month was below the normal in Burma, North-Eastern India and in the Peninsula south of Lat. 16° N. The negative variations were less than 1° at the great majority of stations in these

areas, and only exceeded 2° at Madura (—3·6°), Dhubri (—3·2°) and Patna (—3·1°).

The mean maximum temperature was in excess over the remainder of India. The excess was more than 2° in amount over an area including the greater part of Rajputana, Central India, Berar and Khandeish. The following gives data for stations where the excess was over 3° :—

Station.	Maximum Temperature.		
	Mean actual of month.	Normal of month.	Variation from normal.
	°	°	°
Neemuch	90·7	86·5	+4·2
Malegaon	90·3	86·5	+3·8
Indore	87·1	84·0	+3·1
Sambhar	95·2	9 ·5	+3·7

The mean minimum temperature was above the normal over nearly the whole of India and Burma. The variations in the great majority of cases were very small and only exceeded 2° at Ajmere (+2·9°) and Jeypore (+2·3°).

The mean temperature of the month was in slight defect in Southern India, Bengal, Assam and Pegu. The deficiency exceeded 1½° at Dhubri (—2·1°), Patna (—1·8°) and Purnea (—1·6°) in the North Bengal and North Bihar area of excessive rainfall during the month.

The mean temperature was in excess over the remainder of India. The excess was more than 2° in an area comprising West and Central Rajputana, Khandeish and the western districts of Central India. The following gives data for the stations in that area :—

Station.	Mean Daily Temperature.		
	Mean actual of month.	Normal of month.	Variation from normal.
	°	°	°
Neemuch	83·0	80·1	+2·9
Malegaon	82·5	79·7	+2·8
Sambhar	87·3	84·5	+2·8
Jeypore	86·6	84·2	+2·4
Ajmere	86·2	83·8	+2·4
Agra	88·7	86·7	+2·0
Jhansi	86·5	84·5	+2·0

The temperature conditions were solely determined by the distribution of rainfall during the month.

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

At the commencement of the month both monsoon currents were weak. The Bengal current was giving rain to Burma, Bengal and Assam, and the Bombay current to the west-coast districts, South India and the South Deccan. Little or no rain was falling in the interior, and hence temperature was generally above the normal. The increased temperature was most marked at this time in the western districts of the Central Provinces, Central India and Khandeish. The following temperature variation data for the 1st illustrate the temperature conditions at that time :—

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

No change of importance occurred for some days, and temperature increased in the interior with the persistent delay in the advance of the monsoon currents. These abnormal temperature conditions were most intense at the end of the first week of the month. The following gives temperature data of the 8th for two areas in which the mean temperature of the previous 24 hours was upwards of 12° above the normal :—

Area.	Station.	Variation of		
		Maximum temperature from normal.	Minimum temperature from normal.	Mean temperature from normal.
		°	°	°
South-East Punjab.	Lahore	+16·9	+10·7	+13·8
	Ludhiana	+15·5	+9·6	+12·6
	Sialkot	+14·2	+12·0	+13·1
South-West North-Western Provinces.	Agra	+22·5	+4·2	+13·4
	Allahabad	+17·6	+8·5	+13·1
	Jhansi	+16·4	+7·7	+12·1

The highest maximum temperatures of the month in Upper India were registered during the 24 hours preceding 8 A.M. of the 8th and 9th. The following are the most noteworthy :—

Station.	Maximum Temperature.		
	Highest during the month of July 1892.	Highest previously recorded in July.	Year in which recorded.
	°	°	°
Dera Ismail Khan	120·5	117·5	1888
Lahore	117·3	117·5	1878
Montgomery	117·4	?	...
Khushab	117·1	?	...
Peshawar	117·0	115·3	1887
Jacobabad	116·6	119·5	1878
Agra	115·5	110·5	1868

The preceding data show that higher temperatures were recorded during this period in the West Punjab and at Agra, than have been registered in the corresponding month of the past 25 years.

The following gives temperature variation data of the 8th :—

Province.	Variation of		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Burma	+ 1·8	+ 1·1	+ 1·5
Bengal and Assam	+ 0·7	+ 0·9	+ 0·8
North-Western Provinces	+ 11·5	+ 4·0	+ 7·8
Punjab	+ 12·9	+ 7·5	+ 10·2
Sind and Rajputana	+ 11·3	+ 6·2	+ 8·8
Guzerat and Central India	+ 11·0	+ 3·5	+ 7·3
Central Provinces	+ 10·2	+ 3·0	+ 6·9
Bombay	+ 1·5	+ 0·7	+ 1·1
Madras	— 3·3	+ 0·5	— 1·4

A rapid change occurred during the next week. Heavy rain began to fall in the west coast districts in the first week of the month, and at the same time a storm formed in the north-west angle of the Bay, which drifted slowly across the head of the Peninsula from the 10th to the 14th. Under these conditions the monsoon currents advanced with unusual rapidity into the interior and rain was falling in all districts except Sind, Cutch, West Rajputana and the West Punjab on the 10th.

The following gives mean temperature variation data for the 24 hours preceding 8 A.M. of the 8th, 11th and 13th :—

Province.	Variation of the Mean Temperature of 24 hours preceding 8 A.M. of the		
	8th.	11th.	13th.
	°	°	°
Burma	+ 1·5	—0·2	— 0·6
Bengal and Assam	+ 0·8	—0·8	—2·3
North-Western Provinces	+ 7·8	+ 0·9	+ 1·3
Punjab	+ 10·2	—1·6	—4·0
Sind and Rajputana	+ 8·8	—0·6	—1·4
Guzerat and Central India	+ 7·3	+ 1·4	— 2·4
Central Provinces	+ 6·9	+ 0·4	— 2·9
Bombay	+ 1·1	—0·6	+ 0·4
Madras	— 1·4	—1·5	—1·8

The temperature changes during the remainder of the month were, with one exception, comparatively small in amount and of little importance, as the rains held steadily throughout the month.

A depression formed in South-West Bengal on the 20th and 21st, and advanced slowly through Chota Nagpur, Baghelkhand and Rajputana, into Upper Sind. Its passage into Sind was followed by a period of general and heavy rain in the Punjab, and more especially in the central and western districts, from the 24th to the 29th. This produced a large reduction of temperature in the West Punjab and Upper Sind. The following gives examples of the change :—

Station.	Variation from normal of Mean Temperature of 24 hours preceding 8 A.M. of the				
	26th.	27th.	28th.	29th.	30th.
	°	°	°	°	°
Jacobabad	—5·0	—10·1	— 8·6	—10·7	— 4·1
Mooltan	+ 2·0	— 2·8	—12·2	—12·6	— 8·1
Dera Ismail Khan	+ 1·0	— 6·0	—11·9	—21·3	—14·2
Peshawar	+ 3·5	+ 1·0	— 6·2	—13·2	—13·5

This burst of rainfall ceased in Upper India on the 29th and a rapid increase of temperature took place on the 30th and 31st. The following table gives temperature variation data of the 31st :—

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

Winds.

The mean 8 A.M. wind directions of the month at all stations recording observations at that hour are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart, No 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

The south-west monsoon currents were very weak at the commencement of the month, and dry land winds obtained over the greater part of North-Western and Central India. A rapid change occurred in the first and second weeks of the month the chief result of which was the

extension of monsoon winds and rainfall over the whole of Northern and Central India. The monsoon currents prevailed with normal strength during the remainder of the month and were unusually steady.

The Bay current was stronger than usual, as is shown by the following data :—

Station.	Velocity.			
	Average daily air movement, July 1892.	Normal daily air movement, July.	Variation from normal.	Increase expressed as a percentage.
	Miles.	Miles.		
Port Blair	302	254	+ 48	19
Diamond Island	289	210	+ 79	38
False Point	322	268	+ 54	20
Saugor Island	446	341	+105	31

The data of these four stations indicate that the current was about 25 per cent. stronger than usual.

Winds were approximately normal in direction in Burma.

They were less easterly than usual in Central and East Bengal and, as usual under these circumstances, winds were less westerly or more easterly at the coast stations.

The following gives data for five representative stations :—

	Station.	Direction.		
		Average direction, July 1892.	Normal direction, July.	Increased easting or decreased weasting.
Coast stations.	False Point	S 22° W	S 59° W	+37
	Saugor Island	S 7° W	S 24° W	+17
Interior Stations	Burdwan	S 4° E	S 26° E	—22
	Dhubri	S 38° E	S 70° E	—32
	Dacca	S 15° E	S 19° E	— 4

Winds were steadier than usual in the Gangetic plain, and their mean directions for the month exhibited no large or important variations from the normal except at Allahabad. The mean wind direction for the month at that station was N. 24° W., the normal being N. 84° E.

Winds were most variable and unsteady at the following stations, all situated in the mean position of the trough of low pressure during the month :—

Station.	Steadiness.		
	Average, July 1892.	Normal, July.	Variation.
	%	%	
Hazaribagh	11	19	— 8
Allahabad	10	7	+ 3
Agra	23	13	+10
Mooltan	16	33	—17

The Bombay current was probably slightly stronger than usual on the west coast, but the data are too small in amount to decide this question with certainty. The following gives data for three stations :—

Station.	Velocity.			
	Average daily air movement, July 1892.	Normal daily air movement, July.	Variation from normal.	Increase expressed as a percentage.
	Miles.	Miles.		
Ratnagiri	358	313	+45	+14
Bombay	456	456	0	0
Belgaum	704	669	+35	+ 5

Winds were also more southerly and less westerly than usual at the coast stations from Karwar northwards, thus indicating the stronger determination of the current to Upper India than usual. In July 1891 the deflection was in the opposite direction.

Winds were slightly steadier and stronger in the Central Provinces, Berar and the Deccan generally, and the mean directions of the wind differed to no important extent from the normal. Winds were practically normal in Madras.

Humidity and Cloud.

The hygrometric data of the month employed in the following paragraphs are given in Table II. In that table are columns giving the monthly means of the wet bulb readings at 10 and 16 hours and the minimum of the vapour tension and of the humidity at the same hours, and also the daily means of these elements. 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. The normal means, with which the actual daily means of the month are compared, are the means for periods varying from 5 to 25 years of the available cloud data for the same hours.

The south-west monsoon conditions of great humidity were established in May in Burma, and in June in North-Eastern India and the greater part of the Peninsula. A general burst of rain due to a temporary advance of monsoon humid winds had given a brief period of great humidity in the second week of June to the whole of Northern and Central India. The withdrawal of these winds and the re-establishment of westerly winds in the Gangetic Plain had been followed by a large decrease of humidity, which continued until the end of June. During the period of increasing temperature from the 1st to the 8th July, the humidity continued to decrease in North-Western and Central India, and very low humidities were registered on the 7th and 8th in Upper India.

The following were the most noteworthy :—

Date.	Station.	Humidity, 4 P.M. of date.
		%
7th . .	Jacobabad	15
,, . .	Peshawar	16

A very rapid increase of humidity occurred during the next four days in North-Western and Central India due to the extension of monsoon winds into that area. The following data for six stations illustrate this change :—

District.	Station.	Humidity at 8 A.M. of the 1st.	7th.	11th.	13th.
		%	%	%	%
Rajputana	Bickaneer . . .	54	43	69	65
	Sambhar . . .	59	53	89	81
Sind . .	Jacobabad . . .	53	33	71	74
	Hyderabad . . .	59	53	56	87
	Peshawar . . .	60	34	65	69
	Lahore . . .	58	36	78	91

During the remainder of the month south-west monsoon conditions of great dampness obtained over the whole of India.

The mean humidity conditions of the month were normal in Burma and Assam. There was a slight deficiency in the amount of aqueous vapour in Bengal, more especially in the southern districts. The following gives data for four stations :—

Station.	Mean Aqueous Vapour pressure. Actual, July 1892.	Normal, July.	Variation from normal.	Humidity. Actual, July 1892.	Normal, July.	Variation from normal.
	"	"	"	%	%	
Saugor Island . .	·971	1·002	—·031	83	86	—3
Calcutta . . .	·941	·973	—·032	86	87	—1
Dacca . . .	·943	·980	—·037	85	87	—2
Burdwan . .	·919	·955	—·036	81	83	—2

The humidity conditions of the month were practically normal in the North-Western Provinces and the Punjab, except locally at Peshawar and Allahabad, where the mean humidity of the month was in slight defect.

The air was somewhat damper in Sind and slightly drier in Rajputana, but the variations were small.

In the Peninsula the air was generally damper and contained more vapour than usual. The increase was greatest at Madras, where the mean humidity of the month was 5 in excess, and at Bangalore and Bellary, where it was 4 in excess.

The largest variations were exhibited at the hill stations. The air was much damper at Leh and Kailang. The increased humidity at these stations accompanied heavy and abnormal rain and snow in the mountain districts of Lahoul and Ladakh. At the lower-level hill stations nearest to the plains in the Western Himalayas and also at Quetta, Pachmarhi and Chikalda the air was not so damp as usual in July. The deficiency in the humidity was greatest at Simla (—7), Pachmarhi (—5) and Quetta (—5). The following table gives data showing the contrast between the inner and outer hill stations in the Western Himalayas :—

		Mean Aqueous Vapour pressure. Actual, July 1892.	Normal, July.	Variation from normal.	Mean Humidity. Actual, July 1892.	Normal, July.	Variation from normal.
Inner Ranges .	Leh .	·313	·249	+·064	53	44	+ 9
	Kailang .	·361	·365	—·004	68	65	+ 3
Outer Ranges .	Simla .	·498	·545	—·047	82	89	— 7
	Murree .	·498	·535	—·037	73	75	— 2

The average cloud amount of the month was largely above the normal at Port Blair (+2·2) and Diamond Island (+1·6), and in slight excess in Burma and Assam. It was also in excess in Bengal and the North-Western Provinces, but the variations were small and of little importance. There was a considerable excess of cloud in the Punjab and Upper Sind, which was greatest at Hyderabad (+5·6?), Jacobabad (+1·2) and Mooltan (+1·1).

The cloud amount was very largely above the normal in the west coast districts, Mysore, South Madras and the eastern and northern districts of the Central Provinces. The following gives data for the stations in those areas at which the excess was most marked :—

District.	Station.	Mean Cloud Amount. Actual, July 1892.	Normal, July.	Variation from normal.
West Coast . .	Cochin . .	9·4	7·3	+2·1
	Ratnagiri . .	9·4	7·6	+1·8
Mysore . . .	Bangalore . .	8·2	6·4	+1·8
South India . .	Salem . .	7·7	6·1	+1·6
Central Provinces	Seoni . . .	6·7	4·9	+1·8
	Saugor . .	8·1	6·4	+1·7

In the Deccan the cloud amount was in slight excess.

It was in slight excess at the hill stations in the Eastern Himalayas, and in slight to moderate defect at the outer stations in the Western Himalayas. It was, on the other hand, in slight excess at Leh, Kailang and Quetta.

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 July 1892 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 or the provincial monthly rainfall statements published by the Local Governments.

The first rainfall chart (Plate IV) illustrates the actual distribution of the rainfall of the month so far as it is indicated by the returns of upwards of 160 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. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the provincial monthly rainfall statements, so far as possible, and, where they were not available, from the rainfall information telegraphed by district officers. A comparative statement of the rainfall in each of the meteorological districts is given in the following table, and the actual figures utilized in the chart are those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall. A number given in a corner of each district in small slanting figures serves as an index by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

The rainfall of the month of July 1892 was normal or in slight to moderate excess in all districts with the exception of the following :—

North Bengal	78	per cent. in	excess.
Central Provinces East	66	"	"
Central Provinces West	80	"	"
Sind	184	"	"
West Rajputana	78	"	"
West Punjab	213	"	"
Guzerat	24	"	defect.

A partial break prevailed in the interior during the first week of the month. Both currents strengthened and advanced rapidly over the whole of the interior with the exception of Upper India during the second week of the month The Bombay current was strong and steady throughout the month.

Four depressions formed in the north-west of the Bay or West Bengal, and advanced north-westwards. Each of them was accompanied by an influx of humid winds from the Bay, and as each advanced westwards increased the indraught from the west coast. The Central Provinces and Upper India received their heavy rain chiefly from these intensified winds of the Bombay current. The following gives a brief statement of the periods and tracks of these depressions :—

1st.—From the 9th to the 14th. The depression advanced from the north coast of the Bay to the central districts of the North-Western Provinces.

2nd.—From the 18th to the 20th. This storm advanced from West Bengal to the North-West Provinces.

3rd.—From the 22nd to the 29th. This storm advanced from West Bengal to Sind.

4th.—From the 28th to the 30th. This feeble disturbance advanced from the head of the Bay to the North-Western Provinces.

The following gives a statement of the more important features of the rainfall of the large provinces, and is compiled from the monthly rainfall statements of the Provincial Governments where these were available at the time of preparing it :—

PROVINCE.	DIVISION.	Actual average number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
				Inches.	Inches.	Inches.
BURMA	Tenasserim*	?	?	51·49	47·18	+ 4·31
	Lower Burma*	?	?	25·69	23·08	+ 2·61
	Central do.*	?	?	21·32	21·06	+ 0·26
	Upper do.*	?	?	5·51	?	?
	Arakan*	?	?	51·88	48·35	+ 3·53

NOTE.—The figures entered against divisions marked * have been taken from the telegraphic weekly returns.

Province.	Division.	Actual average number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	19·6	19·1	15·27	17·24	— 1·97
	Assam (Surma)	24·2	20·1	22·62	17·87	+ 4·75
	Do. (Brahmaputra)	18·3	17·0	16·18	15·64	+ 0·54
	Deltaic Bengal	15·6	16·7	11·39	12·05	— 0·66
	Central do.	16·1	16·2	12·40	12·15	+ 0·25
	North do.	20·4	17·6	35·68	20·03	+15·65
	Orissa	14·0	14·9	10·88	12·50	— 1·62
	Chota Nagpur	15·2	17·9	12·33	13·16	— 0·83
	Bihar (South)	14·0	14·5	10·22	11·87	— 1·65
	Do. (North)	16·1	14·0	14·25	12·18	+ 2·07
North-Western Provinces and Oudh.	North-Western Provinces (East)	15·9	13·3	14·22	11·84	+ 2·38
	Oudh (South)	13·6	12·3	12·18	10·75	+ 1·43
	Do. (North)	13·1	12·1	12·51	11·69	+ 0·82
	North-Western Provinces (Central)	13·5	12·0	11·96	11·52	+ 0·44
	Do. do. (West)	11·2	10·6	10·17	9·92	+ 0·25
	Do. do. (Submontane)	13·2	13·4	12·52	14·63	— 2·11
Punjab	Punjab (South)	6·8	4·7	6·13	4·27	+ 1·86
	Do. (Central)	7·7	6·7	6·16	6·62	— 0·46
	Do. (Submontane)	8·8	8·4	9·65	9·28	+ 0·37
	Do. (Hill Districts)	15·2	15·1	15·87	16·75	— 0·88
	Do. (North-West)	7·3	6·1	7·21	5·29	+ 1·92
	Do. (West)	6·6	2·9	7·67	2·45	+ 5·22
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	47·04	30·91	+16·13
	Madras (South Central)*	?	?	6·12	5·92	+ 0·20
	Coorg	27·9	?	46·34	?	?
	Mysore*	?	?	9·54	7·43	+ 2·11
	Konkan*	?	?	39·75	43·01	— 3·26
	Bombay Deccan*	?	?	10·81	7·33	+ 3·48
	Hyderabad (North)	10·3	?	6·28	7·63	— 1·35
	Khandeish*	?	?	4·57	5·22	— 0·65
Central Provinces and Berar.	Berar*	?	?	12·69	9·34	+ 3·35
	Central Provinces (West)	22·4	?	22·72	12·61	+10·11
	Do. (Central)	16·9	?	17·97	17·92	+ 0·05
	Do. (East)	17·0	?	26·16	15·81	+10·35
Bombay (North)	Guzerat*	?	?	14·24	18·86	— 4·62
	Kathiawar*	?	?	7·55	8·87	— 1·32
	Sind*	?	?	6·42	2·26	+ 4·16
Rajputana and Central India.	Central India (East)	14·5	?	16·12	15·32	+ 0·80
	Rajputana (East), Central India (West)	10·7	?	8·30	9·77	— 1·47
	Rajputana (West)	7·4	?	5·92	3·33	+ 2·59
Madras	East Coast (North)*	?	?	7·05	6·41	+ 0·64
	Do. (do.) (a)*	?	?	15·10	15·76	— 0·66
	Hyderabad (South)	7·3	?	4·89	5·89	— 1·00
	Madras (Central)*	?	?	4·15	3·46	+ 0·69
	East Coast (Central)*	?	?	4·30	3·03	+ 0·37
	Do. (South)*	?	?	3·21	2·85	+ 0·36
	Madras (South)*	?	?	0·41	1·03	— 0·62

NOTE.—The figures entered against divisions marked * have been taken from the telegraphic weekly returns.

The greater part of Burma received steady and almost daily rain throughout the month. The rainfall was in slight excess (*i.e.* less than 10 per cent.) in Tenasserim, Lower and Central Burma and Arakan. Upper Burma obtained an average of 5·51 inches, slightly greater than in the corresponding month of 1891, and probably differing little from the normal rainfall of the month.

Bengal received rain on the whole steadily throughout the month. The distribution of the rainfall was largely determined by the numerous depressions of the month. Two formed in the north-west angle of the Bay and two in West Bengal. They marched west-north-westwards, and hence drew away the humid currents from East and North Bengal to the areas affected by them. The following gives the chief periods of rainfall in the province of Bengal:—

1st.—From the 5th to the 8th. This burst of rain was chiefly determined to the northern districts of North Bengal and Behar. The districts of Jalpaiguri, Kuch Bihar, Purnea and Darjeeling received exceptionally heavy falls

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

DISTRICT.	STATION.	Date of occurrence.	Fall.
			Inches.
JALPAIGURI	Bhagatpur	7th	10·73
	Jalpaiguri	8th	15·88
KUCH BIHAR	Mickliganj	8th	11·72
DARJEELING	Buxa	7th	12·15
	Siliguri	7th	10·73
PURNEA	Kaliaganj	8th	10·[illegible]5

The following table gives average rainfall data of this period for these districts:—

DISTRICT.	AVERAGE RAINFALL OF 24 HOURS PRECEDING 8 A.M. OF				Total during period.
	5th.	6th.	7th.	8th.	
	Inches.	Inches.	Inches.	Inches.	Inches.
Jalpaiguri	2·42	4·24	7·32	7·88	21·86
Kuch Bihar	4·15	4·08	5·37	8·36	21·96
Darjeeling	1·66	2·75	5·37	3·83	13·61
Purnea	0·85	2·50	1·85	4·04	9·24

The preceding statement shows that in the plains districts of Kuch Bihar and Jalpaiguri an average of nearly 22 inches of rain was received during this period of 96 hours.

2nd.—From the 10th to the 13th, during the advance of the first depression of the month from the head of the Bay to the North-Western Provinces. Every district received moderate to heavy rain during this period.

3rd.—From the 16th to the 24th. During this period two depressions formed in West Bengal and Chota Nagpur and advanced west-north-westwards. The rainfall due to the current from the Bay was by no means excessive in Bengal, Chota Nagpur or Behar. No amount exceeding five inches in 24 hours was received in any part of the province during this burst. The largest total amounts during this period were registered in the western districts and the smallest in East and North Bengal, more especially the Mymensingh, Tipperah, Bhagalpur, Purneah and Rungpur districts.

4th.—A feeble burst from the 28th to the end of the month accompanying the advance of the last depression of the month. This rainfall was chiefly determined to Orissa and Chota Nagpur, and hence a partial break in the rains obtained over nearly the whole of Bengal from the 24th to the end of the month.

The following table gives a summary of the rainfall data of the month:—

DIVISION.	RAINFALL.			AVERAGE NUMBER OF RAINY DAYS.		
	Actual average rainfall of month.	Variation.	Percentage variation.	Actual average number of rainy days.	Variation.	Percentage variation.
East Bengal	15·27	−1·97	−11	19·6	+0·5	+ 3
Deltaic Bengal	11·39	−0·66	− 5	15·6	−1·1	− 7
Central Bengal	12·40	+0·25	+ 2	10·1	−0·1	− 1
North Bengal	35·68	+15·65	+78	20·4	+2·8	+16
Orissa	10·88	−1·62	−13	14·0	−0·9	− 6
Chota Nagpur	12·33	−0·83	− 6	15·2	−2·7	−15
Bihar, North	14·25	+2·07	+17	16·1	+2·1	+15
Bihar, South	10·22	−1·65	−14	14·0	−0·5	− 3

The chief feature in the rainfall of the month was the very large excess in North Bengal where it was chiefly due to abnormally heavy rain during the first period.

The rainfall of the month was in slight excess in Central Bengal, and in moderate excess in North Bihar. It was in slight defect (less than 10 per cent.) in Chota Nagpur and Deltaic Bengal and in moderate defect (less than 20 and more than 10 per cent.) in Orissa, East Bengal and South Bihar.

In Assam, the Cachar and Sylhet districts received almost daily rain during the month. In the Brahmaputra valley there was a fairly well-marked break from the 22nd to the 29th. The heaviest rainfalls were generally received during the first week of the month. At Cherrapunji 18·30 inches were registered on the morning of the 3rd and 13·60 inches on the 7th. It received a total of only 111·71 inches or 8·82 inches less than the normal fall of the month. The rainfall of the month was well distributed and was in slight to moderate excess in the plain districts. The following gives a summary of the rainfall data:—

DIVISION.	RAINFALL.			NUMBER OF RAINY DAYS.		
	Actual.	Variation.	Percentage variation.	Actual.	Variation.	Percentage variation.
Assam (Surma)	22·62	+4·75	+27	24·2	+4·1	+02
Do. (Brahmaputra)	16·18	+0·54	+3	18·3	+1·3	+ 8

The rainfall of the month was normal in amount and very favourably and uniformly distributed in the North-Western Provinces. The chief periods of general rain were:—

1st.—From the 8th to the 14th, when the eastern and central districts received moderate rain, and the western districts light to moderate partial showers.

2nd.—From the 18th to the 25th. All districts, with the exception of Saharanpur and Muzaffarnagar, received daily rain during this period. The heaviest falls of the month were generally registered during this period.

The most noteworthy were the following :—

DISTRICT.	Station.	Date of occurrence.	Fall.
			Inches.
FARUKHABAD . .	Thatia Tirwa . .	18th	8·07
BAREILLY . .	Nawabganj . .	18th	8·60
	Karor . . .	19th	8·40

Frequent showers were received during the last week of the month, more especially in the eastern and central districts.

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

DIVISION.	RAINFALL.			NUMBER OF RAINY DAYS.		
	Actual average rainfall of month.	Variation.	Variation expressed as percentage.	Actual, July 1892.	Variation.	Variation expressed as percentage.
	Inches.	Inches.		Inches.	Inches.	
Oudh, North .	12·51	+0·82	+7	13·1	+1·0	+8
Do. South .	12·18	+1·43	+13	13·6	+1·3	+11
North-Western Provinces, East.	14·22	+2·38	+20	15·9	+2·6	+20
Do. Central	11·96	+0·44	+4	13·5	+1·5	+13
Do. West .	10·17	+0·25	+3	11·2	+0·6	+6
Do. Submontane .	12·52	−2·11	−14	13·2	−0·2	−1

The rainfall of the month was hence in slight excess in the west and central districts of the North-Western Provinces and North Oudh and in moderate excess in South Oudh and the eastern districts of the North-Western Provinces. The agreement between the percentage variations of the rainfall and the number of rainy days is very close in all these areas, thus showing that the rainfall was unusually normal in character. The rainfall of the month was in moderate defect in the submontane districts, due chiefly to the lightness of the showers. The only districts in which the rainfall was considerably in defect were Muzaffarnagar, Saharanpur, Basti, Bijnor and Agra. It was most excessive in the Jaunpur and Cawnpore districts. The following gives comparative data for these districts :—

DISTRICT.	RAINFALL.			NUMBER OF RAINY DAYS.		
	Actual average rainfall of month.	Variation from normal.	Variation expressed as a percentage.	Actual July 1892.	Variation from normal.	Variation expressed as a percentage.
Saharanpur	5·60	−6·05	−52	7·8	−3.2	−29
Muzaffarnagar . . .	4·88	−4·24	−46	7·3	−1·8	−20
Basti	9·79	−3·80	−28	11·2	−2·0	−15
Bijnor	8·38	−4·58	−35	9·4	−2·4	−20
Agra	7·67	−2·07	−21	12·7	+2·0	+19
Jaunpur	16·91	+4·89	+41	16·8	+3·8	+29
Cawnpore	13·21	+2·31	+21	13·8	+2·3	+20

The Punjab received rain chiefly during two periods, *viz.* :—

1st.—From the 9th to the 14th. The hill districts and south-eastern plain districts received a moderately heavy burst of rain during this period.

2nd.—From the 26th to the 31st. The chief feature of this burst was the very heavy rain which was received in the driest districts of the province including Jhang, Shahpur, Dera Ismail Khan and Mooltan. Some of the more remarkable rainfalls have been given in the account of the storm and depression of the last ten days of the month.

Occasional showers were received during the intervals between these periods.

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

DIVISION.	RAINFALL.			NUMBER OF RAINY DAYS.		
	Actual average rainfall of month.	Variation from normal.	Variation expressed as a percentage.	Actual, July 1892.	Variation from normal.	Variation expressed as a percentage.
Punjab (South) . . .	6·13	+1·86	+44	6·8	+2·1	+45
Do. (Central) . . .	6·16	−0·46	−7	7·7	+1·0	+15
Do. (Submontane) . .	9·65	+0·37	+4	8·8	+0·4	+5
Do. (Hill Districts) . .	15·87	−0·88	−5	15·2	+0·1	+1
Do. (North-West) . .	7·21	+1·92	+36	7·3	+1·2	+20
Do. (West) . . .	7·67	+5·22	+213	6·6	+3·7	+128

The rainfall of the month was practically normal in amount in the central and submontane districts and in the hill districts. It was in moderately large excess in the south and north-west districts. There was a very large excess in the western districts which formed one of the more striking features of the meteorology of the month. The following gives comparative data for each district in that area :—

DIVISION.	DISTRICT.	RAINFALL.				NUMBER OF RAINY DAYS.			
		Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.	Ratio of actual to normal.	Actual, July 1892.	Normal, July.	Variation from normal.	Ratio of actual to normal.
West Punjab .	Bannu . .	8·97	1·93	+7·04	4·6	7·5	2·8	+4·7	2·7
	Shahpur . .	8·91	3·31	+5·60	2·7	7·7	3·5	+4·2	2·2
	Jhang . .	7·80	3·03	+4·77	2·6	6·7	3·8	+2·9	1·8
	Dera Ismail Khan	10·50	2·29	+8·21	4·6	6·8	2·7	+4·1	2·5
	Mooltan . .	7·47	1·53	+5·94	4·9	6·2	2·3	+3·9	2·7
	Dera Ghazi Khan.	3·98	1·96	+2·02	2·0	5·2	2·8	+2·4	1·9
	Muzaffargarh .	3·41	2·31	+1·10	1·5	4·3	1·9	+2·4	2·3

The rainfall was hence most excessive absolutely and relatively to the normal in Bannu, Dera Ismail Khan and Mooltan, which received nearly five times their normal average amounts, and Jhang and Shahpur, which obtained nearly thrice their normal fall.

Kashmir received moderate rain during the month, chiefly during two periods, from the 9th to the 19th and from the 23rd to the 29th. The total amounts ranged from 15·69 inches at Jammu to ·4 inch at Iskardo.

Rajputana obtained on the whole favourable rain during the month. It fell chiefly during two periods—first, from the 8th to the 19th, and second, from the 24th to the end of the month. The second burst of rain was de to the third depression and cyclonic storm of the month. It gave valuable and opportune rain to the western and central districts which had suffered from general drought during the previous 12 months. The following gives the more remarkable rainfalls during this period:—

DISTRICT.	STATION.	Date of occurrence.	Rainfall.
Kotah	Kotah	25th	3·72
Ajmere	Bhinai	25th	5·90
Ditto	Goela	25th	5·70
Ditto	Kekri	25th	4·80
Jeypore	Jeypore	26th	6·41
Bickaneer	Bikanir	31st	4·81

The heaviest falls were hence received in Ajmere and Jeypore.

The following gives a summary of the rainfall data of the month for the larger states :—

DISTRICT.	RAINFALL.		
	Actual average of month.	Variation from normal.	Variation expressed a percenage.
Bickaneer	7·27	+3·80	+110
Jeysulmere	5·89	+3·75	+175
Jodhpur	5·87	+2·41	+ 70
Jeypur	8·00	—1·13	— 12
Ajmere	10·01	+0·59	+ 7
Ulwar	5·08	—2·80	— 27
Bhurtpur	6·71	+3·31	+ 37
Dholpur	8·25	?	?
Kerowlee	9·52	—1·32	— 11
Kotah	12·04	+4·84	+ 49
Oodeypur	6·76	—2·98	— 31

The preceding data show that the rainfall of the month was more or less largely in excess in the western and central states of Jeysulmere, Bickaneer, Jodhpur, and Kotah, and in the British district of Ajmere-Merwar

The Central India States received some light showers during the first nine days of the month and almost daily rain during the remainder of the month. The 16th, 17th, 26th, 27th and 30th were the only days on which the rainfall was light and partial. Some heavy local falls were registered, but, as a rule, the rainfall was moderate and well distributed. The following falls in 24 hours exceeding 6 inches were registered :—

DISTRICT.	STATION.	Date of occurrence.	Fall.
			Inches.
Rewah	Chanda	2th	6·37
Bundelkhand	Panna	18th	6·27

The following table summarises the rainfall data of the month for the larger states or districts :—

STATE.	RAINFALL.			NUMBER OF RAINY DAYS.		
	Actual average of month.	Variation from normal.	Variation expressed as percentage.	Actual, July 1892.	Variation from normal.	Variation expressed as percentage.
Bhopal	19·77	+1·65	+ 9	14·5	?	?
Gwalior	11·05	—0·03	0	12·0	?	?
Rewah	15·98	—2·39	—13	15·1	?	?
Bundelkhand	18·26	+2·71	+17	14·8	?	?

Showers generally of little importance were received in the Central Provinces from the 1st to the 8th. General and noteworthy heavy rain fell on the 9th over the whole province and initiated the rains. Rain fell almost daily during the remainder of the month. The following gives the chief periods of rainfall :—

1st.—From the 9th to the 14th. Heavy falls were received in the eastern and northern districts. The following were the more remarkable :—

DISTRICTS.	STATION.	Rainfall in inches.	Date.
Bilaspur	Korba	9·12	12th.
Balaghat	Behir	7·40	13th.
Raipur	Simga	7·04	13th.
Jubbulpore	Jubbulpore	7·95	13th.

2nd—From the 18th to 24th. This burst of rain was heaviest in the eastern and southern districts. The Sambalpur district received very heavy rain on the 22nd and 23rd, and the Hoshangabad district on the 24th.

The following gives data :—

DISTRICT.	STATION.	RAINFALL OF 24 HOURS PRECEDING 8 A.M. OF		Total of period.
		22nd.	23rd.	
		Inches.	Inches.	Inches.
Sambalpur	Sambalpur	8·18	9·19	17·37
	Bargarh	7·66	9·81	17·47
	Sarangarh	2·57	10·52	13·09
	Raigarh	1·72	4·45	6·17
Hoshangabad	Sohagpur	10·80	on the 24th.	
	Pachmarhi	8·03		

3rd—From the 28th to the end of the month, chiefly in the western and southern districts.

The following is a summary of the rainfall data of the month given in the monthly statement published by the Government of the Central Provinces :—

METEOROLOGICAL DIVISION.	Actual average number of rainy days.	Variation from normal.	Percentage variation.	Actual average rainfall of month.	Variation from normal.	Percentage variation.
				Inches	Inches.	
Central Provinces (East) .	19·4	+4·4	+29	28·41	+12·344	+77
Ditto (Central)	17·3	+0·1	0	18·97	+ 0·98	+ 5
Ditto (West) .	16·3	+0·9	1	16·16	+ 2·36	+17

The statement shows that the rainfall was in slight excess in the western and central districts. The rainfall was on the whole uniformly distributed. The only instances of large departure from the normal were the following :—

DISTRICT.	STATION.	RAINFALL.		
		Actual, July 1892.	Normal, July	Variation from normal.
		Inches.	Inches.	Inches.
HOSHANGABAD .	Sohagpur . . .	29·60	15·06	+14·54
CHINDWARA .	Sausar . . .	3·99	10·55	— 6·56
SAUGOR . .	Kurai . . .	9·96	16·86	— 6·90
	Rehli . . .	6·05	17·89	—11·84

The rainfall of the month was very largely in excess in the eastern districts, including Sambalpur, Bilaspur and Raipur for which data are given in the following statement :—

DISTRICT.	NUMBER OF RAINY DAYS.			RAINFALL		
	Actual. July 1892.	Normal, July.	Variation from normal.	Actual, July 1892.	Normal, July.	Variation from normal.
				Inches.	Inches.	Inches.
Sambalpur .	21·8	16·6	+5·2	37·86	17·94	+19·92
Bilaspur .	19·2	14·8	+4·4	25·58	15·82	+ 9·76
Raipur . .	17·3	14·5	+2·8	23·20	14·58	+ 8·62

The excess was chiefly due to abnormally heavy rainfall on the 11th, 12th and 13th and on the 22nd and 23rd.

The average rainfall of the whole area was 28·41 inches (16·07 inches, or) 77 per cent. in excess of the normal rainfall.

The Bombay coast and South Deccan districts received light showers during the first six days of the month. The monsoon currents strengthened with unusual rapidity on the 6th, and heavy rain commenced on the North Konkan coast on the 7th and extended rapidly northwards. The following gives a statement of some of the more noteworthy rainfalls that occurred during this advance, and illustrates the progress of the wave of heavy rainfall which accompanied the permanent establishment of the monsoon :—

DISTRICT.	STATION.	Date.	Rainfall in inches.
NORTH KANARA .	Karwar . . .	7th	7·30
		8th	5·83
RATNAGIRI . .	Ratnagiri . . .	8th	3·98
	Rajapur . . .	8th	4·77
		9th	4·97
	Mandangad . .	8th	7·52
		9th	7·95
		10th	6·24
KOLABA . . .	Panvel . . .	10th	11·02
		11th	7·50
	Matheran . .	10th	10·02
		11th	9·62
		12th	6·62
Thana . . .	Thana . . .	10th	7·55
		11th	4·16
	Vada	10th	3·75
		11th	10·50
SURAT . . .	Surat	11th	6·33
		12th	3·30
	Bardoli . . .	10th	5·00
		11th	9·38
	Valod . . .	11th	11·20
SIND . . .	Shahbandar . .	13th	7·52

In the coast districts of North Kanara, Ratnagiri, Kolaba and Surat the rains continued steadily throughout the month, rain falling daily. There were two very heavy bursts of rain, the first from the 7th to the 12th, accompanying the great permanent advance of the monsoon current, and the latter from the 25th to the end of the month. The heaviest rainfalls occurred during the first advance. Some of the more remarkable have been given in the preceding statement.

Rain was received almost daily from the 7th to the end of the month in the West Deccan districts of Poona, Belgaum, Kolhapur, Satara and Dharwar, moderate showers falling at frequent intervals. In the districts of Bijapur and Sholapur light showers were received, chiefly during the first ten days of the month. Nasik and Khandesh received frequent rain throughout the month. The chief periods of general rain in those districts were from the 10th to the 14th, the 19th and 20th and from the 28th to the 31st.

In Kathiawar, Cutch and Guzerat the periods of rainfall were very clearly defined. They were the 5th and 6th, the 9th to the 19th and the 26th to the end of the month. The daily rainfalls in those areas were generally moderate

in amount. Some very heavy local falls were, however, received, of which the following were most noteworthy :—

DISTRICT.	Station.	Rainfall in inches.	Date.
Palanpur	Kharad	10·45	14th
Kathiawar	Junagad	9·53	10th
Cutch	Rahpur	7·00	14th
	Nalia	7·99	9th
	Mandvi	6·55	9th
Karachi	Shahbandar	7·52	13th
Kaira	Matar	6·66	12th

The following gives a comparative statement of the rainfall data of the month published by the Government of Bombay and is more accurate than the averages given in the general rainfall table in this section :—

METEOROLOGICAL DIVISION.	Actual average number of rainy days.	Normal number of rainy days.	Actual average rainfall of month.	Normal rainfall of month.	Variation from normal.
			Inches.	Inches.	Inches.
Konkan	26·6	26·9	41·93	40·04	+1·89
Bombay, Deccan	13·0	12·2	9·81	9·29	+0·52
Khandesh	11·8	11·1	7·45	7·67	—0·22
Guzerat	16·0	17·1	16·72	18·46	—1·74
Kathiawar	12·5	11·5	10·82	12·39	—1·57
Sind	6·1	?	5·46	1·86	+3·60

The preceding statement shows that the rainfall of the month was in very slight excess in the west coast districts and the Deccan, and was in slight defect in Kathiawar, Guzerat and Khandesh. The deficiency averaged 13 per cent. in Kathiawar and 9 per cent. in Guzerat. Sind received an unusually heavy burst of rain from the 11th to the 15th, and again from the 26th to the 28th. The largest amounts were received in the coast districts. It obtained an average of 5·4 inches—three times its normal average.

The following gives some of the more remarkable falls in Sind :—

STATION.	RAINFALL.		
	Actual, July 1892.	Normal, July.	Variation from normal.
	Inches.	Inches.	Inches.
Shahbandar	15·96	3·50 ?	+12·46
Karachi	10·99	2·90	+8·09
Hyderabad	6·89	2·69	+4·20
Rohri	3·03	1·18	+1·85
Jacobabad	2·50	1·31	+1·19

Showers were falling at the commencement of the month in Madras, chiefly in the southern districts. Heavy general rain began to fall in Malabar and South Canara on the 3rd, and continued throughout the remainder of the month. The rainfall was very heavy from the 5th to the 9th, the 20th and 21st, and from the 23rd to the 28th. Rainfalls of 5 inches and upwards were frequently recorded during these periods in these two districts. The following gives the rainfalls exceeding 7 inches in 24 hours in these districts during the month :—

DISTRICT.	Station.	Amount in inches.	Date of occurrence.
Malabar	Badagara	7·31	20th
	Tellicherry	7·90	20th
	Tirurangadi	7·54	20th
	Vayitri	8·20	25th
	Tellicherry	8·62	27th
South Canara	Beltangady	10·30	20th
	Coondapoor	7·38	28th
	Kasaragod	7·34	28th
	Mangalore	7·27	28th

The total rainfall of the month was very largely in excess in these two districts. The following gives data :—

DISTRICT.	RAINFALL.			NUMBER OF RAINY DAYS.		
	Average actual, July 1892.	Variation from normal.	Percentage Variation.	Average actual, July 1892.	Variation from normal.	Percentage Variation.
	Inches.	Inches.				
Malabar	58·39	+29·44	+102	29·4	+3·7	+14
South Canara	68·03	+25·80	+61	30·7	+2·3	+8

These two districts received an average of nearly two inches per diem throughout the month. The month was hence one of steady downpour, the rain falling at nearly double its daily rate in this month in these districts.

Tinnevelly district received a few showers of little importance. The southern districts of Madura, Trichinopoly, Tanjore, South Arcot, Coimbatore and Salem obtained moderate and fairly general rain from the 1st to the 4th, the 2nd being the day of heaviest rain. Some showers were also received on the 15th and 16th and from the 25th to the 29th. The rainfall was normal or in slight defect in Tinnevelly, Madura, Trichinopoly and Coimbatore, and was in slight excess in Salem and Tanjore, and in moderately large excess (53 per cent.) in South Arcot. The following gives comparative data for these districts :—

DISTRICT.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, July 1892	Variation from normal.	Percentage Variation.	Average actual, July 1892,	Variation from normal.	Percentage Variation.
				Inches.	Inches.	
Tinnevelly	1·7	+0·2	+13	0·59	—0·07	—11
Madura	2·9	+0·5	+21	1·30	—0·07	—5
Trichinopoly	3·6	+0·7	+24	1·93	—0·42	—18
Tanjore	5·0	+1·1	+28	2·90	+0·36	+14
South Arcot	5·8	+0·6	+12	5·14	+1·77	+53
Coimbatore	3·2	—0·1	—3	1·23	—0·31	—20
Salem	6·6	+2·1	+47	3·66	+0·69	+23

The central districts of Bellary, Cuddapah, Kurnool and Anantapura had frequent showers during the first twelve days of the month, and again from the 28th to the end of the month. The rainfall of the month was approximately normal in amount in all these districts, except Anantapura

which obtained double its normal amount. The following table gives comparative data for these districts :—

District.	Number of Rainy Days.			Rainfall.		
	Average actual, July 1892.	Variation from normal.	Percentage Variation.	Average actual, July 1892.	Variation from normal.	Percentage Variation.
Anantapura .	6·9	+2·0	+41	4·68	+2·36	+102
Bellary . .	5·4	—1·0	—16	2·36	—0·26	—10
Cuddapah .	6·0	+0·4	+7	3·65	+0·70	+24
Kurnool . .	7·3	—0·6	+8	4·23	—0·62	—13

The coast districts from Madras to Gopalpur received rain chiefly during the following three periods :—

1st—From the 1st to the 12th. This burst was heaviest on the 5th and 6th in the districts of North Arcot and Chingleput and Nellore, and from the 9th to the 12th in the northern districts of Kistna, Godavery, Vizagapatam and Ganjam.

2nd—From the 18th to the 23rd. This rainfall was almost restricted to the northern districts of Kistna, Godavery, Vizagapatam and Ganjam, and was heavy and general on the 21st and 22nd.

3rd—From the 26th to the 31st. This, like the preceding burst, was chiefly directed to the northern districts.

The falls were generally moderate in amount, amounts exceeding 3 inches in 24 hours being very exceptional.

The rainfall of the month was practically normal in amount in the Godavery and Kistna districts and was more or less considerably in excess in Ganjam, Vizagapatam, Nellore, Chingleput and North Arcot. The excess was over 50 per cent. in the three latter districts. The following gives comparative data for these districts :—

District.	Number of Rainy days.			Rainfall.		
	Average actual, July 1892.	Variation from normal.	Percentage variation.	Average actual, July 1892.	Variation from normal.	Percentage variation.
Godavery . .	10·3	+1·4	+16	6·29	+0·21	+ 3
Kistna . .	7·0	—0·7	— 8	5·15	—0·15	— 3
Ganjam . .	10·9	+0·9	+90	8·05	+1·01	+14
Vizagapatam .	13·9	+1·3	+10	9·32	+1·08	+13
Nellore . .	6·1	+1·1	+22	3·98	+1·45	+57
Chingleput .	9·3	+3·0	+48	5·84	+2·13	+57
North Arcot .	7·9	+2·7	+52	5·71	+2·62	+85

The chief features of the rainfall of the month in the Madras Presidency were hence—

1st—Excessive rain in the Malabar and South Canara districts.

2nd—More frequent and heavier rain than usual in the districts of Chingleput, North Arcot, South Arcot, Anantapur, Nellore and Cuddapah, which had suffered severely from drought during the previous twelve months.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 171 stations in India during the month of July 1892.

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 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 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 utilised 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 94 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.

Table

Abstract of Observations taken at 8 A.M., at 171 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.
1. Burma Coast and Bay Islands.		...	...	−·029		...	...	...	...	...	...	84·4	+0·1	75·7	+0·1	80·1	+0·1	8·7	...	...	...	...	16·2
Bay Islands	Port Blair	61	29·732		29·724	29·854	14th	29·635	26th	·219	80·9	84·9	?	77·6	?	81·3	?	7·3	89·5	2nd	73·1	16th	16·4
	Camorta	?	29·846	?	?	29·974	19th	29·735	1st	·239	79·9	83·2	?	76·4	?	79·8	?	6·8	86·5	1st	71·7	14th	14·8
Tenasserim	Mergui	96	29·739	?	29·767	29·837	13th	29·617	26th	·220	77·4	84·6	?	?	?	?	?	?	93·0	3rd	?	...	?
	Tavoy	26	29·825	?	29·782	29·917	12th	29·720	26th	·197	77·7	83·5	?	74·2	?	78·9	?	9·3	91·2	4th	72·2	22nd	19·0
	Moulmein	94	29·705	−·017	29·737	29·805	19th	29·576	26th	·229	77·1	84·3	+1·7	74·7	+0·9	79·5	+1·3	9·6	89·5	5th	73·3	3 days	16·2
	Toungoo	181	29·567	−·027	29·691	29·661	13th	29·427	26th	·234	78·1	85·9	−0·4	75·0	+0·1	80·5	−0·2	10·9	92·7	6th & 7th.	73·2	2nd	19·5
Lower Burma	Rangoon	41	29·729	−·031	29·707	29·839	14th	29·589	26th	·250	77·8	84·9	+0·1	75·5	−0·2	80·2	−0·1	9·4	89·2	6th	73·4	18th & 25th.	15·8
	Bassein	27	29·737	−·024	29·700	29·841	14th	29·586	22nd	·255	75·3	85·0	+0·3	75·3	−0·4	80·2	−0·1	9·7	89·2	20th	73·8	3 days	15·4
	Diamond Island	41	29·716	−·042	29·692	29·826	14th	29·572	22nd	·254	81·6	83·9	−0·6	76·2	+1·0	80·1	+0·2	7·7	86·9	2nd	73·4	16th, 17th, 26th, & 27th.	13·5
Arakan	Akyab	20	29·663	−·033	29·626	29·798	4th	29·441	22nd	·354	79·9	84·1	−0·4	76·2	−1·1	80·2	−0·8	7·9	89·2	6th & 7th.	73·7	1st & 2nd.	15·5
2. Burma, Inland		...	...	−·028	...		...	...	...	...	...	89·3	−0·3	75·5	−0·2	82·5	−0·3	14·0	...	...	...	...	22·0
Central Burma	Thayetmyo	134	29·584	−·028	29·660	29·631	13th	29·403	21st	·278	80·5	88·5	−0·3	76·0	−0·2	82·3	−0·3	12·5	94·7	6th & 7th.	73·9	19th	20·8
Upper Burma	Mandalay	?	29·134	?	29·380	29·534	4th	29·260	21st	·274	82·5	93·2	?	75·7	?	84·5	?	17·5	98·5	15th & 18th.	72·7	31st	25·8
	Kindat	?	29·216	?	29·196	29·354	4th	29·079	21st	·275	81·3	88·9	?	?	?	?	?	?	92·8	7th	?	...	?
	Bhamo	?	29·281	?	29·231	29·369	4th	29·128	21st	·241	78·6	86·7	?	74·7	?	80·7	?	12·0	92·1	26th	72·8	13th	19·3
3. Assam		...	...	−·033	...	...	...	...	...	...	...	88·2	−1·4	77·9	−0·1	83·1	−0·8	10·3	...	...	...	...	20·3
Assam (Surma)	Silchar	104	29·540	−·022	29·595	29·668	30th	29·301	22nd	·367	80·3	89·9	−0·3	77·0	−0·2	83·5	−0·3	12·9	96·6	28th	73·3	30th	23·3
Brahmaputra	Sibsagar	333	29·277	−·060	29·562	29·347	4th	29·135	22nd	·212	81·6	90·2	−0·8	79·0	+1·0	84·6	+0·1	11·2	96·1	27th	74·5	31st	21·6
	Dhubri	115	29·489	−·017	29·557	29·595	30th	29·297	21st	·298	79·8	84·5	−3·2	77·8	−1·0	81·1	−2·1	6·7	90·2	28th	74·3	2nd	15·9
4. Bengal and Orissa		...	...	−·022	...	...	...	...	...	...		87·5	−0·4	77·9	0	82·7	−0·2	9·6	...	...	...	...	17·6
East Bengal	Chittagong	87	29·566	−·016	29·600	29·710	4th	29·333	22nd	·377	80·4	85·4	−0·1	76·8	+0·4	81·1	+0·2	8·6	88·7	4 days	74·1	14th	14·6
	Lungleh	?	?	?	?	?	...	?	...	?	70·0	70·4*	?	65·3	?	67·9*	?	5·1	73·9	26th & 27th.	60·4	27th & 28th.	13·5
	Noakhali	43	29·586	?	29·576	29·739	4th	29·351	22nd	·388	80·7	84·8	?	77·3	?	81·1	?	7·5	89·0	27th & 28th.	74·8	31st	14·2
	Comillah	35	29·589	?	29·572	29·721	4th	29·362	22nd	·362	80·5	87·0	?	77·0	?	82·0	?	10·0	93·3	28th	74·3	30th	19·0
	Sirajganj	46	29·543	?	29·539	29·686	14th	29·330	21st	·356	80·9	86·9	?	78·4	?	82·7	?	8·5	91·1	28th	75·2	2nd	15·9
	Dacca	22	29·580	−·022	29·550	29·714	4th & 14th.	29·359	22nd	·355	81·6	88·0	−0·5	78·9	−0·4	83·5	−0·5	9·1	92·1	28th	76·2	23rd	15·9
	Barisal	13	29·591	−·010	29·549	29·727	14th	29·337	22nd	·390	81·4	87·3	?	78·1	?	82·7	?	9·2	94·3	26th	75·4	14th	18·9
	Mymensingh	63	29·546	−·029	29·559	29·668	14th	29·341	21st	·327	80·4	86·6	?	78·1	?	82·4	?	8·5	92·7	28th	75·6	27th	17·1
Deltaic Bengal	Faridpur	46	†29·573	?	†29·567	29·704	4th	29·341	22nd	·363	81·8	86·9	?	78·3	?	82·6	?	8·6	90·5	28th	73·9	1st	16·6
	Jessore	33	29·548	−·027	29·528	29·699	4th	29·321	22nd	·378	82·2	88·7	−0·8	78·8	−0·3	83·7	−0·6	9·9	91·2	8th & 28th.	76·4	13th	14·8
	Calcutta	21	29·552	−·017	29·519	29·685	4th & 14th.	29·324	22nd	·361	81·6	87·6	−0·5	78·1	−0·3	82·8	−0·4	9·5	92·6	9th	75·7	25th	16·9
	Saugor Island	25	29·544	−·025	29·513	29·683	4th	29·336	22nd	·347	83·4	88·2	+0·5	80·8	+0·4	84·5	+0·5	7·4	92·2	8th & 9th.	77·5	14th & 23rd.	14·7
	Krishnagar	47	29·521	?	29·516	29·660	14th	29·303	22nd	·357	82·5	89·5	?	78·8	?	84·2	?	10·7	92·8	2nd & 28th.	76·2	13th	16·6
	Midnapore	149	29·420	?	29·515	29·554	14th	29·221	22nd	·333	82·6	90·8	?	78·4	?	84·6	?	12·4	98·3	1st	76·1	13th & 18th.	22·2
Central Bengal	Bankura	298	29·240	?	29·485	29·373	14th	29·035	22nd	·338	81·7	89·9	?	78·5	?	84·2	?	11·4	96·1	2nd	76·1	17th	20·0
	Raniganj†	345	29·223	?	29·515	29·363	14th	29·018	22nd	·345	81·2	89·9	?	78·0	?	84·0	?	11·9	93·0	9th	73·4	25th	19·6
	Burdwan	99	29·475	−·015	29·520	29·607	14th	29·262	22nd	·345	82·1	90·0	−0·3	79·4	0	84·8	−0·2	10·6	94·6	2nd	76·9	13th	17·7

* Mean of 21 days.

† Mean of 30 days.

I.

in India, Burma, etc., in July 1892.

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 1892.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	30·37	31·68	−0·12	...	...	...	1. Burma Coast and Bay Islands.	
1	...	...	...	2	6	12	9	1	13	11	+18	88	·922	9·2	25	?	?	14·78	15·98	− 1·20	24·17	34·77	−10·60	Port Blair .	Bay Islands.
3	...	...	...	1	9	17	1	0	5	?	?	87	·882	10·0	25	?	?	19·70	?	?	35·15	?	?	Camorta.	
...	2	...	...	2	10	9	3	5	2	2	0	93	·874	9·1	29	?	?	35·52	31·99	+ 3·53	50·97	63·43	−12·46	Mergui .	Tenasserim.
24	...	...	...	...	1	4	...	2	2	?	?	92	·878	7·2	26	?	?	46·46	46·53	− 0·07	67·84	86·55	−18·71	Tavoy.	
...	...	3	3	9	8	4	3	1	4	4	0	94	·877	8·0	29	27·75	+1·25	41·24	47·88	− 6·64	64·36	84·09	−19·73	Moulmein.	
2	...	...	1	19	9	...	...	...	5	5	0	93	·901	9·7	27	25·09	+1·91	18·36	18·43	− 0·07	38·24	33·60	+ 4·64	Toungoo.	
...	1	...	...	1	7	15	7	...	5	5	0	94	·909	9·3	29	25·36	+3·64	21·86	21·94	− 0·08	37·88	40·04	− 2·16	Rangoon .	Lower Burma.
2	...	...	...	7	9	8	5	...	2	4	−50	94	·926	8	28	27·00	+1·00	28·97	24·37	+ 4·60	46·70	46·68	+ 0·02	Bassein.	
...	...	...	1	3	10	13	4	...	12	9	+33	84	·902	9·3	25	24·00	+1·00	32·25	25·81	+ 6·44	43·16	49·44	− 6·28	Diamond Island.	
...	1	5	4	6	12	2	...	1	4	4	0	93	·950	9·1	25	27·55	−2·55	44·57	52·20	−7·63	97·45	92·99	+ 4·46	Akyab .	Arakan.
...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·44	11·39	−1·96	...	...	...	2. Burma, Inland.	
...	...	...	...	9	17	5	...	...	10	7	+43	88	·912	8·9	18	15·91	+2·09	10·54	6·87	+ 3·67	16·01	13·91	+ 2·10	Thayetmyo	Central Burma.
...	...	1	...	14	16	...	...	...	10	?	?	75	·831	8·7	4	?	?	1·47	3·95	− 2·48	9·62	10·55	− 0·93	Mandalay .	Upper Burma.
9	2	...	2	2	7	3	6	..	0	?	?	86	·917	8·5	14	?	?	8·64	14·82	− 6·18	19·27	22·79	− 3·52	Kindat.	
1	...	4	...	...	...	16	3	7		?	?	92	·895	8·6	23	?	?	17·09	19·92	− 2·83	24·16	35·64	−11·48	Bhamo.	
..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	20·26	14·39	+5·87	...	...	...	3. Assam.	
29	...	...	1	...	...	1	...	...	1	3	−67	91	·946	9·1	26	21·45	+4·55	21·62	18·05	+ 3·57	44·03	39·41	+ 4·62	Silchar .	Assam (Surma).
...	...	5	3	2	5	16	...	...	2	3	−33	90	·962	8·6	18	18·73	−0·73	13·40	15·22	− 1·82	17·10	28·58	−11·48	Sibsagar .	Brahmaputra.
5	...	5	7	3	...	9	...	2	6	4	+50	92	·936	8·5	19	13·75	+5·25	25·76	9·91	+15·85	54·96	35·29	+19·67	Dhubri.	
...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13·61	14·14	−0·94	...	...	...	4. Bengal and Orissa.	
3	...	...	1	16	8	2	...	1	6	7	−14	89	·916	9·9	17	19·64	−2·64	12·29	20·42	− 8·13	21·55	43·86	−22·31	Chittagong	East Bengal.
?	?	?	?	?	?	?	?	?	?	?	?	93	·682	?	23	?	?	24·98	?	?	45·33	?	?	Lungleh.	
1	...	...	10	11	8	1	...	...	7	?	?	91	?	5·0	27	22·60	+4·40	23·53	23·97	− 0·44	48·90	50·04	− 1·14	Noakhali.	
...	...	...	10	14	7	...	...	...	4	?	?	89	?	5·6	22	18·65	+3·35	13·67	16·98	− 3·31	30·85	36·11	− 5·26	Comillah.	
...	1	1	6	6	14	3	...	...	3	?	?	93	?	8·5	21	13·50	+7·50	17·95	10·97	+ 6·98	29·58	22·37	+ 7·21	Sirajganj.	
1	...	...	7	6	14	2	...	1	9	7	+29	90	·969	8·6	17	15·73	+1·27	6·51	12·63	− 6·12	14·41	24·88	−10·47	Dacca.	
19	...	...	...	4	6	2	...	...	4	?	?	90	·964	9·7	22	21·00	+1·00	12·16	15·81	− 3·65	25·28	32·04	− 6·76	Barisal.	
...	...	2	9	9	8	2	...	1	6	?	?	92	·952	8·3	24	18·20	+5·80	13·51	14·26	− 0·75	28·38	33·04	− 4·66	Mymensingh.	
4	...	...	5	4	16	1	1	...	5	?	?	90	?	7·5	17	16·75	+0·25	11·81	11·85	− 0·04	20·51	24·34	− 3·83	Faridpur .	Deltaic Bengal.
4	1	...	3	12	8	2	1	...	4	5	−20	91	1·001	9·1	14	18·18	−4·18	8·45	12·55	− 4·10	18·99	24·24	− 5·25	Jessore.	
...	...	...	4	6	8	9	2	2	5	5	0	88	·952	9·0	20	20·00	0	10·55	12·79	− 2·22	19·13	22·06	− 2·93	Calcutta.	
...	...	1	2	3	8	14	3	...	18	14	+29	87	·996	8·8	11	17·36	−6·3	6·71	17·00	−10·29	14·15	26·29	−12·14	Saugor Island.	
...	...	...	7	7	10	4	2	1	6	?	?	86	?	8·3	17	15·75	+1·25	6·28	10·14	− 3·86	14·89	18·95	− 4·06	Krishnagar.	
1	...	4	2	8	10	5	...	1	11	?	?	84	?	4·6	10	16·20	−6·20	6·71	12·54	− 5·83	13·70	21·36	− 7·66	Midnapore.	
3	2	...	8	3	10	3	2	...	5	?	?	84	?	7·5	13	17·45	−4·45	9·33	12·47	− 3·14	19·36	21·82	− 2·46	Bankura .	Central Bengal.
4	2	3	4	4	3	11	...	...	3	?	?	89	?	6·5	13	16·85	−3·85	8·54	13·72	− 5·18	21·93	22·10	− 0·17	Raniganj.	
...	...	...	3	7	12	7	2	...	4	4	0	83	·913	9·3	13	16·82	−3·82	7·91	12·11	− 4·17	18·67	19·75	− 1·08	Burdwan.	

Table

Abstract of Observations taken at 8 A.M., at 171 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.
Central Bengal —*contd.*	Naya Dumka	489	29·058	?	29·500	29·192	14th	28·849	22nd	·343	81·2	88·2	?	77·4	?	82·9	?	10·8	91·6	2nd & 3rd.	74·3	26th	17·3
	Berhampore	67	29·504	—·025	29·519	29·623	4th	29·300	21st	·323	80·9	89·0	—0·5	79·1	+0·4	84·1	—0·1	9·9	92·7	28th	76·3	13th	16·4
	Rampur Boalia.	70	29·504	?	29·523	29·637	14th	29·295	22nd	·342	82·3	88·2	?	78·4	?	83·3	?	9·8	91·8	28th	75·6	2nd	16·2
	Malda	80	29·491	?	29·522	29·626	14th	29·299	21st	·327	82·3	89·8	?	78·1	?	84·0	?	11·7	93·8	28th	75·3	1st	18·5
	Bogra	61	29·518	—·005	29·531	29·649	14th	29·312	21st	·337	81·8	88·3	?	78·1	?	83·2	?	10·2	91·3	28th	75·2	1st & 2nd.	16·1
North Bengal	Dinajpur	118	29·466	—·034	29·536	29·567	4th & 30th.	29·283	21st	·284	81·3	87·8	?	78·8	?	83·3	?	9·0	97·1	28th	76·7	9th	20·4
	Rangpur	123	29·479	?	29·554	29·609	14th	29·286	22nd	·323	81·4	88·0	?	78·5	?	83·2	?	9·5	94·3	28th	74·7	1st	19·6
	Jalpaiguri	284	29·299	—·016	29·535	29·457	30th	29·091	21st	·366	80·0	87·9	?	76·9	?	82·4	?	11·0	94·4	28th	74·6	8th.	19·8
Orissa	Balasore	56	29·500	—·041	29·502	29·648	4th	29·280	22nd	·368	82·0	88·6	?	77·9	?	83·3	?	10·7	93·4	9th & 27th.	74·8	23rd	18·6
	False Point	21	29·565	—·027	29·527	29·704	14th	29·374	22nd	·330	82·6	87·2	—0·4	78·6	+0·2	82·9	—0·1	8·6	92·0	27th	72·1	22nd & 23rd.	19·9
	Cuttack	80	29·499	—·023	29·521	29·634	14th	29·326	22nd	·308	82·8	89·2	—0·6	78·4	—0·1	83·8	—0·4	10·8	95·4	3 days	72·8	23rd	22·6
	Puri	9	29·567	?	29·516	29·711	14th	29·405	22nd	·306	83·0	88·1	?	79·9*	?	84·1*	?	8·2	93·7	27th & 28th.	75·6	22nd	18·1
5. Gangetic Plain and Chota Nagpur.		...	...	—·038	...	...	...	...	...	...	...	90·0	—0·2	78·3	—0·3	84·2	—0·3	11·7	...	...	...	...	23·
Chota Nagpur	Hazaribagh	2,007	27·567	—·028	29·496	27·685	28th	27·385	22nd	·300	77·2	84·6	+0·1	73·5	—0·1	79·1	0	11·1	92·7	1st	69·8	24th	22·9
	Ranchi	2,128	27·443	?	29·493	27·554	4th	27·254	22nd	·300	75·5	83·3	?	72·3	?	77·8	?	11·0	89·0	4th	68·4	24th & 25th.	20·6
	Chaibassa	760	28·768	—·040	29·467	28·909	14th	28·555	12th	·354	80·8	89·8	?	77·2	?	83·6	?	12·6	98·3	4th & 8th.	74·2	25th	24·1
Bihar, South	Gaya	375	29·152	—·048	29·475	29·258	30th	28·980	22nd	·278	83·0	91·6	+0·1	79·1	+0·7	85·4	+0·4	12·5	97·5	5th	76·3	13th	21·2
	Dehree	351	29·166†	?	29·467†	29·307	30th	28·996	22nd	·311	82·5	89·9†	?	79·9	?	84·0†	?	10·0	99·4	2nd	72·5	20th	26·9
	Patna	183	29·356	—·045	29·490	29·469	28th	29·178	22nd	·291	82·9	87·5*	—3·1	79·3	—0·5	83·4*	—1·8	8·2	95·2	5th	77·2	5th & 14th.	18·0
	Arrah	190	29·343	?	29·482	29·452	28th	29·157	21st	·295	82·6	90·5	?	79·6	?	85·1	?	10·9	97·4	5th	76·0	2nd	21·4
	Buxar	239	29·303	?	29·494	29·415	28th	29·121	21st	·294	82·4	89·8	?	78·7	?	84·3	?	11·1	94·4	4th	74·8	1st	19·6
Bihar, North	Purnea	125	29·453	—·017	29·530	29·601	28th & 30th.	29·253	22nd	·348	80·8	88·9	—1·6	77·0	—1·6	83·0	—1·6	11·9	94·2	28th	74·2	9th	20·0
	Bhagalpur	160	29·391	?	29·503	29·526	14th	29·199	22nd	·327	82·1	89·6	?	78·5	?	84·1	?	11·1	93·2	3rd & 28th.	76·5	29th	16·7
	Durbhanga	166	29·399	—·025	29·517	29·527	28th	29·226	2 days	·301	82·1	88·6	—0·5	73·4	—0·4	84·0	—0·5	9·2	93·0	2 days	76·0	26th	17·0
	Muzaffarpur	178	29·373	?	29·503	29·501	28th	29·193	22nd	·308	81·5	89·9	?	79·1	?	84·5	?	10·8	94·2	2nd	76·2	7th	18·0
	Motihari	224	29·318	?	29·498	29·446	30th	29·147	22nd	·299	81·5	89·8	?	78·1	?	84·0	?	11·7	95·2	28th	73·8	28th	21·4
	Chupra	181	29·358	?	29·490	29·466	28th & 30th.	29·171	21st	·295	82·3	90·2	?	79·2	?	84·7	?	11·0	95·8	5th	76·1	7th	19·7
N.-W. Provinces (Eastern Districts).	Benares	267	29·254	—·036	29·474	29·354	28th	29·083	21st	·271	82·8	92·2	+0·7	79·4	—0·1	85·8	+0·3	12·8	104·8	8th	76·0	2 days	28·8
	Allahabad	309	29·202	—·046	29·463	29·302	28th	29·054	21st	·248	83·1	93·0	+1·6	79·9	+0·7	86·4	+1·2	13·1	108·9	8th	73·8	28th	35·1
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·275	—·033	29·488	29·383	30th	29·083	21st	·300	82·0	89·9	—1·4	78·8	—0·9	84·4	—1·2	11·1	94·9	28th	75·2	8th	19·7
Oudh, South	Lucknow	370	29·129	—·063	29·455	29·252	28th	29·015	21st	·237	82·7‡	94·1‡	+2·1‡	79·0‡	—0·4‡	86·6‡	+0·9‡	15·1‡	104·3	4th	75·1	27th	29·2
Oudh, North	Bahraich	403	29·126	?	29·480	29·239	28th	28·961	21st	·278	82·5	90·4	?	78·6	?	84·5	?	11·8	94·4	3 days	73·5	6th	20·9
N.-W. Provinces (Central).	Cawnpore	416	29,101	?	29·471	29·197	28th	28·971	21st	·226	83·4	93·3	?	78·9	?	86·1	?	14·4	106·6	8th	74·0	22nd	32·6
	Mainpuri	516	28·988	?	29·455	29·084	28th	28·850	21st	·234	83·3	93·6	?	79·8	?	86·7	?	13·8	105·8	8th	75·0	26th	30·8
6. Upper—Sub-Himalayas		...	..	—·046	...	...	...	...	...	...	...	95·0	+0·6	79·0	+0·5	87·0	+0·6	16·0	...	...	...	...	34·3
N.-W. Provinces (Sub-montane).	Bareilly	568	28·940	—·048	29·466	29·059	29th	28·771	21st	·288	82·1	91·0	0·8	78·2	—0·5	84·6	—0·7	12·8	97·4	2nd & 13th.	74·6	18th & 26th.	22·8
	Dehra Dun	2,233	27·345	?	29·492	27·472	29th	27·165	21st	·307	77·7	86·9	?	73·5	?	80·2	?	13·4	93·5	1st	70·0	9th & 19th.	23·5
	Roorkee	887	28·630	—·049	29·471	28·762	29th	28·440	21st	·322	83·1	94·7	+2·9	78·8	+0·8	86·8	+1·9	15·9	102·7	5th	73·1	29th	29·6
	Meerut	737	28·773	—·040	29·464	28·898	29th	28·589	21st	·309	83·6	93·7	+0·7	79·2	—0·5	86·5	+0·1	14·5	105·2	8th	73·9	24th	31·3
Punjab (Central).	Delhi	718	28·798	—·035	29·466	28·906	29th	28·653	21st	·253	85·2	95·4	+1·2	81·4	+1·0	88·5	+1·1	14·0	108·0	8th & 9th.	76·1	9th & 24th.	31·9
	Lahore	702	28·772	—·049	29·427	28·925	29th	28·570	21st	·355	87·1	99·0	+0·1	81·4	+0·6	90·2	+0·7	17·6	117·3	8th	74·9	14th & 19th.	42·4

* Mean of 29 days. † Mean of 30 days ‡ Mean of 22 days.

I—*continued.*

in India, Burma, etc., in July 1892—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 1892.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Station.	Meteorological Province or District.
8	...	1	7	5	8	2	..	...	6	?	?	88	?	3·7	23	18·50	+ 4·50	14·24	13·44	+ 0·80	20·97	22·30	— 1·33	Naya Dumka	Central Bengal, —*contd.*
1	...	1	7	6	7	6	2	1	5	5	0	94	·986	9·1	14	16·27	— 2·27	9·39	10·38	— 0·99	19·77	18·77	+ 1·00	Berhampore.	
2	1	4	1	12	3	8	...	...	5	?	?	89	?	5·9	15	14·85	+ 0·15	6·66	11·67	— 5·01	12·92	21·32	— 8·40	Rampur Boalia.	
4	...	3	2	17	2	3	...	...	4	?	?	91	?	7·2	19	15·00	+ 4·00	16·02	11·41	+ 4·61	23·68	22·55	+ 1·13	Malda.	
1	...	...	12	13	1	1	3	...	4	?	?	90	·977	8·1	22	15·25	+ 6·75	15·02	13·66	+ 1·36	24·51	27·48	— 2·97	Bogra.	
...	...	1	10	16	2	2	...	...	5	?	?	92	·986	9·3	21	15·70	+ 5·30	20·58	13·32	+ 7·26	34·24	29·74	+ 4·50	Dinajpur	North Bengal.
1	...	...	17	4	7	1	1	...	2	?	?	90	?	3·5	14	14·75	— 0·75	24·93	16·48	+ 8·45	39·16	35·99	+ 3·17	Rangpur.	
1	1	9	7	11	...	...	1	1	4	?	?	93	·950	4·5	20	19·35	+ 0·65	49·42	25·54	+23·88	66·14	54·03	+12·11	Jalpaiguri.	
...	2	2	2	...	4	20	1	...	8	?	?	89	·981	4·5	11	15·55	— 4·55	6·81	13·96	— 7·15	16·17	22·76	— 6·59	Balasore	Orissa.
...	...	...	1	3	6	14	6	1	13	11	+ 18	85	·952	7·8	15	15·20	— 0·20	8·90	12·80	— 3·90	24·68	19·34	+ 5·34	False Point.	
8	...	1	2	...	3	13	3	1	4	3	+ 33	79	·884	8·0	19	16·09	+ 2·91	12·60	12·78	— 0·18	22·72	22·18	+ 0·54	Cuttack.	
5	2	1	...	1	1	19	2	...	15	?	?	84	?	7·1	13	13·45	— 0·45	9·07	10·39	— 1·32	14·35	18·37	— 4·02	Puri.	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·97	11·89	+1·08	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
0	2	1	5	3	7	7	4	2	10	8	+ 25	87	·807	9·9	19	18·64	+ 0·36	17·12	12·97	+ 4·15	26·60	20·34	+ 6·26	Hazaribagh.	Chota Nagpur.
5	...	5	1	2	...	13	4	1	7	?	?	89	?	8·0	17	19·45	— 2·45	13·26	13·72	— 0·46	26·69	22·37	+ 4·32	Ranchi.	
1	0	4	3	3	3	8	9	0	3	?	?	83	·880	8·7	12	17·15	— 5·15	15·68	14·27	+ 1·41	22·16	22·57	— 0·41	Chaibassa.	
0	2	2	11	1	3	0	10	2	6	3	+100	82	·928	6·6	14	16·00	— 2·00	12·98	13·08	— 0·10	18·31	19·59	— 1·28	Gaya	Bihar, South.
2	1	1	9	4	...	12	1	1	4	?	?	83	?	5·1	15	15·38	— 0·38	13·09	11·25	+ 1·84	20·07	15·90	+ 4·17	Dehree.	
0	0	3	17	4	2	1	2	2	6	4	+ 50	85	·959	9·2	15	15·00	0	11·20	12·96	— 1·76	16·50	19·76	— 3·26	Patna	
...	1	4	10	5	3	2	5	1	3	?	?	88	?	4·7	16	14·94	+ 1·06	10·46	11·03	— 0·57	15·50	16·98	— 1·48	Arrah.	
...	...	4	17	1	1	3	3	2	7	?	?	86	?	7·5	13	14·50	— 1·50	8·81	11·07	— 2·26	14·13	16·03	— 1·90	Buxar.	
20	...	3	6	1	1	...	...	...	2	3	— 33	92	·965	6·8	20	17·09	+ 2·91	22·44	13·04	+ 9·40	30·80	24·89	+ 5·91	Purnea	Bihar, North.
16	...	1	5	6	2	1	...	...	2	?	?	89	?	8·9	17	15·40	+ 1·60	8·18	11·16	— 2·98	13·38	18·87	— 5·49	Bhagalpur.	
1	...	4	14	8	...	3	1	...	6	5	+ 20	89	·974	7·5	17	13·55	+ 3·45	11·19	11·19	0	18·99	20·61	— 1·62	Darbhanga.	
...	...	4	14	8	...	1	3	1	7	?	?	91	?	7·6	19	14·00	+ 5·00	12·00	11·81	+ 0·19	21·41	19·34	+ 2·07	Muzaffarpur.	
1	...	8	11	7	...	1	2	1	7	?	?	86	?	6·6	18	11·29	+ 6·71	19·14	10·45	+ 8·69	35·03	18·34	+16·69	Motihari.	
12	...	1	12	3	...	1	1	1	3	?	?	88	?	7·0	15	14·15	+ 0·85	6·74	12·30	— 5·56	14·08	18·32	— 4·24	Chupra.	
7	...	5	7	1	3	4	3	1	5	5	0	85	·965	8·4	16	14·27	+ 1·73	18·26	10·80	+ 7·46	20·67	15·33	+ 5·34	Benares	N.-W. Provinces (Eastern Districts).
1	1	5	6	2	4	4	4	4	7	4	+ 75	82	·924	9·0	18	14·18	+ 3·82	16·04	11·38	+ 4·66	20·15	16·06	+ 4·09	Allahabad.	
1	4	3	10	5	5	...	3	...	2	3	— 33	86	·945	2·5	14	13·91	+ 0·09	13·98	13·23	+ 0·75	17·85	21·45	— 3·60	Gorakhpur	N.-W. Provinces (East Sub-montane).
8	2	...	8	6	3	...	2	2	3	4	— 25	83†	·936†	8·2	17	13·64	+ 3·36	12·41	10·47	+ 1·94	14·41 (a)	15·09	— 0·68	Lucknow	Oudh, South.
...	2	3	10	9	2	2	2	1	5	?	?	86	·953	7·5	12	?	?	12·32	12·49	— 0·17	21·64	18·13	+ 3·51	Bahraich	Oudh North.
2	...	1	10	3	4	4	5	2	5	?	?	83	·943	9·3	13	12·1	+ 0·9	11·33	9·99	+ 1·34	14·55	13·08	+ 1·47	Cawnpore	N.-W. Provinces (Central).
4	...	8	6	1	5	1	2	4	3	?	?	83	·938	8·5	14	?	?	5·82	11·07	— 5·25	8·42	14·07	— 5·65	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·03	12·25	—1·22	...	...	...	**6. Upper—Sub-Himalayas**	
10	...	1	1	17	...	...	1	1	4	4	0	83	·918	6·3	11	13·45	— 2·45	15·47	16·86	— 1·39	20·77	22·14	— 1·37	Bareilly	N.-W. Provinces (Sub-montane).
31	...	...	...	...	...	...	...	...	1	1	0	88	·839	8·0	22	21·27	+ 0·73	27·36	29·11	— 1·75	30·96	38·21	— 7·25	Dehra Dun.	
15	...	...	...	13	3	...	...	...	3	3	0	80	·901	7·3	10	11·82	— 1·82	7·51	13·13	— 5·62	10·51	17·61	— 7·10	Roorkee.	
6	...	...	17	6	...	..	2	...	3	2	+ 50	79	·899	6·5	12	10·18	+ 1·82	11·86	9·51	+ 2·35	14·69	12·10	+ 2·59	Meerut.	
6	...	...	7	10	3	1	4	...	4	4	0	76	·900	7·1	10	8·64	+ 1·36	7·16	9·08	— 1·92	7·98	12·91	— 4·93	Delhi	Punjab (Central).
4	2	2	4	11	6	1	1	...	4	3	+ 33	69	·867	4·8	9	6·45	+ 2·55	8·11	6·57	+ 1·54	9·10	8·41	+ 0·69	Lahore.	

‡ Mean of 28 days. * Mean of 30 days. † Mean of 22 days. (a) Rainfall since 8th June 1892.

Table

Abstract of Observations taken at 8 A.M., at 171 Station

Meteorological Provinces 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.
Punjab (Sub-montane).	Ludhiana	812	28·670	—·062	29·433	28·810	29th	28·478	21st	·332	85·7	97·5	—0·7	81·1	+1·2	89·4	+0·3	17·7	114·3	9th	73·0	13th	41·3
Punjab, North	Sialkot	829	28·654	—·046	29·437	28·812	29th	28·470	21st	·342	86·1	98·7	+0·7	80·4	+1·3	89·6	+1·0	18·3	116·4	9th	71·3	18th	45·1
	Rawalpindi	1,649	27·861	—·036	29·408	28·028	29th	27·661	21st	·367	84.2	96·8	—1·0	76·6	—0·2	86·7	—0·6	20·2	110·5	9th	71·7	18th	38·8
7. Indus Valley and North-West Rajputana.		...	...	—·043	...	...	...	...	...	...	...	100·3	+0·2	82·3	+0·6	91·8	+0·4	18·9	...	...	...	...	39·4
Punjab, West	Peshawar	1,110	28·395	—·023	29·409	28·601	29th	28·154	22nd	·447	87·0	103·6	+0·8	78·9	—0·3	91 3	+0·3	24·7	117·0	9th	70·9	29th & 30th	46·1
	Khushab	612	28·842	?	29·407	29·014	29th	28·632	22nd	·382	89·4	101·9	?	83·1	?	92·5	?	18·8	117·1	8th & 9th.	71·0	19th	46·1
	Montgomery	558	28·899	?	29·410	29·037	29th 29th &	28·704	22nd	·333	90·0	104·6	?	84·0	?	94·3	?	20·6	117·4	8th	77·6	28th, 29th & 30th	39·8
	D. I. Khan	573	28·872	—·056	29·402	29·026	30th	28·627	22nd	·399	87·3	103·1	—0·7	81·7	—0·4	92·4	—0·6	21·4	120·5	8th & 9th.	74·9	27th, 28th & 30th	45·6
	Mooltan	420	29·025	—·045	29·403	29·157	29th	28·817	22nd	·340	90·2	104·3	+1·2	84·3	+1·5	94·3	+1·4	20·0	115·3	8th	76·2	28th & 29th	39·1
	Sirsa	662	28·816	—·051	29·428	28·945	29th	28·657	22nd	·288	87·0	99·6	—0·6	82·8	+1·7	91·2	+0·6	16·8	114·9	5th	75·3	24th	39·6
Sind and Cutch.	Jacobabad	186	29·266	—·023	29·409	29·409	30th	29·004	22nd	·405	90·2	106·6	—0·8	83·5	—0·5	95·1	—0·7	23·1	116·6	8th	73·7	12th	42·9
	Hyderabad	117	29·341	—·043	29·408	29·450	30th	29·155	22nd	·295	85·5	99·2	+0·2	81·5	+1·0	90·4	+0·6	17·7	109·2	8th	76·1	26th	33·1
	Kurrachee	49	29·451	—·058	29·451	29·566	30th	29·301	12th	·265	84·8	91·4	+1·2	81·5	+1·0	86·5	+1·1	9·9	109·6	8th	76·8	3 days	32·8
	Bhuj	395	29·128	?	29·472	29·235	4th	28·934	12th	·301	?	90·8*	?	?	?	?	?	?	102·7	8th	?	?	?
Rajputana, West	Bickaneer	753	28·723	?	29·419	28·815	29th	28·567	22nd	·248	88·5	100·1	?	83·3	?	91·7	?	16·8	111·0	6th & 7th	77·7	27th & 28th	33·3
	Pachpadra	380	29·123*	?	29·452*	29·214	2nd	28·992	22nd	·222	84·8	98·5	?	80·9	?	89·7	?	17·6	112·0	7th	76·6	13th, 26th & 28th	35·4
8. East Rajputana, Central India and Guzerat.		...	...	—·045	...	...	...	...	...	...	...	91·8	+2·3	78·5	+1·5	85·2	+1·9	13·3	...	...	...	...	30·4
Rajputana, East	Jeypore	1,431	28·111	—·042	29·476	28·207	28th	27·982	25th	·225	82·8	94·3	+2·5	78·9	+2·3	86·6	+2·4	15·4	108·6	6th	74·4	20th	34·2
	Sambhar	1,254	28·264	—·047	29·457	28·350	29th	28·162	25th	·188	83·5	95·2	+3·7	79·5	+1·9	87·3	+2·8	15·7	108·0	4ays	74·4	27th	33·6
	Ajmere	1,611	27·947	—·040	29·487	28·021	28th	27·836	22nd	·185	82·9	93·1	+1·9	79·3	+2·9	86·2	+2·4	13·8	106·9	5th	74·1	26th	32·8
	Deesa	466	29·084	—·047	29·501	29·186	3rd	28·925	12th	·261	81·7	93·7	+2·2	78·6	+1·1	86·2	+1·7	15·1	108·4	4th	73·8	28th	34·6
Kathiawar	Rajkot	429	29·131	—·065	29·509	29·228	30th	28·948	12th	·280	81·4	91·8	+1·5	76·7	+1·3	84·3	+1·4	15·1	103·9	4th	73·7	3 days	30·2
	Veraval	?	29·574	?	29·534	29·683	20th	29·397	8th	·286	83·1	85·1	?	79·5	?	82·3	?	5·6	90·1	1st	70·3	9th & 12th,	19·8
	Bhavnagar	?	29·565	?	29·550	29·657	1st	29·401	12th	·256	85·4	94·3	?	80·9	?	87·6	?	13·4	102·4	6th	78·0	13th, 26th & 30th,	24·4
Central India	Nowgong	757	28·774	—·039	29·482	28·862	27th	28·703	13th	·159	81·5	90·2	—0·1	78·4	+0·4	84·4	+0·2	11·8	104·6	8th	74·0	25th	30·6
	Indore	1,823	27·781	—·036	29·536	27·863	4th	27·671	11th	·192	76·9	87·1	+3·1	73·0	+0·7	80·1	+1·9	14·1	101·1	3rd	69·1	26th	32·0
	Neemuch	1,630	27·951	—·028	29·518	28·027	4th	27·837	25th	·190	79·0	90·7	+4·2	75·3	+1·6	83·0	+2·9	15·4	102·3	3rd & 4th	71·6	25th	30·7
Guzerat	Surat	36	29·576	—·061	29·554	29·672	20th	29·465	11th	·207	81·7	89·0	+1·9	78·2	+0·9	83·6	+1·4	10·8	96·7	7th	74·5	14th	22·2
N.-W. P., West	Agra	555	28·963	—·045	29·468	29·070	29th	28·835	21st	·235	85·0	93·2	+0·3	80·5	+0·3	86·8	+0·1	12·7	110·0	8th	76·5	19th & 24th,	33·5
	Jhansi	840	28·670	—·041	29·471	28·772	27th	28·538	25th	·234	83·5	92·9	+2·2	80·0	+1·8	86·5	+2·0	12·9	107·0	8th	74·9	24th	32·1
9. Deccan		...	...	—·029	...	...	...	...	...	...	...	86·6	+1·4	73·7	+0·8	80·2	+1·1	12·9	...	...	...	...	25·6
Bombay, Deccan	Belgaum	2,524	27·229	—·038	29·678	27·320	15th	27·137	6th	·183	70·6	76·0	+0·4	67·5	+0·6	71·8	+0·5	8·5	86·8	4th	65·3	29th	21·5
	Sholapur	1,590	28·117	—·037	29·638	28·212	15th	28·031	7th	·181	77·8	89·7	+1·1	72·3	+1·1	81·0	+1·1	17·4	96·2	5th	70·0	15th & 26th.	26·2
	Poona	1,840	27·851	—·045	29·626	27·936	15th	27·765	7th	·171	75·3	83·5	+1·9	71·4	+0·8	77·5	+1·4	12·1	95·0	1st	69·4	25th & 29th,	25·6
	Bijapur	?	27·781	?	?	27·877	15th	27·690	7th	·187	76·0	80·1	?	75·2	?	77·7	?	4·9	84·3	2nd	73·5	12th & 19th,	10·8
Khandeish	Malegaon	1,430	28·228	—·021	29·596	28·298	15th	28·134	11th	·164	79·4	90·3	+3·8	74·7	+1·8	82·5	+2·8	15·6	97·9	6th	72·1	15th & 16th,	25·8
	Ahmednagar	2,152	27·537	?	29·613	27·622	15th	27·449	7th	·173	75·0	83·6	?	71·1	?	77·4	?	12·5	92·3	1st	68·4	26th	23·9
Berar	Akola	930	28·700	—·031	29·572	28·796	15th	28·620	12th	·176	79·3	90·5	+2·6	74·8	+0·9	82·7	+1·8	15·7	99·8	8th	72·0	27th	27·8
	Amraoti	1,215	28·406	—·027	29·569	28·502	15th	28·318	11th	·184	76·7	?	?	74·0	+1·0	?	?	?	?	?	71·3	25th	?

* Mean of 30 days. † Mean of 29 days.

I —*continued.*

in India, Burma, etc., in July 1892 —continued.

Wind Direction. Number of Winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.										Station.	Meteorological Province or District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st June to 31st July 1892.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.			
14	1	1	4	6	4	...	2	...	2	2	0	77	·939	5·8	11	9·36	+1·64	9·64	11·20	−1·56	10·25	13·67	−3·42	Ludhiana.	Punjab (Sub-montane).
12	1	2	11	2	2	...	1	...	3	2	+50	70	·866	3·5	9	8·45	+0·55	6·57	7·67	−1·10	7·01	11·18	−4·17	Sialkot .	Punjab, North.
10	5	2	1	6	1	2	1	3	3	2	+50	69	·798	3·5	8	8·64	−0·64	5·63	7·12	−1·49	8·50	8·78	−0·28	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·88	2·98	+3·89	...	...	...	7.—Indus Valley and North-West Rajputana.	
4	5	8	2	2	...	3	...	7	4	4	0	59	·745	3·4	3	1·91	+1·09	3·68	1·44	+2·24	4·10	1·91	+2·19	Peshawar .	Punjab, West.
8	1	5	11	2	1	1	1	1	5	?	?	59	·793	3·5	7	3·2	+3·8	10·41	2·86	+7·55	13·04	3·56	+9·48	Khushab.	
2	1	2	5	8	5	4	3	1	10	?	?	62	·832	3·9	3	3·6	−0·6	3·48	3·06	+0·42	4·52	4·35	+0·17	Montgomery	
15	3	9	2	1	...	...	...	1	2	2	0	67	·845	3·7	6	3·64	+2·36	8·76	2·61	+6·15	8·40	3·13	+5·27	D. I. Khan.	
6	1	8	...	4	...	11	...	1	3	3	0	63	·853	3·1	7	2·82	+4·18	11·53	2·17	+9·36	12·73	2·85	+9·88	Mooltan.	
1	2	...	5	12	...	1	10	...	8	5	+60	72	·903	7·3	8	5·55	+2·45	7·77	4·04	+3·73	8·89	5·94	+2·95	Sirsa.	
3	1	3	3	11	6	1	...	3	6	3	+100	63	·885	4·4	5	1·45	+3·55	2·50	1·54	+0·96	2·77	1·54	+1·23	Jacobabad	Sind and Cutch.
...	...	6	...	3	1	19	2	...	9	14	−36	71	·856	8·3	8	3·18	+4·82	6·89	2·86	+4·03	7·67	3·00	+4·67	Hyderabad.	
...	1	1	...	...	...	11	16	2	12	18	−33	83	1·001	7·4	8	3·64	+4·36	10·94	3·64	+7·30	10·94	3·76	+7·18	Kurrachee.	
2	...	...	1	...	2	6	17	3	19	17	+12	?	?	7·4	10	?	?	5·84	5·46	+0·38	5·90	7·63	−1·73	Bhuj.	
...	1	...	...	2	12	15	1	...	5	7	−29	63	·830	4·5	6	?	?	7·27	3·47	+3·80	10·28	5·25	+5·03	Bickaneer .	Rajputana, West.
15	...	...	...	6	2	6	1	1	?	10	?	72	·854	8·4	6	?	?	3·43	2·64	+0·79	4·46	3·33	+1·13	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·90	11·69	+0·46	...	...	...	8.—East Rajputana, Central India and Guzerat.	
5	1	1	4	...	2	6	9	3	4	6	−33	76	·840	7·6	13	12·90	+0·10	13·96	9·61	+4·35	17·75	11·92	+5·83	Jeypore .	Rajputana, East.
1	2	3	1	1	1	3	14	5	9	9	0	74	·839	6·6	11	10·20	+0·80	10·50	7·96	+2·54	12·19	9·27	+2·92	Sambhar.	
1	1	3	...	...	...	2	17	7	9	7	+29	74	·809	2·8	9	10·27	−1·27	5·08	8·13	−3·05	5·76	10·56	−4·80	Ajmere.	
...	...	...	4	11	6	7	1	2	17*	16	?	80	·849	8·7	14	10·73	+3·27	15·12	10·79	+4·33	15·41	12·52	+2·89	Deesa.	
1	..	1	...	...	1	12	15	1	12	14	−14	84	·887	7·5	15	12·91	+2·09	10·28	14·11	−3·83	13·01	18·94	−5·93	Rajkot .	Kathiawar.
1	...	...	...	3	1	11	14	1	9	?	?	86	·975	8·5	9	?	?	3·83	?	?	5·61	?	?	Veraval.	
...	2	...	...	2	4	21	2	...	18	?	?	83	1·011	7·9	7	?	?	4·22	?	?	7·60	?	?	Bhavnagar.	
3	1	1	2	1	...	5	17	1	5	4	+25	81	·870	8·2	18	15·73	+2·27	18·41	15·70	+2·71	27·90	20·75	+7·15	Nowgong .	Central India.
2	...	1	...	...	2	14	11	1	6	7	−14	87	·802	8·3	15	13·73	+1·27	6·38	9·72	−3·34	11·45	16·68	−5·23	Indore.	
2	...	...	...	...	...	10	19	...	15	12	+25	78	·783	5·8	9	11·73	−2·73	8·97	10·48	−1·51	10·66	14·57	−3·91	Neemuch.	
...	1	...	1	3	3	12	9	2	?	16	?	87	·957	7·2	16	16·45	−0·45	21·64	16·34	+5·30	34·59	24·65	+9·94	Surat .	Guzerat.
1	...	1	...	16	...	7	...	6	5	5	0	79	·931	6·8	15	13·00	+2·00	9·41	11·74	−2·33	9·97	14·58	−4·61	Agra . .	N.-W. P., West.
6	1	1	1	2	...	14	3	3	4	4	0	77	·870	6·3	15	14·36	+0·64	13·89	13·96	−0·07	18·06	18·08	−0·02	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·62	10·95	+1·98	...	...	...	9.—Deccan.	
1	...	...	...	1	3	12	13	1	?	?	?	92	·686	9·7	23	22·91	+0·09	17·53	15·71	+1·82	24·20	23·18	+1·02	Belgaum .	Bombay, Deccan.
...	...	...	...	...	3	16	11	1	18	12	+50	76	·724	8·1	5	9·45	−4·45	1·93	4·82	−2·89	9·43	10·07	−0·64	Sholapur.	
4	...	...	1	1	...	9	16	...	14	17	−18	83	·730	8·5	15	12·73	+2·27	11·80	6·97	+4·83	17·69	11·32	+6·37	Poona.	
...	...	...	...	...	1	17	13	...	13	?	?	80	·716	9·4	5	6·4	−1·4	3·68	3·07	+0·61	10·28	5·86	+4·42	Bijapur.	
2	...	1	1	...	...	14	12	1	12	12	0	76	·753	7·2	3	8·55	−5·55	1·79	5·44	−3·65	7·79	10·43	−2·64	Malegaon .	Khandeish.
2	1	...	...	1	4	9	12	2	12	?	?	82	·712	8·3	7	?	?	5·06	3·29	+1·77	20·98	8·24	+12·74	Ahmednagar	
...	1	...	...	...	...	5	2	23	8	8	0	82	·814	8·6	15	13·18	+1·82	13·95	11·17	+2·78	20·58	17·03	+3·55	Akola .	Berar.
...	...	...	...	...	1	9	18	3	9	8	+13	88	·807	7·9	18	12·73	+5·27	13·59	10·71	+2·88	19·34	18·38	+0·96	Amraoti.	

* Mean of 15 days.

Table

Abstract of Observations taken at 8 A.M., at 171 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.
Central Provinces, West.	Khandwa	1,044	28·564	—·031	29·558	28·639	16th	28·468	11th	·171	78·7	88·8	+1·8	76·5	+1·8	82·7	+1·8	12·3	101·2	3rd	72·6	25th	28·6
	Hoshangabad	1,020	28·579	—·032	29·551	28·672	4th	28·473	24th	·199	78·4	87·4	+1·3	75·7	+0·8	81·6	+1·1	11·7	101·5	2nd	71·7	31st	29·8
	Nagpur	1,025	28·580	—·026	29·554	28·683	15th	28·484	24th	·199	79·1	88·1	+1·0	75·5	+0·9	81·8	+1·0	12·6	96·8	4th	71·1	26th	25·7
Central Provinces, Central.	Seoni	2,030	27·605	—·003	29·587	27·745	15th	27·502	22nd	·243	76·3	83·9	+0·3	72·6	+0·2	78·3	+0·3	11·3	91·2	2nd & 9th.	68·1	25th	23·1
	Jubbulpore	1,327	28·245	—·021	29·517	28·329	15th	28·054	24th	·275	78·3	86·8	+1·0	75·3	+0·8	81·1	+0·9	11·5	101·0	8th	69·6	25th	31·4
	Saugor	1,762	27·810	—·036	29·502	27·889	4th	27·670	24th	·219	77·9	87·3	+2·3	74·3	+0·8	80·8	+1·6	13·0	102·4	8th	68·7	25th.	33·7
Central Provinces, East.	Raipur	960	28·622	—·016	29·538	28·741	15th	28·487	24th	·254	78·2	85·1	—1·0	74·9	+0·3	80·0	—0·4	10·2	94·0	8th	68·7	25th	25·3
	Sutna	1,040	28·484	—·040	29·473	28·578	5th & 27th	28·379	13th	·199	80·4	88·3	+1·7	75·9	—0·8	82·1	+0·5	12·4	99·2	1st	70·1	27th	29·1
	Sambalpur	463	29·096	?	29·504	29·213	15th	28·889	12th	·324	80·2	86·6	?	76·7	?	81·7	?	9·9	96·5	8th	72·2	3 days	24·3
Hyderabad, North.	Aurangabad	?	27·823	?	?	27·898	15th	27·738	12th	·160	77·8	88·0*	?	71·8	?	79·9*	?	16·2	92·7	1st & 4th.	68·1	27th	24·6
	Indur	?	?	?	?	?	...	?	...	?	77·4	88·4	?	74·5	?	81·5	?	13·9	93·3	2nd & 9th.	69·5	28th	23·8
	Bidar	?	27·540	?	?	27·651	15th	27·475	11th	·176	73·5	84·6	?	70·0	?	77·4	?	14·6	90·3	5th	67·2	16th	23·1
	Gulburga	?	28·197	?	?	28·304	15th	28·123	7th	·181	76·2	88·5	?	71·1†	?	79·8†	?	17·4	96·6	5th	65·1	18th	31·5
Hyderabad, South.	Raichur	?	28·349	?	?	28·460	28th	28·270	6th	·190	77·3	89·3	?	73·4	?	81·3	?	15·9	97·3	17th	70·5	26th	26·8
	Hyderabad (Deccan).	1,690	28·012	?	29·639	28·117	15th	27·955	10th	·162	75·9	87·0	?	73·0	?	80·0	?	14·0	93·4	2nd & 6th	70·2	26th	23·2
	Kamamet	?	29·313	?	29·238	29·431	14th	29·237	7th	·194	80·8	89·8	?	77·1	?	83·5	?	12·7	95·9	2nd	73·3	22nd	22·6
10.—West Coast		...	...	—·041	...	...	...	...	...	...	...	82·9	+0·1	75·2	+0·6	79·1	+0·3	7·8	...	...	...	...	15·7
Konkan	Bombay	37	29·647	—·057	29·624	29·732	15th & 16th	29·527	7th	·205	81·1	84·3	+0·2	78·6	+1·4	81·5	+0·8	5·7	88·4	6th & 7th.	75·0	29th & 30th	13·4
	Ratnagiri	110?	29·613	—·052?	29·661	·714	15th	·480	6th	·224	80·1	84·2	+0·5	76·6	+1·3	80·4	+0·9	7·6	88·9	17th	73·4	29th & 30th	15·5
	Mormugoa	60	29·720	?	29·715	·824	15th	·578	6th	·246	79·6	83·9	?	75·9	?	79·9	?	8·0	88·0	3rd & 4th	72·4	27th	15·6
	Karwar	44	29·751	—·041	29·727	·861	20th	·629	6th	·232	79·1	82·9	—0·2	74·6	+0·1	78·8	—0·1	8·3	85·7	2nd	71·8	29th	13·9
Malabar	Mangalore	26	29·814	—·042	29·772	·914	15th	·695	6th	·219	77·9	83·2	+0·4	74·3	+0·3	78·8	+0·4	8·9	87·8	1st	71·4	28th	16·4
	Calicut	27	29·841	—·036	29·798	·958	20th	·725	6th	·233	75·6	81·0	?	73·1	?	77·1	?	7·9	87·8	1st	71·1	26th & 29th.	16·7
	Cochin	10	29·882	—·018	29·820	30·009	20th	·777	2nd	·232	76·7	82·7	—0·5	73·8	0	78·3	—0·3	8·9	88·2	16th	70·7	26th	17·5
	Trivandrum	198	29·678	?	29·809	29·801	19th	·557	1st	·244	76·2	81·0	?	74·5	?	77·8	?	6·5	86·0	16th	70·0	25th	16·0
11.—South India		..	...	—·033	...	...	...	...	...	...	...	90·0	—0·9	75·9	+0·2	83·0	—0·3	14·0	...	...	...	...	23·7
Madras, South	Pamban	37	29·770	?	29·734	29·913	19th	29·660	1st	·253	82·3	88·1	?	79·2	?	83·7	?	8·9	93·3	1st	73·2	25th	20·1
	Tinnevelly	168	29·653	?	29·748	29·778	19th	29·525	1st	·253	82·6	94·6	?	79·1	?	86·9	?	15·5	100·3	1st	77·4	9th & 26th	22·9
	Madura	447	29·347	—·033	29·726	29·468	19th	29·240	1st	·228	83·2	94·2	—3·6	76·6‡	+0·6‡	85·7‡	—1·5	17·6	99·9	1st	72·0	9th	27·9
Madras, South Central.	Salem	940	28·878	—·038	29·758	28·993	20th	28·768	6th	·225	77·2	91·6	—1·2	73·0	+0·8	82·3	—0·2	18·6	97·4	18th	71·0	3 days	26·4
	Coimbatore	1,348	28·461	—·030	29·754	28·582	20th	28·351	6th	·231	75·2	88·2	+0·3	69·6	—1·2	78·9	—0·5	18·6	91·3	17th & 19th	65·6	6th & 28th.	25·7
Coorg	Mercara	3,781	26·149	?	29·789	26·230	15th & 20th	26·058	6th	·172	64·8	68·1	—0·8	62·9	+0·4	65·5	—0·2	5·2	78·3	1st	60·7	29th	17·6
Mysore	Bangalore Fort	3,015	26·830	—·049	29·746	26·931	15th	26·732	6th	·199	69·4	80·3	?	66·1	?	73·2	?	14·2	85·8	4th	64·3	16th & 29th.	21·5
Madras, East Coast, South.	Negapatam	31	29·754	—·028	29·713	29·889	19th	29·631	3rd	·258	83·0	94·8	—0·5	77·1	—0·8	86·0	—0·7	17·7	99·7	15th	72·2	26th	27·5
	Cuddalore	12	29·761	?	29·702	29·905	19th	29·661	3rd	·244	81·7	92·2	?	77·0	?	84·7	?	15·2	98·8	25th	74·2	3 days	24·6
	Trichinopoly	255	29·539	—·032	29·726	29·661	19th	29·447	4th	·214	82·3	95·8	—1·2	78·1	+0·9	87·0	—0·2	17·7	102·1	20th	74·9	2nd & 4th	27·2
	Madras	22	29·733	—·033	29·686	29·847	19th	29·639	5th	·208	82·0	93·4	—1·8	78·1	—0·4	85·8	—1·1	15·3	99·0	18th	71·0	23rd	28·0
Madras, East Coast, Central.	Nellore	71	29·640	?	29·644	29·753	14th	29·539	7th	·214	85·0	96·0	?	79·9	?	88·0	?	16·1	102·8	2nd	76·1	29th.	26·7
	Masulipatam	15	29·680	—·022	29·631	29·804	14th	29·604	22nd	·200	82·4	92·2	0	78·4	+0·4	85·3	+0·2	13·8	98·2	27th	73·6	21st	24·6
Madras, Central	Cuddapah	433	29·313	?	29·685	29·430	15th	29·225	6th	·205	82·0	93·3	?	77·3	?	85·3	?	16·0	99·2	18th	71·7	28th	27·5
	Kurnool	923	28·812	?	29·670	28·911	15th	29·725	6th	·186	80·3	90·7	?	74·8	?	82·8	?	15·9	96·0	2nd	72·4	3rd & 29th.	23·6
	Bellary	1,475	28·278	—·023	29·688	28·388	15th	28·190	6th & 7th.	·198	78·9	89·9	—1·2	74·6	+0·3	82·2	—0·5	15·3	95·9	2nd	71·9	26th & 29th.	24·0
Madras, East Coast, North.	Rajahmundry	112	29·558	?	29·606	29·683	14th	29·507	7th	·176	81·9	89·8	?	77·9	?	83·9	?	11·9	96·0	3 days	72·1	22nd	23·9

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

I—*continued.*

in India, Burma, etc., in July 1892—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 1892.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.	Station.	Meteorological Province or District.
1	...	...	...	...	2	9	19	...	7	8	− 13	83	·806	6·7	13	11·91	+1·09	8·89	9·82	− 0·93	13·47	16·12	− 2·65	Khandwa	Central Provinces, West.
4	...	...	...	...	6	15	6	...	6	4	+ 50	88	·856	9·0	14	17·27	− 3·27	23·38	19·53	+ 3·85	29·00	27·96	+ 1·04	Hoshangabad.	
4	...	...	...	...	3	13	11	...	10	8	+ 25	84	·833	8·2	21	17·64	+3·36	13·46	15·43	− 1·97	19·63	25·17	− 5·54	Nagpur.	
...	...	...	2	2	3	15	7	2	7	6	+ 17	89	·814	6·7	16	18·64	−2·64	16·88	17·40	− 0·52	24·44	28·90	− 4·46	Seoni	Central Provinces, Central.
1	...	...	...	1	6	10	10	3	5	5	0	86	·828	8·6	19	19·27	−0·27	21·38	21·73	− 0·35	25·85	31·71	− 5·86	Jubbulpore.	
...	...	...	...	...	1	15	13	2	9	5	+ 80	85	·805	7·2	18	15·64	+2·36	21·49	14·86	+ 6·63	23·36	21·18	+ 2·18	Saugor.	
...	...	...	...	...	1	16	13	1	13*	12	+ 8	90	·859	9·5	21	16·36	+4·64	22·31	16·92	+ 5·39	29·48	28·46	+ 1·02	Raipur	Central Provinces, East.
1	4	4	...	...	5	2	11	4	10	9	+ 11	83	·867	7·3	15	15·73	−0·73	17·88	14·75	+ 3·13	26·66	20·48	+ 6·18	Sutna.	
1	...	3	2	1	6	15	3	...	7	?	?	89	·912	8·0	22	?	?	41·96	17·60	+24·36	55·58	28·38	+27·20	Sambalpur.	
1	...	...	...	...	2	22	5	1	10	?	?	79	·753	7·3	16	?	?	7·47	7·37	+ 0·10	17·29	13·71	+ 3·58	Aurangabad	Hyderabad, North.
...	...	...	...	1	...	15	12	3	15	?	?	83	·783	6·7	13	?	?	8·79	10·64	− 1·85	15·53	15·24	+ 0·29	Indur.	
...	...	...	...	...	1	14	15	1	11	?	?	92	·763	6·0	12	?	?	10·78	9·29	+ 1·49	17·05	15·59	+ 1·46	Bidar.	
1	1	...	...	1	2	10	11	5	17	?	?	82	·742	9·1	9	?	?	4·18	4·89	− 0·71	12·45	9·71	+ 2·74	Gulburga	Hyderabad, South.
...	...	...	...	...	2	13	13	3	14	?	?	77	·726	10·0	11	?	?	2·82	4·02	− 1·20	11·11	7·92	+ 3·19	Raichur.	
3	...	...	...	...	...	...	27	1	10		?	80	·717	7·6	7	?	?	6·37	6·33	+ 0·04	12·71	10·93	+ 1·78	Hyderabad (Deccan).	
4	...	1	...	...	2	10	12	2	13	?	?	78	·819	4·3	12	?	?	5·60	?	?	13·14	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36·89	31·21	+9·24	...	...	...	**10.—West Coast.**	
...	...	...	...	5	2	11	13	...	19	19	0	85	·912	9·0	24	21·91	+2·09	23·63	27·87	− 4·24	36·93	47·78	−10·85	Bombay	Konkan.
...	...	...	2	3	5	15	6	...	15	13	+ 15	89	·815	9·2	27	26·36	+0·64	35·67	33·80	+ 1·87	72·72	64·76	+ 7·96	Ratnagiri.	
...	...	...	...	1	3	2	9	16	15	?	?	89	·940	8·5	29	?	?	43·53	?	?	64·93	?	?	Mormugoa.	
2	2	...	...	...	...	26	1	...	5	?	?	87	·861	9·1	30	27·45	+2·55	43·36	37·17	+ 6·19	68·35	75·76	− 7·41	Karwar.	
8	1	1	1	...	...	4	15	1	3	3	0	91	·874	9·5	30	28·10	+ 1·90	42·04	36·26	+ 5·78	58·10	72·55	−14·45	Mangalore	Malabar.
4	3		2	3	3	2	3	4	12	?	?	93	·827	9·6	31	26·63	+4·37	57·10	29·79	+27·31	69·76	63·76	+ 6·00	Calicut.	
4	1	7	5	2	1	...	5	6	6	?	?	89	·823	9·6	28	23·91	+4·09	40·87	22·36	+18·51	58·27	51·86	+ 6·41	Cochin.	
...	8	...	...	...	...	...	2	21	11	?	?	90	·820	9·3	15	?	?	8·89	?	?	17·07	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·43	5·42	+1·15	...	...	...	**11.—South India.**	
...	3	...	...	...	1	20	7	...	10	?	?	75	·834	3·0	2	1·30	+0·70	1·27	0·71	+ 0·56	1·27	0·75	+ 0·52	Pamban	Madras, South.
...	2	...	...	...	...	4	9	16	11	?	?	60	·679	9·1	0	0·9	−0·9	0	0·19	− 0·19	0·34	0·95	− 0·61	Tinnevelly.	
...	4	1	...	...	1	10	3	12	3	5	− 40	61	·696	5·8	2	1·45	+0·55	3·50	1·04	+ 2·46	5·49	2·23	+ 3·26	Madura.	
...	...	...	...	...	20	10	1	...	5	5	0	81	·767	7·0	7	6·91	+0·09	2·98	3·53	− 0·55	7·38	7·13	+ 0·25	Salem	Madras, South Central.
...	...	...	1	...	5	21	4	...	5	8	− 38	87	·762	7·5	5	4·36	+0·64	1·26	1·34	− 0·08	3·06	2·90	+ 0·16	Coimbatore.	
...	...	...	...	...	...	...	31	...	10	11	− 9	95	·590	9·9	29	29·30	−0·30	52·32	43·90	+ 8·42	61·91	72·57	−10·66	Mercara	Coorg.
...	...	...	...	...	...	18	13	...	10	?	?	88	·642	8·6	8	?	?	3·84	?	?	9·61	?	?	Bangalore Fort.	Mysore.
2	...	...	...	...	1	4	20	4	4	7	− 43	66	·746	7·0	6	3·64	+2·36	3·62	1·48	+ 2·14	4·90	3·35	+ 1·55	Negapatam	Madras, East Coast, South.
...	...	...	...	...	2	10	12	7	4	?	?	87	·947	6·8	6	5·6	+0·4	5·43	3·29	+ 2·14	8·91	4·99	+ 3·92	Cuddalore.	
1	...	...	...	...	...	1	17	7	9†	10	− 10	64	·705	8·4	3	2·18	+0·82	0·88	1·52	− 0·64	3·81	3·03	+ 0·78	Trichinopoly.	
2	1	...	...	...	1	19	8	...	6	8	− 25	74	·806	7·7	10	7·00	+3·00	7·52	3·91	+ 3·61	11·54	6·36	+ 5·18	Madras.	
3	...	...	...	2	2	2	11	11	10	?	?	75	·900	8·9	6	4·7	+1·3	3·29	2·55	+ 0·74	6·23	3·81	+ 2·42	Nellore	Madras, East Coast, Central.
2	1	...	1	...	1	1	11	14	10	10	0	82	·909	7·6	9	9·36	−0·36	4·37	5·69	− 1·32	11·99	10·91	+ 1·08	Masulipatam.	
...	1	1	1	...	...	9	13	6	?	?	?	70	·759	8·3	5	6·00	−1·00	3·46	2·73	+ 0·73	12·88	6·35	+ 6·53	Cuddapah.	Madras, Central.
18	...	...	...	...	...	2	11	...	?	?	?	73	·753	7·4	6	9·83	−3·83	3·09	4·41	− 1·32	10·10	8·26	+ 1·84	Kurnool.	
5	...	...	...	...	...	9	16	1	12	12	0	72	·713	8·3	3	3·91	−0·91	1·12	1·96	− 0·84	6·52	3·55	+ 2·97	Bellary.	
3	1	...	4	...	...	...	18	5	?	?	?	79	·875	4·2	15	10·1	+3·60	8·62	6·07	+ 2·55	15·09	10·92	+4·17	Rajahmundry	Madras, East Coast, North.

* Mean of 26 days.

† Wind direction of 26 days.

Table

Abstract of Observations taken at 8 A.M., at 171 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.
Madras, East Coast, North —*contd.*	Coconada	26	29·637	?	29·597	29·769	14th	29·542	22nd	·227	82·0	89·8	?	78·6	?	84·2	?	11·2	95·2	27th	73·2	27th	22·0
	Vizagapatam	31	29·595	−·031	29·564	29·735	14th	29·506	11th	·229	85·0	88·7	+1·1	81·9	+1·4	85·3	+1·3	6·8	94·4	27th	77·9	3 days	16·5
	Gopalpur	21	29·572	?	29·535	29·718	14th	29·421	22nd	·297	82·0	87·6	?	78·4	?	83·1	?	9·2	91·7	17th	75·8	27th	15·9
12.—Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beluchistan	Quetta	5,502	24·407	−·007	?	24·507	4th	24·264	22nd	·243	77·0	93·7	+1·2	64·6	−0·9	79·2	+0·2	29·1	98·6	8th	57·8	2nd	40·8
Northern India	Srinagar	5,204	24·655	?	?	24·806	29th	24·456	22nd	·350	71·4	85·0	?	63·3	?	74·2	?	21·7	95·4	9th	52·7	5th	42·7
	Murree	6,344	23·672	−·033	?	23·767	29th	23·515	22nd	·252	69·1	77·7	+0·1	62·2	−0·7	70·0	−0·3	15·5	94·7	9th	52·8	2nd	41·9
	Simla	7,274	22·960	−·025	?	23·066	29th	22·811	21st	·255	64·3	71·2	−0·9	60·8	+0·2	66·0	−0·4	10·4	79·6	8th	55·9	19th	23·7
	Chakrata	7,052	23·190	?	?	23·197	29th	22·952	21st & 22nd.	·245	64·5	71·5	−0·9	60·8	−0·6	66·2	−0·8	10·7	81·3	1st	57·3	27th & 28th.	24·0
	Mussoorie	?	23·401	?	?	23·508	29th	23·237	21st	·271	64·9	71·8	+2·2	62·0	+1·5	66·9	+1·9	9·8	76·3	5th	57·9	27th & 28th.	18·4
	Ranikhet	6,069	23·923	−·021	?	24·038	29th	23·777	21st	·261	67·6	75·2	+1·6	63·8	+1·1	69·5	+1·4	11·4	79·0	1st	60·3	27th	18·7
	Gnatong	?	19·272	?	?	19·293	28th	19·207	21st	·086	50·2	58·7	?	39·5	?	49·1	?	19·2	63·5	12th	36·1	9th	27·4
	Darjeeling	7,421	22·847	−·035	?	22·949	28th	22·718	21st	·231	61·1	65·7	−0·6	57·6	+0·3	61·6	−0·2	8·1	71·6	28th	54·6	23rd	17·0
Central India	Mount Abu	3,945	?	?	?	?	...	?	...	?	69·1	75·5	+0·5	66·7	+1·1	71·1	+0·8	8·8	87·7	8th	62·9	21st	24·8
	Pachmarhi	3,511	26·206	−·027	?	26·278	1st	26·082	24th	·196	71·2	77·2	+1·9	68·8	+1·2	73·0	+1·6	8·4	88·7	8th	65·2	25th	23·5
South India	Wellington	6,200	24·177	−·017	?	24·286	20th	24·077	6th	·209	63·5	69·8	−1·0	57·4	−0·9	63·6	−1·0	12·4	75·2	17th	53·2	12th	22·0
	Khodai Kanal	?	?	?	?	?	...	?	...	?	60·1	67·0	?	54·8	?	?	?	?	70·5	13th & 20th.	52·3	19th	18·2
	Kotagiri	?	23·752	?	?	23·847	20th	23·667	6th	·180	61·1	68·5	?	56·1	?	62·3	?	12·4	73·9	18th	54·4	15th	19·5
13.—Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Bushire	14	29·459	?	29·427	29·584	31st	29·365	10th	219	90·7	95·4	?	85·3	?	90·3	?	10·1	100·5	14th	78·7	31st	21·8
	Perim	?	29·508	?	?	29·595	17th, 18th & 23rd	29·379	7th	·216	88·3	94·7	?	84·5*	?	89·6*	?	10·2	99·9	11th	81·1	21st	18·8
Arabia	Aden	94	29·603	...	29·627	29·722	21st	29·439	6th	·283	83·6	91·9	...	80·3	...	86·1	...	11·6	99·7	6th	74·7	27th & 28th.	25·0
Africa	Zanzibar	73	30·087	?	30·087	30·170	19th	30·023	27th	·147	74·6	80·5	?	73·0	?	76·8	?	7·5	83·7	5th	70·1	24th	13·6

* Mean of 28 days.

I —*concluded.*

in India, Burma, etc., in July 1892 —concluded.

Wind Direction. Number of Winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Station.	Meteorological Province or District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st June to 31st July 1892.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period.		
...	2	2	...	1	...	5	18	3	10	?	?	78	·854	6·3	8	10·0	−2·0	7·85	5·66	+ 2·19	11·21	9·76	+ 1·45	Cocanada.	Madras, East Coast, North —*contd.*
...	2	...	...	...	...	8	21	...	3	4	−25	74	·886	8·0	7	10·18	−3·18	4·99	4·91	+ 0·08	8·12	8·69	− 0·57	Vizagapatam.	
1	3	3	...	...	2	18	1	3	14	11	+27	85	·915	4·4	10	11·33	−1·33	9·27	8·03	+ 1·24	16·00	15·03	+ 0·97	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12.—Hill Stations.**	
31	...	...	...	...	...	...	...	...	0	5	−100	54	·516	1·9	0	1·36	−1·36	0	0·63	− 0·63	0·74	0·73	+0·01	Quetta .	Beluchistan.
6	3	4	3	6	3	...	1	5	4	?	?	77	·587	4·8	8	...	...	4·16	?	?	6·21	?	?	Srinagar .	Northern India.
10	1	2	1	10	2	...	1	4	8	6	+33	71	·495	4·5	14	12·00	+2·00	15·69	9·65	+6·04	18·85	12·16	+6·69	Murree.	
10	9	6	...	2	...	1	1	2	?	2	?	83	·494	7·9	21	19·27	+1·73	14·17	17·46	−3·29	16·79	24·56	−7·77	Simla.	
7	1	1	5	...	...	2	14	1	6	?	?	90	·556	3·6	19	?	?	20·12	18·44	+1·68	22·72	25·14	−2·42	Chakrata.	
...	2	1	5	7	2	1	5	8	?	9	?	93	·582	9·3	26	21·91	+4·09	19·01	31·23	−12·22	24·58	39·11	−14·53	Mussoorie.	
18	...	1	4	...	1	4	3	...	3	2	+50	86	·581	8·9	19	19·18	−0·18	8·58	13·31	−4·73	12·03	18·89	−6·86	Ranikhet.	
?	?	?	?	?	?	?	?	?	?	?	?	83	·301	?	30	?	?	32·00	?	?	60·79	?	?	Gnatong.	
10	...	4	8	2	1	3	3	...	4	3	+33	96	·519	9·2	28	24·43	+3·57	43·23	29·46	+13·77	68·83	54·00	+14·83	Darjeeling.	
1	...	...	1	...	3	17	7	2	11	11	0	94	·663	8·5	20	16·73	+3·27	19·64	23·16	−3·52	23·78	27·96	−4·18	Mount Abu	Central India.
...	...	...	...	...	1	11	19	...	16	9	+78	87	·668	8·7	22	23·09	−0·91	36·27	27·64	+8·63	44·67	38·22	+6·45	Pachmarhi.	
5	...	...	...	2	1	19	3	1	6	5	+20	73	·434	8·4	8	6·75	+1·25	2·77	3·03	−0·26	6·21	6·31	−0·10	Wellington.	South India.
3	...	1	...	...	...	2	5	20	9*	?	?	76	·393	7·9	12	8·50	+3·50	3·85	4·92	−1·07	12·34	8·82	+3·52	Khodai Kanal.	
...	...	1	1	1	2	3	16	7	6	?	?	80	·428	7·6	7	9·80	−2·80	2·46	4·58	−2·12	8·57	7·01	+1·56	Kotagiri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13.—Extra India.**	
...	3	3	1	1	...	...	...	23	8	9	−11	63	·904	?	0	?	?	0	0	0	0	0	0	Bushire.	Persia.
...	...	...	...	...	...	...	19	12	19	?	?	65	·872	4·7	0	?	?	0	?	?	0	?	?	Perim.	
4	...	2	...	2	10	13	...	...	12	10	+20	80	·927	2·8	0	?	?	0	0·01	−0·01	0	0·01	−0·01	Aden. .	Arabia.
...	...	...	...	1	18	9	...	...	12	?	?	84	·717	5·9	7	?	?	4·19	?	?	5·51	?	?	Zanzibar .	Africa.

* Mean of 25 days.

Table

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

Meteorological Province.	Station.	Elevation of Bar, cestern above sea-level.	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	...	29·741	29·661	·080	29·708	−·038	29·700	84·7	77·3	7·4	89·5	72·6	16·9	82·3	82·6	80·0	−0·2	74·6	78·7	78·7	77·3
	Mergui	...	·752	·667	·085	·717	−·030	·747	84·2	?	17·6	93·0	?	?	79·7	80·2	74·4	?	?	76·7	77·2	?
	Rangoon	...	·738	·653	·085	·702	−·035	·680	85·0	75·3	9·7	89·5	73·5	16·0	80·1	79·2	78·0	−0·1	73·7	78·0	77·0	76·2
	Diamond Island	...	·730	·658	·072	·701	−·037	·677	83·8	76·1	7·7	86·9	72·4	14·5	81·8	81·0	78·8	+0·5	74·0	78·0	77·4	76·5
	Akyab	...	·682	·594	·088	·641	−·031	·604	84·4	76·5	7·9	89·4	73·7	15·7	80·9	81·8	79·4	−0·6	74·4	78·7	79·1	77·4
Assam.	Silchar	...	·542	·424	·118	·493	−·033	·547	89·8	77·1	12·7	96·8	73·3	23·5	83·8	86·3	82·3	+0·1	75·8	79·6	80·6	78·7
	Sibsagar	...	·281	·144	·137	·215	−·071 ?	·499	90·2	78·9	11·3	96·0	74·3	21·7	84·0	89·4	83·8	+0·6	77·5	80·2	82·1	79·9
	Dhubri	...	·496	·386	·110	·449	−·034	·517	84·4	77·7	6·7	90·2	74·8	15·4	81·4	82·8	80·1	−1·5	76·0	78·8	79·2	78·0
Bengal and Orissa.	Chittagong	...	·573	·491	·082	·539	−·020	·574	85·3	76·9	8·4	88·9	74·2	14·7	82·8	82·5	80·0	0	75·3	78·9	79·2	77·8
	Dacca	...	·587	·486	·101	·546	−·025	·524	87·9	78·9	9·0	92·1	76·3	15·8	83·7	84·5	82·8	−0·4	76·6	80·0	80·1	78·9
	Calcutta (Alipore)	...	·561	·464	·097	·519	−·019	·486	87·4	78·0	9·4	92·5	75·9	16·6	83·8	84·4	82·6	−0·4	76·7	79·6	79·9	78·7
	Calcutta (Chowringhee).	...	·565	?	?	?	?	?	89·1	78·3	10·8	94·0	74·8	19·2	85·0	?	?	?	77·0	81·1	?	?
	Saugor Island	...	·556	·468	·088	·518	−·019	·487	88·1	80·7	7·4	92·3	77·4	14·9	85·1	86·2	83·5	+0·7	77·7	80·9	81·2	79·9
	Burdwan	...	·483	·379	·104	·438	−·017	·484	90·4	79·2	11·1	94·2	76·9	17·3	84·7	86·1	83·3	−0·6	77·5	79·0	79·5	78·7
	Berhampore	...	·512	·407	·105	·467	−·021	·482	89·1	79·2	9·9	92·7	76·3	16·4	83·8	85·6	82·8	−0·6	77·5	80·3	81·0	79·6
	False Point	...	·576	·483	·093	·535	−·032	·497	87·0	78·7	8·3	91·9	72·1	19·8	84·7	85·1	81·9	+0·1	77·1	80·1	80·5	79·2
	Cuttack	...	·510	·420	·090	·474	−·026	·496	89·2	78·5	10·7	95·4	72·8	22·6	85·8	85·7	82·5	0	76·3	78·7	78·8	77·9
	Hazaribagh	...	27·572	27·489	·083	27·539	−·030	·466	84·5	73·4	11·1	90·2	69·8	20·4	80·3	79·8	77·5	−0·7	71·9	75·3	75·0	74·1
Gangetic Plain and Chota Nagpur.	Patna	...	29·361	29·252	·109	29·313	−·042	·447	87·9	79·1	8·8	95·2	76·6	18·6	85·0	87·0	82·6	−1·6	77·3	80·0	80·6	79·3
	Darbhanga	...	·409	·300	·109	·361	−·019	·479	88·6	79·4	9·2	93·0	76·2	16·8	84·6	87·4	83·0	−0.9	78·1	80·4	81·5	80·0
	Allahabad	...	·215	·110	·105	·165	−·044	·424	92·2	79·7	12·5	108·7	73·6	35·1	85·9	89·1	84·9	+0·4	76·4	79·7	80·7	78·9
	Ghazipur	220	·324	·217	·107	·275	−·021	·446	92·0	80·6	11·4	100·0	77·5	22·5	87·0	89·2	85·3	+1·5	77·5	81·0	81·4	80·0
	Lucknow	...	·152	·044	·108	·101	−·054	·435	93·8	78·3	15·5	104·3	74·8	29·5	87·0	89·2	84·6	−1·0	76·2	79·9	80·7	78·9
Upper Sub-Himalayas.	Dehra-Dun	...	27·354	27·282	·072	27·311	−·039	·461	86·5	73·4	13·1	92·0	70·0	22·0	80·9	81·5	78·4	−1·3	71·4	75·8	76·3	74·5
	Roorkee	...	28·635	28·528	·107	28·579	−·043	·413	94·4	78·7	15·7	102·7	72·9	29·8	86·9	90·6	85·3	−0·7	74·8	79·5	80·3	78·2
	Meerut	...	·786	·685	·101	·733	−·034	·419	93·2	78·9	14·3	105·2	73·9	31·3	86·9	90·6	85·4	0	77·5	79·6	80·2	79·1
	Lahore	...	·781	·686	·095	·733	−·040	·383	98·5	81·6	16·9	117·4	74·3	43·1	92·0	96·2	89·1	+1·1	75·4	80·1	80·8	78·8
	Ludhiana	...	·668	·565	·103	·615	−·069	·373	97·5	81·1	16·4	114·3	72·9	41·4	89·4	93·4	87·9	+1·4	77·2	80·2	80·0	79·1
Indus Valley and N.-W. Rajputana.	Peshawar	...	·394	·284	·110	·338	−·021	·395	103·3	78·9	24·4	117·0	70·9	46·1	94·0	100·3	90·0	+0·4	70·5	77·3	77·7	75·2
	Mooltan	...	29·031	·942	·089	·986	−·036	·361	104·0	84·3	19·7	115·3	76·2	39·1	94·3	101·7	93·2	+1·3	75·9	81·4	83·7	80·3
	Jacobabad	...	·272	29·146	·126	29·207	−·026	·346	106·6	83·6	23·0	116·5	73·9	42·6	97·2	104·1	94·4	−0·4	75·8	81·4	81·1	79·5
	Hyderabad (Sind).	...	·358	·265	·093	29·317	−·035	·382	99·0	81·3	17·7	109·2	76·1	33·1	91·2	93·7	88·3	+0·4	76·5	78·9	79·5	78·3
	Kurrachee	...	·456	·384	·072	·425	−·058	·426	91·3	81·4	9·9	109·5	76·3	33·2	87·3	87·1	84·8	+0·9	78·3	81·6	81·6	80·5
	Jeypore	...	28·118	28·033	·085	28·077	−·041	·434	93·9	79·0	14·9	108·8	74·4	34·4	86·7	89·3	84·7	+0·9	74·7	77·6	77·9	76·7
E. Rajputana, Central India and Guzerat.	Ajmere	...	27·955	27·863	·092	27·904	−·047	·440	92·8	79·2	13·6	107·0	74·1	32·9	86·1	90·9	84·5	+2·6	75·5	77·1	78·4	77·0
	Deesa	...	29·094	28·999	·095	29·048	−·049	·461	93·9	78·5	15·4	108·5	73·8	34·7	85·2	90·1	85·2	+1·4	75·0	77·3	77·8	76·7
	Nowgong	...	28·775	·682	·093	28·730	−·046	·431	89·9	78·1	11·8	104·4	73·5	30·9	84·3	86·6	82·7	+0·1	76·1	78·5	78·8	77·8
	Agra	...	·964	·873	·091	·917	−·041	·424	93·2	80·5	12·7	110·0	76·3	33·7	87·2	89·2	86·5	−0·4	76·9	80·1	80·5	79·2
Deccan.	Belgaum	...	27·241	27·169	·072	27·205	−·046	·648	75·9	67·6	8·3	86·8	65·2	21·6	72·0	72·7	70·7	+0·6	66·6	69·7	69·6	68·7
	Sholapur	...	28·117	28·015	·102	28·075	−·046	·593	90·2	72·2	18·0	96·0	69·8	26·2	82·0	86·9	79·4	+1·5	70·2	73·4	74·4	72·6
	Poona	...	27·858	27·786	·072	27·824	−·050	·595	83·2	71·4	11·8	94·5	69·3	25·2	78·5	78·2	75·9	+0·9	69·5	72·7	72·6	71·6

II.

at 94 Stations in India, Burma, etc., for July 1892.

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.	Station.	Meteorological Province.
·824	·935	·927	·895	—·001	88	85	84	86	+ 1	9·4	9·3	9·4	+2·2	...	...	...	...	6	11	25	19	1	S 46° W	S 44° W	74	89	302	254	Port Blair	Burma Coast and Bay Islands.
?	·883	·898	?	?	92	87	87	?	?	9·1	9·4	9·3	+0·2	...	5	...	...	3	19	15	8	12	S 54° W	S 60° W	50	61	54	43	Mergui	
·810	·933	·901	·881	—·004	92	91	90	91	+ 1	9·1	9·6	9·4	+0·5	...	1	...	...	2	17	28	13	1	S 41° W	S 31° W	79	73	131	131	Rangoon	
·815	·910	·895	·873	—·004	91	84	84	86	— 2	9·3	9·5	9·4	+1·6	...	...	...	2	6	19	23	10	2	S 29° W	S 41° W	71	80	289*	210	Diamond Island	
·822	·957	·960	·913	0	90	91	88	90	+ 1	9·0	8·9	9·0	+0·4	...	...	3	2	11	31	8	6	1	S 1° W	S 4° E	67	68	98	96	Akyab	
·877	·959	·969	·935	+·003	94	83	78	85	0	8·7	8·7	8·7	+0·8	37	3	4	4	1	4	1	5	3	N 4° W	N 6° W	4	3	16	72	Silchar	Assam.
·926	·982	·999	·960	+·020	93	84	72	83	— 1	8·3	6·5	7·4	—1·1	1	...	9	5	6	7	32	2	...	S 18° W	S18° W	47	15	52	65	Sibsagar	
·876	·952	·949	·926	—·019	92	89	85	89	+ 3	7·9	7·7	7·8	+0·9	9	...	13	12	3	2	20	2	1	S 38° E	S 70° E	18	22	135	94	Dhubri	
·857	·937	·956	·916	+·004	93	84	86	87	0	9·7	9·7	9·7	+2·1	1	...	...	1	23	19	16	2	...	S 5° E	S 40 E	76	63	133	172	Chittagong	Bengal and Orissa.
·884	·975	·970	·943	—·037	89	84	82	85	— 2	8·2	7·0	7·6	—0·3	...	...	...	6	17	33	5	1	...	S 15° E	S 19° E	81	80	213	173	Dacca	
·904	·958	·930	·941	—·032	94	83	81	86	— 1	9·2	8·7	9·0	+0·8	...	...	2	9	9	18	19	4	1	S 2° W	S 11° E	58	65	127	123	Calcutta (Alipore).	
·906	1·008	?	?	?	94	84	?	?	?	?	?	?	?	Not	rec	orde	d.							?	?	?	?	?	Calcutta (Chowringhee).	
·915	1·000	·998	·971	—·031	87	83	80	83	— 3	8·8	8·9	8·9	+0·9	...	...	...	5	12	19	23	2	1	S 7° W	S 24° W	69	59	446	341	Saugor Island.	
·919	·916	·922	·919	—·036	91	77	74	81	— 2	8·9	8·8	8·9	+0·6	5	1	...	8	12	18	12	5	1	S 4° E	S 26° E	53	47	110	100	Burdwan	
·921	·992	1·000	·971	+·009	92	86	82	86	— 1	8·9	8·9	8·9	+0·1	3	1	...	16	9	21	9	2	1	S 23° E	S 41° E	56	51	112	121	Berhampore	
·914	·970	·982	·955	+·018	93	81	81	85	0	7·9	8·0	8·0	—0·1	...	1	1	2	12	14	22	10	...	S 22° W	S 59° W	63	64	322	268	False Point	
·878	·889	·893	·886	—·014	90	72	73	78	— 2	7·9	8·7	8·3	+0·6	5	1	1	5	4	9	31	5	1	S 31° W	S 41° W	60	52	87	79	Cuttack	
·767	·817	·810	·798	—·020	93	79	80	84	— 1	10·0	9·6	9·8	+0·7	...	4	3	13	10	8	6	9	9	S 20° E	S 16° E	11	19	249	203	Hazaribagh	Gangetic Plain and Chota Nagpur.
·913	·961	·959	·945	—·015	91	80	77	82	0	8·9	8·9	8·9	+0·8	1	1	5	37	4	2	5	5	2	S 86° E	N 85° E	53	41	155	91	Patna	
·946	·984	·999	·976	+·007	94	83	77	85	+ 2	7·1	5·7	6·4	+0·1	1	...	8	16	18	1	9	8	1	S 55° E	S 82° E	39	58	134	123	Darbhanga	
	·935	·939	·914	—·044	86	77	71	78	— 4	9·0	8·3	8·7	+0·9	...	3	10	10	4	7	5	10	13	N 24° W	N 84° E	10	7	167	103	Allahabad	
·867	·982	·970	·953	+·025	87	77	71	78	— 1	7·5	6·7	7·1	+0·1	14	1	1	22	11	1	5	5	2	S 66° E	S 63° E	35	22	67	65	Ghazipur	
·906	·927	·938	·915	—·007	90	73	69	78	+ 1	8·3	7·7	8·0	+0·3	...	5	13	22	9	5	4	3	1	N 89° E	N 85° E	50	18	82	94	Lucknow	
·878	·827	·847	·806	?	91	79	79	83	?	6·7	7·9	7·3	—0·5	15	5	5	9	11	7	2	5	3	S 65° E	S 37° W	21	10	26	29	Dehra Dun	Upper Sub-Himalayas.
·745	·910	·897	·874	0	83	72	64	73	— 4	7·5	7·3	7·4	+0·9	28	...	2	1	25	5	...	1	...	S 42° E	S 39° E	47	33	?	71	Roorkee	
·814	·916	·894	·913	+·024	94	72	64	77	+ 3	7·5	6·7	7·1	+0·3	18	...	3	24	13	...	2	2	...	S 75° E	S 86° E	53	23	65	57	Meerut	
·929	·870	·846	·840	—·025	76	62	55	64	+ 3	4·5	3·9	4·2	—0·2	8	4	7	12	12	9	4	2	4	S 64° E	S 84° E	32	34	85	80	Lahore.	
·803	·908	·843	·878	+·006	83	68	58	70	0	5·8	6·1	6·0	—0·1	27	6	..	4	8	7	1	8	1	S 2° E	S 46° E	11	25	52	49	Ludhiana	
·783	·742	·670	·687	—·043	65	50	38	51	— 2	2·7	4·5	3·6	+0·9	4	9	16	16	6	...	4	3	4	N 55° E	N 50° E	45	50	108	111	Peshawar	Indus Valley and N.-W. Rajputana.
·647	·902	·917	·868	—·009	68	58	47	58	— 1	3·1	3·4	3·3	+1·1	2	...	24	...	11	...	24	...	1	S 45° E	S 25° W	16	33	91*	75	Mooltan	
·784	·863	·753	·802	—·012	69	51	37	53	+ 1	3·1	3·8	3·5	+1·2	2	3	8	5	25	9	6	3	1	S 43° E	S 45° E	48	56	138	125	Jacobabad	
·789	·821	·816	·829	+·027	80	58	54	64	+ 3	8·9	8·5	8·7	+5·6	...	...	10	...	10	4	36	2	...	S 24° W	S 41° W	52	75	219	333	Hyderabad (Sind).	
·849	1·005	1·010	·981	+·063	86	78	79	81	+ 3	6·7	6·3	6·5	—0·7	...	1	1	...	.	...	24	27	9	S 80° W	S 62° W	81	83	297	436	Kurrachee	
·928	·832	·816	·819	—·032	82	68	62	71	— 5	7·5	8·2	7·9	+0·4	3	2	7	6	3	3	10	15	13	N 78° W	N 58° W	31	27	93	141	Jeypore	E. Rajputana, Central India and Guzerat.
·808	·819	·816	·824	+·036	83	68	59	70	— 1	5·9	6·2	6·1	—0·1	3	...	3	1	1	1	7	30	16	N 81 W	S 62° W	69	64	9	173	Ajmere	
·838	·835	·788	·815	—·013	85	71	59	72	— 2	8·9	8·5	8·7	+0·6	...	1	...	6	10	12	6	3	1	S 13° E	S 40° W	56	75	41	347	Deesa	
·821	·898	·886	·887	+·013	91	78	73	81	+ 2	8·3	8·8	8·6	0	1	3	...	7	2	4	5	37	3	S 84° W	S 78° W	55	40	1 9*	99	Nowgong	
·878	·933	·928	·913	—·002	85	73	70	76	+ 1	7·2	7·2	7·2	+0·6	...	...	7	1	22	...	18	1	13	S 6° W	N 63° E	23	13	130	119	Agra	
·878	·700	·688	·677	+·008	95	90	86	90	+ 1	9·8	9·0	9·4	+0·4	...	...	...	...	1	15	40	6	...	S 37° W	S 70° W	89	0	704	669	Belgaum	Deccan.
·843	·717	·695	·709	+·050	90	66	55	70	+ 2	8·7	8·7	8·7	+0·4	...	...	...	...	1	5	33	22	1	S 58° W	S 80° W	87	81	449*	300	Sholapur	
·713	·732	·732	·722	+·025	91	75	76	81	+ 1	8·4	9·3	8·9	—0·1	3	...	...	2	...	...	18	37	2	S 77° W	S 79° W	81	5	345	400	Poona	
·701																														

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 94 Stations

Meteorological Province.	Station.	Elevation of Bar. above sea-level.	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.*	Akola	...	28·704	28·595	·109	28·649	—·042	29·521	91·0	74·7	16·3	99·9	72·0	27·9	83·7	86·8	81·8	+1·6	72·7	76·5	77·2	75·5
	Buldana	2,132	27·539	27·449	·090	27·494	—·035	·538	86·2	71·4	14·8	93·7	68·4	25·3	80·0	82·1	77·8	+1·6	69·1	73·1	73·9	72·0
	Khandwa	...	28·571	28·476	·095	28·524	—·036	·511	88·3	76·5	11·8	101·2	72·6	28·6	81·7	85·3	81·3	+1·6	73·1	75·9	76·8	75·3
	Hoshangabad	...	·584	·490	·094	·537	—·041	·505	86·7	75·6	11·1	102·0	71·5	30·5	81·5	84·6	80·2	+0·7	73·8	76·5	77·7	76·0
	Nagpur	...	·584	·481	·103	·533	—·028	·501	87·7	75·8	11·9	96·8	71·4	25·4	82·0	83·8	80·8	+0·8	72·4	76·7	76·6	75·2
	Sironcha	401	29·266	29·147	·119	29·207	—·069?	·550	89·4	77·7	11·7	97·0	73·4	23·6	83·0	87·2	83·0	+1·6	74·6	77·4	78·9	77·0
	Chanda	634	·003	28·891	·112	28·947	—·035	·520	88·6	76·0	12·6	98·7	73·0	25·7	83·0	86·8	81·8	+1·0	73·3	76·2	77·7	75·7
	Seoni	...	27·600	27·528	·072	27·564	—·005	·504	83·7	72·6	11·1	91·4	68·1	23·3	80·2	79·4	77·4	+1·2	72·4	74·9	74·7	74·0
	Jubbulpore	...	28·252	28·155	·097	28·204	—·022	·470	86·4	75·0	11·4	101·0	69·6	31·4	81·0	83·2	79·5	+0·4	72·9	75·9	76·6	75·1
	Saugor	...	27·820	27·726	·094	27·773	—·028	·460	86·6	74·1	12·5	102·4	68·7	33·7	81·1	84·0	79·3	+1·8	71·9	75·8	76·3	74·7
	Raipur	...	28·632	28·532	·100	28·582	—·017	·484	85·1	74·7	10·4	94·0	68·7	25·3	80·8	82·1	79·1	—0·5	72·8	76·7	77·1	75·5
	Sutna	...	·490	·392	·098	28·442	—·044	·429	88·2	76·1	12·1	98·1	70·6	27·5	82·8	85·6	81·2	—0·2	73·6	77·5	77·9	76·4
	Sambalpur	...	29·091	29·000	·091	29·055	—·037	·462	86·4	76·5	9·9	95·3	72·0	23·3	81·9	82·9	80·4	—0·7	74·3	78·2	78·9	77·1
	Secunderabad	...	27·922	27·817	·105	27·879	—·040	·587	88·6	72·2	16·4	96·9	70·4	26·5	80·7	85·7	78·7	+1·8	69·9	72·2	73·3	71·8
	Hyderabad (Deccan)	...	28·017	·914	·103	27·966	?	·578	86·7	73·0	13·7	93·4	70·3	23·1	80·0	85·3	79·5	?	70·6	72·9	74·5	72·7
West Coast.	Bombay	...	29·656	29·584	·072	29·618	—·050	·595	84·6	78·5	6·1	89·0	75·0	14·0	82·7	82·1	81·4	+0·5	75·7	78·7	78·2	77·5
	Ratnagiri	...	·623	·540	·083	·579	—·065	·626	83·9	76·7	7·2	88·8	73·6	15·2	81·1	81·1	80·1	+0·5	74·5	78·2	78·3	77·0
	Karwar	...	·762	·701	·061	·703	—·061	·706	82·7	74·5	8·2	85·9	71·8	14·1	80·1	79·6	78·3	—0·2	73·1	76·6	76·2	75·3
	Cochin	...	·891	·817	·074	·852	—·019	·790	82·8	73·8	9·0	88·2	70·7	17·5	78·8	79·9	78·1	—0·4	72·5	75·5	76·0	74·7
South India.	Salem	...	28·887	28·775	·112	28·844	—·038	·716	92·0	73·0	19·0	97·2	70·8	26·4	81·9	87·0	80·5	—0·1	70·9	74·6	75·8	73·8
	Mercara	...	26·157	26·082	·075	26·120	—·044	·782	67·7	62·9	4·8	75·6	60·7	14·9	65·7	65·6	64·7	—0·2	61·9	64·7	64·5	63·7
	Bangalore St.	...	·841	·766	·075	·804	—·048	·707	80·1	66·1	14·0	85·9	64·2	21·7	73·2	77·0	72·3	+0·2	65·1	68·6	69·5	67·7
	Trichinopoly	...	29·540	29·429	·111	29·438	—·032	·681	96·0	78·1	17·9	102·1	74·9	27·2	87·8	91·8	85·2	—0·2	71·5	75·0	76·1	74·2
	Madras	...	·737	·636	·101	·697	—·025	·647	93·4	78·0	15·4	98·8	71·0	27·8	86·4	89·5	84·2	—1·1	?	77·0	78·8	77·0
	Bellary	...	28·279	28·185	·094	28·241	—·040	·645	90·1	74·6	15·5	95·9	71·9	24·0	82·5	86·0	80·3	—0·3	70·6	73·4	73·8	72·6
	Vizagapatam	...	29·601	29·509	·092	29·561	—·032	·548	88·7	81·9	6·8	94·3	78·0	16·3	87·2	88·1	86·3	+1·2	74·9	78·9	79·1	77·6
Hill Station, Beluchistan.	Quetta	...	24·404	24·320	·084	24·360	—·023	?	93·6	64·7	28·9	98·7	57·7	41·0	84·4	90·0	78·2	0	58·8	64·4	64·7	62·6
Hill Stations, Northern India.	Leh	11,503	19·649	19·549	·100	19·608	+·012	?	78·0	51·8	26·2	84·8	47·9	36·9	66·7	73·3	62·5	+1·1	45·6	53·3	59·3	52·7
	Srinagar	...	24·662	24·566	·096	24·614	?	?	84·6	63·2	21·4	95·4	52·7	42·7	75·9	82·3	73·3	?	60·9	68·1	70·9	66·6
	Murree	...	23·685	23·650	·035	23·666	—·027		77·2	62·3	14·9	94·9	52·9	42·0	71·1	74·7	69·3	+0·3	57·5	64·1	65·5	62·4
	Chamba	3,005	26·615	26·536	·079	26·580	—·025		88·2	71·2	17·0	100·7	66·4	34·3	80·4	84·8	78·5	+0·4	68·4	72·1	74·0	71·5
	Kailang	10,087	20·685	20·600	·085	20·647	—·004	?	73·5	51·0	22·5	81·9	43·6	38·3	65·0	68·4	60·6	—0·9	48·7	57·0	56·7	54·1
	Simla (Ridge)	...	22·971	22·924	·047	22·946	—·020	?	71·6	60·7	10·9	79·6	55·9	23·7	66·6	67·6	65·4	+0·4	58·1	61·7	63·2	61·0
	Simla (Chapslee)	...				Not	recorde	d.	74·2	61·3	12·9	86·6	57·3	29·3	68·1	?	?	?	58·3	62·9	?	?
	Chakrata	...	23·099	23·046	·053	23·071	—·031	?	71·7	60·7	11·0	81·1	57·1	24·0	67·2	67·2	65·3	+0·8	59·4	64·4	64·7	62·9
	Ranikhet	...	·932	·871	·061	·894	—·032	?	75·0	63·9	11·1	78·5	60·0	18·5	69·9	72·2	68·9	+0·8	62·7	66·0	67·8	65·5
	Pithoragarh	5,363	24·571	24·508	·063	24·532	—·004	?	79·3	66·3	13·0	83·1	63·0	20·1	73·1	77·5	72·5	+0·7	64·5	69·5	71·3	68·4
	Katmandu	4,388	25·401	25·335	·066	25·370	—·022	?	83·7	69·0	14·7	89·0	66·6	22·4	77·9	78·4	75·0	—1·0	67·5	71·8	72·3	70·5
	Darjeeling	...	22·859	22·798	·061	22·831	—·030	?	65·4	57·5	7·9	71·4	54·6	16·8	62·4	63·6	61·0	0	57·4	61·7	62·4	60·5
	Pedong	...	25·107	25·005	·102	25·058	—·036	?	74·8	66·0	8·8	79·5	63·3	16·2	71·4	72·5	69·8	+0·6	64·9	69·1	70·1	68·0
	Demagiri	...			Not r	ecorded.			88·3	68·7	19·6	92·4	66·7	25·7	84·2	83·3	77·2	—2·4		Not re	corded	
	Tura	...			Dit	to.			83·3	73·9	9·4	87·6	71·3	16·3	77·7	80·3	77·9	?	?	75·5	76·7	?

II —*continued.*

in India, Burma, etc., for July 1892—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.		
·780	·819	·807	·802	+·036	91	72	66	76	0	8·5	9·1	8·8	+0·2	...	1	...	...	...	1	10	9	41	N 64° W	N 74° W	81	77	200	200	Akola	Deccan—*continued.*
·682	·732	·735	·717	+·002	89	72	68	76	− 4	9·7	9·1	9·4	+1·3	1	5	1	...	...	4	18	17	16	N 89° W	N 82° W	64	73	241	221	Buldana	
·776	·824	·815	·805	+·024	85	77	69	77	0	7·4	8·0	7·7	−0·2	1	3	1	...	...	3	11	40	3	S 84° W	N 83° W	81	80	165	210	Khandwa	
·814	·855	·885	·845	+·013	92	81	75	83	0	8·2	9·0	8·6	+0·4	5	...	...	1	...	7	21	25	3	S 64° W	S 76° W	74	77	144	110	Hoshangabad	
·757	·852	·826	·812	0	84	79	73	79	− 1	8·6	9·5	9·1	+0·4	...	4	1	...	2	4	23	22	6	S 73° W	N 88° W	68	69	237	189	Nagpur	
·817	·869	·880	·855	+·019	86	77	70	78	− 3	7·9	8·5	8·2	+0·4	29	1	...	...	...	3	8	19	2	S 76° W	S 77° W	43	77	39	101	Sironcha	
·788	·813	·829	·810	+·009	88	72	66	76	− 1	7·7	8·8	8·3	−0·3	1	...	...	...	4	2	38	14	3	S 54° W	S 88° W	81	70	145	151	Chanda	
·761	·803	·800	·786	+·035	87	79	80	82	+ 1	7·0	6·3	6·7	+1·8	...	2	2	3	1	5	23	21	5	S 67° W	S 78° W	63	57	165	148	Seoni	
·781	·833	·834	·817	0	90	80	75	82	0	8·4	8·7	8·6	−0·1	4	3	...	1	1	7	16	24	6	S 73° W	N 87° W	63	65	128	117	Jubbulpore	
·758	·828	·813	·800	+·029	90	80	72	81	+ 2	7·9	8·3	8·1	+1·7	...	...	...	...	...	2	37	21	2	S 61° W	S 72° W	90	70	205	123	Saugor	
·785	·865	·867	·839	+·012	91	83	80	84	+ 2	9·4	9·4	9·4	+1·0	1	1	...	2	...	1	26	28	3	S 71° W	S 68° W	79	77	383*	280	Raipur	
·801	·879	·864	·848	+·014	89	79	72	80	+ 1	7·2	7·0	7·1	0	2	10	4	1	2	8	2	25	8	N 74° W	N 81° W	45	45	233*	232	Sutna	
·825	·918	·937	·894	−·003	90	84	84	86	+ 3	7·9	8·8	8·4	+1·1	1	2	2	1	1	6	41	5	3	S 48° W	S 50° W	72	45	155*	97	Sambalpur	
·702	·686	·677	·688	+·007	89	66	57	71	− 3	8·4	8·4	8·4	+1·2	2	1	1	1	2	2	7	35	11	N 89° W	S 75° W	71	85	320	318	Secunderabad	
·719	·724	·722	·722	?	88	71	60	73	?	8·0	8·2	8·1	?	5	...	1	1	2	2	3	46	2	S 86° W	?	74	?	252*	?	Hyderabad (Deccan.)	
·856	·928	·917	·900	−·011	88	83	83	85	− 2	8·5	9·3	8·9	−0·2	...	...	...	1	2	6	30	22	1	S 56° W	S 75° W	81	84	456	456	Bombay	West Coast.
·828	·927	·931	·895	+·037	90	87	88	88	+ 3	9·3	9·4	9·4	+1·8	1	...	...	...	4	12	31	12	2	S 43° W	S 55° W	77	77	358	313	Ratnagiri	
·798	·869	·862	·843	+·013	93	85	86	88	+ 1	8·8	9·0	8·9	+1·2	1	3	...	...	...	...	53	5	...	S 51° W	S 74° W	89	80	127	?	Karwar	
·783	·842	·849	·825	−·011	94	86	83	88	0	9·4	9·3	9·4	+2·1	4	1	9	5	0	...	1	24	18	N 53° W	S 88° W	53	51	136	?	Cochin	
·730	·758	·740	·743	−·011	90	70	59	73	+ 2	6·8	8·5	7·7	+1·6	4	...	...	...	1	18	30	8	1	S 37° W	S 59° W	79	82	124	106	Salem	
·546	·601	·598	·581	+·002	94	94	94	94	− 2	9·7	9·7	9·7	−0·1	...	...	...	..	...	...	...	62	...	W	N 79° W	100	91	239	247	Mercara	India.
·607	·644	·630	·627	+·020	95	79	69	81	+ 4	8·2	8·1	8·2	+1·8	1	...	...	...	...	...	38	23	...	S 62° W	S 71° W	92	91	249*	206	Bangalore	
·681	·699	·691	·691	−·007	71	53	47	57	− 1	7·5	8·4	8·0	+0·4	...	...	...	...	...	...	5	34	11	N 85° W	N 87° W	91	81	271	239	Trichinopoly	
?	·803	·842	·835	+·051	?	64	62	72	+ 5	6·8	7·9	7·4	+0·3	...	...	2	2	1	5	28	23	1	S 59° W	S 46° W	74	65	155	195	Madras	
·699	·713	·683	·698	+·036	82	64	55	67	+ 4	8·7	9·0	8·9	+0·7	8	...	...	...	...	1	7	45	1	S 84° W	S 88° W	82	89	283	281	Bellary	
·770	·884	·879	·844	−·008	70	69	66	68	− 3	7·8	8·2	8·0	+1·1	...	1	1	3	3	8	13	31	2	S 66° W	S 74° W	63	74	69	94	Vizagapatam	
·441	·398	·349	·396	−·065	71	34	24	43	− 5	1·9	2·7	2·3	+0·8	60	...	...	...	...	1	...	...	1	S 70° W	W	2	34	80*	107	Quetta	Hill Station, Beluchistan.
·256	·293	·390	·313	+·064	66	45	48	53	+ 9	5·4	6·1	5·8	+0·7	14	...	5	7	...	6	9	17	4	S 69° W	S 80° W	27	36	32	48	Leh	Hill Stations, Northern India.
·512	·600	·631	·581	?	88	68	58	71	?	3·9	4·9	4·4	?	1	10	12	5	4	5	7	5	13	N 10° W	?	24	?	109*	?	Srinagar	
·428	·531	·536	·498	·037	79	73	67	73	− 2	5·8	5·6	5·7	−0·7	11	3	2	...	25	6	3	1	11	S 35° E	S 15° E	27	14	203*	137	Murree	
·665	·695	·717	·692	−·046	87	70	62	73	− 5	6·3	7·6	7·0	+0·1	23	3	...	1	1	2	1	2	29	N 47° W	N 39° W	48	35	93	97	Chamba	
·326	·399	·359	·361	−·004	87	65	53	68	+ 3	6·3	6·8	6·6	+0·2	...	3	1	...	...	6	19	17	16	S 84° W	S 83° W	68	63	52	44	Kailang	
·458	·501	·536	·498	−·047	86	78	81	82	− 7	8·0	8·6	8·3	−0·6	15	15	6	4	4	6	4	3	5	N 8° E	S 63° W	18	25	?	?	Simla (Ridge)	
·454	·522	?	?	?	83	78	?	?	?	7·9	?	?	?				Not	reco	rded.				?	?	?	?	?	?	Simla (Chapslee	
·495	·577	·582	·551	+·041	97	86	88	89	− 3	4·2	5·2	4·7	−4·1	9	...	2	3	...	3	5	39	1	S 84° W	S 71° W	63	42	152	118	Chakrata	
·559	·602	·629	·597	+·016	94	82	81	86	0	8·9	8·4	8·7	0	32	...	...	8	...	2	9	10	1	S 50° W	S 65° W	19	25	59	51	Ranikhet	
·589	·686	·702	·659	+·012	91	84	75	83	− 2	8·9	7·7	8·3	+0·5	32	...	1	2	...	11	16	...	...	S 22° W	S 24° E	37	20	54	52	Pithoragarh	
·658	·705	·726	·696	+·009	93	74	75	81	+ 2	6·4	7·8	7·1	+0·7	...	4	1	29	2	2	2	18	4	N 74° E	S 75° W	14	38	13	?	Katmandu	
·470	·543	·554	·522	+·003	98	96	94	96	+ 1	9·7	9·3	9·5	+0·7	16	1	5	18	8	1	7	4	...	S 68° E	N 88° E	32	43	97	63	Darjeeling	
·604	·686	·710	·667	−·004	94	89	89	90	− 3					Imperfect.									...	?	?	?	?	?	Pedong	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	...	59	3	...	...	...	...	S 88° E	S 33° E	98	30	?	?	Demagiri	
?	·859	·878	?	?	?	90	85	?	?	7·0	5·5	6·3	−0·6	...	...	...	...	11	47	4	...	...	S 5° E	S 7° W	93	64	?	?	Tura	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 94 Stations

Meteorological Province.	Station.	Elevation of Bar. above sea-level.	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, Central India.	Mount Abu	...	?	?	?	?	?	?	75·7	66·6	9·1	87·6	62·9	24·7	71·4	73·0	70·5	+0·9	65·9	69·1	69·8	68·2
	Pachmarhi	...	26·222	26·149	·073	26·185	—·024	?	76·7	68·9	7·8	88·7	65·2	23·5	72·3	74·4	72·7	+2·3	66·6	69·0	70·0	68·6
	Chikalda	3,642	·110	·029	·081	·064	—·038	?	76·8	67·3	9·5	87·7	64·9	22·8	71·5	73·9	71·8	+2·0	65·7	68·8	70·0	68·2
	Makhla	...			Not re	corded.			79·3	69·2	10·1	93·0	63·9	29·1	73·3	74·8	73·1	+1·6	68·5	71·3	72·5	70·8
Hill Station, South India.	Wellington	...	24·187	24·120	·067	24·153	—·015	?	70·0	57·8	12·2	75·0	53·2	21·8	65·9	65·4	63·0	—0·2	54·9	59·8	59·4	58·0
	Khodai Kanal	...			Not re	corded.			67·0	54·8	12·2	70·5	52·3	18·2	62·0	60·0	58·9	?	51·8	57·0	56·3	55·0
	Kotagirl	...	23·761	23·685	·076	23·723	?	?	68·6	56·1	12·5	73·9	54·4	19·5	64·1	63·7	61·1	?	53·9	59·3	59·0	57·4
Extra India.	Aden	...	29·601	29·469	·132	29·535	—·026	29·559	91·6	80·3	11·3	99·7	74·7	25·0	85·8	90·0	85·5	—0·4	74·7	79·0	78·7	77·5
	Perim	...	·512	·402	·110	·457	?	?	94·5	84·5	10·0	99·9	81·1	18·8	90·6	91·6	88·9	?	76·2	80·3	80·0	78·9
	Minicoy	10	·897	·822	·075	·866	?	29·802	83·9	78·9	5·0	87·2	75·7	11·5	81·8	82·0	81·4	?	75·2	78·1	78·0	77·1
	Zanzibar	...	30·199	30·106	·093	30·153	?	30·153	80·5	73·6	6·9	83·7	70·4	13·3	75·9	79·8	76·9	?	70·0	71·6	71·2	70·9

II—*concluded.*

in India, Burma, etc., for July 1892—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.		
·630	·687	·693	·670	+·042	96	90	86	91	+ 3	8·5	8·8	8·7	−0·1	...	1	...	1	3	5	39	12	1	S 48° W	S 49° W	81	66	251	265	Mount Abu	Hill Station, Central India.
·630	·675	·687	·664	−·008	89	85	81	85	− 5	8·6	8·9	8·8	0	6	...	1	...	...	...	18	35	2	S 78° W	N 80° W	81	75	385*	227	Pachmarhi	
·618	·675	·692	·662	+·008	92	88	83	88	− 4	9·0	9·1	9·1	0	14	4	...	...	1	1	2	22	18	N 69° W	N 57° W	61	68	219	230	Chikalda	
?	?	?	?	?	?	?	?	?	?	9·0	9·6	9·3	−0·3	...	3	4	...	...	3	9	33	10	N 86° W	S 80° W	71	58	?	?	Makhla	
·403	·453	·447	·434	+·011	84	71	71	75	+ 2	8·4	9·0	8·7	+1·0	2	...	...	...	6	3	35	13	3	S 50° W	N 82° W	74	69	145	127	Wellington	Hill Station, South India.
·361	·418	·418	·3[illegible]9	?	83	75	81	80	?	8·7	9·3	9·0	?	...	1	5	...	...	...	3	9	44	N 49° W		82	?	203	?	Khodai Kanal	
·395	·456	·452	·434	?	87	76	76	80	?	7·3	7·8	7·6	?	...	7	...	...	1	2	6	31	12	N 80° W	?	74	?	126*	?	Kotagiri	
·789	·901	·832	·840	+·032	76	72	58	69	+ 3	1·5	2·3	1·9	−0·4	?	?	?	?	?	?	?	?	?	?	S 11° E	?	73	?	250	Aden	Extra India.
·793	·899	·870	·853	?	67	63	59	63	?	3·8	2·7	3·3	?	...	3	...	...	8	...	...	13	46	N 52° W	?	93	?	455	?	Perim	
·829	·914	·910	·884	?	84	84	83	84	?	6·6	7·7	7·2	?	...	...	...	...	...	...	12	44	5	S 85° W	?	90	?	516	?	Minicoy	
·688	·717	·651	·686	?	83	80	64	76	?	4·7	4·4	4·6	?	...	1	...	1	8	32	12	...	...	S 2° W	S 2° W	72	64	271*	191	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.

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.

No. 555, Wr., 1.—Nov. 92.—475. Litho. S. I. O. Calcutta.

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

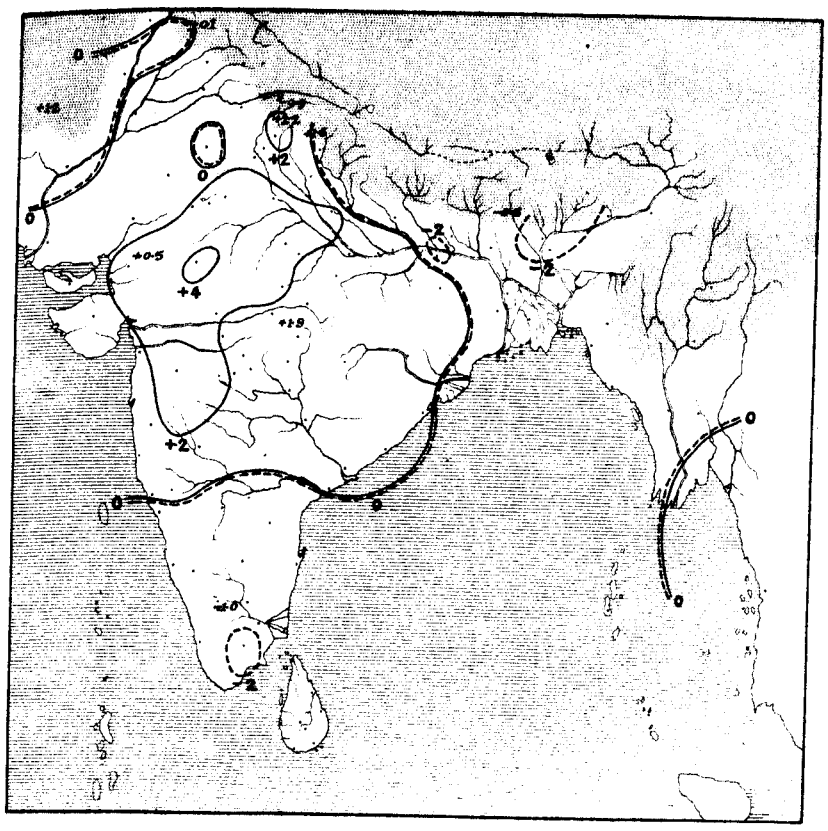
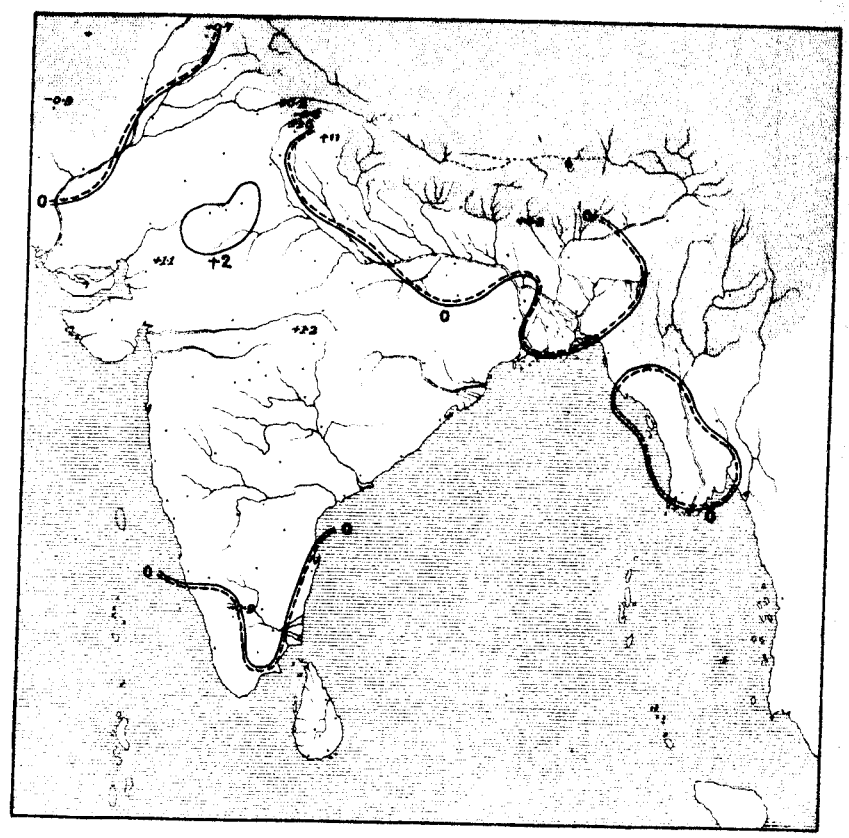


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

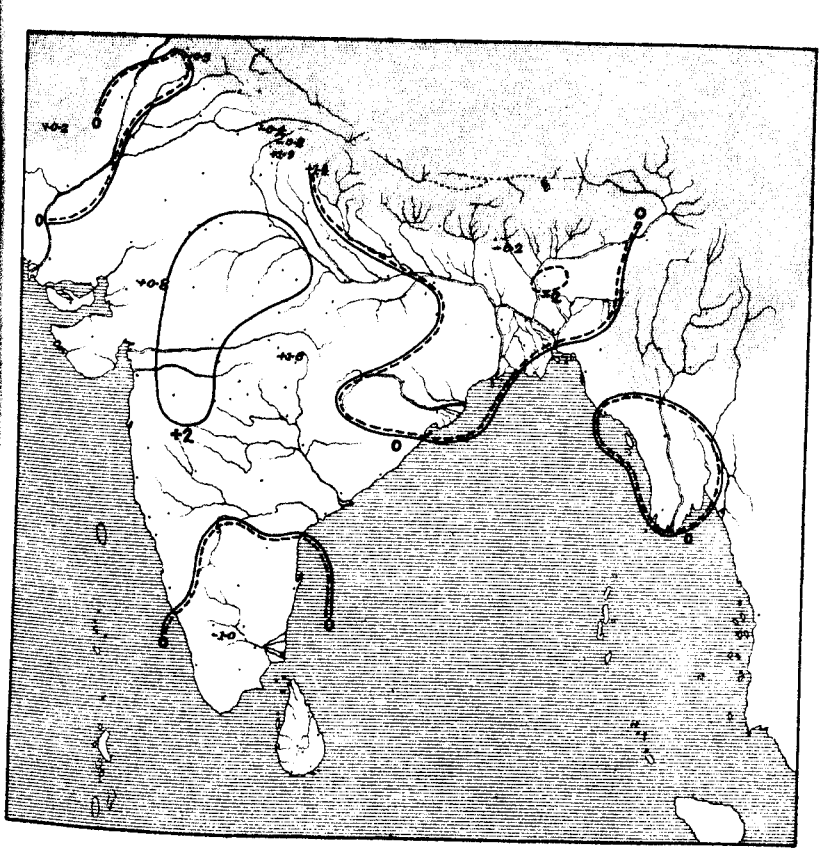
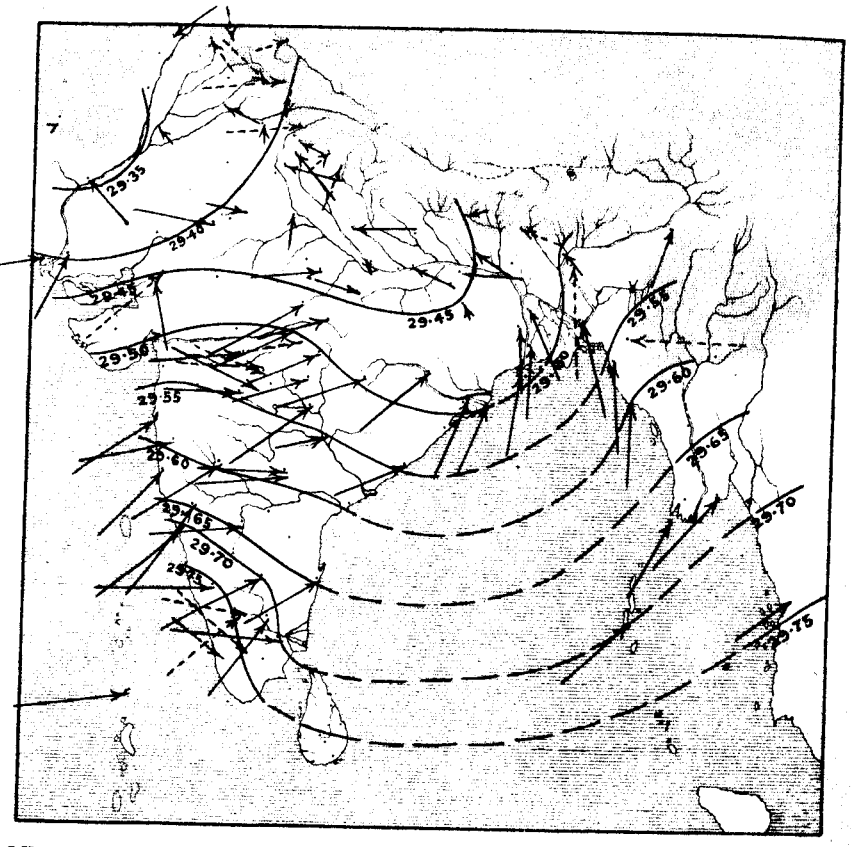


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JULY 1892.



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.

India Monthly Weather Review, JULY 1892. Plate IV.

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. 590, Wr., I.—Nov. 92.—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. 656, Wr., I.—Nov. 92—418.

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MONTHLY WEATHER REVIEW.

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THE GOVERNMENT OF INDIA.

CALCUTTA, AUGUST, 1892.

INTRODUCTION.

THIS review of the weather in India during the month of August 1892 is based on observations taken daily at 8 A.M. at 176 stations and on additional observations taken at 10 A.M. and 4 P.M. at 95 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 extacted 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 1892.

The meteorological conditions of the month of August in India are very similar to those of the month of July. The monsoon currents usually prevail with great steadiness and extend over the greater part of the country. It is hence a month of frequent, and in some districts of almost constant precipitation and of comparatively uniform temperature and high humidity. It is also usually the period of the greatest extension of the monsoon currents, and hence that in which Upper India generally obtains the largest amount of rain. Temperature hence falls to some extent in Sind and the Western Punjab, which are, notwithstanding, in this as in the two preceding months, the hottest districts of India. Pressure also tends to rise permanently in Upper India with the decrease of temperature, and before the end of the month the first indications of increasing weakness of the monsoon currents are usually shown.

One of the more important features of the month is the position of the trough of low pressure in Northern India, the character of which was stated in last month's Review.

The cyclonic storms which originate at the head of the Bay and advance landwards are another important feature of the month. Their tracks are mainly determined by the position of the trough of low pressure at the time of their origin. These storms always give more or less general rain, but the distribution of the rainfall depends in any storm largely upon the concentration of the cyclonic whirl and depression. If the depression be shallow and extensive the rainfall is generally moderate in amount and widely spread. If, on the other hand, it is deep and concentrated and hence of moderate extent, it gives heavy or excessive rainfall to narrow belts of country. This class of storms is hence frequently a cause of severe local floods and inundations.

The south-west monsoon currents were fully and finally established over the whole of Northern India during the first week of the previous month of July. They were unusually steady during the month of August, and more or less general rain fell daily throughout the whole month. The most noteworthy features of the month were the unusual absence of cyclonic storms and the remarkable steadiness of the monsoon currents during the month in India, and the unusually favourable distribution of the rainfall of the month. The mean strength of the Bombay monsoon current as measured by the average intensity of the winds at the West coast and Deccan stations, was about 10 per cent. below the normal strength of the current in August. The Bombay current was above its normal strength from the 1st to the 7th and from the 25th to the 30th, and was either normal or weaker than usual during the remainder of the month.

The Bay of Bengal current was, as judged by the wind data of the Burma and Bengal coast stations, considerably stronger than usual, the average wind force at these stations being about 10 per cent. above the normal. It was strongest from the 1st to the 7th, the 10th to the 12th, the 22nd to the 26th or 27th, and on the 30th and 31st. It was even steadier than the Bombay current.

A shallow depression had advanced from the head of the Bay in a west-north-west direction across Northern India during the last week of July, and was absorbed in the Upper India south-west monsoon low pressure area on the 27th. Pressure was considerably in defect in Upper India at the beginning of August, and steeper gradients than usual obtained over the whole Indian area. No change of importance occurred for some days. Strong monsoon winds prevailed and gave rain in all districts, but the currents were chiefly directed towards North-Western India, which consequently received a heavy burst of rain during this period. The rainfall was exceptionally heavy in some parts of the Punjab and Rajputana. The following gives the most remarkable heavy falls in 24 hours registered in that area :—

District.	Station.	Rainfall in inches.	Date.
Peshawar	Hashtnagar	11·71	3rd.
Shahpur	Naushahra	10·40	5th.
Kohat	Khashalgarh	7·28	4th.
Rajputana	Pachpadra	6·25	5th.

This heavy downpour was received in the driest districts of the Punjab, where the normal rainfall of the whole south-west monsoon period ranges between 4 and 10 inches in amount. Peshawar received a total of 9·95 inches during the 72 hours ending at 8 A.M. of the 5th. The average rainfall of that station for the whole of August is only 1·81 inches.

The rainfall during this strong burst was hence very heavy in North-Western India and was exceptionally heavy in the north-western and central districts of the Punjab.

This heavy burst of rainfall extended over the whole of British Baluchistan. It gave rise to floods which breached the railways and suspended communication for some days in the North and West Punjab and British Baluchistan.

Pressure increased briskly in Upper India on the 8th and 9th, and the gradients diminished slightly. No change occurred in the extension of the monsoon currents and moderate rain continued to fall in all districts except South West Bengal, Chota Nagpur and the eastern districts of the Central Provinces, in which light local showers were received, and a partial break in the rains obtained from the 7th to the 14th. During the same period the northern districts of North Bengal and Assam had a heavy burst of rain. Thus the Jalpaiguri district obtained an average of 6·68 inches on the 12th and a total average of 15·92 inches from the 7th to the 12th. During this period, including the first fortnight of the month, the pressure distribution, which was approximately normal at the commencement of the month except that the gradients were steeper than usual, gradually changed. Pressure increased generally, the increase being greatest in North-Eastern India and was more or less considerably in excess on the 13th and 14th. The most important effect of this change was to displace the eastern half of the monsoon trough of low pressure which stretched on the 14th and following days eastwards from Upper Sind to Allahabad and thence south-eastwards to the Ganjam coast near Vizagapatam.

An important effect of this change was to give increased rainfall to the Deccan and to diminish it for some days in Bengal, Bihar, Chota Nagpur and Orissa. The break of the rains initiated on the 7th in South-West Bengal extended to those districts on the 14th, and continued until the 20th. The monsoon currents continued to be steadily determined towards the North-Western Provinces, Rajputana and the Punjab, and those areas received almost daily and moderately heavy rain. The general changes of pressure at this time also tended to diminish gradients, and on the 21st, 22nd and 23rd gradients were slight, the monsoon currents feeble and the rainfall partial. Pressure gave way rapidly in Upper India on the 25th and 26th, and gradients increased rapidly in amount. Winds strengthened on the West coast and a strong influx of humid winds set in towards the interior. The West coast districts obtained very heavy rainfall from the 26th to the 29th. A shallow depression formed at the head of the Bay off the Ganjam and Orissa coasts on the 29th and 30th. The indraught to this area gave a short break to the Gangetic Plain and Upper India from the 28th to the 31st. The storm crossed the coast on the 30th, and though then of slight intensity, it advanced across Northern India

during the first week of September and formed the chief feature of that period.

The preceding remarks have shown that the monsoon currents gave frequent and abundant rain during the month. Both currents were determined to an unusual extent to North-Western India, and hence the Punjab, Rajputana and Gangetic Plain received rainfall largely in excess of the normal. The Deccan and Southern India obtained unusually favourable rain, chiefly in the last fortnight of the month, as a result of the peculiar pressure conditions of the period. The Bay of Bengal current was deflected more strongly from Lower Burma than usual. In consequence of the peculiar pressure conditions in Assam and North Bengal, the Bay current was more largely diverted to those areas than usual, and North Bengal and Assam, and probably Upper Burma, received excessive rain. The abnormally steady indraught to that area and to the Gangetic Plain caused rainfall in South-East and Central Bengal to be considerably below the normal. The showers in these areas were lighter, and the number of rainy days less than usual.

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

Division.	Rainfall.		
	Mean actual for August 1892.	Mean normal for August.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	20·03	29·93	— 9·90
Burma Inland	11·70	11·19	+ 0·50
Assam	23·78	16·02	+ 7·76
Bengal and Orissa	10·74	13·94	— 3·34
Gangetic Plain and Chota Nagpur	16·84	11·64	+ 5·20
Upper Sub-Himalayas	17·14	10·97	+ 6·17
Indus Valley and North-West Rajputana	5·15	2·50	+ 2·65
East Rajputana, Central India and Guzerat	9·57	9·43	+ 0·91
Deccan	11·22	8·75	+ 2·29
West Coast	32·84	19·21	+ 15·24
South India	9·02	5·79	+ 3·63

The following table gives more complete data for the area of considerable deficiency in Bengal :—

Division.	Average number of rainy days.			Average total rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
East Bengal	16·5	18·9	—2·4	11·66	16·49	—4·83
Central Bengal	11·5	15·9	—4·4	8·52	12·18	—3·66
Deltaic Bengal	12·0	16·3	—4·3	7·59	12·74	—5·15

The temperature conditions of the month were dependent upon the rainfall distribution of the month. The mean temperature of the month was in slight excess in the areas of deficient rainfall in Bengal and Burma, and was more or less in defect in the areas of excess rainfall, and more especially in the drier districts of North-Western India where the rainfall was abnormally excessive. As usual under these conditions, the deficiency was far greater in the day than in the night temperature.

The following gives variation data for the stations in Upper India where the decreased temperature was most marked :—

Station.	Variation of		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Peshawar	—7·0	—1·3	—4·2
Ludhiana	—5·7	—1·7	—3·7
Lahore	—5·5	—1·5	—3·5
Dera Ismail Khan	—4·9	—1·2	—3·1
Sialkot	—4·8	—0·9	—2·9
Mooltan	—4·3	—1·1	—2·7

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

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	+0·5
Burma Inland	—0·3	—0·4	—0·4
Assam	—2·0	—0·5	—1·2
Bengal and Orissa	+0·2	—0·1	0
Gangetic Plain and Chota Nagpur	—1·4	—0·9	—1·2
Upper Sub-Himalayas	—4·4	—1·3	—2·9
Indus Valley and North-West Rajputana	—2·9	0	—1·5
East Rajputana, Central India and Guzerat	—0·4	+0·6	+0·1
Deccan	—0·6	+0·3	—0·2
West Coast	—1·3	—0·8	—1·1
South India	—2·1	—0·6	—1·4

The air was damper in all districts except Bengal and Burma, where the aqueous vapour pressure was also generally in slight defect. The decrease in the humidity was small in amount in these areas. Over the remainder of India the air was more humid than usual, more especially in the drier districts of the North-Western Provinces, where the rainfall of the month of August and of the preceding month was unusually heavy, and the whole country flooded to a large extent. The following gives data for re-

presentative stations in this area of greatly increased humidity:—

Station.	Mean humidity.			Mean aqueous vapour pressure.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
	%	%		"	"	"
Lahore	81	64	+17	·949	·867	+·082
Peshawar	76	61	+15	·865	·776	+·089
Ludhiana	84	72	+12	·928	·872	+·056

The humidity was also in moderate excess in the Deccan and North-Western Provinces and in slight excess in other districts.

The following table gives the mean variations of the aqueous vapour pressure, humidity and amount of cloud from the normal in each of the eleven meteorological divisions of the Empire:—

Division.	Mean variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	Inch.		
Burma Coast and Bay Islands	−·028	− 3	+0·2
Assam	−·007	+ 2	+0·5
Bengal and Orissa	−·031	− 3	+0·4
Gangetic Plain and Chota Nagpur	+·004	+ 3	+1·0
Upper Sub-Himalayas	+·051	+12	+2·0
Indus Valley and North-Western Rajputana	+·057	+ 6	+2·2
East Rajputana, Central India and Guzerat	+·051	+ 6	+1·0
Deccan	+·035	+ 4	+1·0
West Coast	−·012	+ 2	+1·4
South India	+·014	+ 4	+1·0

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for August 1892 is shown by means of two charts. The first chart (Plate I) gives 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 one-twentieth of an inch. The second chart (Plate II) gives the variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds. The data on which this chart is based are given in Table II. The pressure data in that table are, it should be noted, reduced to constant gravity (that of Lat. 45°) as well as to sea-level.

The more important barometric changes and movements during the month are fully 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 means. It should be noted that all pressure data means in the tables are reduced and corrected to sea-level and to constant gravity for all stations the elevations of which are less than 3,500 feet.

The mean pressure of the whole of India for the month of August was ·014″ above the normal.

Relatively to this general state pressure was in defect in North-Western and Central India and the Peninsula, and was in excess in North-Eastern India and Burma.

The deficiency was greatest in the west and south of the Peninsula and exceeded ·03″ at the following stations:—

Station.	Variation of mean daily pressure of month from the normal.	Variation of the mean 8 A.M. pressure of month from the normal.	Pressure anomaly at 8 A.M.
	"	"	"
Karwar	−·018	−·022	−·036
Mangalore	...	−·021	−·035
Calicut	...	−·021	−·035

The excess of pressure was very pronounced in Bengal, in which it ranged from ·02″ to ·05″. The following gives data for stations at which the positive pressure anomalies exceeded ·04″.

Station.	Variation of mean daily pressure of month from the normal. (from Table II).	Variation of the mean 8 A.M. pressure of month from the normal (from Table I).	Pressure anomaly at 8 A.M.
	Inch.	Inch.	Inch.
Burdwan	+·060	+·064	+·050
Calcutta	+·060	+·062	+·048
Saugor Island	+·062	+·057	+·043
Chittagong	+·056	+·056	+·042
Purnea	...	+·056	+·042
Balasore	...	+·057	+·043
Jalpaiguri	...	+·060	+·046
Dinajpur	...	+·057	+·043

The pressure anomalies or the peculiar pressure features of the period were, it will thus be seen, favourable to the prevalence of a steady monsoon from the Arabian Sea and

a moderate monsoon in the Bay of Bengal, and to the deflection of the current from the latter area to the westwards to an unusual extent. Hence, as will be shown in the rainfall section, the only large areas in which the humid currents were weak during the month and the rainfall considerably below the average were Bengal and Lower Burma. The variations at the hill stations in Northern India differed little from those at the neighbouring plain stations, and hence the vertical distribution of pressure was practically normal.

Barometric depressions of the month.

At the beginning of the month pressure was in moderate excess in Burma and Bengal and was more or less in defect in the Peninsula and North-Western India. Pressure was lowest in the West Punjab and Upper Sind, where it was nearly half an inch lower than in the south-east of the Bay. The trough of low pressure ran from the South-West Punjab to West Bengal, and was hence in a slightly more northerly position than usual. Rain was falling in all provinces, except Sind and the South-West Punjab.

The changes of pressure of the next two days were small, and slightly intensified the gradients without altering the general character of the distribution of pressure.

Pressure increased on the 3rd and 4th briskly to rapidly in Northern India and slightly in the Peninsula. On the 6th pressure was lowest in Upper Sind and the range of pressure in the Indian land area had decreased to ·35″. The trough of low pressure ran from Upper Sind to West Bengal, and was hence practically unchanged in position. Pressure continued to increase slowly during the next three days, the increase being somewhat greater in Northern than in Southern India. Pressure was on the 9th above the normal over the whole of India by amounts ranging from ·03″ in Malabar and the Konkan to ·16″ in Upper Sind and South-West Bengal. The range of pressure had decreased to ·27″. Rain had continued to fall in all districts more or less steadily during this period.

Pressure began to give way again on the 10th, and the gradients favouring the monsoon winds increased to some extent on the 10th and 11th. The changes of pressure were generally small and somewhat irregular during the next three days, but tended to increase the pressure gradients slightly. On the 14th and 15th the pressure changes, although not large in amount, caused a considerable shift in the position of the trough of low pressure, which on the 15th and following days stretched from Upper Sind to Allahabad and thence to the Ganjam coast. Rain continued to fall more or less steadily in almost every province except Bengal, where a partial break commenced on the 7th, and moderate but unusually steady monsoon winds prevailed over the Indian area. The southerly displacement of the eastern half of the trough of low pressure was followed on the 15th by a considerable diminution for some time of the rainfall in North-Eastern India, and the break in the rains which began in South-West Bengal on the 7th extended and intensified in that area. Pressure gave way over the whole of India on the 17th, 18th and 19th. The changes slightly increased the pressure gradients but made no change of importance in the distribution of pressure or the position of the trough of low pressure. There was a marked tendency to the formation of a shallow depression in the south-eastern districts of the North-Western Provinces. Pressure continued to decrease slowly and somewhat irregularly during the next three days, the decrease being most marked in Southern India. The chief effect of these changes was to displace the eastern half of the trough of low pressure still further to the south, and on the 23rd and 24th it terminated in a shallow depression which covered the Madras coast between Coconada and Madras and the adjacent portion of the Bay. Pressure was on these days in moderate excess in Bengal and Assam, and was more or less in defect over the remainder of India, the deficiency being greatest in the southern half of the Peninsula, where it slightly exceeded ·14″. This distribution of pressure gave unusually strong monsoon winds to the southern half of the Peninsula. The rains continued during this period without any break in Northern India, but were unusually light in North-Eastern India. Pressure gave way rapidly in Northern India and increased in Southern India on the 25th and 26th, and on the morning of the 27th the range of pressure was nearly ·50 inch. This accompanied a large increase in the strength of the monsoon winds and the occurrence of heavy general rain in the west coast districts and the Gangetic Plain. These pressure changes did not materially alter the position of the trough of low pressure, which on the 28th stretched westwards from Sind to the central districts or the North-Western Provinces, and thence southwards to the Circars coast. A shallow depression began to form at the eastern extremity of this trough on the 28th and 29th. This depression developed into a cyclonic storm of moderate intensity but of unusual persistence. It formed the most important feature of the weather of the first week of September. Its history will be fully given in the Weather Review for that month. It is sufficient to note that it lay off the Orissa and Ganjam coasts on the morning of the 30th. It was at that time a shallow depression, the centre of which was probably in about Lat. 19° N. and Long. 86° E. Weather was unsettled and squally and winds of moderate

intensity, force 5 and 6, prevailed in the centre of the Bay. The depression crossed the coast during the evening of the 30th and covered Orissa and the eastern districts of Sambalpur, Bilaspur and Raipur in the Central Provinces. It was still a very shallow depression and apparently of very little importance. The indraught from the Bay was feeble and the storm was giving at the end of the month light to moderate rain to the districts through which it was passing.

Summary of Special Storm Reports.

The following gives a statement of the more violent local storms experienced during the month at the observing stations:—

5th.—Thunderstorm with very heavy rain at Pachpadra from 2 to 8 A.M. Total rainfall 5·75 inches; 1·25 inches fell between 5 A.M. and 5-30 A.M.

20th.—Violent thunderstorms at Masulipatam from 2 P. M. to 4 P.M.

Severe thunderstorm at Nagpur from 4 P.M. to 8 P.M.

27th.—Thunderstorm at Chikalda from 0·30 P.M. to 2 50 P.M.

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

Bay of Bengal.—At the commencement of the month moderate to strong south-west monsoon winds obtained over the Bay to the south of Lat. 19° N. Over the greater part of this area they varied in force from 4 to 6 and decreased in force to 1 to 2 near the head of the Bay. Weather was squally or rainy over the area between the parallels of 9° and 19° N., while to the south and north it was fine with moderate cloud. The average wind force for the whole Bay area, as determined from the wind data of 18 vessels, was 3·7.

Winds increased slightly in force at the head of the Bay during the next 48 hours and the weather became showery. In the centre of the Bay rain ceased to fall and weather improved. Thus the S S. *Cape Corrientes* in Lat 20° 39′ N and Long. 88° 6′ E at 8 A.M. of the 3rd had south-west winds, force 5 with rainy weather, while the ship *Copley* in Lat 16° N. and Long. 86° 4′ E. at the same hour had south-west winds, force 6, and fine and clear weather. Weather was squally in the south of the Bay near the Ceylon coast. A slight increase had occurred in the wind force which averaged 4·0 on the morning of the 4th for the whole Bay area. No change of importance occurred during the next two days, except that the winds fell off considerably in strength, especially in the north and centre of the Bay. The mean wind force for the whole sea area, as deduced from the log data of 28 vessels, was only 3·0 on the morning of the 6th. Fine weather with a moderate sea was hence re-established for a brief period over the north and east of the Bay, whilst slightly unsettled and squally weather set in over the centre of the Bay.

Fine weather however extended rapidly southwards over the centre and south of the Bay, and on the morning of the 9th clear weather prevailed over nearly the whole Bay area. On that day only 2 vessels, out of the 33 contributing weather data for the day, experienced rainy or squally weather.

Winds at the same time decreased in strength, and on the morning of the 10th were blowing with a mean force of only 2·7. Light to moderate south-easterly breezes had set in over the north-west angle of the Bay and westerly or north-westerly winds in the south-west. Over the remainder of the Bay the winds were normal in direction. The conditions remained unchanged during the next 24 hours, except in the south west, where the winds shifted to their normal direction and the weather became unsettled. Over the south of the Bay the winds increased in strength and the squally weather extended rapidly northwards as far as Lat. 20° N. on the 11th and 12th. Thus the S. S. *Goa* in Lat. 19° 51′ N. and Long 89° 36′ E. at 8 A. M. of the 12th experienced west-south-west winds of force 4 and passing rain squalls. The mean wind force for the whole area on the 12th, as determined from the data of 15 vessels, was 3·5 as compared with 2·7 on the 10th. Winds again fell off in strength during the next two days, more especially at the head of the Bay, where calms and light airs prevailed on the morning of the 14th. The weather improved rapidly and was fine over nearly the whole of the Bay from the 17th to the 19th when the winds again began to strengthen and the weather to become squally. The mean wind force for the whole of the Bay, as deduced from the data of 25 vessels, averaged 3·4 on the morning of the 19th. Winds continued to increase in force during the next three days and varied in force from 4 to 6 in the centre and south of the Bay. Further north moderate southerly winds obtained. Weather was very squally between the Madras coast and the Andamans. The S. S. *Ataka*, in Lat. 10° 39′ N. and Long 83° 58′ E. at 8 A.M. of the 22nd, had westerly winds, with heavy squalls of wind and rain, and the ship *William Turner*, in Lat.

14° 27′ N. and Long. 84° 26′ E. at the same hour, had variable winds (force 3) and heavy rain. The mean wind force for the whole of the Bay was 4·1 on the morning of the 22nd. Winds decreased considerably in force during the next three days. They averaged 3·4 on the 24th and 2·7 on the 25th.

Winds again began to strengthen on the 26th and to shift round to SE off the Arakan coast and at the head of the Bay. Weather became unsettled and squally during the next 48 hours off the Ganjam and Orissa coasts, and winds of force 6 were experienced by several vessels on the morning of the 28th in that area. Onthe morning of the following day a shallow depression lay off those coasts. It developed slightly and advanced westwards during the next 24 hours towards the Orissa coast, which it crossed on the afternoon of the 30th. Very squally weather was experienced to the south and east of the depression on the 29th and 30th and fine weather to the north and west. The S.S. *Lindula*, which was in Lat. 14° 49′N. and Long. 85° 46′ E. at 8 A.M. of the 29th, had west-south-west winds and squally weather with heavy rain, and the Barque *Minden*, in Lat. 19° 16′ N. and Long. 86° 44′ E. at the same hour of the 30th experienced southerly winds with heavy squalls. Weather improved considerably during the next 24 hours in the centre, south and east of the Bay, but was squally and unsettled in the north-west of the Bay.

A steady increase in the force of the wind occurred during the period from the 25th to the 31st. The mean wind force for the whole of the Bay area increased from 2·7 on the 25th to 4·3 on the 31st.

Arabian Sea.—A strong monsoon (force 7 to 9) prevailed at the beginning of the month over the centre and west of the Arabian Sea (*i. e.*, to the south and south-east of Socotra) and a moderate to fresh monsoon (force 5 to 6) in the central area between Socotra and the Bombay coast. Winds were feeblest near the South Malabar coast (force 2) and in the Gulf of Aden (force 1). Weather was at this time squally off the North Malabar and Konkan coasts, but was fine (with strong winds and high sea) over the remainder of the Arabian Sea. Winds increased considerably in force during the next 24 hours, more especially in the centre and south-east of the Arabian Sea, and on the morning of the 2nd were blowing with a mean force of 4·7 as compared with 3·7 on the previous day. Weather improved off the Malabar and Konkan coasts and steady monsoon winds prevailed over the whole sea area. Winds fell off in force in the west and centre of the sea during the next 24 hours, and the mean wind force for the whole of the Arabian Sea on the morning of the 3rd averaged 3·9. No change of importance occurred during the next two days except that rainy weather again set in off the Bombay and Malabar costs. Winds increased on the 6th in the centre of the Sea and the weather became squally. The S.S. *Congo*, in Lat. 16° 5′ N. and Long. 62°49′ E., at 8 A.M. of the 6th, had south-west winds of force 9, and the S.S. *Tanjore* at the same hour, in Lat. 18° 37′ N. and Long. 65° 58′ E., had west-south-west winds of force 6, a heavy sea and strong squalls. Fine weather with moderate to strong southerly winds held steadily in the west and north of the Arabian Sea. The average wind force for the whole sea area averaged 4·0 on the morning of the 6th. During the next two days the winds decreased slightly in the centre of the sea and the weather improved, but squally weather continued off the Bombay and North Malabar coasts. Winds for the whole of the Arabian Sea had decreased to mean force 3·2 on the morning of the 8th. No change occurred until the 12th, when the winds off the Bombay and North Malabar coasts decreased in force and the weather improved slightly. The mean wind force for the whole sea area averaged 3·1 on the morning of the 12th.

Winds increased rapidly in force during the next two days over the area between the Maldives and the West Ceylon coast, and the weather there became disturbed. Thus the S.S. *Ludhiana*, in Lat. 8° 0′ N. and Long. 77° 29′ E., at noon of the 14th, had west-north-west winds of force 7 and a rising sea, and the S.S. *Mayfield*, in Lat. 9° 12′ N. and Long. 76° 11′ E at 8 A.M., had west-north-west winds of force 4, a high sea and heavy continuous rain. The average wind force for the whole sea area had increased to 4·0 on the morning of the 14th.

Winds fell off again, especially in the extreme south-east of the sea, and the weather in that area became fine. The mean force of the winds for the whole of the Arabian Sea as determined from the data of 21 vessels, was only 3·0 on the morning of the 15th. Fine weather with moderate winds obtained on that day over nearly the whole of the Arabian Sea.

Winds began to rise in force during the next 24 hours in the south of the sea, and rainy weather set in again off the Malabar coast. On the morning of the 17th the squally weather had extended northwards to the latitude of Bombay. Continuous rain was experienced on that day by vessels between Calicut and Bombay. Elsewhere fine weather still held. A general increase in the wind force occurred during the next three days, and on the morning of the 20th the mean force for the whole sea area averaged 4·3. Fourteen vessels out of the 28 contributing data for this day had winds of force 5 or upwards. The weather improved slightly off the Bombay coast. South-easterly winds set in during the next 24 hours and continued until the 26th. The mean wind force for the whole of the sea area averaged 3·7 on the morning of the 25th.

The weather became more squally off the North Malabar and Bombay coasts on the 26th and 27th. The S.S. *Venetia*, in Lat. 18° 5′ N. and Long. 72° 52′ E., at 8 A.M. of the 26th, had north-west winds (force 3) with incessant rain and the S.S. *Chinddwara*, further south in Lat. 13° 4′ N.

and Long. 74° 35′ E. at the same hour, had north-west winds (force 4), a westerly swell and heavy rain.

A further increase in the wind force occurred during the next 24 hours, and squally weather advanced northwards off the Bombay coast. Winds which had been easterly on the coast and north-westerly at some distance out on the sea, now shifted round to their normal quarter and a moderate to strong monsoon prevailed over the whole of the Arabian Sea during the remainder of the month.

The mean force of the wind on the morning of the 27th averaged 4·2.

Winds fell off slightly in strength during the next four days, and were of average force (3·7) on the morning of the 31st.

Temperature of the Air.

The distribution of temperature in India for August 1892 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 the 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 data by means of which these charts have been prepared are given in Table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.*, 1878 to 1888. 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.

The mean day or maximum temperature of the month was below the normal over the whole of India, with the exception of Lower Burma, South Bengal, Orissa, Chota Nagpur and a small part of Central India, where it was in very slight excess. The deficiency in the day temperature was very marked in the two areas of most excessive rainfall relatively to the normal. The following gives variation data for stations in these two areas, at which the mean maximum temperature of the month was upwards of 3° in defect:—

District.	Station.	Mean maximum temperature. Actual, August 1892.	Normal, August.	Variaton from normal.
		°	°	°
Punjab and western districts of North-Western Provinces.	Peshawar	92·4	99·4	−7·0
	Ludhiana	89·8	95·5	−5·7
	Lahore	91·0	96·5	−5·5
	D. I. Khan	96·8	101·7	−4·9
	Sialkot	89·6	94·4	−4·8
	Mooltan	95·9	100·2	−4·3
	Sirsa	93·5	97·5	−4·0
	Delhi	87·5	91·9	−4·4
	Bareilly	85·8	90·3	−4·5
	Roorkee	87·5	91·0	−3·5
	Meerut	87·3	90·9	−3·6
Madras	Madura	92·9	96·9	−4·0
	Bellary	87·1	91·1	−4·0
	Madras	90·4	93·5	−3·1

The deficiency was greatest in the drier districts of the Punjab, in some parts of which the rainfall was heavier than had been experienced for at least twenty years previously.

The mean minimum temperature of the month differed slightly from the normal at all stations. It was in slight defect in Northern India and South Madras and in excess elsewhere. The variations from the normal exceeded 1½° at the following stations:—

Station.	Mean minimum temperature. Actual, August 1892.	Normal, August.	Variation from normal.
	°	°	°
Ludhiana	77·4	79·1	−1·7
Meerut	76·7	78·6	−1·9
Purnea	76·2	78·0	−1·8
Akyab	75·5	77·1	−1·6
Kurrachee	80·6	78·3	+2·3
Deesa	77·0	75·4	+1·6
Cochin	71·9	74·0	−2·1

The mean temperature of the month was in defect over the whole of India, except in West Bengal, Chota Nagpur and Orissa, the eastern districts of the Central Provinces, Central India, Khandeish, Guzerat, Lower Sind, South-West Rajputana, and also in Lower Burma. The excess in these areas was generally small in amount and was less than 1° except at the following stations:—

District.	Station.	Mean temperature.		
		Actual, August 1892.	Normal, August.	Variation fom normal.
		°	°	°
Burma	Moulmein	80·2	78·4	+1·8
Central India	Neemuch	73·6	72·2	+1·4
Sind	Kurrachee	80·6	78·3	+2·3

The deficiency in the mean temperature of the month was less than 2° over the remainder of India, excepting the Punjab and the western and northern districts of the North-Western Provinces, and also locally at Madura, Madras and Bellary in Southern India. The following gives a statement of the variations for all stations at which the mean temperature of the month was more than 3° below the normal:—

District.	Station.	Mean temperature.		
		Actual, August 1892.	Normal, August.	Variation from normal.
		°	°	°
Punjab	Peshawar	84·6	88·8	−4·2
	Ludhiana	83·6	87·3	−3·7
	Lahore	84·5	88·0	−3·5
	D. I. Khan	88·4	91·5	−3·1

The temperature changes from day to day in August 1892 were, as is usual in that month, determined by the occurrence and distribution of the rainfall of the month. The changes in the coast districts are always small in amount but in the interior, and more especially in Central and North-Western India, the occurrence of rainfall causes a large reduction of temperature, and its discontinuance a large and rapid increase up to a limit determined by the quantity of moisture in the air, amount of cloud and other conditions. The following gives a brief statement of the more important changes of the temperature conditions during the month.

Temperature at the commencement of the month was below the normal by moderate amounts over the greater part of the country, the deficiency being, as is usual in the rains, greatest in the day temperature. The following gives variation data for the 24 hours' period ending at 8 A.M. of the 1st:—

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

Rainfall increased in amount during the next four days and extended to the West Punjab. Temperature decreased considerably, more especially in Upper India. The mean temperature of the 5th was 14·1° below the normal at Dera Ismail Khan and 12·3° at Peshawar. The following table gives temperature variation data for the 5th,

Province.	Variation of			Change during period, 1st to 5th.
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.	
	°	°	°	°
Burma	−2·6	−1·5	−2·1	−1·3
Bengal and Assam	−2·7	−2·0	−2·4	−2·0
North-Western Provinces	−3·2	−1·7	−2·5	−1·9
Punjab	−10·8	−2·8	−6·8	−4·9
Sind and Rajputana	−4·7	−0·1	−2·4	−3·7
Guzerat and Central India	−3·6	−0·6	−2·1	−2·0
Central Provinces	−2·4	−1·2	−1·8	+0·6
Bombay	+0·8	+1·3	+1·1	+1·7
Madras	+0·7	+0·2	+0·5	+0·2

Rain continued to fall more or less steadily until the 11th, and temperature was generally below the average by amounts depending chiefly on the intensity and distribution of the rainfall. Rain fell in smaller amounts and was partially distributed on the 11th and 12th, and temperature increased generally. The following table, giving the temperature variation data of the 13th, shows the effect due to this slight partial break in the rains:—

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

A moderately heavy burst of rain occurred from the 13th to the 15th in North-Western India which reduced temperature in that area to a slight extent. The following table gives variation data for the 16th at the end of this period :—

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

Temperature increased rapidly during the next four days and was more or less in general excess until the 26th. This change was due to a partial break in the rains which was most pronounced in Bengal. Weather was showery with moderate cloud over the whole of India, with the exception of Sind and the South-West Punjab. The following gives the variations of the mean temperature from the normal on the 20th, 23rd and 26th :—

Province.	Variation of mean temperature of 24 hours preceding 8 A.M. of the		
	20th.	23rd.	26th.
	°	°	°
Burma	+0·7	−0·2	+0·9
Bengal and Assam	+0·5	−0·7	−0·7
North-Western Provinces	+0·1	+2·3	−1·0
Punjab	+1·2	+0·8	−0·9
Sind and Rajputana	+0·5	+1·9	+0·9
Guzerat and Central India	+1·7	+1·3	+1·6
Central Provinces	+2·1	+1·2	+2·5
Bombay	+0·9	−0·4	+0·7
Madras	+0·5	−2·3	−1·1

A strong influx of humid winds set in across the west coast on the 26th and 27th, and a small storm formed in the Bay on the 29th and 30th. It crossed the Orissa coast on the evening of the 30th. The rainfall hence became more general and increased largely in amount during the last five days of the month. This hence caused a large reduction of temperature. The following gives variation data of the 28th, 29th and 31st, which should be compared with the corresponding data for the 26th :—

Province.	Variation of mean temperature of 24 hours preceding 8 A.M. of the		
	28th.	29th.	31st.
	°	°	°
Burma	+1·1	−1·7	−1·4
Bengal and Assam	−0·8	−0·2	+0·6
North-Western Provinces	−3·5	−1·2	+0·1
Punjab	−1·4	−4·7	−1·1
Sind and Rajputana	+1·5	+1·1	+2·7
Guzerat and Central India	−0·3	+1·0	+1·5
Central Provinces	+0·6	+0·4	+1·3
Bombay	−1·8	−1·9	−1·9
Madras	−2·2	−3·8	−1·9

Winds.

The mean 8 A.M. wind directions of the month at all stations recording observations at that hour are shown in Plate I, by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past ten to twenty years.

The monsoon currents blew very steadily throughout the month. The Bombay current was, as measured by the mean wind velocity recorded by the anemometer, below its normal strength. The following gives data for stations where the exposure of the anemometer is satisfactory :—

Station.	Wind Velocity.		
	Average daily air movement, August 1892.	Normal daily air movement, August.	Percentage variation.
	Miles.	Miles.	
Kurrachee	336	409	−18
Deesa	244	288	−15
Bombay	312	384	−19
Ratnagiri	217	242	−10
Sholapur	271	279	−3
Secunderabad	194	244	−20
Belgaum	486	497	−2

The Bay current was on the other hand somewhat stronger than the normal :—

Station.	Velocity.		
	Average daily air movement, August 1892.	Normal daily air movement, August.	Percentage variation.
	Miles.	Miles.	
Port Blair	203 (?)	228	—11 (?)
Diamond Island	195	164	+ 19
Saugor Island	349	299	+ 17
False Point	275	238	+ 16

The preceding data hence appear to indicate that the Bombay current was at least 10 per cent. below its normal force on the average of the month and the Bay current upwards of 15 per cent. above its normal strength.

The air current in the north of the Bay was deflected more largely to the west than usual. This is shown clearly by the decreased westing or increased easting in the mean wind directions of the stations for which data are given below :—

Station.	Direction.		
	Average direction, August 1892.	Normal direction, August.	Decreased westing or increased easting of wind.
Port Blair	S 36° W	S 43° W	+ 7°
Diamond Island	S 15° W	S 44° W	+ 29°
Akyab	S 6° E	S 1° E	+ 5°
Saugor Island	S 4° E	S 17° W	+ 21°
False Point	S 3° E	S 57° W	+ 60°

The data establish that the current was diverted to a greater extent than usual from Lower Burma and Arakan, and deflected to the north-west angle of the Bay. This deflection, it will be seen, was directly related to the distribution of the rainfall of the month in Burma and North-Eastern India.

In Central and East Bengal the deviations of the mean wind directions were opposite to those at the coast stations, thus apparently indicating a larger local indraught to Assam and perhaps Upper Burma than usual. This supposition is, it will be seen, confirmed by the locally excessive rainfall in Assam and the greater part of Upper Burma, more especially the northern districts. The following data show the character and amount of the deflection in Central Bengal :—

Station.	Direction.		
	Average direction, August 1892.	Normal direction, August 1892.	Increased westing or decreased easting.
Chittagong	S 3° W	S 32° E	+ 35°
Dacca	S 2° W	S 14° E	+ 16°
Calcutta	S 2° W	S 17° E	+ 19°
Silchar	S 54° W	S 63° E	+ 117°
Berhampore	S 16° E	S 40° E	+ 24°

The deflection, it will thus be seen, was even more pronounced than the opposite deflection at the coast stations of the north of the Bay, and evidently indicates a stronger determination than usual in August of that portion of the monsoon current advancing across Central Bengal towards Assam.

It has been pointed out in the pressure section that the eastern half of the monsoon trough of low pressure was displaced more considerably to the south than usual. This caused the winds in Chota Nagpur and Bihar to be abnormally steady and also modified the mean wind directions at the stations chiefly affected by this displacement. The following gives data for the stations where the changes were most conspicuous :—

Station.	Direction.		Steadiness.	
	Average direction, August 1892.	Normal direction, August.	Average percentage, August 1892.	Normal percentage, August.
Hazaribagh	S 10° E	S 50° W	52	7
Patna	S 74° E	S 19° E	66	34
Allahabad	S 24° E	N 40° E	14	4
Sambalpur	S 19° W	S 54° W	68	42

The largely increased steadiness of the winds at Hazaribagh was most noteworthy.

A further result of this displacement of the trough of low pressure was the increased northing of the winds in the East Deccan, which was most clearly shown by the Secunderabad and Sholapur returns.

The mean position of the western half of the trough of low pressure was through Allahabad, Agra and Mooltan approximately. The following gives data for these stations :—

Station.	Steadiness.		Velocity.	
	Average percentage, August 1892.	Normal percentage, August.	Average daily air movement, August 1892.	Normal daily air movement, August.
			Miles.	Miles.
Allahabad	14	4	78	93
Agra	5	10	60	157
Mooltan	38	22	65	70

The winds of the month were approximately normal in direction in the Punjab, Sind and Rajputana, but were much steadier than usual. Winds were also normal in direction at the west coast stations but were slightly less steady than usual. In the Deccan and Southern India winds were almost without exception lighter and less steady than usual, although the mean directions differed little from the normal. The following table gives data

for three stations, illustrating the decreased strength and steadiness of the winds in that area :—

Station.	Velocity.		Steadiness.	
	Average daily air movement, August 1892.	Normal daily air movement, August.	Average percentage, August 1892.	Normal percentage, August.
	Miles.	Miles.		
Madras	110	172	48	58
Bellary	231	262	66	87
Trichinopoly . . .	182	198	84	82

The wind data of the hill stations call generally for no remarks. In the Eastern Himalayas the winds at Darjeeling show the same abnormal tendency of the air current eastwards towards Upper Assam as at the plain stations in Central Bengal. It may be noted that the exposure of the wind instruments is exceptionally good at that station. The following gives mean data for Darjeeling :—

Station.	Direction.		Steadiness.		Velocity.	
	Average direction, August 1892.	Normal direction August.	Average percentage, August 1892.	Normal percentage, August.	Average daily air-movement, August 1892.	Normal daily air-movement, August.
					Miles.	Miles.
Darjeeling .	S 31° W	N 84° E	10	32	97	81

Humidity and Cloud.

The hygrometric data of the month employed in the following paragraphs are given in Table II. In that table are columns giving the monthly means of the wet bulb readings at 10 and 16 hours and the minimum and vapour tension and of the humidity at the same hours and also the daily means of these elements. The normal values by means of which the variations have been derived are the means calculated in the same way for periods varying from five to twenty 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 years of the available cloud data for the same hours.

The humidity of the air was slightly below the normal in the area of deficient rainfall in Bengal and Lower Burma. The deficiency was small in amount and was greatest in the area represented by the following stations :—

Station.	Mean Humidity.			Mean aqueous vapour pressure.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
	%	%		"	"	"
Cuttack . .	77	81	—4	·882	·907	—·025
Saugor Island .	84	87	—3	·947	·993	—·046
Calcutta . .	85	88	—3	·909	·968	—·059
Burdwan . .	81	84	—3	·903	·947	—·044
Dacca . .	84	87	—3	·924	·971	—·047

The amount of vapour present in the air was greater than usual over the remainder of India with the exception of Malabar, and as temperature was generally in defect the air was much damper than usual in those districts. The increased humidity was most strongly exhibited in the Punjab, Sind and West Rajputana where the rainfall is usually small in amount but was very excessive in August 1892. The following gives data for stations in that area :—

Station.	Mean humidity.			Mean aqueous vapour pressure.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
	%	%		"	"	"
Lahore . .	81	64	+17	·949	·867	+·082
Peshawar . .	76	61	+15	·865	·776	+·089
Ludhiana . .	84	72	+12	·928	·872	+·056
Mooltan . .	68	63	+ 5	·905	·883	+·022
Ajmere . .	83	76	+ 7	·859	·779	+·080
Jacobabad .	63	57	+ 6	·871	·815	+·056

The air was slightly damper in the Gangetic Plain and Central India but the variations were generally small in amount.

The amount of aqueous vapour was in moderate excess in the Central Provinces, Berar and the Deccan. The mean humidity of the month was hence in moderate excess in these areas and more especially at Seoni (+8), Sholapur (+7), Khandwa (+7), Akola (+7), Secunderabad (+6) and Bellary (+5). It was also considerably above the normal of the month in the Madras Coast districts, more especially at Madras (+9) and Trichinopoly (+4).

The amount of cloud was normal or in excess of the normal in all districts except those represented by Rangoon (0·5 in defect), Dacca (0·7 in defect) and Berhampore (0·4 in defect).

The excess was not large except in the areas represented by the stations for which data are given in the following table :—

District.	Station.	Mean cloud amount.		
		Actual, August 1892.	Normal, August.	Variation from normal.
Punjab	Lahore	6·0	3·7	+2·3
	Ludhiana	8·2	5·6	+2·6
	Mooltan	4·0	2·2	+1·8
North Western Provinces.	Roorkee	8·3	6·2	+2·1
	Agra	8·3	6·4	+1·9
Sind	Jacobabad	4·0	2·3	+1·7
Deccan	Buldana	9·6	7·6	+2·0
	Saugor	7·9	6·1	+1·8
	Secunderabad	8·4	6·5	+1·9
	Bellary	9·1	7·6	+1·5
West Coast	Ratnagiri	9·2	7·0	+2·2
	Karwar	8·8	7·1	+1·7
Southern India	Salem	8·1	6·0	+2·1
	Bangalore	7·8	6·3	+1·5

The cloud amount was hence most largely above the normal in the Punjab, Upper Sind, West Rajputana, the western districts of the North-Western Provinces, the Deccan, Konkan and Southern India or in the districts in which, as a rule, the rainfall of the month was most largely in excess relatively to the normal.

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 August 1892, 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 or the provincial monthly rainfall statements published by the Local Governments.

The first rainfall chart (Plate IV) illustrates the actual distribution of 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 mean of isohyetic lines, or lines of equal amounts of rainfall, the numbers attached to each line indicating the rainfall. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the district of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the provincial monthly rainfall statements, so far as possible, and, where they were not available, from the rainfall information telegraphed by district officers. A comparative statement of the rainfall in each of the meteorological districts is given in the following table, and the actual figures utilized in the chart are those given in the last column. The numbers in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall. A number given in a corner of each district in small slanting figures serves as an index, by means of which, on refering to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

The average distribution of rainfall in August is very similar to that of July. The areas of least rainfall are :—

1st.—Central Burma, including the districts on each side of the Irrawaddy, between Bhamo and Thayetmyo. The rainfall data for this area only extend over four years, and are hence not sufficient to give reliable means. It is probable that over a considerable portion of this area the average rainfall in August is less than two inches.

2nd.—The southern districts of Madras, including Tinnevelly and Madura and parts of Coimbatore and Salem, in which the average rainfall ranges from a third of an inch (at Tuticorin) to two inches.

3rd.—Upper Sind and the West Punjab, the average rainfall of which ranges from one to two inches

The areas of heaviest rainfall are :—

1st.—The west coast districts and West Ghats which generally receive almost daily heavy rain in August.

2nd.—Arakan, Lower Pegu and Tenasserim.

3rd.—Assam and the Lower Himalayas.

4th.—The greater part of the Central Provinces.

5th.—Portions of Central and South Bengal.

The average rainfall of all these areas exceeds 15 inches and ranges from that amount to 80 inches at Cherrapunji and 70 inches at Mohableshwar in the West Ghâts. Over the remainder of India the average rainfall amount ranges generally between 2 and 15 inches, and depends mainly upon situation with respect to the sea (or the monsoon current) and mountain ranges and to a small extent its position relative to that of the trough of low pressure.

The chief abnormal features of the rainfall of the month were the following:—

1st.—Rainfall was in moderate defect in Tenasserim, Lower Burma and Arakan, due to the larger westerly deflection of the Bay current than usual.

2nd.—Rainfall was largely in defect in the area including nearly the whole of East, Central and South Bengal, Chota Nagpur and Orissa. The deficiency was greatest in the area including the districts of Hooghly, Howrah, Burdwan, Midnapur, Bankura, Singhbhum and Manbhum, over the greater part of which a total of less than 5 inches was received. The deficiency exceeded 60 per cent. of the normal fall.

3rd.—Excessive rainfall over all the districts lying at the foot of the Himalayas from Sibsagar to Rawalpindi. The excess was, on the whole, most marked in the plain districts of North Bengal and Oudh, which received upwards of double their normal amount.

4th.—Excess rainfall to a moderate extent in the North-Western Provinces, the eastern districts of Central India, and Rajputana.

5th.—Abnormally heavy rain in the western and central districts of the Punjab. The rainfall in the districts of Peshawar, Kohat and Shapur was larger than has been previously recorded in the month of August.

6th.—Very heavy rainfall on the west coast of India. The rainfall exceeded 40 inches over a large part of that area, and was considerably in excess.

7th.—Increased rainfall over the whole of Berar and the Central Provinces, except the eastern districts of Sambalpur, Raipur and Balaghats where the rainfall was in moderate defect. The excess was most marked in Berar and the western districts of the Central Provinces.

8th.—Very favourabe rain over the Peninsula generally, more especially in the Deccan and Madras. The rainfall ranged from 10 to 16 inches over the greater part of that area and was considerably in excess, the excess being most marked in the central districts, and more especially in Nellore and Cuddapah.

The following table gives a summary of the rainfall data of the month for the 52 meteorological divisions of India. In the cases of Bengal, Assam, the North-Western Provinces, the Punjab, Bombay, the Central Provinces and the native States of Rajputana and Central India, the data are obtained from the published provincial rainfall statements. The data for Burma are deduced from the weekly rainfall reports telegraphed by the district officers of those two provinces:—

Provinces.	Division.	Number of rainy days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	31·59	38·11	— 6·52
	Lower Burma*	?	?	15·34	20·73	— 5·39
	Central do.*	?	?	13·12	18·18	— 5·06
	Upper do.*	?	?	6·54	?	?
	Arakan*	?	?	25·79	33·85	— 8·06
Bengal and Assam	Eastern Bengal	16·5	18·9	11·66	16·49	— 4·83
	Assam (Surma)	23·6	21·1	27·30	20·73	+ 6·57
	Do. (Brahmaputra)	21·6	15·4	20·16	13·86	+ 6·30
	Deltaic Bengal	12·0	16·3	7·59	12·74	— 5·15
	Central do.	11·5	15·9	8·52	12·18	— 3·66
	North do.	21·4	17·0	27·58	17·59	+ 9·99
	Orissa	13·9	15·4	8·45	11·41	— 2·96
	Chota Nagpur	13·5	17·5	10·48	14·88	— 4·40
	Bihar (South)	15·7	13·6	14·91	11·27	+ 3·64
	Do. (North)	17·6	13·6	20·38	11·49	+ 8·89

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

Province.	Division.	Number of rainy days. Actual.	Number of rainy days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.
North-Western Provinces and Oudh.	North-Western Provinces (East)	17·1	12·5	14·72	10·73	+ 3·99
	Oudh (South)	18·5	11·9	18·60	10·46	+ 8·14
	Do. (North)	18·6	11·7	18·68	10·44	+ 8·24
	North-Western Provinces (Central)	16·2	11·7	13·96	10·28	+ 3·68
	Do. do. (West)	14·9	10·3	13·09	8·66	+ 4·43
	Do. do. (Sub-montane)	19·6	12·3	20·34	12·87	+ 7·47
Punjab	Punjab (South)	9·2	4·3	8·09	3·44	+ 4·65
	Do. (Central)	12·4	6·2	10·96	5·19	+ 5·77
	Do. (Sub-montane)	14·6	8·1	14·77	8·33	+ 6·44
	Do. (Hill Districts)	20·3	15·3	23·54	16·68	+ 6·86
	Do. (North-West)	10·0	6·0	12·03	5·61	+ 6·42
	Do. (West)	5·7	2·7	4·94	2·10	+ 2·84
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	24·04	18·07	+ 5·97
	Madras (South, Central)*	?	?	6·77	5·27	+ 1·50
	Coorg	23·7	?	15·86	?	?
	Mysore*	?	?	5·09	5·32	— 0·23
	Konkan	27·7	23·8	42·64	23·96	+ 18·68
	Bombay, Deccan	12·3	9·9	7·53	6·08	+ 1·45
	Hyderabad (North)	17·5	?	16·58	6·21	+ 10·37
	Khandeish*	13·1	8·6	8·08	5·99	+ 2·09
Central Provinces and Berar.	Berar*	?	?	15·35	7·49	+ 7·86
	Central Provinces (West)	16·8	12·8	13·13	9·87	+ 3·26
	Do. (Central)	17·7	14·1	13·58	12·79	+ 0·79
	Do. (East)	14·6	12·9	10·82	12·53	— 1·71
Bombay (North)	Guzerat	17·2	13·6	14·26	9·28	+ 4·98
	Kathiawar	11·9	7·4	7·95	6·28	+ 1·67
	Sind	3·0	?	4·30	1·94	+ 2·36
Rajputana and Central India.	Central India (East)	15·5	?	11·91	12·33	— 0·24
	Rajputana (East), Central India (West)	13·6	?	12·89	9·68	+ 3·21
	Rajputana (West)	8·9	?	7·80	4·48	+ 3·32
Madras	East Coast (North)	?	?	7·99	6·26	+ 1·73
	Do. (do.) (a)	?	?	8·14	13·07	— 4·93
	Hyderabad (South)	18·3	?	13·95	8·25	+ 5·70
	Madras (Central)	?	?	7·60	4·27	+ 3·33
	East Coast (Central)	?	?	9·01	4·16	+ 4·85
	Do. (South)	?	?	8·38	5·03	+ 3·35
	Madras (South)	?	?	2·86	1·98	+ 0·88

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

The monthly statement of the rainfall in Burma during August has not yet been received (15th November), and the available information is not sufficient to show fully its distribution or occurrence during the month. The weekly data telegraphed by the district officers indicate that it was in defect in all divisions except perhaps Upper Burma. This was due to the westerly diversion of the current from Burma to a much greater extent than usual, which was very clearly shewn by the mean wind directions. The following gives comparative data in the five meteorological divisions of the province :—

Meteorological District.	Actual average of rainfall of month.	Variation from normal.	Percentage variation.
	Inches.	Inches.	
Tenasserim	31·59	— 6·52	—17
Lower Burma	15·34	—5·39	—26
Central Burma	13·12	—5·06	—28
Arakan	25·79	—8·06	—24
Upper Burma	6·54	?	?

The deficiency relatively to the normal was hence slightly greater in Central Burma than in the other divisions. It was, however, fairly uniform in amount over the province, slightly exceeding an average of 20 per cent.

The whole of Bengal received general rain during the first six days of the month. A partial break in the rains set in on the 7th over South-West Bengal, Orissa, Chota Nagpur and South Bihar, which continued until the 14th. During this period North Bengal received a heavy burst of rain. On the 14th moderate showers were received in all districts, after which the break in the rains intensified and extended over the whole province with the exception of the northern districts of North Bengal. The weather conditions became more favourable on the 20th, and moderate general rain was received from the 20th to the 27th in all districts except Chota Nagpur and in parts of the Bankura, Burdwan and Birbhum districts. The rainfall diminished in amount on the 28th and 29th during the formation of a

cyclonic storm at the head of the Bay. With its advance across the coast on the morning of the 31st, the rainfall increased again in amount and extended rapidly westwards over the province.

The rainfall of the month was hence very unequally distributed in Bengal. It was excessive in North Bengal and North Bihar, and more or less in defect over the remainder of the Province. North Bengal received an average of 20·3 inches, (6·4 inches, or) nearly 50 per cent. above the normal of the month, and North Bihar an average of 19·7 inches, (8·2 inches or) 71 per cent. in excess of the normal. The rainfall was most excessive in the districts nearest to the hills, *viz.*, Purnea, Jalpaiguri, Kuch Bihar, Rungpur and Dinajpur. It is not a little remarkable that this excessive rainfall was restricted to the plain districts and did not extend to the Darjeeling hill districts. The following gives data for these districts :—

District.	Rainfall.			
	Average actual for August 1892.	Normal average for August.	Variation from normal.	Percentage variation of actual from normal.
	Inches.	Inches.	Inches.	
Purnea	27·78	14·77	+13·01	+88
Jalpaiguri . . .	39·11	24·94	+14·17	+57
Dinajpur . . .	20·97	11·72	+ 9·25	+79
Kuch Bihar . . .	39·35	21·83	+17·52	+80
Rungpur . . .	23·00	12·07	+10·93	+91
Darjeeling . . .	31·50	27·15	+ 4·35	+16

The rainfall was in defect over the remainder of the province, a line running east and west between Bhabuah, Gaya and Tipperah separating the districts of excessive from those of deficient rainfall. The deficiency averaged 30 per cent. in Orissa, 35 per cent. in East Bengal, 37 per cent. in Chota Nagpur, and 45 per cent. in South-West Bengal.

The deficiency was greatest in the following districts, in which it exceeded 45 per cent. :—Bankura, Burdwan, Hooghly, Howrah and Midnapur in South-West Bengal; Singbhum and Manbhum in Chota Nagpur; and Chittagong and Tipperah in East Bengal. The following gives comparative data for these districts :—

Meteorological Division.	District.	Mean actual rainfall, August 1892.	Mean normal rainfall, August.	Variation from normal.	Percentage variation of actual from normal.
		Inches.	Inches.	Inches.	
Chota Nagpur .	Singbhum . .	5·07	13·83	—8·76	—63
	Manbhum . .	6·84	13·21	—6·37	—48
	Howrah . .	6·14	12·89	—6·75	—53
	Midnapore . .	6·86	13·87	—7·01	—51
S. W. Bengal	Hooghly . .	5·55	13·43	—7·88	—59
	Bankura . .	6·24	13·73	—7·49	—55
	Burdwan . .	6·17	12·48	—6·31	—51
East Bengal	Tipperah . .	6·31	16·85	—10·54	—63
	Chittagong .	12·90	23·45	—10·55	—46

The area of greatest deficiency hence included the western districts of South-West Bengal (to the west of the Hooghly) and the adjacent districts of Chota Nagpur. That area received barely one-third of its normal fall during the month. The following table gives the smallest rainfalls in that area of partial drought :—

District.	Station.	Rainfall.			
		Actual for August 1892.	Normal for August.	Variation from normal.	Percentage variation of actual from normal.
		Inches.	Inches.	nches .	
Howrah . .	Mohesreka .	3·65	13·57	— 9·92	—73
Hooghly . .	Jahanabad .	3·63	16·03	—12·40	—77
Midnapur .	Ghatal . .	3·67	15·46	—11·79	—76
Burdwan .	Burdwan . .	3·48	12·80	— 9·32	—73
Bankura .	Bankura . .	3·88	14·35	—10·47	—73

This table shows that in this partial drought area less than 30 per cent. of the normal was received at several stations.

Assam received daily and continuous rain from the 1st to the 13th and from the 17th to the end of the month. The rainfall was heavy from the 22nd to the 26th, during which period very large amounts were recorded in the Sylhet, Cachar and Goalpara districts. Thus, Sunamganj in the plains of Sylhet received a total of 26·53 inches during the 72 hours ending at 8 A.M. of the 24th. Rain fell on 29 days of the month at Cherra Punji, but on only four days did the rainfall exceed 5 inches. It received a total of 89·98 inches. The following table gives mean rainfall data for the eight plain districts of Assam :—

District.	Average actual for August 1892.	Normal average for August.	Variation from normal.
	Inches.	Inches.	Inches.
Sylhet	28·28	23·09	+ 5·19
Cachar	26·10	17·97	+ 8·13
Goalpara	32·03	12·23	+19·80
Kamrup	14·82	11·61	+ 3·21
Darrang	18·25	10·03	+ 8·22
Nowgong	17·01	14·64	+ 2·37
Sibsagar	19·65	14·26	+ 5·39
Lakhimpur	26·11	17·44	+ 8·67

The excess was on the whole fairly uniform over the province. The following stations appear to have been centres of very excessive local rainfall :—

District.	Station.	Actual total rainfall, August 1892.	Normal rainfall, August.	Variation from normal.
		Inches.	Inches.	Inches.
Sylhet . .	Sunamganj . .	92·46	49·52	+42·94
	Lalakhal . .	64·81	?	?
Goalpara . .	Kuchugaon . .	50·91	?	?
	Marnai . .	43·93	?	?

In the North-Western Provinces the rains continued with unusual steadiness during the month of August. The rainfall was heaviest during the two periods from the 1st to the 13th and from the 24th to the 28th. As a rule, the falls in 24 hours were not excessive. Large amounts were registered on the 27th in the Budaun, Bareilly, Garhwal and Bijnor districts, of which the following were the most noteworthy :—

District.	Station.	Amount in inches.	Date.
Budaun	Dataganj	7·60	27th.
Bareilly	Mirganj	6·07	27th.
Bijnor	Nagina	6·50	27th.
Garhwal	Kotdwara	13·74	27th.

The total rainfall of the month was in excess over the whole province. At many stations it was more than double the normal amount. The excess was due to steady and almost daily rainfall throughout the month and not to excessive cyclonic downpours, as is shown by the fact that the number of rainy days was as largely in excess relatively to the normal as the rainfall.

The following gives comparative data for the whole province :—

Division.	Number of rainy days.			Rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
N.-W. P. (East)	17·1	12·5	+4·6	14·72	10·73	+3·99
Oudh (South)	18·5	11·9	+6·6	18·60	10·46	+8·14
Do. (North)	18·6	11·7	+6·9	18·68	10·44	+8·24
N.-W. P. (Central)	16·2	11·7	+4·5	13·96	10·28	+3·68
Do. (West)	14·9	10·3	+4·6	13·09	8·66	+4·43
Do. (Sub-montane.)	19·6	12·3	+7·3	20·34	12·87	+7·47

The preceding table shows that the excess was greatest in Oudh, in which it averaged 80 per cent., and in the North-West Provinces Sub-montane, in which it was nearly 60 per cent. The rainfall was most excessive in the districts of Kheri, Hardoi, Meerut, Shahjahanpur, Bijnor, Saharanpur, Bareilly, Ghazipur and Hamirpur.

The following gives comparative data for the plain districts named above :—

District.	Number of rainy days.			Rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Kheri	19·7	10·9	+8·8	25·13	11·48	+13·65
Hardoi	19·0	11·2	+7·8	20·90	10·06	+10·84
Shahjehanpur	18·3	11·0	+7·3	17·08	9·88	+7·20
Bijnor	17·8	11·1	+6·7	20·68	11·92	+8·76
Saharanpur	16·9	10·0	+6·9	15·81	10·65	+5·16
Meerut	16·7	8·7	+8·0	16·76	7·97	+8·79
Bareilly	17·6	11·7	+5·9	16·25	11·01	+5·24
Ghazipur	18·5	12·5	+6·0	20·63	9·74	+10·89
Hamirpur	16·0	11·8	+4·2	17·68	9·42	+8·26

There were very considerable inequalities in the distribution of the rainfall, but it was with very few exceptions, in excess. The most remarkable exception was a local deficiency in the greater part of the district of Bulandshahr. The following gives data for the five rainfall reporting stations in that area :—

Station.	Number of rainy days.			Rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal August.	Variation from normal.
				Inches.	Inches.	Inches.
Sikandrabad	10·0	8·0	+2·0	4·66	7·42	− 2·76
Bulandshahr	19·0	9·6	+9·4	21·88	8·14	+13·74
Anupshahr	11·0	9·7	+1·3	7·80	8·78	− 0·98
Khurja	11·0	7·9	+3·1	5·33	7·21	− 1·88
Dayanatpur	11·0	9·2	+1·8	10·60	6·69	+ 3·91

Sikandrabad is only 20 miles due west of Bulandshahr, yet at the former station the rainfall was little more than half the normal amount, whilst at the latter it was nearly three times the normal. It is a remarkable example of the very great variability of the rainfall, and probably of the importance of small local causes and conditions in affecting the local distribution of rainfall.

The rainfall in the Punjab was exceptional in character. It was marked by occasional excessive local downpours in the driest districts of the province. The period from the 1st to the 16th was one of more or less general and frequent rain throughout the province. Excessive downpours were recorded in the Peshawar district on the 2nd and 3rd (*i.e.*, the 24 hours preceding 8 A.M. of those dates), in the Kohat district on the 3rd and 4th, the Shahpur and Jhelum districts on the 4th and 5th, and the Guzerat and Sialkot districts on the 15th and 16th. The following gives the most noteworthy rainfalls in these districts during these two periods :—

District.	Date.	Station.	Rainfall in inches.
Peshawar	2nd	Mardan	3·91
		Katlong	3·50
	3rd	Katlong	5·50
		Hashtnagar	11·71
		Nowshera	4·35
		Peshawar	3·84
	4th	Peshawar	4·10
Kohat	3rd	Kohat	3·76
		Banda Daud Shah	3·70
	4th	Khushalgarh	7·28
	5th	Kohat	3·61
Shahpur	4th	Sakesar	4·97
	5th	Naushahra	10·40
		Shahpur	3·97
Jhelum	5th	Chakwal	3·00
		Talagang	3·44
Gujrat	15th	Gujrat	5·50
		Lala Musa	8·84
Sialkot	16th	Sialkot	6·40

The excessive character of these downpours is more fully shown by the fact that in the districts of Peshawar, Kohat and Shahpur the average rainfall of the month of August ranges between 1·8 and 4 inches and averages 3 inches.

A partial break set in on the 18th and lasted until the 23rd except in the south-western districts, which received practically no rain from the 16th to the end of the month. The period from the 23rd to the 29th was one of moderate and general rain, more especially in the eastern and south-eastern and the hill districts. Kangra received a heavy burst of rain on the 27th and 28th, and the Gurdaspur, Sialkot, Jhelum, Gujrat and Shahpur districts heavy local rain on the 28th. The following gives a summary of the rainfall data of the province :—

Division.	Average Number of Rainy Days.			Rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Punjab (South) .	9·2	4·3	+4·9	8·09	3·44	+4·65
Do (Central) .	12·4	6·2	+6·2	10·96	5·19	+5·77
Do (Sub-montane)	14·6	8·1	+6·5	14·77	8·33	+6·44
Do (Hill Districts)	20·3	15·3	+5·0	23·54	16·68	+6·86
Do (North-West)	10·0	6·0	+4·0	12·03	5·61	+6·42
Do (West)	5·7	2·7	+3·0	4·94	2·10	+2·84

The preceding table shows that the greater part of the province including the southern, central, north-western and western districts received more than double the normal rainfall of the month.

The following table gives data for the districts in which the rainfall was, relatively to the normal, most excessive :—

District.	Average number of rainy days.			Rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Hissar . .	10·4	5·1	+5·3	10·42	4·05	+6·37
Rohtak . .	14·3	6·5	+7·8	12·79	5·04	+7·75
Lahore . .	9·7	4·2	+5·5	10·23	3·99	+6·24
Karnal . .	12·8	7·0	+5·8	10·19	4·76	+5·43
Gujrat . .	10·7	6·6	+4·1	15·17	6·21	+8·96
Jhelum . .	10·3	5·6	+4·7	11·16	3·92	+7·24
Peshawar .	7·4	2·7	+4·7	11·25	2·75	+8·50
Kohat . .	9·6	4·7	+4·9	11·39	2·90	+8·49
Bannu . .	6·3	2·8	+3·5	5·89	2·21	+3·68
Shahpur . .	6·7	3·5	+3·2	7·78	2·89	+4·89
Jhang . .	7·3	2·6	+4·7	4·63	2·25	+2·38

The distribution of the rainfall was very unequal, as it was characterized by excessive local downpours, and the extraordinary character of the rainfall is shown more clearly by the following comparative data of the stations where the rainfall was most excessive :—

District.	Station.	Normal rainfall, August.	Normal number of rainy days, August.	Normal average rainfall per rainy day in August.	Actual rainfall, August 1892.	Number of rainy days, August 1892.	Average rainfall per rainy day in August 1892.
		Inches.		Inches.	Inches.		Inches.
Gujrat .	Lala Musa .	7·26	8·1	·90	25·23	12	2·10
Jhelum .	Jhelum . .	4·49	6·8	·66	14·56	11	1·32
	Chakwal . .	3·50	5·9	·59	11·15	11	1·01
Peshawar	Nowshera .	2·24	2·9	·77	11·04	8	1·38
	Hashtnagar .	2·04	2·9	·70	16·02	7	2·29
	Peshawar .	1·81	2·2	·82	15·73	6	2·62
	Doaba Dandzai	2·06	2·1	·98	9·48	9	1·05
	Katlang . .	3·05	2·8	1·09	12·51	8	1·56
Kohat .	Kohat . .	2·90	4·7	·62	14·99	10	1·50
Shahpur	Naushahra .	2·88	4·8	·60	16·50	7	2·36
	Sakesar . .	4·30	5·0	·86	14·24	10	1·42
	Bhera . .	3·54	3·7	·96	10·36	9	1·15
Dera-Ghazi Khan.	Sanghar . .	1·48	2·1	·70	6·39	4	1·60

The preceding statement shows fully the character of the rainfall in these areas. Thus at Peshawar the number of rainy days was nearly thrice as numerous as usual, and the average rainfall per diem on the rainy days was 2·62 inches or more than three times the normal fall per rainy day in August at that station (·81 inch). The total rainfall of the month at that station was hence nearly nine times the normal amount. The rainfall at these stations was in almost all cases larger in amount than has been previously recorded in the month of August, as is seen from the following returns :—

District.	Station.	Total rainfall of August 1892.	Highest rainfall previously recorded, August.	Year.
		Inches.	Inches.	
Peshawar .	Peshawar . .	15·73	11·34	1878
	Hashtnagar . .	16·02	6·00	1878
	Nowshera . .	11·04	7·30	1879
Gujrat .	Lala Musa . .	25·23	?	?
Shahpur .	Naushahra . .	16·50	?	?
Kohat .	Kohat . . .	14·99	10·30	1874
	Khushalgarh . .	13·92	?	?
Jhelum .	Jhelum . . .	14·56	14·00	1864

In the eastern and central districts of Rajputana rain fell almost daily from the 1st to the 26th, and in the western districts from the 1st to the 24th. The periods of heaviest and most general rain were from the 1st to the 5th, the 8th to the 11th, the 14th to the 17th, and the 23rd to the 25th. Rainfalls exceeding 4 inches in 24 hours were received at a large number of stations. The most noteworthy heavy falls were the following :—

State.	Station.	Date.	Rainfall in inches.
Jodhpur . .	Pachpadra	5th	6·25
Jeypore . .	Hindown	10th	9·25
	Kotputlee	14th	6·50
Ajmere . .	Bhinae	5th	6·00
	Pisangan	2nd	6·00

The heaviest falls were as a rule received during the first week of the month. The rainfall of the month was abundant and favourably distributed and was largely in excess, more especially in the central and western states. The following gives comparative data for the larger states :—

State.	Rainfall.		
	Actual, August 1892.	Normal, August.	Variation from normal.
	Inches.	Inches.	Inches.
Jodhpur	8·17	4·87	+3·30
Jeypore	15·31	9·44	+5·87
Ajmere-Merwara	10·82	6·75	+4·07
Bhartpur	11·71	8·29	+3·42
Oodeypore	13·89	8·68	+5·21
Ulwar	9·67	10·57	−0·90

British Baluchistan received a heavy burst of rain from the 6th to the 9th. Many stations received upwards of 5 inches during this period. The heavy fall gave rise to floods in the passes which breached the Sind-Pishin Section of the North-Western Railway.

Central India received almost daily rain during the month. There was a short break from the 17th to the 20th in the western districts. The periods of heaviest rainfall were from the 3rd to the 9th and from the 26th to the 29th. The total rainfalls were generally in slight excess, and the rainfall of the whole area differed little from the normal. The following gives mean data for representative stations in the larger divisions :—

District.	Station.	Rainfall.		
		Average actual, August 1892.	Normal August.	Variation from normal.
		Inches.	Inches.	Inches.
Gwalior	Neemuch	11·59	10·97	+0·62
Rewah	Rewah	14·88	15·55	+0·67
	Sutna	11·32	11·82	+0·50
Bundelkhand	Nowgong	12·64	13·70	+1·06
Bhopal	Bhopal	14·86	12·85	+2·01
Indore	Indore	8·08	7·61	+0·47

The Central Provinces had frequent moderate rain throughout the month. As no cyclonic storms passed through that area during the month, there were no heavy downpours, and the rainfall was hence on the whole uniformly and favourably distributed. As it was chiefly due to the Bombay current, and that current was deflected southwards into the Peninsula away from the eastern districts of the Central Provinces during the second fortnight of the month, the rainfall of the month was considerably in defect in the north-eastern districts, more especially in Sambalpur and Balaghat.

It was generally slightly in excess in the central districts and in moderate excess in the western districts. The excess was relatively to the normal greatest in the Nimar district. The following table gives comparative data for the province and for Berar :—

Division.	Average number of rainy days.			Rainfall.		
	Actual, August 1892.	Normal August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Berar	?	?	?	15·35	7·49	+7·86
Central Provinces (West)	16·8	12·8	+4·0	13·13	9·87	+3·26
Central Provinces (Central)	17·7	14·1	+3·6	13·58	12·79	+0·79
Central Provinces (East)	14·6	12·9	+1·7	10·82	12·53	+1·71

The following table gives data of the districts in which the rainfall of the month departed most largely from the normal :—

	Average number of rainy days.			Rainfall.		
	Actual August 1892.	Normal, August.	Variation from normal.	Actual, August 1892.	Normal, August.	Variation from normal.
				Inches.	Inches.	Inches.
Nimar	18·5	10·4	+8·1	14·38	7·13	+7·25
Nagpur	13·3	11·7	+1·6	16·55	9·72	+6·83
Saugor	15·5	12·7	+2·8	9·60	11·88	−2·28
Raipur	13·3	11·9	+1·4	9·90	10·14	−0·24
Sambulpur	14·5	15·1	−0·6	8·53	15·04	−6·51
Balaghat	15·3	17·6	−2·3	9·28	16·61	−7·33

In the Konkan division of the Bombay Presidency rain fell steadily throught the month. The average number of rainy days during the month was 27·7 or 3·9 days above the normal average. The daily falls were generally moderate in amount. The 9th, 10th, 11th, 27th, 28th, 29th, and 30th, were days of heavy general rain in the Konkan and West Ghâts. The following falls exceeding 7 inches were recorded during the month in these two divisions :—

District.	Station.	Date.	Amount.
			Inches.
Savantvadi	Savantvadi	9th	8·32
Ratnagiri	Mandangad	10 th	9·00
	Khed	11 th	8·48
Thana	Bhiwndi	11th	9·09
Savantvadi	Savantvadi	28th	7·80
	Kudal	28th	7·65
Kolaba	Roha	29th	8·10
Ratnagiri	Ratnagiri	30th	7·02

The total rainfall of the month was largely in excess in all the districts of the Konkan. The excess averaged 18·68 inches or 78 per cent. of the normal fall.

The Deccan districts (*viz.*, Dharwar, Bijapur, Belgaum, Satara, Sholapur and Poona) received frequent showers from the 1st to the 26th and a heavy and general burst of rain from the 26th to the end of the month. The rainfall of the month was somewhat irregularly distributed, but was generally in excess, and was on the average of all the stations in excess in each district. The excess averaged 24 per cent. for the whole division.

The Khandesh division received frequent showers. There was a partial break from the 20th to the 24th, but with this exception light to moderate rain fell almost daily and the total amounts were in excess almost without exception. The excess was most marked at Malegaon, which received 10·44 inches, the normal fall of this month being 4·09 inches

Guzerat also obtained frequent rain. The chief periods of fine weather with little or no rain were from the 6th to the 10th and on the 27th and 28th. The rainfall was heavier than usual as the number of rainy days was 26 per cent. above the normal while the average rainfall of the month was 54 per cent. in excess. In Kathiawar the chief periods of rainfall were from the 10th to the 19th and the 28th to the 31st. The rainfall of that area was 27 per cent. above the normal rainfall of the month.

Sind obtained a heavy and general burst of rain from the 5th to the 8th. Some very heavy downpours were received, amongst which the following were the more remarkable :—

District.	Station.	Date.	Amount.
			Inches.
Karachi	Sehwan . .	5th	3·64
		6th	10·12
Hyderabad . . .	Hala . . .	7th	3·24

The rainfall of the month was hence more or less considerably in excess. Sehwan received a total of 14·38 inches, upwards of six times its normal amount (2·36 inches). The average actual rainfall of the whole division was 4·3 inches, 2·36 inches in excess of the normal.

The following gives comparative statement of the rainfall data of the Bombay Presidency :—

Division.	Number of rainy days.			Rainfall.		
	Average actual number of rainy days.	Variation from normal.	Percentage variation from normal.	Average actual.	Variation from normal.	Percentage variation from normal.
				Inches.	Inches.	
Konkan . .	27·7	+ 3·9	+ 16	42·64	+ 18·68	+ 78
Bombay, Deccan	12·3	+ 2·4	+ 25	7·53	+ 1·45	+ 24
Khandesh . .	13·1	+ 4·5	+ 52	8·08	+ 2·09	+ 35
Guzerat . .	17·2	+ 3·6	+ 27	14·26	+ 4·98	+ 54
Kathiawar .	11·9	+ 4·5	+ 61	7·95	+ 1·67	+ 27
Sind . .	3·0	?	?	4·30	+ 2·36	+ 122

The rainfall of the month in Madras was unusually abundant and favourably distributed. The Malabar Coast districts received steady daily rainfall throughout the month.

In the eastern and central districts the chief periods of general rain were as follows :—

1st.—From the 1st to the 3rd.—This was confined to the north coast districts or to Ganjam and the Circars.

2nd.—From the 5th to the 16th.—Frequent rain fell in all districts except Ganjam and Tinnevelly, where only a few light occasional showers were received. The rainfall was heavy and general from the 6th to the 9th in the Coromandel Coast districts from Godavari to Tanjore and in the Cuddapah district.

3rd.—From the 21st to the end of the month.—The rainfall during this period was almost as general as in the previous burst, and extended over the whole Presidency with the exception of Madura and Tinnevelly in the south. The rainfall was heaviest and most general in the northern districts on the 30th and 31st and in the central districts on the 24th and 25th. The most important feature of this burst was the very frequent and heavy rain received by the Nellore, Kurnool, Bellary and Cuddapah districts.

The rainfall of the month was in excess in all districts except Vizagapatam and Tinnevelly, where there was a small deficiency. The excess was due to more frequent rainfall than usual and not to occasional heavy downpours. This is shewn by the fact that the number of rainy days was as largely in excess as the rainfall, and also by the fact that rainfalls exceeding 5 inches were registered in six cases only during the month throughout the Presidency. The following gives these cases :—

District.	Station.	Rainfall in inches.	Date.
Vizagapatam . .	Waltair . . .	5·29	1st.
Kistna . . .	Masulipatam . .	5·10	17th.
Chingleput . .	Poonamallee . .	5·15	26th.
Malabar . . .	Tellicherry . .	5·70	23rd.
South Canara .	Hosdrug . . .	7·00	22nd.
Salem . . .	Krishnagiri . .	5·90	13th.

The following table is a summary of the rainfall data as

published in the provincial rainfall statement of the month :—

District.	Number of rainy days.			Rainfall.		
	Average actual, August 1892.	Variation from normal.	Percentage variation.	Average actual, August 1892.	Variatiob from normal.	Percentage variation.
				Inches.	Inches.	
Ganjam	12·9	+1·9	+ 17	8·49	+ 0·83	+ 11
Vizagapatam	12·7	+0·2	+ 2	8·64	— 0·41	— 5
Godavari	13·6	+5·4	+ 66	9·85	+ 4·06	+ 70
Kistna	12·1	+3·5	+ 41	9·71	+ 3·87	+ 66
Nellore	11·0	+5·8	+112	7·60	+ 4·54	+148
Chingleput	14·1	+5·8	+ 70	11·43	+ 6·37	+126
North Arcot	12·7	+5·1	+ 67	9·41	+ 4·03	+ 75
South Arcot	12·0	+3·8	+ 46	8·11	+ 2·07	+ 34
Tanjore	12·2	+5·6	+ 85	8·10	+ 3·49	+ 76
Trichinopoly	9·1	+3·2	+ 54	6·84	+ 2·50	+ 58
Madura	6·0	+1·7	+ 40	3·76	+ 1·01	+ 37
Tinnevelly	1·6	—0·4	— 20	0·88	— 0·12	— 12
Malabar	26·3	+6·7	+ 34	21·45	+ 5·11	+ 31
South Canara	30·7	+5·9	+ 24	39·69	+14·25	+ 56
Salem	11·7	+4·8	+ 70	8·14	+ 3·56	+ 78
Coimbatore	6·9	+2·9	+ 73	3·93	+ 1·74	+ 79
Nilgiris	17·2	+2·7	+ 19	9·57	+0·47	+ 5
Cuddapah	13·5	+6·8	+101	8·93	+4·56	+104
Anantapur	10·8	+5·1	+ 89	6·51	+2·53	+ 64
Bellary	12·2	+5·6	+ 85	7·99	+4·34	+119
Kurnool	14·6	+7·0	+ 92	9·37	+3·99	+ 74

The statement shows that the rains were especially abundant in the Malabar coast districts and in the central districts. The rainfall was more than double the normal of the month in the Nellore, Chingleput, Cuddapah and Bellary districts, or in those districts which had suffered most severely from drought in the previous year. The excess diminished in amount both to the north and south, and the rainfall was practically normal in amount in the most northerly and most southerly districts.

APPENDIX A.

The following interesting account of the floods in the Punjab and Sind and of the damage caused by them to the North-Western Railway in July and August 1892, is extracted from a report submitted to the Director General of Railways by the Manager of the North-Western Railway :—

Mooltan Section.

"(i) The first serious damage to the main line occurred on 29th July. Eleven inches of rain had fallen in 60 hours near Mooltan. The local rainfall headed up against the railway embankment, and forced its way through in breaches, aggregating 1,015 feet in length, between Channu and Kassowal. Notwithstanding difficulties in procuring spoil to make up the banks, and frequent rain which retarded the progress of the repairs, the line was restored on the 6th August. On the 13th August, however, fresh rain storms again flooded the country round Mooltan, and a new breach of 120 feet occurred between Channu and Kassowal. The flood poured through this gap with such velocity that it was impossible to close it with stone or gunny bags full of earth, and a temporary bridge of 2 spans of 10 feet was accordingly put in which enabled traffic to be passed over on the 16th August.

Peshawar Section.

"(ii) Meanwhile, on the 3rd August breaches aggregating 3,773 feet, and extending over 30 miles of line, occurred between Khairabad and Peshawar. The hill streams from the range to the south of the railway, swollen by an unprecedented rainfall, burst through the line with a velocity, it is said, of 30 miles an hour, and scoured out numerous breaches in the embankment, besides washing away a bridge of two 10-foot spans, damaging many protection bunds, and sweeping away bodily 400 feet of permanent-way, which were discovered subsequently a quarter of a mile from the line with the rails twisted up and distorted.

"Here also the work of restoring the line was delayed by heavy rain, which on the 8th August swept away a temporary bridge which had been constructed, but despite of these unfavourable conditions, through communication was re-established on the 11th August.

Kurrachee Section.

"(iii). Shortly after the Peshawar Section had suffered so severely, communication was interrupted between Lahore and Kurrachee by a failure of the line on the 6th August near the Laki Pass. So early as the 13th July the washing away of a bridge of two 12 feet arches near Ranpethani had blocked the Kurrachee section for three days, and an interruption again occurred here for two days on the 26th July, when the temporary bridge which replaced the permanent structure, was washed away again by the heavy rain which closed the Hyderabad-Umarkot Branch.

"On the 6th August this section was more seriously damaged. On this occasion the local rainfall reduced 50 miles of the road from Manjhand to Bhubak Road to a precarious condition owing to soft banks and eroded side slopes, whilst simultaneously the hill streams from the Laki hills caused a landslip in the Laki Pass itself, and swept through the line between Sann and Laki, a distance of 30 miles, the breaches aggregating 1,880 feet in length. Train loads of stone were pitched into these breaches as soon as the first violence of the rush began to subside, and the road was rendered passable again by the 16th August.

"No sooner had through communication been thus re-established here on the 16th August, than, owing to the highest flood that has been recorded in the Indus River, the Magsie and Nangeshah bunds gave way, and the Pritchard canal and the Youngwah burst their banks. The country was inundated for miles and the flood heading up against the railway embankment between Phulji and Radhan, broke through the line on the 17th August and formed two gaps, each 150 feet long, at mile 247 near Radhan. Stone trains were fortunately in readiness at Sukkur and near the Laki Pass, and were at once despatched to these breaks in the road, but no sooner had one gap been filled up with stone, than two fresh breaches were formed on the 19th near Radhan, whilst on the 18th another breach of 300 feet had appeared near Sita. Temporary waterway therefore was given to the banks which had just been filled up near Radhan by putting in 20 foot girders in the stone filling, whilst at the other breaches stone diversions were put in, with similar waterway, downstream of the line, with the object of diverting the current from the breaches by cutting the bank near the diversion and enabling the breaches themselves, thus relieved of the main force of the current, to be made up with stone. The velocity of the flood did not sub-

side until the 24th August, but owing to the temporary waterway afforded by these measures, the line was made good on the 30th August.

"(iv) Whilst traffic from Lahore to Kurrachee was thus closed from the 6th to the 30th August, the line towards Peshawar was again interrupted on the 16th August by breaches between Wazirabad and Kathala. Owing to heavy rain the Chenab river rose 2 feet above its highest recorded flood level, broke through its protective bunds at Laverenwala and Haripur, and overflowing into the Pulku Nulla made a large breach, 200 feet long and 30 feet deep, behind the western abutment of the Pulku bridge. It was only the timely precautions taken that prevented a bad accident here. The rain was pouring in torrents, and the Assistant Engineer of the Sub-division trollied in front of the mail, and finding the Pulku Nulla in flood, and the Kathala yard flooded, instructed the driver of the mail to proceed very cautiously over the Palku bridge. The driver accordingly halted his train before entering on the bridge and examined the bank on the further side, and thinking all safe, moved his train slowly over the bridge. No sooner had he left the bridge than a wall of water came down the nulla, and he suddenly found himself struggling in the flood, his engine having sunk into the bank, followed by the leading brake-van and a third class carriage, fortunately empty. The rest of the train remained on the bridge, and after a few minutes of anxious expectation an engine from Wazirabad hauled it safely back into the station which it had just left. The driver and khalasi of the engine struggled back on to the bank safely, but the fireman was unfortunately drowned. This was the only casualty in what might have constituted a very serious accident. The wall of water seen by the driver was probably due to the sudden bursting of the Haripur bund which had held up a flood 7 feet deep.

Wazirabad to Kathala.

"Besides scouring out this big hole 200′ × 30′ behind the Palku abutment, the Chenab spill breached the embankment in two places within a mile, and in the direction of Kathala, the gaps aggregating 220 feet and being 10 feet deep.

"These latter breaches were filled up with gunny bags and stone in three days, but it was not until the 7th September that the big gap in the Palku Nulla was tided over, partly by filling up with stone and gunny bags, and partly by a pile bridge, consisting of 2 spans of 30 feet and 1 span of 20 feet, this being adopted to avoid burying, beyond all hope of recovery, the engine which had been engulphed by the floods.

"(v). It had always been hoped that the Sind-Sagar line would afford an alternative route in case of the main line being blocked. Unfortunately, however, it shared the fate of the main line, and itself remained blocked from the 5th August to the 11th September, the damages on the different sections being as follows:—

Sind-Sagar Section.

"(a). *Lala Musa to Khushab.*—The Sind-Sagar line from Golpur to Khushab had 1,915 feet of embankment carried away by local rainfall on the 27th July. On the 6th August a fresh flood damaged the works in progress, and formed a new breach of 300 feet near Khushab, besides washing out the pier of a bridge near Lilla. On the 14th August the bank between Dinga and Jaurah was washed away, and it was not until the 20th August that this section was passable.

"(b) *Wanbhachran to Hadali.*—On the 5th August the mountain streams from the Sukaisar hills breached the line for 2,293 feet between Wanbhachran and Hadali. Traffic was resumed in 8 days.

"(c) *Mari Branch.*—On the same day (the 5th August) the mountain torrents from the Sukaisar hills breached the Mari Branch between miles 800 and 815. The breaches totalled 4,365 lineal feet and were not repaired till the 17th September.

"(d) *Chenab West Bank to Muzaffargarh.*—The section between Chenab West Bank and Muzaffargarh also suffered heavily. There had been a slight breach here on the 8th August, and on the 18th of the same month there was an abnormal flood in the Chenab river which scoured out a breach, 126 feet long and 18 feet deep, behind the abutments of a bridge at mile 610, two miles from the Chenab bridge at Sher Shah. On the 19th August breaches occurred at mile 611 of 225 feet, and of 30 feet at mile 612. The velocity of the current flowing through these gaps much impeded the work of restoration, which was not completed for 24 days.

"(vi) The Sind-Pishin Section was also subjected to heavy rainfall and floods, but withstood these very well, only two interruptions of any note having taken place on the 31st July and the 6th August, when a cutting near Dalujal fell in and traffic was stopped for 6 and 3 days respectively.

Sind-Pishin Section.

"(vii) The Hyderabad-Umarkot branch fared very badly in this heavy weather. This line was opened on the 26th July, and one train managed to get through from one end of the line to the other. Heavy rain then fell, and the unballasted banks became incapable of carrying traffic for 23 days. After re-opening from the 18th to the 26th August, a high flood in the Indus breached the line between Gidu Bandar and Hyderabad, and traffic could not be resumed till the 11th September."

Hyderabad-Umarkot branch.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 176 stations in India during the month of August 1892.

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 utilised 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 95 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.

Table

Abstract of Observations taken at 8 A.M. at 176

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.
I.—Burma Coast and Bay Islands.		...	...	+·019	...	...	...	...	...	...	...	85·4	+0·9	74·6	0	80·0	+0·5	10·8	...	...	...	...	18·3
Bay Islands	Port Blair	61	29·769	?	29·761	29·837	10th	29·654	23rd	·183	80·0	85·5	?	76·6	?	81·1	?	8·9	88·8	20th	73·7	5th	15·1
	Camorta	...	29·869	?	...	·938	4th	29·763	23rd	·175	79·6	84·6	?	75·5	?	80·1	?	9·1	87·1	20th	72·8	4th & 5th	14·3
Tenasserim	Mergui	96	29·777	?	29·805	29·850	2nd	29·690	20th	·160	78·0	86·1	?	67·1	?	76·6	?	19·0	90·6	23rd	64·7	4th & 5th	25·9
	Tavoy	26	29·871	?	29·828	29·939	2nd	29·775	20th	·164	77·4	85·1	?	73·6	?	79·4	?	11·5	90·2	24th	71·2	5th	19·0
	Moulmein	94	29·765	+·011	29·797	29·829	5th	29·670	20th	·159	78·0	85·3	+2·2	75·2	+1·4	80·2	+1·8	10·1	89·5	24th & 27th.	72·8	4th	16·7
	Tounghoo	181	29·638	+·022	29·763	29·714	5th & 7th.	29·543	20th	·171	78·8	87·5	+1·3	75·0	+0·1	81·2	+0·7	12·5	92·7	11th	72·7	22nd	20·0
Lower Burma	Rangoon	41	29·799	+·012	29·777	29·863	8th	29·703	20th	·160	77·8	84·7	0	75·4	−0·4	80·0	−0·2	9·3	88·7	19th	67·8	21st	20·9
	Bassein	27	29·811	+·020	29·774	29·892	5th	29·720	20th	·172	78·6	86·0	+1·7	75·3	−0·4	80·6	+0·7	10·7	89·7	10th	72·9	4th & 31st	16·8
	Diamond Island.	41	29·791	+·010	29·767	29·871	10th	29·699	20th	·172	81·1	84·6	+0·2	76·5	+1·0	80·7	+0·6	8·1	87·4	9th	72·4	1st & 5th	15·0
Arakan	Akyab	20	29·780	+·038	29·743	29·861	7th & 9th.	29·677	20th	·184	78·5	84·2	0	75·5	−1·6	79·9	−0·8	8·7	89·2	15th	74·2	4 days	15·0
II.—Burma, Inland		...	...	+·034	...	...	...	...	...	...	...	88·8	−0·3	74·7	−0·4	82·1	−0·4	14·7	...	...	...	...	22·6
Central Burma	Thayetmyo	134	29·675	+·034	29·751	29·752	5th	29·564	20th	·188	79·7	88·5	−0·3	75·7	−0·4	82·1	−0·4	12·8	92·7	15th	73·9	23rd & 24th.	18·8
Upper Burma	Mandalay	?	29·532	?	?	29·612	10th	29·438	20th	·174	81·4	92·8	?	74·4	?	83·7	?	18·4	98·0	17th	71·2	24th	26·8
	Kendat	?	29·359	?	?	29·469	10th	29·263	20th	·206	79·6	87·0	?	...	...	...	...	...	91·8	21st & 22nd.	...	...	?
	Bhamo	?	29·386	?	?	29·481	10th	29·334	2nd	·147	77·7	86·9	?	74·1	?	80·5	?	12·8	93·6	16th	71·3	13th	22·3
III.—Assam		...	...	+·031	...	...	...	...	...	...	...	86·7	−2·0	77·0	−0·5	81·9	−1·2	9·7	...	...	...	...	16·6
Assam (Surma)	Silchar	104	29·661	+·045	29·717	29·753	10th	29·556	2nd	·197	79·2	87·1	−2·1	76·1	−0·5	81·6	−1·3	11·0	93·0	16th	74·3	10th	18·7
Brahmaputra	Sibsagar	333	29·383	0	29·670	29·458	10th	29·293	2nd	·165	79·9	87·9	−2·1	77·8	+0·1	82·9	−1·0	10·1	93·1	22nd	76·0	2 days	17·1
	Dhubri	115	29·613	+·049	29·681	29·700	10th	29·499	2nd	·201	79·3	85·1	−1·7	77·2	−1·0	81·1	−1·4	7·9	88·7	5th	74·8	4 days	13·9
IV.—Bengal and Orissa		...	...	+·057	...	...	...	...	...	...	...	87·0	+0·2	77·3	−0·1	82·2	0	·7	...	...	...	...	16·4
East Bengal	Chittagong	87	29·693	+·056	29·727	29·781	10th	29·594	20th	·187	79·7	84·9	−0·1	75·8	−0·3	80·4	−0·2	9·1	89·7	15th	73·1	23rd	16·6
	Lungleh	?	...	?	?	?	...	?	...	?	67·6	68·9	?	65·6	?	67·2	?	3·3	73·9	20th	63·4	6th	10·5
	Noakhali	43	29·707	?	29·697	29·800	10th	29·563	2nd	·237	79·9	84·2	?	76·4	?	80·3	?	7·8	89·5	16th	73·8	23rd	15·7
	Comilla	35	29·719	?	29·702	29·808	10th	29·579	2nd	·229	79·8	86·3	?	76·1	?	81·2	?	10·2	91·8	16th	74·8	7 days	17·0
	Sirajganj	46	29·671	?	29·667	29·766	10th	29·527	2nd	·239	81·1	86·4	?	78·3	?	82·4	?	8·1	89·1	15th	73·7	13th	15·4
	Dacca	22	29·709	+·052	29·679	29·795	10th	29·552	2nd	·243	81·6	87·9	+0·3	79·0	+0·1	83·4	+0·2	8·9	91·1	21st	74·7	13th	16·4
	Barisal	13	29·726	+·074	29·684	29·820	10th	29·578	2nd	·242	81·4	86·7	?	77·3	?	82·0	?	9·4	92·3	16th	74·9	2 days	17·4
	Mymensingh	63	29·671	+·039	29·685	29·745	11th	29·541	2nd	·204	77·4	85·6	?	77·3	?	81·5	?	8·3	89·7	15th	74·1	13th	15·6
Deltaic Bengal	Faridpur	46	29·696	?	29·689	29·785	10th	29·530	2nd	·255	81·9	86·7	?	78·2	?	82·5	?	8·5	89·0	20th	73·4	13th	15·6
	Jessore	33	29·682	+·053	29·662	29·769	10th	29·525	2nd	·244	82·2	88·9	+0·3	78·0	−0·7	83·5	−0·2	10·9	91·7	19th	75·9	14th	15·2
	Calcutta	21	29·688	+·062	29·655	29·786	10th	29·562	2nd	·224	81·1	86·8	−0·3	77·4	−0·7	82·1	−0·5	9·4	91·1	15th	74·7	23rd	16·4
	Saugor Island	25	29·683	+·057	29·652	29·789	10th	29·567	3rd	·222	82·3	87·3	+0·2	79·6	0	83·5	+0·1	8·1	90·7	2 days	76·0	20th	14·7
	Krishnagar	47	29·658	?	29·653	29·754	10th	29·511	2nd	·243	82·1	89·2	?	77·9	?	83·6	?	11·3	92·3	15th, 29th & 30th.	76·2	4th & 16th	16·1
	Midnapore	149	29·555	?	29·650	29·645	10th	29·438	3rd	·207	81·9	89·2	?	77·5	?	83·3	?	11·7	94·3	19th	75·1	2nd, 13th & 24th.	19·2
Central Bengal	Bankura	298	29·372	?	29·621	29·455	10th	29·251	3rd	·204	81·0	89·7	?	77·8	?	83·7	?	11·9	93·6	19th	75·6	3rd	18·0
	Raniganj	345	*29·364	?	*29·658	29·452	10th	29·236	2nd & 3rd.	·216	80·5	89·6	?	77·7	?	83·7	?	11·9	93·0	20th	74·9	3rd	18·1
	Burdwan	99	29·612	+·064	29·657	29·697	9th	29·481	2nd	·216	81·5	89·7	+0·6	78·8	−0·1	84·2	+0·3	10·9	93·1	30th	76·9	2 days	16·2

I.

Stations in India, Burma, etc., in August 1892.

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 1892.	Normal rainfall for period 1st June to 31st August 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18·43	28·29	−9·36	...	...	...	**I.—Burma Coast and Bay Islands.**	
4	...	1	...	2	7	9	7	1	8	10	− 20	89	·911	7·4	19	?	?	11·34	15·20	− 5·11	34·26	49·97	−15·71	Port Blair .	Bay Islands.
7	...	...	...	...	14	9	1	...	3	?	?	87	·879	10·0	19	?	?	12·73	?	?	?	?	?	Camorta.	
...	3	1	...	...	5	8	4	10	2	2	0	90	·886	8·1	17	?	?	13·54	28·85	−15·31	64·51	92·28	−27·77	Mergui .	Tenasserim.
29	...	...	...	...	1	1	...	...	1	?	?	91	·863	6·1	22	?	?	24·65	42·91	−18·26	92·49	129·46	−36·97	Tavoy.	
2	...	4	2	7	10	2	1	3	3	3	0	92	·880	5·7	21	26·18	−5·18	27·31	40·37	−13·06	91·67	124·46	−32·79	Moulmein.	
4	...	...	...	18	9	...	...	...	3	4	− 25	92	·905	8·8	18	23·91	−5·91	12·73	20·11	− 7·38	50·97	53·71	− 2·74	Tounghoo.	
...	...	1	1	2	7	11	7	2	4	5	− 20	95	·907	8·9	20	22·73	−2·73	18·76	18·61	+ 0·15	56·64	58·65	− 2·01	Rangoon .	Lower Burma.
4	1	1	...	8	12	2	1	2	4	3	+ 33	93	·918	7·2	23	25·27	−2·27	17·39	23·07	− 5·68	64·09	69·75	− 5·66	Bassein.	
...	...	2	...	7	8	11	1	2	8	7	+ 14	83	·877	8·2	18	22·10	−4·10	15·38	22·00	− 6·62	58·54	71·44	−12·90	Diamond Island.	
...	3	6	9	5	6	1	1	...	3	3	0	94	·914	9·3	24	26·09	−2·09	30·49	43·53	−13·04	127·94	136·52	− 8·58	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·70	11·19	+ 0·50	...	...	...	**II.—Burma, Inland.**	
...	...	...	...	14	15	2	...	...	8	6	+ 33	87	·872	7·7	13	12·36	+0·64	8·53	7·41	+ 1·12	24·54	21·32	+ 3·22	Thayetmyo .	Central Burma.
...	1	...	...	7	17	6	...	...	8	?	?	77	·826	7·7	6	?	?	2·04	5·00	− 2·96	11·66	15·55	− 3·89	Mandalay .	Upper Burma.
24	...	1	...	...	2	2	2	...	0	?	?	83	·837	8·7	17	?	?	16·87	17·05	− 0·18	36·14	39·84	− 3·70	Kendat.	
4	...	4	1	1	...	20	...	1	...	?	?	91	·864	8·9	23	?	?	19·34	15·31	+ 4·03	43·50	50·95	− 7·45	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23·78	16·02	+ 7·76	...	...	...	**III.—Assam.**	
29	...	...	...	1	...	...	1	...	1	3	− 67	92	·919	9·4	27	22·00	+5·00	23·68	20·36	+ 3·32	67·67	59·77	+ 7·90	Silchar .	Assam (Surma).
...	...	3	5	3	3	17	...	...	2	3	− 33	94	·961	9·5	26	16·91	+9·09	24·55	14·15	+10·40	41·65	42·73	− 1·08	Sibsagar .	Brahmaputra.
4	...	2	2	1	7	15	...	...	4	3	+ 33	92	·920	8·6	18	13·50	+4·50	23·11	13·55	+ 9·56	78·07	48·84	+29·23	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·74	13·94	− 3·34	...	...	...	**IV.—Bengal and Orissa.**	
5	...	1	4	13	8	...	...	...	5	6	− 17	88	·894	9·8	14	17·27	−3·27	7·06	18·52	−11·46	27·40	62·38	−34·98	Chittagong .	East Bengal.
...	...	...	...	...	...	...	...	...	?	?	?	92	·629	?	24	?	?	14·68	?	?	60·01	?	?	Lungleh.	
2	...	...	12	10	4	2	1	...	6	?	?	90	...	4·6	21	22·15	−1·15	19·74	25·33	− 5·59	68·64	75·37	− 6·73	Noakhali.	
...	...	...	1	26	4	...	...	...	3	?	?	89	...	5·6	13	18·06	−5·06	6·68	17·65	−10·97	37·53	53·76	−16·23	Comilla.	
...	...	1	1	8	17	2	1	1	4	?	?	90	...	7·8	13	13·20	−0·20	10·93	11·23	− 0·30	40·51	33·60	+ 6·91	Sirajganj.	
1	...	...	3		16	6	...	...	8	6	+ 33	89	·956	7·3	8	17·36	−9·36	4·80	12·31	− 7·51	19·21	37·19	−17·98	Dacca.	
17	...	...	...	4	7	3	...	...	4	?	?	87	·934	9·5	18	19·15	−1·15	9·71	12·58	− 2·87	34·99	44·62	− 9·63	Barisal.	
...	...	...	6	13	7	2	...	...	5	?	?	92	·938	8·0	20	19·20	+0·80	11·89	13·95	− 2·06	40·27	46·99	− 6·72	Mymensingh.	
5	...	...	...	6	17	2	1	...	5	?	?	87	...	5·4	13	15·95	−2·95	9·58	12·57	− 2·99	30·09	36·91	− 6·82	Faridpur .	Deltaic Bengal.
4	...	...	1	11	11	3	1	...	4	4	0	89	·983	8·3	11	18·18	−7·18	4·61	11·51	− 6·90	23·60	35·75	−12·15	Jessore.	
...	...	...	1	7	14	8	1	...	4	5	− 20	88	·940	8·0	15	18·91	−3·91	8·86	14·45	− 5·59	27·99	36·51	− 8·52	Calcutta.	
...	...	1	1	4	15	8	2	...	15	12	+ 25	87	·970	8·5	14	17·82	−3·82	10·31	18·10	− 7·79	34·46	44·39	− 9·93	Saugor Island.	
1	...	...	4	10	14	2	...	...	6	?	?	85	...	7·3	7	14·40	−7·40	3·38	11·23	− 7·85	18·27	30·18	−11·91	Krishnagar.	
1	1	1	2	6	19	1	...	...	10	?	?	86	...	4·4	11	16·35	−5·35	5·02	12·53	− 7·51	18·72	33·89	−15·17	Midnapore.	
7	1	...	1	5	15	1	1	...	4	?	?	88	...	7·5	7	17·70	−10·70	3·88	14·35	−10·47	23·24	36·17	−12·93	Bankura .	Central Bengal.
3	1	2	1	8	8	8	...	...	2	?	?	90	...	5·1	9	16·85	−7·85	7·54	13·60	− 6·06	29·47	35·70	− 6·23	Raniganj.	
2	...	...	3	8	9	8	1	...	5	4	+ 25	84	·905	8·0	4	18·09	−14·09	3·48	13·36	− 9·88	22·15	33·11	−10·96	Burdwan.	

Table

Abstract of Observations taken at 8 A.M. at 176 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	29·186	?	29·631	29·260	10th	29·051	3rd	·209	80·3	88·1	?	76·9	?	82·6	?	11·2	91·6	19th & 20th.	74·3	28th	17·3
	Berhampore	67	29·636	+·050	29·651	29·718	10th	29·503	3rd	·215	80·2	88·5	0	78·5	0	83·5	0	10·0	91·1	2 days	75·8	13th	15·3
	Rampur Boalia.	70	29·635	?	29·654	29·730	10th	29·497	2nd	·233	82·4	87·3	?	78·2	?	82·8	?	9·1	89·8	4 dates	76·6	3 dates	13·2
	Malda	80	29·620	?	29·651	29·692	8th	29·488	3rd	·204	82·3	89·8	?	78·4	?	84·1	?	11·4	93·8	22nd	75·3	13th	18·5
	Bogra	61	29·643	+·072	29·656	29·739	10th	29·511	2nd	·228	81·4	87·4	?	77·7	?	82·6	?	9·7	90·3	5 days	74·2	13th	16·1
North Bengal	Dinajpur	118	29·582	+·057	29·652	29·670	10th	29·462	3rd	·208	80·0	87·3	?	77·2	?	82·3	?	10·1	92·1	22nd	74·2	13th	17·9
	Rangpur	123	29·602	?	29·679	29·680	10th	29·491	2nd	·189	80·3	87·4	?	77·1	?	82·3	?	10·3	89·8	3 dates	74·2	27th	15·6
	Jalpaiguri	284	29·435	+·060	29·672	29·519	7th	29·336	2nd	·183	78·9	86·5	?	75·7	?	81·1	?	10·8	91·4	22nd	73·6	11th	17·8
Orissa	Balasore	56	29·644	+·057	29·647	29·745	10th	29·531	2nd	·214	81·9	88·0	?	77·4	?	82·8	?	10·6	92·4	2 days	74·8	6th	17·6
	False Point	21	29·690	+·052	29·653	29·794	10th	29·576	31st	·218	82·9	87·1	+0·1	78·6	+0·4	82·9	+0·3	8·5	91·0	19th	74·1	2 days	16·9
	Cuttack	80	29·623	+·050	29·645	29·721	10th	29·499	31st	·222	82·8	89·8	+0·4	78·2	0	84·0	+0·2	11·6	94·4	14th	74·8	4th	19·6
	Puri	9	29·688	?	29·637	29·793	10th	29·564	31st	·229	82·7	88·4*	?	79·7	?	84·0*	?	8·7	91·2	16th	75·1	5th	16·1
V.—Gangetic Plain and Chota Nagpur.		...	...	+·029	...	...	...	...	...	...	...	88·0	−1·4	77·1	−0·9	82·6	−1·2	11·0	...	...	...	...	19·1
Chota Nagpur	Hazaribagh	2,007	27·683	+·039	29·623	27·758	10th	27·580	2nd	·178	76·7	85·0	+1·4	73·0	+0·1	79·1	+0·8	12·0	88·7	20th	71·3	4 days	17·4
	Ranchi	2,128	27·564	?	29·621	27·648	10 h	27·457	3rd	·191	75·7	84·2	?	72·3	?	78·3	?	11·9	88·5	19th	70·4	4th, 5th 11th & 14th.	18·1
	Chaibassa	760	28·903	+·038	29·606	28·983	10th	28·796	3rd	·187	80·5	89·9	?	76·3	?	83·1	?	13·6	93·4	29th	72·7	19th	20·7
Bihar (South)	Gaya	375	29·280	+·028	29·607	29·360	10th	29·167	4th	·193	81·6	89·5	−0·6	78·2	−0·3	83·9	−0·5	11·3	93·4	1st	73·8	10th	19·6
	Dehri	351	29·302	?	29·605	29·421	13th	29·182	2nd	·239	81·3	88·3	?	77·5	?	82·9	?	10·8	93·3	2nd	73·5	16th	19·8
	Patna	183	29·435	+·030	29·619	29·568	10th	29·359	3rd	·209	81·5	86·7	−2·7	78·3	−1·2	82·4	−2·0	8·4	91·2	23rd	73·2	10th	18·0
	Arrah	190	29·463	?	29·604	29·545	15th	29·338	3rd	·207	81·6	89·3	?	78·7	?	84·0	?	10·6	93·9	1st	74·5	10th & 27th.	19·4
	Buxar	239	29·427	?	29·620	29·507	15th	29·319	2nd	·188	81·3	87·8	?	77·2	?	82·5	?	10·6	93·9	1st	73·8	26th & 27th.	20·1
Bihar (North)	Purnea	125	29·577	+·056	29·656	29·664	13th	29·463	3rd	·201	79·8	87·5	−1·8	76·2	−1·8	81·9	−1·8	11·3	91·2	22nd	72·2	27th	19·0
	Bhagalpur	160	29·517	?	29·630	29·604	10th	29·384	3rd	·220	81·4	88·4	?	77·5	?	83·0	?	10·9	92·2	18th	73·5	13th	18·7
	Darbhanga	166	29·521	+·041	29·640	29·602	10th	29·405	3rd	·197	80·5	87·5	−1·0	77·8	−1·4	82·6	−1·2	9·7	91·0	22nd	74·0	15th	17·0
	Muzaffarpur	178	29·500	?	29·631	29·581	15th	29·386	3rd	·195	79·7	88·6	?	77·6	?	83·1	?	11·0	92·7	22nd	73·2	10th	19·5
	Motihari	224	29·436*	?	29·617*	29·511	16th	29·328	3rd	·183	*80·4	88·9	?	77·1	?	83·1	?	11·8	92·2	21st, 22nd 23rd, & 31st	73·8	10th, 15th, & 27th.	18·4
	Chapra	181	29·[illegible]49	?	29·612	29·561	15th	29·358	3rd	·203	81·3	88·7	?	77·9	?	83·3	?	10·8	92·8	1st & 22nd	69·6	13th	23·2
N.-W. P. (Eastern Districts).	Benares	267	29·376	+·028	29·599	29·452	17th	29·276	3rd	·176	80·8	88·6	−1·3	77·5	−1·3	83·1	−1·3	11·1	93·8	21st	75·0	27th	18·8
	Allahabad	309	29·319	+·011	29·583	29·393	17th	29·214	2nd	·179	81·7	90·2	+0·4	78·5	−0·1	84·4	+0·2	11·7	94·4		76·3	11th & 27th.	18·1
N.-W. P. (East Submontane).	Gorakhpur	256	29·393	+·029	29·608	29·472	17th	29·285	3rd	·187	80·3	86·9	−3·5	77·5	−1·5	82·2	−2·5	9·4	92·4	23rd 23rd	75·2	6 days	17·2
Oudh (South)	Lucknow	370	29·239	−·012	29·568	29·320	14th	29·138	2nd	·182	79·9	88·4	−2·3	77·6	−1·0	83·0	−1·7	10·8	93·3	13th & 23rd	74·6	13th	18·7
Oudh (North)	Bahraich	403	29·232	?	29·586	29·320	16th	29·137	3rd	·183	80·0	87·6	?	77·2	?	82·4	?	10·4	92·4	19th & 23rd.	73·0	3rd	19·4
N.-W. Provinces (Central).	Cawnpore	416	29·214	?	29·588	29·29$_0$	10th & 16th.	29·111	2nd	·179	81·1	88·3	?	77·4	?	82·9	?	10·9	93·0	23rd	75·0	11th & 13th.	18·0
	Mainpuri	516	29·103	?	29·576	29·18^3	16th	29·000	3rd	·185	80·6	89·3	?	77·6	?	83·5	?	11·7	96·3	14th	75·0	3 days	21·3
VI.—Upper Sub-Himalayas		...	...	+·011	...	...	...	...	...	...	...	·1	−4·4	76·4	−1·3	82·3	−2·9	11·7	...	...	...	...	21·4
N.-W. Provinces (Submontane).	Bareilly	568	29·050	+·012	29·581	29·133	16th	28·948	3rd	·185	79·5	85·8	−4·5	76·6	−1·5	81·2	−3·0	9·2	91·3	23rd	73·6	27th	17·7
	Dehra Dun	2,233	27·439	?	29·607	27·501	17th	27·310	27th	·191	74·8	82·0	?	72·3	?	77·2	?	9·7	86·5	31st	70·0	28th	16·5
	Roorkee	887	28·737	+·010	29·587	28·806	17th	28·601	27th	·205	78·9	87·5	−3·5	78·9	−1·3	81·7	−2·4	11·6	92·7	6th & 23rd	73·1	9th	19·6
	Meerut	737	28·883	+·017	29·582	28·957	16th	28·774	27th	·183	80·1	87·3	−3·6	76·7	−1·9	82·0	−2·8	10·6	91·3	31st	73·9	21st	17·4
Punjab (Central)	Delhi	718	28·911	+·025	29·589	28·992	17th	28·794	27th	·198	80·9	87·5	−4·4	78·6	−0·6	83·1	−2·5	8·9	92·0	2nd & 23rd.	76·1	9th	15·9
	Lahore	702	28·882	+·008	29·547	28·965	17th	28·719	27th	·246	81·7	91·0	−5·5	77·9	−1·5	84·5	−3·5	13·1	97·3	21st	70·9	16th	26·4

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in August 1892—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 June to 31st August 1892.	Normal rainfall for period 1st June to 31st August 1892.	Variation from normal of period.		
2	...	...	3	10	11	3	1	1	5	P	P	86	...	3·7	12	18·63	−6·63	6·77	13·35	− 6·58	27·74	35·65	− 7·91	Naya Dumka.	Central Bengal—*concld.*
2	...	...	4	6	14	4	1	...	3	4	− 25	95	·981	8·7	16	16·73	−0·73	15·78	12·23	+ 3·55	35·55	31·00	+ 4·55	Berhampore.	
4	...	...	...	15	2	10	...	...	6	P	P	89	...	4·4	15	15·45	−0·45	12·02	12·05	− 0·03	24·94	33·37	− 8·43	Rampur Boalia.	
1	...	...	1	19	4	5	...	1	3	P	P	90	...	5·9	14	14·35	−0·35	8·46	9·95	− 1·49	32·14	32·50	− 0·36	Malda.	
8	...	...	7	9	2	5	...	...	3	P	P	89	·960	6·7	15	15·85	−0·85	13·51	12·21	+ 1·30	38·02	39·69	− 1·67	Bogra.	
...	...	...	5	12	6	8	...	...	3	P	P	92	·949	8·6	19	16·25	+2·75	22·94	12·26	+10·68	57·18	42·00	+15·18	Dinajpur .	North Bengal.
...	...	...	9	3	13	3	3	...	2	P	P	90	...	3·8	21	13·10	+7·90	28·20	12·06	+16·14	67·36	48·05	+19·31	Rangpur.	
3	1	11	2	11	2	...	...	1	3	P	P	95	·925	4·7	24	18·80	+5·20	38·85	24·47	+14·38	113·99	78·50	+35·49	Jalpaiguri.	
5	...	1	2	...	6	15	1	1	5	P	P	89	·973	5·0	9	16·70	−7·70	4·45	12·61	− 8·16	20·62	35·37	−14·75	Balasore .	Orissa.
2	...	1	1	4	10	11	1	1	11	10	+ 10	85	·950	7·5	11	16·09	−5·09	5·76	13·25	− 7·49	30·26	32·59	− 2·33	False Point.	
9	...	2	2	2	4	10	1	1	3	3	0	79	·884	7·2	17	16·18	+0·82	5·52	13·35	− 7·83	29·24	35·53	− 6·29	Cuttack.	
4*	...	2	3	1	3	15	2	...	13	P	P	83	...	7·2	12	13·25	−1·25	6·96	9·24	− 2·28	21·31	27·61	− 6·30	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·84	11·64	+5·20	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
1	2	...	1	3	15	5	2	2	7	8	− 13	87	·800	9·8	15	18·27	−3·27	7·24	13·94	− 6·70	33·84	34·28	− 0·44	Hazaribagh.	Chota Nagpur.
16	...	...	...	2	3	8	2	...	4	P	P	86	...	6·6	12	17·85	−5·85	11·32	14·31	− 2·99	38·01	36·68	+ 1·33	Ranchi.	
...	...	1	3	3	11	11	2	...	1	P	P	85	·887	7·4	9	17·20	−8·20	5·42	13·83	− 8·41	27·59	36·40	− 8·81	Chaibassa.	
1	...	...	9	1	11	...	5	1	5	3	+ 67	86	·927	6·3	15	13·73	+1·27	16·36	13·42	+ 2·94	34·69	33·01	+ 1·68	Gaya . .	Bihar (South).
6	...	...	4	9	5	5	2	...	1*	P	P	88	...	5·8	19	13·14	+5·86	12·46	12·78	− 0·32	32·53	28·68	+ 3·85	Dehri.	
1	...	1	17	3	9	...	...	...	5	3	+ 67	88	·948	9·4	18	13·73	+4·27	23·57	12·08	+11·49	40·07	31·84	+ 8·23	Patna.	
...	...	6	6	11	4	1	2	1	2	P	P	91	...	4·2	14	12·55	+1·45	16·06	10·93	+ 5·13	31·56	27·91	+ 3·65	Arrah.	
1	...	3	14	5	3	1	3	1	4	P	P	91	...	7·8	19	12·60	+6·40	21·52	10·22	+11·30	35·65	26·25	+ 9·40	Buxar.	
20	1	2	3	3	1	1	...	..	1	2	− 50	93	·948	7·1	22	17·64	+4·36	23·10	14·67	+ 8·43	53·90	39·56	+14·34	Purnea .	Bihar (North).
24	1	...	1	2	2	1	...	...	1	P	P	89	...	8·6	15	13·70	+1·30	14·90	10·15	+ 4·75	28·28	29·02	− 0·74	Bhagalpur.	
2	2	6	13	5	1	1	1	...	5	5	0	91	·785	7·8	21	14·27	+6·73	24·15	12·57	+11·58	43·14	33·18	+ 9·96	Darbhanga.	
...	...	5	14	10	1	...	...	1	5	P	P	94	...	8·0	18	13·25	+4·75	12·85	10·34	+ 2·51	34·26	29·68	+ 4·58	Muzaffarpur	
1*	...	9	11	6	2	1	...	...	5	P	P	88*	...	6·8*	16	12·22	+3·78	24·18	11·53	+12·65	59·21	29·87	+29·34	Motihari.	
9	...	...	15	6	...	1	...	...	2	P	P	91	...	7·5	16	12·25	+3·75	23·4	9·91	+13·52	37·51	28·23	+ 9·28	Chapra.	
16	...	2	7	2	2	2	...	...	3	4	− 25	91	·961	7·9	19	14·27	+4·73	17·61	11·98	+ 5·63	38·28	27·31	+10·97	Benares .	N.-W. P. (Eastern Districts).
5	...	1	6	4	5	6	3	1	3	4	− 25	88	·958	9·5	14	13·91	+0·09	10·37	10·45	− 0·08	30·52	26·51	+ 4·01	Allahabad.	
1	2	2	9	7	8	1	1	...	1	2	− 50	90	·934	6·2	20	13·55	+6·45	15·73	10·76	+ 4·97	33·58	32·21	+ 1·37	Gorakhpur .	N.-W. P. (East Submontane).
9	1	2	11	2	3	...	2	1	2	3	− 33	93	·956	9·1	21	12·36	+8·64	19·29	11·13	+ 8·16	33·80	26·22	+ 7·58	Lucknow.	Oudh (South).
...	...	7	11	9	3	1	...	...	3	P	?	91	·928	8·5	19	?	?	23·45	9·50	+13·95	45·24	27·63	+17·61	Bahraich .	Oudh (North).
1	1	2	4	7	7	5	4	...	2	P	P	93	·991	9·5	18	11·7	+6·3	13·86	10·11	+ 3·75	28·40	23·29	+ 5·11	Cawnpore .	N.-W. Provinces (Central).
6	...	10	...	2	4	2	5	2	1	P	?	91	·964	8·5	14	?	?	16·71	9·84	+ 6·87	25·13	23·91	+ 1·22	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17·14	10·97	+6·17	...	...	...	**VI.—Upper Sub-Himalayas**	
22	...	1	1	7	...	...	...	...	0	4	0	91	·922	7·4	19	12·18	+5·82	18·08	13·36		37·85	35·50	+ 2·35	Bareilly .	N.-W. Provinces (Submontane).
31	...	...	...	...	...	...	..	...	0	1	0	92	·801	8·9	28	21·30	+6·70	35·54	27·19	+ 8·35	66·50	65·40	+ 1·10	Dehra Dun.	
19	...	...	...	9	3	...	...	...	2	3	− 33	89	·878	9·5	20	11·64	+8·36	16·28	12·72	+3·56	26·79	30·33	− 3·54	Roorkee.	
14	...	...	7	10	...	...	...	...	1	2	−50	88	·907	8·8	18	11·36	+6·64	16·25	9·97	+ 6·28	30·94	22·07	+ 8·87	Meerut.	
12	...	...	2	10	1	...	6	...	3	4	−25	88	·931	8·2	15	9·82	+5·18	12·40	8·72	+ 3·68	19·77	21·63	− 1·86	Delhi . .	Punjab (Central)
1	1	1	9	14	4	1	...	...	3	3	0	87	·947	6·6	14	6·45	+7·55	11·68	5·41	+ 6·27	20·78	13·82	+ 6·96	Lahore.	

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 176 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 during recorded month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Punjab (Submontane).	Umballa	?	28·147	?	28·991	28·190	17th	28·025	27th	·165	79·8	90·1	?	77·4	?	83·8	?	12·7	100·5	1st	75·3	9th	25·2
	Ludhiana	812	28·779	−·005	29·553	28·869	17th	28·639	27th	·230	81·0	89·1	−6·4	77·4	−1·7	83·2	−4·1	11·7	94·5	7th	74·6	12th	19·9
Punjab (North)	Sialkot	829	28·764	+·011	29·559	28·856	17th	28·612	27th	·244	80·8	89·6	−4·8	76·6	−0·9	83·1	−2·9	13·0	96·1	21st	69·3	28th	26·8
	Rawalpindi	1,649	27·958	+·009	29·525	28·062	17th	27·789	27th	·273	79·2	90·3	−3·5	74·7	−0·6	82·5	−2·1	15·6	96·5	21st&24th	68·7	28th	27·8
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·002	...	...	...	...	...	...	...	94·1	−2·9	79·3	0	86·7	−1·5	14·8	...	...	...	...	26·8
Punjab (West)	Peshawar	1,110	28·500	+·028	29·529	28·624	17th	28·317	27th	·307	81·7	92·4	−7·0	76·8	−1·3	84·6	−4·2	15·6	99·0	22nd,24th & 25th	70·4	8th	28·6
	Khushab	612	28·953	?	29·528	29·069	17th	28·785	27th	·284	83·3	93·7	?	80·0	?	86·9	?	13·7	103·0	21st	73·0	31st	30·0
	Montgomery	558	29·010	?	29·526	29·115	17th	28·896	3rd	·219	85·8	96·4	?	79·8	?	88·1	?	16·6	104·4	25th	74·1	13th	30·3
	D. I. Khan	573	28·981	−·001	29·518	29·103	17th	28·792	27th	·311	84·1	96·8	−4·9	80·0	−1·2	88·4	−3·1	16·8	107·5	21st	73·8	30th	33·7
	Mooltan	420	29·134	0	29·518	29·250	17th	28·973	27th	·277	85·3	95·9	−4·3	80·9	−1·1	88·4	−2·7	15·0	102·2	25th	73·2	16th	29·0
	Sirsa	662	28·921	−·004	29·541	29·017	17th	28·809	27th	·208	82·3	93·5	−4·0	78·9	−0·6	86·2	−2·3	14·6	99·4	31st	75·3	16th	24·1
Sind and Cutch	Jacobabad	186	29·370	+·013	29·515	29·475	9th	29·218	27th	·257	86·8	101·9	−1·4	82·0	+0·7	92·0	−0·4	19·9	110·3	28th	76·7	6th	33·6
	Hyderabad	117	29·450	−·009	29·519	29·540	9th	29·333	3rd	·207	82·4	93·9	−1·1	79·4	+0·9	86·7	−0·1	14·5	98·2	19th	74·1	7th	24·1
	Kurrachee	49	29·568	−·016	29·568	29·650	17th	29·458	1st	·192	82·9	89·9	+2·3	80·6	+2·3	85·3	+2·3	9·3	92·5	17th	76·3	6th	16·2
	Bhuj	395	29·249	?	29·596	29·323	17th	29·141	2nd	·182	80·6	89·3	?	76·4	?	82·9	?	12·9	96·0	10th	74·9	13th	21·1
Rajputana (West)	Bickaneer	753	28·829	?	29·529	28·927	8th	28·725	2nd & 27th	·202	84·4	93·9	?	79·9	?	86·9	?	14·0	100·1	21st&31st	75·7	3 days.	24·4
	Pachpadra	380	29·247	?	29·581	29·335	9th	29·115	2nd	·220	81·7	91·5	?	77·3	?	84·4	?	14·2	98·5	31st	71·6	7th	26·9
VIII.—East Rajputana, Central India and Guzerat.		...	...	+·004	...	...	...	...	...	...	...	87·4	−0·4	76·1	+0·6	81·7	+0·1	11·2	...	...	...	...	18·8
Rajputana (East)	Jeypore	1,431	28·217	+·007	29·599	28·286	13th	28·097	2nd	·189	78·9	88·3	−1·5	75·6	+0·7	82·0	−0·4	12·7	95·1	31st	73·5	5th	21·6
	Sambhar	1,254	28·369	+·001	29·576	28·440	17th	28·253	2nd	·187	79·8	87·2	−1·8	76·1	+0·4	81·7	−0·7	11·1	92·4	30th&31st	72·9	5th	19·5
	Ajmere	1,611	28·050	+·011	29·613	28·125	17th	27·939	2nd	·186	78·6	86·8	−0·5	75·8	+1·5	81·3	+0·5	11·0	91·9	31st	73·1	4th & 5th	18·8
	Deesa	466	29·207	−·001	29·625	29·285	10th	29·081	2nd	·204	80·0	88·2	·0	† 77·0	† +1·6	† 82·4	+0·8	11·2	94·8	31st	72·8	6th	22·0
Kathiawar	Rajkot	429	29·250	−·015	29·632	29·319	10th	29·153	2nd	·166	79·4	88·1	−0·6	74·8	+0·2	81·5	−0·2	13·3	91·9	8th&26th	73·3	17th	18·6
	Veraval	?	29·690	?	29·650	29·763	10th	29·594	1st	·169	80·1	83·2*	?	78·0*	?	80·6*	?	5·2	86·1	26th	73·3	31st	12·8
	Bhavnagar	?	29·681	?	29·666	29·764	17th	29·578	1st	·186	82·7	92·6	?	78·0	?	85·3	?	14·6	95·9	15th	72·0	19th	23·9
Central India	Nowgong	757	28·884	+·014	29·595	28·952	17th	28·774	2nd	·178	79·3	87·3	−1·2	76·6	−0·3	82·0	−0·8	10·7	90·5	3 days	74·6	4th & 17th	15·9
	Indore	1,823	27·872	0	29·639	27·956	13th	27·753	1st	·203	74·7	83·7	+1·0	72·1	+0·8	77·9	+0·9	11·6	89·0	21st	68·6	5th	20·4
	Neemuch	1,630	28·052	+·014	29·633	28·127	13th	27·946	1st	·181	76·4	85·2	+0·8	73·6	+1·4	79·4	+1·1	11·6	88·3	1st	71·6	4th & 5th	16·7
Guzerat	Surat	36	29·682	−·016	29·661	29·756	10th	29·599	1st	·157	80·6	87·6	+0·8	76·8	+0·6	82·2	+0·7	10·8	91·6	27th	73·0	18th	18·6
N.-W. P. (West)	Agra	555	29·077	+·013	29·589	29·156	16th	28·947	3rd	·209	81·5	89·0	−1·4	78·7	0	83·9	−0·7	10·3	93·5	30th	75·5	10th	18·0
	Jhansi	840	28·785	+·018	29·595	28·865	10th	28·680	2nd	·185	80·6	88·4	+0·1	76·5	−0·1	82·5	0	11·9	91·4	3 days	73·9	11th&28th	17·5
IX.—Deccan	...	...	...		...	...	...	...	...	...	...	84·4	−0·6	72·6	+0·3	78·5	−0·2	11·7	...	...	...	...	19·7
Bombay (Deccan)	Belgaum	2,524	27·282	−·008	29·742	27·355	13th	27·203	24th	·152	69·7	75·7	−0·5	66·5	+0·3	71·1	−0·1	9·2	79·8	20th	64·8	8th & 9th	15·0
	Sholapur	1,590	28·181	−·002	29·713	28·270	13th	28·112	24th	·158	75·3	87·0	−1·5	70·7	+0·3	78·9	−0·6	16·3	93·7	5th	67·6	4th	26·1
	Poona	1,840	27·927	−·010	29·713	27·998	14th	27·865	1st	·133	73·4	81·8	+0·1	69·8	+0·3	75·8	+0·2	12·0	89·0	26th	67·4	23rd	21·6
	Bijapur	?	27·839	?	?	27·920	13th	27·758	24th	·162	74·8	79·2	?	74·0	?	76·6	?	5·2	82·3	6th	73·0	4 days.	9·3
Khandeish	Malegaon	1,430	28·308	+·005	29·688	28·385	13th	28·223	1st	·162	76·4	85·7	−0·5	72·1	+0·8	78·9	+0·2	13·6	89·9	6th&21st	70·2	3 days.	19·7
	Ahmednagar	2,152	27·617	?	29·707	27·691	13th	27·553	1st	·138	73·3	82·4	?	69·6	?	76·1	?	12·8	86·8	24th	64·5	20th	22·3
Berar	Akola	930	28·782	+·002	29·661	28·878	13th	28·696	1st	·182	77·3	86·6	−0·7	73·2	−0·1	79·9	−0·4	13·4	92·9	26th	70·7	21st	22·2
	Amraoti	1,215	28·185	+·006	29·657	28·573	13th	28·392	1st	·181	74·9	?	?	72·8	+0·3	?	?	?	?	25th	70.8	3 days.	?

* Mean of 30 days. † Mean of 25 days.

I—*continued.*

in India, Burma, etc., in August 1892—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 June to 31st August 1892.	Normal rainfall for period 1st June to 31st August 1892.	Variation from normal of period.		
3	...	...	...	22	...	...	...	6	2	?	?	93	·952	8·1	15	?	?	11·33	7·75	+ 3·58	19·48	22·44	− 2·96	Umballa .	Punjab, (Sub mountane)—contd.
16	...	...	3	11	1	...	...	...	2	1	+100	89	·942	8·5	17	7·82	+9·18	15·41	7·18	+ 8·23	25·66	20·85	+ 4·81	Ludhiana .	
11	1	3	12	2	2	...	...	...	3	2	+ 50	86	·904	5·1	12	9·27	+2·73	21·79	8·81	+12·98	28·80	19·99	+ 8·81	Sialkot .	Punjab (North).
12	...	4	2	11	2	...	...	...	2	2	0	87	·882	5·5	11	9·51	+1·09	12·67	8·63	+ 4·04	21·17	17·41	+ 3·76	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·15	2·50	+2·65	...	...	...	VII.—Indus Valley and N.-W. Rajputana.	
2	7	5	3	...	1	2	3	8	3	4	− 25	82	·889	3·8	7	1·82	+5·18	17·75	1·82	+15·93	21·85	3·73	+18·12	Peshawar .	Punjab. (West).
7	4	10	9	...	1	...	...	...	5	?	?	82	·943	4·9	4	2·7	+1·3	1·82	2·01	− 0·19	14·86	5·57	+ 9·29	Khushab .	
5	...	1	6	5	5	8	...	1	6	?	?	79	·967	4·6	9	3·2	+5·8	9·05	2·34	+ 6·71	13·57	6·69	+ 6·88	Montgomery.	
11	...	6	9	2	1	1	1	...	2	2	0	83	·968	4·5	5	2·27	+2·73	2·96	1·54	+ 1·42	12·36	4·67	+ 7·69	D. I. Khan.	
6	...	4	...	15	...	5	...	1	3	3	0	72	·357	3·8	7	2·00	+5·00	3·96	1·33	+ 2·63	16·69	4·18	+12·51	Mooltan.	
3	3	...	2	11	2	3	7	...	5	5	0	87	·968	6·4	11	5·55	+5·45	8·13	4·25	+ 3·88	17·02	10·19	+ 6·83	Sirsa.	
2	...	1	2	18	5	1	...	2	5	4	+ 25	72	·919	3·6	2	1·64	+0·36	1·34	1·26	+ 0·08	4·11	2·81	+ 1·30	Jacobabad .	Sind and Cutch.
...	...	...	...	3	...	28	...	...	10	14	− 28	74	·813	9·0	3	3·36	−0·36	2·88	2·88	0	10·55	5·88	+ 4·67	Hyderabad.	
...	...	...	...	...	...	14	16	1	12	17	− 27	85	·972	8·0	2	2·36	−0·36	0·57	1·81	− 0·34	11·51	5·57	+ 5·94	Kurrachee.	
1	...	...	...	...	...	12	17	1	16	15	+ 7	85	·901	7·6	2	?	?	1·81	3·54	− 1·73	7·71	11·17	− 3·46	Bhuj.	
1	...	1	...	1	5	21	2	...	7	6	+ 17	72	·844	5·4	7	?	?	2·96	3·47	− 0·51	13·24	8·72	+ 4·52	Bickaneer .	Rajputana (West).
11	...	...	...	2	9	9	...	...	12*	10	+ 20	80	·862	8·7	9	?	?	8·61	3·78	+ 4·83	13·07	7·11	+ 5·96	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·57	9·43	+0·91	...	...	...	VIII.—East Rajputana, Central India and Guzerat.	
3	3	2	...	...	2	2	6	13	3	5	− 40	88	·880	8·0	20	11·50	+8·50	21·83	10·10	+11·73	39·58	22·02	+17·56	Jeypore .	Rajputana (East).
1	1	...	...	1	4	2	15	7	5	?	?	86	·886	6·7	14	10·50	+3·50	12·24	8·45	+ 3·79	24·43	17·72	+ 6·71	Sambhar.	
...	...	...	...	...	...	2	26	3	7	6	+ 16	87	·841	6·7	10	9·82	+0·18	7·09	7·91	− 0·82	12·85	18·47	− 5·62	Ajmere.	
...	...	...	...	...	1	15	13	2	11†	12	?	86	·876	8·9	14	10·09	+3·91	7·86	9·05	− 1·19	23·27	21·57	+ 1·70	Deesa.	
...	...	...	...	...	1	10	18	2	10	12	− 17	89	·891	6·5	11	7·82	+3·18	4·58	5·65	− 1·07	17·59	24·59	− 7·00	Rajkot .	Kathiawar.
5	1	...	...	...	1	9	14	1	10	?	?	86	·887	8·1	8	?	?	4·30	?	?	9·91	?	?	Veraval.	
...	...	...	...	...	2	24	3	2	11	?	?	90	1·003	8·0	13	?	?	6·27	?	?	13·87	?	?	Bhavnagar.	
7	...	...	...	1	...	4	18	1	2	3	− 33	89	·897	8·3	17	14·09	+2·91	12·64	15·43	− 2·79	40·54	36·18	+ 4·36	Nowgong. .	Central India.
2	...	...	...	...	...	12	14	3	4	6	− 33	92	·800	8·8	14	10·45	+3·55	8·08	7·46	+ 0·62	19·53	24·14	− 4·61	Indore.	
...	1	...	...	...	...	21	9	...	10	12	− 17	88	·808	6·5	14	11·00	+3·00	11·54	10·14	+ 1·40	22·20	24·71	− 2·51	Neemuch.	
...	2	1	...	1	2	16	5	4	...	13	...	89	·943	7·0	18	12·82	+5·18	7·78	8·41	− 0·63	42·37	33·06	+ 9·31	Surat . .	Guzerat.
7	...	2	...	10	...	7	...	5	3	7	− 57	89	·954	7·3	9	10·73	−1·73	6·06	8·54	− 2·48	16·03	23·12	− 7·09	Agra . .	N.-W. P. (West).
8	...	1	...	...	1	17	1	3	2	4	− 50	87	·917	5·9	18	14·45	−6·45	14·09	12·61	+ 1·48	31·85	30·69	+ 1·16	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·22	8·75	+2·29	...	...	...	IX.—Deccan.	
3	...	...	...	...	...	8	19	1	?	21	?	94	·669	9·8	16	17·64	−1·64	9·48	8·67	+ 0·81	33·68	31·87	+ 1·81	Belgaum .	Bombay (Deccan).
...	...	...	...	...	...	10	14	7	11	11	0	81	·707	8·6	13	11·27	+1·73	7·11	8·03	− 0·92	16·54	18·10	− 1·56	Sholapur.	
2	...	...	...	...	...	4	24	1	11	14	− 21	86	·710	9·4	10	7·82	+2·18	6·33	3·11	+ 3·22	22·02	14·43	+ 7·59	Poona. .	
..	...	...	...	...	...	10	16	5	10	?	?	81	·704	9·7	13	7·0	+6·0	4·82	4·49	+ 0·33	15·10	10·35	+ 4·75	Bijapur .	
1	...	1	...	...	...	13	14	2	8	10	− 20	83	·752	7·9	14	6·91	+7·09	10·39	4·16	+ 6·23	18·18	14·59	+ 3·59	Malegaon .	Khandeish
1	1	2	...	1	...	10	13	3	9	?	?	87	·717	8·1	13	?	?	5·89	4·36	+ 1·53	26·87	12·60	+14·27	Ahmednagar.	
...	1	...	...	...	...	1	5	24	7	8	− 13	88	·814	8·9	12	9·73	+2·27	9·80	6·84	+ 2·96	30·38	23·87	+ 6·51	Akola . .	Berar.
1	...	1	1	1	...	5	21	1	5	6	− 17	95	·826	9·0	15	9·73	+5·27	10·66	6·71	+ 3·95	30·00	25·09	+ 4·91	Amraoti .	

* Mean of 29 days. † Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 176 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 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 Provinces (West).	Khandwa	1,044*	* 28·660	+·021	* 29·664	28·741	13th	28·536	1st	·205	75·9	84·6	−1·4	74·3	+0·5	79·4	−0·5	10·3	88·2	27th	72·1	18th	16·1
	Hoshangabad	1,020	28·666	+·001	29·645	28·750	13th	28·563	1st	·187	76·9	85·0	−0·3	74·7	+0·9	79·9	+0·3	10·3	90·3	27th	72·7	3 days	17·6
	Nagpur	1,025	28·665	+·012	29·642	28·743	14th	28·578	1st	·165	78·4	86·1	−1·5	74·8	+0·2	80·4	−0·7	11·3	91·8	26th	71·1	5th	20·7
Central Provinces (Central).	Seoni	2,030	?27·666	+·010	29·656	27·743	13th	27·577	1st	·166	75·4	82·9	−0·6	71·7	0	77·3	−0·3	11·2	87·6	26th	69·1	4th & 11th.	18·5
	Jubbulpore	1,327	28·346	+·025	29·626	28·423	13th	28·256	1st	·167	76·9	84·8	−0·1	73·9	−0·1	79·4	−0·1	10·9	89 9	21st	70·6	4th	19·3
	Saugor	1,762	27·908	+·009	29·611	27·986	10th	27·800	2nd	·186	76·3	83·7	+0·2	73·2	+0·7	78·5	+0·5	10·5	88·3	27th & 31st.	70·6	4th & 11th.	17·7
Central Provinces (East).	Raipur	960	28·722	+·032	29·638	28·798	17th	28·621	31st	·177	79·3	87·1	+0·8	75·5	+0·6	81·3	+0·7	11·6	95·5	25th	72·1	5th & 11th.	23·4
	Sutna	1,040	28·594	+·009	29·589	28·670	10th	28·495	2nd	·175	79·3	85·2	−0·4	74·9	−0·9	80·1	−0·7	10·3	89·6	20th	70·6	10th	19·0
	Sambalpur	463	29·215	?	29·624	29·288	10th	29·084	31st	·204	81·6	88·9 †	?	77·1	?	83·1	?	11·8	92·5	30th	74·2	5th	18·3
Hyderabad (North).	Aurangabad	?	27·902	?	?	27·989	13th	27·825	1st	·164	75·1	85·7	?	70·4	?	†78·2	?	15·3	89·4	25th	68·2	12th	21·2
	Indur	?	?	...	...	...	...	...	...	...	75·4	84·9	?	72·6	?	78·8	?	12·3	90·7	27th	69·2	17th & 18th.	21·5
	Beeder	?	27·597	?	?	27·691	13th	27·521	2nd & 24th.	·170	72·7	81·5	?	69·2	?	75·4	?	12·3	86·6	5th	66·4	4th	20·2
Hyderabad (South).	Gulburga	?	28·255	?	?	28·344	13th	28·172	24th	·172	75·0	86·3	?	70·8	?	78·6	?	15·5	92·7	6th	68·1	4th	24·6
	Raichur	?	28·398	?	?	28·479	13th	28·279	24th	·200	74·1	84·9	?	71·5	?	78·2	?	13·4	90·9	6th	69·9	17th	21·0
	Hyderabad (Deccan).	1,690	28·060	−·021	29·697	28·140	13th	27·982	24th	·158	74·0	83·3	−1·4	71·7	+0·1	77·5	−0·7	11·6	86·9	6th & 24th	68·7	8th & 11th.	18·2
	Kamamet	?	29·362	?	29·287	29·444	13th	29·275	28th	·169	79·4	88·1	?	75·8	?	82·0	?	12·3	93·0	6th	72·3	13th & 28th.	20·7
X.—West Coast		...	...	−·016	...	...	...	...	...	...	...	81·5	−1·3	74·0	−0·8	77·8	−1·1	7·5	...	...	...	...	13·0
Konkan	Bombay	37	29·735	−·015	29·712	29·808	17th	29·652	1st	·156	78·5	81·8	−2·0	76·4	−0·3	79·1	−1·2	5·4	84·9	3 days	73·5	31st	11·4
	Ratnagiri	110	?29·685	−·013	?29·732	29·770	14th	29·604	25th	·166	77·9	82·6	−0·8	74·8	−0·4	78·7	−0·6	7·8	84·9	4 days	72·9	6 days	12·0
	Mormugoa	60	29·769	?	29·764	29·830	13th	29·665	24th	·165	77·2	81·9	?	74·9	?	78·4	?	7·0	85·0	5 days	73·4	12 days	11·6
	Karwar	44	29·790	−·022	29·766	29·856	13th	29·686	24th	·170	73·5	80·6	−1·5	73·3	−0·7	77·0	−1·1	7·3	83·7	20th	71·3	8th	12·4
Malabar	Mangalore	26	29·844	−·021	29·802	29·907	10th	29·718	24th	·189	76·0	80·9	−1·5	73·1	−0·7	77·0	−1·1	7·8	84·8	3 days	71·4	12th	13·4
	Calicut	27	29·854	−·021	29·811	29·921	10th	29·743	24th	·178	75·3	80·9	?	73·1	?	77·0	?	7·8	84·8	3rd	71·6	3 days	13·2
	Cochin	10	29·894	−·006	29·832	29·959	17th	29·773	24th	·186	76·4	82·4	−0·7	71·9	−2·1	77·2	−1·4	10·5	86·2	3rd	67·8	3rd	18·4
	Trivandrum	198	29·693	?	29·824	29·762	17th	29·581	23rd	·181	75·9	80·7	?	74·6	?	77·7	?	6·1	82·5	3rd & 4th	71·0	22nd	11·5
XI.—South India		...	...	−·006	...	...	...	...	...	...	...	87·3	−2·1	73·8	−0·6	80·6	−1·4	13·5	...	...	...	...	22·5
Madras, (South)	Pamban	37	29·796	?	29·760	29·861	17th	29·664	24th	·197	82·4	87·9	?	78·4	?	83·2	?	9·5	90·3	15th	73·7	15th	16·6
	Tinnevelly	168	29·665	?	29·761	29·730	10th	29·549	23rd	·181	82·5	95·6	?	78·8	?	87·2		16·8	100·3	20th	75·9	3rd	24·4
	Madura	417	29·372	−·015	29·755	29·449	10th	29·255	24th	·194	80·4	92·9	−4·0	74·3	−1·3	83·6	−2·7	18·6	100·9	4th	70·0	26th	30·9
Madras, (South Central).	Salem	940	28·909	−·016	29·793	28·981	10th	28·800	24th	·181	75·7	89·6	−1·9	72·6	+0·8	81·1	−0·6	17·0	94·4	4th	70·0	13th	24·4
	Coimbatore	1,348	28·483	−·016	?29·781	28·558	10th	28·369	24th	·189	73·8	89·0	+0·7	69·7	−1·0	79·4	−0·2	19·3	92·3	6th	67·6	8th & 22nd.	24·7
Coorg	Mercara	3,781	26·164	?	29·816	26·218	10th	26·086	24th	·132	63·7	68·7	−2·0	62·3	0	65·5	−1·0	6·4	72·8	14th & 15th.	61·2	5 days	11·6
Mysore	Bangalore Bazar,	2,982	26·906	−·011	29·802	26·975	10th	26·799	24th	·176	68·8	79·2	−2·7	65·7	+0·3	72·5	−1·2	13·5	83·2	5th	63·0	3rd	20·2
	Bangalore Fort	3,019	26·859	−·026	29·785	26·934	10th	26·745	24th	·189	68·2	79·1 ‡	−2·7	65·6	+0·3	72·4 ‡	−1·2	13·5	82·8	5th	62·8	3rd	20·0
	Chitaldroog	?	27·427	?	29·736	27·499	13th	27·324	24th	·175	71·1	80·6	?	67·9	?	74·3	?	12·7	85·8	12th	65·8	31st	20·0
Madras (East Coast, South).	Negapatam	31	29·794	+·001	29·754	29·869	10th	29·675	24th	·194	80·9	91·3	−1·6	75·9	−1·1	83·7	−1·4	15·4	97·2	4th	72·2	8th	25·0
	Cuddalore	12	29·793	?	29·734	29·880	10th	29·678	24th	·202	79·3	89·2	?	74·8	?	82·0	?	14·4	100·3	1st	72·7	7th	27·6
	Trichinopoly	255	29·565	−·016	29·754	29·630	9th & 10th.	29·453	24th	·177	79·6	93·4	−2·6	75·6	−0·3	84·6	−1·5	17·6	100·1	4th	71·4	16th	28·7
	Madras	22	29·766	−·016	29·719	29·847	9th	29·639	24th	·208	80·1	90·4	−3·1	76·0	−1·2	83·2	−2·2	14·4	97·0	4th	71·0	16th	26·0
Madras (East Coast, Central).	Nellore	71	29·690	?	?29·696	29·774	10th	29·554	24th	·220	81·2	91·8	?	77·1	?	84·5	?	14·7	99·8	20th	72·1	7th	27·7
	Masulipatam	15	29·729	−·009	29·679	29·818	13th	29·630	24th	·188	80·7	89·2	−2·4	76·3	−1·3	82·8	−1·9	12·9	97·7	5th	73·1	17th	24·6

* Mean of 24 days. † Mean of 25 days. ‡ Mean of 30 days.

I—*continued.*

in India, Burma, etc., in August 1892—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 1892.	Normal rainfall for period 1st June to 31st August 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
1	...	...	...	...	...	...	28	2	5	8	— 38	91	·808	7·3	18	9·91	+8·09	14·22	6·09	+ 8·13	27·69	22·21	+ 5·48	Khandwa .	Central Provinces (West).
1	...	...	...	...	11	12	7	...	4	4	0	93	·873	9·9	18	15·09	+2·91	11·95	13·95	— 2·00	40·95	41·91	— 0·96	Hoshangabad	
7	1	...	2	1	2	8	7	3	5	6	— 17	88	·857	8·9	12	12·82	—0·82	8·57	9·88	— 1·31	28·20	35·05	— 6·85	Nagpur.	
7	2	4	6	2	2	2	3	3	3	5	— 40	93	·826	7·9	18	17·73	+0·27	12·69	12·19	+ 0·50	37·13	41·09	— 3·96	Seoni .	Central Provinces (Central).
4	...	...	...	3	5	8	11	...	2	5	— 60	90	·836	8·3	23	16·00	+7·00	16·41	14·39	+ 2·02	42·26	46·10	— 3·84	Jubbulpore.	
9	1	...	...	...	1	11	9	...	4	4	0	92	·834	7·2	20	14·55	+5·45	12·71	12·32	+ 0·39	36·07	33·50	+ 2·57	Saugor.	
3	...	...	...	2	3	14	8	1	5†	7	— 29	87	·863	8·5	12	14·45	—2·45	8·02	11·25	— 3·23	37·50	39·71	— 2·21	Raipur .	Central Provinces (East).
8	1	...	...	1	6	1	14	...	5	8	— 38	89	·887	7·1	19	13·45	+5·55	11·32	11·80	— 0·48	37·98	32·28	+ 5·70	Sutna,	
...	...	2	5	5	9	9	1	...	5	?	?	84	·907	6·5	11	?	?	4·57	15·14	—10·57	60·15	43·52	+16·63	Sambhulpur.	
3	...	...	...	2	1	14	7	4	5	?	?	85	·736	8·0	10	?	?	6·59	...	...	23·88	...	...	Aurangabad	Hyderabad (North).
1	...	...	...	1	1	4	15	9	11	?	?	90	·794	9·1	25	?	?	17·28	10·19	+ 7·09	32·81	25·43	+ 7·38	Indur.	
...	2	...	...	1	...	7	13	8	8	?	?	90	·726	7·0	23	?	?	16·84	9·85	+ 6·99	33·89	25·44	+ 8·45	Beeder.	
1	5	...	1	...	...	3	7	14	14	?	?	85	·741	9·0	15	?	?	11·79	6·43	+ 5·36	24·24	16·14	+ 8·10	Gulburga.	Hyderabad (South).
1	1	...	...	...	1	10	14	4	8	?	?	87	·734	10·0	19	?	?	19·19	5·31	+13·88	30·30	13·23	+17·07	Raichur.	
...	1	...	...	1	...	...	25	4	7	?	?	88	·738	8·7	16	?	?	13·00	7·43	+ 5·57	25·71	18·40	+ 7·31	Hyderabad (Deccan).	
14	1	...	1	...	1	4	7	3	6	?	?	85	·856	6·2	15	?	?	14·97	?	?	28·11	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32·84	19·21	+15·24	...	...	...	**X.—West Coast.**	
...	1	1	1	2	3	6	16	1	13	16	— 19	90	·785	9·6	25	19·64	+5·36	33·04	13·64	+19·40	69·97	61·42	+ 8·55	Bombay .	Konkan.
5	2	1	...	...	1	6	11	5	7	10	— 30	92	·877	9·6	25	24·36	+0·64	46·43	24·42	+22·01	119·15	89·18	+29·97	Ratnagiri.	
2	...	1	...	...	1	2	7	11	11	?	?	92	·864	8·2	24	...	...	47·80	?	?	112·73	?	?	Mormugoa.*	
15	7	...	...	...	...	5	3	1	2	?	?	91	·834	9·4	28	23·36	+4·64	41·28	25·02	+16·26	109·63	100·78	+ 8·85	Karwar.	
17	1	1	1	...	...	1	8	2	2	3	— 33	93	·829	9·3	30	33·90	+6·10	39·75	22·52	+17·23	97·85	95·07	+ 2·78	Mangalore .	Malabar.
8	5	4	2	1	...	1	3	7	11	?	?	93	·817	9·8	27	17·88	+9·12	25·99	15·27	+10·72	95·75	79·03	+16·72	Calicut.	
1	3	12	2	...	...	1	5	7	6	?	?	88	·808	7·9	26	17·91	+8·09	20·23	14·40	+ 5·83	78·50	66·26	+12·24	Cochin.	
...	11	...	...	...	...	...	3	17	11	?	?	89	·820	8·5	13	?	?	8·23	?	?	25·30	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·02	5·79	+3·63	...	...	...	**XI.—South India.**	
...	1	1	2	2	2	11	8	4	6	?	?	74	·822	2·9	2	0·30	+1·70	0·61	0·23	+ 0·38	1·88	0·98	+ 0·90	Pamban. .	Madras, (South).
...	1	...	...	...	...	7	11	12	7	?	?	59	·662	7·3	0	1·0	—1·0	0	0·40	— 0·40	0·34	1·35	— 1·01	Tinnevelly	
3	5	1	...	...	...	1	...	21	1	4	— 75	70	·727	6·0	10	5·36	+4·64	7·91	3·97	+ 3·94	13·40	6·20	+ 7·20	Madura.	
2	...	...	...	1	13	13	2	...	4	4	0	85	·763	8·1	16	11·78	+4·22	12·42	8·21	+ 4·21	19·80	15·34	+ 4·46	Salem .	Madras, (South Central).
...	...	...	...	...	18	11	2	...	5	7	— 29	91	·766	6·7	3	2·91	+0·09	1·90	1·30	+ 0·60	4·96	4·20	+ 0·76	Coimbatore.	
...	...	...	...	...	...	...	27	4	6	9	— 33	95	·572	9·9	31	26·30	+4·70	26·40	26·24	+ 0·16	88·31	98·81	—10·50	Mercara .	Coorg.
...	...	...	...	...	1	13	17	...	7	8	— 12	91	·642	9·1	15	10·73	+4·27	8·06	5·97	+ 2·09	15·90	13·38	+ 2·52	Bangalore Bazar.	Mysore.
...	...	...	...	...	...	12	18	1	8	?	?	91	·632	9·2	14	?	?	6·61	?	?	16·22	?	?	Bangalore Fort	
...	...	...	...	...	...	10	15	6	10‡	?	?	85	·649	9·2	8	?	?	3·45	?	?	?	?	?	Chitaldroog.	
4	...	...	...	...	...	4	20	3	3	6	— 50	73	·773	7·8	10	5·91	+4·09	4·48	4·06	+ 0·42	9·38	7·41	+ 1·97	Negapatam.	Madras (East Coast, South).
...	...	...	...	...	2	7	13	9	2	?	?	87	·874	7·2	15	8·0	+7·0	14·08	6·17	+ 7·91	22·99	11·16	+11·83	Cuddalore.	
1	...	...	...	...	1	7	17	5	8	8	0	73	·748	8·6	8	5·36	+2·64	9·43	4·29	+ 5·14	13·24	7·32	+ 5·92	Trichinopoly.	
2	...	...	...	...	6	13	9	1	5	7	— 29	84	·863	8·0	12	8·27	+3·73	11·09	4·88	+ 6·21	22·63	11·24	+11·39	Madras.	
4	...	...	...	...	...	1	14	12	8	?	?	79	·835	8·5	12	5·5	+6·5	8·60	3·05	+ 5·55	14·83	6·86	+ 7·97	Nellore .	Madras (East Coast, Central).
2	2	1	...	...	...	4	8	14	7	?	?	90	·936	8·3	16	9·00	+7·00	14·12	7·01	+ 7·11	26·11	17·92	+ 8·19	Masulipatam	

* Wind observations for 24 days only. † Mean of 26 days. ‡ Mean of 22 days.

Table

Abstract of Observations taken at 8 A.M. at 176 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 during month.	Date.	Lowest pressure during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras (Central)	Cuddapah	433	29·363	?	29·739	29·449	13th	29·240	24th	·209	78·2	88·5	?	74·3	?	81·4	?	14·2	95·6	1st	70·1	16th	25·5
	Kurnool	923	28·858	?	29·726	28·937	13th	28·738	24th	·199	76·5	86·6	?	73·1	?	79·9	?	13·5	92·5	6th	70·4	18th	22·1
	Bellary	1,475	28·326	+·002	29·746	28·408	13th	28·202	24th	·206	76·4	87·1	−4·0	72·7	−0·7	79·9	−2·4	14·4	93·4	9th	69·0	20th	24·4
Madras (East Coast, North).	Rajahmundry	112	29·611	?	29·659	29·695	12th	29·531	28th	·164	81·0	88·4	?	76·5	?	82·5	?	11·9	92·0	3 days	71·0	11th	21·0
	Cocanada	26	29·697	?	29·658	29·778	9th	29·610	21st	·168	81·3	88·5	?	77·8	?	83·2	?	10·7	94·2	3 days	73·7	11th	20·5
	Vizagapatam	31	29·678	+·011	29·647	29·780	10th	29·567	31st	·213	83·6	85·9	−1·7	80·7	+0·3	83·3	−0·7	5·2	88·4	21st	78·4	3 days	10·0
	Gopalpur	21	29·687	+·040	29·647	29·775	10th	29·561	31st	·214	80·8	87·1	+1·2	77·6	−2·8	82·3	−0·8	9·5	92·2	20th	73·8	22nd	18·4
XII.—Hill Stations.																							
Beluchistan	Quetta	5,502	24·480	+·020	?	24·557	17th	24·393	3rd	·164	73·2	90·4	−0·3	62·3	+0·1	76·4	−0·1	28·1	94·1	5th & 22nd.	51·4	31st	42·7
	Kelat	...	?	?	?	?	?	?	?	?	?	90·2	?	55·7	?	73·0	?	34·5	95·0	5th	46·0	21st	49·0
Northern India	Srinagar	5,204	24·697	?	?	24·807	17th	24·555	27th	·252	69·9	82·5	?	64·6	?	73·6	?	17·9	89·8	12th	57·2	29th & 30th.	32·6
	Murree	6,344	23·724	−·014	?	23·799	17th	23·612	27th	·187	63·8	71·8	−2·5	60·0	−1·3	65·9	−1·9	11·8	76·6	3 days	55·8	28th & 29th.	20·8
	Simla	7,274	23·011	−·006	?	23·068	17th	22·910	27th	·158	61·6	65·9	?−4·2	58·8	?−1·0	62·4	?−2·6	7·1	69·0	21st	55·4	29th	13·6
	Chakrata	7,052	23·141	−·008	?	23·187	15th & 17th.	23·032	27th	·155	62·7	68·0	−1·4	59·5	0	63·8	−0·7	8·5	71·3	5th & 30th.	57·3	4th & 17th	14·0
	Mussoorie	?	23·439	?	?	23·496	17th	23·334	27th	·162	66·1	68·1	−0·5	60·1	+0·1	64·1	−0·2	8·0	74·3	6th	57·9	3rd & 30th.	16·4
	Ranikhet	6,069	24·000	+·024	?	24·054	16th	23·912	3rd	·142	65·1	70·8	−1·8	61·7	−0·3	66·3	−1·1	9·1	75·0	3 days	59·5	30th	15·5
	Gnatong	?	*19·292	?	?	19·309	17th	19·172	20th	·137	?	†56·6	?	†38·4	?	†47·5	?	18·2	64·9	29th	35·1	5th	29·8
	Darjeeling	7,421	22·918	+·007	?	22·971	2 days	22·808	3rd	·163	59·5	64·1	−2·1	56·2	−0·6	60·2	−1·4	7·9	67·6	22nd	53·6	11th	14·0
Central India	Mount Abu	3,945	?	?	?	?	...	?	...	?	66·8	71·4	−0·6	65·1	+0·6	68·3	0	6·3	75·1	10th	63·4	6th	11·7
	Pachmarhi	3,511	26·285	+·002	?	26·364	13th	26·190	1st	·174	70·1	76·0	+1·2	67·7	+0·8	71·9	+1·0	8·3	81·7	26th	65·2	4th & 21st.	16·5
South India	Wellington	6,200	24·197	+·003	?	24·263	10th	24·096	24th	·167	63·3	69·9	−0·9	56·7	−0·6	63·3	−0·8	13·2	74·2	4th	50·2	3rd	24·0
	Kodaikanal	?	?	?	?	?	...	?	...	?	59·5	61·4	?	54·2	?	57·9	?	7·2	64·9	3rd	50·8	3rd	14·1
	Kotagiri																						
XIII.—Extra India.																							
Persia	Bushire	14	29·536	?	29·505	29·644	18th	29·437	12th	·207	92·1	98·0	?	84·9	?	91·5	?	13·1	111·5	17th	79·9	30th	31·6
Arabia	Aden	94	29·629	?	29·654	29·723	17th	29·534	26th	·189	81·1	89·6	?	77·7	?	83·7	?	11·9	98·8	3rd	72·7	31st	26·1
	Perim	?	29·533	?	29·529	29·599	17th	29·439	8th	·160	87·5	93·9	?	83·8	?	87·9	?	10·1	97·4	11th	79·0	17th	18·4
Arabian Sea Islands.	Minicoy	10	29·908	?	29·843	29·954	10th	29·803	24th	·151	80·0	82·4	?	78·3	?	80·4	?	4·1	85·3	8th	72·8	5th	12·5
Africa	Zanzibar	73	30·044	?	30·044	30·101	31st	29·963	24th	·138	75·2	81·4	?	73·2	?	77·3	?	8·2	84·1	25th	71·2	12th	12·9

* Mean of 29 days. † Mean of 30 days.

I—*concluded.*

in India, Burma, etc., in August 1892—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 1892.	Normal rainfall for period 1st June to 31st August.	Variation from normal of period.	Station.	Meteorological Province or District.
...	1	2	...	...	...	6	10	12		?	?	82	·786	8·6	16	7·90	+8·10	13·39	5·72	+7·67	26·27	12·07	+14·20	Cuddapah .	Madras (Central).
29	...	...	...	...	...	...	2	...		?	?	83	·750	9·1	15	9·33	+5·67	7·66	5·91	+1·75	17·76	14·17	+ 3·59	Kurnool.	
11	...	...	...	...	...	1	16	3	10	11	− 9	76	·690	8·9	9	4·55	+4·45	6·46	2·39	+4·07	12·98	5·94	+ 7·04	Bellary.	
8	1	2	...	...	...	2	14	4		?	?	83	·900	7·2	15	9·1	+5·99	12·17	6·36	+5·81	25·51	17·28	+ 8·23	Rajahmundry	Madras (East Coast, North).
...	2	3	1	1	1	4	12	7	8	?	?	84	·890	6·3	14	9·1	+4·9	5·58	5·51	+0·07	16·79	15·27	+ 1·52	Cocanada.	
...	1	1	...	...	...	1	23	5	1	3	− 66	80	·918	8·1	14	10·64	+3·36	12·42	5·99	+6·43	20·54	14·68	+ 5·80	Vizagapatam.	
4	5	...	...	...	2	12	4	4	12	8	+ 50	88	·915	3·7	15	11·44	+3·56	11·66	8·18	+3·48	27·66	23·21	+ 4·45	Gopalpur.	
																								XII.—Hill Stations.	
31	...	...	...	...	...	...	...	...	0	4	0	61	·514	2·1	3	0·91	+2·09	1·32	0·47	+0·85	2·06	1·20	+ 0·86	Quetta. .	Beluchistan.
...	...	...	...	...	...	2	5	24	?	?	?	?	?	?	2	?	?	0·41	?	?	0·56	?	?	Kelat.	
9	2	2	6	4	2	...	4	2	4	?	?	84	·622	6·2	7	?	?	3·56	?	?	9·77	?	?	Srinagar .	Northern India.
7	4	1	1	6	...	1	...	11	5	5	0	92	·544	6·6	19	15·64	+3·36	19·49	14·07	+5·42	38·35	26·23	+12·12	Murree.	
18	2	1	...	1	7	1	1	...		?	?	94	·517	9·4	24	19·45	+4·55	19·06	17·54	+1·52	35·85	42·10	− 6·25	Simla.	
15	...	2	8	...	...	1	5	...	4	?	?	94	·541	3·8	27	?	?	35·19	17·24	+17·95	58·40	42·38	+16·02	Chakrata .	
...	2	...	7	13	2	1	1	5		8	?	98	·568	9·4	30	22·18	+7·72	43·15	28·91	+14·24	67·73	68·02	− 0·29	Mussoorie.	
26	...	1	2	2	...	...	...	...	1	2	− 50	92	·571	9·3	24	17·82	+6·18	20·89	12·73	+8·16	32·92	31·62	+ 1·30	Ranikhet.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	31	?	?	31·98	?	?	92·77	?	?	Gnatong .	
16	...	4	4	1	...	2	4	...	4	3	+ 33	98	·500	9·6	28	24·43	+3·57	26·25	29·74	−3·49	95·08	83·74	+11·34	Darjeeling.	
3	...	...	...	...	...	9	16	3	8	11	− 27	99	·650	9·5	29	18·50	+10·50	38·22	23·40	+14·82	62·00	51·36	+10·64	Mount Abu .	Central India.
2	1	...	...	...	1	5	22	...	12	7	+ 71	92	·679	9·5	25	21·18	+3·82	18·52	18·61	−0·09	63·19	56·83	+ 6·36	Pachmarhi.	
9	...	...	...	4	4	6	6	2	3	4	− 25	73	·432	8·2	11	10·89	+0·11	6·49	3·65	+2·84	12·70	9·96	+ 2·74	Wellington .	South India
5	...	...	...	...	...	1	4	21	6*	?	?	76	·386	7·6	18	12·00	+6·00	7·01	6·39	+0·62	19·35	15·21	+ 4·14	Kodaikanal.	
																								Kotagiri.	
																								XIII.—Extra India	
...	3	3	8	6	3	...	2	6	4	?	?	72	1·083	?	0	?	?	0	0	0	0	0	0	Bushire .	Persia.
10	...	...	...	...	10	11	...	...	10†	11	− 9	79	·835	2·2	0	?	?	0	0·30	−0·30	?	?	?	Aden .	Arabia.
7	1	...	...	...	...	3	11	9	15	?	?	69	·898	4·3	0	?	?	0·11	?	?	?	?	?	Perim.	
...	...	...	...	...	...	2	25	4	20	?	?	83	·848	5·9	10	?	?	6·56	?	?	?	?	?	Menicoy .	Arabian Sea Islands.
...	...	...	...	2	17	12	...	...	9	6	+ 50	84	·730	5·7	1	?	?	0·50	?	?	6·01	?	?	Zanzibar .	Africa.

* Mean of 22 days. Mean o 29 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95

Meteorological Province	Station.	Elevation of bar-cistern above sea-level.	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	...	29·783	29·696	·087	29·736	−·012	29·728	85·5	76·5	9·0	88·8	73·7	15·1	82·9	82·3	79·8	− 0·1	74·2	78·9	78·2	77·1
	Mergui	...	·789	·684	·105	·732	−·017	·761	86·1	66·9	19·2	90·6	64·5	26·1	80·7	82·0	75·5	− 1·9	65·6	76·7	77·1	73·1
	Rangoon	...	·810	·702	·108	·762	+·005	·740	84·7	75·2	95	88·7	67·8	20·9	80·0	81·3	78·5	+ 0·2	73·6	77·8	77·7	76·4
	Diamond Island	...	·805	·715	·090	·757	+·008	·733	84·4	77·0	7·4	87·2	72·4	14·8	82·1	81·6	79·6	+ 1·1	74·3	77·5	77·1	76·3
	Cocos Island	111	Not received.																			
	Akyab	...	·798	·698	·100	·753	+·045	·716	84·3	75·9	8·4	89·1	74·2	14·9	80·3	81·8	78·9	− 1·4	73·7	78·1	78·4	76·7
Assam.	Silchar	...	·670	·549	·121	·619	+·044	·674	87·1	76·0	11·1	93·2	73·8	19·4	82·4	83·8	81·0	− 1·4	75·1	78·6	78·9	77·5
	Sibsagar	...	·388	·262	·126	·325	−·007	·612	87·8	77·8	10·0	93·2	76·0	17·2	82·6	86·4	81·6	− 0·9	77·0	79·7	80·8	79·2
	Dhubri	...	·622	·504	·118	·568	+·035	·636	85·0	77·3	7·7	88·2	74·8	13·4	80·9	82·6	79·6	− 1·0	75·6	78·1	78·8	77·5
Bengal and Orissa.	Chittagong	...	·704	·604	·100	·661	+·056	·697	85·0	75·7	9·3	89·5	73·3	16·2	81·9	82·4	79·3	− 0·4	74·4	77·9	78·3	76·9
	Dacca	...	·721	·614	·107	·673	+·051	·643	87·9	78·9	9·0	90·9	74·5	16·4	83·9	84·6	82·8	+ 0·1	76·2	79·7	79·8	78·5
	Calcutta (Alipore)	...	·702	·600	·102	·656	+·060	·623	86·8	77·3	9·5	91·0	74·7	16·3	83·3	83·3	81·8	− 0·6	76·0	78·8	78·7	77·8
	Calcutta (Chowringhee).	...	·718	?	?	?	?	?	88·9	77·4	11·5	93·7	75·2	18·5	84·3	?	?	?	76·5	80·2	?	?
	Saugor Island	...	·699	·597	·102	·653	+·062	·622	87·3	79·6	7·7	90·6	76·0	14·6	84·6	85·1	82·5	+ 0·1	76·6	80·6	80·3	79·2
	Burdwan	...	·621	·514	·107	·575	+·060	·621	89·6	78·7	10·9	93·0	76·9	16·1	83·7	85·7	82·8	− 0·6	77·1	78·6	78·7	78·1
	Berhampore	...	·649	·535	·114	·600	+·050	·615	88·6	78·4	10·2	91·1	75·8	15·3	83·7	84·6	82·1	− 1·1	76·6	80·0	80·1	78·9
	False Point	...	·708	·609	·099	·663	+·041	·626	87·4	78·4	9·0	91·1	74·1	17·0	84·2	85·2	82·0	+ 0·5	76·7	79·6	79·5	78·6
	Cuttack	...	·632	·528	·104	·587	+·036	·610	89·9	78·3	11·6	94·4	74·8	19·6	86·4	86·7	82·9	+ 0·3	76·1	78·9	78·8	77·9
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·692	27·602	·090	27·649	+·029	·584	85·2	72·9	12·3	88·7	71·3	17·4	80·5	81·2	77·7	+ 0·5	71·3	75·0	75·5	74·0
	Patna	...	29·489	29·381	·108	29·440	+·023	·575	86·7	77·9	8·8	91·1	73·2	17·9	84·1	85·4	81·5	− 2·1	76·3	79·8	80·1	78·7
	Darbhanga	...	·534	·421	·113	·483	+·046	·602	87·3	77·9	9·4	90·7	74·0	16·7	82·7	85·7	81·7	− 1·1	76·6	79·3	80·5	8·8
	Allahabad	...	·342	·238	·104	·294	+·019	·556	89·9	78·4	11·5	94·1	76·2	17·9	85·1	85·6	82·5	− 0·8	76·6	80·4	80·4	79·1
	Ghazipur	220	·437	·334	·103	·390	+·036	·563	88·1	78·8	9·3	92·5	76·1	16·4	84·5	85·6	82·3	− 0·3	76·8	80·5	80·8	79·4
	Lucknow	...	·259	·162	·097	·212	−·011	·536	88·4	77·3	11·1	93·3	73·1	20·2	83·2	84·1	81·7	− 3·2	76·4	79·6	79·6	78·5
Upper Sub-Himalayas.	Dehra Dun	...	27·454	27·380	·074	27·410	+·004	·579	82·1	72·4	9·7	87·5	70·2	17·3	77·0	78·0	75·6	− 2·8	71·3	74·1	75·1	73·5
	Roorkee	...	28·755	28·648	·107	28·698	+·010	·544	87·6	75·9	11·7	94·2	73·1	21·1	81·7	84·9	80·5	− 2·8	74·1	77·9	79·2	77·1
	Meerut	...	·900	·800	·100	·843	+·010	·539	87·5	76·4	11·1	93·3	73·9	19·4	82·7	84·5	81·0	− 3·0	76·4	78·4	79·0	77·9
	Lahore	...	·896	·806	·090	·844	−·002	·505	91·0	78·1	12·9	97·3	71·1	26·2	86·0	88·6	83·7	− 2·7	76·2	80·6	81·6	79·5
	Ludhiana	...	·781	·681	·100	·725	−·023	·496	89·1	77·0	12·1	94·5	73·1	21·4	84·0	86·4	82·0	− 4·1	75·9	79·5	80·2	78·5
Indus Valley and N.W. Rajputana.	Peshawar	...	·511	·406	·105	·452	+·022	·525	92·4	76·7	15·7	99·0	70·4	28·6	85·6	90·6	83·8	− 3·5	74·4	79·0	79·1	77·5
	Mooltan	...	29·145	29·060	·085	29·096	−·001	·477	96·1	80·9	15·2	102·0	73·2	28·8	89·3	94·3	87·8	− 1·9	75·5	80·4	83·0	79·7
	Jacobabad	...	·384	·273	·111	·321	−·001	·462	102·6	82·1	20·5	110·3	76·6	33·7	92·5	98·4	91·0	− 0·4	77·5	81·2	80·7	79·8
	Hyderabad (Sind)	...	29·467	·378	·089	·426	−·013	·493	94·0	79·4	14·6	100·0	74·1	25·9	87·6	91·4	85·6	+ 0·2	75·3	77·2	78·3	77·0
	Kurrachee	...	·577	·491	·086	·537	−·034	·538	89·9	80·5	9·4	92·4	76·3	16·1	85·1	87·2	84·3	+ 2·4	77·4	80·4	81·4	79·8
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·233	28·139	·094	28·185	−·001	·558	88·6	75·6	13·0	96·9	73·4	23·5	82·7	83·9	80·2	− 1·1	74·2	77·5	77·8	76·5
	Ajmere	...	·066	27·975	·091	·018	−·002	·573	86·9	75·8	11·1	93·6	73·1	20·5	81·3	84·6	80·3	+ 0·6	74·2	76·9	78·0	76·4
	Deesa	...	29·208	29·100	·108	29·152	−·021	·576	88·2	77·2	11·0	96·5	73·0	23·5	83·3	86·5	81·9	+ 0·3	75·0	77·1	77·9	76·7
	Nowgong	...	28·895	28·800	·095	28·848	+·008	·557	87·1	76·4	10·7	90·5	73·5	17·0	82·5	83·0	80·4	− 1·4	75·1	78·5	78·4	77·3
	Agra	...	29·085	·998	·087	29·039	+·012	·548	88·9	78·4	10·5	93·7	75·5	18·2	85·2	84·8	83·2	− 1·8	76·1	80·2	80·1	78·8
Deccan.	Belgaum	...	27·291	27·212	·079	27·252	−·023	·707	75·7	66·4	9·3	79·9	64·8	15·1	72·3	71·0	69·3	− 0·3	65·8	69·4	68·8	68·0
	Sholapur	...	28·185	28·061	·124	28·130	−·022	·657	87·3	70·7	16·6	93·8	67·8	26·0	79·1	83·8	77·6	− 0·6	69·4	72·6	73·9	71·9
	Poona	...	27·934	27·851	·083	27·893	−·022	·677	81·8	69·8	12·0	88·8	67·3	21·5	77·0	77·3	73·7	+ 0·1	68·3	71·5	71·6	70·5
	Akola	...	28·791	28·672	·119	28·729	−·013	·607	86·6	73·2	13·4	92·9	70·4	22·5	80·9	84·3	79·6	+ 0	72·2	76·0	77·2	75·1

II.

Stations in India, Burma, etc., for August 1892.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·814	·938	·912	·888	− ·007	89	83	83	85	− 1	8·0	8·3	8·2	+ 1·2	3	1	...	...	9	16	15	14	4	S. 36° W.	S. 43° W.	58	82	203	228	Port Blair	Burma Coast and Bay Island.
·614	·865	·867	·782	− ·062	93	83	79	85	− 4	8·3	8·8	8·6	− 0·1	...	7	2	...	1	12	10	9	21	N. 83° W.	S. 63° W.	47	63	47	40	Mergui	
·811	·927	·902	·880	− ·009	93	90	85	89	− 2	8·7	8·1	8·4	− 0·5	...	...	2	1	4	21	23	5	4	S. 28° W.	S. 34° W.	66	66	91	113	Rangoon	
·813	·882	·872	·856	− ·020	88	81	81	83	− 5	7·9	8·6	8·3	+ 0·8	...	1	1	1	11	21	18	3	5	S. 15° W.	S. 44° W.	61	78	195	164	Diamond Island.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cocos Island	
·803	·935	·929	·887	− ·019	89	90	86	89	+ 1	8·9	8·6	8·8	+ 0·7	...	...	7	7	6	26	9	6	1	S. 6° E.	S. 1° E.	50	62	76	81	Akyab	
·860	·928	·923	·903	− ·018	95	84	80	87	+ 2	9·0	8·6	8·8	+ 0·9	46	...	...	1	1	4	2	7	1	S. 54° W.	S. 63° W.	14	7	16	69	Silchar	Assam.
·919	·974	·978	·957	+ ·014	96	87	78	87	+ 3	8·9	7·5	8·2	− 0·3	1	1	10	7	1	2	38	1	1	S. 34° W.	S. 30° W.	40	12	57	63	Sibsagar	
·867	·926	·934	·909	− ·017	92	88	84	88	+ 1	8·5	8·0	8·3	+ 0·9	10	...	2	3	5	9	32	...	1	S. 25° W.	S. 57° E.	58	20	106	78	Dhubri	
·834	·906	·915	·885	− ·019	94	83	83	86	− 2	9·7	9·7	9·7	+ 2·3	10	...	1	...	13	22	14	2	...	S. 3° W.	S. 32° E.	66	55	108	146	Chittagong	Bengal and Orissa.
·866	·954	·953	·924	− ·047	88	83	81	84	− 3	7·4	6·7	7·1	− 0·7	...	...	...	1	8	41	10	1	1	S. 2° W.	S. 14° E.	85	72	201	151	Dacca	
·881	·926	·921	·909	− ·059	94	81	81	85	− 3	8·5	8·6	8·6	+ 0·4	...	...	...	3	13	27	18	1	...	S. 2° W.	S. 17° E.	79	57	98	122	Calcutta (Alipore).	
·904	·977	?	?	?	96	83	?	?	?	?	?	?	?	Not recorded.													?	?	Calcutta (Chowringhee).	
·877	·994	·971	·947	− ·046	87	84	80	84	− 3	8·4	8·4	8·4	+ 0·8	...	...	...	2	14	34	11	...	1	S. 4° E.	S. 17° W.	82	54	349	299	Saugor Island	
·909	·909	·883	·903	− ·044	92	79	72	81	− 3	8·2	8·5	8·4	+ 0·1	2	...	...	4	14	27	14	1	...	S. 4° E.	S. 27° E.	76	48	109	81	Burdwan	
·892	·977	·972	·947	− ·005	91	84	82	86	− 1	8·1	8·7	8·4	− 0·4	5	...	2	10	11	22	11	1	...	S. 16° E.	S. 40° E.	61	45	79	101	Berhampore	
·899	·953	·931	·928	− ·004	92	81	77	84	− 1	7·8	7·5	7·7	− 0·1	...	...	...	3	14	31	10	3	1	S. 3° E.	S. 57° W.	77	53	275	238	False Point	
·873	·891	·883	·882	− ·025	90	71	69	77	− 4	7·5	8·3	7·9	+ 0·6	6	...	2	5	4	18	18	7	2	S. 21° W.	S. 44° W.	53	45	64	62	Cuttack	
·751	·803	·814	·789	− ·013	92	77	77	82	− 3	9·8	9·7	9·8	+ 1·0	1	2	2	9	9	25	7	5	2	S. 10° E.	S. 50° W.	52	7	175	180	Hazaribagh	Gangetic Plain and Chota Nagpur.
·891	·962	·958	·937	− ·018	93	83	79	85	+ 2	9·6	8·6	9·1	+ 1·0	6	1	2	34	9	8	...	2	...	S. 74° E.	S. 19° E	66	34	128	83	Patna	
·902	·956	·974	·944	− ·017	95	86	80	87	+ 3	6·9	6·1	6·5	+ 0·4	1	3	8	25	15	3	2	1	4	S. 85° E.	S. 82° E.	58	60	110	110	Darbhanga	
·893	·976	·971	·947	0	92	81	80	84	+ 1	8·8	8·7	8·8	+ 1·3	3	4	6	10	9	8	10	5	7	S. 24° E.	N. 40° E.	14	4	78	93	Allahabad	
·898	·991	·989	·959	+ ·043	91	84	81	85	+ 6	7·9	6·8	7·4	+ 0·7	15	1	1	13	22	4	5	1	...	S. 49° E.	S. 50° E.	53	19	62	57	Ghazipur	
·898	·966	·953	·939	+ ·027	95	85	82	87	+ 8	9·0	8·5	8·8	+ 1·3	...	3	6	22	15	9	5	1	1	S. 64° E.	S. 77° E.	56	12	46	72	Lucknow	
·755	·807	·840	·801	?	95	87	88	90	?	8·9	8·9	8·9	+ 1·4	32	...	1	3	8	9	5	3	1	S. 7° E.	S. 43° W.	27	10	9	26	Dehra Dun	Upper Sub-Himalayas.
·822	·907	·921	·883	+ ·022	92	84	77	84	+ 7	8·7	7·8	8·3	+ 2·1	34	...	...	1	23	1	1	1	...	S. 41° E.	S. 36° E.	39	27	...	60	Roorkee	
·911	·919	·918	·916	+ ·042	100	82	78	87	+ 11	8·6	7·4	8·0	+ 1·6	23	...	1	10	21	...	5	...	2	S. 52° E	N. 80° E.	42	5	31	50	Meerut	
·886	·975	·986	·949	+ ·082	91	79	74	81	+ 17	6·4	5·6	6·0	+ 2·3	9	7	1	14	17	8	2	1	3	S. 62° E.	S. 83° E.	40	27	66	69	Lahore	
·885	·951	·948	·928	+ ·056	95	82	76	84	+ 12	8·6	7·8	8·2	+ 2·6	31	2	...	9	10	8	...	1	1	S. 49° E.	S. 66° E.	31	10	52	34	Ludhiana	
·828	·913	·853	·865	+ ·089	90	75	61	76	+ 15	3·5	3·6	3·6	+ 0·8	2	17	15	9	7	2	3	4	3	N. 38° E.	N. 40° E.	42	55	75	94	Peshawar	Indus Valley and N.-W. Rajputana.
·813	·920	·982	·905	+ ·022	77	67	61	68	+ 5	3·5	4·4	4·0	+ 1·8	4	...	14	...	28	...	11	...	5	S. 53° E.	S. 19° W.	38	22	65*	70	Mooltan	
·886	·914	·813	·871	+ ·056	81	61	46	63	+ 6	3·6	4·3	4·0	+ 1·7	11	...	2	4	23	18	1	1	2	S. 30° E.	S. 50° E.	60	54	113	94	Jacobabad	
·825	·794	·795	·805	+ ·015	82	61	55	66	+ 2	9·5	9·6	9·6	+ 6·4	...	...	...	...	8	...	52	2	...	S. 38° W.	S. 43° W.	87	81	237*	330	Hyderabad (Sind)	
·902	·977	·994	·958	+ ·105	87	81	77	81	+ 3	7·0	6·8	6·9	+ 0·1	...	...	...	...	...	...	27	29	...	S. 68° W.	S. 63° W.	84	84	336	409	Kurrachee	
·831	·880	·878	·863	+ ·049	93	79	76	83	+ 5	8·1	8·9	8·5	+ 1·3	2	4	3	4	1	3	6	13	26	N. 60° W.	N. 58° W.	53	40	67	127	Jeypore	E. Rajputana, Central India and Guzerat.
·829	·869	·880	·859	+ ·080	93	82	75	83	+ 7	7·0	7·2	7·1	+ 0·9	1	3	2	...	...	...	3	45	8	N. 81° W	S. 70° W.	84	56	164	138	Ajmere	
·840	·850	·840	·845	+ ·048	90	75	67	78	+ 3	8·6	8·4	8·5	+ 0·5	...	4	2	...	...	...	26	20	6	S. 78° W.	S. 47° W.	73	72	244	288	Deesa	
·855	·924	·915	·898	+ ·041	94	83	82	86	+ 6	8·6	9·4	9·0	+ 0·6	3	2	3	3	2	1	4	41	3	N. 89° W.	S. 82° W.	63	38	50*	81	Nowgong	
·871	·969	·966	·935	+ ·039	89	80	81	83	+ 7	7·6	8·9	8·3	+ 1·9	...	1	16	...	14	...	15	...	16	N. 16° W.	S. 22° E.	5	10	60	157	Agra	
·628	·684	·679	·664	+ ·009	97	86	89	91	+ 2	9·7	9·9	9·8	+ 1·3	...	...	...	...	...	12	36	10	...	S. 43° W.	S. 78° W.	90	89	486	497	Belgaum	Deccan.
·704	·719	·714	·712	+ ·056	94	72	63	76	+ 7	8·6	8·8	8·7	+ 0·4	...	1	...	1	1	...	15	35	9	N. 84° W.	N. 89° W.	82	79	271*	279	Sholapur	
·675	·706	·705	·695	+ ·013	93	76	75	81	+ 2	9·1	9·3	9·2	+ 0·5	2	...	...	...	...	...	10	48	2	S. 84° W.	S. 84° W.	92	82	261	340	Poona	
·780	·833	·839	·817	+ ·070	96	79	72	82	+ 7	9·0	9·3	9·2	+ 1·0	...	5	1	...	1	...	4	8	43	N. 51° W.	N. 71° W.	82	80	171	194	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level.	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	27·614	27·517	·097	27·563	−·011	29·622	82·2	70·0	12·2	86·5	68·1	18·4	76·1	78·7	75·5	+0·1	68·5	72·0	73·2	71·2
	Khandwa	...	28·669	28·565	·104	28·615	−·001	·612	84·5	74·3	10·2	88·2	72·1	16·1	79·4	81·9	78·2	−0·2	72·5	75·7	76·6	74·9
	Hoshangabad	...	·676	·574	·102	·623	−·012	·597	85·4	74·7	10·7	90·3	72·7	17·6	80·2	82·9	78·8	+0·4	73·6	76·9	77·7	76·1
	Nagpur	...	·672	·558	·114	·614	+·002	·586	86·1	75·0	11·1	91·6	71·6	20·0	81·3	83·0	80·1	−0·2	72·5	76·9	76·9	75·4
	Sironcha	401	29·325	29·214	·111	29·268	−·026	·614	87·8	76·3	11·5	92·9	73·1	19·8	82·6	84·1	81·4	+0·2	74·5	78·5	79·1	77·4
	Chanda	634	·080	28·959	·121	·018	−·010	·592	87·2	74·9	12·3	93·0	71·2	21·8	81·6	84·4	80·7	−0·2	73·3	76·1	77·0	75·5
	Seoni	...	27·678	27·584	·094	27·629	+·006	·584	82·9	71·7	11·2	87·6	69·1	18·5	78·1	79·3	76·2	+0·5	71·1	74·8	75·5	73·8
	Jubbulpore	...	28·361	28·256	·105	28·307	+·021	·581	85·0	73·9	11·1	90·0	70·4	19·6	79·6	81·7	78·0	0	72·6	75·9	76·5	75·0
	Saugor	...	27·923	27·825	·098	27·872	+·010	·572	83·9	73·1	10·8	88·3	70·6	17·7	79·2	81·4	77·3	+0·8	72·1	76·1	76·6	74·9
	Raipur	...	28·733	28·614	·119	28·672	+·020	·572	87·0	75·5	11·5	95·5	72·1	23·4	82·1	84·1	80·9	+0·9	73·5	77·2	77·5	76·1
	Sutna	...	·609	·508	·101	·560	+·010	·555	85·4	74·6	10·8	89·6	70·6	19·0	82·2	82·3	78·7	−1·9	73·6	77·9	77·7	76·4
	Sambalpur	...	29·212	29·105	·107	29·165	+·028	·572	88·9	77·1	11·8	92·3	74·2	18·1	84·0	86·4	82·5	+1·0	75·2	78·7	79·4	77·8
	Secunderabad	...	27·978	27·865	·113	27·928	−·020	·648	85·2	70·9	14·3	89·1	67·9	21·2	78·0	81·4	76·6	−0·8	69·7	72·4	73·5	71·9
	Hyderabad (Deccan).	...	28·077	·963	·114	28·020	?	·646	83·0	71·6	11·4	86·8	68·5	18·3	77·2	81·1	76·8	?	70·2	72·7	74·6	72·5
West Coast.	Bombay	...	29·747	29·664	·083	29·703	−·024	·680	82·3	76·2	6·1	85·7	73·6	12·1	79·9	80·1	78·8	−1·1	74·5	77·0	76·8	76·1
	Ratnagiri	...	·698	·613	·085	·652	−·028	·700	82·5	75·0	7·5	85·6	73·0	12·6	79·9	79·1	78·0	−0·8	73·5	77·2	76·6	75·8
	Karwar	...	·804	·735	·069	·766	−·018	·743	80·9	73·3	7·6	83·9	71·1	12·8	78·2	78·4	76·6	−1·2	70·8	75·5	75·4	73·9
	Cochin	...	·901	·816	·085	·855	−·021	·793	84·3	73·4	10·9	87·8	68·0	19·8	78·9	79·6	77·8	−0·9	72·0	75·2	75·5	74·2
South India.	Salem	...	28·915	28·789	·126	28·866	−·030	·743	89·8	72·4	17·4	94·2	70·1	24·1	80·3	84·6	78·6	−1·0	70·7	74·3	75·4	73·5
	Mercara	...	26·176	26·088	·088	26·132	−·040	·796	68·8	62·3	6·5	73·6	61·0	12·6	65·2	65·2	64·2	−1·3	61·4	64·2	64·1	63·2
	Bangalore	...	·867	·765	·102	·816	?	·724	78·9	65·7	13·2	82·9	62·8	20·1	72·2	76·7	71·8	?	64·9	68·2	69·8	67·6
	Chitaldroog	...	27·434	27·333	·101	27·384	?	·679	80·3	?	?	85·8	?	?	74·4	77·6	?	?	?	69·3	70·2	?
	Trichinopoly	...	29·570	29·444	·126	29·521	−·023	·706	93·8	75·8	18·0	99·9	71·6	28·3	85·3	90·4	82·7	−1·1	71·7	75·2	76·7	74·5
	Madras	...	·772	·669	·103	·730	−·017	·750	90·5	76·0	14·5	97·2	70·8	26·4	84·3	85·5	81·7	−2·5	?	77·5	78·1	77·0
	Bellary	...	28·331	28·212	·119	28·279	−·020	·689	87·5	72·7	14·8	93·6	68·8	24·8	80·5	84·7	78·9	−2·1	69·1	72·2	73·1	71·5
	Vizagapatam	...	29·695	29·584	·111	29·645	+·011	·614	85·9	80·7	5·2	88·5	78·4	10·1	84·9	86·4	84·9	−0·5	75·4	79·1	79·8	78·1
Hill Station, Baluchistan.	Quetta	...	24·484	24·403	·081	24·442	+·005	?	90·2	62·4	27·8	94·3	51·2	43·1	81·1	87·6	75·6	+0·1	57·5	63·8	64·6	62·1
Hill Stations, Northern India.	Leh	11,503	19·699	19·594	·105	19·657	+·032	?	75·4	49·9	25·5	81·9	41·8	40·1	64·7	70·4	61·1	+0·2	44·9	52·5	54·7	50·7
	Srinagar	...	24·707	24·615	·092	24·662	?	?	82·2	64·5	17·7	88·8	57·2	31·6	74·1	80·5	72·9	?	62·9	68·5	72·3	67·9
	Murree	...	23·746	23·704	·042	23·723	−·018	?	71·6	59·9	11·7	76·6	55·7	20·9	67·1	69·0	65·2	−1·7	?	65·0	66·8	?
	Chamba	3·005?	26·702	26·618	·084	26·662	+·002	?	81·8	69·6	12·2	86·1	64·0	22·1	76·3	79·4	74·5	−1·5	68·7	72·2	73·7	71·5
	Kailang	10,087?	20·720	20·654	·066	20·689	+·024	?	72·7	50·9	21·8	80·0	42·3	37·7	63·8	66·7	59·7	−0·9	49·2	56·6	55·1	53·6
	Simla (Ridge)	...	23·031	22·975	·056	23·001	−·006	?	66·1	58·8	7·3	69·0	55·4	13·6	63·0	63·5	61·9	−1·8	58·1	61·7	62·4	60·7
	Simla (Chapslee)	Not recorded.						?	67·3	59·4	7·9	73·1	55·8	17·3	63·7	?	?	?	58·2	62·0	?	?
	Chakrata	...	·157	23·097	·060	·125	−·021	?	68·1	59·3	8·8	71·7	52·0	19·7	64·7	65·0	63·0	−0·4	59·4	63·1	63·4	61·9
	Ranikhet	...	24·013	·948	·065	·965	+·009	?	70·8	61·7	9·1	75·0	59·5	15·5	67·4	68·7	65·9	−1·0	61·4	64·9	66·1	64·1
	Pithoragarh	5,363	·650	24·583	·067	24·602	+·036	?	76·2	64·6	11·6	81·8	61·0	20·8	71·1	73·9	69·9	−0·6	63·5	68·1	69·4	67·0
	Katmandu	4,388	25·489	25·410	·079	25·453	+·015	?	81·5	67·3	14·2	85·8	64·1	21·7	75·4	76·1	73·1	−2·4	66·1	70·1	71·0	69·1
	Darjeeling	...	22·938	22·863	·075	22·904	+·005	?	64·0	56·2	7·8	68·0	53·6	14·4	61·2	61·9	59·6	−1·0	56·0	60·6	61·2	59·3
	Pedong	...	25·196	25·109	·087	25·156	+·023	?	73·7	64·9	8·8	79·2	62·7	16·5	70·2	70·8	68·6	0	63·7	68·1	68·3	66·6
	Demagiri	...	Not recorded.					?	85·6	67·7	17·9	88·9	66·2	22·7	82·9	81·7	75·7	−3·7	Not recorded.			
	Tura	...	Ditto.					?	82·2	73·3	8·9	86·2	70·8	15·4	75·9	78·8	77·0	?	?	73·7	75·5	?

II—*continued.*

Stations in India, Burma, etc., for August 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Winds Steadiness.		Wind Velocity.		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.		
																									%	%	%			
·680	·736	·751	·722	+·021	93	82	77	84	+ 3	9·8	9·4	9·6	+2·0	3	5	...	...	1	4	11	12	26	N. 74° W.	N. 65° W.	63	72	179	199	Buldana.	Deccan—*contd.*
·777	·844	·851	·824	+·061	92	84	78	85	+ 7	7·2	7·1	7·2	−0·2	...	3	...	...	...	...	1	54	4	N. 85° W.	N. 80° W.	93	80	131	192	Khandwa.	
·817	·883	·885	·862	+·052	95	86	79	87	+ 3	9·2	8·9	9·1	+1·5	...	...	...	...	...	20	15	23	4	S. 53° W.	S. 79° W.	74	73	103	85	Hoshangabad.	
·768	·873	·850	·831	+·036	88	82	76	82	+ 3	9·1	9·3	9·2	+0·7	8	3	...	2	3	7	15	13	11	S. 72° W.	N. 76° W.	47	62	129	144	Nagpur.	
·831	·921	·927	·894	+·045	92	83	79	84	+ 2	7·7	7·6	7·7	+0·3	40	2	...	...	1	3	7	8	1	S. 66° W.	S. 84° W.	23	63	22	85	Sironcha.	
·806	·830	·832	·823	+·018	93	77	71	80	+ 2	8·4	8·3	8·4	+0·2	5	...	...	...	1	4	34	17	1	S. 56° W.	N. 80° W.	79	62	130	134	Chanda.	
·755	·823	·834	·804	+·065	97	86	83	89	+ 8	8·2	8·4	8·3	+3·8	6	3	6	4	8	4	13	10	8	S. 62° W.	N. 86° W.	19	50	74	114	Seoni.	
·787	·849	·851	·829	+·021	94	84	78	86	+ 4	8·4	9·0	8·7	+0·4	7	1	1	...	5	3	14	25	6	S. 74° W.	N. 84° W.	58	64	57	107	Jubbulpore.	
·775	·862	·855	·831	+·046	95	86	80	87	+ 4	8·0	7·8	7·9	+1·8	...	3	1	...	...	4	30	23	1	S. 65° W.	S. 78° W.	79	66	98	104	Saugor.	
·800	·871	·858	·843	+·017	90	79	74	81	− 1	9·0	8·8	8·9	+1·0	8	2	1	2	5	3	23	16	2	S. 56° W.	S. 76° W.	53	64	134*	187	Raipur.	
·820	·904	·892	·872	+·043	96	82	81	86	+ 7	6·9	7·1	7·0	+0·1	5	5	1	1	2	12	5	26	5	S. 75° W.	N. 70° W.	50	39	111*	191	Sutna.	
·854	·907	·910	·890	−·012	91	78	73	81	− 3	6·6	7·8	7·2	+0·3	...	1	2	3	7	17	30	1	1	S. 19° W.	S. 54° W.	68	42	115*	80	Sambalpur.	
·712	·729	·730	·723	+·039	94	76	69	80	+ 6	8·5	8·2	8·4	+1·9	3	1	...	...	...	1	5	29	23	N. 75° W.	S. 87° W.	81	83	194	244	Secunderabad.	
·723	·750	·777	·750	?	93	80	74	83	?	8·9	8·1	8·5	?	14	...	..	...	1	1	2	37	7	N. 88° W.	?	69	?	166*	?	Hyderabad (Deccan).	
·832	·894	·880	·869	−·012	92	88	86	89	+ 2	9·6	9·0	9·1	+0·3	...	2	...	2	2	3	15	32	6	S. 79° W.	S. 81° W.	71	81	312	384	Bombay.	West Coast.
·805	·902	·881	·864	+·017	93	89	89	90	+ 5	9·0	9·4	9·2	+2·2	3	3	...	...	...	3	21	23	9	S. 79° W.	S. 63° W.	72	61	217*	242	Ratnagiri.	
·722	·848	·812	·804	−·029	88	88	87	88	0	8·8	8·8	8·8	+1·7	8	16	...	...	...	...	12	19	7	N. 70° W.	W.	56	79	54	?	Karwar.	
·769	·825	·830	·808	−·023	93	84	82	86	− 1	7·3	7·9	7·6	+1·2	...	...	6	1	...	...	4	28	23	N. 67° W.	N. 85° W.	72	59	152	?	Cochin.	
·730	·769	·759	·753	−·009	92	75	65	77	+ 3	8·2	8·0	8·1	+2·1	7	...	1	...	2	17	24	10	1	S. 37° W.	S. 60° W.	69	80	103	94	Salem.	
·536	·589	·588	·571	−·009	94	94	94	94	0	9·3	9·5	9·4	0	...	...	...	...	...	...	...	55	7	N. 85° W.	N. 73° W.	97	88	140	199	Mercara.	South India.
·606	·611	·646	·631	?	96	81	71	82	+ 5	8·3	7·3	7·8	+1·5	...	1	...	...	...	...	27	29	5	S. 74° W.	S. 78° W.	87	91	173*	181	Bangalore.	
?	·653	·650	?	?	?	77	69	?	?	8·9	8·3	8·6	?	...	...	...	...	...	...	21	30	11	S. 82° W.	?	85	?	222*	?	Chitaldroog.	
·727	·716	·733	·735	+·019	82	62	52	65	+ 4	7·7	7·2	7·5	−0·1	1	...	...	...	1	2	10	39	9	S. 86° W.	N. 80° W.	84	82	182	198	Trichinopoly.	
?	·852	·864	·864	+·058	?	73	71	80	+ 9	6·9	7·6	7·3	+0·8	...	1	1	5	7	9	15	20	4	S. 49° W.	S. 40° W.	48	58	110	172	Madras.	
·668	·689	·670	·676	+·009	83	67	57	69	+ 5	9·1	9·0	9·1	+1·5	15	1	...	...	...	...	7	27	12	N. 84° W.	N. 86° W.	66	87	231	262	Bellary.	
·808	·923	·935	·839	+·015	77	76	74	76	+ 4	8·1	6·7	7·4	+0·9	...	2	3	2	5	13	20	15	2	S. 42° W.	S. 74° W.	55	64	21	70	Vizagapatam.	
·433	·416	·373	·410	+·016	76	39	30	48	+ 2	1·7	1·8	1·8	+0·4	57	...	...	...	...	1	1	1	2	S. 85° W.	N. 78° W.	5	42	14*	97	Quetta.	Hill Station, Baluchistan.
·258	·292	·295	·282	+·018	72	48	42	54	+ 5	5·8	5·6	5·7	+0·6	14	1	1	...	1	4	16	18	7	S. 74° W.	S. 72° W.	55	31	16	38	Leh.	Hill Stations, Northern India.
·560	·636	·705	·633	?	92	76	68	79	?	4·6	5·7	5·2	?	4	11	9	3	5	4	4	10	12	N. 29° W.	?	29	?	88*	?	Srinagar.	
?	·597	·637	?	?	?	89	89	?	?	7·5	8·4	8·0	+1·5	19	5	...	2	17	3	2	...	14	S. 60° E.	S. 4° E.	5	12	125	119	Murree.	
·692	·744	·766	·734	−·008	95	82	77	85	+ 2	7·6	7·5	7·6	+0·6	11	5	...	1	4	1	1	6	33	N. 48° W.	N. 33° W.	56	33	74	81	Chamba.	
·339	·399	·335	·358	−·001	90	68	54	70	+ 2	6·7	7·5	7·1	+0·7	...	3	1	1	...	6	21	16	14	S. 80° W.	S. 80° W.	64	61	46	35	Kailang.	
·479	·538	·553	·523	−·012	96	93	94	94	+ 3	9·7	9·8	9·8	+1·1	24	8	...	1	3	17	2	7	...	S. 24° W.	S. 77 W.	23	28	?	?	Simla (Ridge.)	
·475	·541	?	?	?	94	91	?	?	?	9·7	?	?	?	Not recorded.									?	?	?	?	?	?	Simla (Chapslee.)	
·510	·563	·571	·548	+·007	98	92	92	95	+ 3	4·4	2·6	3·5	−5·3	19	...	1	4	1	0	9	26	2	S. 80° W.	S. 73° W.	47	43	88	103	Chakrata.	
·541	·590	·616	·582	+·012	98	88	87	91	+ 4	9·7	9·7	9·7	+1·1	41	...	1	9	...	2	1	6	2	S. 67° E.	S. 59° W.	3	33	26	51	Ranikhet.	
·576	·655	·674	·635	+·004	94	86	81	87	+ 2	9·1	8·4	8·8	+0·8	35	...	4	4	2	6	11	...	...	S. 2° E.	S. 15° E.	19	25	46	51	Pithoragarh.	
·629	·680	·700	·670	−·004	94	77	78	83	+ 3	7·3	7·9	7·6	+0·8	...	4	...	31	...	3	1	13	10	N. 54° E.	S. 79° W.	21	26	18	?	Katmandu.	
·447	·523	·536	·502	−·003	98	97	96	97	+ 3	9·6	9·8	9·7	+1·0	9	1	7	13	3	1	14	11	3	S. 31° W.	N. 84° E.	10	32	97	81	Darjeeling.	
·577	·665	·665	·634	−·019	93	90	88	90	− 3	Imperfect.				...	1	10	6	6	6	2	1	1	S. 78° E.	?	45	?	?	?	Pedong.	
														...	...	...	62	...	...	...	...	...	E.	S. 23° E.	100	30	...	?	Demagiri.	
?	·810	·841	?	?	?	90	85	?	?	8·3	5·4	6·9	−0·1	...	...	...	...	11	50	1	...	...	S. 7° E.	S. 3° W.	95	59	?	?	Tura.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level.	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, Central India.	Mount Abu	...	?	?	?	?	?	?	71·8	65·0	6·8	75·3	63·4	11·9	68·3	69·5	67·8	−0·2	64·7	67·3	68·1	66·7
	Pachmarhi	...	26·303	26·224	·079	26·261	−·002	?	76·2	67·8	8·4	81·7	65·4	16·3	71·7	72·9	70·5	+0·1	66·4	69·3	69·8	68·5
	Chikalda	3,642	26·177	26·096	·081	26·134	−·007	?	74·7	66·2	8·5	80·6	63·9	16·7	69·1	71·4	68·9	+1·2	65·9	68·2	69·5	67·9
	Makhla	...	Not recorded.						76·1	68·2	7·9	80·1	66·2	13·9	70·4	72·1	71·5	+0·5	67·6	69·8	71·2	69·5
Hill Stations, S. India.	Wellington	...	24·205	24·127	·078	24·166	−·009	?	69·8	56·7	13·1	74·0	50·2	23·8	65·8	64·8	62·4	−0·2	54·8	59·9	60·0	58·2
	Kodaikanal	...	Not recorded.						65·7	54·2	11·5	68·7	50·8	17·9	61·4	58·5	58·0	?	51·2	56·8	56·4	54·8
Extra India.	Aden	...	29·633	29·497	·136	29·565	−·027	29·588	88·3	77·7	10·6	94·1	72·7	21·4	83·3	87·1	82·6	−2·4	72·8	76·9	77·0	75·6
	Perim	...	29·522	29·404	·118	29·464	?	?	93·9	83·5	10·4	97·4	79·0	18·4	89·9	90·4	87·9	?	76·6	80·1	79·9	78·8
	Minicoy	...	29·920	29·836	·084	29·875	?	29·810	83·7	78·2	5·5	85·8	72·8	13·0	81·4	81·7	80·6	?	74·3	76·7	76·7	75·9
	Zanzibar	...	30·060	29·964	·096	30·013	?	30·013	81·5	73·2	8·3	84·1	71·2	12·9	76·9	80·9	77·2	?	69·7	72·3	71·7	71·2

II—*concluded.*

in India, Burma, etc., for August 1892—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
																									%	%	%			
·607	·659	·671	·646	+·043	98	95	93	95	+ 5	9·6	9·4	9·5	+0·9	4	1	...	...	...	...	24	23	10	S. 79° W.	S. 58° W.	77	72	181	254	Mount Abu.	Hill Stations, Central India.
·635	·691	·696	·674	+·012	93	89	86	89	− 1	9·1	9·1	9·1	+0·6	5	2	...	...	...	1	16	35	3	S. 80° W.	N. 80° W.	79	72	197*	179	Pachmarhi.	
·634	·682	·703	·673	+·030	98	96	91	95	+ 1	9·6	9·2	9·4	+0·5	20	6	...	...	...	...	...	11	25	N. 51° W.	N. 41° W.	60	72	177	256	Chikalda.	
?	?	?	?	?	?	?	?	?	?	9·9	9·6	9·8	+0·4	...	2	...	...	...	...	9	39	12	N. 86° W.	S. 82° W.	87	60	?	?	Makhla.	
·411	·457	·469	·446	+·007	89	72	77	79	+ 2	8·7	8·9	8·8	+1·2	2	4	...	1	8	10	24	7	6	S. 41° W.	S. 81° W.	53	46	82	87	Wellington.	Hill Stations, S. India.
·349	·417	·434	·400	?	82	78	88	83	?	8·0	9·2	8·6	?	6	7	3	...	..	...	...	1	45	N. 37° W.	?	82	?	124	?	Kodaikanal.	
·742	·844	·799	795	−·002	78	74	62	71	+ 5	1·8	1·6	1·7	0	8	...	...	...	5	36	12	1	...	S. 7° W.	S. 12° E.	77	69	255	268	Aden.	Extra India.
·823	·902	·878	·864	?	72	61	62	65	?	4·2	3·0	3·6	?	2	1	2	4	1	...	3	5	43	N. 46° W.	?	71	?	380	?	Perim.	
·793	·843	·854	·830	?	83	80	79	81	?	5·9	6·5	6·2	?	...	...	...	...	...	...	3	47	10	N. 85 W.	?	95	?	474	?	Minicoy.	
·682	·731	·655	·689	?	84	79	62	75	?	3·8	3·5	3·7	?	...	...	2	...	12	27	10	...	1	S. 3° E.	S. 6° W.	78	59	221*	153	Zanzibar.	

* Corrected.

GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE.—No. 53 METEO.—15-12-92.—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.

No. 615, Wr., I.—Nov. 92.—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.

Reg. No. 615, Wr., I.—Nov. 92—415.

Litho, S. I. O., Calcutta.

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

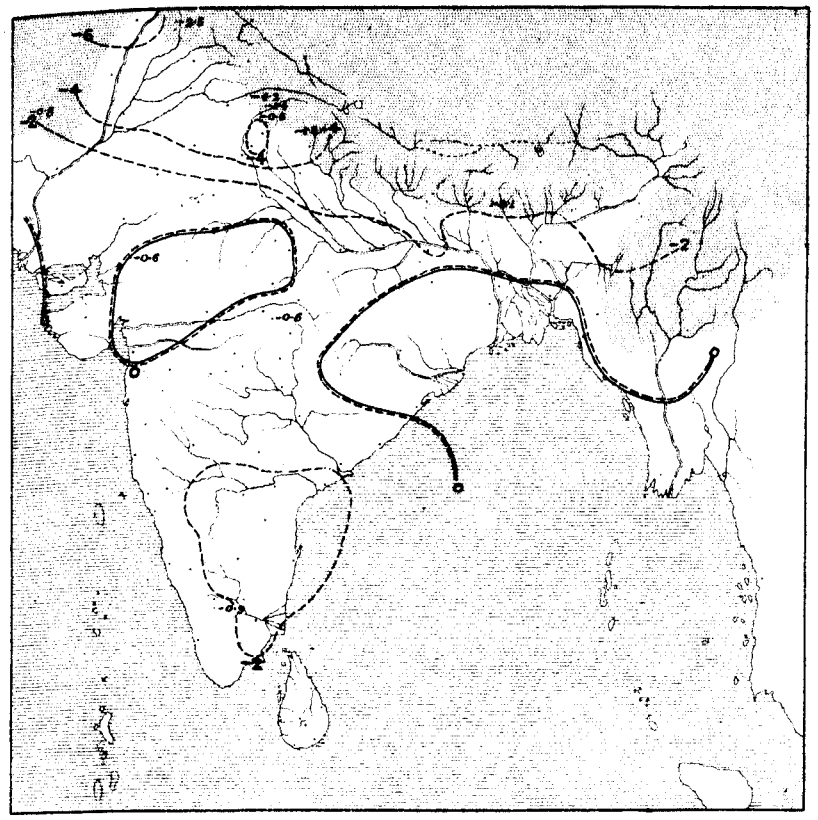
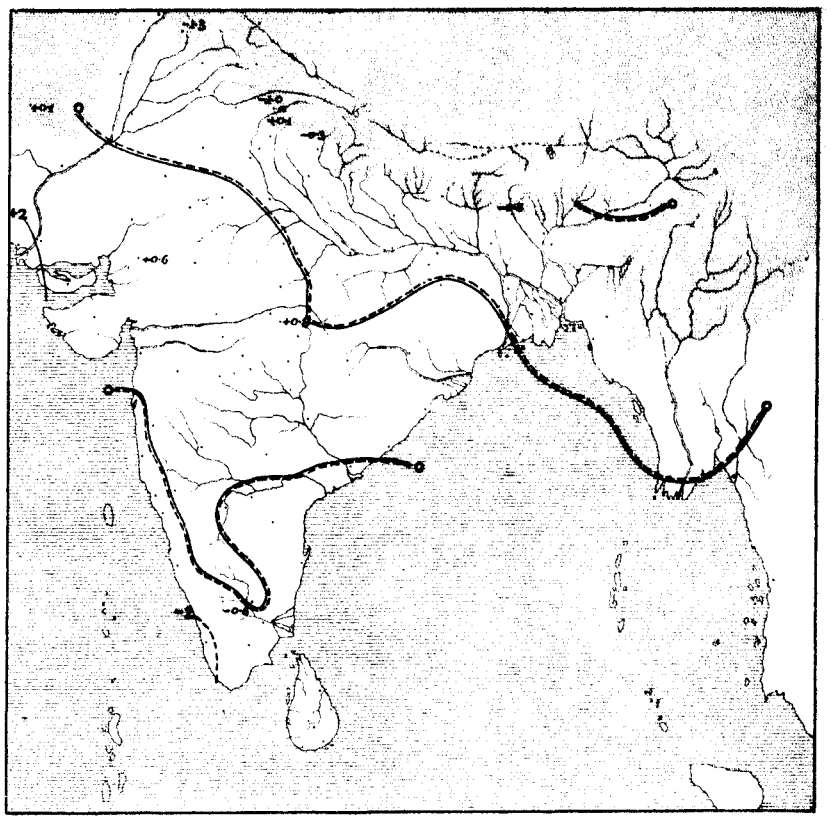


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

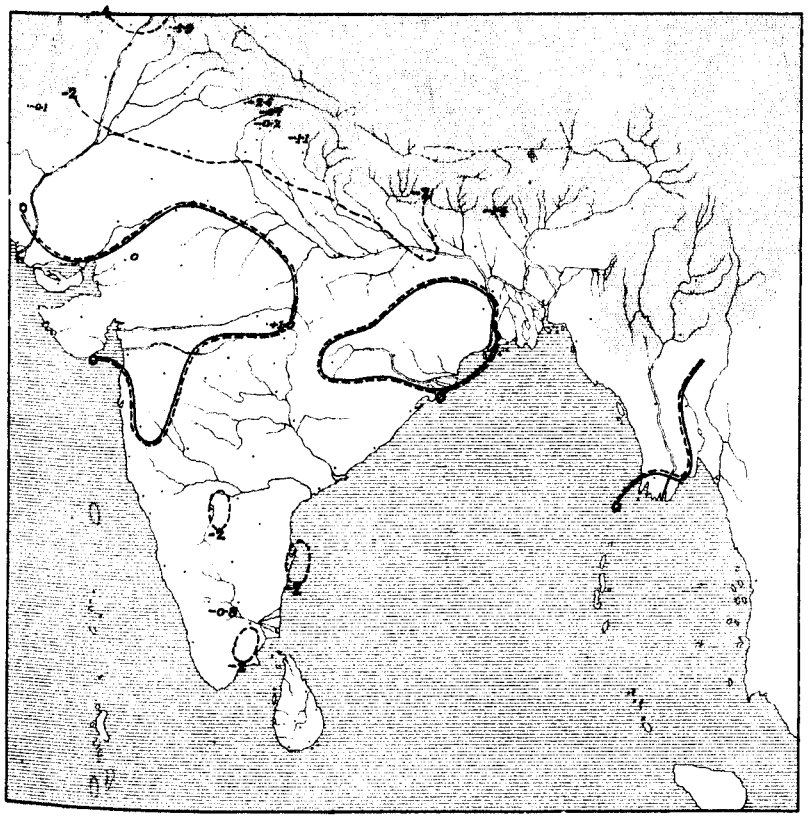
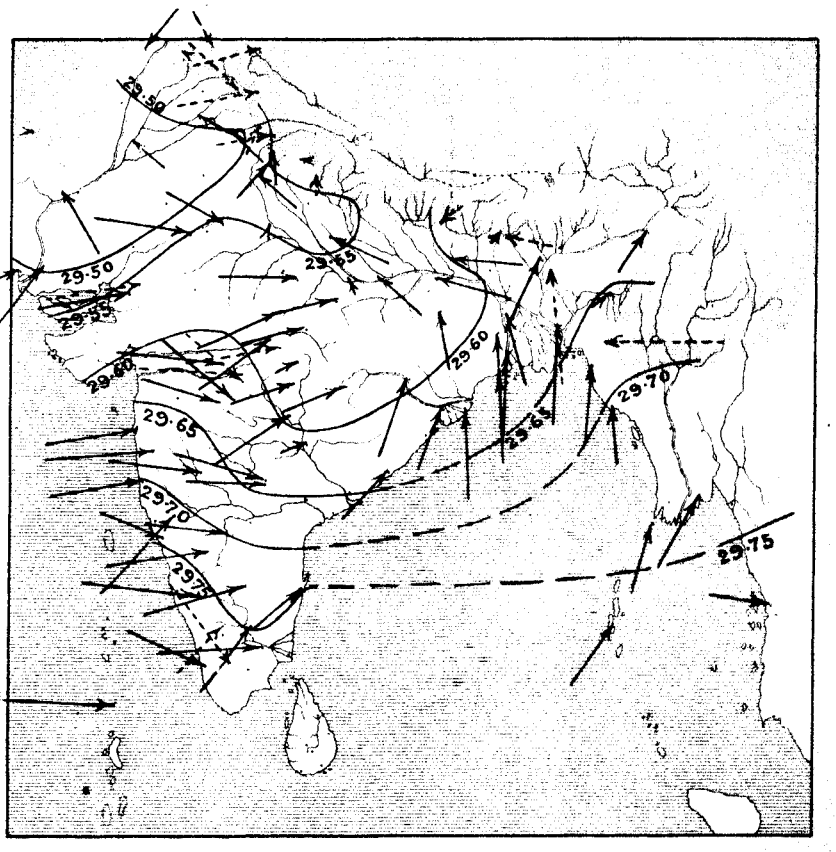


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF AUGUST 1892.



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.

Req. No. 615, Wr., I.—Nov. 92.—415.

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. 615 Wr., I.—Nov. 92—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)

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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 1892 is based on observations taken daily at 8 A.M. at 176 stations and on additional observations taken at 10 A.M. and 4 P.M. at 95 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 1892.

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 mean distribution of pressure during the month of September 1892 in the Indian area was approximately normal. The mean pressure of the month was ·026″ below the normal for the whole area. Relatively to the general condition pressure was locally in excess in Southern

India, North-Eastern India and Upper India. It was in local defect in the intermediate area, the deficiency being greatest in Kathiawar, Guzerat and South Rajputana, where it slightly exceeded ·02″. The mean position of the trough of low pressure was hence further to the south than usual in September, the displacement being greatest in the western half. Weather was less disturbed than usual in September 1892. The monsoon currents were strong at the commencement of the month, more especially on the west coast. They were weaker and less steady during the second and third weeks of the month and finally withdrew from Upper India on the 26th and 27th of the month.

The chief features of the meteorology of the month were three cyclonic storms which passed into India from the Bay of Bengal.

The first storm formed in the north-west of the Bay on the 28th and 29th of August, and crossed the Orissa coast on the morning of the 30th. It advanced into the eastern districts of the Central Provinces on the 31st, and thence drifted very slowly during the next three days through the central districts of the Central Provinces. Its advance was apparently checked by the formation of a second depression on the 1st in the north-west angle of the Bay. This advanced rapidly in the same direction on the 2nd as the preceding depression and combined with it on the 3rd. The depression in the Central Provinces hence intensified on the 3rd, and marched rapidly during the next 24 hours into the western states of Central India. It thence passed on the 5th into South-West Rajputana. The storm then recurved to the north and was absorbed into the Upper India permanent low pressure area of the rains on the 7th and 8th. The storm gave a heavy burst of rain to the districts through which it passed, but was remarkable for the excessive rainfall which accompanied its passage through South-West Rajputana and the western states of Central India. This was due to the fact that the storm at this time intensified the very strong monsoon winds prevailing at the beginning of the month on the west coast. The indraught of these intensified winds gave very heavy downpours in Guzerat, Khandesh and South-West Rajputana. The following were the most noteworthy rainfal ls: --

Meteorological Division.	District or state.	Station.	Date.	Rainfall of 24 hours preceding 8 A.M. of date.
				Inches.
Guzerat .	Surat Agency	Dharampur .	2nd	10·16
"	"	Ditto	3rd	17·93
"	"	Bansda .	3rd	15·03
"	"	Ditto	4th	10·85
"	Surat	Pardi .	4th	15·53
Rajputana (East) and Central India (West) .	Banswara .	Banswara .	4th	12·27
	Khushalgarh .	Khushalgarh	4th	6·94
	"	Ditto	5th	5·11
	"	Ditto	6th	4·65
	Sirohi .	Mount Abu .	6th	15·90
	"	Ditto	7th	8·74
	"	Sirohi .	6th	7·90

The second depression of the month began to form on the 7th in the north of the Bay. Strong monsoon winds prevailed in the centre of the Bay, and weather was squally on the 7th and 8th between the Arakan and Orissa coasts. The storm began to move westwards on the 8th and was approaching the Orissa coast on the morning of the 9th. It crossed that coast as a shallowish depression on the evening of the 9th. The centre was passing over the Orissa hills at 8 A.M. of the 10th and advanced north-westwards through the central districts of the Central Provinces on the 11th and passed into South-East Rajputana on the 12th. It was apparently absorbed into the permanent low pressure area of the period in Upper India on the 14th. It gave a moderate burst of rain to the districts through which it advanced, more especially to Orissa, the Central Provinces, Central India and Rajputana. The south-east districts of the Punjab and adjacent districts of the North-Western Provinces had very heavy rain on the 14th and 15th during the last stages of the storm. Falls in 24 hours ranging in amount from 5 to 10 inches were received during this period in many parts of the Karnal, Gurdaspur, Ludhiana and Jullunder districts of the Punjab.

A rapid increase of pressure occurred in North-Western India immediately after the disappearance of the preceding storm, and modified the pressure distribution considerably. Pressure was very uniform in Northern India, and gradients feeble in the Peninsula for some days. A very shallow but extensive depression covered the centre of the Bay on the 17th, 18th and 19th during which period squally weather with unsteady winds obtained. The disturbance intensified on the 20th and 21st and advanced towards the coast of the Circars, which it crossed on the night of the 21st. It marched rapidly westwards as a very shallow depression across the Peninsula and filled up in Western India on the 23rd. The indraught to the depression area from the west coast gave moderate general rain to the Peninsula from the 16th to the 22nd.

The barometric changes of the next three or four days are important and interesting as they immediately preceded the withdrawal of the monsoon currents from Upper India. The slight indraught following the dispersion of the third and last storm of the month gave numerous thunderstorms in Rajputana, the South-east Punjab and hill districts on the 23rd, 24th and 25th. Pressure increased briskly on the 23rd and following days in Upper India and fell in the Gangetic plain. A shallow low pressure area began to form in the central districts of the North-Western Provinces on the 24th. It extended eastwards and southwards on the 25th and 26th, and although very shallow, it was the chief feature of the remainder of the month. The Bombay current fell off rapidly in strength and the Bengal current was directed to Bengal. The monsoon currents hence withdrew from North-Western

India on the 26th, and the only districts which received important rain during the remainder of the month were Bengal and Assam. At the end of the month skies had cleared over the whole of the Punjab, North-Western Provinces, Rajputana and the greater part of Central India and the Central Provinces. The weather was cloudy and showery at the end of the month in Burma, Assam, Bengal and the West-Coast districts.

The distribution of the rainfall of the month was largely determined by these cyclonic storms. They advanced further to the west and by a more southerly course than usual in September. They gave unusually heavy rainfall in the latter part of their existence due to the indraught of the Bombay monsoon current to the storm areas. Hence Rajputana, the Deccan and to a less extent the west coast districts and Southern India received larger amounts of rain during the month than usual. The Bay current was more largely diverted to Lower Burma than usual, which hence obtained a moderate excess. In Northern India the rainfall was in slight to moderate defect due partly to the weakness of the Bengal current and partly to its diversion to the areas immediately affected by the cyclonic storms of the month and to Burma. The deficiency was large in the Purnea, Darbhanga, Rajshahi, Malda, Dinajpur, Rungpur and Kuch Bihar districts of North Bengal, which received average total amounts of between one-half and one-third of the normal fall of month. The West Punjab and Sind were practically rainless throughout the month, but the deficiency was of little importance except in the Rawal-Pindi and Gujrat districts. The following gives a summary of rainfall data of the eleven meteorological provinces of India, for the month:—

PROVINCE.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	21·08	20·91	+1·72	+ 1
Burma Inland	6·22	9·60	−3·38	−35
Assam	12·02	13·44	−1·42	−11
Bengal and Orissa	8·53	11·24	−2·68	−24
Gangetic Plain and Chota Nagpur	4·77	7·62	−2·85	−37
Upper Sub-Himalayas	4·71	5·47	−0·76	−14
Indus Valley and North-West Rajputana	0·97	1·01	−0·02	− 2
East Rajputana, Central India and Guzerat	9·13	4·94	+4·62	+94
Deccan	10·77	7·22	+3·43	+48
West Coast	11·59	11·21	+1·54	+14
South India	5·24	5·02	+0·38	+ 8

The temperature conditions of September are generally determined by the distribution of the rainfall, and this was very markedly the case in September 1892. The mean maximum temperature of the month was in slight excess in Assam and Bengal, and considerably in excess in Sind and the South-West Punjab. The excess at the Sind stations ranged from 2·3° at Hyderabad to 3·1° at Jacobabad. The mean day temperature was more or less below the normal over the remainder of India, the deficiency exceeding 2° in the Deccan, Berar, the Central Provinces (except the eastern districts), Central and Western Rajputana and the South-east Punjab and hence in the areas of greatest excess of rainfall. The deficiency was greatest at Ludhiana, Sirsa and Bellary, at each of which stations it slightly exceeded 5°. The mean night temperature differed little from the normal. It was in slight excess over the greater part of Northern India and in defect in the Peninsula. It was locally in defect in the North Punjab and Baluchistan. The deficiency for the month averaged 2° at Peshawar and Rawalpindi, and 6·6° at Quetta. The mean temperature of the month was hence in slight excess in Bengal and Assam and in moderate excess in Sind, and was deficient over the remainder of India. The deficiency was less than 2°, except in the area defined by the following stations:— Akola (—2·0°), Sholapur (—2·2°), Bellary (—3·6°), and Madras (—2·0°). The following table gives comparative temperature data for the eleven meteorological provinces of the Empire:—

METEOROLOGICAL PROVINCE.	VARIATION OF			Average daily range.	Average absolute range during month.	Variation of rainfall from normal.
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.			
	°	°	°	°	°	Inches.
Burma Coast and Bay Islands	−0·4	−0·5	−0·6	9·9	17·3	+1·72
Burma Inland	−0·2	−0·4	−0·3	17·1	25·3	−3·38
Assam	+1·1	+1·1	+1·1	11·5	20·6	−1·42
Bengal and Orissa	+0·3	0	+0·2	10·6	19·2	−2·68
Gangetic Plain and Chota Nagpur	+0·1	+0·4	+0·2	12·4	21·2	−2·85
Upper Sub-Himalayas	−2·6	0	−1·4	16·4	30·2	−0·76
Indus Valley and North-Western Rajputana	+0·4	+0·2	+0·3	21·5	33·8	−0·02
East Rajputana, Central India and Guzerat	−2·6	+0·8	−0·9	12·9	22·3	+4·62
Deccan	−2·3	−0·1	−1·2	12·4	20·9	+3·43
West Coast	−0·9	−0·1	−0·5	8·3	13·0	+1·54
South India	−1·5	−0·6	−1·0	14·3	22·7	+0·38

The monsoon current in the Bay was on the average considerably stronger than usual. The winds at the Burma coast stations and Port Blair were more westerly than usual, indicating, probably, a diversion of a larger proportion of the current to Burma than usual. Winds were less westerly at the Head of the Bay, but in Central and North Bengal they were deflected to an unusual extent to the west, thus showing an abnormal tendency of the current in Central Bengal to advance towards Upper Assam and perhaps Upper Burma. Winds were slightly stronger than usual in the Gangetic plain. Easterly winds obtained steadily in the Punjab and the western districts of the North-Western Provinces until the 26th and 27th, when

they withdraw rapidly and were replaced by light westerly or variable winds.

The Bombay current was on the average of the month stronger than usual. The increased force was more clearly shown in the Deccan than at the West Coast stations. Winds were unusually light and unsteady at the Himalayan hill stations during the month.

The air was slightly drier in North-Eastern India, but the variations were generally small. It was much damper in Rajputana, the South-East Punjab and the western districts of the North-Western Provinces. The mean humidity of the month was 16 in excess at Ajmere, 14 at Ludhiana and 12 at Jeypore and Agra. It was also damper than usual over the whole of the Peninsula, but the variations were small in Southern India. The mean humidity of the month was, on the other hand, considerably in excess in the Deccan, Berar and the Central Provinces. The variations in the humidity conditions hence corresponded very closely in character with the variations in the rainfall distribution.

The amount of cloud was, with very few exceptions, greater than usual. The excess was slight and unimportant in Burma and North-Eastern India, but was large in Rajputana, Central India and the greater part of the Peninsula. In Rajputana the mean cloud amount was nearly double the normal amount. The excess was actually largest at Jeypore (3·1 above the normal) and Deesa (2·6 above it). There was also a large excess of cloud at the hill stations. It was as marked at the higher stations of Leh and Kailang as at Murree. Simla and Chamba. The following table gives the mean variations from the normal of the aqueous vapour pressure, humidity and cloud amount of the month for ten Meteorological Provinces:—

Meteorological Provinces.	Mean variation of		
	Aqueous vapour pressure from normal.	Humidity from normal.	Cloud amount from normal.
	Inch.		
Burma Coast and Bay Islands	—·018	— 1	+1·1
Assam	+·036	— 2	—0·2
Bengal and Orissa	—·020	— 3	+0·6
Gangetic Plain and Chota Nagpur	+·021	0	+0·4
Upper Sub-Himalayas	+·065	+10	+2·8
Indus Valley and North-West Rajputana	—·017	— 2	+0·6
East Rajputana, Central India and Guzerat	+·101	+12	+2·1
Deccan	+·023	+ 5	+1·4
West Coast	—·003	+ 1	+1·2
South India	—·017	+ 1	+0·8

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for September 1892 is shown by means of two charts. The first chart (Plate I) gives 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 one-twentieth of an inch. The second chart (Plate II) gives the variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds. The data on which this chart is based are shown in Table II. The pressure data in that table are, it should be noted, reduced to constant gravity (that of Lat. 45°) as well as to sea-level.

The more important barometric changes and movements during the month are fully 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 means. It should be noted that all pressure data means in the tables are reduced and corrected to sea-level and to constant gravity for all stations the elevations of which are less than 3,500 feet.

The mean pressure of the Indian land area was ·026″ below the normal. Pressure was relatively to this general condition in slight excess in Burma, the Peninsula south of the parallel of 16° N. and in Upper Sind and the Punjab and along the foot of the hills from Dhubri to Roorkee. The positive anomalies were small and less than ·020″ except in the extreme south and north of India as represented by the stations of Colombo (+·025″), Negapatam (+·024″) and Peshawar (+·030″). Pressure was, relatively to the general state, in defect, or the baric anomalies were negative in the remainder of India. The negative anomalies were small and less than ·020″ except in the area defined by the following stations:—

Station.	Variation of mean 8 A.M. pressure from normal.	Pressure anomaly.
	Inch.	Inch.
Surat	—·058	—·032
Rajkot	—·049	—·023
Deesa	—·050	—·024
Neemuch	—·051	—·025
Jeypore	—·048	—·022
Hoshangabad	—·051	—·025

The mean distribution of pressure during the month differed from the normal in only two important points:—

(1) Pressure was generally below the normal by amounts averaging ·026″ for the whole Indian area.

(2) Pressure was in relative defect in a broad belt stretching across the head of the Peninsula, the deficiency being greatest in South-east Rajputana, Katthiawar, Guzerat, and the greater part of Central India.

The mean position of the trough of low pressure was, more especially in its western half, somewhat more to the south than usual. It stretched from Upper Sind, across Agra and Sutna to Sambalpur.

Barometric depressions and cyclonic storms of the month.

The chief feature of the first week of the month was a cyclonic storm which formed in the Bay of Bengal on the 27th and 28th August. The following gives an account of this storm from its formation:—

Cyclonic storm of the 29th August to the 7th September.—The first indication of the formation of this storm was shown on the 27th and 28th. For some days previously the trough of low pressure had occupied a very abnormal position as the western half of it ran nearly due east and west between Upper Sind and the Gangetic Doab, whilst the eastern half stretched north and south between Allahabad and the coast of the Circars. Gradients decreased on the 27th and 28th in the Bay, and winds became light and variable off the coast of Ganjam and Circars. The following gives 8 A.M. observations taken on board vessels in this part of the Bay on the 28th:—

Name of Vessel.	Position.		Barometer corrected.	Wind.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	Inches.				
S. *Kilburn* .	14 6	85 56	?	SW	5	...	Fine.
S. *Sir Lancelot*	15 31	84 55	29·635	WNW	...	Very rough.	Squally and rainy.
S. S. *Megna* .	17 47	85 42	·576	ESE	2	...	Fine and clear.
S. S. *Nizam* .	18 34	84 42	·574	Variable	2	...	Fine and clear.

The marine data establish that moderately strong monsoon winds, force 4 to 6, obtained in the south and centre of the Bay. Weather was generally fine with light winds off the Arakan coast, but there was a tendency towards the establishment of a cyclonic circulation.

29th August.—Pressure had increased in Upper India during the previous 24 hours. In the Bay the conditions were almost unchanged. The following gives 8 A.M. observations taken on board ships in the north-west of the Bay:—

Name of Vessel.	Position.		Barometer corrected.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	Inches.			
S. S. *Lindula* .	14 49	85 46	29·628	WSW	...	Squally with heavy rain.
S. *Sir Lancelot* .	17 20	85 24	·595	WSW	...	Heavy squalls with rain.
S. *Kilburn* .	17 33	84 42	?	SW	4	Cloudy.
S. *Minden* .	18 29	85 21	·563	E	2	Fine.
S. S. *Megna* .	20 19	87 30	·606	Variable	2	Fine and clear.

The observations show that there was on the 29th as on the 28th a shallow depression off the coast of the Circars, and that this depression formed the eastern extremity of the trough of low pressure. Weather was more squally and winds slightly stronger in the south of the depression than on the 29th. Fine clear weather with light unsteady winds obtained in the north-west angle of the Bay. The position of the centre of the depression at this time was in about Lat 18½° N. and Long. 86½° E.

30th August.—Pressure had continued to increase during the previous 24 hours in North-Western India and was much more uniform in Northern India than it had been for some days. The land observations indicated that the trough of low pressure occupied the same position as hitherto, and that the depression at its eastern extremity had developed to some extent and was now a cyclonic disturbance of some intensity. The following gives 8 A.M.

observations taken on board ships in the area of the depression.:—

Name of vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	Inches.			
S. S. *Lalpoora* .	11 40	84 1	29·778	SSW	4	Overcast with heavy squalls.
S. S. *Lindula* .	16 44	86 29	·604	WSW	6	Squalls.
S. S. *Niemen* .	18 48	85 44	·587	NW	2	
S. *Sir Lancelot* .	18 56	86 23	·535	WSW	...	Fine and clear.
S. *Minden* .	19 16	86 44	·533	S	...	Heavy squalls.
S. *Lord Ripon* .	19 20	88 22	?	S	...	Overcast with rain at times.
S. S. *Canara* .	Approaching Saugor Island.		·581	SE	2 to 3	Fine.

These observations show the general character of the weather in the depression. In the southern and eastern gradients the squalls were more severe and frequent than on the 29th and 30th. Fine clear weather continued in the north-west angle of the Bay. The strongest winds recorded during the day in the area of depression were of force 8. It is hence very probable that the cyclonic storm, although increasing in intensity, was feeble, and that the depression at the centre did not exceed two-tenths of an inch. The centre of the depression at 8 A.M. was in about Lat. 19° N. and Long. 86° E. and had consequently been almost stationary during the previous 24 hours. Observations taken during the day at the coast stations show that the storm centre advanced with increasing rapidity during the day, and that it crossed the coast during the afternoon of the 30th.

31st August.—The pressure changes of the previous 24 hours were chiefly due to the advance of the depression across the Orissa coast. Pressure was very uniform in Northern India and the trough of low pressure was less clearly marked than hitherto except at its eastern extremity. It, however, apparently occupied nearly the same position as hitherto. The following 8 A.M. observations define the position of the depression at that hour :—

Station.	Barometer. 8 A.M.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity during past 24 hours.	Cloud.	Rainfall in past 24 hours.	Weather.
	"	"	"					
Cuttack .	29·521	−·042	−·134	SSW	3	9	0·51	Dark gloomy weather.
False Point .	·539	−·006	−·131	SW	14	6	0·23	
Balasore .	·554	−·024	−·095	Calm	4	6	0·76	
Chaibassa .	·512	−·060	−·119	E	2	9	0·18	
Sambalpur .	·492	−·081	?	NE	5	10	*Nil.*	

These observations establish that a shallow depression lay over Orissa and the eastern districts of the Central Provinces. The centre of the depression was a little to the south of Sambalpur in Lat. 21° N. and Long. 84° E. Pressure at the centre was about two-tenths of an inch below the normal. Squally south-west winds obtained at this time in the north-west of the Bay. Moderate rain had fallen during the previous 24 hours in the Deccan and in Orissa and Bengal. A partial break in the rains obtained in the Gangetic plain and the greater part of Central India and the Central Provinces.

1st September.—Pressure was now decreasing over the whole of India and gradients were becoming steeper. Hence winds were strengthening generally and more especially on the coast of the Konkan, where heavy rain had fallen during the previous 24 hours. The depression had advanced slowly to the north-west and now covered the western districts of Chota Nagpur and the eastern districts of the Central Provinces. The following observations define its position at 8 A.M. :—

Station.	Barometer. 8 A.M.	Barometer. Change in past 24 hours.	Barometer. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity during past 24 hours.	Cloud, 8 A.M.	Rainfall in past 24 hours.
	"	"	"				
Raipur . . .	29·465	−·069	−·194	WSW	9	10	1·66
Sambalpur . .	·459	−·033	?	S	5	10	1·42
Benares . . .	·495	−·060	−·142	E	5	8	*Nil.*
Sutna . . .	·471	−·085	−·163	NNE	6	8	*Nil.*
Jubbulpore . .	·475	−·078	−·168	NNE	5	8	0·03

The depression was as hitherto shallow, but the cyclonic circulation was even more strongly marked than hitherto. The centre of the depression was in about Lat. 22½° N. to 22½° N. and Long. 82½° E. Rain was falling in smaller amounts in Bengal, but was extending westwards up the Gangetic plain. The chief feature of the weather of the previous 24 hours was a heavy burst of rain in the Central Provinces, due to the increasing indraught from the west coast to the depression. The following gives the more noteworthy falls :—

Meteorological Division.	District.	Station.	Rainfall of 24 hours preceding 8 A.M. of 1st September.
			Inches.
Central Provinces.	Chanda . . .	Chanda .	4·90
	Do. . . .	Mul . .	3·61
	Do. . . .	Brahmapuri .	3·50
	Do. . . .	Warora .	3·41
	Do. . . .	Armori .	8·40
	Balaghat . . .	Burha .	3·48
	Nagpur . . .	Nagpur .	3·92
	Do. . . .	Ramtek .	3·70
	Hoshangabad . .	Harda .	3·05
	Betul . . .	Shahpur .	5·10

2nd September.—The barometric changes of the previous 24 hours were generally small in amount and were chiefly due to the slow westward advance of the depression. Steepish gradients obtained in the Peninsula, and winds had hence increased in force on the Bombay coast. The average velocity during the previous 24 hours at Bombay was 19 miles per hour as compared with an average of 11 miles per hour on the 1st. The following 8 A.M. observations indicate the position of the depression at that hour :—

Station.	Barometer.			Wind.		Cloud, 8 A.M.	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.			
	"	"	"					
Raipur	29·474	+·009	−·185	WSW	9	10	0·32	
Sambalpur	·466	+·007	?	SW	6	10	0·37	
Sutna	·458	−·013	−·180	E	9	7	*Nil.*	Strong wind.
Jubbulpore	·452	−·023	−·192	NE	5	4	*Nil.*	
Nagpur	·482	−·001	−·196	WSW	13	10	1·52	Gale of wind.
Pachmarhi	?	−·026	−·195	N	5	10	1·21	

The centre of the depression was in about Lat. 22¾° N. and in Long. 81° E. Moderately heavy rain had fallen in the west coast districts and also in the Central Provinces and Berar in front of the storm.

The marine data for the Bay of Bengal show that a small disturbance had formed at the head of the Bay during the previous 24 hours. The following observations taken on board ships indicate its character :—

Name of vessel.	Position.		Barometer.	Wind.		State of sea.	Weather.
	Lat. N.	Long. E.	Corrected.	Direction.	Force.		
	° ′	° ′	Inches.				
S. *Hera*	16 30	88 25	29·586	SW	8	...	Rainy.
S. S. *Lalpoora*	19 30	86 53	·535	NW	2	Moderate.	Overcast and rain.
S. S. *Moharaja*	19 33	89 49	·420	S	4	...	Dull and rainy.
S. S. *Wennington Hall.*	19 46	87 11	?	NW	5	...	Heavy squalls and rain.
S. *Aldergrove.*	19 59	86 53	·485	NW	...	...	Thick dirty weather with violent squalls and constant rain.

These observations show clearly that a small depression had formed, and that th ewinds were cyclonic in direction and the weather very squally with heavy rain. The observations at False Point and Saugor Island given below confirm the preceding inferences :—

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.			
	"	"	"					
Saugor Island	29·456	−·043	−·211	NNE	10	10	2·40	...
False Point	·489	−·019	−·184	W	8	10	0·90	...
Gopalpore	·486	−·011	?	SW	15	10	*Nil.*	Sea rough.

At Saugor Island winds were from north-north-east and moderate in force. The centre of this little disturbance was a few miles to the south of Saugor Island. One result of the co-existence of these two disturbances was to give a large elliptical shaped shallow depression extending from South-East Rajputana to the north-west of the Bay with two small shallow depressions at its eastern and western extremities.

Moderately heavy rain had fallen in the Bengal coast districts and weather was gloomy and unsettled.

3rd September.—The barometer had risen during the previous 24 hours over the whole Indian area, except Berar, Khandesh and the eastern districts of the Central Provinces. A shallow depression covered the Central Provinces and adjacent districts. The air movement was very irregular in that area. In the western half of the area of depression there was a fairly well marked cyclonic circulation about a centre near Jubbulpore.

In the eastern half the air movement was irregular and only explicable on the assumption that the depression at the head of the Bay on the previous day had passed rather rapidly westwards and was being absorbed into the larger disturbance and depression advancing across the Central Provinces. Moderately strong south-east to south-west winds now obtained at the head of the Bay. Very heavy rain had been received during the previous 24 hours in Orissa, evidently due to the passage of the depression across that area. The following gives the most noteworthy falls recorded in Orissa at 8 A.M. of the 3rd : —

Meteorological Division.	District.	Station.	Rainfall of 24 hours preceding 8 A.M. of 3rd September.
			Inches.
Orissa	Puri	False Point	8·26
"	"	Gop	3·70
"	"	Pipli	5·04
"	Balasore	Balasore	4·96
"	"	Sorah	2·50

The following data shows the position and character of

the first and larger depression which was now in the northern and central districts of the Central Provinces :—

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.			
	"	"	"					
Pachmarhi	?	—·002	—·199	Calm	4	10	0·35	
Sutna .	29·468	+·010	—·174	ENE	11	8	0·01	Gale of wind.
Saugor .	·466	+·015	—·181	NNE	3	10	2·67	Thunder-storm.
Jubbulpore	·469	+·017	—·191	Calm	4	10	0·30	
Hoshangabad.	·475	+·007	—·213	NNE	4	10	0·80	
Seoni .	·474	—·010	—·220	WSW	2	10	2·10	Continuous rain.

The centre of this depression was between Seoni and Jubbulpore. The air movement was very feeble and Pachmarhi and Jubbulpore both reported calms at 8 A.M. The winds at the Bombay coast stations were blowing even more strongly than on the 2nd and the average wind velocity at Bombay had increased from 19 to 23 miles per hour.

The observations hence indicate clearly the character of the disturbance at this stage. It consisted of a large, shallow, elliptical shaped depression due to two depressions which had advanced from the Bay into the Central Provinces. The second had moved westwards more rapidly than the first, and was, so far as can be judged, now combining with the first. Very strong winds of indraught were blowing across the Bombay coast. They were giving general and moderately heavy rain to the greater part of the area of depression as well as to the west coast districts.

4th September.—Pressure continued to increase over the whole of India except Central India, Rajputana and the Punjab The central depression had concentrated slightly and advanced into the western states of Central India during the previous 24 hours. The following observations indicate its position at 8 A.M :—

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.			
	"	"	"					
Indore .	29·438	—·043	—·256	WSW	5	10	2·08	
Hoshangabad.	·482	+·007	—·212	S	5	10	0·38	
Saugor .	·472	+·006	—·184	SE	3	10	0·37	
Jhansi .	·505	—·022	—·151	E	9	8	0·45	Gale of wind.
Neemuch .	·463	—·063	—·215	NE	8	10	1·44	

The centre of the depression was a little north of Indore in about Lat. 23¼° N. and Long. 76° E. The deficiency of pressure in the central area had increased from ·20″ on the 3rd to ·30″ on the 4th. Very strong winds continued on the west coast, more especially at Bhuj, Veraval and Bombay. Very heavy rain had fallen during the previous 24 hours immediately in front of the storm.

The following gives the largest amounts recorded at 8 A.M. :—

State.	Station.	Rainfall of 24 hours preceding 8 A.M. of 4th September 1892.
		Inches.
Banswara	Banswara . . .	12·27
Rutlam	Rutlam . . .	9·75
Khushalgarh . . .	Khushalgarh .	6·94

A noteworthy feature of the storm was the excessive rain falling at this period in the Surat district, Guzerat and Khandesh due to the very strong indraught from the west coast. The following gives the most remarkable falls during the previous 24 hours in those districts :—

Meteorological Division.	District or State.	Station.	Rainfall of 24 hours preceding 8 A.M. of date.
Guzerat . .	Surat District .	Chikhli . .	9·20
	...	Pardi . .	15·53
	Surat Agency .	Bandsa . .	10·85
	Rewa Kantha .	Lunavada .	9·40

5th September.—The barometer had continued to rise over the greater part of India, but had fallen briskly to rapidly in South-West Rajputana due to the westward advance of the storm. The depression had intensified slightly during the previous 24 hours, and was deeper than hitherto. The following observations show its position at 8 A.M. :—

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.			
	"	"	"					
Bhuj .	29·524	—·050	?	WNW	29	10	*Nil*	Severe gale of wind.
Deesa .	·441	—·119	—·260	WNW	10	10	2·94	
Indore .	·520	+·082	—·179	S	12	8	0·40	Strong wind.
Neemuch .	·418	—·048	—·271	SE	10	10	0·56	
Ajmere .	·490	—·057	—·193	NE	8	9	0·53	

The central depression now covered the area between Neemuch, Ajmere and Deesa, and the centre was probably nearly due west of Neemuch in about Lat. 24½° N. and Long. 73½° E. Pressure in the central area was at least three-tenths below the normal. Winds had strengthened considerably on the Cutch and Katthiawar coasts and were now blowing with the force of a gale. Calms were recorded at the great majority of the stations in the Punjab at 8 A.M., and over the remainder of North-Western India (except Sind), and in Central India and the North Deccan the winds were cyclonic in character and direction and determined by the indraught to the storm area. Heavy rain had been recorded during the previous 24 hours in the western states of Central India. Rutlam received 5·5 inches and Khushalgarh 5·11 inches.

6th September.—The barometer had fallen generally in India and the changes in North-Western India due to the storm were smaller than hitherto. The depression was very clearly defined and the cyclonic circulation almost as vigorous as in the preceding day. The observations show that the centre was slowly recurving and advancing in a more northerly direction than during the previous three days. The following data indicate the position and character of the storm at 8 A.M.:—

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.			
	"	"	"				Inches.	
Mount Abu	?	?	?	WNW	11	10	15.90	Heavy rain.
Deesa	29·449	+·008	—·263	W	21	10	5·87	
Neemuch	·488	+·073	—·207	SW	23	10	0·22	
Ajmere	·457	—·033	—·233	SE	9	10	0·37	
Pachpadra	·428	—·021	?	NW	6	10	0.45	

The data indicate that the centre of the depression at 8 A.M. was to the north of Mount Abu in Lat. 25½° N. and Long. 73° E. and that the depression was elliptical shaped, with its longer diameter running approximately north and south instead of east and west as hitherto. Bhuj, Rajkot and Deesa experienced unusually strong winds approaching in force to a severe gale during the day. A remarkable feature of the storm was that it had not as yet modified the wind directions in Sind. Strong south-west winds were blowing at 8 A.M. at Kurrachee and Hyderabad and easterly winds at Jacobabad. It is a striking proof that the motion in front of these storms is chiefly ascensional, and hence that, when strong winds due to the normal circulation of the period are blowing at some distance in front of the storm, they are unaffected until the storm is in their immediate vicinity. Excessive rain had fallen in the storm area and more especially in the western and northern quadrants.

The following gives the more noteworthy falls in the storm area reported on this day:—

Meteorological Division	District.	Station.	Rainfall of 24 hours preceding 8 A.M. of 6th.
Rajputana, West	Jodhpur	Balmer	4·14
Rajputana, East and Central India, West.	Ajmere-Merwara	Beawar	4·20
	Oodeypore	Kotra	5·25
	Khushalgarh	Khushalgarh	4·65
	Sirohi	Sirohi	7·90
	"	Mount Abu	15·90
Guzerat	Ahmedabad	Ahmedabad	4·15
	"	Sanand	5·07
	"	Viramgam	6·00

It should be noted that the number of rain-gauge stations in this part of Rajputana is very small, and hence it is probable that the data for Mount Abu and Sirohi indicate a very heavy rainfall over a considerable part of South-West Rajputana.

7th September.—A rapid increase of pressure occurred in South-west Rajputana during the previous 24 hours, which almost filled up the depression. It had moved northwards and was being absorbed into the Upper India low-pressure area of the rains. That depression hence intensified slightly and covered a larger area than usual on the 7th. The following data show its character and position at 8 A.M. of that day:—

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.			
	"	"	"					
Mount Abu	?	?	?	W	16	10	8·74	Strong wind.
Deesa	29·545	+·096	—·173	WSW	16	10	1·18	
Ajmere	·522	+·065	—·166	NW	5	8	0·10	
Bickaneer	·494	+·032	?	NE	5	6	0·04	
Mooltan	·510	—·038	—·116	Calm.	1	0	*Nil.*	
Jacobabad	·542	+·051	—·068	Calm.	4	3	*Nil.*	
Hyderabad	·551	+·050	—·059	SW	15	10	*Nil.*	

The air movement was very irregular in this area of depression, the centre of which was near Bickaneer. Heavy rain had fallen at Mount Abu and over the greater part of Western Rajputana, more especially in Marwar. Winds were falling off rapidly in strength on the west coast.

Pressure continued to increase in Upper India during the next 24 hours, and the disturbance ceased to influence the weather on the 8th.

The position of the centre at 8 A.M. of each day and its rate of motion are given in the following table :—

Date.	Position of Centre. Lat. N.	Long. E.	Distance passed over.	Average hourly velocity.
	° ′	° ′	Miles.	Miles.
29th August . . .	18 30	86 30	...	...
30th " . . .	19 0	86 0	50	2·1
31st " . . .	21 0	84 0	180	7·5
1st September . .	22 30	82 30	150	6·2
2nd " . . .	22 45	81 0	86	3·6
3rd " . . .	23 0	79 45	75	3·1
4th " . . .	23 15	76 0	229	9·5
5th " . . .	24 30	73 30	200	8·3
6th " . . .	25 30	73 0	72	3·0

This storm was noteworthy for its long existence (of at least 10 days) and for its unusually slow progress across the head of the Peninsula. It was a shallow and feeble depression in its earlier stages, but developed considerably in the Central Provinces, and was remarkable during the next three days for the excessive rain it gave to the districts through which it passed. The heaviest rainfall occurred throughout at some distance in front of the centre. This feature was very strongly exhibited on the 5th and 6th, when the rainfall was heaviest and almost torrential in character.

(2) *Cyclonic storm of the 7th to the 12th September.*—The first indications of the formation of this depression were shown on the 6th, chiefly by the shift of the wind at Akyab from south to east, whilst strong westerly winds continued at Diamond Island. Weather was fine in the north-west of the Bay but was squally off the Arakan coast. The S.S. *Kutsang* in Lat. 14° 43′ N. and Long. 98° 6′ E. at 8 A.M. had heavy rain squalls during the day, and the S.S. *Katoria* in Lat. 15°46′ N. and Long. 94° 1′ E. at the same hour had west south-west winds, force 5, and frequent passing squalls.

The marine data of the 7th establish that this slight disturbance had developed during the previous 24 hours rather rapidly into a shallow depression which covered the north of the Bay. The following gives the 8 A.M. observations of ships nearest to the centre of the depression at that hour :—

Name of vessel.	Position at 8 A.M. Lat. N.	Long. E.	Barometer.	Wind Direction.	Force.	State of sea.	Weather.
	° ′	° ′					
S.S. *Canara*.	19 7	90 10	?	NE	5	...	Overcast and gloomy with hard squalls.
S. *Foyle* .	19 42	87 40	29·501	NW by W	5	...	Strong squalls.
S.S. *Scindia*	19 45	87 39	·507	NW	4	...	Frequent heavy squalls and dark gloomy weather.
S.S. *Kola* .	19 26	93 21	·595	SE	4	Moderate S.W. Swell.	Cloudy.

These observations establish that a shallow depression and strongish cyclonic circulation had formed in the north of the Bay. The centre of the disturbance was in about Lat. 18° N. and Long. 91° E. The weather was very squally near the centre, and strongish monsoon winds prevailed in the centre of the Bay. Fine weather with light north-west winds and clear skies or passing clouds obtained in the north-west angle. Rain had almost ceased to fall in the Gangetic plain and Bengal.

8th September.—The pressure changes of the preceding 24 hours were generally small in amount. Pressure had increased briskly in Burma and was falling briskly in Orissa—changes evidently due to the westward march of the depression in the Bay. It was now in the North-West of the Bay as is shown by the following observations :—

Name of Vessel.	Position at 8 A.M. Lat. N.	Long. E.	Barometer.	Wind. Direction.	Force.	State of sea.	Weather.
	° ′	° ′	Inches				
S.S. *Baroda* .	15 29	82 45	?	SW	9	High .	Constant rain.
S.S. *Canara* .	16 19	93 40	?	SW	6	Heavy SW sea.	Overcast with rain.
S.S. *Goalpara*	18 4	85 19	29·441	W to WNW	5	Rough .	Overcast.
S.S. *Nizam* .	19 47	86 16	?	NW by N	4	Moderate	Ditto.
S. *Zemindar* .	20 8	88 26	29·439	NE by N	6	...	Squally.
S. *Foyle* .	20 40	87 35	·389	NNW	...	...	

The observations indicate that pressure was at least a tenth of an inch lower on the 8th than on the 7th in the central area, and that the centre was in or about Lat. 19° N. and Long. 89° E. The weather was little changed in the central area and the north-west angle of the Bay. Winds had intensified considerably in the centre of the Bay, where weather was also very squally with much rain. The increasing concentration of the storm was further shown by the decrease of rain and cloud in Northern India. Skies were now very lightly clouded in the Gangetic plain and North and Central Bengal. Skies were overcast in Burma, and general and heavy rain was falling in that area. The monsoon current on the west coast was normal in strength, and gave light to moderate showers in the west coast districts, the Central Provinces and West Deccan.

9th September.—The pressure changes of the preceding 24 hours were small and of little importance, except at the west coast stations of the Bay, where pressure was decreasing rapidly in consequence of the continued advance of the cyclonic storm. Strong monsoon winds continued on the Bombay coast, but they were now diverted across the Deccan; and the break which had commenced in the Gangetic plain after the breaking up of the first storm of the month on the 6th and 7th, had now extended over the whole of Central India to Berar and the Central Provinces.

The observations at the Bengal and Orissa coast stations indicated that the centre of the depression was approaching the Orissa coast, and that the storm was of slight intensity. The following gives 8 A.M. observations taken on board ships in the storm area on this day :—

Name of vessel.	Position, 8 A.M.		Barometer.	Wind.		State of sea.	Weather.
	Lat. N.	Long. E.		Direction.	Force.		
	° ′	° ′	Inches.				
S.S. *Goa* .	18 57	90 42	29·694	SW	5	Moderate and long south-west swell.	Rain squalls.
S.S. *Nizam* .	18 12	84 19	?	WSW	6	High head	Heavy squalls of rain.
S.S. *Goalpara*	16 2	84 22	·465	W	8	Heavy .	Heavy squalls at times and rain.
S.S. *Clan MacGregor.*	18 15	83 14	·458	SW	...	Moderat-	Hard squalls of wind and rain.
S.S. *Baroda* .	18 10	85 54	?	W	9	High .	Constant rain.
S. *Zemindar* .	21 14	88 20	·463	E	5	...	Cloudy.

The centre of the storm was in Lat. 19½° N. and Long. 87½° E. at 8 A.M., and was hence about 60 miles south south-east of False Point. Weather was very squally with strong winds to the south and south-east of the depression. Moderate rain had been received during the previous 24 hours in Orissa and Ganjam. The following gives 4 P.M. observations at the coast stations in the north-west of the Bay :—

Station.	Barometer.			Wind.		Cloud.
	4 P.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity from 10 A.M. to 4 P.M.	
	"	"	"			
Saugor Island .	29·382	—·015	—·192	ESE	21	9
False Point . .	·292	—·081	—·282	E	17	9
Cuttack . .	·259	—·107	—·304	NE	7	5

The centre at this time was probably at least 60 miles to the south-west of False Point and crossing the coast. No observations were taken at Puri during the storm at this stage. The marine and coast observations indicate that the centre crossed the coast quite close to that station. The weather at False Point on the afternoon of the 9th is described as follows: "Fresh breeze with passing clouds, small rain and light squalls." The Light-house keeper at Shortt's Island, 30 miles to the north, describes the weather on the 9th and 10th in the following terms :—

"*9th September.*—Began with fresh east south-east wind, and during the whole of the day wind very variable, shifting about from east south-east to east, and back to east south-east; then to south-east, back to east, and east south-east, and again to south-east. Light passing showers prevailed during the times the wind shifted; weather looked fairly fine until 5 P.M., when it assumed a decidedly dirty appearance to the south-east, south and westward; wind blowing in gusts of force 3 to 4. A heavy sea rolled in during flood tide, and tides were exceptionally high. At 6 P.M. a light south-east rain squall prevailed, lasting 15 minutes, after which wind backed to east-south-east. Between 8 and 10 P.M. weather became squally, and the sky nearly entirely overcast, though the barometer rose rather rapidly. At 11-45 P.M. wind shifted to south-east. Midnight no change; weather throughout somewhat puzzling."

"*10th September.*—Began with much the same weather as last night. At 2-30 A.M. wind shifted to south followed by rather hard rain squalls, varying in force from 4 to 6. This kind of weather continued till 10-30 A.M., when squalls decreased, the weather being much the same as yesterday until time of sunset, when squalls began again, which at times were strongish, but never exceeded force 7, the wind continuing at south all day and the barometer gradually rising, though the mercury was pumping slightly between 6 and 10 P.M. The squalls increased in frequency between these hours. Midnight, weather still squally. Wind south south-west. No thunder or lightning. Barometer rising steadily."

These observations and remarks establish that the disturbance was comparatively feeble, and that, although weather was very squally and unsettled, the winds probably nowhere exceeded force 7 or 8 in the storm area. Its rate of motion during its passage across the north of the Bay to the Orissa coast increased up to about 6 or 7 miles per hour just before it reached the coast. It was up to this stage a slow moving storm.

10th September.—The only large or important changes of pressure during the previous 24 hours were due to the advance of the storm, the centre of which was at 8 A.M. crossing the Orissa hills. The following observations define 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.		
	"	"	"				Inches.
False Point .	29·419	+·039	—·248	SSE	19	8	0·21
Cuttack .	·385	—·021	—·273	SSW	5	8	0·44
Balasore .	·435	+·004	?	E	8	7	0·59
Chaibassa .	·428	—·020	?	NNE	4	10	0·48
Sambalpur .	·401	—·045	?	N	8	9	0·21
Raipur . .	·444	?	—·206	NNE	?	5	0·85
Vizagapatam .	·461	—·019	—·224	WNW	3	8	0·15

The charted observations indicate that the depression was large and well defined, and that the cyclonic circula-

tion extended over north-eastern India and the north-east of the Peninsula. The centre was in Lat. 20¾° N. or 21° N. and Long. 84¾° E. or 85° E., and hence about 30 or 40 miles due east of Cuttack. The 4 P.M. observations given below establish that the centre was near Sambalpur and that the depression was unchanged in character—

Station.	Barometer.			Wind.		Cloud.
	4 P.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average velocity per hour from 10 A.M. to 4 P.M.	
	"	"	"			
Cuttaek .	29·356	+·097	—·206	S	7	7
Sambalpur . .	294	+·005	—·260	NNE	5	10
Raipur . .	·311	?	—·213	Calm	10	9

The rainfall during the preceding 24 hours was heaviest in the Deccan, where strong westerly monsoon winds were blowing. Moderate rain had been received in Orissa and the Central Provinces. The largest reported amounts were 4·55 inches at Puri and 4·45 inches at Ganpur in the district.

Wind was squally and strong (ranging in force from 5 to 8) in the north-west and centre of the Bay. The strongest winds were experienced by the S.S. *Peria* in Lat. 15° 8′ N. and Long. 85°42′ E., and the S.S. *Bancura*, Lat. 17°46′ N., Long. 85°55′ E. These vessels had WSW to SW winds of force 8 and 9.

11th September.—Pressure increased over the whole of India with the exception of the Central Provinces, where it decreased very slightly. The rise was large in Orissa and Ganjam. The storm had advanced to the north-eastern districts of the Central Provinces and was slowly filling up. The following gives 8 A.M. observations in 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.		
	"	"	"				
Raipur . . .	29·484	+ 040	—·179	SSW	7	10	0·25
Benares . . .	·518	+·003	—·107	ENE	7	8	0·25
Sutna . . .	·507	—·007	—·152	NNE	8	8	*Nil*
Jubbulpore . .	·451	—·070	—·216	NNE	6	10	0·25
Nagpur . . .	·513	—·017	—·175	WSW	12	10	1·26

The storm was still a well defined cyclonic circulation, at the centre of which pressure was a quarter of an inch below the normal. The centre was in Lat. 22¼° N. and Long. 81½° E. at 8 A.M. Winds were moderate in force on the Bombay coast and were steady or decreasing slightly in strength. The rainfall of the previous 24 hours was hence moderate in amount in the Central Provinces, and was light in Bengal and the Gangetic plain.

The 4 P.M. observations showed that the wind had fallen to a calm at Jubbulpore and that the centre of the depression was near that station.

12th September.—Pressure continued to rise generally in the Indian area, and the storm to fill up. A slight fall had occurred in South-east Rajputana and at the eastern stations of Central India due to the advance of the storm into that area The following observations indicate that the centre of the depression was in about Lat. 25° N. and Long. 77½° E. :—

Station.	Barometer.			Wind.		Cloud.	Rainfall in past 24 hours.
	8 A.M.	Changes in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.		
Saugor . . .	29·542	+·022	—·139	SSW	5	8	0·34
Nowgong . . .	·548	—·004	—·121	E	3	10	0·54
Jhansi . . .	·534	—·038	—·135	SSE	6	4	0·06
Neemuch . . .	·616	—·001	—·109	SSE	6	10	6·58

The air motion in the area of depression was becoming irregular and the cyclonic circulation was hence breaking up and of little importance.

The depression was absorbed into the Upper India low pressure area during the next 24 hours, which had however slightly intensified during the next two or three days, and determined a moderate burst of rain to Rajputana and the South-east Punjab. The rainfall due to this was very heavy on the 14th and 15th in the South-east Punjab, more especially in the districts of Karnal, Ludhiana and Jullunder.

The following gives the most noteworthy falls :—

Meteorological Division.	District.	Station.	Rainfall of 24 hours preceding 8 A.M. of 14th.
			Inches.
Punjab Sub-montane.	Karnal . .	Karnal . . .	5·98
		Rajaund . .	7·52
		Gulah . .	5·74
	Ludhiana . .	Samrala . .	7·23
		Ludhiana . .	6·05
	Jullunder . .	Nawashah . .	9·45

The following gives the position of the storm centre at

8 A.M. of each day from the 7th to the 12th and its mean rate of motion in each day :—

Date.	Position of Centre. Latitude N.	Longitude E.	Distance passed over.	Average hourly velocity.
	° ′	° ′	Miles.	Miles.
7th	18 0	91 0	...	...
8th	19 0	89 0	130	5·4
9th	19 30	87 30	118	4·9
10th	20 45	83 45	158	6·6
11th	22 15	81 30	237	9·9
12th	25 0	77 30	325	13·5

The storm gave a heavy burst of rain to Orissa, the Central Provinces, and also to the greater part of the Deccan, and moderate amounts in Central India and Rajputana. It was of moderate intensity throughout and was not marked by any exceptional features.

Pressure increased briskly to rapidly in North-Western India on the 14th and fell briskly in the Deccan on the 15th. In consequence of these changes pressure was very uniform in Northern India on the morning of the 16th and a very shallow low pressure area covered the centre of the Bay. Pressure changes were irregular and rather rapid during the next three days, but they made no important alteration in the pressure distribution. The low pressure area in the centre of the Bay came into greater prominence on the 20th and 21st. Winds were light and unsteady in the depression area on the 17th and 18th On the 19th a fairly well defined cyclonic circulation, the centre of which was in about Lat. 15° N. and Long. 86½° E., was established in the Bay. The following gives observations taken on board vessels nearest to the centre on that day :—

Name of vessel.	Position at 8 A.M. Lat. N.	Long., E.	Barometer corrected, 8 A.M.	Wind 8 A.M. Direction.	Force.	State of sea.	Weather.
	° ′	° ′					
S.S. *Loango*	11 29	84 8	?	W	6	Rising	Violent squalls with heavy rain.
S. *Knight of St. Michael.*	16 37	88 10	29·658	SE	...	...	Squally.
S. *Machrihanish*	16 51	89 10	·638	E	...	Decreasing.	Squally.
S.S. *Lindula*	17 1	86 25	·579	NE	4	...	Fine and clear.
S.S. *Palamcotta*	17 55	92 45	·675	Variable.	1	...	Hazy and fine.

Weather was squally with heavy rain in the area of depression. Moderately strong monsoon winds obtained in the south of the Bay. The depression began to drift eastwards during the day, and the centre on the morning of the 20th was in about Lat. 16° N. and Long. 84½° E., or Long. 85° E. The following observations show that winds were stronger than on the previous day in the area of depression :—

Name of vessel.	Position, 8 A.M. Lat N.	Long E.	Barometer corrected 8 A.M.	Wind, 8 A.M. Direction.	Force.	State of sea.	Weather.
	° ′	° ′	″				
S. *Bargany*	13 34	87 41	29·513	SSW	6	Confused	Cloudy.
S.S. *Clan Sinclair*	14 36	82 35	·487	N	4		Heavy showers.
S.S. *Lindula*	14 43	85 10	·504	SE	2		Light squalls of rain.
S.S. *Nubia*	18 2	86 45	·613	E	6		Very heavy squalls at times.
S. *Knight of St. Michael.*	18 46	88 38	·658	NE	5		Squally.

The disturbance was hence extensive but feeble. A rapid increase of pressure in Northern India brought the depression into larger prominence on the 21st. The centre of the disturbances was probably in about Lat. 16½° N. and Long. 83½° E., or 84° E. at 8 A.M. of the 21st. The following gives observations of ships nearest to the centre :—

Name of vessel.	Position, 8 A.M. Lat. N.	Long. E.	Barometer corrected 8 A.M.	Wind, 8 A.M. Direction.	Force.	State of sea.	Weather.
	° ′	° ′	″				
S.S. *Lindula*	12 15	84 16	29·683	SW	6	High head	
S. *Sofala*	15 6	87 9	·646?	S	2		Fine.
S. *Bargany*	16 46	88 1	·598	SE	5		Cloudy.
S.S. *Clan Sinclair*	16 55	84 35	·557	SE by S	6		Heavy showers.
S.S. *Ellora*	17 58	83 54	·605	ENE	5		Rain squalls at times.

The disturbance was clearly unchanged in character. Weather was squally with moderate to strong winds (4 to 6) and frequent heavy showers over the depression area.

It crossed the coast during the night and broke up rapidly, as on the morning of the 22nd there was a slight residual depression in the Deccan, which passed westwards or disappeared during the next 24 hours. This disturbance was hence throughout diffused and feeble and probably did not give rise to winds exceeding from 6 and 7 in the Bay. It gave a moderate burst of rain to the North and Central Madras coast districts and to the Deccan. The dispersion of the preceding disturbance was followed by pressure changes, which modified considerably the distribution of pressure. Pressure decreased considerably in Upper India, and moderate gradients favouring the extension of monsoon winds to Upper India were again estab-

lished. A shallow depression covered Sind and the Punjab on the 26th, 27th and 28th; and on the latter day a slight depression formed in the central and eastern districts of the North-Western Provinces, which extended southwards and eastwards during the next three days. The Upper India depression remained unchanged in position and character during this interval. The South-East Punjab and North-Western Provinces received numerous thunderstorms on the 25th and 26th. During the remainder of the month the rainfall was small in amount in the Peninsula. Moderate rain continued to fall in North-Eastern India and Burma, and the conditions were favourable for its continuance in these areas at the end of the month. The south-west monsoon rains of 1892 hence terminated in Upper India (the Punjab, North-Western Provinces and Rajputana) on the 26th.

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

Lahoul.—The Revd. A. W. Heyde, Superintendent of the observatory at Kailang, writing on the 2nd October, describes in the following terms the weather experienced in that part of the Himalayan area:—

"Since my last letter to you of 17th August till about the 28th of September, the weather here has continued to be most extraordinary. During the whole of the time indicated we have scarcely had two or three clear days, clouds hanging always about low down in the valley, and on 15 days it rained more or less heavily, several times thunderstorms accompanying the rain. From the 24th of August to the 25th of September, 5·9 inches of rain were registered. In spite of so much rain is remained warm and scarcely any snow fell on the hills around us—not even on the highest—which are from 18,000 to 20,000 feet above the sea level. If there was a little snowfall on the highest peaks, it disappeared again immediately. Only since the last heavy rain, on the 25th September, the snow remains at heights of about 18,000 feet. This is extraordinary for Lahoul, for in former years when there was rain down in the valley the rain soon became snow at heights of 15,000 feet or less. In other years we had, as a rule, the first night frosts a day or two before the middle of September. This year the first night's frost appeared only on the 28th. Since that date regular autumn weather has set in and often a little snow falls on the hills, and to-day it seems as if it was going to snow down in the valley. The total rainfall in this year from the middle of April to 25th of September exceeds 16 inches. During the same period of last year, it was only 8 inches, and again in the same period of 1890 11 inches, and in 1889 9½ inches were registered. This abnormal quantity of rain in this year fell also in Rupshu, beyond the main range of the Himalayas and still further to the north-east in Thibet proper, from which part the Lahoul traders are just returning, who tell of very much rain in those parts during the last two or three months. Strange to say almost no rain fell in the province of Zangskar bordering on Lahoul to the north-west during the past summer. So much rain in Lahoul nobody in the valley seems to have seen or heard of."

Ladakh.—The Superintendent of the observatory, in a letter dated 3rd October, notes briefly that the weather is much colder this year than it was at the same date of last year.

Summary.—The preceding information is very interesting, as it shows that the western Himalayan hill districts and Thibet have shared to a considerable extent in the abnormally heavy rain of the season in Upper India. The rainfall is evidently due to south-west monsoon currents proper, as it merely extended further into the interior than usual and was smallest in amount on the highest elevations, the distinguishing feature of the south-west monsoon rainfall, as contrasted with the cold-weather precipitation.

Summary of Special Storm Reports.

Cyclonic storms are of frequent occurrence in September, passing usually from the Bay into Central or Northern India. Local duststorms are of occasional occurrence in the driest districts of Upper India. The south-west monsoon rains occasionally terminate with a series of thunderstorms in Upper India.

The following gives a brief account of the local duststorms and thunderstorms reported during the month:—

1st.—Thunderstorm at Akola with very heavy rain; 4·1 inches fell at Akola, and 6·95 inches at Jalgaon during this storm.

2nd.—Thunderstorm at Pachpadra; the strongest

winds blew with a velocity of 54 miles per hour. During a portion of the storm hot and cold gusts blew alternately.

3rd.—Thunderstorm at Chikalda, 9 A.M. to 11 A.M.

23rd.—Duststorm at Hyderabad (Sind), 5 P.M. to 6-30 P.M. The greatest velocity of the wind at the commencement of storm was 72 miles per hour.

25th.—Thunderstorm at Allahabad, between 8-20 P.M to 9 P.M.; 0·71 inches of rain fell during the storm. Winds were from north-west during the storm.

26th.—Severe rainstorm at Jubbulpur; 1·95 inches fell in 35 minutes between 8-25 A.M. and 9 A.M. No thunder or wind.

29th.—Severe rainstorm at Poona; rain commenced at 2-48 P.M.; 1·37 inches are reported to have fallen between that instant and 3-7 P.M., and 1·45 inches between 3-15 P.M. and 4 P.M.

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

Bay of Bengal.—The weather in the Bay of Bengal has been fully described under the pressure section, as it depended mainly upon the four depressions which formed in that area during the month. The weather was very squally at the head of the Bay on the 1st and 2nd and winds of force 7 and 8 were experienced by several vessels. Moderate monsoon winds continued in the south and centre of the Bay. Winds fell off in strength at the head of the Bay, and were light and unsteady on the 4th and 5th. Weather became very squally in the centre of the Bay, and a depression formed, which passed across the north of the Bay on the 8th and 9th. Winds of force 9 were experienced by one vessel on the 9th, and several vessels reported heavy to hard squalls. Strongish monsoon winds continued over the north of the Bay until the 12th. Winds then fell off rapidly in strength, and on the 15th calms and variable winds with fine clear weather obtained generally to the north of Lat. 15° N. A shallow depression covered the centre of the Bay for some days. Weather was squally with variable winds in the area itself, whilst to the south moderate monsoon winds obtained. Fine clear weather with easterly winds prevailed in the north-west of the Bay. This depression intensified slightly on the 20th and 21st, and winds increased generally in force and were cyclonic in direction over the whole Bay area on the 21st. South-west winds, force 6 to 9, were experienced in the south of the Bay on the 22nd. The depression advanced across the North Madras coast on the 22nd, and south-west winds extended rapidly northwards, and were of force 2 to 4 at the head of the Bay on the 23rd. Light to moderate monsoon winds continued over the whole Bay area during the remainder of the month.

Arabian Sea.—Winds were normal in direction and strength at the commencement of the month. Weather was fine with moderate cloud over the greater part of the sea area. Winds increased in force off the Bombay and Katthiawar coasts during the next three days, and ranged in force from 4 to 6 between Socotra and these coasts on the 4th. The strongest winds of the month in this sea area were experienced on the 5th and 6th, when several vessels recorded winds of force 7 and 8. They decreased in strength during the next week and ranged from force 2 to 4 on the 15th. The weather was fine with moderate cloud on that day. Winds on the 15th fell off considerably near the Bombay coast, and were light and unsteady in the north and centre of the sea area. Northerly winds set in for a short period on the 16th off the Bombay coast. They gave way on the 17th and 18th and winds were again normal in direction on the 19th. They ranged in force from 2 to 6 on the 20th. On the 22nd, when the shallow depression of the third disturbance of the month had advanced to the north-west of the Peninsula, winds shifted to north-west off the Bombay coast. Weather was on that day as hitherto fine with light to moderate cloud. Only one vessel out of thirty reported showers on that day. The winds reverted to their ordinary monsoon directions on the 24th, and were moderate in force during the next three days. They fell off rapidly on the 27th and 28th, and on the 29th winds were not only light but very variable and irregular in direction. Thus easterly winds were experienced by several vessels to the south and east of Socotra, calms in the centre of the Arabian Sea, and northerly winds to the west of the Laccadives. Six out of seven vessels off the west coast, between Bombay and Colombo on the 29th, experienced calms or variable winds with, in some cases, squally rainy weather. Thus the S.S. Goalpara in Lat. 16° 32′ N. and Long. 77° 12′ E. at 8 A. M. had incessant rain.

throughout the day, and the S.S. *Khandalla* in Lat. 15° 43' and Long. 73° 25' E. at the same hour reported continuous rain. The monsoon current at the end of the month was hence very light and unsteady and had retreated from the north of the sea area.

Temperature of the Air.

The distribution of temperature in India for September 1892 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 data by means of which these charts have been prepared are given in table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.*, 1878 to 1888. 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 obtained 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.

The temperature conditions of September are usually dependent on the distribution of rainfall during the month.

The rainfall of the month was considerably in defect in North-eastern India, and was normal in amount in the Gangetic plain. It was more or less in excess in Rajputana and Central India and the whole of the Peninsula. The rains held steadily throughout the month until the 26th and 27th, and there was no general prolonged break previous to that date.

The mean maximum temperature was considerably in defect (more than 2°) over nearly the whole of the Peninsula, Central India, Rajputana, the South-east Punjab and the adjacent districts of the North-Western Provinces. The following gives a statement of the variations exceeding 3°:—

Area.	Station.	Mean Maximum Temperature.		
		Actual, September 1892.	Normal, September.	Variation from normal.
		°	°	°
Central Deccan.	Bellary	85·7	90·9	—5·2
	Sholapur	84·4	88·1	—3·7
Berar and Khandesh.	Malegaon	83·6	87·0	—3·4
	Akola	84·8	88·3	—3·5
	Nagpur	86·0	89·1	—3·1
Central India	Indore	81·6	84·8	—3·2
Rajputana	Deesa	88·8	92·0	—3·2
	Ajmere	86·5	90·4	—3·9
	Jeypore	89·8	92·8	—3·0
	Sambhar	88·3	91·6	—3·3
South-East Punjab.	Sirsa	93·0	98·2	—5·2
	Ludhiana	89·8	95·0	—5·2
	Delhi	89·1	92·9	—3·8
	Lahore	93·3	96·9	—3·6

The deficiency was hence greatest in two areas, *viz.*, the South-east Punjab and the Madras Deccan (Bellary being the centre).

The mean maximum or day temperature of the month was in excess in three areas, *viz.*, North-eastern India, South Madras and Sind. The following gives the largest variations in these three areas:—

Area.	Station.	Mean Maximum Temperature.		
		Actual, September 1892.	Normal, September.	Variation from normal.
		°	°	°
Sind	Jacobabad	105·8	102·7	+3·1
	Kurrachee	91·0	88·1	+2·9
	Hyderabad	99·2	96·9	+2·3
North-East India.	Dhubri	87·6	85·7	+1·9
	Sibsagar	90·5	89·0	+1·5
	Durbhanga	89·7	88·2	+1·5
South Madras	Coimbatore	91·8	89·4	+2·4

The distribution of the rainfall modified the night tem-

perature to a less extent than the day temperature. The mean minimum or night temperature was below the normal in the Peninsula and the North Punjab, and was in slight excess over Northern India with the exception of the North Punjab. The variations were less than 1° at the majority of stations and exceeded 1½° at the following stations:—

Station.	Mean Minimum Temperature.		
	Actual, September 1892.	Normal, September.	Variation from normal.
	°	°	°
Jeypore	74·2	72·4	+1·8
Ajmere	74·1	72·5	+1·6
Sibsagar	78·1	76·5	+1·6
Bellary	71·1	73·0	−1·9
Akyab	76·5	77·9	−1·4
Rawalpindi	66·6	68·7	−2·1
Peshawar	67·8	70·0	−2·2

The variations of the mean day and night temperatures were hence opposite in character in Northern India, whilst in the Peninsula the day and night temperatures were both in defect. Hence in Northern India the mean temperature of the month generally differed little from the normal, and was in slight excess in North-eastern India and Sind, and in defect over the remainder of that area. It was more or less below the normal over the whole of the Peninsula with the exception of a small portion of South Madras, where it was in slight excess. The following gives data for representative stations in the areas of largest excess or deficiency of temperature:—

Area.		Station.	Variation of		
			Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
			°	°	°
Areas of Increased Temperature.	Sind	Jacobabad	+3·1	+0·6	+1·9
		Kurrachee	+2·9	+0·7	+1·8
	Assam	Dhubri	+1·9	+1·2	+1·6
		Sibsagar	+1·5	+1·6	+1·6
Areas of Decreased Temperature.	Deccan and Madras coast	Bellary	−5·2	−1·9	−3·6
		Sholapur	−3·7	−0·7	−2·2
		Akola	−3·5	−0·5	−2·0
		Malegaon	−3·4	−0·1	−1·8
		Madras	−2·7	−1·3	−2·0
		Masulipatam	−3·2	−0·3	−1·8
	South-East Punjab.	Ludhiana	−5·2	−0·7	−3·0(?)
		Sirsa	−5·2	+1·5	−1·9
	North Punjab.	Rawalpindi	−1·6	−2·1	−1·9
		Peshawar	1·2	−2·2	−1·7

The preceding data show that the mean temperature was most largely in excess in Sind (+1·8°) and the Assam valley (+1·6°) and was considerably in defect in the Deccan (−2½°) and the northern and south-eastern districts of the Punjab (−1·8°). Bellary was the centre of greatest deficiency in the Deccan, and Ludhiana in the Punjab.

The following gives a brief statement of the more important temperature changes during the month. At the commencement of the month temperature was below the normal of the period in the Peninsula and above it in Northern India. The following gives variation data for the 1st:—

District.	Variation of		
	Mean maximum from normal.	Mean minimum from normal.	Mean from normal.
	°	°	°
Burma	−2·8	−1·8	−2·3
Bengal and Assam	+0·5	+0·6	+0·6
North-Western Provinces	+2·3	+1·7	+2·0
Punjab	0	+0·5	+0·3
Sind and Rajputana	+4·6	+2·0	+3·3
Guzerat and Central India	+1·9	+1·5	+1·7
Central Provinces	−1·1	+0·8	−0·2
Bombay	−5·2	−0·7	−3·0
Madras	−2·9	−0·5	−1·7

The rainfall accompanying the storm of the first week of the month, which drifted slowly across the head of the Peninsula into Rajputana and Sind, caused a large reduction of temperature in Northern India, and on the 7th temperature was below the normal in all districts except North-Eastern India and Sind. During the interval between the disappearance of this storm and the advance of the second storm of the month across the Orissa coast on the 10th temperature increased to a moderate extent, but was generally below the normal on that day. The westward advance of the storm during the next four days into Upper India gave a large reduction of temperature in the North-Western Provinces, Punjab and Rajputana. The mean temperature of the 24 hours preceding 8 A. M. of the 14th was 10½° below the normal at Sirsa, and for the 24 hour period ending at 8 A.M. of the 15th it was 12½° in defect at Ludhiana. The dispersion of this depression was followed by a slight to moderate steady increase of temperature for some days, during which a depression slowly formed and developed in the Bay of Bengal. Temperature was on the 20th and 21st more or less above the normal over the whole of India with the exception of the South Deccan and Madras. The depression crossed the Coromandel coast on the 21st and dispersed shortly afterwards, and it hence exercised a

very slight influence in modifying the temperature condition.

During the remainder of the month the temperature changes were slight to moderate in amount, and were throughout local and dependent on local rainfall. A rapid reduction of temperature occurred on the 28th, 29th and 30th, which was apparently due to stormy weather and snowfall in the higher districts of the Western Himalayas. At the end of the month, although rainfall was restricted to Bengal, Burma and Southern India, temperature was in defect over the whole of India, the deficiency being greatest at the hill stations in Upper India and adjacent plain districts, where it exceeded 4°. The following table giving the variations of the mean temperature from the normal on the 7th, 10th, 14th, 21st, 23rd and 30th illustrates the larger changes of temperature during the month:—

District.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of the					
	7th.	10th.	14th.	21st.	23rd.	30th.
	°	°	°	°	°	°
Burma	−1·7	−1·9	+2·3	+1·4	+0·7	−2·2
Bengal and Assam	+1·0	−1·0	+1·0	+2·5	+0·1	−1·4
North-Western Provinces	−1·0	+0·4	−0·9	+1·9	+1·9	−2·2
Punjab	−3·8	−0·8	−3·3	+0·4	+0·5	−2·5
Sind and Rajputana	−3·1	−0·9	−1·7	+1·8	+2·6	−0·4
Guzerat and Central India	−3·7	−1·1	−1·1	+1·1	+1·4	−1·8
Central Provinces	−2·4	−1·6	−1·6	+1·2	+1·0	−1·1
Bombay	−0·5	−0·7	−0·8	−0·8	−0·5	−0·9
Madras	+0·2	−2·1	0	−1·9	−0·3	−1·7

Winds.

The mean wind directions at 8 A.M. during the month are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to all winds. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are given in the small chart (No. 4 of Plate III) by means of arrows flying with the wind.

The Bay of Bengal branch of the monsoon current was on the average of the month considerably above its normal strength in the centre and north of the Bay, as judged from the strength of the winds at the coast stations. The following gives data for four stations at which the exposure of the anemometer is quite satisfactory:—

Station.	Velocity.		
	Actual daily air movement, September 1892.	Normal daily air movement September.	Percentage variation.
	Miles.	Miles.	
Port Blair	282	214	+32
Diamond Island	217	155	+40
Saugor Island	304	241	+26
False Point	259	198	+31

The agreement between the percentage variation of the mean force of the winds at these stations is very close and indicates that the average strength of the Bay current was from 30 to 40 per cent. above its normal force in September 1892.

Winds were on the whole less steady than usual at the Burma stations, and the westerly element in their mean direction was slightly stronger. The following gives data for four stations:—

Station.	Direction.			Steadiness.	
	Mean, September 1892.	Normal, September.	Westerly deflection.	Average, September 1892.	Normal, September.
				%	%
Port Blair	S 65° W	S 43° W	+13°	75	73
Mergui	S 88° W	S 64° W	+24°	60	59
Rangoon	S 34° W	S 18° W	+16°	45	49
Diamond Island	S 35° W	S 39° W	−14°	35	58

This deflection indicates a somewhat larger diversion of the Bay current to Burma than in normal years.

The mean wind directions in Bengal for the month of September present the same peculiarities as in August. These were:—

(1). Decreased westing or increased easting at the coast stations.

(2). Largely increased westing at the stations in Central and North Bengal and Assam.

The second feature was very marked and was apparently due to a larger indraught of monsoon winds than usual into Upper Assam and perhaps North Burma. The following data for five representative stations illustrate this feature:—

Station.	Direction.			Steadiness.	
	Mean, September 1892.	Normal, September.	Decreased easting and increased westing.	Actual percentage, September 1892.	Normal percentage, September.
Calcutta	S 17° E	S 27° E	10°	38	43
Dacca	S 7° E	S 11° E	4°	57	57
Dhubri	S 27° W	S 66° E	93°	42	28
Sibsagar	S 26° W	N 73° E	99°	37	18
Darjeeling	S 41° W	S 72° E	11°	17	12

It is not a little remarkable that this feature was even more strongly exhibited at Darjeeling than at the Assam stations.

The monsoon current held steadily throughout the whole month in the Gangetic plain, and the mean wind directions differed little from the normal in Bihar, Chota Nagpur and the North-Western Provinces. Winds were on the whole stronger than usual. The following gives the stations at which winds were most unsteady during the month :—

Station.	Steadiness.		Velocity.	
	Average, September 1892.	Normal, September.	Actual daily air movement September 1892.	Normal daily air movement, September.
	%	%	Miles.	Miles.
Mooltan	23	33	31	61
Roorkee	8	7	9	49
Meerut	12	17	38	49
Lucknow	12	14	60	68
Nowgong	7	28	64	57
Agra	18	13	103	99

These stations indicate roughly the mean position of the trough of low pressure during the month. Its position approximately coincided with its normal position during the rains, thus indicating the continuance of steady monsoon currents during the month. The barometric observations indicate that the axis or central line of this trough was, as already stated, slightly further to the south than usual, especially near its western extremity.

The Bombay current was, judging by the mean strength of the winds at the west coast stations, very slightly above its normal strength in September, but as judged by the force of the winds at the higher stations in the Deccan it was considerably stronger. The following data illustrate these remarks :—

Station.	Station.	Velocity.		
		Average daily air movement September 1892.	Normal daily air movement September.	Percentage variation.
		Mile	Miles.	
Coast Stations	Bombay	282	273	+ 3
	Ratnagiri	192	188	+ 2
Deccan Stations	Sholapur	276	238	+ 16
	Belgaum	484	374	+ 29
	Pachmarhi	245	134	+ 83
	Akola	182	144	+ 26
	Nagpur	184	118	+ 56

The preceding data appear to establish that the Bombay current was stronger and steadier than usual. Winds were slightly more southerly than usual at the Bombay coast station, but the variations from the normal directions were in all cases small.

Winds were much lighter at Kurrachee and Hyderabad in Sind, but were practically normal in direction. Winds were very unsteady at Jeypore, and that station was within the trough of low pressure during the month.

The continuance of steady monsoon winds during the month in North-Western India gave a much stronger westerly element to the north-westerly winds of the month in Berar and the Central Provinces. This was so marked that at some stations the feeble northerly component was replaced by a southerly component. The following gives data for three stations :—

Station.	Direction.		Steadiness.	
	Mean direction, September 1892.	Normal direction, September.	Actual percentage, September 1892.	Normal percentage, September.
	°	°		
Hoshangabad	S 87 W	N 86 W	55	50
Sironcha	S 87 W	N 80 W	55	40
Jubbulpore	S 57 W	N 69 W	22	34

The increased strength of the Bombay current combined with the strong easterly tendency of the Bengal current caused the winds in the eastern districts of the Central Provinces to be much stronger than usual and to blow much more directly from the west than usual.

In the Deccan and Madras winds were generally stronger and steadier than usual, but the variations were small in amount except at Madras, where the winds were remarkably feeble.

Winds were unsteady at many of the Himalayan hill stations. They were also in nearly all cases weaker than usual. Winds were, on the other hand, much stronger and steadier at the lower level stations of Mount Abu, Pachmarhi, and also at Wellington in Southern India.

Humidity and Cloud.

The hygrometric data of the month employed in the following paragraphs are given in Table II. In that table are columns giving the monthly means of the wet bulb readings at 10 and 16 hours and the minimum and of the vapour tension and the humidity at the same hours, and also the daily means of these elements. The normal values by

means of which the variations have been derived are the means calculated in the same way for periods varying from five to twenty 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 years of the available cloud data for the same hours.

The air contained somewhat less vapour, and was slightly less damp than is usual in September in Lower Burma and Bengal. The decreased humidity was most marked at Chittagong (5 in defect) and Dacca and Calcutta (4 in defect). In Assam, the amount of aqueous vapour was in slight excess, but in consequence of the increased temperature the mean humidity of the month was normal or slightly below it. The air was slightly drier in Chota Nagpur, Bihar, and the adjacent districts of the North-Western Provinces. The mean humidity of the month was, for example, 4 in defect at Hazaribagh and Allahabad and 3 in defect at Darbhanga.

The humidity conditions in the western districts of the North-Western Provinces, the south-eastern districts of the Punjab and Rajputana formed one of the more striking features of the month. The air contained a much greater amount of aqueous vapour than usual and the humidity was largely in excess. The mean humidity of the month was upwards of 10 above the normal at stations in this area. The following gives the largest variations :—

Station.	Variation from the normal.	
	Aqueous vapour.	Humidity.
Ludhiana	+·064	+14
Ajmere	+·133	+16
Jeypore	+·119	+12
Agra	+·098	+12

The air was also damper at all the hill stations in Northern India, and in Central India, the Central Provinces, Berar and the Deccan. The increased humidity was very marked at Seoni (10 in excess), Bellary (8 in excess), Poona (10 in excess), Khandwa (8 in excess), Sholapur (8 in excess) and Akola (10 in excess).

The variations were smaller and less important in Southern India, where both the humidity and amount of vapour were in slight defect.

The area of increased humidity hence coincided approximately with the area of negative pressure anomalies and excessive rainfall.

The mean cloud amount of the month was almost without exception above the normal. In one or two cases, as for example, Chakrata, Seoni and perhaps Hyderabad and Chittagong, a change of observers has altered largely the cloud estimate; and the means at these stations are almost certainly not comparable with the normal means based on the observations of previous observers.

The excess in the amount of cloud was on the whole small in Burma, Bengal, Chota Nagpur, Bihar and the eastern districts of the North-Western Provinces. It was on the other hand large, and exceeded 1 in amount in Rajputana, the South-east Punjab, the western districts of the North-Western Provinces, Berar, the Central Provinces and the Deccan. The excess was more than 2 at stations for which data are given below :—

Station.	Cloud amount.		
	Actual average, September 1892.	Normal average, September.	Variation from normal.
Jeypore	6·6	3·5	+3·1
Ajmere	5·5	3·2	+2·3
Deesa	7·3	4·7	+2·6
Buldana	8·9	6·3	+2·6

The cloud amount was also very largely in excess at the hill stations in Upper India, and more especially at the following :—

Station.	Cloud amount.		
	Actual average, September 1892.	Normal average, September.	Variation from normal.
Leh	5·4	3·9	+1·5
Kailang	6·4	4·4	+2·0
Simla	7·8	5·4	+2·4
Chamba	5·9	3·1	+2·8

Rainfall.

Rainfall observations are made at upwards of 2,000 stations in India. The hour of observation is 8 A.M. The rainfall data for each province are tabulated in the office of the Meteorogical 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 informa-

tion is published in the *Gazette of India* weekly. The charts illustrating the distribution of rainfall in September 1892 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. 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 160 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. The line of no rainfall is indicated by two parallel lines separated by a short distance—one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 51 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the rainfall information telegraphed by District Officers, of which a summary is given in the following table, and the actual figures utilized are those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall; a number given in a corner of each district in small slanting figures serves as an index, by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

The following table gives a summary of the rainfall data of the month for the 52 meteorological divisions of India. In the cases of Bengal, Assam, the North-Western Provinces, the Punjab, Bombay, the Central Provinces and the Native States of Rajputana and Central India, the data are obtained from the published provincial rainfall statements. The data for Burma, Mysore, Berar and Hyderabad South, are deduced from the weekly rainfall reports telegraphed by the District Officers of those areas :—

The following gives the periods of large influx of humid winds from the Bay of Bengal and of most general rain in Northern India :—

1st.—From the 1st to the 5th or 6th, during which period the whole of Northern India received a moderate to heavy burst of rain.

2nd.—From the 7th to the 15th, Orissa obtained heavy rain on the 7th and 8th, and Assam, Bengal and the eastern districts of the North-Western Provinces general rain from the 9th to the 14th.

3rd.—From the 21st to the 28th, when the whole of Bengal Assam, and the eastern districts of the North-Western Provinces received light to moderate showers, which gave moderate rain. The rainfall was heaviest in East and Central Bengal and lightest in Orissa.

The chief rainy periods in Western India due to influx from the Arabian Sea were—

1st.—From the 1st to the 8th.—The whole of the Bombay Presidency (except Sind), the Deccan, Central India, Rajputana, the South-East Punjab and the Central Provinces obtained general rain during this period. The rainfall was exceptionally heavy in North Bombay, Katthiawar, Guzerat, Khandesh, Berar and West Rajputana.

2nd —From the 11th to the 14th.—This was a feeble burst and gave moderate rain in the Bombay Deccan, Central Provinces, and West Rajputana.

3rd.—From the 16th to the 26th.—This was chiefly directed to the Deccan and west coast districts. Rajputana, Central India and the Central Provinces also obtained general and moderately heavy rain.

The rainfall exceeded 20 inches in the Arakan and Tenasserim coast districts, and in a portion of the Konkan and West Ghâts, and the Assam Hills. It was less than 4 inches in the West and Central Punjab, West Rajputana, Sind, the greater part of the North-Western Provinces, Central Burma, and a large portion of the Peninsula to the east of the West Ghâts and south of Lat. 16°. N. It was absolutely or practically *nil* in the Indus Valley and in the extreme south of Peninsula.

The rainfall of the month was in excess in the following districts :—

(1) Burma. The excess in that area was very large in Tenasserim, which received an average of 46·9 inches, nearly double the normal.

(2) The East Punjab, more especially the submontane and hill districts.—The Ludhiana district was the centre of this heavy rainfall.

(3) The Bombay Deccan, Konkan, Guzerat, Katthiawar, Rajputana, Central India, Berar, the Central Provinces, Hyderabad and the northern and central districts of Madras. The rainfall was most largely in excess in Guzerat, Katthiawar Khandesh and Rajputana, which received average total amounts from two to four times the normal of the month.

The rainfall of the month was in defect in the following areas :—

(1) Assam and Bengal.—The deficiency was moderate except in the greater part of North Bengal and Bihar, which obtained barely half their normal amount. It was most marked in the Purnea and Darbhanga district.

(2) The North-Western Provinces and Oudh.—The deficiency was greatest in a central area stretching from Bahraich to Allahabad.

(3) South and Central Madras.—The deficiency in this area was most marked in the districts of Coimbatore, Salem and Tinnevelly.

Province.	Division.	Number of rainy days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	46·94	24·69	+ 22·25
	Lower Burma*	?	?	14·93	13·85	+ 1·08
	Central do.*	?	?	13·22	10·45	+ 2·77
	Upper do.*	?	?	4·77	?	?
	Arakan*	?	?	22·30	20·80	+ 1·50
Bengal and Assam	Eastern Bengal	13·9	13·8	9·86	12·48	− 2·62
	Assam (Surma)	16·5	16·0	17·23	16·46	+ 0·77
	Do. (Brahmaputra)	11·8	12·9	9·05	11·13	− 2·08
	Deltaic Bengal	12·9	11·8	7·18	8·92	− 1·74
	Central do.	10·7	12·2	6·15	9·97	− 3·82
	North do.	11·6	13·5	11·70	16·07	− 4·37
	Orissa	12·9	12·5	10·49	10·26	+ 0·23
	Chota Nagpur	13·1	12·7	8·04	8·71	− 0·67
	Bihar (South)	8·2	9·5	4·40	7·15	− 2·75
	Do. (North)	6·6	9·7	4·02	9·64	− 5·62
North-Western Provinces and Oudh.	North-Western Provinces (East)	6.9	8·0	3·71	6·87	− 3·16
	Oudh (South)	5·4	7·4	2·92	6·52	− 3·60
	Do. (North)	5·3	7·2	3·37	7·22	− 3·85
	North-Western Provinces (Central)	6·0	6·5	3·17	5·53	− 2·36
	Do. do. (West)	7·0	5·3	4·69	4·79	− 0·10
	Do. do. (Submontane)	7·5	6·7	5·51	7·42	− 1·91
Punjab	Punjab (South)	4·7	2·5	3·35	1·99	+ 1·36
	Do. (Central)	5·3	3·3	4·45	3·54	+ 0·91
	Do. (Submontane)	6·4	3·8	7·77	3·93	+ 3·84
	Do. (Hill Districts)	10·7	7·4	11·20	6·55	+ 4·65
	Do. (North-West)	1·5	3·1	0·85	2·27	− 1·42
	Do. (West)	0·9	0·8	0·37	0·79	− 0·42
Bombay and Malabar coast districts (Madras).	Malabar	17·2	14·4	9·07	10·20	− 1·13
	Madras (South Central)	3·0	6·3	1·33	4·32	− 2·99
	Coorg	16·1	?	5·88	?	?
	Mysore*	?	?	2·81	5·09	− 2·28
	Konkan	21·7	16·8	23·65	14·97	+ 8·68
	Bombay Deccan	11·7	8·4	8·11	5·48	+ 2·63
	Hyderabad (North)	...	...	...	...	...
	Khandesh	13·9	9·2	12·86	6·97	+ 5·89
Central Provinces and Berar.	Berar*	?	?	12·09	7·15	+ 4·94
	Central Provinces (West)	14·6	9·5	11·12	8·80	+ 2·32
	Do. (Central)	12·3	9·7	9·43	7·97	+ 1·46
	Do. (East)	10·6	9·5	7·39	7·62	− 0·23
Bombay (North)	Guzerat	13·5	8·3	18·25	8·03	+ 10·22
	Kathiawar	9·2	4·4	11·69	4·70	+ 6·99
	Sind	0	?	0·01	0·49	− 0·48
Rajputana and Central India.	Central India (East)	10·9	?	9·08	6·69	+ 2·39
	Rajputana (East), Central India (West)	9·1	?	9·46	3·65	+ 5·81
	Do. (West)	6·0	?	5·79	1·35	+ 4·44
Madras	East coast (North)	12·0	9·0	9·97	6·95	+ 3·02
	Do. (do.) (a)	18·0	12·4	15·20	8·63	+ 6·57
	Hyderabad (South)*	?	?	9·44	4·52	+ 4·92
	Madras (Central)	9·2	7·2	5·15	5·51	− 0·36
	East Coast (Central)	7·8	5·5	6·53	3·61	+ 2·92
	East Coast (South)	6·0	6·4	4·73	4·87	− 0·14
	Madras (South)	1·2	3·7	0·64	2·20	− 1·56

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

The rainfall of the month in Assam was much more irregularly distributed than usual in September. Sylhet, Cachar and the eastern districts of the Brahmaputra valley obtained almost daily showers from the 1st to the 12th. Little or no rain fell in the Goalpara, Kamrup and Darrang districts during this period. A partial break followed over the whole province until the 21st, when general and moderate rain set in and continued during the remainder of the month. The following table gives a summary of the rainfall data of the month:—

Meteorological division.	District.	Rainfall.			
		Actual, average September 1882.	Normal average, September.	Variation from normal.	Percentage variation.
		Inches.	Inches.	Inches.	
Assam (Surma)	Sylhet	19·33	19·93	—0·60	— 3
	Cachar	14·66	12·41	+2·25	+18
Assam (Brahmaptura.)	Goalpara	11·87	12·01	—0·14	— 1
	Kamrup	5·44	8·30	—2·86	—34
	Darrang	7·73	8·21	—0·48	—
	Nowgong	7·87	11·54	—3·67	—32
	Sibsagar	10·66	10·09	+0·57	+ 6
	Lakhimpore	13·00	14·04	—1·04	— 7

The rainfall of the month was hence practically normal in amount over the greater part of the province. It was in moderate excess in Cachar and in considerable defect (33 per cent.) in the districts of Kamrup and Nowgong. As in North Bengal, the deficiency was due chiefly to the lightness of the showers and not to deficiency in the number of rainy days.

The rainfall of the month in Bengal was in general defect. Moderate rain was received from the 1st to the 5th in all districts, except the northern districts of North Bengal and Bihar (more especially North Bhagalpur, Purnea, Rangpur and Jalpaiguri). A short break followed, during which the second depression and cyclonic storm of the month was forming. This storm gave a heavy burst of rain to Orissa and Chota Nagpur from the 7th to the 11th. The remaining divisions obtained light to moderate showers during this period. An almost complete break in the rains over the whole province commenced on the 17th and continued until the 21st. During the remainder of the month rain fell more or less generally on every day. This burst of rain was heaviest in East Bengal, and lightest in Orissa, the Midnapore, Hooghly, and Howrah and Nadia districts of South-west Bengal and in South Bihar.

The following gives a summary of the rainfall data published in the provincial rainfall statement for the month :—

Division.	Number of rainy days.			Rainfall.		
	Actual average, September 1892.	Variation from normal.	Percentage variation.	Actual average, September 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Eastern Bengal	13·9	+0·1	+ 7	9·86	—2·62	—21
Deltaic Bengal	12·9	+1·1	+ 9	7·18	—1·74	—19
Central do.	10·7	—1·5	—14	6·15	—3·82	—38
North do.	11·6	—1·9	— 9	11·70	—4·37	—27
Orissa	12·9	+0·4	+ 2	10·49	+0·23	+ 2
Chota Nagpur	13·1	+0·4	+ 2	8·04	—0·67	— 8
Bihar (South)	8·2	—1·3	—12	4·40	—2·75	—39
Bihar (North)	6·6	—3·1	—34	4·02	—5·62	—58

The preceding data show that the deficiency was chiefly due to the unusual lightness of the rainfall, as the number of rainy days was practically normal in all dist ricts with the exception of North Bihar.

The rainfall was normal in amount in Orissa and Chota Nagpur. This was chiefly due to the heavy rain in those areas during the passage of the two cyclonic storms of the first twelve days of the month. The rainfall of the month was in moderate defect in North-east and Deltaic Bengal, and was more or less largely below the normal in Central Bengal and Bihar. The deficiency exceeded 50 per cent. in the districts for which data are given below :—

District.	Rainfall.			
	Actual average, September 1892.	Normal average, September.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Rajshahi	4·72	11·26	— 6·54	—58
Malda	4·68	10·52	— 5·84	—55
Dinajpur	5·49	11·17	— 5·68	—51
Rangpur	6·19	13·00	— 6·81	—52
Kuch Bihar	9·66	21·95	—12·29	—56
Purnea	4·50	13·53	— 9·03	—67
Darbhanga	3·19	9·25	— 6·06	—66

The area comprising the central districts of North Bengal and the north-eastern districts of North Bengal hence formed the area of most deficient rainfall during the month, the deficiency being greatest relatively to the normal in the districts of Purnea and Darbhanga, which received barely one-third of the normal fall of the month.

In the North-Western Provinces the rainfall occurred chiefly during three periods, *viz.*:—

1st.—From the first to the 6th.—This rainfall was most general on the 4th, 5th and 6th. It gave a moderately heavy burst to the eastern and central districts and light showers to the western districts.

2nd.—From the 11th to the 17th.—This gave fairly general rain throughout the province, but the rainfall was nowhere heavy in the plains, Garhwal and Kumaon had heavy rain on the 13th, 14th and 15th.

3rd.—From the 22nd or 23rd to the 25th.—The central and western districts obtained moderate to heavy general rain, the sub-montane districts moderate occasional showers, and Oudh and the eastern districts light local showers of little agricultural value.

The following gives a summary of the rainfall data published in the provincial Gazette :—

District.	Number of rainy days.			Rainfall.		
	Actual average, September 1892.	Variation from normal	Percentage variation.	Actual average, September 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Oudh (North)	5·4	−2·0	−27	2·92	−3·60	−55
, (South)	5·3	−1·9	−27	3·37	−3·85	−53
N.-W. Provinces (East)	6·9	−1·1	−14	3·71	−3·16	−46
(Central)	6·0	−0·5	− 8	3·17	−2·36	−42
(West)	7·0	+1·7	+32	4·69	−0·10	− 2
(Submontane)	7·5	+0·8	+11	5·51	−1·91	−26

The preceding data show that the rainfall was in defect over the whole of Oudh and the North-Western Provinces, and that the deficiency was due chiefly to the unusual lightness of the showers, and not to much less frequent rainfall than usual. The western districts received practically normal rainfall. In all other districts the rainfall was in defect, the deficiency being on the whole greatest in Oudh, which received only 46 per cent. of its normal fall, and the eastern and central districts of the North-Western Provinces, where it was little more than half the normal of the month (56 per cent). The deficiency was most marked in the districts for which comparative data are given in the following table :—

District.	Number of rainy days.			Rainfall.		
	Average actual, September 1892.	Variation from normal.	Percentage variation.	Average actual, September 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Gonda	5·7	−1·5	−21	2·77	−5·50	−67
Bara Banki	5·3	−2·0	−27	2·87	−3·81	−57
Sitapur	4·8	−2·0	−29	2·27	−4·29	−65
Kheri	2·0	−5·0	−71	1·98	−5·55	−74
Rai Bareilly	4·3	−3·7	−46	2·46	−4·67	−65
Hardoi	5·5	−1·2	−18	2·20	−3·51	−61
Bulandshar	4·4	−0·2	− 4	1·92	−3·11	−62
Shahjahanpur	3·5	−3·0	−46	1·12	−4·94	−82
Moradabad	6·5	0	0	2·69	−3·69	−58
Gorakhpur	4·8	−2·9	−38	3·93	−4·29	−52
Basti	4·2	−3·6	−46	3·40	−5·14	−60

Falls of less than an inch were received at Lataganj in the Budaon district, and Maharajganj in the Gorakhpur District. The former received ·40 inch or less than 6 per cent. of the normal fall, 6·88 inches, and the latter ·7 inch, barely 7 per cent. of the normal for the month, *viz.*, 10·17 inches. The rains ceased in the North-Western Provinces on the 27th of the month.

The Punjab received rainfall chiefly during the three following periods :—

1st.—From the 5th to the 8th.
2nd.—From the 13th to the 19th.
3rd.—From the 23rd to the 26th.

The first period was chiefly remarkable for the heavy local fall in the districts of Ludhiana, Jullunder, Hoshiarpur Simla and Kangra. Little or no rain fell in the western or central districts during this period. The following noteworthy rainfalls in 24 hours were registered during this period :—

District.	Station.	Heaviest rainfall.	Date.
		Inches.	
Ludhiana	Samrala	11·16	
Simla	Kasauli	7·10	
	Barauli	7·02	6th

The rainfall of the second period was general over the whole province with the exception of the northern and western districts The rainfall during this period was heaviest in the Karnal, Umballa, Ludhiana, Jullunder, Hoshiarpur, Gurdaspur, Simla and Kangra districts. The most noteworthy rainfalls in 24 hours during this period were the following :—

District.	Station.	Heaviest rainfall.	Date.
		Inches.	
Jullunder	Nawashahr	9·45	14th
Ludhiana	Samrala	7·23	14th
Karnal	Rajaund	7·52	14th
Gurdaspur	Aliwal	6·65	15th

During the last period the rainfall was light and irregularly distributed. The hill districts had heavy thunder showers during this period.

The following table gives a summary of the rainfall data published in the provincial rainfall statement :—

Meteorological Division.	Number of rainy days.		Rainfall.		
	Actual, September 1892.	Variation from normal.	Actual, September 1892.	Variation from normal.	Percentage variation.
			Inches.	Inches.	
Punjab (South)	4·7	+2·2	3·35	+1·36	+68
Do. (Central)	5·3	+2·0	4·45	+0·91	+26
Do. (Submontane)	6·4	+2·6	7·77	+3·84	+98
Do. (Hill districts)	10·7	+3·3	11·20	+4·65	+71
Do. (North-West)	1·5	−1·6	0·85	−1·42	−63
Do. (West)	0·9	+0·1	0·3	−0·42	−53

The rainfall of the month was very deficient in the northern and western districts. No rain fell in the greater part of the Mooltan, Muzaffargarh, Dera Ghazi Khan, Dera Ismail Khan and Rawalpindi districts. The actual average rainfall of the Rawalpindi district was only ·52 inch, the normal being 3·2 inches. Over the remainder of the province, rain fell more frequently than usual and was largely in excess. The excess was most marked in the hill districts and adjacent plain districts. The following gives comparative data for the districts which received most abundant rain during the month :—

District.	Rainfall.			
	Actual, September 1892.	Normal, September.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Karnal	12·00	4·05	+7·95	+196
Simla	12·87	6·19	+6·68	+108
Rhotak	6·10	3·36	+2·74	+ 82
Umballa	10·30	4·82	+5·48	+114
Ludhiana	15·52	3·74	+11·78	+315
Jullunder	11·64	3·85	+7·79	+202
Hoshiarpur	11·42	4·25	+7·17	+169

A noteworthy feature of the rainfall of the month was the extreme irregularity of its distribution even in the districts of most abundant rainfall. The following data for four of the preceding districts illustrate this feature :—

District.	Station.	Heaviest rainfall.		Station.	Lightest rainfall.	
		Actual average, September 1892.	Normal average, September.		Actual average, September 1892.	Normal average, September.
		Inches.	Inches.		Inches.	Inches.
Ludhiana	Samrala	26·57	3·89	Jagraon	7·22	2·97
Jullunder	Nawashahr	22·33	3·97	Jullunder	6·62	4·36
Karnal	Karnal	16·04	4·69	Panipat	8·64	4·45
Simla	Kasauli	25·00	8·80	Kilba	5·47	6·68

No rain fell in British Baluchistan during the month.

Unusually favourable and abundant rain was received in Rajputana during the month. The chief periods of general rainfall were as follows :—

1st.—From the 4th to the 8th.—This burst of rainfall was due to the passage of the first cyclonic storm of the month through it. The rainfall was exceptionally heavy in the south-western districts of Sirohi, Banswara, Khusalgarh and Oodeypore. Mount Abu received 24·64 inches in the 48 hours preceding 8 A.M. of the 7th, Khusalgarh 16·7 inches in 72 hours ending at 8 A.M. of the 6th, and Banswara 12·27 inches on the 4th.

2nd.—From the 12th to the 14th.—This, like the previous burst, was heaviest in the western and central states.

3rd.—From the 17th to the 20th.—The western states obtained light showers during this period, and the central and eastern states or divisions, more especially Ajmere, Jeypore Bhurtpur and Ulwar, moderate to heavy rain.

The rains ceased on the 26th September over Rajputana. The following gives a summary of the rainfall data of the month for the larger states :—

District or State.	Rainfall.			
	Average actual, September 1892.	Normal average, September.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Jodhpur	6·11	1·47	+4·64	+316
Jeypore	8·00	2·04	+5·96	+292
Ulwar	5·84	4·94	+0·90	+ 18
Bhurtpore	7·27	4·25	+3·02	+ 71
Ajmere	11·76	2·88	+8·88	+308
Oodeypore	16·29	5·16	+11·13	+216

The rainfall of the month was hence unusually favourable, more especially in the western and central states, which received from three to four times their normal amounts.

Rain fell during the same periods in Central India as in Rajputana. The western states of Gwalior, Indore, and Rutlam received very heavy rain on the 4th and 5th during the passage of the first storm of the month. Th, rainfall of the last rainfall period of the month, *viz.* the 17th to the 20th, was much lighter than in Rajputana. It was least in amount in Bundelkhand and Rewah. The following gives comparative rainfall data for the larger states or divisions for the month :—

District or State.	Rainfall.			
	Actual average, September 1892.	Normal average, September.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Bundelkhand	5·62	6·39	−0·77	− 12
Rewah	6·17	6·43	−0·26	− 4
Gwalior	12·78	6·19	+6·59	+106
Bhopal	12·37	8·79	+3·58	+ 41

The Central Provinces obtained almost daily rainfall from the 1st to the 27th, when the rains ceased over the whole area. The chief periods of rainfall were from the 1st to the 4th, the 10th to the 12th, and the 16th to the 19th, and were hence directly related to the storms of the month The falls were, as a rule, not heavy and only 3 out of the 66 rain gauge stations reported amounts in 24 hours exceeding5 inches.

The following gives a summary of the rainfall data as published in the Provincial Gazette :—

Division.	Number of rainy days.			Rainfall.		
	Average actual.	Variation from normal.	Percentage variation.	Average actual.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Central Provinces (East)	10·6	+1·1	+12	7·39	—0·23	—3
Central Provinces (Central).	12·3	+2·6	+27	9·43	+1·46	+18
Central Provinces (West).	14·6	+5·1	+54	11·27	+2·47	+29

The data show that the number of rainy days was above the normal to a much greater extent (as shown by the percentage variation) than the rainfall amounts. The rainfall was very unequally distributed, the chief feature being the large excess in the Nimar and Chanda districts. The following gives data for each district, and shows more fully than the preceding statement the distribution of the rainfall of the month :—

Meteorological Division.	District.	Rainfall.			
		Actual average, September 1892.	Normal average, September	Variation from normal.	Percentage variation.
		Inches.	Inches.	Inches.	
Central Provinces, East	Sambalpur	8·94	8·07	+0·87	+11
	Bilaspur	6·99	8·02	−1·03	−13
	Raipur	6·45	6·58	−0·13	−2
Central Provinces, Central.	Chanda	13·22	8·05	+5·17	+64
	Bhandara	12·17	8·38	+3·79	+45
	Balaghat	10·76	9·19	+1·57	+17
	Seoni	9·52	8·46	+1·06	+13
	Mandla	8·38	6·70	+1·68	+25
	Narsinghpur	10·21	8·82	+1·39	+16
	Saugor	6·49	7·13	−0·64	−9
	Damoh	5·84	7·39	−1·55	−21
	Jubbulpore	6·45	6·95	−0·50	−7
Central Provinces, West.	Wardha	7·95	7·31	+0·64	+9
	Nagpur	11·47	8·19	+3·28	+40
	Chhindwara	9·70	8·29	+1·41	+17
	Hoshangabad	12·70	10·95	+1·75	+16
	Betul	11·33	8·98	+2·35	+26
	Nimar	12·22	7·01	+5·21	+74

The Bombay coast districts received daily rain until the 25th. The rainfall was very heavy during the first week of the month, and rainfalls exceeding 5 inches in 24 hours were recorded on more than one occasion at all the rian-gauge stations in the Kolaba and Thana districts. The rains held steadily until the 24th and decreased rapidly until the 27th, when they ceased for a short time in the Kolaba and Thana districts.

In the Bombay Deccan general rain was received between the 1st and 8th, the 16th and 22nd, and the 26th to the end of the month. The rainfall was heaviest and most general during the first period.

The rainfall periods were very clearly marked in Khandeish and Guzerat. They were, firstly from the 1st to the 7th, secondly, from the 11th to the 13th, and thirdly, from the 17th to the 25th. The rainfall during the first period was exceptionally heavy in the Surat district and the following excessive amounts in 24 hours were recorded during this period :—

District.	Station.	Heaviest rainfall.	Date.
		Inches.	
Surat Agency	Dharampur	10·16	2nd
" "	Ditto	17·93	3rd
" "	Bansda	15·03	3rd
" "	Ditto	10·85	4th
Surat	Pardi	15·53	4th

The rainfall was also very heavy in the Kaira and Ahmedabad districts and in Baroda, Rewa Kanta, Mahi Kanta and the Panch Mahals. Katthiawar obtained moderate rain during the same periods.

The following table gives a summary of the rainfall data of the month published in the provincial statement :—

Division.	Average actual number of rainy days.	Variation from normal.	Percentage variation.	Average actual rainfall of month.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Konkan	21·7	+4·9	+29	23·65	+8·68	+58
Bombay Deccan	11·7	+3·3	+39	8·11	+2·63	+48
Khandesh	13·9	+4·7	+51	12·86	+5·89	+85
Guzerat	13·5	+5·2	+63	18·25	+10·22	+127
Katthiawar	9·2	+4·8	+109	11·69	+6·99	+149
Sind	0	?	?	0·01	−0·48	−98

The statement shows clearly the excessive character of the rainfall in Katthiawar, Guzerat, and to a less extent in Khandesh. This was mainly due to the heavy rainfall on the 2nd, 3rd and 4th accompanying the indraught from the Bombay coast to the first cyclonic storm of the month when crossing Central India and Rajputana. The rainfall was especially excessive in the districts for which data are given in the following table :—

Districts.	Average actual rainfall of month.	Normal rainfall of month.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Surat	18·94	11·81	+7·13	+60
Kaira	17·73	6·45	+11·28	+175
Panch Mehal	20·24	8·55	+11·69	+137
Ahmedabad	18·15	5·06	+13·09	+259
Rewa Kantha	22·19	9·24	+12·95	+140
Mahi Kantha	21·88	6·20	+15·68	+253

The rainfall was considerably in excess in the west coast and the Deccan districts, and in the latter area was not only unusually abundant but very favourably distributed in time throughout the month.

Sind, like Baluchistan and the South west Punjab, was practically rainless throughout the month.

The north and central coast districts of Madras received frequent rain throughout the month. The 9th, 10th, 11th and the 21st and 22nd were days of heavy and general rainfall. The following were the most noteworthy falls in 24 hours:—

District.	Station.	Date.	Heaviest rainfall in inches.
			Inches.
Vizagapatam	Malkangiri	9th	10·20
"	Jeypore	9th	5·65
"	Naurungapur	10th	7·50
"	Salur	21st	6·00
Nellore	Kanigiri	21st	6·20
"	Nellore	21st	5·65

These two heavy bursts of rain accompanied the passage of the second and third of the storms across the west coast of the Bay. Showers fell almost daily in these districts, except from the 12th to the 14th and 15th, which period was an almost complete break. The rainfall was hence very favourably distributed both with respect to time and amount in these districts. The following data show the character of the rainfall of the month in that part of the Madras Presidency:—

District.	Number of rainy days.			Rainfall.		
	Actual average, September 1892.	Variation from normal.	Percentage variation.	Actual average, September 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Ganjam	12·7	+2·8	+28	11·47	+4·19	+58
Vizagapatam	13·8	+3·9	+39	11·76	+4·33	+58
Godavari	10·4	+2·2	+27	7·39	+0·41	+6
Kistna	10·8	+2·8	+35	9·38	+3·58	+62
Nellore	7·8	+2·3	+42	6·53	+2·92	+81
Chingleput	8·9	+2·4	+37	7·16	+2·25	+46
North Arcot	8·1	+1·4	+21	6·58	+1·19	+22

The Deccan districts of Cuddapah and Kurnool shared to a slight extent in the increased rainfall due to the storms of the month. In the remaining Deccan districts of Anantapur and Bellary the rainfall was in moderate defect. The periods of rainfall were more clearly defined in these districts than in the coast districts. They were from the 5th to 10th, the 15th to the 21st, and the 24th to the 28th. The following gives comparative data for these districts:—

District.	Number of rainy days.			Rainfall.		
	Actual average, September 1892.	Variation from normal.	Percentage variation.	Actual average, September 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
Cuddapah	8·1	+1·4	+21	5·35	+0·21	+4
Kurnool	12·6	+5·2	+70	7·31	+1·41	+24
Bellary	9·3	+1·6	+20	4·21	−0·92	−18
Anantapur	7·0	−0·2	−3	3·48	−1·98	−36

Malabar and South Canara received almost daily rain. The rainfall was in moderate excess in the latter district (19 per cent.), and considerably in defect in the former (38 per cent.)

The rainfall was very light in the southern districts, and the only period of fairly general rain was from the 24th to 29th. The following gives data for these districts:—

District.	Number of rainy days.			Rainfall.		
	Actual average, September 1892.	Variation from normal.	Percentage variation.	Actual average, September 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
South Arcot	5·8	−0·9	−13	4·60	−0·63	−12
Tanjore	4·2	−1·6	−28	3·08	−1·20	−28
Trichinopoly	2·9	−3·0	−51	1·82	−2·38	−57
Madura	1·7	−3·1	−65	1·02	−1·91	−65
Tinnevelly	0·6	−1·8	−75	0·17	−1·10	−87
Salem	3·7	−3·9	−51	1·82	−3·68	−67
Coimbatore	2·2	−2·6	−54	0·79	−2·13	−73

The preceding data show that the deficiency increased in amount southwards and westwards, and was greatest in the Tinnevelly and Coimbatore districts, where the rainfall of the month was 87 and 73 per cent. in defect, respectively. The deficiency was hence large and serious.

Burma received rainfall generally in excess of the normal. The excess was very large in Tenasserim and moderate in amount in Lower and Upper Burma and Arakan.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M., daily, taken at 176 stations in India during the month of September 1892.

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 utilised 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 95 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 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, includinga portion of the previous civil day. It is found most convenient to use the same date to designate and define both clae of observation

Table

Abstract of Observations taken at 8 A.M., at 176 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.
. Burma Coast and Bay Islands.		..	...	—·016		...	...	...	...	...	...	85·0	−0·4	75·4	−0·5	80·3	−0·6	9·9	...	...	...	...	17·3
Bay Islands .	Port Blair .	61	29·789	?	29·781	26·865	4th	29·681	19th	·184	80·5	84·6	?	77·4	?	81·0	?	7·2	88·0	23rd	73·1	28th	14·9
	Camorta .	?	29·896	?	?	29·960	4th	29·795	20th	·165	80·4	85·5	?	76·8	?	81·2	?	8·7	87·9	30th	73·8	16th	14·1
Tenasserim .	Mergui . .	96	29·791	?	29·819	29·923	23th	29·712	19th	·211	77·1	83·6	?	?	?	?	?	?	88·8	12th	?	?	?
	Tavoy . .	26	29·880	?	29·837	30·002	28th	29·803	19th	·199	76·5	83·3	?	73·2	?	78·3	?	10·1	88·7	23rd	71·7	4 days	17·0
	Moulmein .	94	29·766	−·014	29·797	29·884	29th	29·666	6th	·218	77·5	84·6	+0·1	74·5	+0·5	79·6	+0·3	10·1	90·5	2 days	72·3	2 days	18·2
	Toungoo .	181	29·646	−·018	29·770	29·775	22nd	29·505	7th	·270	78·6	88·0	−0·5	75·0	−0·4	81·5	−0·5	13·0	92·2	2 days	71·2	23rd	21·0
Lower Burma .	Rangoon .	41	29·805	−·021	29·783	29·908	29th	29·691	7th	·217	77·6	84·5	−1·0	75·3	−0·7	79·9	−0·9	9·2	88·7	14th	72·9	2nd	15·8
	Bassein .	27	29·819	−·011	29·782	29·932	22nd	29·700	7th	·232	78·6	85·0	−0·3	74·7	−0·9	79·9	−0·6	10·3	89·2	2 days	72·9	5 days	16·3
	Diamond Island	41	29·799	−·018	29·775	29·908	22nd	29·679	7th	·229	80·0	?	?	75·9	+0·2	?	?	?	?	?	71·4	5th	?
Arakan . .	Akyab . .	20	29·787	−·016	29·750	29·889	22nd	29·610	7th	·279	79·8	86·2	−0·4	76·0	−1·9	81·1	−1·2	10·2	91·2	2 days	70·2	26th	21·0
2. Burma, Inland . .		...	...	−·014	...	...	...	...	...	...	...	90·9	−0·2	74·8	−0·4	83·4	−0·3	17·1	...	...	...	...	25·3
Central Burma .	Thayetmyo .	134	29·683	−·014	29·759	29·797	22nd	29·546	7th	·251	80·5	89·5	−0·2	75·5	−0·4	82·6	−0·3	14·0	93·8	14th	72·9	19th	20·9
Upper Burma .	Mandalay .	?	29·557	?	?	29·709	22nd	29·433	7th	·276	82·3	95·8	?	74·1	?	85·0	?	21·7	102·0	2 days	71·2	3 days	30·8
	Kindat . .	?	29·367	?	?	29·557	22nd	29·222	10th	·335	80·5	88·1	?	?	?	?	?	?	90·8	4 days	?	...	?
	Bhamo . .	?	29·407	?	?	29·571	21st	29·292	7th	·279	78·8	90·3	?	74·7	?	82·5	?	15·6	96·1	14th	71·8	2 days	24·3
3 Assam		...	...	−·029	...	...	..	...	...	...	...	89·2	+1·1	77·7	+1·1	83·5	+1·1	11·5	...	...	...	...	20·6
Assam (Surma) .	Silchar . .	104	29·679	−·018	29·734	29·858	22nd	29·505	7th	·353	80·5	89·5	−0·1	76·8	+0·5	83·2	+0·2	12·7	97·1	21st	74·3	25th	22·8
Brahmaputra .	Sibsagar .	333	29·442	−·035	29·729	29·575	22nd	29·296	8th	·279	80·4	90·5	+1·5	78·1	+1·6	84·4	+1·6	12·4	94·6	22nd	75·0	2 days	19·6
	Dhubri . .	115	29·639	−·035	29·708	29·822	22nd	29·480	8th	·342	80·7	87·6	+1·9	78·2	+1·2	82·9	+1·6	9·4	93·2	2 days	73·8	2 days	19·4
4. Bengal and Orissa . .		...	...	−·021	...	...	...	...	...	...	...	88·2	+0·3	77·6	0	82·9	+0·2	10·6	...	...	...	...	19·2
East Bengal .	Chittagong .	87	29·701	−·017	29·735	29·883	22nd	29·522	7th	·361	80·6	87·1	+0·6	76·4	+0·2	81·7	+0·4	10·7	90·7	18th	73·6	4 days	17·1
	Lungleh . .	?	?	?	?	?	...	?	...	?	69·0	69·6	?	66·3	?	67·9	?	3·3	73·9	7th	62·4	5th	11·5
	Noakhali .	43	29·724	?	29·714	29·900	22nd	29·557	9th	·343	81·3	86·5	?	77·2	?	81·9	?	9·3	91·5	19th & 21st.	74·8	6 days	16·7
	Comillah .	35	29·737	?	29·720	29·937	22nd	29·555	7th	·382	80·8	87·9	?	76·1	?	82·2	?	11·5	94·3	21st	69·8	30th	24·5
	Sirajganj .	46	29·695	?	29·691	29·897	22nd	29·548	8th	·349	82·0	87·7	?	78·7	?	83·2	?	9·0	93·1	19th & 21st.	73·7	21st	19·4
	Dacca . .	22	29·727	−·022	29·697	29·929	22nd	29·560	7th	·369	82·1	89·1	+0·6	78·9	+0·2	84·0	+0·4	10·2	94·1	21st	72·2	25th 25th	21·9
	Barisal . .	13	29·742	−·012	29·700	29·925	22nd	29·574	7th	·351	81·8	88·2	?	77·5	?	82·9	?	10·7	93·3	16th	72·4	25th	20·9
	Mymensingh .	63	29·696	−·024	29·711	29·885	22nd	29·538	7th	·347	80·9	87·7	?	77·8	?	82·8	?	9·9	93·7	2 days	73·1	26th	20·6
Deltaic Bengal .	Faridpur .	46	29·716	?	29·710	29·926	22nd	29·573	7th	·353	82·0	87·2	?	79·1	?	83·1	?	8·1	91·5	19th	74·9	25th	16·6
	Jessore . .	33	29·702	−·032	29·682	29·903	22nd	29·531	2nd	·372	82·7	89·2	+0·1	78·4	0	83·8	+0·1	10·8	92·7	4 days	76·4	2 days	16·3
	Calcutta .	21	29·708	−·021	29·675	29·894	22nd	29·515	9th	·379	81·9	87·	+0·5	78·0	−0·1	82·9	+0·2	9·9	92·1	21st	75·7	2 days	16·4
	Saugor Island	25	29·698	·026	29·667	29·881	22nd	29·470	9th	·411	82·3	87·6	−0·2	78·9	−0·5	83·2	−0·4	8·7	91·2	21st	76·0	2 days	15·2
	Krishnagar .	47	29·683	?	29·678	29·876	22nd	29·518	2nd	·358	82·6	90·1	?	77·8	?	84·0	?	12·3	93·8	21st	71·7	17th	22·1
	Midnapore .	149	29·580	?	29·675	29·770	22nd	29·378	2nd	·392	82·4	90·5	?	77·4	?	84·0	?	13·1	95·3	20th	75·1	3 days	20·2
Central Bengal	Bankura .	298	29·401	?	29·650	29·586	22nd	29·227	10th	·359	81·6	90·1	?	77·4	?	83·8	?	12·7	95·1	20th	74·6	30th	20·5
	Raniganj .	345	29·377	?	29·671	29·556	22nd	29·228	10th	·328	81·0	90·3	?	77·2	?	83·8	?	13·1	94·5	20th & 21st.	64·0	11th	30·
	Burdwan .	99	29·641	−·016	29·687	29·820	22nd	29·475	9th	·345	81·5	90·7	+1·2	78·6	−0·1	84·7	+0·6	12·1	95·6	20th	76·4	3 days	19·

I.

in India, Burma, etc., in September 1892.

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 1892.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	..	...	...	..	...	...	...	...	...	...	21·08	20·91	+1·72	...	...	...	**1. Burma Coast and Bay Islands.**	
2	1	...	...	1	5	10	10	1	12	9	+33	88	·913	8·9	20	?	?	11·78	19·56	— 7·78	46·04	69·53	—23·49	Port Blair .	Bay Islands.
5	...	...	...	...	9	15	1	...	4	?	?	84	·870	9·9	14	?	?	7·14	?		?	?	?	Camorta.	
...	3	...	...	...	3	11	2	11	2	2	0	91	·845	8·7	22	?	?	20·36	26·24	— 5·88	84·87	118·52	—33·65	Mergui .	Tenasserim.
27	...	...	...	...	...	3	...	...	1	?	?	93	·853	8·2	23	?	?	33·30	32·84	+ 0·46	125·79	162·30	—36·51	Tavoy.	
1	...	1	4	8	10	5	1	...	3	3	0	93	·877	5·7	21	22·36	—1·36	42·95	26·73	+16·22	134·62	151·19	—16·57	Moulmein.	
6	1	...	...	14	8	..	...	1	3	3	0	92	·908	9·0	19	17·55	+1·45	13·57	12·05	+ 1·52	64·54	65·76	— 1·22	Toungoo.	
...	...	1	3	3	5	8	8	2	4	4	0	93	·892	8·6	22	19·55	+2·45	13·07	15·74	— 2·67	69·71	74·39	— 4·68	Rangoon .	Lower Burma.
3	...	...	2	5	6	8	3	3	5	3	+67	93	·907	7·8	25	21·27	+3·73	16·44	15·68	+ 0·76	80·53	85·43	— 4·90	Bassein.	
1	2	3	2	4	4	8	3	3	9	7	+29	86	·874	8·6	17	15·90	—1·90	25·38	19·31	+ 6·07	83·92	90·75	— 6·83	Diamond Island.	
...	2	10	7	2	8	1	...	...	3	3	0	91	·929	8·2	20	17·73	+2·27	26·83	20·08	+ 6·75	154·77	156·60	— 1·83	Akyab .	Arakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·22	9·60	—3·38	...	...	...	**2. Burma, Inland.**	
...	...	...	1	16	13	...	...	...	6	5	+20	85	·882	7·0	7	13·36	—6·36	2·19	6·38	— 4·19	26·73	27·70	— 0·97	Thayetmyo	Central Burma.
...	...	1	...	8	10	9	...	2	7	?	?	75	·824	6·1	6	?	?	2·11	6·33	— 4·22	13·77	21·88	— 8·11	Mandalay .	Upper Burma.
22	2	1	...	...	2	2	1	...	?	?	?	88	·913	7·3	12	?	?	13·02	14·79	— 1·77	49·16	54·63	— 5·47	Kindat.	
...	...	1	...	1	...	15	...	13	?	?	?	89	·874	7·3	16	?	?	7·57	10·89	— 3·32	51·07	61·84	—10·77	Bhamo.	
..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	.	12·02	13·44	—1·42	...	...	...	**3. Assam.**	
27	...	1	1	...	...	...	1	...	1	3	—67	91	·943	8·7	18	15·40	+2·60	18·58	15·09	+ 3·49	86·25	74·86	+11·39	Silchar .	Assam (Surma).
1	...	5	2	4	2	13	3	...	2	2	0	94	·974	9·5	16	15·09	+0·91	11·51	12·64	— 1·13	53·16	55·37	— 2·21	Sibsagar .	Brahmaputra.
5	...	5	4	...	4	10	...	2	3	3	0	90	·944	5·5	6	12·75	—6·75	5·98	12·59	— 6·61	84·05	61·43	+22·62	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·53	11·24	—2·68	...	...	...	**4. Bengal and Orissa.**	
4	...	3	2	12	7	1	1	...	4	5	—20	89	·930	9·4	17	12·73	+4·27	19·34	12·09	+ 7·25	46·74	74·47	—27·73	Chittagong	East Bengal.
?	?	?	?	?	?	?	?	?	?	?	?	93	·661	?	23	?	?	15·33	?	?	?	?	?	Lungleh.	
1	3	1	9	8	7	1	...	...	5	?	?	88	?	3·3	16	15·85	+0·15	14·73	17·80	— 3·07	83·37	93·17	— 9·80	Noakhali.	
4	...	1	7	14	4	...	...	...	12	?	?	87	?	4·5	12	13·50	-1·50	6·94	11·40	— 4·46	44·47	65·16	—20·69	Comillah.	
1	...	2	9	8	7	2	1	...	3	?	?	90	?	6·0	11	11·70	-	5·54	9·87	— 4·33	46·05	43·47	+ 2·58	Sirajganj.	
2	2	1	3	8	9	3	...	2	6	5	+20	88	·960	7·3	12	12·09	-0·09	5·23	9·28	— 4·05	24·44	46·47	—22·03	Dacca.	
18	1	...	...	6	4	1	...	...	3	?	?	87	·957	8·4	15	14·85	+0·15	8·21	12·37	— 4·16	43·20	56·99	—13·79	Barisal.	
3	1	1	8	11	4	2	...	...	4	?	?	91	·957	6·3	15	15·35	—0·35	7·02	13·95	— 6·93	47·29	60·94	—13·65	Mymensingh.	
13	...	...	2	7	6	2	...	...	4	?	?	89	?	6·0	13	11·75	+1·25	7·98	10·04	— 2·06	38·07	46·95	— 8·88	Faridpur .	Deltaic Bengal.
12	1	1	...	10	3	1	...	2	4	3	+33	89	1·001	7·5	13	9·50	+3·50	5·67	9·37	— 3·70	29·27	45·12	—15·85	Jessore.	
...	1	1	6	4	5	8	3	2	4	4	0	87	·948	6·0	17	14·18	+2·82	7·60	9·93	— 2·33	35·59	46·44	—10·85	Calcutta.	
...	3	3	2	4	8	4	3	2	13	10	+30	89	·982	8·2	17	14·45	+2·55	13·89	13·05	+ 0·84	48·35	57·44	— 9·09	Saugor Island.	
...	2	1	4	6	7	3	5	2	5	?	?	84	?	6·4	13	10·25	+2·75	4·55	7·90	— 3·35	22·88	38·08	—15·26	Krishnagar.	
2	2	6	1	5	11	2	...	1	11	?	?	85	?	3·4	16	12·05	+3·95	6·52	7·17	— 0·65	25·24	41·06	—15·82	Midnapore.	
12	1	...	6	3	6	...	2	...	4	?	?	84	?	6·0	13	12·55	+0·45	6·57	7·98	— 1·41	29·81	44·15	—14·34	Bankura .	Central Bengal.
3	1	5	3	7	2	5	2	2	2	?	?	88	?	3·3	17	11·40	+5·60	9·73	7·26	+ 2·47	39·20	42·96	— 3·76	Raniganj.	
3	4	...	5	4	6	6	1	1	3	3	0	84	·908	6·9	13	12·09	+0·91	6·81	8·51	— 1·70	28·96	41·62	—12·66	Burdwan.	

Table

Abstract of Observations taken at 8 A.M., at 176 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	29·221	?	29·665	29·410	22nd	29·074	2nd	·336	81·3	89·4	?	76·8	?	83·1	?	12·6	94·6	20th	73·8	22nd	20·8
	Berhampore	67	29·663	—·028	29·678	29·852	22nd	29·515	2nd	·337	81·2	89·5	+0·7	79·0	+0·6	84·3	+0·7	10·5	94·2	21st	73·3	21st	20·9
	Rampur Boalia.	70	29·660	?	29·679	29·846	22nd	29·520	2nd	·326	83·4	88·4	?	78·7	?	83·5	?	9·7	92·8	20th & 21st.	75·6	21st	17·2
	Malda *	80	29·649	?	29·681	29·831	22nd	29·512	8th	·319	83·8	91·0	?	79·0	?	85·0	?	12·0	95·1	21st	75·2	30th	19·9
	Bogra	61	29·669	—·001	29·682	29·870	22nd	29·530	8th	·340	82·5	89·0	?	78·0	?	83·4	?	11·0	93·8	21st	73·2	26th	20·6
North Bengal	Dinajpur	118	29·613	—·010	29·683	29·798	22nd	29·479	7th	·319	81·9	90·1	?	77·9	?	84·1	?	12·2	95·1	21st	74·2	25th	20·9
	Rangpur	123	29·631	?	29·707	29·814	22nd	29·487	8th	·327	82·3	89·5	?	78·5	?	84·0	?	11·0	94·8	21st	74·7	24th	20·1
	Jalpaiguri	284	29·463	—·018	29·700	29·630	22nd	29·320	2 days	·310	80·9	88·9	?	76·7	?	82·8	?	12·2	93·4	2 days	74·1	28th	19·3
Orissa	Balasore	56	29·659	—·027	29·662	29·844	22nd	29·429	9th	·415	81·8	88·6	?	77·8	?	83·2	?	10·8	93·4	20th	75·7	3rd & 30th	17·7
	False Point	21	29·698	—·031	29·661	29·873	22nd	29·418	9th	·455	82·1	87·1	—0·8	77·9	—0·2	82·5	—0·5	9·2	90·5	7th	73·1	26th	17·4
	Cuttack	80	29·635	—·024	29·658	29·809	22nd	29·363	10th	·446	82·1	89·8	—0·1	78·0	+0·1	83·9	0	11·8	93·4	16th	75·8	4 days	17·6
	Short's Island	?	29·690	?	?	29·865	22nd	29·414	9th	·451	82·9	87·7	?	79·8	?	83·8	?	7·9	91·0	25th	76·4	2nd & 3rd	14·6
	Puri	9	29·696	?	29·644	29·868	22nd	29·425	9th	·443	82·6	88·6	?	79·5	?	84·1	?	9·1	96·7	16th	76·1	8th	20·6
5. Gangetic Plain and Chota Nagpur.		...	...	—·030	...	...	...	...	...	...	...	89·9	+0·1	77·5	+0·4	83·7	+0·2	12·4	...	...	...	...	21·2
Chota Nagpur	Hazaribagh	2,007	27·718	—·028	29·663	27·884	22nd	27·562	3rd	·322	76·1	85·0	+0·6	72·1	0	78·6	+0·3	12·9	89·7	21st	68·8	17th	20·9
	Ranchi	2,128	27·600	?	29·659	27·770	22nd	27·434	10th	·336	75·8	83·8	?	71·3	?	77·5	?	12·5	87·5	20th	68·9	13th	18·6
	Chaibassa	760	28·933	—·030	29·638	29·106	22nd	28·728	2nd	·378	79·8	88·8	?	75·8	?	82·3	?	13·0	92·4	15th & 20th.	72·7	25th	19·7
Bihar, South	Gaya	375	29·327	—·034	29·653	29·496	22nd	29·176	1st	·320	82·2	90·9	+0·1	78·3	+0·4	84·6	+0·3	12·6	95·0	20th	75·8	2 days	19·2
	Dehree	351	29·355	?	29·658	29·522	22nd	29·195	3rd	·327	82·4	90·1	?	77·8	?	84·0	?	12·3	94·8	16th	71·5	30th	23·3
	Patna	183	29·530	—·034	29·664	29·700	22nd	29·393	1st	·307	84·0	88·5	—1·9	79·6	+0·4	84·0	—0·8	8·9	92·7	2 days	75·2	6th	17·5
	Arrah	190	29·516	?	29·657	29·685	22nd	29·373	1st	·312	83·5	91·6	?	79·4	?	85·5	?	12·2	94·9	21st	76·0	29th & 30th	18·9
	Buxar	239	29·478	?	29·670	29·643	22nd	29·329	1st	·314	83·1	89·9	?	78·4	?	84·2	?	11·5	94·9	22nd	74·8	27th & 30th	20·1
Bihar, North	Purnea	125	29·610	—·017	29·688	29·758	22nd	29·464	1st	·294	82·0	89·8	+0·6	77·9	+0·6	83·9	+0·6	11·9	94·2	21st	75·2	2 days	19·0
	Bhagalpur	160	29·552	?	29·664	29·744	22nd	29·417	9th	·327	83·9	90·7	?	78·4	?	84·6	?	12·3	94·7	16th	76·0	6th	18·7
	Durbhanga	166	29·563	—·022	29·682	29·740	22nd	29·435	2nd	·305	83·6	89·7	+1·5	79·7	+0·8	84·7	+1·2	10·0	94·5	21st	75·0	27th	19·5
	Muzaffarpur	178	29·538	?	29·669	29·712	22nd	29·409	2nd	·303	82·8	89·0	?	79·6	?	84·3	?	9·4	92·7	21st	76·2	17th24th & 27th	16·5
	Motihari	224	29·488	?	29·669	29·664	22nd	29·368	1st	·296	82·1	91·2	?	77·8	?	84·5	?	13·4	94·2	4 days	72·8	17th	21·4
	Chupra	181	29·527	?	29·660	29·696	22nd	29·387	1st	·309	83·7	91·2	?	79·3	?	85·2	?	11·9	95·3	20th	75·6	29th	19·7
N.-W. Provinces (Eastern Districts).	Benares	267	29·436	—·025	29·659	29·608	22nd	29·274	1st	·334	81·4	90·4	—0·8	77·6	+0·1	84·0	—0·4	12·8	94·8	20th	71·1	30th	23·7
	Allahabad	309	29·385	—·038	29·648	29·561	22nd	29·224	3rd	·337	83·0	92·0	+1·2	77·8	+1·0	84·9	+1·1	14·2	96·4	22nd	69·8	30th	26·6
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·450	—·027	29·664	29·622	22nd	29·315	1st	·307	82·8	90·4	—0·3	78·2	+0·2	84·3	—0·1	12·2	93·9	21st & 22nd.	74·2	27th & 30th	19·7
Oudh, South	Lucknow	370	29·316	—·048	29·644	29·484	22nd	29·179	9th	·305	81·2	91·5	—0·4	76·7	+0·3	84·1	—0·1	14·8	96·3	22nd	69·6	30th	26·7
Oudh, North	Bahraich	403	29·299	?	29·661	29·458	22nd	29·168	9th	·290	82·8	91·3	?	77·6	?	84·5	?	13·7	95·9	22nd	71·5	30th	24·4
N.-W. Provinces (Central).	Cawnpore	416	29·288	?	29·662	29·452	22nd	29·146	2nd	·306	82·5	91·2	?	77·1	?	84·2	?	14·1	94·0	22nd & 24th.	71·5	29th	22·5
	Mainpuri	516	29·173	?	29·616	29·334	22nd	29·039	2nd	·295	81·3	90·4	?	76·4	?	83·4	?	14·0	94·8	22nd & 23rd.	71·5	29th & 30th	23·3
6. Upper—Sub-Himalayas		...	...	—·018	...	...	...	...	...	...	...	90·1	—2·6	73·6	0	81·9	—1·4	16·4	...	...	...	...	30·2
N.-W. Provinces (Sub-montane).	Bareilly	568	29·129	—·019	29·660	29·294	22nd	28·997	9th	·297	80·7	89·3	1·2	75·6	—0·3	82·5	—0·8	13·7	93·8	23rd	66·7	30th	27·1
	Dehra Dun	2,233	27·516	?	29·693	27·672	22nd	27·385	9th	·287	73·9	83·9	?	70·1	?	77·0	?	13·8	89·0	4th	62·0	30th	27·0
	Roorkee	887	28·812	—·025	29·667	28·974	22nd	28·673	9th	·301	78·3	90·2	—1·1	74·3	+0·6	82·3	—0·3	15·9	94·2	1st	64·3	30th	29·9
	Meerut	737	28·968	—·012	29·669	29·136	22nd	28·839	9th	·297	80·5	89·8	—1·9	75·1	+0·3	82·5	—0·8	14·7	93·3	1st & 10th.	67·0	29th	26·3
Punjab (Central).	Delhi	718	28·991	—·016	29·671	29·168	22nd	28·864	2nd	·304	80·5	89·1	—3·8	76·8	+0·1	83·0	—1·9	12·3	93·0	1st	70·1	26th	22·9
	Lahore	702	28·994	—·010	29·663	29·191	22nd	28·834	10th	·357	81·2	93·3	—3·6	73·6	+0·9	83·5	—1·4	19·7	100·8	11th	65·5	30th	35·3

* Mean of 29 days rainfall excepted.

I—*continued.*

in India, Burma, etc., in September 1892—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 1892.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period.	Station.	Meteorological Province or District.
4	2	...	7	4	4	6	1	2	4	?	?	86	?	4·0	17	13·00	+ 4·00	7·65	10·63	− 2·98	35·39	46·28	−10·89	Naya Dumka	Central Bengal—*contd.*
6	1	1	5	3	8	4	2	...	3	4	− 25	91	·973	7·1	11	12·55	− 1·55	8·24	10·30	− 2·06	43·79	41·30	+ 2·49	Berhampore.	
10	...	...	2	8	1	7	...	2	3	?	?	86	?	3·7	12	12·15	− 0·15	5·22	11·27	− 6·05	30·16	44·64	−14·48	Rampur Boalia.	
2	...	...	1	17	...	9	...	...	3	?	?	86	?	3·3	8	11·80	− 3·80	6·60	11·50	− 4·90	38·74	44·00	− 5·26	Malda. *	
6	...	...	10	10	...	4	...	...	3	?	?	88	·970	4·7	12	12·05	− 0·05	8·23	10·74	− 2·51	46·25	50·43	− 4·18	Bogra.	
...	1	...	5	16	1	5	2	...	2	?	?	90	·976	4·8	8	12·40	− 4·40	2·88	11·21	− 8·33	60·06	53·21	+ 6·85	Dinajpur	North Bengal.
1	2	...	10	4	9	1	2	1	2	?	?	91	?	2·3	7	13·05	− 6·05	7·43	13·61	− 6·18	74·79	61·66	+13·13	Rangpur.	
3	2	7	6	11	1	...	...	...	2	?	?	89	·940	5·8	15	15·35	− 0·35	15·49	24·41	− 8·92	120·48	102·91	+17·57	Jalpaiguri.	
2	3	4	2	...	1	14	3	1	4	?	?	91	·991	4·0	11	13·70	− 2·70	9·22	11·32	− 2·10	29·84	46·69	−16·85	Balasore	Orissa.
...	1	3	4	1	5	8	6	2	11	8	+ 38	84	·923	7·1	18	12·32	+ 5·18	15·43	11·53	+ 3·90	45·69	41·12	+ 1·57	False Point.	
9	2	4	2	...	1	6	4	2	3	2	+ 50	80	·869	7·2	13	11·73	+ 1·27	8·50	10·14	− 1·64	37·74	45·67	− 7·93	Cuttack.	
...	1	2	3	2	3	10	6	3	13	?	?	82	·924	5·1	3	?	?	1·08	?	?	?	?	?	Short's Island.	
8	2	2	3	2	1	7	3	2	14*	?	?	83	?	6·8	6	13·35	− 7·35	8·24	10·02	− 1·78	29·55	37·63	− 8·08	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	4·77	7·62	−2·85	...	...	...	**5. Gangetic Plain and Chota Nagpur.**	
0	2	1	5	5	7	5	2	3	8	7	+ 14	88	·788	7·2	15	12·55	+ 2·45	7·86	8·22	− 0·36	41·70	42·50	− 0·80	Hazaribagh.	Chota Nagpur.
9	1	1	4	2	2	7	2	2	?	?	?	84	?	5·5	15	14·50	+ 0·50	8·40	9·17	− 0·77	46·41	45·85	+ 0·56	Ranchi.	
8	1	5	3	0	3	5	4	1	1	?	?	87	·885	6·5	17	12·25	+ 4·75	13·20	8·30	+ 4·90	40·87	44·72	− 3·85	Chaibassa.	
...	1	...	9	...	7	1	12	...	6	2	+200	83	·905	5·0	10	9·82	+ 0·18	5·77	7·71	− 1·94	40·46	40·72	− 0·26	Gaya	Bihar, South.
1	...	1	9	1	4	9	4	1	?	?	?	83	?	3·5	6	10·38	− 4·38	1·52	7·67	− 6·15	34·05	36·35	− 2·30	Dehree.	
5	1	2	13	4	2	...	2	1	5	3	+ 67	82	·950	6·6	8	9·18	− 1·18	4·69	6·12	− 1·43	44·72	37·96	+ 6·76	Patna	
1	3	5	3	8	1	3	3	3	2	?	?	86	?	2·1	7	9·80	− 2·80	4·76	6·87	− 2·11	36·32	34·78	+ 1·54	Arrah.	
...	2	3	8	1	2	2	7	5	6*	?	?	84	?	5·5	10	9·20	+ 0·80	2·72	7·19	− 4·47	38·37	33·44	+ 4·93	Buxar.	
16	1	1	7	3	2	...	...	...	1	2	− 50	90	·987	3·7	10	11·00	− 1·00	5·14	14·97	− 9·83	58·98	54·53	+ 4·45	Purnea	Bihar, North.
17	...	1	3	5	1	2	1	...	2	?	?	84	?	5·4	5	9·65	− 4·65	2·34	7·60	− 5·26	30·62	36·62	− 6·00	Bhagalpur.	
2	2	6	10	5	1	1	1	2	4	4	0	83	·970	4·7	8	9·73	− 1·73	3·02	8·39	− 5·37	44·98	41·57	+ 3·41	Durbhanga.	
8	1	2	8	7	...	...	2	2	5	?	?	89	?	4·3	11	9·20	+ 1·80	6·04	9·97	− 3·93	40·30	39·65	+ 0·65	Muzaffarpur.	
5	...	9	11	3	...	1	1	...	5	?	?	85	?	4·7	7	8·67	− 1·67	5·95	9·16	− 3·21	65·16	39·03	+26·13	Motihari.	
5	3	1	10	5	1	3	1	1	4	?	?	83	?	4·0	6	8·30	− 2·30	3·46	6·90	− 2·44	40·97	35·13	+ 5·84	Chupra.	
6	...	4	6	1	...	9	4	...	4	4	0	87	·926	5·0	8	8·91	− 0·91	4·92	5·54	− 0·62	43·20	32·85	+10·35	Benares	N.-W. Provinces (Eastern Districts).
...	...	6	7	2	...	4	7	4	6	3	+100	82	·919	5·0	5	7·73	− 2·73	2·40	5·29	− 2·89	32·92	31·80	+ 1·12	Allahabad.	
7	1	3	7	2	1	2	6	1	2	2	0	83	·933	4·2	6	8·55	− 2·55	4·22	8·14	− 3·92	37·80	40·35	− 2·55	Gorakhpur	N.-W. Provinces (East Sub-montane).
5	2	2	7	2	5	1	2	4	3	3	0	85	·907	4·7	4	7·55	− 3·55	2·95	5·61	− 2·66	36·75	31·83	+ 4·92	Lucknow	Oudh, South.
2	1	3	7	6	1	3	3	4	3	?	?	86	·965	3·9	3	?	?	1·51	7·45	− 5·94	46·75	35·08	+11·67	Bahraich	Oudh, North.
3	1	2	6	6	3	2	5	2	3	?	?	85	·951	5·7	5	6·8	− 1·8	4·95	4·57	+ 0·38	33·36	27·87	+ 5·49	Cawnpore	N.-W. Provinces (Central).
9	2	7	1	1	2	2	3	3	2	?	?	88	·938	4·5	7	?	?	4·27	6·09	− 1·82	29·40	30·00	− 0·60	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·71	5·47	−0·76	...	...	...	**6. Upper—Sub-Himalayas.**	
23	1	...	...	5	...	...	...	1	1	3	− 67	85	·900	3·0	8	6·73	+ 1·27	3·76	7·65	− 3·89	40·61	43·15	− 2·54	Bareilly	N.-W. Provinces (Sub-montane).
30	...	...	...	...	...	...	...	...	1*	1	0	88	·750	6·8	12	10·30	+ 1·70	9·19	10·46	− 1·27	75·69	75·86	− 0·17	Dehra Dun.	
24	...	1	2	1	1	...	...	1	1	2	− 50	88	·851	6·3	5	5·55	− 0·55	4·46	7·22	− 2·76	31·25	37·55	− 6·30	Roorkee.	
8	1	1	9	4	...	...	7	...	2	2	0	81	·850	5·2	7	4·55	+ 2·45	5·49	5·82	− 0·33	36·43	27·80	+ 8·54	Meerut.	
12	...	...	2	7	2	1	6	...	3	1	+200	85	·884	5·8	7	4·09	+ 2·91	2·41	4·59	− 2·18	22·79	26·22	− 3·43	Delhi	Punjab (Central).
10	...	2	6	2	3	2	3	2	2	2	0	77	·819	2·5	2	2·55	—	0·53	2·84	− 2·31	21·31	16·66	+ 4·65	Lahore.	

* Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M., at 176 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	? 902	28·222	?	?	28·368	22nd	28·102	10th	·266	78·9	90·0	?	75·8	?	82·9	?	14·2	95·5	4th & 11th	61·3	29th	34·2
	Ludhiana	812	28·883	−·030	29·663	29·058	22nd	28·720	10th	·338	79·3	89·8	−5·2	74·3	−0·7	82·1	−3·0	15·5	96·3	29th	68·0	29th	28·3
Punjab, North	Sialkot	829	28·864	−·010	29·665	29·051	22nd	28·711	10th	·340	79·7	93·1	−2·3	74·2	+1·0	83·7	−0·7	18·9	98·6	11th	65·4	29th	33·2
	Rawalpindi	1,649	28·067	−·021	29·658	28·257	22nd	27·914	10th	·343	74·1	92·0	−1·6	66·6	−2·1	79·3	−1·9	25·4	95·0	5th & 12th	57·1	28th	37·9
7. Indus Valley and North-West Rajputana.		...	...	−·019	...	...	...	...	...	...	...	96·9	+0·4	75·5	+0·2	86·3	+0·3	21·5	...	...	...	...	33·8
Punjab, West	Peshawar	1,110	28·630	+·004	29·675	28·805	22nd	28·468	10th	·337	77·5	94·4	−1·2	67·8	−2·2	81·1	−1·7	26·6	98·5	10th & 11th	58·0	30th	40·5
	Khushab	612	29·070	?	29·648	29·280	22nd	28·905	10th	·375	82·8	97·8	?	75·9	?	86·9	?	21·9	103·0	13th	70·0	28th	33·0
	Montgomery	558	29·127	?	29·648	29·313	22nd	28·974	10th	·339	84·9	99·2	?	75·2	?	87·2	?	24·0	107·4	12th	68·7	25th	38·7
	D. I. Khan	573	29·113	−·008	29·656	29·311	22nd	28·946	10th	·365	80·1	100·2	−0·4	74·3	−0·8	87·3	−0·6	25·9	106·5	11th & 12th	68·8	30th	37·7
	Mooltan	420	29·255	−·020	29·641	29·450	22nd	29·090	10th	·360	84·6	100·4	+1·0	77·7	+0·4	89·1	+0·7	22·7	105·2	12th & 13th	69·2	30th	36·0
	Sirsa	662	29·026	−·026	29·651	29·210	22nd	28·880	2nd	·330	81·2	93·0	−5·2	76·3	+1·5	84·7	−1·9	16·7	101·4	2nd	70·8	25th	30·6
Sind and Cutch.	Jacobabad	186	29·494	−·013	29·640	29·661	22nd	29·347	2nd	·314	84·9	105·8	+3·1	76·6	+0·6	91·2	+1·9	29·2	109·8	27th	67·3	29th & 30th	42·5
	Hyderabad	117	29·571	−·026	29·641	29·714	22nd	29·426	2nd	·288	81·6	99·2	+2·3	77·1	+0·9	88·2	+1·6	22·1	103·7	28th	73·1	11th	30·6
	Kurrachee	49	29·682	−·045	29·682	29·807	15th	29·542	2nd	·265	81·5	91·0	+2·9	77·6	+0·7	84·3	+1·8	13·4	101·4	24th	74·8	21st	26·6
	Bhuj	395	29·337	?	29·686	29·482	15th	29·178	5th	·304	79·6	92·7	?	75·0	?	83·9	?	17·7	99·0	21st	71·9	30th	27·1
Rajputana, West	Bickaneer	753	28·924	?	29·631	29·106	22nd	28·755	6th	·351	82·9	95·6	?	77·5	?	86·6	?	18·1	104·1	3rd	70·7	27th	33·4
	Pachpadra	380	29·310	?	29·646	29·477	15th	29·096	6th	·381	80·0	94·1	?	75·2	?	84·7	?	18·9	101·0	2nd	71·6	26th	29·4
8. East Rajputana, Central India and Guzerat.		...	...	−·044	...	...	...	...	...	..	...	87·4	−2·6	74·4	+0·8	80·9	−0·9	12·9	...	...	...	...	22·3
Rajputana, East	Jeypore	1,431	28·291	−·048	29·679	28·467	22nd	28·116	6th	·351	78·1	89·8	−3·0	74·2	+1·8	82·0	−0·6	15·6	97·1	1st & 2nd.	71·0	28th	26·1
	Sambhar	1,254	28·443	−·054	29·656	28·615	22nd	28·254	6th	·361	78·4	88·3	−3·3	74·6	+0·8	81·5	−1·3	13·7	96·5	1st & 2nd	70·4	24th	26·1
	Ajmere	1,611	28·120	−·010	29·691	28·297	22nd	27·891	6th	·406	77·3	86·5	−3·9	74·1	+1·6	80·3	−1·2	12·4	93·4	1st	71·1	24th	22·3
	Deesa	466	29·277	−·050	29·701	29·441	15th	29·020	5th	·421	78·6	88·8	−3·2	74·5	+0·9	81·7	−1·2	14·3	96·3	1st & 22nd	68·0	23rd	28·3
Kathiawar	Rajkot	429	29·331	−·049	29·716	29·478	15th	29·180	5th	·298	77·4	88·4	−2·3	72·5	−0·1	80·5	−1·2	15·9	92·9	2nd & 23rd	67·8	30th	25·1
	Veraval	?	29·773	?	29·733	29·913	15th	29·641	2nd	·272	79·4	83·0	?	76·0	?	79·5	?	7·0	86·1	22nd	72·3	27th & 30th	13·8
	Bhavnagar	?	29·757	?	29·742	29·907	15th	29·560	3rd	·347	80·5	89·9	?	76·1	?	83·0	?	13·8	96·4	22nd	73·0	5th	23·4
Central India	Nowgong	757	28·949	−·032	29·661	29·101	22nd	28·784	2nd	·317	80·1	88·7	−2·1	?	?	?	?	?	93·0	22nd & 29th	?	?	?
	Indore	1,823	27·921	−·044	29·685	28·068	15th	27·671	4th	·397	73·7	81·6	−3·2	70·0	−0·2	75·8	−1·7	11·6	89·0	22nd	66·9	29th	22·1
	Neemuch	1,630	28·100	−·051	29·688	28·218	22nd	27·832	5th	·416	75·2	84·9	−2·3	71·9	+1·4	78·4	−0·5	13·0	90·3	22nd	68·2	30th	22·1
Guzerat	Surat	36	29·743	−·058	29·722	29·890	15th	29·592	3rd	·298	78·1	86·4	−1·7	75·0	−0·4	80·8	−1·1	11·4	92·1	22nd	71·5	30th	20·6
N.-W. P., West	Agra	555	29·161	−·025	29·676	29·330	22nd	29·034	8th	·296	80·8	89·9	−2·4	77·4	+1·0	83·7	−0·7	12·5	94·0	23rd	72·5	26th	21·5
	Jhansi	840	28·850	−·035	29·660	29·004	22nd	28·681	2nd	·323	81·3	89·9	−0·8	76·4	+1·4	83·2	+0·3	13·5	93·5	21st & 23rd	72·4	28th	21·1
9. Deccan		..	...	−·034	...	...	...	...	...	...	...	83·7	−2·3	71·3	−0·1	5·77	−1·2	12·4	...	...	...	...	20·9
Bombay, Deccan	Belgaum	2,524	27·324	−·027	29·790	27·432	15th	27·223	3rd	·209	69·0	75·8	−2·8	65·4	+0·2	70·6	−1·3	10·4	80·8	28th	61·9	14th	18·9
	Sholapur	1,590	28·221	−·029	29·759	28·338	14th	28·081	2nd	·257	74·1	84·4	−3·7	69·5	−0·7	77·0	−2·2	14·9	89·7	29th	66·1	13th	23·6
	Poona	1,840	27·975	−·038	29·765	28·102	15th	27·838	3rd	·264	73·1	81·4	−2·2	68·4	−0·3	74·9	−1·3	13·0	88·5	29th	66·4	10th & 11th	22·1
	Bijapur	?	27·876	?	?	28·000	15th	27·765	2nd	·235	73·6	77·5	?	72·7	?	75·1	?	4·8	80·4	24th	71·0	11th & 12th	9·4
Khandeish	Malegaon	1,430	28·355	−·035	29·742	28·505	15th	28·184	3rd	·321	74·9	83·6	−3·4	69·9	−0·1	76·8	−1·8	13·7	88·9	28th	63·8	30th	25·1
	Ahmednagar	2,152	27·651	?	29·748	27·775	15th	27·496	3rd	·279	72·1	81·2	?	67·7	?	74·5	?	13·5	86·3	30th	64·5	15th	21·8
Berar	Akola	930	28·822	−·035	29·705	28·963	15th	28·630	2nd	·333	75·7	84·8	−3·5	71·9	−0·5	78·4	−2·0	12·9	91·4	24th & 29th	67·8	12th	23·6
	Amraoti	1,215	28·519	−·037	29·692	28·655	15th	28·325	3rd	·330	74·3	?	?	71·4	−0·2	?	?	?	?	?	67·3	12th & 30th	?

I—*continued.*

in India, Burma, etc., in September 1892—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 1892.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period, from 1st June to 30th September.	Station.	Meteorological Province or District.
6	...	...	...	14	...	...	...	10	2	?	?	89	·836	6·1	7	?	?	8·14	5·31	+2·83	27·62	27·75	−0·13	Umballa .	Punjab (Sub-montane).
21	2	...	4	3	...	...	...	...	1	1	0	85	·854	5·3	6	3·36	+2·64	12·30	3·73	+8·57	37·96	24·58	+13·38	Ludhiana.	
16	1	1	11	1	...	...	...	...	1	2	−50	77	·781	2·5	3	2·82	+0·18	0·77	3·38	−2·61	29·57	23·37	+6·20	Sialkot .	Punjab, North.
20	...	2	1	4	...	1	...	2	1	1	0	74	·637	0·6	0	4·27	−4·27	0·07	3·72	−3·65	21·24	21·13	+0·11	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·99	1·01	−0·02	...	...	...	**7. Indus Valley and North-West Rajputana.**	
4	3	1	1	3	1	1	5	11	3	3	0	63	·599	0·5	0	1·82	−1·82	0·07	0·78	−0·71	21·92	4·51	+17·41	Peshawar .	Punjab, West.
10	1	8	7	1	1	1	...	1	3*	?	?	63	·711	0·6	1	1·6	−0·6	0·42	1·41	−0·99	15·28	6·98	+8·30	Khushab.	
4	...	2	9	4	7	4	...	...	5	?	?	69	·835	2·2	1	1·4	−0·4	0·52	1·03	−0·51	14·09	7·72	+6·37	Montgomery	
21	...	4	4	1	...	...	...	...	1	2	−50	71	·733	0·4	0	0·73	−0·73	0	0·32	−0·32	12·36	4·99	+7·37	D. I. Khan.	
7	...	6	...	9	1	6	...	1	1	3	−67	69	·806	0·3	1	0·55	+0·45	0·58	0·37	+0·21	17·27	4·55	+12·72	Mooltan.	
6	3	2	7	1	2	1	7	1	3	4	−33	85	·898	4·1	7	2·73	+4·27	4·32	1·54	+2·78	21·34	11·73	+9·61	Sirsa.	
9	...	1	10	7	3	...	...	...	3	3	0	64	·766	0·7	0	0·18	−0·18	0	0·07	−0·07	4·11	2·88	+1·23	Jacobabad .	Sind and Cutch.
...	...	5	...	5	1	19	...	...	7	13	−46	69	·744	5·0	0	0·80	−0·80	0	0·89	−0·89	10·55	6·77	+3·78	Hyderabad.	
1	...	...	...	...	...	14	15	...	12	15	−20	79	·849	4·3	0	0·82	−0·82	0·07	0·75	−0·68	11·58	6·32	+5·26	Kurrachee.	
2	1	...	...	...	...	4	17	6	15	?	?	82	·831	5·7	1	?	?	0·34	2·16	−1·82	8·05	13·33	−5·28	Bhuj.	
1	5	5	3	1	2	8	2	3	6	?	?	71	·788	3·5	3	?	?	3·45	1·13	+2·32	16·64	9·85	+6·79	Bickaneer .	Rajputana, West.
9	2	...	1	2	4	3	3	6	8	?	?	79	·803	5·6	4	?	?	2·15	1·72	+0·43	15·22	8·83	+6·39	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·13	4·94	+4·62	...	...	...	**8. East Rajputana, Central India and Guzerat.**	
5	4	2	7	3	...	...	1	8	3	5	−40	84	·818	6·0	14	5·00	+9·00	12·06	3·73	+8·33	51·64	25·75	+25·89	Jeypore .	Rajputana, East
4	3	3	1	4	...	...	13	2	8	7	+14	84	·825	5·4	10	3·50	+6·50	13·98	2·69	+11·29	38·41	20·41	+18·00	Sambhar.	
4	1	3	1	2	...	2	14	3	6	5	+20	85	·795	6·1	11	3·18	+7·82	6·36	2·28	+4·08	19·21	20·75	−1·54	Ajmere.	
...	2	1	4	1	...	5	13	4	8	8	0	84	·818	7·8	11	3·73	+7·27	15·06	3·17	+11·89	38·33	24·74	+13·59	Deesa.	
...	1	1	...	...	...	5	21	2	9	8	+13	92	·863	5·2	8	5·73	+2·27	8·95	4·63	+4·32	26·54	29·22	−2·68	Rajkot .	Kathiawar.
1	2	2	...	1	1	3	14	6	9	?	?	87	·875	6·2	8	?	?	5·60	?	?	15·51	?	?	Veraval.	
...	...	1	1	2	4	17	5	...	12	?	?	90	·940	6·4	10	?	?	7·97	?	?	21·94	?	?	Bhavnagar.	
4	...	2	8	1	1	3	11	...	2	2	0	83	·858	5·8	4	6·91	−2·91	1·79	5·41	−3·62	42·33	41·59	+0·74	Nowgong .	Central India.
4	2	...	...	1	4	5	5	9	5	5	0	92	·771	6·7	14	8·91	+5·09	13·85	8·48	+5·37	33·38	32·62	+0·76	Indore.	
2	...	6	1	1	2	8	9	1	9	10	−10	88	·773	5·4	13	6·91	+6·09	12·15	5·20	+6·95	34·35	29·91	+4·44	Neemuch.	
...	2	...	...	3	...	14	7	4	?	9	?	91	·887	7·2	15	7·55	+7·45	12·61	7·99	+4·62	54·98	41·05	+13·93	Surat .	Guzerat.
2	...	4	1	12	...	6	...	5	4	4	0	86	·902	5·3	8	5·45	+2·55	3·29	4·86	−1·57	19·32	27·98	−8·66	Agra . .	N.-W. P., West.
3	2	6	2	3	2	7	1	4	3	3	0	82	·880	3·7	9	7·00	+2·00	5·01	5·89	−0·88	37·16	36·58	+0·58	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·77	7·22	+3·43	...	...	...	**9. Deccan.**	
3	...	...	...	...	...	7	17	3	?	17	?	93	·657	8·6	15	10·18	+4·82	10·23	4·31	+5·92	43·91	36·18	+7·73	Belgaum .	Bombay, Deccan.
1	2	...	...	...	...	8	12	7	12	10	+20	83	·697	8·9	12	9·73	+2·27	9·08	9·09	−0·01	25·62	27·19	−1·57	Sholapur.	
3	...	...	...	...	...	4	16	7	10	11	−9	84	·685	8·1	14	8·18	+5·82	8·14	5·41	+2·73	30·16	19·84	+10·32	Poona.	
...	...	...	...	...	...	9	14	7	10	?	?	83	·691	8·7	12	8·6	+3·4	5·22	5·76	−0·54	20·32	16·11	+4·21	Bijapur.	
2	2	1	...	...	...	9	14	2	8	8	0	84	·719	6·7	12	8·64	+3·36	15·85	6·92	+8·93	34·03	21·51	+12·52	Malegaon .	Khandeish.
...	5	3	1	...	2	5	9	5	9	?	?	88	·698	7·4	10	?	?	8·74	7·86	+0·88	35·61	20·46	+15·15	Ahmednagar	
2	1	1	2	...	...	2	7	15	8	6	+33	88	·779	7·9	13	10·18	+2·82	14·56	6·93	+7·63	44·94	30·80	+14·14	Akola .	Berar.
1	1	2	2	2	1	6	11	4	8	4	+100	92	·781	6·9	14	8·27	+5·73	12·43	5·68	+6·75	42·43	30·77	+11·66	Amraoti.	

* Mean of 23 days.

Table

Abstract of Observations taken at 8 A.M., at 176 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	28·735*	—·012*	29·741*	28·852	15th	28·489	3rd	·363	75·5	84·7	−2·7	73·0	+0·2	78·9	−1·3	11·7	94·2	22nd	70·1	5th	24·1
	Hoshangabad	1,020	28·704	—·051	29·685	28·853	15th	28·500	2nd	·353	76·5	85·6	−2·6	73·8	+0·5	79·7	−1·1	11·8	91·4	22nd & 23rd	70·7	5th & 12th	20·7
	Nagpur	1,025	28·658	—·031	29·678	28·810	29th	28·503	1st	·307	77·5	86·0	−3·1	73·4	−0·2	79·7	−1·7	12·6	91·8	21st	69·2	12th	22·6
Central Provinces, Central.	Seoni	2,030	27·698	—·045	29·691	27·822	22nd	27·493	3rd	·329	75·1	83·1	−2·3	70·6	−0·1	76·9	−1·2	12·5	88·1	21st	67·6	30th	20·5
	Jubbulpore	1,327	28·391	—·028	29·672	28·514	22nd	28·182	11th	·332	77·5	86·1	−1·0	73·2	+0·4	79·6	−0·3	12·9	90·4	22nd	69·6	27th & 30th	20·8
	Saugor	1,762	27·957	—·045	29·665	28·099	22nd	27·766	2nd	·333	76·1	85·5	−0·6	72·0	+1·1	78·8	+0·3	13·5	90·3	21st	66·7	27th	23·6
Central Provinces, East.	Raipur	960	28·756†	−·018†	29·675†	28·871	23rd	28·539	10th	·332	78·5†	86·0†	−1·6†	74·2†	−0·3†	80·2†	−1·0†	11·8	90·0	17th & 30th	70·1	26th	19·9
	Sutna	1,040	28·653	—·041	29·650	28·803	22nd	28·472	2nd	·331	80·0	87·5	+0·2	74·1	—0·4	80·8	−0·1	13·4	91·6	21st	69·6	30th	22·0
	Sambalpur	463	29·238	?	29·647	29·391	22nd	28·994	10th	·397	81·4	88·1	?	76·8	?	82·5	?	11·3	92·0	16th & 21st	74·7	26th	17·3
Hyderabad, North.	Aurangabad	?	27·935	?	?	28·070	15th	27·772	2nd	·298	74·3	83·3‡	?	68·6	?	75·7‡	?	14·7	87·9	22nd	65·6	30th	22·3
	Indur	?	?	?	?	?	...	?	...	?	74·7	83·4	?	71·6	?	77·5	?	11·8	88·0	25th	68·5	11th	19·5
	Bidar	?	27·634	?	?	27·749	14th	27·496	2nd	·253	71·6	80·6	?	68·1	?	74·4	?	12·5	84·6	7th	64·0	10th	20·6
Hyderabad, South.	Gulburga	?	28·293	?	?	28·410	15th	28·161	2nd	·249	73·7	83·9	?	69·6	?	76·7	?	14·3	88·9	7th	66·5	7th	22·4
	Raichur	?	28·457	?	?	28·582	14th	28·343	1st	·239	73·8	83·5	?	70·8	?	77·1	?	12·7	87·1	4 days	68·5	15th	18·6
	Hyderabad (Deccan).	1,690	28·097	—·039	29·736	28·214	14th	27·963	2nd	·251	73·6	82·6	−2·5	70·7	−0·5	76·7	—1·5	11·9	87·4	21st	67·2	11th	20·2
	Kamamet	?	29·399	?	?	29·505	14th	29·269	10th	·236	79·0	87·2	?	74·7	?	81·0	?	12·5	91·5	16th	70·3	20th	21·2
10. West Coast		...	...	—·024	...	...	...	...	...	...	...	82·	−0·9	74·4	−0·1	78·6	−0·5	8·3	...	...	...	...	13·0
Konkan	Bombay	37	29·794	—·040	29·771	29·927	15th	29·647	2nd	·280	78·6	82·5	−1·8	75·7	—0·6	79·1	−1·2	6·8	85·4	29th	73·5	1st	11·9
	Ratnagiri	110	29·734	—·028	29·783	29·844	15th	29·630	3rd	·214	77·7	82·6	−1·3	74·3	+0·1	78·5	—0·6	8·3	84·9	28th & 30th	69·9	22nd	15·0
	Mormugoa	60	29·823	?	29·818	29·928	15th	29·736	3rd	·192	77·6	83·3	?	74·7	?	79·0	?	8·6	86·0	16th	72·4	18th	13·6
	Karwar	44	29·842	—·024	29·818	29·939	15th	29·778	2nd	·161	76·9	81·4	−1·2	73·1	−0·3	77·3	−0·8	8·3	83·7	15th	71·3	12th	12·4
Malabar	Mangalore	26	29·891	—·021	29·849	29·966	14th	29·827	10th	·139	76·6	82·7	—0·5	73·8	0	78·3	−0·3	8·9	85·3	9th	70·9	12th	14·4
	Calicut	27	29·898	—·022	29·855	29·972	15th	29·823	20th	·149	77·5	83·8	?	73·9	?	78·9	?	9·9	86·3	24th & 25th	72·1	20th	14·2
	Cochin	10	29·929	—·009	29·867	30·001	15th	29·852	20th	·149	78·4	84·5	+0·4	74·5	+0·5	79·5	+0·5	10·0	86·2	4 days	72·7	5 days	13·5
	Trivandrum	198	29·730	?	29·859	29·792	14th	29·646	20th	·146	77·0	81·2	?	75·3	?	78·3	?	5·9	83·0	16th	74·0	3 days	9·0
11. South India		...	...	—·019	...	...	...	...	...	...	...	88·0	—1·5	73·7	−0·6	80·9	—1·0	14·3	...	...	...	...	22·7
Madras, South	Pamban	37	29·839	?	29·803	29·901	5th	29·752	20th	·149	81·6	87·2	?	78·2	?	82·7	?	9·0	89·8	16th	74·2	2nd & 24th	15·6
	Tinnevelly	168	29·711	?	29·807	29·799	29th	29·622	20th	·177	82·7	96·9	?	78·3	?	87·7	?	18·6	101·4	24th	75·9	3 days	25·5
	Madura	447	29·413	—·013	29·796	29·486	14th	29·318	20th	·168	82·1	94·9	−1·0	75·1	+0·1	85·0	−0·5	19·8	99·9	15th	70·0	24th	29·9
Madras, South Central.	Salem	940	28·953	—·018	29·836	29·037	14th	28·867	20th	·170	77·0	90·4	−0·7	71·9	+0·9	81·2	+0·1	18·5	94·4	23rd	69·0	11th	25·4
	Coimbatore	1,348	28·519	—·024	29·813	28·596	15th	28·442	20th	·154	75·9	91·8	?+2·4	70·1	—0·5	81·0	+1·0	21·7	93·8	13th & 15th	67·6	23rd	26·2
Coorg	Mercara	3,781	26·201	?	29·858	26·268	15th	26·153	10th	·115	63·4	69·4	—3·1	61·6	−0·3	65·5	−1·7	7·8	75·8	25th	59·2	14th	16·6
Mysore	Bangalore Fort	3,019	26·898	−·031	29·828	26·982	15th	26·829	20th	·153	68·6	79·5	—2·3	64·3	—0·4	71·9	−1·4	15·2	84·3	25th	61·4	11th & 13th.	22·9
	BangaloreBazar	2,982	26·947	—·014	29·849	27·027	15th	26·875	20th	·152	68·6	79·6	−2·3	64·5	—0·4	72·1	—1·4	15·1	84·2	25th	61·5	11th	22·7
Madras, East Coast, South.	Negapatam	31	29·838	—·002	29·798	29·893	14th	29·738	20th	·155	81·5	92·8	+0·7	75·4	—0·9	84·2	—0·1	17·4	98·2	14th	69·7	27th	28·5
	Cuddalore	12	29·839	?	29·780	29·913	14th	29·746	20th	·167	80·8	90·7	?	75·5	?	83·1	?	15·2	94·7	16th	71·2	12th	23·5
	Trichinopoly	255	29·609	—·014	29·797	29·683	14th	29·535	20th	·148	81·3	95·8	+0·8	76·3	+1·0	86·1	+0·9	19·5	101·1	23rd	72·4	24th	28·7
	Madras	22	29·811	—·015	29·764	29·893	14th	29·718	20th	·175	80·7	91·0	—2·7	75·8	−1·3	83·4	−2·0	15·2	96·0	16th	72·5	29th	23·5
Madras, East Coast, Central.	Nellore	71	29·733	?	29·738	29·831	14th	29·630	10th	·201	81·5	90·7	?	76·4	?	83·6	?	14·3	97·2	15th	72·6	19th	24·6
	Masulipatam	15	29·763	—·027	29·713	29·872	14th	29·633	21st	·239	80·4	88·4	—3·2	77·2	—0·3	82·8	—1·8	11·2	95·6	17th	73·1	10th	22·5
Madras, Central	Cuddapah	433	29·405	?	29·781	29·504	14th	29·309	2nd	·195	78·7	89·4	?	74·1	?	81·8	?	15·3	95·1	3 days	70·6	11th & 21st.	24·5
	Kurnool	923	28·897	?	29·768	29·019	15th	28·778	3rd	·241	75·7	86·0	?	71·4	?	78·7	?	14·6	91·0	15th	67·4	12th	23·6
	Bellary	1,475	28·368	—·006	29·792	28·487	15th	28·277	2nd	·210	75·6	85·7	—5·2	71·1	—1·9	78·4	—3·6	14·6	90·4	15th	67·0	13th	23·4
Madras, East Coast, North.	Rajahmundry	112	29·641	?	29·690	29·733	23rd	29·504	10th	·229	80·5	88·1	?	76·3	?	82·2	?	11·8	94·0	16th	73·1	10th & 19th	20·9

* Mean of 20 days. † Mean of 27 days. ‡ Mean of 25 days.

I—*continued.*

in India, Burma, etc., in September 1892—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 1892.	Normal rainfall for period, 1st June to 30th September 1892.	Variation from normal of period, from 1st June to 30th September.	Station.	Meteorological Province or District.
2	...	2	...	...	4	2	16	4	6	6	0	89	·782	5·9	11	7·55	+3·45	14·10	7·63	+ 6·47	41·79	29·84	+11·95	Khandwa .	Central Provinces, West.
3	1	2	2	1	14	4	3	...	5	2	+150	91	·841	7·3	19	10·18	+8·82	10·15	12·00	— 1·85	51·10	53·91	— 2·81	Hoshangabad.	
2	3	2	2	1	2	7	5	6	8	5	+ 60	84	·798	7·2	11	10·64	+0·36	11·54	8·89	+ 2·65	39·74	43·94	— 4·20	Nagpur.	
1	2	6	4	3	2	6	3	3	5	4	+ 25	80	·790	7·7	8	11·73	—3·73	8·70	9·75	— 1·05	45·83	50·84	— 5·01	Seoni .	Central Provinces, Central.
8	2	3	1	3	4	4	4	1	3	3	0	86	·808	6·0	14	9·36	+4·64	9·13	6·87	+ 2·26	51·39	52·97	— 1·58	Jubbulpore.	
7	1	2	2	1	2	7	6	2	4	3	+ 33	89	·804	5·0	14	8·64	+5·36	11·09	5·79	+ 5·30	47·16	39·29	+ 7·87	Saugor.	
3	...	3	2	1	1	9	6	2	8*	6	+ 33	86†	·840†	7·8†	13	10·45	+2·55	7·58	8·31	— 0·73	45·08	48·02	— 2·94	Raipur .	Central Provinces, East.
5	5	2	3	1	3	3	4	4	6	6	0	84	·861	4·1	7	8·36	—1·36	3·84	5·12	— 1·28	41·82	37·40	+ 4·42	Sutna.	
...	5	5	3	...	8	4	3	2	5	?	?	84	·897	6·3	15	?	?	11·88	8·62	+ 3·26	72·06	52·14	+19·92	Sambalpur.	
10	...	1	...	...	2	9	7	1	6	?	?	84	·714	6·7	?	?	?	?	?	?	?	?	?	Aurangabad	Hyderabad, North.
...	2	...	1	1	...	6	11	9	11	?	?	89	·763	8·3	16	?	?	17·17	6·91	+10·26	49·98	32·34	+17·64	Indur.	
...	4	2	...	...	...	6	11	7	8	?	?	90	·695	6·4	18	?	?	14·73	8·94	+ 5·79	48·62	34·38	+14·24	Bidar.	
4	3	...	1	...	...	3	10	9	14	?	?	87	·723	8·3	16	?	?	10·79	6·44	+ 4·35	35·03	22·58	+12·45	Gulburga .	Hyderabad, South.
1	...	...	...	...	2	11	10	6	11	?	?	87	·723	9·6	12	?	?	8·50	4·97	+ 3·53	38·80	18·20	+20·60	Raichur.	
3	1	...	...	...	...	...	24	2	7	?	?	86	·708	7·7	11	?	?	10·91	6·74	+ 4·17	36·62	25·14	+11·48	Hyderabad (Deccan).	
7	2	...	...	1	2	4	9	5	10	?	?	84	·824	4·4	11	?	?	13·26	?	?	41·38	?	?	Kamamet.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	11·59	11·21	+1·54	...	...	...	**10. West Coast.**	
...	2	4	2	3	3	5	9	2	12	11	+ 9	89	·876	7·7	22	14·18	+7·82	22·47	12·16	+10·31	92·44	73·58	+18·86	Bombay .	Konkan.
10	2	...	...	2	1	6	5	4	6	8	— 25	91	·863	9·0	21	16·09	+4·91	18·28	14·54	+ 3·74	137·43	103·72	+33·71	Ratnagiri.	
5	4	2	1	...	...	1	9	6	9	?	?	90	·862	7·0	22	?	?	12·19	?	?	124·92	?	?	Mormugoa.	
7	3	7	...	...	...	...	13	...	2	?	?	88	·814	6·9	22	16·09	+5·91	15·64	13·09	+ 2·55	125·27	113·87	+11·40	Karwar.	
13	2	1	1	...	...	6	4	3	2	2	0	91	·831	7·9	21	16·60	+4·40	8·98	11·05	— 2·07	106·83	106·12	+ 0·71	Mangalore .	Malabar.
8	4	2	...	...	...	...	2	14	4	?	?	88	·827	6·7	11	10·13	+0·87	4·36	5·86	— 1·50	100·11	84·89	+15·22	Calicut.	
2	5	13	2	2	...	..	3	3	5	?	?	85	·831	7·0	18	13·73	+4·27	6·78	10·58	— 3·80	85·28	76·84	+ 8·44	Cochin.	
...	5	...	...	...	...	...	8	17	9	?	?	88	·814	8·1	12	?	?	3·98	?	?	29·28	?	?	Trivandrum.	
...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	5·24	5·02	+0·38	...	...	...	**1. South India.**	
...	1	...	1	...	4	18	6	...	9	?	?	75	·809	2·7	1	1·80	—0·80	0·36	1·44	— 1·08	2·24	2·42	— 0·18	Pamban .	Madras, South.
...	...	...	...	...	...	5	14	11	11	?	?	58	·652	7·5	0	1·9	—1·9	0	0·97	— 0·97	0·34	2·32	— 1·98	Tinnevelly.	
3	11	...	...	...	...	...	...	16	1	3	67	66	·735	4·7	1	6·09	—5·09	2·12	4·60	— 2·48	15·52	10·80	+ 4·72	Madura.	
4	...	...	...	1	9	14	2	...	3	4	— 25	77	·722	6·4	7	6·91	+0·09	2·20	6·41	— 4·21	22·00	21·75	+ 0·25	Salem .	Madras, South Central.
...	1	...	...	...	8	18	3	...	6	7	— 14	85	·763	5·0	0	2·18	—2·18	0·03	1·04	— 1·01	4·99	5·24	— 0·25	Coimbatore.	
...	...	...	...	...	...	...	29	1	9	7	+ 29	94	·556	9·0	25	17·10	+7·90	11·65	11·87	— 0·22	99·90	109·68	— 9·72	Mercara .	Cooro.
...	..	...	...	...	...	14	16	...	9	?	?	87	·606	8·1	8	?	?	2·10	?	?	18·32	?	?	Bangalore Fort.	Mysore.
...	...	...	...	...	2	14	14	...	4	7	— 43	87	·610	8·4	10	8·36	+1·64	2·73	5·08	— 2·35	18·63	18·46	+0·17	Bangalore Bazar.	
7	...	...	...	...	...	5	16	2	7	5	+ 20	69	·743	6·2	4	6·36	—2·36	3·52	3·46	+ 0·06	12·90	10·87	+ 2·03	Negapatam	Madras, East Coast, South.
...		1	...	...	2	1	16	9	3	?	?	80	·839	3·6	6	6·4	—0·4	5·40	5·04	+ 0·36	28·39	16·20	+12·19	Cuddalore.	
...	...	...	...	...	...	11	17	2	8	7	+ 14	66	·702	6·3	3	4·91	—1·91	1·83	3·44	— 1·61	15·07	10·76	+ 4·31	Trichinopoly	
1	...	...	...	2	5	11	10	1	5	9	— 44	78	·810	6·7	10	6·45	+3·55	6·29	4·53	+ 1·76	28·92	15·77	+13·15	Madras.	
6	...	...	...	...	...	1	14	9	8	?	?	75	·803	8·3	7	5·3	+1·7	6·33	3·53	+ 2·80	21·16	10·39	+10·77	Nellore .	Madras, East Coast, Central.
6	2	...	...	...	...	2	8	12	8	6	+ 33	84	·870	7·9	14	8·80	+5·20	11·08	5·08	+ 6·00	37·19	23·00	+14·19	Masulipatam.	
...	1	3	...	...	...	9	13	4	?	?	?	77	·751	7·5	9	6·70	+2·30	7·82	5·28	+ 2·54	34·09	17·35	+16·74	Cuddapah.	Madras, Central.
24	...	...	...	...	...	3	3	...	?	?	?	82	·729	6·8	17	7·83	+9·17	8·34	6·03	+ 2·31	26·10	20·20	+ 5·90	Kurnool.	
5	...	...	...	...	...	3	15	7	10	9	+ 11	79	·799	7·1	10	6·27	+3·73	3·47	3·76	— 0·29	16·45	9·70	+ 6·75	Bellary.	
7	3	...	2	...	...	...	15	3	?	?	?	81	·859	7·1	12	8·6	+3·4	10·36	7·18	+ 3·18	37·62	24·46	+13·16	Rajahmundry	Madras, East Coast, North.

* Mean of 25 days. † Mean of 27 days. Mormugoa wind observations for 28 days.

Table

Abstract of Observations taken at 8 A.M., at 176 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.
Madras, East Coast, North —*contd.*	Coconada	26	29·727	?	29·688	29·834	23rd	29·570	10th	·264	80·4	87·6	?	77·3	?	82·5	?	10·3	91·7	7th	72·7	10th	19·0
	Vizagapatam	31	29·695	−·045	29·664	29·809	14th	29·492	10th	·317	82·6	85·5	−2·1	79·5	−0·3	82·5	−1·2	6·0	88·9	7th	75·9	9th	13·0
	Gopalpur	21	29·696	?	29·657	29·857	22nd	29·525	2nd	·332	80·5	87·0	−0·5	77·2	−3·1	82·1	−1·8	9·8	91·2	15th	74·8	8th & 9th	16·4
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beluchistan	Quetta	5,502	24·606	+·023	?	24·744	22nd	24·482	6th	·262	63·9	83·5	−2·0	44·2	−6·6	63·9	−4·3	39·3	89·1	5th	40·3	3 days	48·8
	Kelat	?	?	?	?	?	?	?	?	?	?	82·9	?	37·7	?	60·3	?	45·2	89·0	7th	30·0	4 days	59·0
Northern India	Srinagar	5,204	24·817	?	?	25·050	22nd	24·676	10th	·374	61·2	77·8	?	54·3	?	66·1	?	23·5	85·3	13th	40·7	29th	44·6
	Murree	6,344	23·798	−·030	?	23·968	22nd	23·687	2nd & 10th	·281	62·2	73·0	−1·1	57·6	−1·5	65·3	−1·3	15·4	78·6	12th	48·8	30th	29·8
	Simla	7,237	23·081	−·022	?	23·233	22nd	22·978	6th	·255	60·2	65·5	?	57·2	?	61·4	?	8·3	70·4	9th	53·4	26th	17·0
	Chakrata	7,052	23·218	−·009	?	23·368	22nd	23·129	6th	·239	61·6	68·8	−0·3	57·4	+0·3	63·1	0	11·4	72·8	4th	53·3	3 days	19·5
	Mussoorie	?	23·516	?	?	23·665	22nd	23·416	9th	·249	61·2	68·3	+0·4	57·5	−0·3	62·9	+0·1	10·8	71·3	7th	52·0	14th	19·3
	Ranikhet	6,069	24·061	+·008	?	24·193	22nd	23·976	9th	·217	65·1	72·8	+0·3	61·0	+1·0	66·9	+0·7	11·8	77·5	22nd	56·5	30th	21·0
	Gnatong	?	19·314	?	?	19·391	21st	19·283	8th	·108	49·5	64·8	?	35·2	?	50·0	?	29·6	78·3	23rd	31·3	18th & 29th	47·0
	Darjeeling	7,421	22·958	−·044	?	23·095	22nd	22·867	7th	·228	60·0	65·3	+0·4	56·3	+1·1	60·8	+0·8	9·0	68·1	4 days	53·6	24th	14·5
Central India	Mount Abu	3,945	?	?	?	?	...	?	...	?	67·3	72·9	−2·7	64·1	−0·9	68·5	−1·8	8·8	79·2	22nd	61·4	28th & 29th	17·8
	Pachmarhi	3,511	26·324	−·047	?	26·456	15th	26·136	3rd	·320	70·0	75·9	−1·1	66·6	+0·4	71·3	−0·4	9·3	81·2	24th	63·2	5th & 27th	18·0
South India	Wellington	6,200	24·228	+·001	?	24·290	15th	24·160	20th	·130	63·5	70·9	−0·1	55·6	−0·2	63·3	−0·2	15·3	75·2	20th	51·7	14th	23·5
	Kodai Kanal	?	?	?	?	?	...	?	...	?	59·8	66·9	?	53·1	?	60·0	?	13·8	69·8	?	51·1	5th & 13th	?
13. Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Meshed	?	?	?	?	?	...	?	...	?	59·3	72·7	?	53·0	?	62·9	?	19·7	80·0	6th	44·0	28th	36·0
	Bushire	14	29·731	?	29·701	29·891	15th	29·585	7th	·306	88·0	95·2	?	79·6	?	87·5	?	15·6	104·0	15th	75·0	30th	29·0
Arabia	Aden	94	29·740	?	29·765	29·851	29th & 30th	29·626	2nd	·225	84·0	91·4	?	80·0	?	85·7	?	11·4	96·1	16th	73·4	1st	22·7
	Perim	?	29·594	?	?	29·702	29th	29·489	12th	·213	85·8	93·0	?	82·4	?	87·8	?	10·6	96·5	8th	76·0	6th	20·5
Arabian Sea Islands	Minicoy	10	29·952	?	29·887	30·027	14th	29·894	11th	·133	79·8	84·9	?	78·7	?	81·8	?	6·2	87·2	5th	75·8	20th	11·4
	Zanzibar	73	30·057	?	30·057	30·118	16th	30·013	21st	·105	76·5	82·5	?	73·7	?	78·1	?	8·8	84·3	5th	72·7	6th & 12th	11·6

I —*concluded.*

in India, Burma, etc., in September 1892 —concluded.

Wind Direction. Number of Winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Station.	Meteorological Province or District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st June to 30th September 1892.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period from 1st June to 30th September.		
1	4	2	...	1	...	4	11	7	11	?	?	82	·848	5·3	11	9·1	+ 1·9	7·38	6·86	+ 0·52	24·17	22·13	+ 2·04	Coconada.	Madras, East Coast, North —*contd.*
...	3	2	1	...	...	4	17	3	2	2	0	79	·875	6·8	12	10·91	+ 1·09	8·17	7·00	+ 1·17	28·71	21·68	+ 7·03	Vizagapatam.	
1	7	1	1	1	3	10	3	3	14	7	+100	88	·903	3·9	10	9·33	+ 0·67	8·92	7·74	+ 1·18	36·58	30·95	+ 5·63	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
30	...	...	...	...	...	...	...	...	0	3	0	41	·244	0	0	0·55	− 0·55	0	0·14	− 0·14	2·06	1·34	+ 0·72	Quetta.	Beluchistan.
...	...	...	...	...	...	5	...	25	?	?	?	?	?	?	0	?	?	0	?	?	0·56	?	?	Kelat.	
16	...	1	2	5	3	1	1	1	3	?	?	84	·461	4·5	2	?	?	0·50	?	?	10·27	?	?	Srinagar.	Northern India.
9	1	...	2	1	1	2	2	12	5	5	0	61	·347	1·0	6	6·55	− 0·55	2·79	5·70	− 2·91	41·14	31·93	+ 9·21	Murree.	
12	3	1	4	1	9	...	...	...	?	2	?	79	·415	6·5	12	8·36	+ 3·64	14·05	5·83	+ 8·22	49·90	47·93	+ 1·97	Simla.	
14	...	2	14	...	...	...	...	...	5*	?	?	87	·482	4·1	14	?	?	17·88	5·66	+12·22	75·79	48·04	+27·75	Chakrata.	
...	2	2	13	6	...	1	1	5	?	8	?	90	·494	6·3	18	10·09	+ 7·91	17·00	9·72	+ 7·28	84·73	77·74	+ 6·99	Mussoorie.	
21	1	1	3	1	...	2	1	...	1	2	− 50	84	·526	6·1	15	7·73	+ 7·27	7·49	6·82	+ 0·67	40·41	38·44	+ 1·97	Ranikhet.	
?	?	?	?	?	?	?	?	?	?	?	?	82	·291	?	19	?	?	11·90	?	?	?	?	?	Gnatong.	
15	...	6	5	1	1	2	...	...	3	3	0	95	·492	8·9	19	17·29	+ 1·71	12·55	16·21	− 3·66	107·63	99·95	+ 7·68	Darjeeling.	
2	3	5	1	1	1	1	10	6	7	7	0	89	·590	6·7	11	7·40	+ 3·60	34·63	6·55	+28·08	96·63	57·91	+38·72	Mount Abu	Central India.
1	3	...	4	3	2	5	7	5	10	6	+ 67	89	·656	7·8	23	12·55	+10·45	15·88	13·31	+ 2·57	79·07	70·14	+ 8·93	Pachmarhi.	
12	2	...	...	2	...	11	2	1	4	3	+ 33	67	·394	5·6	4	9·22	− 5·22	2·26	4·90	− 2·64	14·96	14·86	+ 0·10	Wellington.	South India.
4	...	...	...	...	...	2	4	20	10	?	?	65	·337	6·3	3	13·80	−10·80	1·68	6·70	− 5·02	21·03	21·91	− 0·88	Kodai Kanal.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	**13. Extra India.**	
6	8	1	3	...	...	2	1	9	1	?	?	?	?	0·8	2	?	?	0·47	?	?	?	?	?	Meshed.	Persia.
...	...	7	8	10	...	...	3	2	6	8	− 25	63	·840	?	0	?	?	0	0	0	?	?	?	Bushire.	
15	...	2	9	...	3	1	...	...	9	9	0	74	·866	3·9	0	?	?	0	0·08	− 0·08	?	0·39	?	Aden.	Arabia.
4	3	...	10	6	...	...	3	4	13	?	?	76	·932	4·8	0	?	?	0	?	?	?	?	?	Perim.	
1	...	...	...	...	...	1	21	6	15	?	?	83	·848	4·9	12	?	?	4·03	?	?	?	?	?	Minicoy.	Arabian Sea Islands.
...	...	1	...	8	15	6	...	...	8	5	+ 60	81	·742	5·7	3	?	?	1·50	?	?	7·51	?	?	Zanzibar.	

* 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.	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	...	29·797	29·706	·091	29·753	—·028	29·745	84·6	77·2	7·4	88·0	73·1	14·9	82·2	82·1	79·9	+0·4	74·5	78·4	77·9	76·9
	Mergui	...	·799	·699	·100	·751	—·021	·780	83·7	?	?	88·8	?	?	79·8	79·4	?	?	?	76·4	75·8	?
	Rangoon	...	·812	·702	·110	·758	—·028	·736	84·5	74·9	9·6	88·8	65·8	23·0	80·0	80·8	78·1	—0·6	73·2	77·6	77·0	75·9
	Diamond Island	...	·812	·716	·096	·767	—·020	·743	?	75·5	?	?	71·4	?	81·2	80·4	?	?	73·4	77·1	76·4	75·6
	Cocos Island	111	·761	·677	·084	·721	?	·765	85·0	69·6	15·4	88·6	67·0	21·6	82·2	81·2	76·0	?	?	78·4	77·4	?
	Akyab	...	·800	·684	·116	·747	—·017	·710	86·2	76·5	9·7	91·2	73·0	18·2	82·6	83·3	80·5	—1·0	74·2	79·5	79·2	77·6
Assam.	Silchar	...	·683	·550	·133	·615	—·043	·677	89·6	76·8	12·8	97·2	74·2	23·0	83·9	86·8	82·1	+0·6	75·7	79·6	80·0	78·4
	Sibsagar	...	·458	·303	·155	·382	—·047	·669	90·0	78·1	11·9	94·6	75·0	19·6	84·0	88·9	82·7	+1·9	77·1	80·5	82·1	79·9
	Dhubri	...	·649	·516	·133	·588	—·045	·656	87·4	78·2	9·2	93·2	73·8	19·4	83·1	85·3	81·1	+2·0	76·3	79·5	79·4	78·4
Bengal and Orissa.	Chittagong	...	·708	·599	·109	·658	—·024	·692	86·8	76·2	10·6	90·9	73·4	17·5	83·6	83·3	80·5	0	74·8	79·3	79·1	77·7
	Dacca	...	·738	·619	·119	·684	—·028	·654	88·9	78·7	10·2	94·3	72·4	21·9	84·8	85·6	83·3	+0·4	76·0	80·1	79·9	78·6
	Calcutta (Alipore)	...	·714	·601	·113	·660	—·026	·627	87·8	78·0	9·8	92·0	75·7	16·3	84·6	84·2	82·5	+0·2	76·3	79·5	79·1	78·3
	Calcutta (Chowringhee)	...	·727	?	?	?	?	?	89·2	78·2	11·0	93·0	75·8	17·2	86·1	?	83·8	?	77·1	81·1	?	?
	Saugor Island	...	·706	·604	·102	·657	—·026	·626	87·4	79·0	8·4	91·2	76·1	15·1	85·0	84·3	82·0	—0·6	76·4	81·1	80·0	79·2
	Burdwan	...	·644	·523	·121	·587	—·028	·633	90·6	78·6	12·0	95·6	76·4	19·2	84·4	86·5	83·3	—0·2	77·0	78·7	79·2	78·3
	Berhampore	...	·676	·554	·122	·618	—·028	·633	89·4	79·1	10·3	94·2	73·3	20·9	84·2	86·0	83·1	+0·1	76·7	80·2	80·2	79·1
	False Point	...	·711	·611	·100	·663	—·037	·626	87·2	77·9	9·3	90·5	73·7	16·8	84·5	84·9	81·6	—0·2	76·5	79·3	79·3	78·4
	Cuttack	...	·643	·532	·111	·591	—·044	·614	89·7	77·9	11·8	93·4	75·8	17·6	85·5	86·9	82·8	+0·3	75·9	78·2	78·6	77·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·731	27·637	·094	27·688	—·023	·627	85·1	72·2	12·9	89·8	68·8	21·0	80·0	81·0	77·3	+0·4	70·4	74·4	74·4	73·1
	Patna	...	29·537	29·415	·122	29·481	—·036	·616	88·4	79·4	9·0	92·7	75·2	17·5	86·7	87·1	83·1	—0·4	76·8	80·3	79·7	78·9
	Darbhanga	...	·574	·450	·124	·517	—·026	·637	89·9	79·7	10·2	94·5	75·2	19·3	86·3	87·6	83·7	+1·0	78·0	80·3	80·7	79·8
	Allahabad	...	·401	·279	·122	·343	—·038	·605	91·9	77·6	14·3	96·0	70·0	26·0	86·8	89·6	83·7	+0·6	75·5	80·0	79·9	78·5
	Ghazipur	220	·494	·379	·115	·441	—·023	·614	91·8	79·5	12·3	97·2	73·7	23·5	87·0	88·0	84·3	+1·4	76·7	80·4	79·9	79·0
	Lucknow	...	·333	·215	·118	·277	—·052	·601	91·5	76·6	14·9	96·3	69·6	26·7	86·1	89·1	83·5	—0·4	75·8	79·2	79·0	78·0
Upper Sub-Himalayas.	Dehra Dun	...	27·528	27·448	·080	27·480	—·027	·655	83·8	70·3	13·5	88·8	62·2	26·6	78·6	79·6	75·7	—1·4	68·4	73·6	73·5	71·8
	Roorkee	...	28·818	28·713	·105	28·758	—·039	·605	89·7	74·2	15·5	93·2	64·3	28·9	83·4	86·9	81·0	—1·0	72·1	77·4	77·8	75·8
	Meerut	...	·982	·885	·097	·925	—·015	·623	89·8	74·9	14·9	93·3	67·0	26·3	84·5	86·2	81·4	—1·5	74·7	77·3	77·7	76·5
	Lahore	...	29·010	·919	·091	·959	—·010	·625	93·3	73·8	19·5	100·7	65·7	35·0	87·6	90·8	82·7	—0·8	71·4	77·1	77·0	75·2
	Ludhiana	...	28·889	·796	·093	·837	—·038	·605	89·2	74·1	15·1	96·1	67·9	28·2	83·5	85·6	80·8	—2·8	73·1	77·1	76·0	75·6
Indus Valley and N.-W. Rajputana.	Peshawar	...	·643	·528	·115	·580	—·003	·665	94·3	67·8	26·5	98·5	58·2	40·3	85·1	92·5	80·4	—1·4	62·8	70·5	72·0	68·4
	Mooltan	...	29·271	29·178	·093	29·219	—·016	·602	100·3	77·7	22·6	105·2	69·2	36·0	90·0	98·5	88·4	+1·4	72·4	79·4	82·6	78·1
	Jacobabad	...	·506	·386	·120	·440	—·027	·582	105·9	76·4	29·5	108·5	67·2	41·3	94·7	103·0	90·2	+1·9	69·8	76·9	76·0	74·2
	Hyderabad (Sind)	...	·582	·485	·097	·536	—·040	·603	99·1	77·1	22·0	105·2	73·1	32·1	89·5	95·4	86·9	+1·6	72·4	75·5	77·1	75·0
	Kurrachee	...	·686	·595	·091	·642	—·058	·644	91·0	77·6	13·4	101·3	74·8	26·5	86·3	86·9	83·1	+1·7	74·3	78·6	79·8	77·6
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·304	28·202	·102	28·249	—·046	·624	89·6	74·2	15·4	97·0	69·9	27·1	82·4	86·3	80·5	—1·5	72·1	76·3	76·3	74·9
	Ajmere	...	·133	·046	·087	·083	—·042	·646	86·2	74·2	12·0	92·9	70·9	22·0	80·7	83·9	79·3	—2·3	72·6	75·7	77·2	75·2
	Deesa	...	29·285	29·180	·105	29·231	—·052	·652	88·8	74·7	14·1	96·2	71·0	25·2	82·2	86·6	80·7	—1·1	71·5	75·9	76·7	74·7
	Nowgong	...	28·951	28·843	·108	28·899	—·045	?	89·1	?	?	93·0	?	?	83·9	86·1	?	?	74·0	77·7	77·9	76·5
	Agra	...	29·167	29·070	·097	29·112	—·029	·623	89·7	77·3	12·4	93·9	72·0	21·9	85·4	86·7	83·1	—0·3	74·8	79·3	79·0	77·7
Deccan.	Belgaum	...	27·333	27·243	·090	27·290	—·025	·749	76·1	65·4	10·7	80·7	61·9	18·8	72·2	71·5	69·2	—1·2	64·9	68·8	68·5	67·4
	Sholapur	...	28·224	28·101	·123	28·173	—·034	·708	84·4	69·4	15·0	89·8	66·2	23·6	77·8	81·6	75·6	—2·0	68·5	71·8	72·5	70·9
	Poona	...	27·976	27·884	·092	27·935	—·039	·723	81·9	68·4	13·5	88·7	66·4	22·3	76·8	76·8	73·0	—1·4	67·1	71·1	70·8	69·7
	Akola	...	28·832	28·714	·118	28·773	—·039	·656	84·8	71·7	13·1	91·4	67·8	23·6	79·5	82·6	77·6	—2·2	70·7	74·8	75·4	73·6

II.

at 95 Stations in India, Burma, etc., for September 1892.

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.		
·818	·921	·902	·880	—·012	88	84	83	85	— 3	9·1	9·1	9·1	+2·1	1	...	...	...	3	9	22	23	2	S 56° W	S 43° W	75	73	282	214	Port Blair	Burma Coast and Bay Islands.
?	·868	·847	?	?	?	85	85	?	?	8·5	9·3	8·9	+0·3	...	5	...	...	...	6	22	5	22	S 88° W	S 64° W	60	59	52	37	Mergui	
·797	·915	·883	·865	—·030	92	89	84	88	— 1	8·6	8·1	8·4	+0·3	...	2	1	5	7	12	16	12	4	S 34° W	S 18° W	45	49	104	91	Rangoon	
·795	·878	·858	·844	—·030	90	82	83	85	— 2	8·5	9·2	8·9	+2·0	1	3	4	5	7	8	19	8	5	S 35° W	S 39° W	35	58	217*	155	Diamond Island	
?	·921	·890	?	?	?	84	84	?	?	7·6	8·5	8·1	?	0	3	0	1	2	16	28	6	4	S 4° W	?	68	?	363	?	Cocos Island	
·816	·970	·943	·910	+·002	89	87	82	86	+ 1	7·9	7·2	7·6	+0·6	...	1	4	12	5	21	9	7	1	S 10° E	S 9° E	45	41	72	72	Akyab	
·876	·958	·936	·923	+·020	94	82	74	83	— 1	8·0	7·9	8·0	+0·9	41	1	1	3	...	...	2	7	5	N 66° W	S 89° W	15	2	14	61	Silchar	Assam.
·918	·996	1·005	·973	+·056	95	85	74	85	— 1	8·4	6·0	7·2	—0·8	1	3	10	2	6	6	29	2	1	S 26° W	N 73° E	37	18	52	58	Sibsagar	
·886	·933	·928	·926	+·033	91	85	77	84	— 3	5·5	6·2	5·9	—0·6	11	3	5	3	...	13	23	1	1	S 27° W	S 66° E	42	28	72	77	Dhubri	
·846	·947	·940	·911	—·003	94	82	82	86	— 5	9·2	8·9	9·1	+2·5	11	...	...	2	18	10	12	5	2	S 1° W	S 29° E	50	31	93	109	Chittagong	Bengal and Orissa.
·863	·966	·945	·925	—·039	88	81	77	82	— 4	7·3	6·5	6·9	+0·1	1	2	2	4	13	24	8	3	3	S 7° E	S 11° E	57	57	144	112	Dacca	
·887	·943	·927	·919	—·037	92	79	79	83	— 4	7·5	8·2	7·9	+0·7	...	3	3	11	12	11	14	3	3	S 17° E	S 27° E	38	43	91	101	Calcutta (Alipore).	
·919	·937	?	?	?	95	80	?	?	?	?	?	?	?	Not recorded.									?	?	?	?	?	?	Calcutta (Chowringhee).	
·876	1·011	·969	·952	—·027	88	84	82	85	— 1	8·0	8·2	8·1	+1·3	...	3	3	5	11	18	15	1	4	S 1° E	S 4° W	47	48	304	241	Saugor Island.	
·87	·904	·900	·907	—·023	93	77	72	81	— 1	6·6	7·4	7·0	—0·4	4	4	1	12	16	11	11	1	...	S 31° E	S 31° E	50	38	76	72	Burdwan	
·890	·979	·957	·942	+·007	89	83	77	83	— 3	7·1	7·2	7·2	—0·9	4	3	2	16	7	13	7	6	2	S 30° E	S 41° E	33	36	75	88	Berhampore	
·897	·933	·928	·919	—·008	94	79	78	83	— 1	7·5	7·4	7·5	+0·7	...	2	5	9	9	16	11	6	2	S 9° E	S 25° W	40	36	259	198	False Point	
·868	·869	·868	·868	—·031	91	71	69	77	— 4	7·1	7·3	7·2	+0·7	7	5	5	8	4	8	12	7	4	S 26° W	S 10° W	15	20	68	56	Cuttack	
·723	·785	·771	·760	0	91	77	74	81	0	8·3	8·4	8·4	+0·5	...	10	2	13	10	11	5	3	6	S 61° E	S 64° E	20	21	191	169	Hazaribagh	Gangetic Plain and Chota Nagpur.
·891	·949	·917	·919	+·005	88	75	72	78	— 2	7·1	6·9	7·0	0	7	2	4	25	4	5	1	9	3	S 85° E	S 77° E	32	42	114	74	Patna	
·940	·952	·947	·950	+·014	93	75	71	80	— 3	5·4	5·7	5·6	+0·2	...	1	8	19	16	2	4	6	4	S 75° E	S 86° E	42	54	98	93	Darbhanga	
·858	·935	·891	·895	+·003	90	73	65	76	— 4	5·8	6·3	6·1	+0·9	2	2	14	12	3	2	1	12	12	N 10° E	N 42° E	27	11	145	79	Allahabad	
·885	·950	·912	·915	+·058	87	75	69	77	+ 3	5·7	5·5	5·6	+0·5	6	1	5	12	14	3	8	8	3	S 39° E	S 28° E	25	7	83	58	Ghazipur	
·883	·907	·857	·882	+·047	96	73	63	77	+ 4	5·5	5·2	5·4	0	...	5	11	12	5	5	6	9	7	N 46° E	N 1° E	12	14	60	68	Lucknow	
·678	·766	·756	·734	?	91	79	75	81	?	5·9	6·2	6·1	+1·4	22	2	1	...	2	8	5	12	7	S 74° W	N 80° W	32	18	16	27	Dehra Dun	Upper Sub-Himalayas.
·767	·865	·835	·823	+·057	90	76	66	77	+ 5	6·2	5·2	5·7	+1·9	44	1	1	2	7	1	...	1	3	S 65° E	S 6° E	8	9	?	49	Roorkee	
·860	·846	·837	·847	+·091	99	71	68	79	+10	4·7	4·6	4·7	+1·0	14	3	1	17	7	...	...	13	5	N 67° E	N 34° W	12	17	38	49	Meerut	
·742	·795	·748	·762	+·048	88	61	53	67	+11	2·9	3·1	3·0	+1·6	16	7	3	13	7	3	2	5	4	N 75° E	N 60° E	18	13	38	50	Lahore.	
·805	·849	·798	·818	+·064	95	75	67	79	+14	5·9	6·0	6·0	+3·2	31	19	1	3	1	...	...	4	1	N 1° W	N 40° W	33	13	25	29	Ludhiana	
·515	·569	·532	·539	—·050	75	47	35	53	— 1	0·4	2·5	1·5	—0·1	1	16	16	11	4	2	1	3	6	N 33° E	N 39° E	52	55	66*	75	Peshawar	Indus Valley and N.-W. Rajputana.
·731	·862	·904	·832	+·037	77	61	50	62	+ 1	0·9	1·7	1·3	+0·4	3	...	10	..	18	2	18	...	9	S 3° W	S 32° W	23	33	31*	61	Mooltan	
·647	·689	·539	·625	—·069	71	42	26	46	— 7	0·7	1·2	1·0	+0·4	22	3	2	2	17	4	7	...	3	S 30° E	S 36° E	28	41	78*	69	Jacobabad	
·737	·700	·684	·707	—·043	80	51	42	58	— 4	4·3	4·7	4·5	+3·3?	...	1	9	...	9	2	39	...	...	S 31° W	S 40° W	48	75	178*	300	Hyderabad (Sind).	
·806	·876	·924	·869	+·042	85	70	72	76	0	2·9	2·8	2·9	—1·0	...	...	...	...	..	...	30	30	...	S 67° W	S 62° W	94	83	275	360	Kurrachee	
·766	·831	·786	·794	+·119	90	75	63	76	+12	6·3	6·8	6·6	+3·1	4	4	9	12	7	...	1	7	16	N 14° E	N 31° W	28	45	75	118	Jeypore	E. Rajputana, Central India and Guzerat.
·784	·828	·854	·822	+·133	92	79	74	82	+16	5·3	5·7	5·5	+2·3	...	6	6	4	3	2	9	24	6	N 80° W	S 80° W	42	44	144	120	Ajmere	
·731	·814	·789	·778	+·052	85	74	63	74	+ 8	7·2	7·4	7·3	+2·6	...	1	2	9	1	1	8	26	12	N 83° W	S 65° W	48	50	196	203	Deesa	
?	·870	·845	?	?	?	75	69	?	?	6·2	6·3	6·3	+0·7	...	2	4	22	1	2	1	25	3	N 33° W	N 67° W	7	28	64*	57	Nowgong	
·831	·922	·895	·883	+·098	88	76	72	79	+12	5·4	5·3	5·4	+1·7	...	2	17	...	17	...	8	...	16	N 44° E	N 26° W	18	13	103	99	Agra	
·612	·663	·661	·645	—·001	97	84	86	89	+ 4	8·6	8·9	8·8	+1·3	...	...	1	...	...	16	31	7	2	S 4° W	N 84° W	81	82	484	400	Belgaum	Deccan.
·689	·705	·688	·694	+·031	95	74	65	78	+ 8	9·1	8·8	9·0	+0·9	...	3	...	1		...	12	29	15	N 87° W	N 73° W	78	63	276*	238	Sholapur	
·649	·693	·681	·674	+·002	93	76	74	81	+ 4	8·2	8·2	8·2	+0·5	6	...	...	...	...	...	8	35	11	N 88° W	N 89° W	82	70	246	260	Poona	
·741	·803	·783	·776	+·041	95	80	72	83	+10	8·0	8·3	8·2	+1·7	...	5	2	2	...	...	3	9	39	N 48° W	N 66° W	78	66	182	144	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95 Stations

Meteorological Provinces.	Station.	Elevation of Bar. cistern above sea-level.	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	27·648	27·547	·101	27·598	—·046	29·667	81·0	68·5	12·5	85·8	64·7	21·1	75·1	77·3	73·8	—1·9	67·4	71·4	72·0	70·3
	Khandwa	...	28·733*	...	...	Imperfect.		...	85·2	72·9	12·3	94·2	70·1	24·1	79·5	82·6	77·6	—1·5	71·2	74·7	75·8	73·9
	Hoshangabad	...	·713	28·609	·104	28·662	—·051	·636	85·9	73·7	12·2	91·5	70·7	20·8	81·0	83·7	78·7	—0·9	72·6	76·7	77·0	75·4
	Nagpur	...	·705	·591	·114	·650	—·028	·625	86·1	73·6	12·5	92·0	69·4	22·6	81·1	82·8	79·0	—1·4	70·9	75·6	75·5	74·0
	Sironcha	401	29·356	29·239	·117	29·299	—·056	·646	87·1	75·3	11·8	92·3	71·9	20·4	81·7	84·4	80·6	—0·8	73·8	76·9	77·6	76·1
	Chanda	634	·114	28·995	·119	·056	—·038	·636	86·0	73·3	12·7	90·8	70·4	20·4	81·1	83·0	78·9	—1·6	71·9	74·7	75·8	74·1
	Seoni	..	27·706	27·608	·098	27·658	—·039	·616	83·1	70·5	12·6	88·2	67·6	20·6	78·5	80·0	75·7	—0·8	69·9	74·0	73·8	72·6
	Jubbulpore	...	28·399	28·282	·117	28·342	—·030	·618	86·4	73·2	13·2	90·4	69·4	21·0	81·1	82·9	78·2	—0·4	71·8	75·4	75·8	74·3
	Saugor	...	27·967	27·862	·105	27·916	—·033	·619	85·4	71·7	13·7	90·3	66·7	23·6	80·8	82·6	77·2	0	70·4	76·1	76·0	74·2
	Raipur	...	28·764	28·647	·117	28·706	—·026	·610	86·1	74·2	11·9	90·0	70·1	19·9	81·4	83·5	79·5	—1·0	72·4	76·0	76·3	74·9
	Sutna	...	·661	·547	·114	·606	—·049	·601	87·5	74·0	13·5	91·6	69·6	22·0	83·6	85·0	79·5	—0·8	72·6	77·2	77·2	75·6
	Sambalpur	...	29·234	29·127	·107	29·185	—·038	·592	88·2	76·8	11·4	92·1	74·5	17·6	83·9	85·1	81·7	—0·6	74·8	78·5	79·0	77·4
	Secunderabad	1,787	28·005	27·890	·115	27·959	—·035	·684	84·9	69·8	15·1	89·2	66·0	23·2	77·6	81·0	75·7	—1·5	68·6	71·5	72·7	70·9
	Hyderabad (Deccan).	...	·105	·994	·111	28·050	?	·676	83·0	70·5	12·5	87·4	66·1	21·3	77·1	80·6	76·1	?	69·1	72·1	73·4	71·5
West Coast.	Bombay	...	29·799	29·707	·092	29·750	—·035	·727	82·5	75·5	7·0	85·9	73·3	12·6	80·0	80·0	78·4	—1·3	73·8	76·7	76·2	75·6
	Ratnagiri	...	·745	·651	·094	·695	—·029	·743	83·0	74·2	8·8	85·1	69·9	15·2	79·8	79·7	77·8	—0·8	72·6	76·6	76·6	75·3
	Karwar	...	·854	·770	·084	·809	—·009	·785	81·5	73·1	8·4	83·9	71·5	12·4	78·2	79·6	76·8	—0·9	70·7	75·0	75·5	73·7
	Cochin	...	·938	·845	·093	·889	—·003	·827	84·7	74·5	10·2	86·3	72·6	13·7	81·2	81·5	78·8	—0·1	72·9	76·4	76·1	75·1
South India.	Salem	...	28·954	28·818	·136	28·839	—·023	·776	90·9	71·9	19·0	94·2	69·2	25·0	82·1	87·4	79·1	0	70·1	73·5	74·1	72·6
	Mercara	...	26·212	26·120	·092	26·166	—·027	·835	69·8	61·6	8·2	77·5	59·2	18·3	65·5	65·6	64·2	—1·8	60·6	63·6	64·0	62·7
	Bangalore	...	·906	·804	·102	26·856	—·037	·771	79·5	64·3	15·2	84·1	61·4	22·7	73·1	76·8	71·3	—0·9	63·5	67·4	68·6	66·5
	Chitaldroog	...	27·472	27·365	·107	27·419	?	·801	80·7	66·9	13·8	85·9	64·2	21·7	75·0	78·2	73·2	?	64·6	69·0	69·4	67·7
	Trichinopoly	...	29·612	29·471	·141	29·555	—·012	·739	95·9	76·4	19·5	101·1	72·5	28·6	87·4	92·3	83·9	+1·0	70·1	75·2	76·4	73·9
	Madras	...	·812	·702	·110	·765	—·009	·786	90·9	75·6	15·3	95·9	72·5	23·4	84·7	86·5	82·1	—1·7	?	76·3	77·3	76·2
	Bellary	...	28·370	28·248	·122	28·320	—·014	·737	85·7	71·1	14·6	90·4	67·2	23·2	79·5	83·7	77·2	—2·9	68·3	72·4	73·5	71·4
	Vizagapatam	...	29·703	29·604	·099	29·656	—·041	·625	85·6	79·6	6·0	89·0	76·0	13·0	84·6	85·	84·2	—0·8	74·8	78·2	78·5	77·2
Hill Station, Beluchistan.	Quetta	...	24·613	24·529	·084	24·563	+·010	?	83·2	44·2	39·0	88·9	40·1	48·8	73·2	81·4	63·3	—3·6	39·7	52·8	56·4	49·6
Hill Stations, Northern India.	Leh	11,503	19·730	19·631	·099	19·689	+·003	?	69·3	42·4	26·9	77·2	29·7	47·5	59·2	64·1	55·1	+1·9	37·5	46·4	48·4	44·1
	Srinagar	...	24·828	24·737	·091	24·782	?	?	77·2	54·3	22·9	84·8	41·2	43·6	68·6	75·4	65·3	?	53·0	61·7	66·8	60·5
	Murree	...	23·827	23·787	·040	23·799	—·027	?	72·9	57·4	15·5	78·4	48·6	29·8	67·6	69·7	64·2	—1·3	51·3	58·8	60·6	56·9
	Chamba	3,005	26·808	26·730	·078	26·777	—·023	?	80·8	64·9	15·9	86·8	54·6	32·2	73·2	78·0	71·2	—1·8	62·9	67·5	70·8	67·1
	Kailang	10,087	20·786	20·743	·043	20·772	+·024	?	64·4	43·1	21·3	75·5	32·8	42·7	56·9	58·6	51·4	—2·5	41·5	49·3	49·2	46·7
	Simla (Ridge)	...	23·099	23·040	·059	23·062	—·023	?	65·7	57·3	8·4	70·4	53·1	17·0	62·0	62·6	60·5	—1·3	53·8	58·3	59·3	57·1
	Simla (Chapslee)	...			Not recorded.				67·5	57·4	10·1	73·9	53·4	20·5	63·7	?	?	?	53·6	59·5	?	?
	Chakrata	...	23·238	23·170	·068	23·196	—·027	?	68·5	60·7	7·8	72·6	53·3	19·3	64·7	64·9	63·5	+1·8	58·8	61·0	62·0	60·6
	Ranikhet	...	24·075	24·010	·065	24·029	—·001	?	72·8	60·9	11·9	77·3	56·5	20·8	69·1	69·7	65·9	+0·3	60·0	64·3	65·1	63·2
	Pithoragarh	5,363	·706	·636	·070	·657	+·013	?	77·8	63·2	14·6	81·9	57·2	24·7	71·9	76·3	69·9	+0·5	61·8	67·5	69·1	66·2
	Katmandu	4,388	25·537	25·452	·085	25·498	—·043	?	82·8	66·6	16·2	86·0	62·3	23·7	76·6	77·3	73·3	—0·6	65·3	70·6	71·2	69·0
	Darjeeling	...	22·974	22·893	·081	22·937	—·022	?	65·3	56·2	9·1	68·3	53·7	14·6	61·7	63·1	60·2	+1·7	55·9	60·8	61·6	59·4
	Pedong	...	25·238	25·138	·100	25·191	—·030	?	75·1	65·0	10·1	79·5	61·9	17·6	71·5	71·8	69·2	+2·0	63·6	68·7	68·9	67·1
	Demagiri	...			Not recorded.			?	86·9	68·4	18·5	90·9	66·7	24·2	84·2	84·5	77·1	—2·6		Not recorded		
	Tura	...			Ditto.			?	83·9	73·6	10·3	90·3	70·0	20·3	78·8	81·5	78·2	?	?	75·6	76·6	?

* Mean of 20 days.

II —*continued.*

in India, Burma, etc., for September 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.		Station.	Meteorological Provinces.
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.		
·659	·726	·722	·702	+·019	94	83	78	85	+ 7	9·2	8·6	8·9	+2·6	1	6	4	1	...	3	11	12	22	N 67° W	N 48° W	57	64	220*	195	Buldana	Deccan—*continued.*
·746	·802	·808	·785	+·047	92	80	74	82	+ 8	6·3	6·9	6·6	+1·3	1	4	3	1	1	4	5	30	11	N 81° W	N 69° W	63	66	144	148	Khandwa	
·788	·865	·845	·833	+·047	95	82	74	84	+ 6	7·2	7·8	7·5	+1·7	3	2	6	2	6	15	12	11	3	S 87° W	N 86° W	55	50	118	59	Hoshangabad	
·724	·816	·794	·778	+·010	87	78	72	79	+ 4	8·0	8·5	8·3	+1·1	5	6	4	8	...	2	15	12	8	N 84° W	N 54° W	30	37	184	118	Nagpur	
·814	·862	·859	·845	+·001	93	80	73	82	+ 1	7·6	7·7	7·7	+1·4	12	2	1	...	...	5	10	19	11	S 87° W	N 80° W	55	40	68	70	Sironcha	
·764	·776	·794	·778	−·030	93	73	71	79	+ 1	6·7	7·9	7·3	+0·3	5	3	1	3	8	1	27	6	6	S 49° W	N 70° W	45	42	134	99	Chanda	
·726	·786	·761	·758	+·061	97	81	76	85	+10	7·8	7·9	7·9	+4·0	21	5	9	5	2	6	15	6	11	N 83° W	N 56° W	20	29	116	93	Seoni	
·767	·807	·803	·793	+·022	94	77	72	81	+ 4	6·3	6·6	6·5	+0·4	8	4	7	2	4	11	7	13	4	S 57° W	N 69° W	22	34	66	78	Jubbulpore	
·732	·844	·816	·797	+·072	94	80	74	83	+ 7	5·8	6·1	6·0	+1·6	...	1	3	5	4	6	17	17	7	S 62° W	N 77° W	45	43	108	80	Saugor	
·774	·827	·811	·804	0	91	77	71	80	+ 2	8·4	8·1	8·3	+1·6	3	1	9	9	1	...	15	13	3	S 80° W	S 69° W	17	29	186*	141	Raipur	
·786	·856	839	·827	+·061	93	74	70	79	+ 6	4·8	5·2	5·0	0	1	10	7	7	4	4	2	15	10	N 33° W	N 55° W	27	31	152*	155	Sutna	
·836	·904	·912	·884	−·014	91	78	76	81	0	6·9	7·6	7·3	+1·6	...	9	6	4	1	6	22	7	5	S 72° W	S 49° W	30	13	118*	59	Sambalpur	
·688	·698	·701	·696	+·003	94	74	67	78	+ 3	7·3	7·4	7·4	+1·4	1	3	1	1	...	...	4	25	25	N 67° W	N 78° W	78	67	247	158	Secunderabad	
·693	·728	·733	·719	?	93	78	71	81	?	7·7	7·6	7·7	?	8	1	1	2	...	1	2	34	11	N 80° W	?	68	?	186*	?	Hyderabad (Deccan.)	
·815	·877	·855	·849	−·019	92	86	83	87	+ 1	7·0	7·6	7·3	−0·1	...	2	1	1	2	6	11	23	14	S 86° W	S 89° W	63	55	282	273	Bombay	West Coast.
·781	·875	·874	·843	+·008	92	86	86	88	+ 4	8·7	8·7	8·7	+3·0	5	4	...	...	1	5	18	15	12	S 81° W	S 88° W	60	55	192*	188	Ratnagiri	
·720	·825	·828	·791	−·030	88	85	82	85	− 1	7·1	6·5	6·8	+0·9	2	9	...	...	...	...	...	45	4	N 76° W	N 86° W	82	78	48	?	Karwar	
·790	·845	·831	·822	−·010	93	79	77	83	− 2	5·0	7·1	6·1	+0·8	1	...	3	1	1	...	...	27	27	N 64° W	N 82° W	78	61	121	?	Cochin	
·714	·712	·668	·698	−·060	92	65	53	70	− 3	6·6	8·2	7·4	+2·6	9	...	...	...	3	15	21	8	4	S 39° W	S 68° W	63	77	78	84	Salem	South India.
·519	·566	·580	·555	−·019	94	90	92	92	+ 1	8·1	8·9	8·5	−0·1	...	...	...	...	...	...	...	57	3	N 88° W	N 72° W	99	84	214	173	Mercara	
·578	·601	·599	·593	−·006	95	74	66	78	+ 2	7·6	7·1	7·4	+1·4	...	...	...	...	...	...	27	31	2	S 69° W	S 82° W	92	88	185*	161	Bangalore	
·584	·634	·609	·609	?	88	73	64	75	?	8·2	7·2	7·7	?	...	...	...	...	...	1	5	38	16	N 83° W	?	89	?	221*	?	Chitaldroog	
·654	·710	·697	·687	−·039	72	55	47	58	− 6	6·0	7·3	6·7	−0·3	3	...	...	...	1	1	17	32	6	S 79° W	N 78° W	80	77	179	168	Trichinopoly	
?	·792	·813	·826	+·014	?	67	65	76	+ 3	6·4	7·4	6·9	+0·8	...	2	...	5	4	3	18	23	5	S 67° W	S 36° W	57	53	118	154	Madras	
·661	·707	·638	·689	+·020	87	70	61	73	+ 8	7·5	7·7	7·6	+0·2	12	...	...	...	...	...	1	32	15	N 77° W	N 78° W	73	74	231	219	Bellary	
·792	·888	·884	·855	−·027	78	74	72	75	+ 2	6·8	7·2	7·0	+1·3	...	1	9	4	...	10	14	22	...	S 65° W	S 60° W	57	48	57	50	Vizagapatam	
·199	·190	·200	·197	−·057	68	24	18	37	− 2	0·1	0·3	0·2	−0·2	55	...	...	...	...	...	...	2	3	N 62° W	N 56° W	8	50	16*	76	Quetta	Hill Station, Beluchistan.
·186	·208	·206	·200	+·035	68	41	36	48	+ 7	5·1	5·6	5·4	+1·5	8	1	...	2	1	8	16	17	7	S 65° W	S 59° W	57	32	23	40	Leh	Hill Stations, Northern India.
·397	·481	·562	·480	?	93	69	64	76	?	4·5	5·5	5·0	?	11	11	7	3	6	4	...	8	10	N 6° W	?	25	?	64*	?	Srinagar	
·319	·409	·439	·389	−·026	68	61	60	63	− 1	2·3	2·9	2·6	−0·7	27	...	...	..	8	5	7	3	10	S 49° W	S 52° E	22	8	137*	130	Murree	
·558	·612	·674	·615	+·064	89	75	71	78	+10	5·7	6·0	5·9	+2·8	31	5	...	1	3	1	...	6	13	N 47° W	N 11° W	28	13	60	105	Chamba	
·253	·291	·272	·272	+·056	89	64	57	70	+16	5·7	7·0	6·4	+2·0	...	...	3	1	10	...	25	4	17	S 66° W	S 57° W	43	63	26	36	Kailang	
·386	·454	·478	·439	−·007	81	81	83	82	+ 4	7·3	8·2	7·8	+2·4	16	9	3	...	3	15	7	3	4	S 43° W	S 78° W	17	30	?	?	Simla (Ridge)	
·380	·470	?	?	?	80	79	?	?	?	7·5	?	?	?	Not recorded.									?	?	?	?	?	?	Simla (Chapslee)	
·480	·503	·528	·504	+·036	90	82	86	86	+ 3	5·5	2·2	3·9	−2·5	19	...	3	8	1	...	3	25	1	W	S 74° W	28	36	108	113	Chakrata	
·513	·560	·576	·550	+·042	95	78	79	84	+ 4	7·2	7·0	7·1	+1·2	28	2	...	7	...	1	10	11	1	N 58° W	S 52° W	23	39	35	51	Ranikhet	
·539	·639	·637	·605	+·036	93	82	70	82	+ 2	6·4	5·7	6·1	+0·4	30	...	1	4	1	3	21	...	...	S 28° W	S 14° E	33	34	55	56	Pithoragarh	
·616	·680	·695	·664	+·039	94	74	74	81	+ 3	6·0	6·9	6·5	+0·4	...	4	4	19	...	...	2	25	6	N 42° W	S 88° W	22	32	14	?	Katmandu	
·444	·524	·535	·501	+·024	97	95	92	95	+ 1	9·0	8·7	8·9	+0·7	15	...	5	9	2	3	12	11	2	S 41° W	S 72° E	17	12	72	73	Darjeeling	
·574	·673	·676	·641	+·025	92	87	86	89	− 1	8·3	8·6	8·5	+1·7	...	1	6	11	13	5	...	2	...	S 68° E	?	61	?	?	?	Pedong	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	6	...	...	49	3	...	2	...	...	S 86° E	N 83° W	84	5	?	?	Demagiri	
?	·852	·862	?	?	?	87	80	?	?	5·0	3·4	4·2	−2·1	...	...	1	...	1	56	1	..	1	S	S 4° W	95	56	?	?	Tura	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 95 Stations

Meteorological Province.	Station.	Elevation of Bar. cistern above sea-level.	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.
Hill Stations, Central India.	Mount Abu	...	25·858	25·770	·088	25·813	−·157	?	73·1	64·0	9·1	78·9	59·9	19·0	69·9	70·5	67·9	−1·5	62·1	65·9	66·7	64·9
	Pachmarhi	...	26·338	26·252	·086	26·296	−·040	?	76·0	66·6	9·4	81·2	63·2	18·0	71·9	73·1	70·2	−0·3	65·2	68·7	69·0	67·6
	Chikalda	3,642	·207	·114	·093	·161	−·058	?	73·3	65·3	8·0	79·4	62·3	17·1	68·8	70·8	68·2	−0·8	64·5	67·3	68·2	66·7
	Makhla	...			Not recorded.				76·6	67·1	9·5	83·5	64·0	19·5	69·9	71·8	70·7	−0·7	66·0	69·7	71·5	69·1
Hill Stations, South India.	Wellington	...	24·236	24·157	·079	24·197	+·002	?	70·8	55·3	15·5	75·0	51·2	23·8	66·2	65·1	62·2	+0·1	52·0	57·7	58·9	56·2
	Khodai Kanal	...			Not recorded.				66·9	53·1	13·8	69·8	51·1	18·7	62·7	59·4	58·4	?	47·9	55·4	55·3	52·9
Extra India.	Aden	...	29·740	29·613	·127	29·677	−·012	29·701	91·1	79·8	11·3	96·1	73·4	22·7	86·7	88·4	84·8	−2·2	75·2	78·2	77·9	77·1
	Perim	...	·602	·485	·117	·544	?	?	92·9	82·4	10·5	96·2	76·0	20·2	89·0	89·6	86·8	?	77·7	80·3	80·5	79·5
	Minicoy	...	·965	·870	·095	·915	?	·850	84·8	79·0	5·8	87·2	75·8	11·4	81·7	82·6	81·4	?	74·4	76·7	77·0	76·1
	Zanzibar	...	30·069	·964	·105	30·017	?	30·017	82·5	73·7	8·9	84·3	72·3	12·0	78·0	81·8	77·9	?	71·9	73·6	74·4	73·3

II—*concluded.*

in India, Burma, etc., for September 1892—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Steadiness.		Wind Velocity.		Station.	Meteorological Provinces.
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.		
·540	·597	·614	·584	+·045	90	83	83	85	+10	6·5	7·3	6·9	+1·5	3	10	8	2	2	6	4	13	12	N 47° W	S 67° W	35	27	172	173	Mount Abu	Hill Stations, Central India.
·608	·666	·665	·646	+·018	93	86	82	87	+ 5	8·1	7·9	8·0	+0·8	2	4	4	7	2	7	9	15	10	S 87° W	N 58° W	28	45	245*	134	Pachmarhi	
·600	·654	·660	·638	+·008	96	93	88	92	+ 4	8·7	8·3	8·5	+1·2	13	11	1	3	1	3	...	9	19	N 40° W	N 22° W	47	65	253	230	Chikalda	
?	?	?	?	?	?	?	?	?	?	8·8	8·4	8·6	+0·1	...	7	18	8	...	...	...	1	26	N 2° E	S 89° W	63	51	?	?	Makhla	
·356	·390	·434	·393	−·035	81	61	70	71	− 6	6·8	7·7	7·3	+0·4	2	6	...	1	5	12	18	8	8	S 53° W	S 79° W	45	33	88	72	Wellington	Hill Stations, South India.
·285	·367	·396	·349	?	69	65	79	71	?	6·7	8·8	7·8	?	5	4	8	...	2	...	...	2	39	N 37° W	?	70	?	234	?	Khodai Kanal	
·817	·852	·819	·829	−·025	80	67	61	69	+ 2	2·7	1·6	2·2	−0·1	18	...	2	13	4	21	2	...	...	S 39° E	S 31° E	40	51	226	214	Aden	Extra India.
·890	·917	·920	·912	?	80	67	66	71	?	2·6	3·9	3·3	?	1	1	1	7	29	3	1	...	17	S 56° E	?	32	?	316	?	Perim	
·792	·854	·855	·834	?	80	79	77	79	?	4·8	5·4	5·1	?	...	...	...	...	...	...	1	43	16	N 79° W	?	94	?	365	?	Minicoy	
·757	·771	·751	·760	?	92	81	69	80	?	4·7	2·5	3·6	?	...	...	...	2	22	25	10	1	...	S 11° E	S 12° W	80	46	197*	118	Zanzibar	

* Corrected.

GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE.—No. 66 METEO.—7-2-93.—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.

Reg. No. 660, Wr., I.—Jan. 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.

Reg. No. 680, Wr., I.—Jan. 93—415.

Litho, S. I. O., Calcutta.

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

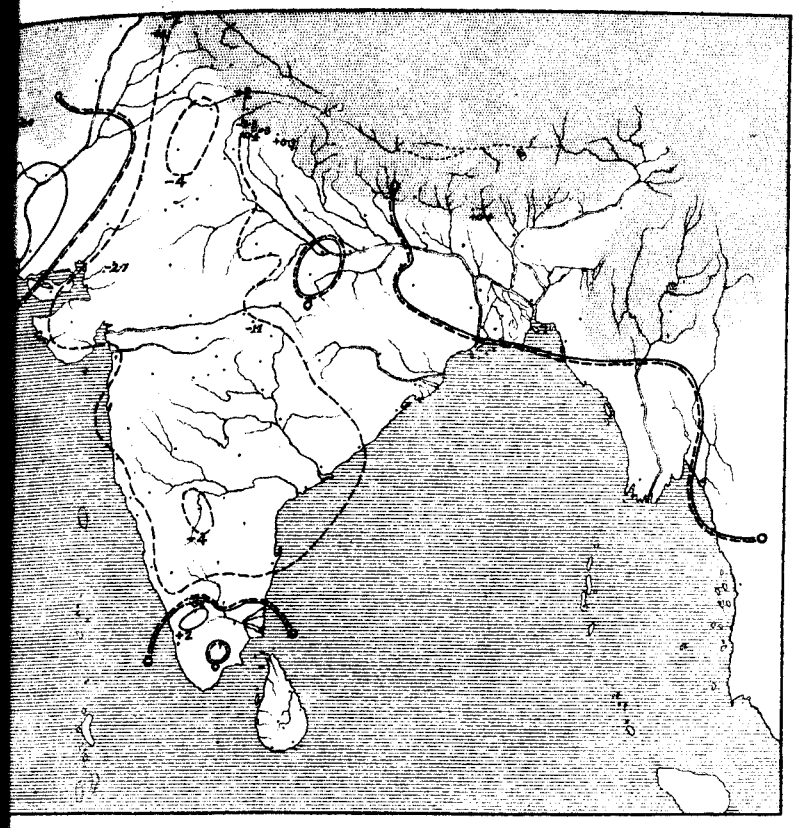
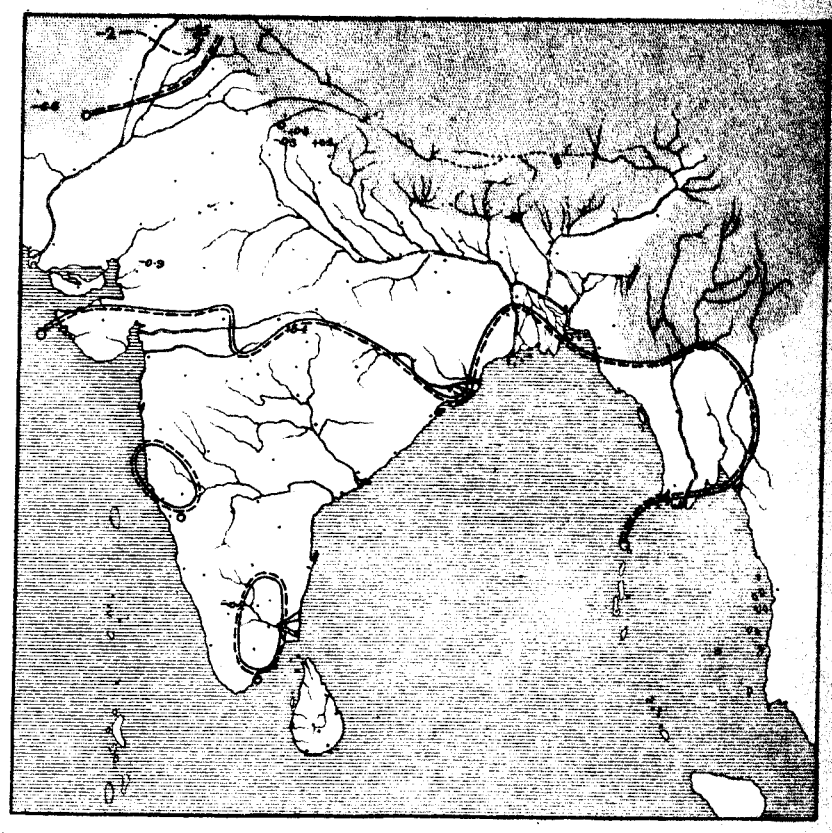


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

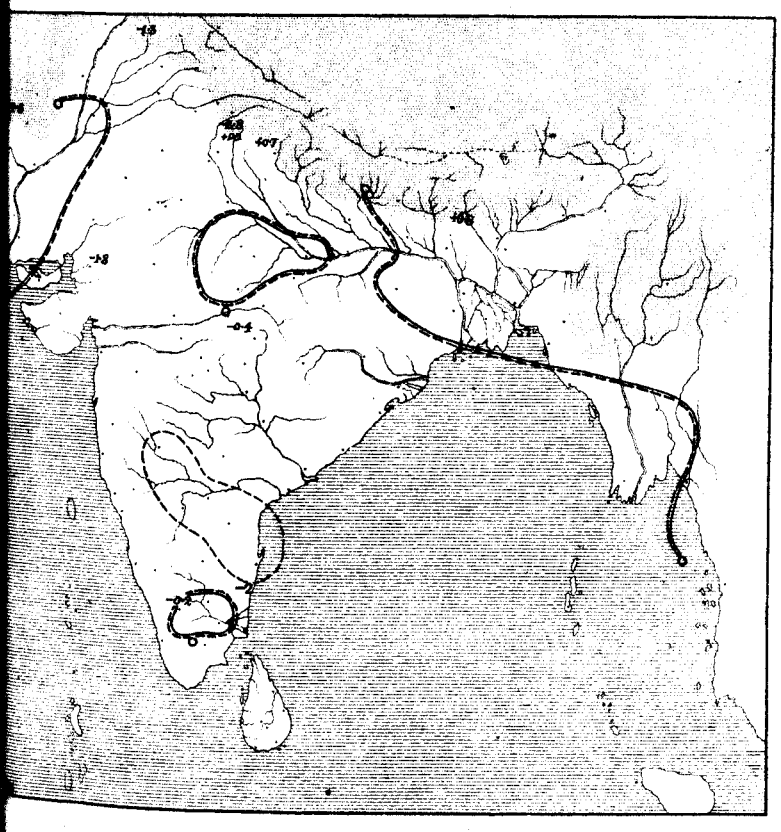
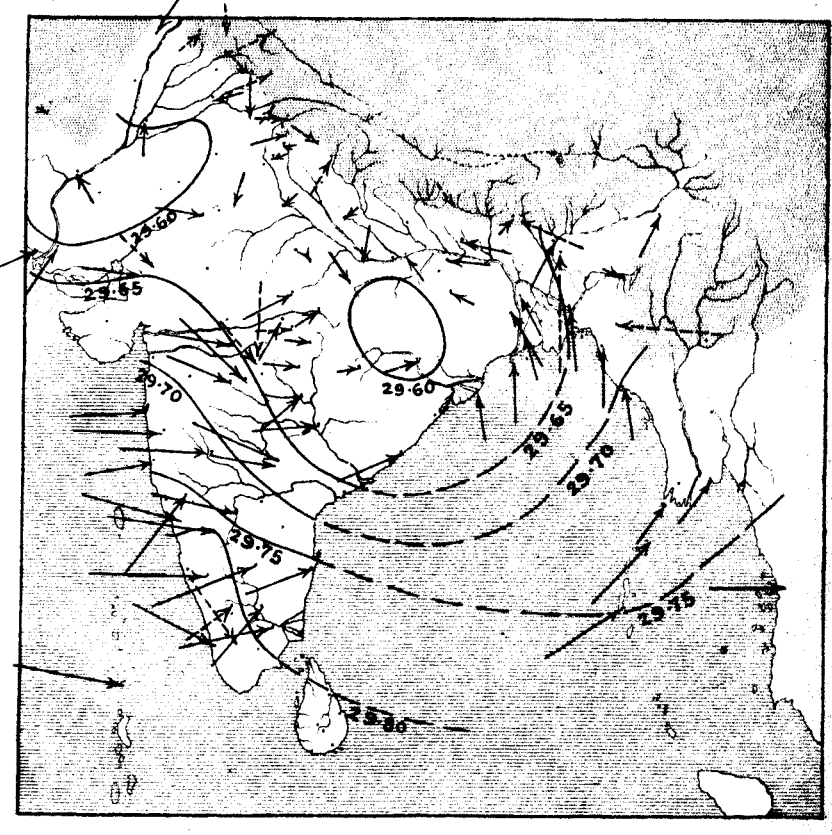


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF SEPTEMBER 1892.



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.

Reg. No. 690. Wr., I.—Jan. 93 —415.

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. 680, Wr., I.—Jan 93—415

Lithc, 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. 680 Wr., 1-Jan. 93-4.5

Litho, S. I. ..., Calcutta

GOVERNMENT OF INDIA,

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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INTRODUCTION.

THIS review of the weather in India during the month of October 1892 is based on observations taken daily at 8 A.M. at 175 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 96 stations. The rainfall summary is based on 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. 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 October 1892.

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 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 chiefly 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 gives a brief statement of the more important features of the meteorology of October 1892 in India.

The monsoon currents withdrew from North-Western India on the 26th and 27th of September, and at the beginning of October skies were clear and light variable winds prevailed over the whole of North-Western and Central India. Skies were generally overcast in Burma and North-Eastern India and were more or less clouded in the Peninsula.

At the commencement of October a very shallow depression covered Bengal and that area received moderate general rain on the 1st and 2nd. Skies then cleared and dry weather set in over North-Eastern India and held until the fourth week of the month. The barometric movements of the next few days were such as usually accompany the establishment of feeble anticyclonic conditions in Upper India at the termination of the rains. Pressure increased briskly to rapidly over North-Western India and slightly in Southern India and was considerably above the normal over the whole of India on the 6th and 7th. On the 8th weather was fine and dry over the whole of India and pressure was slightly higher in North-Western India than elsewhere and was lowest in the centre of the Bay, but the pressure differences and gradients were very small. The barometric changes of the next four days slightly intensified these conditions and dry weather continued over the whole of India. On the 12th a shallow trough of low pressure extended across the centre of the Bay and general rain began to fall in the Madras coast districts. Fairly general rain was recorded during the next two days. A depression now formed in the centre of the Bay to the south of the Andamans, and began to advance westwards on the 15th. The indraught to this area diminished the rainfall in Madras considerably on the 15th and 16th. The depression crossed the coast between Madras and Masulipatam on the morning of the 17th and gave heavy rain to the North Madras coast districts. It filled up rapidly during the day, but a small residual depression passed westwards and lay off the Bombay coast in the Arabian Sea on the morning of the 18th. This was accompanied by an extension of humid winds up the west coast which gave frequent thundershowers and heavy rain. The Peninsula and West Coast districts hence received fairly general rain during the next 48 hours. Meanwhile another depression which had formed in the Gulf of Siam or Andaman Sea concentrated rapidly into a small cyclonic storm of considerable intensity on the 17th. It passed between the Andamans and Diamond Island on the morning of the 18th and crossed the centre of the Bay with a velocity of about 18 miles per hour. It reached the west coast of the Bay on the early morning of the 20th, passing to the south of Coconada at 3 A.M. and north of Masulipatam at 8 A.M. It thence advanced into the Deccan filling up rapidly as it crossed the West Ghats. The residual depression passed slowly westwards and lay over the Konkan and adjacent portion of the Arabian Sea on the 23rd and 24th. This storm gave a very heavy burst of rain to the Circars and Deccan on the 20th and 21st and, as on the previous occasion, humid winds advanced northwards along the west coast and gave heavy showers. Some portions of the Poona and Kolhapore districts received exceptionally heavy rain on the 23rd which caused much destruction of property and breached the Southern Mahratta Railway. The Peninsula continued to receive general rain, whilst disturbed showery weather extended to Bengal and gave occasional rain. No important change occurred until about the 25th or 26th when another depression formed slowly in the Bay It was throughout an extensive and shallow depression. It advanced in a west-by-north direction to the Coromandel coast, which it crossed on the 30th. It gave an exceptionally heavy and general burst of rain to the Central and North Madras coast districts on the 29th and general rain to the Peninsula on the 30th and 31st. The disturbed weather extended northwards to Bengal on the 30th and Orissa, South and Central Bengal received in consequence a short but favourable and much needed supply of rain for the crops.

The mean pressure of the whole Indian area for the month was ·016″ below the normal. Pressure was in slight local excess in Northern India and Burma and in slight defect in the Peninsula. The local variations were small in amount and the mean distribution of pressure during the month hence agreed closely with the normal. Pressure was very uniform over the whole area and was

lowest across the centre of the Bay of Bengal between the Andamans and the coast of the Circars between Coconada and Nellore. The position of this very shallow trough of low pressure was hence almost coincident with that of the tracks of the three cyclonic storms of the month.

The mean temperature conditions of the month differed little from the normal. The mean day temperature was in slight excess in South Madras, Sind, Bihar and Chota Nagpur, and in defect elsewhere. The deficiency was slightly more than 1° in the Deccan, Circars, South-West Rajputana and the western districts of the North-Western Provinces. The deficiency in the first area was due to heavy rainfall in the month and in the latter areas probably to the heavy rainfall of the preceding month. The mean night or minimum temperature of the month agreed closely with the normal over nearly the whole of India. It was slightly more than 2° in excess in the North Deccan, Khandesh and Berar.

The mean temperature of the month was below the normal generally by very small amounts over nearly the whole of India. The deficiency exceeded 2° in the area defined by the following stations:—Bareilly (—2·1°), Delhi (—2·2°), Agra (—2·6°) and Ajmere (—2·1°).

The only noteworthy feature in the temperature changes during the month was a cold period in North-Western India commencing on the 16th. It followed a rapid rise of pressure in Upper India and probably of disturbed weather in the adjacent mountain areas. This cool wave extended from the North-West Frontier over North-Western India on the 17th and 18th, and the mean day temperature in that area was from 2° to 5° below the normal until the 23rd or 24th, after which temperature gradually increased and was normal at the end of the month. In North-Eastern India, Burma and the Peninsula, the temperature changes were dependent solely upon the occurrence and amount of the rainfall. The following gives a summary of the temperature data of the eleven meteorological provinces:—

Province.	Variation of		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean daily temperature from normal.
	°	°	
Burma Coast and Bay Islands	−0·2	−0·6	—
Burma Inland	+0·2	−1·6	—
Assam	−0·8	−0·5	—
Bengal and Orissa	−0·1	+0·2	0
Gangetic Plain and Chota Nagpur	+1·0	−0·6	+0·2
Upper Sub-Himalayas	−1·5	−1·8	−1·7
Indus Valley and North-West-Rajputana	−0·1	−0.8	−0·5
East Rajputana, Central India and Guzerat.	−1·5	−0·9	−1·2
Deccan	−1·1	+1·6	+0·2
West Coast	−11	−0·2	−0·7
South India	−03	−0·2	−0·3

The mean air movement of the month presents few features of interest. Winds were stronger and steadier and more easterly than usual in Burma and the east of the Bay. Winds were considerably steadier in the Gangetic plain, but were very light and irregular in Bengal. Winds were slightly weaker than usual on the Bombay coast and were normal in character in the Deccan. They were more northerly than usual on the Madras coast and were also more unsteady.

The air was slightly drier in Burma and North-Eastern India. The deficiency in the humidity was small and of little importance except in West Bengal, Bihar and the eastern districts of the North-Western Provinces. It was absolutely greatest at Allahabad where the mean humidity of the month was 14 below the normal and Calcutta where it was 8 in defect. The air was more humid than usual over the remainder of India, except the southern districts of Madras, where it was slightly drier. The increased humidity was most strongly exhibited at the Deccan stations, more especially Poona (12 in excess), Sholapur and Secunderabad (10 in excess), and Bellary and Akola (9 in excess) and in West Rajputana. The air was also damper at the hill stations with the exception of Leh and Murree. The excess was most marked at Mount Abu (+9), Chakrata (+8), and Chikalda (+7).

There was less cloud than usual at the hill stations in Northern India and in North-Western India. Skies were practically free from cloud in the South-West and South-East Punjab and at the adjacent hill station of Simla, where the average amount during the month ranged from 0 to 0·3. There was more cloud than usual in all other districts and more especially in Orissa, the south-eastern districts of the Central Provinces, Berar and Hyderabad. The amount of cloud in that area was from 2 to 3·5 in excess of the normal amount which ranges from 3 to 4 in the northern half of the Peninsula. The following gives the variations from the normal of the mean aqueous vapour pressure, humidity and cloud amount in the larger meteorological provinces of India for the month of October:—

Province.	Mean variation of		
	Aqueous vapour pressure from normal.	Humidity from	Amount of cloud from normal.
	Inch.		
Burma Coast and Bay Islands	−·016	−1	+0·3
Assam	−·017	0	−0·5
Bengal and Orissa	−·021	−3	+1·0
Gangetic Plain and Chota Nagpur	−·026	0	+0·1
Upper Sub-Himalayas	−·012	+2	−0·6
Indus Valley and North-West Rajputana	−·012	−2	−0·2
East Rajputana, Central India and Guzerat	+·017	+4	+0·2
Deccan	+·047	+5	+1·5
West Coast	+·004	+1	+0·2
South India	+·003	+1	+0·2

No rain (*i.e.*, less than an average of a tenth of an inch) fell over the whole of the Punjab (except the northern districts), Sind, Rajputana, Central India, the North-Western Provinces and part of North Bihar. The rainfall of the month was below the average over the whole of that area, the deficiency being greatest in the eastern districts of the North-Western Provinces and North Bihar, where the normal rainfall ranges from 2 to 4 inches. Over the remainder of India the rainfall was chiefly determined by the three cyclonic storms of the month. They gave moderate rain to Burma in their earlier stages. The two last storms were followed by showery weather in Assam and Central and South Bengal, and these areas received amounts generally in slight to moderate excess.

In the Peninsula the storms gave very heavy rain to the Northern Madras coast districts and the Deccan, and their dispersion was followed by heavy rain in the west coast districts for short periods. The rainfall of the month was hence more or less considerably in excess in the whole of these areas. The excess was greatest in the Madras districts for which data are given below :—

District.	Rainfall.		
	Actual average, October 1892.	Variation from normal.	Percentage variation.
	Inches.	Inches.	
Nellore	11·74	+ 1·99	+ 20
Kistna	14·93	+ 8·72	+140
Godavari	20·02	+12·31	+160
Vizagapatam	13·85	+ 7·52	+119

A further consequence of these storms was that the Madras coast districts to the south of their mean track received unusually small rain supplies. The deficiency was large in the following districts :—

District.	Rainfall.		
	Actual average, October 1892.	Variation from normal.	Percentage variation.
	Inches.	Inches.	
Chingleput	4·52	−5·37	−54
North Arcot	5·25	−2·14	−29
South Arcot	2·72	−6·08	−69
Tanjore	4·47	−4·45	−50

The following gives a comparative statement of the mean distribution of rainfall in the eleven meteorological provinces :—

Province.	Rainfall.		
	Actual average, October 1892.	Variation from normal.	Percentage variation.
	Inches.	Inches.	
Burma Coast and Bay Islands	8·35	−1·18	−12
Burma Inland	7·60	+3·16	+71
Assam	6·68	+2·19	+49
Bengal and Orissa	4·88	−0·27	− 6
Gangetic Plain and Chota Nagpur	0·63	−2·10	−77
Upper Sub-Himalayas	0·05	−0·42	−89
Indus Valley and North-West Rajputana	0·19	−0·02	−33
East Rajputana, Central India and Guzerat	0·31	−0·49	−65
Deccan	5·74	+2·46	+77
West Coast	14·07	+5·41	+72
South India	10·15	+2·51	+31

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for October 1892 is shown by means of two charts. The first chart (Plate I) gives 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 one-twentieth of an inch. The second chart (Plate II) gives the variations of the actal mean 8 A.M. pressure from the normal 8 A.M. pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds. The data on which this chart is based are shown in Table II. The pressure data in that table are, it should be noted, reduced to constant gravity (that of Lat. 45°) as well as to sea-level.

The more important barometric changes and movements during the month are fully 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 means. It should be noted that the pressure means in the tables are reduced and corrected to sea-level and to constant gravity for all stations, the elevations of which are less than 3,500 feet.

October is a month of transition from south-west monsoon conditions to north-east monsoon or trade wind conditions. The change is usually not fully completed over the whole Indian region until the middle or end of December. The baric gradients established by this change in the cold weather are opposite in direction to those which obtain in the rainy season. The month of October is hence a period of great uniformity of pressure and of light and variable winds over the Indian region. It is also a period of marked uniformity of temperature conditions over India.

Pressure is on the average of the month slightly higher in the West Deccan, Central India, Berar and the western districts of the Central Provinces than elsewhere. Over the remainder of India the mean range of pressure is less than ·05″. The charts of the Bay of Bengal for this month, giving the normal distribution of pressure show an area of slightly deficient pressure over the centre of the Bay in this month. It is, however, doubtful how far this represents the normal pressure conditions of the month. It is probable that it, in part, represents the fact that the depressions and cyclonic storms of the month originate almost entirely in the centre of the Bay. An important meteorological feature of the months of September and October is the increase of pressure in Northern India. This increase is usually most rapid in North-Western India, and the phenomena appear to suggest that it commences on the North-West frontier and extends southwards and south-eastwards. The trough of low pressure, which is a prominent and important feature of the rains, is hence shifted southwards, but at the same time fills up. Its existence in October is very faintly indicated by the mean pressure data of the land stations. They suggest that its mean position is probably between the Circars Coast and the West Pegu Coast or the Andamans, but its position shifts considerably during the month. Its position, however, varies greatly in different years, and depends upon the character of the pressure changes in the Burmese Peninsula as well as those in North-Western India and the Peninsula. The mean range of pressure over the Bay to the north of Lat. 8° N. is almost certainly less than ·02″ and probably less than ·01″, so that pressure is even more uniform over the Bay than the Indian land area.

The mean pressure of the whole of India in October 1892 was ·016″ below the normal. Relatively to this general condition pressure was locally in defect in the Peninsula and perhaps in Assam, but the anomalies were small in almost all cases and only exceeded ·01″ at the stations for which data are given below:—

STATION.	Variation of mean daily pressure of month from normal from table II.	Variation of the mean 8 A.M. pressure of month from normal from table I.	Pressure anomaly at 8 A.M.
Delhi	...	+.011″	+·027″
Agra	+·001″	+·006″	+·022″
Jhansi	...	+·013″	+.029″
Port Blair	—·038″	...	—·022″
Surat	...	—·044″	—·028″
Goa	...	—·043″	—·027″
Secunderabad	—·025″	—·045″	—·029″

The 8 A.M. pressure data of the two last stations are at present not quite satisfactory and hence it is very doubtful whether the anomalies for these stations are correct. Pressure was very uniform over the whole Indian area and was slightly lower across the centre of the Bay between Port Blair and the coast of the Circars (as represented by the stations of Coconada, Masulipatam and Nellore).

Barometric depressions and cyclonic storms of the month.

The following gives an account of the changes of pressure from day to day during the month and of the three cyclonic storms which formed the chief feature of the meteorology of the month.

At the commencement of the month pressure was rising but was more or less below the normal over the whole of India. The deficiency was greatest in Bengal which was covered by a shallow depression determining moderate humid winds to that area. Monsoon winds had withdrawn from North-Western India where weather was fine and clear. Moderate general rain was on the other hand being received in the area of depression in Bengal. Pressure increased rapidly during the next 48 hours over the whole of India, the rise being greatest in North-Western India, and on the morning of the 3rd the pressure gradients were very slight and the shallow depression had almost filled up. Fine dry weather now obtained except in Lower Burma and Southern India, where the weather was showery. The pressure changes of the next three days were small and of little importance and on the 6th pressure was highest in Central India, where it was about a tenth of an inch higher than over the centre and south of the Bay. North-easterly winds obtained over the north and centre of the Bay and westerly winds continued in the extreme south. The pressure changes of the next three days were moderate in amount and somewhat irregular in character. They tended to establish cold weather anti-cyclonic conditions for a short period in North-Western India. On the morning of the 10th pressure was highest in the North Punjab and lowest in the Bay and the Arabian Sea off the Malabar coast.

Pressure was very uniform over nearly the whole of the Bay but a slight tendency to the formation of a low pressure area to the west and south-west of the Andamans

began now to be shown. The following gives meteorological data of the 10th for this area obtained chiefly from the logs of ships in that part of the Bay at this period:—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Port Blair . .	...	...	29·810	SSE	1	Cloudy (rain 1·10 inches.)
S. *Laomene* . .	8 8	95 15	·833	S	2	Constant rain.
S. *Rydalmere* .	8 28	90 22	...	WNW	2	Squally.
S. *Cape Clear* .	8 50	91 37	·781	NW	1	Cloudy.
S. *Arden Craig* .	9 27	90 12	...	NW by N	2	Fine.

These observations shew clearly a slight tendency to the establishment of a depression, and feeble cyclonic circulation. Winds were very light and weather was fine over the greater part of this area, but was squally with more or less heavy rain to the east and south. The barometric changes of the next 48 hours were everywhere small in amount, and the distribution of pressure presented the same features on the 11th, 12th and 13th as on the 10th. Feeble anti-cyclonic conditions obtained throughout the period in Northern India and a very slight depression lay over the Bay. In this area of nearly uniform low pressure, there was throughout a very slight tendency to the formation of a local depression to the south-west of the Andamans. The following gives data for this area on the 12th:—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Port Blair . .	...	...	29·811	NNE	Very light.	Cloudy.
S. *Wilhelm Tell* .	8 17	90 9	·849	N	2	Fine.
S. *Laomene* . .	8 54	95 6	·834	N	1	Overcast.
S. *Loch Carron* .	9 58	90 33	·842	NE by E	2	Showery.

These observations shew that the tendency to the development of a depression was even more feebly exhibited on this day than on the 10th. Moderate to strong westerly winds continued at the entrance to the Bay. Thus the S. S. *Drumfell* in Lat. 6° 55′ N. and Long. 82° 8′ E. at 8 A.M. had W. S. W. winds force 4, the S. S. *Woolloomooloo* in Lat. 1° 13′ N. and Long. 87° 21′ E. had W. N. W. winds force 6, with very hard squalls of wind and rain. This incipient depression developed considerably during the next 48 hours and gave rise to a cyclonic storm which formed the chief feature of the weather of the next week. The following gives a detailed account of this storm.

Cyclonic storm of the 13th to the 17th October.—The conditions prevailing antecedent to the formation of the storm have been stated in the preceding paragraphs. The pressure distribution differed little from the normal. There was a slight to moderate excess of pressure in Northern and Central India and a very slight deficiency in the south and centre of the Bay. Pressure was slightly higher in the land area than in the Bay, the differences of pressure being sufficient to determine feeble land winds over the greater part of India. Pressure was very uniform in the Bay and was very slightly lower in the neighbourhood of the Andamans. Winds were generally light and unsteady and weather on the whole fine, although occasionally interrupted by squalls. Westerly winds continued steadily at the entrance to the Bay and were of force 4 to 6, and weather was squally and rainy, more especially in the eastern half of the entrance to the Bay. Pressure decreased slightly over the whole of India on the 12th and the distribution of pressure was hence unchanged on the morning of the 13th.

The following gives data of the weather in the south-east of the Bay:—

Name of Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S. *Wilhelm Tell* .	8 59	90 19	29·745	Variable.	2	Showery.
S. *Hutton Hall* .	8 36	90 39	·809	W by S	2	Cloudy.
S.S. *Wing Sang* .	8 59	97 15	·751	E	3	Slight sea.
S. *Laomene* . .	9 53	95 1	·800	E	5	Rain squalls.
S. *Rydalmere* .	9 55	89 30	?	N	1	Fine.
S. *Sierra Blanca* .	9 4	89 36	·759	N	1	Heavy rain.
S. *Cape Clear* .	10 58	90 38	·813	Variable	1	Fine.

The preceding data shew that on the morning of the 13th the weather conditions in this part of the Bay were identical with those which had obtained during the previous three days. Winds were light and weather generally fine but interrupted in some parts by squalls and rain. Further south the S. *Savona* in Lat. 1° 5′ N. and Long. 92° 34′ E. had W. N. W. winds force 7. Hence there were as yet no indications of the concentration of rainfall which usually accompanies the first development of a cyclonic storm. Fine clear weather at this time obtained over the whole of India, except in the Peninsula south of Lat. 12° N., where skies were overcast and light to moderate rain was falling. Trichinopoly had received 2·81 inches, Nellore 1·94 inches and Madras 1·26 inches during the 24 hours preceding 8 A.M.

14th October.—Pressure had given way to a slight extent in the Indian land area, but the pressure distribution and

weather conditions were unchanged. General rain continued to be received in the southern half of the Peninsula and many stations in Central and South Madras reported falls exceeding one inch during the previous 24 hours. The slight depression in the south-east of the Bay had developed considerably during the previous 24 hours and a fairly well marked cyclonic circulation was now established. The following gives data :—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Port Blair . .	...	...	29·707	NNE	Increasing	Thunder and showers.
S. *Hutton Hall* .	8 52	90 2	·749	NNW	2	Steady rain.
S. *Wilhelm Tell* .	9 30	90 41	·609	NbyW	1	Passing rain.
S. *Laomene* . .	11 27	94 29	·746	ESE	4 to 7	Squally with rain.

These were the only vessels in or near the area during the day. The data shew that weather had become very squally with much rain in this area, that the winds were increasing in strength and the barometer had begun to fall rapidly. The barometric reading of the S. *Wilhelm Tell* shews a large fall, which is confirmed by the considerable fall at Port Blair and may hence be accepted as probably correct.

The observations hence establish that during the preceding 24 hours the depression had developed rather rapidly and that a cyclonic circulation of moderate intensity was now established. The centre of the storm was in about Lat. 9¾° N. and Long. 92° E. Weather was squally with heavy rain in the central area and it is probable that the rain over a large part of the area at least was similar in character to that experienced by the S. *Hutton Hall*, *i.e.*, steady heavy rain.

15th October.—Pressure had increased in the Indian land area during the previous 24 hours, but the rise was small and unimportant, except in Upper India where it was large and intensified the anti-cyclonic conditions prevailing there. This change of pressure accompanied an increase in the strength and steadiness of the north-westerly winds in North-Western India and was immediately followed by a considerable reduction of temperature and the passage of a cool wave across the North-West Frontier into North-Western India. Rainfall was becoming less general in the southern half of the Peninsula but some largish amounts were recorded at 8 A.M., *e.g.*, Negapatam 3·15 inches and Madura 2·82 inches. The indraught to the storm area was hence already beginning to be felt in the Madras Presidency.

The depression in the Bay had commenced to move westwards and the position of the centre was about 150 miles to the west of its position at 8 A.M. of the previous day. The following gives a summary of the available data of the storm area extracted from the logs of ships:—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Port Blair . .	...	...	29·732	SSE	2	Cloudy.
S. *Oranasia* . .	5 3	90 58	·789?	NbyW	...	Heavy constant rain.
S. *Wilhelm Tell* .	9 57	91 6	·690	WbyN	2	Fine.
S. *Rydalmere* .	10 47	88 21	?	NNW	4	Thick gloomy weather.
S. *Cape Clear* .	12 31	88 58	·669	NE	9	Cloudy and ugly weather.

The observations when charted indicate that the position of the centre was in about Lat 11° N. and Long. 90° E. They are not sufficient to indicate with certainty the character of the weather changes, but appear to shew that heavy rain was falling over a larger area than hitherto and that the depression and storm was extending outwards and influencing the weather to a much larger distance from the centre. Winds had strengthened considerably at the entrance to the Bay. The S. S. *Lawada* in Lat. 6° N. and Long. 80°39′ E. had W. N.-W. winds force 7 and the S. S. *Dictator* in Lat. 8°6′ N. and Long. 82° 19′ E. had N. W. winds force 7 with squally weather.

16th October.—Pressure had increased slightly in Northern India during the previous 24 hours, but had begun to fall in Southern India, due chiefly to the advance of the cyclonic storm. The fall was greatest at the coast stations between Madras and Coconada. Skies had cleared at the majority of stations in Southern India and little rain had been received in that area during the previous day. The following gives data of the depression in the Bay :—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′				
Port Blair . .	...	...	29·787	SSE	Strong	Cloudy and showery.
S. *Hutton Hall* .	12 20	89 43	·699	SE by S.	4	Squally with rain
S. S. *Nowshera* .	15 16	85 35	·571	E	6	Squalls and heavy rain.
S. S. *Dictator* .	11 40	84 10	?	NW	7	Squally with rain
S. S. *Rohilla* .	14 41	81 51	·723	N	3 to 4	Ditto.

The whole of the available observations for the Bay when charted indicate that the cyclonic circulation of the storm

now extended over the greater part of the Bay. The centre at 8 A.M. was in about Lat. 13½° N. and Long. 86° E. The ships nearest to the centre were at distances exceeding 150 miles. The strongest winds experienced were of force 7. It is, hence, probable that the storm had not increased in intensity at all during the previous 24 hours.

17th October.—Pressure had increased slightly in Northern India and had fallen briskly to rapidly in Southern India. The centre of the depression was in the immediate neighbourhood of the Madras coast on the morning of the 17th. Skies had, hence, clouded over during the previous day in North and Central Madras and the greater part of the Deccan, and general rain had been received. The rainfall of the previous 24 hours was very heavy over the coast districts in front of and to the north of the advancing storm. The following gives the most noteworthy falls :—

District.	Station.	Rainfall of previous 24 hours.
		Inches.
Vizagapatam . . .	Vizagapatam . . .	6·14
Godavari	Coconada . . .	3·14

The following gives data of the storm area extracted from ships' logs and 8 A.M. observations at the nearest land stations :—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Cocanada . .	...	...	29·771	ESE	...	Sea very rough.
Masulipatam .	...	...	·723	ESE	...	
Nellore . .	...	...	·643	SE	...	Showery.
Madras . .	...	...	·716	SW	...	...
S. S. *Thyra* . .	14 55	82 33	·689	S N	4	Cloudy.
S. S. *Chupra* .	15 18	81 21	·677	ESE	6	Cloudy.
S. S. *Raventhle* .	13 55	81 20	·686	SSW	5	Clear.
S. S. *Chanda* .	12 40	80 20	·732	SW	5	Passing clouds.

The observations appear to indicate that the centre crossed the coast near Nellore shortly before 8 A.M., probably between 6 A.M. and 7 A.M. The wind observations at the inland stations of Kurnool and Cuddapah establish that the depression had probably already begun to break up, and there was much irregularity of movement in the storm area. This is further confirmed by the fact that the ships in the depression area off the Coromandel coast had moderate winds, and that the weather was much finer than hitherto. In fact, only one out of 35 vessels in the Bay reported squally weather. The obstructive action of the East Ghâts had almost certainly been the cause of this change. It also explains the heavy rainfall in the Circars and adjacent hill districts.

18th October.—The barometric changes of the previous 24 hours were large and of much significance. The barometer had fallen rapidly at Diamond Island due to a cyclonic storm which passed rapidly across the centre of the Bay during the next three days and which is described below. Pressure had increased briskly to rapidly in Madras and the Deccan during the previous 24 hours and the observations at the stations in these areas show that the storm had either broken up completely or had advanced rapidly westwards. Pressure had increased over the whole of Northern and Western India and a shallow depression lay off the Bombay coast. It is, hence, very probable that, although the lower cyclonic circulation had been broken up by the obstructive action of the East Ghâts, a slight residual disturbance had been transmitted rapidly westwards. The logs of ships show that this depression was very shallow and in the immediate neighbourhood of the coast between Bombay and Karwar. Weather was squally and rainy off that coast and the coast districts as far north as Bombay received thundershowers during the day. This slight depression filled up slowly during the next 48 hours and it was of little importance except that it determined moderate rainfall to the west coast districts for a short period.

The storm under discussion was, hence, of moderate intensity and presented no exceptional features. It appears to have formed under the ordinary conditions of cyclonic generation in the Bay. The following gives a statement of the position of the storm centre and its rate of progress from the 14th to the 17th :—

Date.	Position of centre.		Distance passed over.	Average hourly velocity.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	
14th, 8 A.M. . . .	9 45	92 0	...	...
15th ,, . . .	11 0	90 0	160	7
16th ,, . . .	13 30	86 0	325	14
17th ,, . . .	14 15	80 15	380	16

Cyclonic storm of the 18th to the 21st October.—The first indications of this storm were shown on the 17th. A shallow low pressure area covered the Gulf of Siam, Lower Siam and Tennasserim and the adjacent portion of the Andaman Sea There is at present no available information to establish whether this depression formed in that area or was passing westwards from the Gulf of Siam and the Malayan Peninsula. It appears to be most probable that it formed in that area, and that it was on the 17th in the initial stage and of little importance. The marine data of the Andaman Sea, which show that winds ranged between east and north-east over that area, indicate clearly that there was

no storm on that day in that sea The following gives the whole of the available information of the weather in that area on the 17th :—

Station or Vessel.	Position.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Cocos Island .	...	...	29·847	NE	?	Cloudy.
Port Blair . .	...	...	·799	ESE	Light	Cloudy.
S. S. *Purnea* .	13 12	96 53	·774	E	2	Fine.
S. *Wilhelm Tell* .	13 45	90 45	·849	E	2	Fine.
S. *Laomene* . .	15 34	94 32	·843	NNE	3	Cloudy.
S. *Hutton Hall* .	15 4	90 6	·829	E	4	Fine.
S. S. *Pentakota* .	17 46	92 12	·849	N	2	Fine and clear.

18th October.—The barometric changes during the previous 24 hours indicate that a depression of rapidly increasing intensity lay over the area between the Andamans and Lower Burma coast The barometer had fallen rapidly at Diamond Island and winds had strengthened with unusual quickness and were blowing with the force of a gale at 8 A.M. A series of barometric observations taken by the Lighthouse-keeper at the Cocos Island show that the centre of the storm passed probably a few miles to the south of that station at 11 A.M. of the 18th, about which time the wind changed rapidly from north-east to south-east

The following gives the observations :—

Hour.	Barometer.		Wind direction.
	Actual.	Corrected and reduced to sea-level and constant gravity.	
	Inches.	Inches.	
8	29·742	29·636	...
10	·654	·548	NE
10-30	·500	·394	...
11	·484	·378	...
11-30	·484	·378	...
12	·524	·418	...
14	·634	·529	...
16	·702	·596	SE

These observations indicate that the centre was nearest to Cocos Island between 10-30 A.M and 11 A.M. The barometer was upwards of five-tenths of an inch below the normal of the day at that hour. The position of the storm centre at 11 A.M. was, hence, approximately in Lat. 17¾° N. and Long 93° E.

The weather at Diamond Island at that hour is described by the observer as follows :—"The weather was strong with heavy squalls. The wind direction was slowly becoming more easterly. The squalls commenced at 10-30 A.M. when the wind was east-north-east. The winds were increasing in force, and the average velocity, as shown by the anemometer between 11 A.M. and 2 P.M., was 23 miles per hour. The sea was very rough from 11 A.M. to 2 P.M. of the 19th."

The marine data of the storm at this stage are very scanty The following is a summary of the available information :—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Cocos Island .	...	...	29·550	NE	?	Thunder, lightning overcast and rain.
Port Blair . .	...	...	·726	Calm	...	Rain with thunder.
S. *Rydalmere* .	15 32	90 43	?	NNE	5	Cloudy.
S. *Laomene* . .	15 41	94 26	·710	N E	6	Overcast with rain.
S. S. *Pundua* .	16 36	93 8	·727	NNE	4	Cloudy, moderate sea.
S. *Santiago* . .	16 54	89 19	·784	NE by N.	...	

The marine data of this day, hence, throw hardly any light on the character and position of this storm at this period. A remarkable feature was the prevalence of light northerly winds to the west of the Nicobar Islands and light variable winds and calms at Port Blair on the morning of the 18th. The data, hence, show that the storm was at thi stage of very small extent, almost certainly not more than 150 miles in diameter, and outside of this area the storm was exercising practically no influence on the weather. On the other hand, the Cocos Island observations establish clearly that it was of considerable intensity and that the depression at the centre was at least half an inch. Very steep gradients, hence, obtained near the centre in full accordance with the strong winds experienced at Diamond Island and Cocos Island. It was, hence, at this stage a cyclonic storm of very considerable intensity but of unusually small extent.

19th October.—Pressure had increased over the whole land area during the previous 24 hours. The increase was large at Diamond Island due to the westward advance of the storm into the centre of the Bay. It was also large on the Bombay coast and the shallow depression of the previous 48 hours off that coast was now almost completely filled up. The rise was smallest on the coast of the Circars, thus slightly indicating the direction towards which the storm was advancing. The west coast districts had received light to moderate rain during the previous 24 hours, but in Southern India and the Deccan the rainfall was light. Fine clear weather obtained over

nearly the whole of Northern and Central India. Sea was smooth at 8 A.M. at Gopalpur and Coconada and probably along the whole of the west coast of the Bay, where light northerly or north-westerly winds obtained. Hence the indications of the approaching storm on that coast were as yet exceedingly feeble.

The marine data show that the depression was nearly midway between the Andamans and Diamond Island and the Circars coast, and that the centre was in about Lat. 15½° N. and Long. 87½° E. or 88° E. The marine data for the storm for this day are very scanty. The following table gives a summary of the 8 A.M. information :—

Station or Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
Cocos Island	...	...	29·841	S	?	Overcast, passing showers.
S. S. *Baron Clyde*	11 41	89 49	?	SSE	4	Overcast.
S. S. *Benwell Tower*	14 34	85 44	29·672	NW	6	Sea increasing, drizzling rain with appearence of cyclone.
S. *Wilhelm Tell*	16 20	90 51	·779	SE	...	Fine.
S. *Rydalmere*	16 32	90 25	?	E by S	4	Thick rain and hot.
S. *Hutton Hall*	17 23	88 40	29·699	E by S	9?	Sea rising, squalls of rain.
S. *Cape Clear*	18 19	91 30	·847	ESE	6	Fine.

The S. *Wilhelm Tell* and S.S. *Benwell Tower* were about 150 miles from the centre in opposite quadrants at 8 A.M. The former had fine and the latter threatening weather with drizzling rain. Squalls were experienced by the ships *Hutton Hall* and *Rydalmere* at distances of at least 250 miles from the centre in the eastern quadrant. It is hence clear that the storm area was, as on the 18th, of unusually small extent but that it was influencing the weather to greater distances from the centre than on the 18th. The observations gave no indication of the intensity of the storm. The weather during the day at Bimlipatam on the Circars coast is thus described by the Port Officer:—"The weather was quite fine in the early morning, but skies gradually clouded over and squalls came up from the north-east in the afternoon and evening. The wind was never very strong but the sea rose very rapidly and there was a heavy surf in the afternoon."

20th October—The changes of pressure during the previous 24 hours were small and unimportant in Northern and Western India. Pressure decreased with great rapidity on the coast of the Circars. The storm was crossing the coast at 8 A.M. to the east-north-east of Masulipatam. It had hence travelled during the preceding 24 hours with a velocity of nearly 20 miles per hour. The following gives 8 A.M. observations at coast stations within the storm area :—

Station.	Barometer.			Wind.		Cloud.	Rainfall of previous 24 hours.
	Actual 8 A.M. reduced to sea-level and constant gravity.	Change in previous 24 hours.	Variation from normal.	Direction.	Average hourly velocity in previous 24 hours.		
	″	″	″				Inches.
Nellore	29·703	—·124	?	WNW	5	10	*Nil.*
Masulipatam	·494	—·341	—·382	NW	16	10	6·10
Rajahmundry	·577	—·240	?	NE	?	10	0·44
Cocanada	·595	—·230	?	SE	22	10	0·76
Vizagapatam	·735	—·080	—·149	E	5	10	1·55

Winds were very strong at Masulipatam and Coconada. They were variable in direction and moderate in force at Vizagapatam. The wind and pressure data hence establish that the storm was as hitherto of very small extent although it was of very considerable intensity.

Observations taken by the observer at Cocanada establish that the centre was nearest to that station at 3 A. M. The barometric reading (corrected) at that hour was 29·377″ and the wind was blowing a whole gale from north-north-west. The wind shifted at 3·35 A.M. to north-east and blew with cyclonic force for a short time. At 6-30 A.M. it had decreased to a strong breeze. These observations indicate clearly the small extent of the storm.

The storm centre hence passed a little to the south of Cocanada in about Lat. 16½° N. and Long. 82¼° E. at 3 A. M., and to the north of Masulipatam in about Long. 81° E. at 8 A. M. thus giving a velocity of 18 miles an hour at this stage, corresponding very closely with its mean velocity when crossing the Bay.

The weather was squally and unsettled over a much larger area in the Bay on the 20th than on the previous two days. There was only one ship (the S. S. *Chanda*) near the storm area during the early morning of this day. The strongest winds experienced by vessels in this part of the Bay at 8 A.M. were of force 5. The following gives an extract from an account of the storm as experienced by the Captain of the S. S. *Chanda* :—

"I left Masulipatam at 4 P. M. 19th October, there being then no indication of the approach of bad weather. The glass was high and steady with the sea perfectly smooth and slight north-west airs. The sky was overcast but not heavy though there was a bluish appearance to the east-north-east. Towards 8 P.M. the wind freshened somewhat still keeping steady at north-west with fine rain coming on, sea still perfectly smooth. At 9 P.M. the swell suddenly got up from the eastward and the wind began to get puffy with a sighing sort of noise. By 10-30 P.M. the squalls were getting stronger and the sky looked very threatening to the east-north-east. Judging the centre of a disturbance was to the east-north-east of me, I stood away south to get clear of the land and also as I calculated the storm that was rapidly rising was coming in about west and I was in the south-west quadrant of it, it was advisable to go south to avoid it,

The barometer did not *begin* to fall till 10 P.M., when it fell from 29·70" to 29·65" and continued to fall steadily ·05" per hour till midnight when it fell more rapidly, the wind increasing at the same time. At 1-15 A.M. I hove the ship to head to the west as the wind had slowly shifted from north-west to west-north-west and west by north. By this time it was blowing very hard with continuous blinding rain so that nothing could be seen 100 yards from the ship. At 2·45 A.M. the barometer was down to 29·42" and between then and 3-15 A.M. it rose to 29·48" and then suddenly fell at 3-30 A.M. to 29·25" and continued to fall quickly till 4 A.M. when it was at its lowest 29·20." From 2·45 A.M. the storm was at its height and blew *very* hard though there was not much sea. About 3-30 A.M. the gig was blown from her tackles and lost. After 4 A.M the barometer began steadily to rise and the wind to shift more south, and at 5 A.M. it was west-south-west and was unsteady then between west-south-west and south-west, but it kept most steady at west-south-west, and at 7-30 A.M. the weather had cleared sufficiently to allow me to haul up to the east-north-east and the weather still continued to clear and moderate. At 8-30 A.M. I hauled up north-north-east and proceeded towards Cocanada. Barometer up to 29·67."

When first I had any indication of approaching bad weather my position was Lat. 16° 22' N. and Long 82° 5' E. between Sacraments Shoal and Nusurpur Point and after running south and being set further south by the wind and sea some 60 miles. I estimated (from sights obtained next morning) my position during the height of the cyclone when the barometer was lowest at Lat. 15° 30' N. Long. 82° E. This is when I think the centre passed on to the northward. On arriving at Cocanada I ascertained from the Port Office that they had the cyclone at the same time as I did, it being at its height at 3 A.M. but the wind was from north-north-west and veering to north-east, east and south-east showing that the storm passed south of that port. This would give the diameter of the storm as close on 100 miles, if not more."

21st October.—The barometric changes of the previous 24 hours were due to a general decrease of pressure in the Indian area, and to the westward advance of the storm into the Deccan and its rapid filling up.

The disturbance had entirely changed its character and was now a very shallow depression covering the Deccan and Circars. The centre of the residual depression was near Hyderabad (Deccan). The following gives 8 A.M. meteorological data of stations nearest the centre:—

Station.	Barometer.			Wind		Cloud, 8 A.M.	Rainfall of previous 24 hours.
	Actual 8 A.M. reduced to sea-level and constant gravity.	Change in previous 24 hours.	Variation from normal.	Direction.	Average hourly velocity in previous 24 hours.		
	"	"	"				Inches
Hyderabad (Deccan)	29·704	—·077	—·209	ESE	11	10	2·80
Sholapur	·746	—·073	—·147	NW	7	10	1·62
Bijapur	?	—·092	?	NW	7	10	0·46
Bellary	·749	—·059	—·134	NW	9	10	0·38
Kurnool	·713	—·062	?	Calm	?	10	2·32

The circulation in the area of depression was feeble, and winds had fallen off considerably in the Bay. Skies were clouded in the Deccan, the North Madras coast districts, Burma and North-Eastern India. Rain had falle generally during the previous 24 hours in the Peninsula and in the coast districts of Orissa, Bengal and Burma. A very slight residual depression lay between Hyderabad (Deccan), Bijapur and Sholapur on the 22nd, and rain fell in the same districts as on the preceding day, but the amounts were generally smaller except in the West Deccan Konkan and Malabar where heavy thundershowers were received. The barometer increased briskly to rapidly in the Indian land area during the next 24 hours and the shallow depression was transferred westwards over the West Ghâts to the Konkan and neighbouring part of the Arabian Sea. It determined heavy thundershowers and rain to the coast districts and to some parts of the Poona and neighbouring districts of the West Deccan on the 23rd and 24th, after which the depression filled up and the rainfall decreased in amount and retreated southwards in the Bombay coast districts. Some portion of the Poona district had exceptionally heavy rain on the evening of the 23rd, which flooded the rivers and caused much destruction to crops and property. The greatest damage appears to have been experienced by villages on the banks of the Kurra river. The floods also breached portions of the Southern Mahratta railway in the Poona and Satara districst, and traffic was suspended for a short time.

The weather conditions were unsettled on the 24th and for some time afterwards. Pressure increased generally on the 23rd but a rapid fall followed on the 24th and showery weather continued in the Peninsula, Bengal and Burma. A shallow depression formed in the Bay on the 25th which formed an important feature of the meteorology of the last week of the month.

Depression of the 25th to the 31st October.—In consequence of the pressure changes of the previous 24 hours, a very shallow depression or trough of low pressure covered the southern half of the Bay between the Andamans and Nicobars and the Coromandel Coast on the morning of the 25th. There was a very slight tendency to the establishment of cyclonic motion about a centre in Lat. 11° N. and Long. 86°E. The weather was fine with light to moderate but somewhat irregular winds in the Bay area. Only three vessels out of 36 reported occasional squalls. No change of importance occurred during the next 24 hours. Weather continued showery in the Peninsula, North-Eastern India and Burma. The shallow depression in the Bay covered the same area as on the 25th. Winds were stronger in the south of the Bay and westerly winds of force 6 and 7 were experienced by three vessels. The S. S. *Lalpoora* in Lat. 9° 33' N. and Long 83° 13' E. had constant rain throughout the day andthe S.S. *Gwalior* in Lat. 5° 57' N. and Long. 87° 5' E. frequent sharp squalls. Weather was hence becoming more unsettled in this area.

27th October.—Pressure had increased over the whole Indian land area during the previous 24 hours, and the rainfall had decreased very considerably in amount and was now almost confined to the west coast districts of the Bay. Pressure had decreased slightly in the Bay area and the depression was more marked than hitherto. The following gives 8 A.M. data of four vessels nearest to it on this day:—

Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
S. S. *Colaba*	8°55′	85°15′	29·715	WSW	5 to 6	Moderate head sea; frequent rain.
S. S. *Maple Branch*	9°55′	89° 9′	?	WSW	6	Heavy head sea; squally with rain.
S. S. *Lalpoora*	11°17′	84°26′	·733	NW by W	4	Overcast, continuous heavy squalls.
S. *Rahane*	14°18′	89°34′	?	ESE	?	Strong squalls and heavy rain.

The preceding data establish that the disturbance was increasing in extent and intensity and that weather was squally with heavy rain over a considerable part of the area of depression.

28th October.—Pressure had fallen during the previous day in the Coromandel coast districts and increased in the remainder of India. Hence strongly marked anti-cyclonic conditions obtained in Northern India. The depression in the Bay was slowly advancing to the Coromandel coast. Skies were heavily clouded in that area and very heavy rain had commenced to fall in the west districts between Nellore and Coconada. The information of this day for the centre of the Bay is very limited. The S S. *Lalpoora* in Lat. 14° 7′ N. and Long. 83° 26′ E. had easterly winds, force 4, with occasional rain squalls, and the S.S. *City of Canterbury* in Lat. 10° 42′ N. and Long. 83° 47′ E. had west-north-west winds of force 4 and clear weather. The centre of the depression was probably in Lat. 13° N. and Long. 84° E., and advancing in a west by north track. The marine data appear to indicate that the storm was intensifying and that it was a shallow depression of considerable extent.

29th October.—Pressure had increased briskly in Upper India and decreased in the Peninsula. The depression was now approaching the coast, but the data are too limited to enable the position of the centre to be fixed with certainty. The cyclonic circulation was by no means well developed, and the only important feature of the storm at this stage was the excessive rain it was giving to the Nellore, Godavary, Kistna and Vizagapatam districts. Many stations in these districts reported rainfalls of seven to nine inches for the previous 24 hours. Rain had ceased in Burma and Bengal and was now almost restricted to the Peninsula south of Lat. 17° N. The following gives data taken from the logs of ships nearest to the centre:—

Vessel.	Position at 8 A.M.		Barometer reduced to sea-level and constant gravity.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
S. S. *Ellora*	9°28′	83° 8′	29·769	WNW	4	Fine and clear.
S. S. *City of Canterbury*	14°55′	85°28′	·712	SE	4	Rain at times.
S. S. *Fazilka*	15°47′	85°38′	·706	SE	4 to 5	Heavy sea; rain at times.
S. S. *Fultala*	16° 0′	85°19′	·731	S by E	5	Cloudy.

30th October.—The barometric changes of the previous 24 hours were large and abnormal. Pressure decreased very rapidly in North-Western India. The depression which was approaching the Coromandel coast on the morning of the 29th had apparently advanced rapidly during the day and crossed the coast near Nellore. It had filled up rapidly and on the morning of the 30th it was in the Central Deccan but was very slight and of little importance.

The following gives data of this residual depression:—

Station.	Barometer.			Wind		Cloud 8 A.M.	Rainfall of previous 24 hours.
	Actual 8 A.M. reduced to sea-level and constant gravity.	Change in previous 24 hours.	Variation from normal.	Direction.	Average hourly velocity in previous 24 hours.		
							Inches.
Hyderabad (Deccan)	29·695	—·063	—·185	SSE	9	10	3·84
Sholapur	·749	—·050	—·133	NE	6	10	1·72
Bijapur	?	—·042	?	NNW	5	10	0·85
Bellary	·779	+·027	—·088	SSW	7	10	0·50
Kurnool	·736	+·001	?	Calm	?	10	1·10

Skies were clouded over the greater part of the Peninsula and North-Eastern India and more or less general rain had been received in these areas. The rainfall was heavy in the Circars, Carnatic and Deccan and light to moderate in Orissa and South Bengal.

Winds had shifted back to north-west at the west coast stations of the Bay north of Nellore. This was apparently due to a tendency to the formation of another shallow depression in the centre of the Bay. Weather was squally with moderate to fresh westerly winds in the south of the Bay. Pressure continued to give way during the day in Northern India and increased slightly in the Peninsula. Very shallow and probably residual depressions covered the Deccan and the Arabian Sea off the Kathiawar coast. Winds were lighter in the Bay and skies were much less

heavily clouded than on the 30th. Light showers had been received in the centre and north of the Peninsula and moderate rain in South and Central Bengal. The disturbance passed away completely during the next 24 hours.

The third storm of the month was, hence, chiefly remarkable for its considerable extent and want of concentration throughout. It gave the heaviest burst of rain that occurred during the month. The rainfall was exceptionally heavy in the coast districts of Kistna, Godavery and Vizagapatam in front of the advancing storm. When it was breaking up on the 31st Bengal received a moderate burst of rain, the heaviest of the month in that area and of great value for the rice crops.

Summary of Special Storm Reports.

Cyclonic storms are of occasional occurrence in October, and are sometimes of exceptional severity. Three cyclonic storms were generated in the Bay of Bengal during the month under discussion but these were only remarkable for the heavy rainfall which accompanied them. Thunderstorms are of frequent occurrence during the month, more especially in those areas which receive their final burst of south-west monsoon rain at this time. As a rule, little or no thunder occurs in the areas of frequent and steady rain during the south-west monsoon, but the rains frequently commence and terminate with series of thunderstorms in different parts of India, which are sometimes of exceptional violence.

Thunderstorms appear to have been much less frequent than usual in October 1892.

The only severe thunderstorms reported during the month were the following :—

19th.—Violent thunderstorm at Mangalore which lasted from 8 P.M. to 11 P.M.

21st.—Thunderstorm with heavy rain at Poona (4·30 P.M.)

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

Bay of Bengal.—The weather in this area during the month has been fully stated in connection with the cyclonic storms of the month. At the commencement of the month, moderate west to south-west winds obtained over the whole Bay area. On the 4th uniform pressure was established in the Bay and winds began to shift round to north in the north of the Bay. Northerly to north-easterly winds obtained over the north and centre of the Bay on the 6th, but were light and ranged in force between 0 and 2 over a large part of the area. Westerly winds, force 2 to 4, continued in the south of the Bay. No change of importance occurred until the 12th, when a cyclonic storm began to form to the south-west of the Andamans. It intensified slightly during the next two days and then advanced in a west-north-west direction across the Bay and gave squally weather and strong winds to the southern half of the Bay until the 17th. Fine clear weather with light winds continued during the whole of this period in the north of the Bay. This was followed by a second storm of smallish extent but considerable intensity, which probably gave hurricane winds over a small central inner area. After it crossed the coast on the 20th, winds fell off rapidly in strength and on the 23rd light to moderate variable winds, force 1 to 4, prevailed over the whole of the Bay. A third depression and storm began to form on the 26th. It was more extensive than the previous one and gave squally weather and much rain over the southern half of the Bay. Cyclonic winds, of force 6 to 7, were reported on the 28th and 29th in the storm area by several vessels. The advance of this storm across the Circars coast was followed by a brief advance of southerly winds to the head of the Bay on the 30th and 31st which gave showery weather near the head of the Bay.

Arabian Sea.—Light to moderate westerly winds obtained at the beginning of the month over the centre and south of the Arabian Sea. A rapid change occurred on the 2nd and 3rd and northerly winds were established to the north of Lat. 8° N. They were generally light and very unsteady. Fine clear weather obtained over the whole of the north and centre of that sea area. No change of importance occurred until the 11th, when calms and light variable winds set in off the Malabar coast. Northerly winds continued to the north of Lat. 10° N. A shallow depression formed off the Malabar coast on the 15th whilst a storm was advancing across the Bay.

Westerly winds obtained in Lat. 8° N. and southerly winds on the Malabar coast. Northerly winds obtained over the remainder of the sea area to the north of Lat. 10° N with fine clear weather.

This depression intensified slightly and absorbed the residual depression due to the first cyclonic storm of the month. Southerly winds advanced northwards up the west coast and weather was showery and squally on the 19th and 20th in this part of the sea area. The depression filled up on the 21st, but the advance of the second cyclonic storm caused an extension of humid winds up the coast on the 22nd and 23rd. Winds were very variable with much rain

between Calicut and Ratnagiri on the 22nd. The humid winds withdrew southwards on the 25th, and northerly winds advanced again over the south-east of the Arabian Sea and obtained on the 27th to the north of Lat. 8° N. The last depression of the month was followed on the 29th and 30th by a short period of light variable winds and rain squalls and thunderstorms off the west coast south of Ratnagiri. Fine weather continued in the north and centre of the Arabian Sea. Winds ranged in force from 1 to 5 and averaged 2·8 on the 31st, on which day the sea was smooth and weather was fine over the whole sea area.

Temperature of the Air.

The distribution of temperature in India for October 1892 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 data by means of which these charts have been prepared are given in Table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.*, 1878 to 1888. 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.

The mean temperature conditions differed on the whole little from the normal. The variations from the normal were small and were chiefly determined by the distribution of rainfall in the previous month and during the month itself.

The mean maximum temperature of the month was in defect over the whole of India except Sind, Bihar, Chota Nagpur and South Madras. The variations were small except locally in three areas in which the mean day temperature of the month was more than 2° in defect. The following gives data for these areas :—

Province.	Station.	Mean maximum temperature.		
		Actual, October 1892.	Normal, October.	Variation from normal.
		°	°	°
South-East Punjab and South-Western Districts of the North-Western Provinces.	Ludhiana	90·3	92·5	—2·2
	Sirsa	94·0	96·2	—2·2
	Agra	90·9	93·4	—2·5
South-West Rajputana and Kathiawar.	Ajmere	88·6	91·5	—2·9
	Deesa	93·0	95·9	—2·9
	Rajkot	92·4	95·3	—2·9
South Deccan	Sholapur	87·1	89·2	—2·1
	Hyderabad	83·7	86·5	—2·8
	Bellary	87·5	89·6	—2·1
	Masulipatam	85·5	89·4	—3·9

The first two areas were areas of very heavy rainfall in August and September and the third area received heavy rain in September and also during October. The only station at which the mean day temperature was more than 2° above the normal was Coimbatore where it was 2·2° in excess.

The mean minimum temperature of the month was in excess over the whole of the Peninsula except South Madras, and was generally in defect in Northern India. The variations were small for stations in the Peninsula except the North Deccan for which data are given below :—

Station.	Mean minimum temperature.		
	Actual, October 1892.	Normal, October.	Variation from normal.
	°	°	°
Jubbulpore	66·2	64·1	+2·1
Nagpur	70·5	68·4	+2·1
Amraoti	70·1	67·4	+2·7
Akola	68·6	66·1	+2·5
Malegaon	68·4	65·5	+2·9
Poona	68·8	66·7	+2·1

The mean minimum temperature of the month was more than 2° in defect at Rawalpindi (—2·8°), Ludhiana (—2·6°), Bareilly (—2·8°), Agra (—2·6°), Sambhar (—2·3°), and

Gopalpur (—2·8°). The instruments at Rawalpindi and perhaps Ludhiana are at present doubtful and hence the variations at these stations given in the table are almost certainly wrong.

The mean temperature of the month was in slight excess in Bihar, Chota Nagpur, West Bengal, the Central Provinces, Berar and a portion of South Madras and in defect over the remainder of India. The variations were small and of little importance except in the areas defined by the following stations, where the mean temperature of the month was upwards of 2° below the normal:—

Station.	Mean Temperature.		
	Actual, October 1892.	Normal, October.	Variation from normal.
	°	°	°
Mount Abu	68·9	71·9	—3·0
Ajmere	75·3	77·4	—2·1
Sambhar	76·4	78·5	—2·1
Agra	78·3	80·9	—2·6
Delhi	78·0	80·2	—2·2
Ludhiana	75·8	78·2	—2·4
Rawalpindi	70·3	72·5	—2·2
Bareilly	75·4	77·5	—2·1
Masulipatam	80·4	82·6	—2·2

The mean temperature of the month was also in slight defect at the hill stations of Northern India. The mean temperature conditions hence approximated closely to the normal over nearly the whole of India.

At the commencement of the month temperature was more or less in defect over the whole of India. The deficiency was generally moderate in amount and was greatest in Upper India. The following gives the variations in different parts of India on the 1st:—

Division.	Variation of		
	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°
Burma	—2·9	—1·0	—2·0
Bengal and Assam	—2·1	—1·8	—2·0
North-Western Provinces and Oudh	—1·6	—2·6	—2·1
Punjab	—3·1	—2·0	—2·6
Bombay	—1·2	—2·4	—1·8
Berar and Central Provinces	—0·6	—2·4	—1·5
Guzerat and Central India	—2·4	—3·1	—2·8
Sind and Rajputana	—2·7	—1·2	—2·0
Madras	—2·4	—0·9	—1·7

No important change occurred until the 5th when temperature began to increase rather rapidly, and on the 9th it was above the normal except in Bengal, Burma, the Deccan and Southern India, areas in which light to moderate rain was falling.

The following gives temperature variation data for that day (the 9th):—

Division.	Variation of		
	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°
Burma	+0·9	—1·7	—0·4
Bengal and Assam	—0·9	—3·0	—2·0
North-Western Provinces and Oudh	+0·5	+0·1	+0·3
Punjab	—0·1	+2·5	+1·2
Bombay	+1·9	—1·9	0
Berar and Central Provinces	+0·9	—0·6	+0·2
Guzerat and Central India	—0·1	—0·8	—0·5
Sind and Rajputana	—0·5	+2·0	+0·8
Madras	+0·4	—4·3	—2·0

Similar conditions obtained during the next four or five days. Fine clear weather prevailed over nearly the whole of India except the southern half of the Peninsula in which light to moderate showers were received. The following gives temperature variation data for the 24 hours' period preceding 8 A.M. of the 14th:—

Division.	Variation of		
	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	
Burma	+1·0	—3·2	—1·1
Bengal and Assam	+2·0	—1·8	+0·1
North-Western Provinces and Oudh	+1·9	—0·5	+0·7
Punjab	+0·6	—0·2	+0·2
Bombay	+1·2	+0·9	+1·1
Berar and Central Provinces	+2·3	+0·2	+1·3
Guzerat and Central India	+1·0	+0·2	+0·6
Sind and Rajputana	+2·4	+0·8	+1·6
Madras	—3·2	—0·7	—2·0

The changes of the next four days were due to two causes, the first being the advance of a cool wave over North-Western India, apparently accompanying and following slightly disturbed weather on the hills and the second being the advance of a depression and cyclonic storm from the Bay across the Peninsula. The effect due to these actions was most strongly exhibited on the 19th for which day temperature variation data are given in the following table:—

Division.	Variation of		
	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°
Burma	+0·2	+0·2	+0·2
Bengal and Assam	+1·5	—0·2	+0·7
North-Western Provinces and Oudh	—0·9	—0·9	—0·9
Punjab	—2·6	—4·6	—3·6
Bombay	—2·8	+1·9	—0·5
Berar and Central Provinces	—0·5	+4·3	+1·9
Guzerat and Central India	—5·4	+4·9	—0·3
Sind and Rajputana	—1·0	—1·8	—1·4
Madras	—0·8	+0·4	—0·2

The second storm of the month which advanced from the Bay across the peninsula at the end of the third week gave a period of heavy rainfall to the Peninsula and Burma. The changes of temperature during that period were rather rapid in these areas and depend almost solely upon the intensity and distribution of the rainfall. Temperature continued much below the normal of the season in North-Western India during the whole of the period. The deficiency was greatest on the 24th at Agra (—5·1°), on the 25th at Neemuch (—5·5°) and on the 26th at Rajkot (—5·7°). The following gives variation data for the 26th on which day there were the first indications of the appearance of a warm wave shown at the frontier stations :—

Division.	Variation of		
	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°
Burma	−0·8	−0·2	−0·5
Bengal and Assam	−3·4	+2·9	−0·3
North-Western Provinces and Oudh	−1·1	−1·3	−1·2
Punjab	−0·4	−1·6	−1·0
Bombay	−3·8	+1·8	−1·0
Berar and Central Provinces	−7·9	+4·2	−1·9
Guzerat and Central India	−4·5	−3·3	−3·9
Sind and Rajputana	−0·1	−3·4	−1·8
Madras	+1·1	+1·2	+1·2

A rapid increase of temperature occurred over Northern and Central India on the 27th and 28th whilst continued rainfall in the Deccan due to the third cyclonic storm of the month reduced temperature considerably below the normal in that area. The following gives temperature variation data for the last day of the month and shows the disappearance of the cool wave in North-Western India :—

Division.	Variation of		
	Maximum from normal.	Minimum from normal.	Mean from normal.
	°	°	°
Burma	−1·2	0	−0·6
Bengal and Assam	+0·8	+4·4	+2·6
North-Western Provinces and Oudh	−0·7	+1·8	+0·6
Punjab	−0·3	−0·5	−0·4
Bombay	−3·3	+4·0	+0·4
Berar and Central Provinces	−1·5	+7·7	+3·1
Guzerat and Central India	−1·2	+6·6	+2·7
Sind and Rajputana	−0·6	−1·0	−0·8
Madras	−0·3	+0·3	0

Winds.

The mean 8 A.M. wind directions of the month at all stations recording observations at that hour are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to every wind. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P. M. are given in the small chart (No. 4 of Plate III) by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

Winds in Burma and at Port Blair were stronger and steadier than usual, indicating the continuance of stronger south-west monsoon winds than usual in the south and centre of the Bay. The chief feature was the abnormal strength of the easterly element in the south-east winds of the month. The following gives data in illustration for three stations :—

Station.	Mean wind direction.		Mean wind velocity.	
	Average actual, October 1892.	Normal, October.	Average daily air movement, October 1892.	Normal daily air movement, October.
			Miles.	Miles.
Port Blair	S 28° E	S 5° W	177	152
Diamond Island	S 74° E	S 59° E	243	159
Akyab	S 86° E	S 35° E	59	58

Winds were very light, irregular and unsteady in Bengal and showed no general variation in the air movement from the normal. In the North-Western Provinces the mean wind direction was north-west to west and winds were generally stronger and steadier than usual.

Winds were somewhat lighter than usual on the West coast and in the Peninsula. They were remarkably unsteady in some parts of the Deccan, more especially at the two stations for which data are given below :—

Station.	Direction.		Steadiness.	
	Average direction, October 1892.	Normal direction, October.	Average percentage, October 1892.	Normal percentage, October.
Belgaum	N 81° E	N 88° E	6	72
Sholapur	N 51° E	N 50° E	10	30

Notwithstanding the great unsteadiness of the winds at these stations, the mean wind directions of the month were almost identical with the normal.

Winds were much steadier than usual at the hill stations in Northern India, but showed no important variations in other respects.

The air motion over India during the month of October 1892 washence generally feebler and even more unsteadv than usual. The mean wind directions varied irregularly from

the normal over the greater part of the land area. The only marked and important feature was the increased strength and the abnormal easting of the winds in the east of the Bay and Burma due chiefly to the influence of the three cyclonic storms of the month; a larger number than usually occur in the Bay in October.

Humidity and Cloud.

The hygrometric data of the month employed in the following paragraphs are given in Table II. In that table are columns giving the monthly means of the wet-bulb readings at 10 and 16 hours and the minimum and vapour tension and of the humidity at the same hours, and also the daily means of these elements. 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 5 to 20 years of the available cloud data for the same hours.

The air contained slightly less vapour and was somewhat drier than usual in Burma, Bengal, Bihar, Chota Nagpur and the eastern districts of the North-Western Provinces. The deficiency was small except in West Bengal, Bihar and the eastern districts of the North-Western Provinces, as represented by stations for which data are given in the following table:—

Station.	Mean humidity.			Mean aqueous vapour pressure.		
	Actual, October 1892.	Normal, October	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
	%	%		"	"	"
Calcutta	76	84	− 8	·782	·842	—·060
Patna	63	70	—.7	·655	·700	—·045
Darbhanga	70	76	— 6	·725	·765	—·040
Allahabad	54	68	—14	·548	·630	—·082

The variations were small and of little importance in the Punjab and Sind.

The air was considerably damper in West Rajputana, the Central Provinces, Berar, the Deccan and Madras (except in the more southern districts). The increased humidity was very marked at the Deccan stations, more especially at the following:—

Station.	Mean humidity.			Mean aqueous vapour pressure.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
	%	%		"	"	"
Sholapur	71	61	+10	·656	·575	+·081
Poona	71	59	+12	·632	·553	+·079
Secunderabad	76	66	+10	·666	·598	+·068
Akola	70	61	+ 9	·674	·574	+·100
Bellary	73	64	+ 9	·685	·629	+·056

The air was also damper at the hill stations with the exception of Leh and Murree, but the variations were generally small and of little significance.

The variations in the average amount of cloud differed very considerably in their distribution from those of the humidity of the air. There was much less cloud than usual at the hill stations in Northern India. The following gives data for three stations:—

Station.	Mean cloud amount.		
	Actual, October 1892.	Normal, October.	Variation from normal.
Leh	2·8	3·8	—1·0
Kailang	1·7	3·4	—1·7
Murree	0·6	2·1	—1·5

The average amount of cloud was less than 1 at Quetta, Murree, Simla, Chakrata and Ranikhet and was least at Simla (0·3). The amount of cloud was greater than, in all the plain districts except the Punjab, Sind and the western districts of the North-Western Provinces, and skies were practically free from cloud over the greater part of that area. The following gives data for stations at which skies

were actually or practically free from cloud during the month.

Station.	Mean cloud Amount.		
	Actual, October 1892.	Normal October.	Variation from normal.
Mooltan	0	0·3	−0·3
Lahore	0·1	0·7	−0·6
Ludhiana	0·1	0·9	−0·8
Meerut	0·2	0·7	−0·5

The increased cloud was most largely shown in East Bengal, Orissa, the Deccan and the West India coast districts. It was most marked at the stations for which data are given below:—

Station.	Mean Cloud Amount.		
	Actual, October 1892.	Normal, ctober.	Variation from normal.
Akola	6·5	3·0	+3·5
Raipur	6·5	3·5	+3·0
Secunderabad	6·7	4·3	+2·4
Sironcha	5·8	3·7	+2·1

The area defined by these stations includes Berar, Hyderabad and the south-eastern districts of the Central Provinces.

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 October 1892, 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. 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 160 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. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart, illustrating the distribution of the rainfall of the month, is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the rainfall information telegraphed by District Officers, of which a summary is given in the following table, and the actual figures utilized are those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall: a number given in a corner of each district in small slanting figures serves as an index, by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

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 1892 occurred chiefly in connection with the three cyclonic storms of the month, and hence during the following periods:—

1st.—From the 12th to the 17th.—When the Peninsula and West Coast districts received general rain. The rain was very heavy in the North Coromandel and Arakan coast districts.

2nd.—From the 19th to the 26th.—The Deccan and West Coast districts received very heavy rain during this period.

3rd.—From the 28th to the end of the month.—During this period the Madras coast districts from Nellore northwards received an excessively heavy burst of rain. Malabar, Cuddapah, Bellary, Anantpur and Kurnool also obtained general and favourable rain during this period.

The chief features of the rainfall of the month were the following:—

(i). No rain fell over nearly the whole of the Punjab, Sind, Rajputana, Central India and the North-Western Provinces.

(ii).—The rainfall of the month was very scanty over the whole of Bihar and the greater part of Bengal. The deficiency was greatest in North Bengal

and Bihar, in some portions of which no rain was received during the month.

(iii).—The rainfall of the month was in general excess over the whole of the Peninsula to the south of Lat. 20° N. except South Madras and Mysore. It was especially heavy in the Circars where several stations received totals exceeding 30 inches, and in the Bombay coast districts and the West Deccan districts (more especially Poona).

(iv).—The total rainfall of the month was generally in moderate defect in Burma except in the greater part of Upper Burma and Arakan. There was a very large excess in Arakan where the rainfall generally exceeds 20 inches.

The following table gives a summary of the rainfall data of the month for the 52 meteorological divisions of India. In the cases of Bengal, Assam, North-Western Provinces, the Punjab, Bombay, the Native States of Rajputana, Central India and Madras the data are obtained from the published provincial rainfall statements. The data for Burma, Mysore and the Central Provinces are deduced from the weekly rainfall reports submitted by the District Officers of those provinces :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Actual.	Normal.	Actual.	Normal.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	5·48	8·58	— 3·10
	Lower Burma*	?	?	7·12	7·64	— 0·52
	Central do.*	?	?	4·56	5·96	— 1·40
	Upper do.*	?	?	6·20	?	?
	Arakan*	?	?	11·22	7·75	+ 3·47
Bengal and Assam	Eastern Bengal	7·1	6·1	6·87	5·48	+ 1·39
	Assam (Surma)	9·5	6·2	10·95	5·86	+ 5·09
	Do. (Brahmaputra)	3·9	5·6	2·33	3·89	— 1·56
	Deltaic Bengal	5·5	5·5	4·29	4·61	— 0·32
	Central do.	3·6	4·6	2·09	3·88	— 1·79
	North do.	2·6	4·5	1·67	4·88	— 3·21
	Orissa	8·8	6·8	5·62	6·16	— 0·54
	Chota Nagpur	4·4	4·2	2·70	2·97	— 0·27
	Bihar (South)	1·2	3·0	0·56	3·13	— 2·57
	Do. (North)	0·4	2·9	0·20	3·52	— 3·32
North-Western Provinces and Oudh.	North-Western Provinces (East)	0·3	2·0	0·15	2·23	— 2·08
	Oudh (South)	0·1	1·6	0·02	1·60	— 1·58
	Do. (North)	0·1	1·5	0·05	1·61	— 1·56
	North-Western Provinces (Central)	0·1	1·1	0·05	1·09	— 1·04
	Do. do. (West)	0	0·8	0·01	0·60	— 0·59
	Do. do. (Submontane)	0	1·1	0·01	1·33	— 1·32
Punjab	Punjab (South)	0	0·4	0·01	0·15	— 0·14
	Do. (Central)	0·1	0·5	0·03	0·34	— 0·31
	Do. (Submontane)	0	0·6	0	0·38	— 0·38
	Do. (Hill Districts)	0	1·3	0·01	0·96	— 0·95
	Do. (North-West)	0·6	0·9	0·20	0·44	— 0·24
	Do. (West)	0·1	0·3	0·02	0·10	— 0·08
Bombay and Malabar Coast Districts (Madras).	Malabar	14·8	12·0	12·81	10·04	+ 2·77
	Madras (South Central)	7·1	8·2	4·50	5·92	— 1·42
	Coorg	13·8	?	8·19	?	?
	Mysore*	?	?	3·58	5·79	— 2·21
	Konkan	9·0	7·6	8·82	5·52	+ 3·30
	Bombay Deccan	10·8	7·5	8·93	5·02	+ 3·91
	Hyderabad (North)	...	...	...	...	...
	Khandeish	4·5	5·6	2·92	3·61	— 0·69
Central Provinces and Berar.	Berar*	?	?	5·67	3·04	+ 2·63
	Central Provinces (West)*	?	?	3·16	2·29	+ 0·87
	Do. (Central)*	?	?	2·09	2·02	+ 0·07
	Do. (East)*	?	?	2·23	2·14	+ 0·09
Bombay (North)	Guzerat	1·0	2·3	0·72	1·36	— 0·64
	Kathiawar	1·1	0·8	0·79	0·69	+ 0·10
	Sind	0	?	0	0·03	— 0·03
Rajputana and Central India.	Central India (East)	0·4	?	0·14	2·18	— 2·04
	Rajputana (East), Central India (West)	0·1	?	0·10	0·50	— 0·40
	Rajputana (West)	0·3	?	0·19	0·08	+ 0·11
Madras	East Coast (North)	11·6	7·6	15·55	7·11	+ 8·44
	Do. (do.) (a)	10·0	6·7	10·13	4·76	+ 5·37
	Hyderabad (South)*	?	?	7·84	2·54	+ 5·30
	Madras (Central)	9·4	6·6	7·33	5·55	+ 1·78
	East Coast (Central)	11·4	8·4	11·74	9·76	+ 1·98
	Do. (South)	6·0	7·7	4·76	8·36	— 3·60
	Madras (South)	6·3	8·0	4·42	6·02	— 1·60

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

The weather was showery during the greater part of the month in Burma. The chief breaks were from the 12th to the 18th and from the 25th to the end of the month. The central and northern districts of Upper Burma had a heavy burst of rain from the 21st to the 30th. The following were the most noteworthy falls :—

District.	Station.	Date.	Fall in inches.
Mandalay	Mandalay	25th	4·17
	Ditto	26th	4·06
Ruby Mines	Mogok	24th	7·50
Shwebo	Tantabin	23rd	9·84
Katha	Katha	22nd	4·36
Shwebo	Letkopin	23rd	4·24

The following summary of the rainfall data of the month is based on the complete return published in the provincial gazette and hence differs to some extent from the figures in the table, page 373 :—

Meteorological Province.	Number of rainy days.		Rainfall.		
	Actual, October 1892.	Normal, October.	Actual, October 1892.	Normal, October.	Variation from normal.
			Inches.	Inches.	
Tenasserim	9·0	?	4·91	8·58	—3·67
Lower Burma	10·7	?	5·63	7·64	—2·01
Central Burma	7·0	?	4·54	5·96	—1·42
Upper Burma	8·1	?	7·71	?	?
Arakan	9·9	?	12·98	7·75	+5·23

The preceding table shews that the rainfall of the month was very favourable in Upper Burma. It was also in excess in Arakan but in defect to a moderate extent in the remaining divisions.

Orissa and Bengal had moderate rain on the 1st and 2nd of the month. This was followed by a long period of dry weather until the 20th and 21st. Weather was showery during the remainder of the month. The 25th, 26th and 31st were days of fairly general rain in Orissa, South and East Bengal, South Bihar and Chota Nagpur. This burst of rainfall did not extend to North Bengal and North Bihar, which districts were either rainless or had a few light local showers.

Orissa and East Bengal received average total amounts of about 6 inches and South-West Bengal and Chota Nagpur average of 4 inches. In North Bengal and South Bihar the average was only 1 inch and in North Bihar less than a quarter of an inch. The rainfall of the month was in slight excess in Orissa, East Bengal and Chota Nagpur, but was deficient in other districts, the deficiency increasing rapidly northwards and eastwards to the districts of Champaran, Saran and Darbhanga, which received practically no rain.

The following gives a comparative statement of the rainfall data of the month published in the Provincial Gazette :—

Meteorological division.	Number of rainy days.			Rainfall.		
	Actual, October 1892.	Variation from normal.	Percentage variation.	Actual, October 1892.	Variation from normal.	Percentage variation.
				Inches.	Inches.	
East Bengal	7·1	+1·0	+17	6·87	+1·39	+26
Deltaic Bengal	5·5	0	0	4·29	—0·32	—7
Central Bengal	3·6	—1·0	—22	2·09	—1·79	—49
North Bengal	2·6	—1·9	—42	1·67	—3·21	—65
Orissa	8·8	+2·0	+29	5·62	—0·54	—9
Chota Nagpur	4·4	+0·2	+5	2·70	—0·27	—9
Bihar (South)	1·2	—1·8	—60	0·56	—2·57	—81
Bihar (North)	0·4	—2·5	—86	0·20	—3·32	—94

The preceding data shew that the total rainfall was in moderate excess in East Bengal and normal (*i.e.*, the variation was less than 10 per cent.) in Deltaic Bengal, Orissa and Chota Nagpur. It was largely in defect in the remaining divisions, the deficiency being actually and relatively to the normal, greatest in North Bihar and to a slightly less extent in North Bengal and South Bihar. Over a portion of that area including the greater part of the Purnea, Bhagalpur, Darbhanga, Champaran and Saran districts, no rain fell throughout the month. North Bihar obtained an average of only 6 per cent. of its normal amount, South Bihar 19 per cent. and North Bengal 35 per cent.

The rainfall of the month in Assam occurred during two well-defined periods, *viz.*, from the 1st to the 3rd and from the 21st to the 27th. The rainfall of the second period was heavy in Cachar, moderate in the eastern districts of the Assam valley and very light in Goalpara, Kamrup, Darrang and Nowgong. The following gives a comparative statement of the rainfall of each of the plain districts in Assam :—

District.	Number of rainy days.			Rainfall.		
	Actual October 1892.	Normal October.	Variation from normal.	Actual October 1892.	Normal October.	Variation from normal.
				Inches.	Inches.	Inches.
Sylhet	8·5	6·3	+2·2	10·04	6.80	+3·24
Cachar	10·8	6·0	+4·8	12·06	4·76	+7·30
Goalpara	1·8	4·0	—2·2	1·04	4·15	—3·11
Kamrup	2·5	4·1	—1·6	1·07	3·71	—2·64
Darrang	4·1	3·9	+0·2	1·72	2·37	—0·65
Nowgong	2·5	4·8	—2·3	1·30	3·26	—1·96
Sibsagar	4·1	6·9	—2·8	3·56	4·30	—0·74
Lakhimpur	6·7	7·5	—0·8	4·41	4·84	—0·43

The preceding data shew that the rainfall of the month was below the normal in the Brahmaputra valley districts.

The deficiency increased eastwards from Sibsagar and Lakhimpur where it was less than 20 per cent. to Kamrup and Goalpara which obtained barely 27 per cent. of the normal fall. The rainfall of the month was on the other hand largely in excess in Sylhet and Cachar, more especially in the latter district, which received an average of 12·06 inches or 7·30 inches in excess of the normal.

The North-Western Provinces obtained practically no rain during the month. The normal rainfall varies from nearly half-an-inch in the western districts to 2 inches in the eastern, and the deficiency was hence larger and more serious than in the Punjab. A few light local showers of no agricultural value were received in the central districts on the 8th and 9th. The following gives a comparative statement of the rainfall data of the month published in the Gazette :—

Meteorological division.	Average number of rainy days.			Rainfall.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
				Inches	Inches.	Inches.
North-Western Provinces (East).	0·3	2·0	−1·7	0·15	2·23	−2·08
Oudh (South) .	0·1	1·6	−1·5	0·02	1·60	−1·58
Do. (North) .	0·1	1·5	−1·4	0·05	1·61	−1·56
North-Western Provinces (Central).	0·1	1·1	−1·0	0·05	1·09	−1·04
North-Western Provinces . West . .	0	0·8	−0·8	0·01	0·60	−0·59
North-Western Provinces . (Submontane).	0	1·1	−1·1	0·01	1·33	−1·32

The rainfall of the month was actually or practically *nil* over by far the greater part of the Punjab. The districts, of Jhelum, Rawalpindi, Peshawar and Hazara received light local showers on the 1st and 11th, 12th and 15th, but the total amounts were small and of little importance in these areas. The month was hence even drier than usual, the deficiency in the rainfall being greatest in the hill districts. The following gives comparative data .—

Division.	Average number of rainy days.			Rainfall.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
				Inches.	Inches.	Inches.
Punjab (South)	0	0·4	−0·4	0·01	0·15	−0·14
Do. (Central)	0·1	0·5	−0·4	0·03	0·34	−0·31
Do. (Submontane).	0	0·6	−0·6	0	0·38	−0·38
Do. (Hill Districts).	0	1·3	−1·3	0·01	0·96	−0·95
Do. (North-West).	0·6	0·9	−0·3	0·20	0·44	−0·24
Do. (West) .	0·1	0·3	−0·2	0·02	0·10	−0·08

Kashmir was also practically rainless throughout the month. Some local showers were received in British Baluchistan chiefly on the 10th and 11th. Quetta received 1 inch on the 9th and 1·2 inches on the 12th.

Weather was showery in the Bombay coast districts and Deccan from the 1st to the 6th and again from the 13th to the 17th. The amounts were generally small. Khandesh Guzerat and Kattiawar were without rain during the whole period from the 1st to the 17th. There were two well-defined periods of very general and moderate to heavy rainfall during the remainder of the month. The first was from the 18th to the 25th. The rainfall was moderate in amount on the 18th, 19th and 20th, but increased and became more general on the 21st and heavy rain was received in the Deccan districts (more especially Poona Sholapur and Satara) and in the Konkan. The heaviest rainfalls registered during the period were the following:—

District.	Station.	Date.	Amount of rainfall in inches.
Poona . . .	Jejuri . . .	24th	5·17
	Poona . . .	24th	4·00

The rainfall was so far as can be judged from the returns not exceptionally heavy but was very steady and continuous from the 21st to the 25th. Nasik and Khandesh received occasional showers during the period and Guzerat, Cutch and Kattiawar moderate storms on the 20th.

The second period of more general rain was from the 29th to the 31st. The Konkan had moderate rain during this period and the Deccan districts, more especially the southern districts of Bijapur, Belgaum and Dharwar, steady heavy rain. The following large falls were received in that area :—

District.	Station.	Date.	Amount of rainfall in inches.
Belgaum . .	Belgaum . .	30th	5·74
Bijapur . . .	Muddebihal . .	30th	4·06

This burst of rainfall extended north as far as Guzerat but was light in Surat, Khandesh and Guzerat.

The following gives a comparative statement of the

rainfall of the month based on the complete Provincial return :—

Meteorological Province.	Number of rainy days.			Rainfall.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
				Inches.	Inches.	Inches.
Konkan . . .	9·0	7·6	+1·4	8·82	5·52	+3·30
Carnatic . .	10·4	8·2	+2·2	8·69	5·53	+3·16
South Deccan . .	11·1	6·4	+4·7	9·26	4·39	+4·87
North Deccan or Khandesh . .	4·5	5·6	−1·1	2·92	3·61	−0·69
Guzerat . . .	1·0	2·3	−1·3	0·72	1·36	−0·64
Guzerat, Kathiawar and Cutch States .	1·1	0·8	+0·3	0·79	0·69	+0·10
Sind . . .	0	?	?	0	0·03	−0·03

The rainfall of the month was hence in slight defect in Guzerat and the North Deccan (*i.e.*, Khandesh and Nasik), but was largely in excess in the Konkan, the Carnatic and South Deccan. The excess was greatest in the South Deccan districts which received on the average more than double the normal rainfall of the month.

The Central Provinces received practically no rain during the first three weeks of the month which was an unusually dry period. The dispersion of the second and third cyclonic storms of the month was followed by general and very favourable rain. Hence all districts received frequent showers from the 24th to the end of the month. The rainfall was heaviest in the eastern and southern districts and was light in the northern districts of Saugor, Damoh and Jubbulpore. The following gives a summary of the rainfall data as published in the Provincial Gazette :—

Division.	Number of rainy days.			Rainfall.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
				Inches.	Inches.	Inches
Central Provinces (East) . . .	3·9	2·6	+1·3	3·31	2·02	+1·29
Central Provinces (Central) . .	4·1	2·4	+1·7	2·27	1·79	+0·48
Central Provinces (West) . .	5·8	2·6	+3·2	3·16	2·08	+1·08

The rainfall of the month was hence in moderate excess throughout the province. The only districts in which it was below the normal were the following for which data are given :—

District.	Number of rainy days.			Rainfall.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
				Inches.	Inches.	Inches.
Saugor . .	0·8	2·1	−1·3	0·17	1·56	−1·39
Damoh .	1·3	2·0	−0·7	0·25	1·91	−1·65
Jubbulpore .	2·7	2·1	+0·6	1·20	1·65	−0·46

The eastern and central districts of Rajputana and the whole of Central India were almost without exception rainless throughout the month. The south-western districts of Rajputana obtained some light showers on the 19th and 20th, and the rainfall of the month, which averaged nearly two tenths of an inch, was in slight excess. It was in slight defect in East Rajputana and considerably in defect in the eastern states of Central India, which had an average of 14 inch only or less than 7 per cent. of the normal fall (2·18 inches). The following gives comparative data :—

Division.	Average number of rainy days			Rainfall.		
	Actual, October 1892.	Normal, October.	Variation from normal.	Actual, October 1892.	Normal, October.	Variation from normal.
				Inches.	Inches.	Inches.
Central India (East) . .	0·4	?	?	0·14	2·18	−2·04
Rajputana (East) Central India (West) . .	0·1	?	?	0·10	0·50	−0·40
(Rajputana (West).	0·3	?	?	0·19	0·08	+0·11

The rainfall of the month was very abnormally distributed in the Madras Presidency. The following gives a brief statement of the chief periods of precipitation during the month.:—

1st.—From the 1st to the 7th. This rainfall was restricted to the southern districts of Tanjore, Trichinopoly, Madura, Tinevelly, Coimbatore, Salem, South Canara, Malabar and the hill districts of Madras. Coimbatore, Malabar and the Nilgiris received fairly general rain and the remaining districts light showers.

2nd.—From the 11th to the 18th. The whole Presidency received general rain during this week, but it was heaviest in the northern coast and Deccan districts. The rainfall was very heavy on the 17th and 18th in the Ganjam, Vizagapatam, Godaveri, Kistna and Nellore districts.

3rd.—From the 20th to the 22nd. This like the preceding burst was due to a cyclonic storm and was heaviest and most general in the northern coast districts and the Deccan districts.

4th.—From the 26th to the end of the month. During this period the coast districts from Nellore northwards received an excessively heavy burst of rain. Malabar Cuddapah, Bellary, Anantpur and Kurnool also obtained, general and favourable rain during this period. The southern districts received some light showers of little import-

ance. The following large amounts were registered on the 29th, the day of heaviest and most general rainfall :—

District.	Station.	Rainfall in inches.
Vizagapatam	Anakapalle	7·50
"	Chipurupalle	7·00
"	Chodavaram	7·30
"	Narsapatnam	7·10
"	Pottunghi	7·00
"	Yellamanchili	7·50
Godavari	Bhimavaram	7·15
"	Narsapur	9·40
"	Pithapuram	8·72
"	Ramachandrapuram	7·73
"	Tuni	8·00
Nellore	Udayagiri	7·30

Hence over a considerable part of these three districts the rainfall of the 29th exceeded seven inches in amount.

In consequence of the peculiar distribution of the rainfall of the month, it was excessive in the northern coast districts and the Deccan districts. The following give comparative data for these districts :—

District.	Number of rainy days.			Rainfall.		
	Actual average October 1892.	Variation from normal.	Percentage variation.	Actual average, October 1892.	Variation from normal.	Percentage variation.
Ganjam	10·3	+2·8	+37	12·56	+ 4·74	+ 61
Vizagapatam	10·2	+2·8	+38	13·85	+ 7·52	+119
Godavari	13·5	+5·7	+73	20·02	+12·31	+160
Kistna	12·6	+5·1	+68	14·93	+ 8·72	+140
Nellore	11·4	+3·0	+36	11·74	+ 1·99	+ 20
Cuddapah	10·6	+3·1	+41	8·30	+ 1·77	+ 27
Bellary	8·7	+2·4	+37	5·86	+ 1·10	+ 23
Kurnool	10·2	+4·2	+70	10·56	+ 5·30	+101

The rainfall was especially excessive in the Godavari and Kistna districts.

On the other hand the rainfall was very deficient in the central coast districts, which usually receive moderately heavy rain in October. The following gives data for these districts:—

District.	Number of rainy days.			Rainfall.		
	Actual average October 1892.	Variation from normal.	Percentage variation.	Actual average, October 1892.	Variation from normal.	Percentage variation.
Chingleput	7·2	—2·1	—23	4·52	—5·37	—54
North Arcot	6·3	—2·1	—32	5·25	—2·14	—29
South Arcot	3·5	—5·9	—61	2·72	—6·08	—69
Tanjore	6·0	—4·1	—41	4·47	—4·45	—50

The deficiency was greatest in the South Arcot district which received an average of barely 30 per cent. of its normal amount. In the remaining districts the local rainfall of the month did not differ to any large amount except in Tinnevelly and Salem, where it was considerably below the average.

The following gives data for the southern and central districts :—

District.	Number of rainy days.			Rainfall.		
	Actual average, October 1892.	Variation from normal.	Percentage variation.	Actual average October 1892.	Variatio from normal.	Percentage variation.
Trichinopoly	8·8	—0·5	— 5	7·56	+0·65	+ 9
Madura	6·9	—1·5	—18	5·80	—0·54	— 9
Tinnevelly	5·1	—2·4	—32	2·70	—2·92	—52
Salem	6·7	—1·9	—22	4·21	—2·05	—33
Coimbatore	7·5	—0·3	— 4	4·83	—0·67	—12
Nilgiris	14·6	+2·5	+21	9·84	+0·60	+ 6
Malabar	14·8	+2·7	+22	14·47	+4·99	+53
South Canara	14·6	+4·0	+38	14·19	+3·35	+31

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 175 stations in India during the month of October 1892.

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 96 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 Anuual 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 obesrvations 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.

Table

Abstract of Observations taken at 8 A.M. at 175

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.
—Burma Coast and Bay Islands.		...	...	—·013	...	...	...	...	...	...	...	87·3	−0·2	73·8	−0·6	80·6	−0·4	13·5	...	...	...	...	20·6
Bay Islands	Port Blair	61	29·813	?	29·805	29·919	2nd	29·715	14th	·204	80·2	85·8	?	77·0	?	81·4	?	8·8	88·8	7th	75·1	31st	13·7
	Camorta	...	29·880	?	...	29·999	2nd	29·760	14th	·239	78·8	81·2	?	75·2	?	79·7	?	9·0	87·9	1st & 2nd	72·4	13th&14th	15·5
Tenasserim	Mergui	96	29·809	?	29·837	29·903	20th	29·675	17th	·228	79·0	86·6	?	?	?	?	?	?	90·6	16th	?	...	?
	Tavoy	26	29·894	?	29·851	29·999	2nd	29·823	18th	·176	78·9	88·2	?	72·5	?	80·4	?	15·7	91·2	3 days	65·7	13th	25·5
	Moulmein	94	29·830	—·024	29·861	29·931	2nd	29·746	18th	·185	79·4	89·1	+1·0	74·6	+0·3	81·9	+0·7	14·5	92·5	11th	71·3	30th	21·2
	Tounghoo	181	29·735	—·007	29·86[illegible]	29·801	2nd	29·667	18th	·134	78·0	89·6	−0·2	73·5	−1·1	81·6	−0·7	16·1	92·7	2 days	67·2	13th	25·5
Lower Burma	Rangoon	41	29·876	—·017	29·854	29·964	2nd	29·780	18th	·184	78·8	87·0	−0·4	75·2	−0·6	81·1	−0·5	11·8	89·7	2 days	72·9	2 days	16·8
	Bassein	27	29·898	—·005	29·861	29·967	2nd	29·797	18th	·170	78·8	87·9	+1·0	74·3	−0·8	81·1	+0·1	13·6	90·7	12th	72·4	14th	18·3
	Diamond Island.	41	29·869	—·015	29·845	29·952	2nd	29·729	18th	·223	80·8	85·2	−1·3	77·0	+0·5	81·1	−0·4	8·2	89·1	18th	72·9	9th	16·2
Arrakan	Akyab	20	29·890	—·010	29·853	29·938	20th	29·770	1st	·168	79·0	86·7	−1·4	75·1	−1·6	80·9	−1·6	11·6	91·7	13th	72·2	7th	19·5
II.—Burma, Inland		...	...	+·001	...	...	...	...	...	...	...	89·0	+0·2	69·0	−1·6	79·1	—0·7	20·0	...	...	...	...	32·3
Central Burma	Thayetmyo	134	29·783	+·001	29·860	29·840	20th & 29th.	29·73[illegible]	22nd	·107	79·4	90·4	+0·2	72·7	−1·6	81·6	—0·7	17·7	95·2	12th	66·9	14th & 17th.	28·3
Upper Burma	Mandalay	?	29·657	?	?	29·729	28th	29·569	1st	·160	80·2	93·9	?	70·5	?	82·2	?	23·4	100·5	20th	62·2	16th	38·3
	Kendat*	?	29·523	?	?	29·614	28th	29·34[illegible]	1st	·268	78·5	85·1	?	64·8	?	75·0	?	20·3	89·8	3rd	59·0	5th & 7th	30·8
	Bhamo	?	29·527	?	?	29·606	28th	29·390	1st	·216	74·8	86·7	?	68·0	?	77·4	?	18·7	93·1	15th	61·3	17th	31·8
III.—Assam		...	...	—·021	...	...	...	...	...	...	...	85·7	−0·8	71·7	−0·5	78·7	−0·6	14·0	...	...	...	...	21·6
Assam (Surma)	Silchar	104	29·805	—·010	29·862	29·887	28th	29·[illegible]26	1st	·261	76·3	87·4	−1·5	71·4	−1·1	79·4	—1·3	16·0	94·0	20th	68·8	6th	25·2
Brahmaputra	Sibsagar	333	29·585	—·036	29·879	29·678	28th	29·433	1st	·245	73·2	84·8	−0·5	71·5	+0·6	78·2	+0·1	13·3	88·1	10th & 13th.	67·9	30th	20·2
	Dhubri	115	29·797	—·017	29·868	29·906	28th	29·559	1st	·307	75·0	84·8	−0·3	72·1	−1·1	78·4	—0·7	12·7	88·2	12th & 15th.	68·8	2 days	19·4
IV.—Bengal and Orissa		...	...	—·008	...	...	...	...	...	...	...	86·9	—0·1	73·4	+0·2	80·2	0	13·6	...	...	...	...	21·0
East Bengal	Chittagong	87	29·823	—·009	29·858	29·897	28th	29·645	1st	·252	77·5	85·5	−1·0	73·2	−0·5	79·4	—0·8	12·3	90·2	18th & 19th.	69·1	7th	21·1
	Lungleh	?	?	?	?	?	...	?	...	?	66·6	68·5	?	63·3	?	66·0	?	5·2	75·9	8th to 10th.	60·4	5rd, 6th, 7th &23rd&28th.	15·5
	Noakhali	43	29·857	?	29·847	29·921	6th	29·659	1st	·262	79·3	85·6	?	73·8	?	79·7	?	11·8	89·5	12th	70·3	7th	19·2
	Comilla	35	29·877	?	29·860	29·949	6th	29·684	1st	·265	78·3	86·7	?	73·2	?	80·0	?	13·5	90·4	10th, 12th & 20th.	68·8	6th	21·6
	Sirajganj	46	29·850	?	29·846	29·937	28th	29·645	1st	·292	78·3	86·8	?	72·8	?	79·8	?	14·0	91·1	11th	70·2	14th	20·9
	Dacca	22	29·874	—·014	29·844	29·961	28th	29·661	1st	·300	79·8	88·0	−0·1	74·7	—0·6	81·4	—0·4	13·3	92·1	12th	69·7	31st	22·4
	Barisal	13	29·887	+·002	29·845	29·964	28th	29·664	1st	·300	80·5	87·8	?	74·2	?	81·0	?	13·6	91·3	4th	70·9	30th	20·4
	Mymensingh	63	29·842	—·004	29·857	29·926	28th	29·645	1st	·281	77·9	86·2	?	73·0	?	79·6	?	13·2	90·2	11th	70·6	29th	19·6
Delta Bengal	Faridpur	46	29·872	?	29·866	29·967	28th	29·655	1st	·312	79·3	86·1	?	74·4	?	80·3	?	11·7	90·0	3rd & 4th	68·4	31st	21·6
	Jessore	33	29·864	—·017	29·843	29·942	28th	29·662	1st	·280	79·4	87·8	−1·0	74·5	—0·4	81·2	—0·7	13·3	91·2	4 days	70·0	31st	21·2
	Calcutta	21	29·877	—·012	29·844	29·954	28th	29·691	1st	·263	79·8	87·5	+0·8	74·4	—0·1	80·9	+0·4	13·1	90·1	4 days	71·7	31st	18·4
	Saugor Island	25	29·873	—·008	29·842	29·947	28th	29·696	1st	·251	80·1	86·6	−0·3	76·6	+0·6	81·6	+0·2	10·0	90·2	13th	73·5	5th	16·7
	Krishnagar	47	29·852	?	29·848	29·938	28th	29·653	1st	·285	80·0	89·0	?	72·9	?	81·0	?	16·1	91·8	4 days	69·7	14th	22·1
	Midnapore	149	29·758	?	29·854	29·828	28th	29·578	1st	·250	79·8	90·0	?	74·0	?	82·0	?	16·0	94·3	4th	70·2	9th	24·1
Central Bengal	Bankura	298	29·577	?	29·829	29·651	28th	29·396	1st	·255	78·9	89·3	?	73·5	?	81·4	?	15·8	92·1	3 days	69·6	31st	22·5
	Raniganj	345	29·567	?	29·865	29·649	28th	29·385	1st	·264	77·1	88·6	?	73·2	?	80·9	?	15·4	92·0	16th	68·[illegible]	19th	23·1
	Burdwan	99	29·814	—·001	29·861	29·893	28th	29·609	1st	·284	79·3	89·1	+0·4	75·7	+1·0	82·4	+0·7	13·4	92·1	2 days	70·4	27th	21·

I.

Stations in India, Burma, etc., in October 1892.

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 1892.	Normal rainfall for period 1st October to 31st October 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·35	9·53	−1·18	...	...	...	**I.—Burma Coast and Bay Islands.**	
6	3	1	3	6	5	3	2	2	7	6	+ 17	90	·932	8·2	21	?	?	11·10	12·17	− 1·07	11·10	12·17	− 1·07	Port Blair .	BAY ISLANDS.
21	1	1	...	1	2	3	...	...	3	?	?	91	·901	9·9	20	?	?	13·94	?	?	13·94	?	?	Camorta.	
...	6	7	4	7	1	...	...	6	2	1	+100	85	·838	5·5	10	?	?	6·78	13·54	− 6·76	6·78	13·54	− 6·76	Mergui .	TENASSERIM.
25	...	3	...	1	1	...	1	...	1	?	?	87	·955	2·7	8	?	?	2·86	10·51	− 7·65	2·86	10·51	− 7·65	Tavoy.	
...	2	6	9	10	...	...	1	3	3	2	+ 50	84	·838	2·1	7	11·55	−4·55	4·47	8·28	− 3·81	4·47	8·28	− 3·81	Moulmein.	
6	7	2	2	9	2	...	...	3	2	2	0	89	·866	6·0	10	10·55	−0·55	7·27	7·01	+ 0·26	7·27	7·01	+ 0·26	Tounghoo.	
...	1	8	8	4	4	1	2	3	4	3	+ 33	90	·889	4·9	6	9·09	−3·09	5·12	7·09	− 1·97	5·12	7·09	− 1·97	Rangoon .	LOWER BURMA.
2	1	8	6	4	5	1	...	4	4	3	+ 33	98	·899	4·5	12	12·18	−0·18	6·16	8·21	− 2·05	6·16	8·21	− 2·05	Bassein.	
...	3	12	5	5	1	1	1	2	11	7	+ 57	83	·868	6·2	9	11·60	−2·60	7·55	8·92	− 1·37	7·55	8·92	− 1·37	Diamond Island.	
...	6	16	3	2	4	...	...	...	3	2	+ 50	89	·882	5·2	11	8·64	+2·36	23·88	10·03	+13·85	23·88	10·03	+13·85	Akyab .	ARRAKAN.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·60	4·44	+3·16	...	...	...	**II.—Burma, Inland.**	
...	1	5	...	5	14	2	...	4	5	3	+ 67	85	·846	4·5	6	7·91	−1·91	2·24	4·47	− 2·23	2·24	4·47	− 2·23	Thayetmyo .	CENTRAL BURMA.
...	11	...	2	6	6	5	1	...	5	?	?	77	·789	5·8	7	?	?	11·61	2·85	+ 8·76	11·61	2·85	+ 8·76	Mandalay .	UPPER BURMA.
15	4	3	1	...	1	1	3	2	?	?	?	84	·821	3·2	8	?	?	5·92	5·99	− 0·07	5·92	5·99	− 0·07	Kendat.	
...	...	4	...	1	...	5	...	21	?	?	?	86	·740	4·8	12	?	?	10·63	4·45	+ 6·18	10·63	4·45	+ 6·18	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·68	4·49	+2·19	...	...	...	**III.—Assam.**	
30	...	...	1	...	...	...	...	...	1	2	− 50	88	·795	5·6	12	6·30	+5·70	14·69	4·87	+ 9·82	14·69	4·87	+ 9·82	Silchar .	ASSAM (SURMA).
...	...	16	1	5	2	6	1	...	2	2	0	95	·777	7·2	5	7·45	−2·45	5·01	5·17	− 0·16	5·01	5·17	− 0·16	Sibsagar .	BRAHMAPUTRA.
3	...	17	4	...	2	4	...	1	4	3	+ 33	87	·750	2·7	2	3·50	−1·50	0·35	3·43	− 3·08	0·35	3·43	− 3·08	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·88	5·04	−0·27	...	...	...	**IV.—Bengal and Orissa.**	
5	1	13	2	5	2	1	...	2	2		− 33	90	·853	7·0	10	6·64	+3·36	12·34	5·03	+ 7·31	12·34	5·03	+ 7·31	Chittagong .	EAST BENGAL.
?	?	?	?	?	?	?	?	?	?	?	?	92	·605	?	13	?	?	12·76	?	?	12·76	?	?	Lungleh.	
...	13	3	7	2	3	1	2	...	?4	?	?	88	?	2·3	12	6·95	+5·05	11·18	6·86	+ 4·32	11·18	6·86	+ 4·32	Noakhali.	
4	5	8	4	4	4	2	...	...	?	?	?	87	?	3·6	8	5·72	+2·28	8·27	4·23	+ 4·04	8·27	4·23	+ 4·04	Comilla.	
...	9	8	5	...	5	4	...	...	0	?	?	87	?	3·4	2	5·05	−3·05	0·73	4·38	− 3·65	0·73	4·38	− 3·65	Sirajganj.	
3	7	6	3	2	4	2	1	3	3	2	+ 50	83	·844	4·3	7	5·27	+1·73	5·20	4·71	+ 0·49	5·20	4·71	+0·49	Dacca.	
25	2	4	...	...	...	...	...	...	2	?	?	84	·882	5·4	8	5·90	+2·10	6·74	4·98	+ 1·76	6·74	4·98	+ 1·76	Barisal.	
2	4	8	10	4	1	1	...	1	3	?	?	89	·848	3·9	6	5·50	+ 0·50	2·00	5·69	− 3·69	2·00	5·69	− 3·69	Mymensingh.	
17	8	...	1	...	3	2	...	...	2	?	?	85	?	3·4	4	5·30	−1·30	5·36	4·30	+ 1·06	5·36	4·30	+ 1·06	Faridpur .	DELTAIC BENGAL.
12	3	4	3	2	...	3	1	3	2	2	0	88	·880	4·6	7	5·73	+1·27	6·63	3·75	+ 2·88	6·63	3·75	+ 2·88	Jessore.	
8	4	5	5	...	...	3	4	2	2	3	− 33	83	·839	3·9	6	5·45	+0·55	3·35	3·79	− 0·44	3·35	3·79	− 0·44	Calcutta.	
...	6	9	3	1	...	3	7	2	8	7	+ 14	88	·900	6·1	7	7·82	−0·82	7·28	7·96	− 0·68	7·28	7·96	− 0·68	Saugor Island.	
1	4	6	5	2	2	3	5	3	3	?	?	78	?	4·3	5	5·30	−0·30	3·52	4·19	− 0·67	3·52	4·19	− 0·67	Krishnagar.	
2	14	6	2	...	1	2	2	2	8	?	?	79	?	2·6	6	5·25	+0·75	2·52	4·78	− 2·26	2·52	4·78	− 2·26	Midnapore.	
20	4	1	...	...	1	...	5	...	1	?	?	77	?	3·6	5	5·50	−0·50	4·29	4·15	+ 0·14	4·29	4·15	+ 0·14	Bankura .	CENTRAL BENGAL.
10	4	4	1	1	...	2	2	7	1	?	?	86	?	1·7	6	4·00	+2·00	3·28	3·41	− 0·13	3·28	3·41	− 0·13	Raniganj.	
7	8	4	5	2	2	...	3	...	1	2	− 50	77	·775	3·7	5	4·64	+0·36	3·92	3·31	+ 0·61	3·92	3·31	+ 0·61	Burdwan.	

Table

Abstract of Observations taken at 8 A.M. at 175 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.
Central Bengal —*cont.*	Naya Dumka	489	29·398	?	29·850	29·489	28th	29·206	1st	·283	77·2	87·5	?	71·2	?	79·4	?	16·3	90·6	12th & 16th.	66·4	19th	24·2
	Berhampore	67	29·836	−·016	29·852	29·928	28th	29·635	1st	·293	78·0	87·6	−0·2	75·0	+0·5	81·3	+0·2	12·6	90·6	3rd	71·8	31st	18·8
	Rampur Bauleah.	70	29·824	?	29·844	29·908	28th	29·625	1st	·283	80·0	87·1	?	73·1	?	80·1	?	14·0	90·3	3rd & 4th	69·7	9th	20·6
	Malda	80	29·829	?	29·862	29·937	28th	29·621	1st	·316	78·8	88·5	?	71·9*	?	80·2*	?	16·6	92·3	17th	68·5	20th	23·8
	Bogra	61	29·824*	?	29·838*	29·911	28th	29·629	1st	·282	*78·0	†86·4	?	71·9†	?	79·2†	?	14·5	89·3	6 days	69·2	2 days	20·1
North Bengal	Dinajpur	118	29·778	+·002	29·850	29·866	28th	29·575	1st	·291	77·2	87·4	?	71·3	?	79·4	?	16·1	90·1	3 days	67·3	29th	22·8
	Rangpur	123	29·793	?	29·872	29·901	28th	29·587	1st	·314	77·4	87·1	?	71·4	?	79·3	?	15·7	90·3	11th	67·7	29th	22·6
	Jalpaiguri	284	29·625	−·011	29·867	29·741	28th	29·432	1st	·309	75·2	86·3	?	68·8	?	77·6	?	17·5	88·9	2 days	65·6	29th	23·3
Orissa	Balasore	56	29·844	−·007	29·847	29·905	28th	29·670	1st	·235	78·8	89·1	?	74·0	?	81·6	?	15·1	92·4	3 days	70·9	6th	21·5
	False Point	21	29·879	−·009	29·842	29·960	6th	29·728	1st	·232	80·7	88·3	+0·9	75·6*	+0·8	81·9*	+0·9	12·7	92·5	2 days	72·[illegible]	7th	20·4
	Cuttack	80	29·819	−·003	29·843	29·901	6th	29·672	1st	·229	79·9	89·2	−0·8	75·0	+0·5	82·1	−0·2	14·2	92·9	3rd	71·8	2 days	21·1
	Short's Island	?	29·879	?	?	29·949	6th	29·710	1st	·239	*83·1	87·2	?	79·3	?	83·3	?	7·9	90·8	7th	74·6	31st	16·2
	Puri	9	29·874	?	29·823	29·968	6th	29·735	1st	·233	‡80·9	88·9	?	76·8	?	82·9‡	?	12·1	93·2	3rd & 8th	70·6	7th	22·6
V.—Gangetic Plain and Chota Nagpur.		...	...	−·014	...	...	...	...	...	...	...	89·3	+1·0	68·9	−0·6	79·1	+0·2	20·4	...	...	...	...	28·9
Chota Nagpur	Hazaribagh	2,007	27·893	−·008	29·858	27·967	11th	27·733	1st	·234	74·4	83·7	+0·6	67·1	+0·2	75·5	+0·4	16·6	87·2	3 days	64·3	20th	22·9
	Ranchi	2,128	27·768	?	29·847	27·833	12th	27·613	1st	·220	74·1	82·4	?	66·2	?	74·3	?	16·2	85·5	13th	62·4	4th	23·1
	Chyebassa	760	29·112	−·018	29·825	29·185	6th	28·940	1st	·245	77·7	88·3	?	71·5	?	80·0	?	16·8	90·4	6 days	66·8	10th	23·6
Bihar (South)	Gaya	375	29·518†	−·015	29·850†	29·589	11th	29·339	1st	·250	*78·6	†90·4	+1·0	71·7*	+0·8	81·1†	+0·5	18·7	93·4	2 days	68·8	20th	24·6
	Dehri	351	29·549	?	29·858	29·626	28th	29·378	1st	·248	77·6	90·1	?	69·9	?	80·0	?	20·2	93·8	15th	65·0	25th	28·8
	Patna	183	29·720	−·017	29·857	29·824	28th	29·512	1st	·312	79·8	88·9	+0·5	72·4	−0·2	80·7	+0·2	16·5	92·2	16th	69·2	20th	23·0
	Arrah	190	29·708	?	29·852	29·803	28th	29·520	1st	·283	78·2	90·8	?	70·3	?	80·6	?	20·5	93·9	14th	65·5	17th	28·4
	Buxar	239	29·664	?	29·861	29·767	28th	29·483	1st	·284	78·3	89·9	?	71·5	?	80·7	?	18·4	93·4	15th	66·8	28th	26·6
Bihar (North)	Purnea	125	29·783?	−·004?	29·864?	29·919	28th	29·567	1st	·352	73·8	87·3	−0·5	69·9	−1·4	78·6	−1·0	17·4	90·2	11th	67·2	2 days	23·0
	Bhagalpur	160	29·735	?	29·849	29·840	28th	29·530	1st	·310	79·3	89·5	?	71·2	?	80·4	?	18·3	92·7	14th & 16th.	68·0	16th	24·7
	Darbhanga	166	29·740	−·016	29·862	29·846	28th	29·545	1st	·301	78·1	88·9	+2·7	72·3	−1·4	80·6	+0·7	16·6	91·5	2 days	70·0	4 days	21·5
	Muzaffarpur§	178	29·728	?	29·861	29·833	28th	29·525	1st	·308	77·3	88·3	?	70·9	?	79·6	?	17·4	90·7	14th	66·3	24th	24·4
	Motihari	224	29·666	?	29·851	29·777	28th	29·467	1st	·310	75·5	89·8	?	67·4	?	78·6	?	22·4	92·2	1st	60·8	28th & 29th.	31·4
	Chapra	181	29·714	?	29·851	29·805	28th	29·520	1st	·285	78·3	89·8	?	71·2	?	80·5	?	18·6	92·3	14th to 17th.	66·6	28th	25·7
N.-W. P. (Eastern Districts).	Benares	267	29·635	−·006	29·863	29·725	28th	29·462	1st	·263	76·0	90·4	+0·1	68·0	−0·7	79·2	−0·[illegible]	22·4	94·3	15th	61·8	28th	32·5
	Allahabad	309	29·586	−·016	29·854	29·682	28th	29·430	1st	·252	77·4	92·9	+2·7	67·9	+0·2	80·4	+1·5	24·9	95·4	3 days	60·4	28th	35·0
N.-W. P. (East Submontane).	Gorakhpur	256	29·638	−·010	29·856	29·743	28th	29·440	1st	·303	77·5	89·7	+0·8	68·6	−1·7	79·2	−0·5	21·1	92·4	14th	59·3	28th	33·1
Oudh (South)	Lucknow	370	29·512	−·027	29·850	29·610	28th	29·352	1st	·258	73·1	91·9	+0·7	64·3	−1·4	78·1	−0·4	27·6	95·3	15th	56·0	3 days	39·3
Oudh (North)	Bahraich	403	29·490	?	29·861	29·592	28th	29·292	1st	·300	75·7	91·0	?	66·4	?	78·7	?	24·6	94·4	14th	58·0	30th	36·4
N.-W. Provinces (Central).	Cawnpore	416	29·485	?	29·867	29·574	28th & 29th.	29·319	1st	·255	76·9	90·7	?	64·6	?	77·7	?	26·1	95·0	13th	56·0	26th	39·0
	Mainpuri	516	29·369	?	29·857	29·462	28th	29·218	1st	·244	71·8	91·2	?	63·4	?	77·3	?	27·8	94·8	13th	55·6	28th	39·2
VI.—Upper Sub-Himalayas		...	...	−·007	...	...	...	...	...	...	..	89·0	−1·5	60·7	−1·8	74·9	−1·7	28·2	..	...	...	...	38·3
N.-W. Provinces (Submontane).	Bareilly	568	29·315	−·007	29·860	29·411	29th	29·132	1st	·279	71·8	88·3	−1·3	62·5	−2·8	75·4	−2·1	25·8	91·3	15th	55·7	5 days	35·6
	Dehra Dun	2,233	27·673	?	29·893	27·773	29th	27·518	1st	·255	67·0	82·2	?	59·8	?	71·0	?	22·4	84·5	14th	56·0	25th & 29th	28·5
	Roorkee	887	28·996	−·011	29·876	29·111	29th	28·833	1st	·278	67·9	88·6	−0·9	60·0	−1·5	74·3	−1·2	28·6	90·8	6 days	54·4	30th	36·6
	Meerut	737	29·153	+·001	29·876	29·264	29th	29·008	1st	·256	69·6	89·1	−1·4	61·2	−1·7	75·2	−1·6	27·9	92·3	5 days	55·0	28th & 30th.	37·3
Punjab (Central)	Delhi	718	29·184	+·011	29·879	29·293	29th	29·040	1st	·253	73·8	88·8	−3·5	67·2	−0·9	78·0	−2·2	21·6	93·0	14th	59·6	29th	33·4
	Lahore	702	29·165	−·015	29·854	29·290	29th	29·015	1st	·275	70·7	93·6	−0·2	58·3	−1·8	76·0	−1·0	35·3	98·3	13th	50·0	30th	48·3

* Mean of 30 days.
† „ „ 29 „
‡ Mean of 28 days.
§ „ „ 25 „

I—*continued.*

in India, Burma, etc., in October 1892—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 1892.	Normal rainfall for period 1st October to 31st October 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
9	3	4	4	2	2	2	1	4	*2	?	?	80	?	2·6	5	4·89	+0·11	3·17	4·08	− 0·91	3·17	4·08	− 0·91	Naya Dumka.	Central Bengal—*contd.*
3	7	3	6	2	1	4	4	1	1	2	− 50	88	·842	4·6	4	5·55	−1·55	1·49	4·57	− 3·08	1·49	4·57	− 3·08	Berhampore.	
15	1	9	...	1	1	4	...	...	1	?	?	82	?	2·9	4	5·30	−1·30	1·42	4·44	− 3·02	1·42	4·44	− 3·02	Rampur Bauleah.	
3	...	3	...	2	2	12	...	9	3	?	?	84	?	2·1	4	4·35	−0·35	2·65	4·38	− 1·73	2·65	4·38	− 1·73	Malda.	
22*	...	3	...	3	2	...	...	...	*1	?	?	86*	·821*	*3·1	2*	4·70	−2·70	0·99	3·98	− 2·99	0·99	3·98	− 2·99	Bogra.	
...	2	16	5	2	2	2	2	...	1	?	?	85	·799	3·0	1	3·20	−2·20	0·35	5·13	− 4·78	0·35	5·13	− 4·78	Dinajpur	North Bengal.
4	3	6	10	2	2	2	2	...	*2	?	?	87	?	0·9	4	3·95	+0·05	3·54	5·32	− 1·78	3·54	5·32	− 1·78	Rangpur.	
10	3	7	2	7	...	...	...	2	1‖	?	?	84	·730	4·2	2	4·80	−2·80	1·07	5·60	− 4·53	1·07	5·60	− 4·53	Jalpaiguri.	
2	12	4	2	...	...	4	4	3	2	?	?	88	·869	2·4	11	6·75	+4·25	7·98	6·41	+ 1·57	7·98	6·41	+ 1·57	Balasore	Orissa.
1	9	1	5	...	1	2	9	3	7	6	+ 17	85	·879	5·5	10	7·36	+2·64	5·18	8·82	− 3·64	5·18	8·82	− 3·64	False Point.	
15	1	3	2	...	...	2	6	2	2	2	0	76	·776	4·9	12	6·18	+5·82	12·28	4·18	+ 8·10	12·28	4·18	+ 8·10	Cuttack.	
...	3	8	4	1	1	3	8	3	9	?	?	77*	·876*	4·1	0	?	?		?	?	0	?	?	Short's Island	
6	9	6	1	1	1	2	3	2	9	?	?	80	?	4·4	9	8·55	+0·45	6·97	8·81	− 1·84	6·97	8·81	− 1·84	Puri.	
...	...	...	...	...	...	...	...		...	...	...	...	...	...	...	...	...	0·63	2·73	−2·10	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
...	2	1	4	4	5	5	8	2	6	2	+ 50	71	·602	5·3	5	4·55	+0·45	2·66	3·10	− 0·44	2·66	3·10	− 0·44	Hazaribagh.	Chota Nagpur.
14	2	2	5	...	2	2	3	1	5	?	?	69	?	3·6	4	4·55	−0·55	5·62	2·98	+ 2·64	5·62	2·98	+ 2·64	Ranchi.	
12	2	2	2	2	2	6	2	1	1	?	?	80	·759	3·7	4	4·60	−0·60	2·75	2·95	− 0·20	2·75	2·95	− 0·20	Chyebassa.	
...	2	...	4	1	12	...	10	...	5‡	2	+150	74†	·721†	3·4†	2	2·91	−0·91	0·41	2·37	− 1·96	0·41	2·37	− 1·96	Gaya	Bihar (South).
...	1	1	...	7	7	13	1	1	?	?	?	71	?	1·4	1	2·75	−1·75	0·36	2·89	− 2·53	0·36	2·89	− 2·53	Dehri.	
2	...	...	9	2	6	4	7	1	2	2	0	69	·702	1·7	0	3·55	−3·55	0·12	3·12	− 3·00	0·12	3·12	− 3·00	Patna.	
...	2	2	2	5	8	6	5	1	2	?	?	76	?	0·8	1	3·70	−2·70	0·37	3·28	− 2·91	0·37	3·28	− 2·91	Arrah.	
2	...	3	7	3	4	4	7	1	3	?	?	72	?	2·7	0	3·00	−3·00	0·08	3·35	− 3·27	0·08	3·35	− 3·27	Buxar.	
29	...	...	1	1	...	...	...	..	1	1	0	92	·768	1·8	0	3·64	−3·64	0·03	3·69	− 3·66	0·03	3·69	− 3·66	Purnea	Bihar (North).
26	...	1	1	1	1	1	...	...	0	?	?	77	?	2·9	1	3·15	−2·15	0·49	3·20	− 2·71	0·49	3·20	− 2·71	Bhagalpur.	
2	...	4	9	7	...	4	2	3	2 ?	2	0	79	·758	1·0	0	3·91	−3·91	0·02	3·59	− 3·57	0·02	3·59	− 3·57	Durbhanga.	
6	...	2	6	4	...	1	4	2	2	?	?	82	?	1·6	0	2·95	−2·95	0	3·47	− 3·47	0	3·47	− 3·47	Muzaffarpur	
10	...	4	4	1	...	4	6	2	3	?	?	82	?	0·3	0	2·39	−2·39	0	3·49	− 3·49	0	3·49	− 3·49	Motihari.	
10	...	2	2	3	4	3	6	1	2	?	?	75	?	1·0	0	2·90	−2·90	0·09	3·60	− 3·51	0·09	3·60	− 3·51	Chapra.	
19	...	1	1	1	1	3	5	...	2	3	− 33	77	·696	2·7	0	2·45	−2·45	0·05	2·45	− 2·40	0·05	2·45	− 2·40	Benares	N.-W. P. (Eastern Districts).
5	3	4	3	1	1	2	7	5	3	2	+ 50	64	·617	1·7	0	1·64	−1·64	0	1·63	− 1·63	0	1·63	− 1·63	Allahabad.	
2	4	3	2	1	3	1	10	5	1	1	0	71	·676	0·8	0	2·64	−2·64	0	3·89	− 3·80	0	3·80	− 3·80	Gorakhpur	N.-W. P. (East Submontane).
19	3	1	1	...	...	.	6	1	2*	2	0	78	·636	1·0	1	1·36	−0·36	0·20	0·73	− 0·53	0 20	0·73	− 0·53	Lucknow.	Oudh (South).
13	1	2	5	3	...	1	2	4	2	?	?	77	·686	0·4	0	?	?	0	1·69	− 1·69	0	1·69	− 1·69	Bahraich	Oudh (North).
5	1	4	2	1	3	3	8	4	2	?	?	66	616	1·7	0	1·6	−1·6	0	1·08	− 1·08	0	1·08	− 1·08	Cawnpore	N.-W. Provinces (Central).
13	5	...	...	...	1	1	4	7	1	?	?	73	·581	0 6	0	?	?	0·01	0·82	− 0·81	0·01	0·82	− 0·81	Mainpuri.	
...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·05	0·47	−0·42	...	...	...	**VI.—Upper Sub-Himalayas**	
29	...	...	...	...	...	...	...	2	0	2	−100	77	·611	0·1	0	0·91	−0·91	0	0·97	− 0·97	0	0·97	− 0·97	Bareilly	N. W. Provinces (Submontane).
31	...	...	...	...	...	...	...	...	1	2	− 50	72	·480	0·2	0	1·20	−1·20	0	0·85	− 0·85	0	0·85	− 0·85	Dehra Dun.	
29	...	...	1	1	...	...	...	...	1	1	0	79	·540	0	0	0·55	− 0·55	0	0·43	− 0·43	0	0·43	− 0·43	Roorkee.	
22	...	...	...	...	...	...	9	...	1	1	0	71	·515	0	0	0·45	−0·45	0	0·60	− 0·60	0	0·60	− 0·60	Meerut.	
16	...	...	...	...	...	2	13	...	2	2	0	54	·470	0·1	0	0·18	− 0·18	0	0·17	− 0·17	0	0·17	− 0·17	Delhi	Punjab (Central).
25	...	1	3	1	...	...	1	...	1	2	− 50	65	·493	0·1	0	0·45	−0·45	0	0·22	− 0·22	0	0·22	− 0·22	Lahore.	

‖ Mean of 20 days.

Table

Abstract of Observations taken at 8 A.M. at 175 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.
Punjab (Submontane)—*contd.*	Umballa	? 902	*29·000	?	*29·896	29·093	29th	28·889	22nd	·204	69·9	89·6	?	61·7	?	75·7	?	27·9	93·0	12th' & 14th.	54·3	30th	38·7
	Ludhiana	812	29·071	−·004	29·872	29·181	29th	28·930	1st	·251	70·1	89·6	−2·9	61·4	−2·6	75·5	−2·7	28·9	93·1	12th	54·7	30th	38·1
Punjab (North)	Sialkot	829	29·038	−·009	29·860	29·159	29th	28·924	1st	·235	69·8	92·0	−0·5	61·5	−0·5	76·8	−0·5	30·5	95·6	13th & 14th.	54·4	20th	41·2
	Rawalpindi	1,649	28·236	−·023	29·876	28·343	29th	28·117	1st	·226	62·0	87·0	−1·6	53·5	−2·8	70·3	−2·2	33·5	91·5	10th	47·0	30th	44·5
VII.—Indus Valley and N.-W. Rajputana.		...	...	−·013	...	...	...	...	...	...	...	94·5	−0·1	64·4	−0·8	79·5	−0·5	30·1	...	...	...	...	44·6
Punjab (West)	Peshawar	1,110	28·809	−·005	29·886	28·919	29th	28·681	1st	·238	65·6	87·6	−1·3	56·7	−0·8	72·2	−1·1	30·9	93·0	9th	50·0	30th	43·0
	Khushab	612	29·263	?	29·859	29·393	29th	29·127	1st	·266	71·3	93·1	?	62·0	?	77·6	?	31·1	96·9	7th & 8th	52·1	30th	44·8
	Montgomery	558	29·314	?	29·850	29·437	29th	29·178	1st	·259	75·4	96·1	?	61·2	?	78·7	?	34·9	102·9	10th	52·8	31st	50·1
	D. I. Khan	573	29·295	? −·021	? 29·857	? 29·424	29th	29·162	25th	·262	68·2	94·1	−0·3	59·9	−1·7	77·0	−1·0	34·2	98·5	3 days	50·8	31st	47·7
	Mooltan	420	29·448	−·019	29·849	29·577	29th	29·316	1st	·261	72·6	95·9	+0·8	64·9	+0·2	80·4	+0·5	31·0	103·2	14th	57·7	31st	45·5
	Sirsa	662	29·216	−·011	29·859	29·330	29th	29·075	1st	·255	71·7	94·0	−2·2	61·5	−1·2	77·8	−1·7	32·5	98·4	12th & 13th.	52·3	31st	46·1
Sind and Cutch	Jacobabad	186	29·703	0	29·855	29·811	29th	29·569	1st	·242	74·6	99·1	+1·2	61·5	−1·9	80·3	−0·4	37·6	104·4	9th	50·5	31st	53·9
	Hyderabad	117	29·768	−·007	29·840	29·848	29th	29·638	1st	·210	76·6	96·6	−1·0	70·7	−0·1	83·7	−0·6	25·9	101·7	13th	62·1	27th	39·6
	Kurrachee	49	29·852	−·028	29·854	29·930	12th	29·738	22nd	·192	77·7	93·1	+1·9	71·6	0	82·4	+1·0	21·5	101·4	16th	63·0	31st	38·4
	Bhuj	395	29·493	?	29·843	29·586	6th	29·373	22nd	·213	78·7	94·4	?	70·8	?	82·6	?	23·6	101·0	15th & 16th.	63·9	27th	37·1
Rajputana (West)	Bickaneer	753	29·134	?	29·857	29·230	29th	29·006	1st	·224	76·3	93·9	?	68·7	?	81·3	?	25·2	99·1	12th & 13th.	60·0	28th & 31st.	39·1
	Pachpadra	380	29·491	?	29·838	29·592	6th	29·370	9th	·222	70·0	96·3	?	63·1	?	79·7	?	33·2	102·5	13th & 15th.	51·9	31st	50·6
VIII.—East Rajputana, Central India and Guzerat.		...	...	−·009	...	...	...	...	...	...	...	90·8	−1·5	66·9	−0·9	79·0	−1·2	24·0	...	...	...	...	37·4
Rajputana (East)	Jeypore	1,431	28·493	−·006	29·899	28·564	29th	28·373	1st	·191	75·3	92·2	−1·0	63·0	−1·8	77·6	−1·4	29·2	97·6	13th	54·6	25th	43·0
	Sambhar	1,254	28·651	−·008	29·889	28·720	29th	28·542	1st	·178	72·1	89·8	−1·8	62·8	−2·3	76·4	−2·1	27·0	95·5	15th	52·9	27th	42·6
	Ajmere	1,611	28·322	+·002	29·924	28·401	29th	28·207	1st	·194	74·4	88·6	−2·9	61·9	−1·2	75·3	−2·1	26·7	93·4	14th	51·8	26th	41·6
	Deesa	466	29·451	−·013	29·880	29·550	6th	29·335	31st	·215	76·8	93·0	−2·9	66·2	−0·9	79·6	−1·9	26·8	98·3	16th	56·1	27th	42·2
Kathiawar	Rajkot	429	29·471	−·032	29·858	29·581	7th	29·358	22nd	·223	77·6	92·4	−2·9	68·5	−0·1	80·5	−1·5	23·9	97·9	15th	58·9	27th	39·0
	Veraval	?	29·881	?	29·841	30·011	7th	29·773	22nd	·238	80·8	90·4	?	72·4	?	81·4	?	18·0	99·6	17th	64·3	26th	35·3
	Bhavnagar	?	29·879	?	29·861	29·994	7th	29·754	22nd	·240	80·3	93·2	?	74·4	?	83·8	?	18·8	98·4	6th	66·0	27th	32·4
Central India	Nowgong	757	29·153	−·003	29·879	29·219	6th & 7th.	29·021	1st	·198	74·4	89·6	−1·3	?	?	?	?	?	93·5	14th	?	...	?
	Indore	1,823	28·086	−·016	29·870	28·171	7th	27·983	22nd	·188	74·2	87·3	+0·2	63·2	−1·0	75·3	−0·4	24·1	91·0	3 days	59·0	17th	32·0
	Neemuch	1,630	28·299	0	29·899	28·362	6th & 7th	28·208	25th & 31st	·151	75·0	88·6	−1·3	64·0	−0·9	77·3	−1·1	24·6	93·8	16th	53·8	25th	40·0
Guzerat	Surat	36	29·852	−·041	29·831	29·980	7th	29·725	22nd	·255	78·5	92·6	+0·3	71·9	+1·3	82·3	+0·8	20·7	96·2	3 days	67·0	14th	29·2
N.-W. P. (West)	Agra	555	29·367	+·006	29·894	29·460	29th	29·222	1st	·238	73·3	90·9	−2·5	65·7	−2·6	78·3	−2·6	25·2	94·5	3 days	58·6	25th	35·9
	Jhansi	840	29·061	+·013	29·885	29·139	29th	28·939	1st	·200	78·8	92·1	−0·4	68·7	+0·2	80·4	−0·1	23·4	96·5	15th	60·9	25th	35·6
IX.—Deccan	...	...	...	−·019	...	...	...	...	...	...	...	86·4	−1·1	68·8	+1·6	77·6	+0·2	17·6	...	...	...	...	27·9
Bombay (Deccan)	Belgaum	2,524	27·364	−·034	29·825	27·478	3rd	27·258	22nd	·220	70·6	80·8	−1·8	65·1	0	73·0	−0·9	15·7	85·8	11th & 12th.	60·9	2nd & 3rd	24·9
	Sholapur	1,590	28·299	−·029	29·840	28·420	7th	28·174	22nd & 25th	·246	75·7	87·1	−2·1	69·4	+1·4	78·3	−0·4	17·7	92·7	5th	62·1	8th	30·6
	Poona	1,840	28·060	−·032	29·847	28·172	7th	27·935	22nd	·237	75·0	86·5	−0·8	68·8	+2·1	77·7	+0·7	17·7	91·0	11th	64·4	17th	26·6
	Bijapur	?	27·942	?	?	28·047	3rd & 7th	27·819	22nd	·228	74·1	83·5	?	68·1	?	75·8	?	15·4	89·3	11th & 13th.	63·0	3 days	26·3
Khandesh	Malegaon	1,430	28·483	−·018	29·873	28·604	7th	28·359	25th	·245	76·0	88·4	−1·0	68·4	+2·9	78·4	+1·0	20·0	93·4	15th	60·4	17th	33·0
	Ahmednagar	2,152	27·754	?	29·850	27·868	3rd	27·625	22nd	·243	74·2	85·2	?	67·0	?	76·1	?	18·2	89·3	3 days	59·5	12th	29·8
Berar	Akola	930	28·965	−·020	29·851	29·070	7th	28·847	26th	·223	76·5	89·9	−0·2	68·6	+2·5	79·3	+1·2	21·3	94·9	10th	59·9	16th	35·0
	Amraoti	1,215	28·677	−·017	29·853	28·778	6th	28·559	22nd	·219	76·1	?	?	70·1	+2·7	?	?	?	?	?	66·8	5th	?

* Mean of 17 days.

I—continued.

in India, Burma, etc., in October 1892—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 1892.	Normal rainfall for period 1st October to 31st October 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
11	...	...	...	9	...	...	...	11	1	?	?	76	·566	0	0	?	?	0	0·31	− 0·31	0	0·31	− 0·31	Umballa .	Punjab (Submontane)—*contd.*
29	...	...	2	...	...	...	...	...	0	1	−100	66	·494	0·1	0	0·55	−0·55	0	0·42	− 0·42	0	0·42	− 0·42	Ludhiana .	
17	5	...	9	...	...	...	...	...	0	1	−100	60	·429	0·3	0	0·82	−0·82	0	0·21	− 0·21	0	0·21	− 0·21	Sialkot .	Punjab (North).
27	...	1	...	...	1	...	1	1	1	1	0	70	·397	0·4	2	1·45	+0·55	0·49	0·52	− 0·03	0·49	0·52	− 0·03	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·19	0·06	−0·02	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
20	...	1	1	2	2	2	2	1	2	3	− 33	67	·424	0·6	1	0·27	+0·73	0·12	0·12	0	0·12	0·12	0	Peshawar .	Punjab (West).
11	5	7	2	2	1	...	...	3	3*	?	?	59	·379	0·1	1	0·2	+0·8	0·11	0·07	+ 0·04	0·11	0·07	+ 0·04	Khushab .	
8	...	1	3	8	10	1	...	...	3	?	?	53	·476	0	0	0·1	−0·1	0	0·06	− 0·06	0	0·06	− 0·06	Montgomery.	
18	1	4	4	...	...	...	1	3	1	1	0	60	·417	0·2	0	0·09	−0·09	0	0·04	− 0·04	0	0·04	− 0·04	D. I. Khan.	
9	...	1	...	11	...	10	...	...	1	2	− 50	58	·474	0	0	0	0	0	0	0	0	0	0	Mooltan.	
19	2	...	1	...	3	2	4	...	3	3	0	60	·480	0·2	0	0·64	−0·64	0	0·19	− 0·19	0	0·19	− 0·19	Sirsa.	
16	2	3	4	3	...	1	...	2	3	2	+ 50	50	·444	0	0	0	0	0	0	0	0	0	0	Jacobabad .	Sind and Cutch.
...	...	18	...	1	...	11	...	1	6	8	− 25	57	·525	1·8	0	0	0	0	0	0	0	0	0	Hyderabad.	
...	...	10	...	...	...	10	11	...	10	10	0	73	·699	1·5	0	0	0	0	0	0	0	0	0	Kurrachee.	
		3	3	...	...	7	3	1	8	?	?	71	·707	2·0	3	?	?	1·88	?	?	1·88	?	?	Bhuj.*	
1	1	1	3	2	5	14	2	2	4	?	?	48	·458	0·9	1	?	?	0·14	0·08	+ 0·06	0·14	0·08	+ 0·06	Bickaneer .	Rajputana (West).
25	...	...	...	1	...	4	1	...	5	4	+ 25	56	·439	1·8	0	?	?	0	0·05	− 0·05	0	0·05	− 0·05	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·31	0·75	−0·49	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
13	1	4	3	...	...	...	3	7	2	4	− 50	56	·500	1·3	0	0·90	−0·90	0	0·36	− 0·36	0	0·36	− 0·36	Jeypore .	Rajputana (East).
8	4	...	1	...	1	...	11	6	4	5	− 20	60	·491	1·0	0	0·50	−0·50	0	0·22	− 0·22	0	0·22	− 0·22	Sambhar.	
18	...	1	...	...	...	3	7	2	3	3	0	66	·518	1·3	0	0·64	−0·64	0	0·25	− 0·25	0	0·25	− 0·25	Ajmere.	
...	...	8	8	2	4	6	3	...	†6	7	− 14	62	·578	2·8	2	0·45	+1·55	0·37	0·40	− 0·03	0·37	0·40	− 0·03	Deesa.	
14	2	7	1	...	...	1	5	1	4	6	− 33	78	·730	1·2	2	1·27	+0·73	1·85	0·39	+ 1·46	1·85	0·39	+ 1·46	Rajkot .	Kathiawar.
8	13	3	1	1	...	...	1	4	6	?	?	70	·733	3·5	1	?	?	0·96	?	?	0·96	?	?	Veraval.	
...	5	5	...	...	2	7	6	6	6	?	?	84	·875	1·5	2	?	?	0·26	?	?	0·26	?	?	Bhavnagar.	
6	5	2	6	1	1	2	7	1	1	2	− 50	66	·566	2·2	1	1·82	−0·82	0·33	1·14	− 0·81	0·33	1·14	− 0·81	Nowgong. .	Central India.
8	6	4	6	2	...	2	...	3	2	2	0	66	·593	1·6	1	3·09	−2·09	0·25	1·82	− 1·57	0·25	1·82	− 1·57	Indore.	
4	...	10	8	1	...	4	4	...	5	8	− 38	53	·468	0·9	0	1·09	−1·09	0	0·73	− 0·73	0	0·73	− 0·73	Neemuch.	
...	4	9	...	...	...	6	1	11	?	5	?	81	·808	2·3	0	3·00	−3·00	0·05	1·75	− 1·70	0·05	1·75	− 1·70	Surat . .	Guzerat.
1	...	...	...	...	...	8	...	22	3	3	0	63	·524	0·4	0	0·45	−0·45	0	0·45	− 0·45	0	0·45	− 0·45	Agra . .	N.-W. P. (West).
18	1	1	...	...	3	7	...	1	2	3	− 33	53	·533	1·0	0	1·27	−1·27	0·01	0·79	− 0·78	0·01	0·79	− 0·78	Jhansi.	
...	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	...	5·74	3·18	+2·46	...	...	...	**IX.—Deccan.**	
21	...	1	4	...	1	1	1	2	?	10	?	84	·627	6·6	10	8·09	+1·91	10·08	5·30	+ 4·78	10·08	5·30	+ 4·78	Belgaum .	Bombay (Deccan).
...	...	5	6	5	3	2	5	5	9	8	+ 13	76	·673	7·6	11	5·91	+5·09	9·16	4·50	+ 4·66	9·16	4·50	+ 4·66	Sholapur.	
15	...	6	5	1	...	...	2	2	5	6	− 17	79	·677	5·8	11	6·18	+4·82	17·35	4·31	+13·04	17·35	4·31	+13·04	Poona.	
2	2	3	3	9	...	3	4	5	5	?	?	80	·670	6·3	9	7·7	+1·3	8·17	6·19	+ 1·98	8·17	6·19	+ 1·98	Bijapur .	
9	3	8	2	2	...	...	4	3	7	5	+ 40	74	·655	4·4	3	4·18	− 1·18	2·55	3·52	− 0·97	2·55	3·52	− 0·97	Malegaon .	Khandesh.
4	8	10	3	2	...	...	...	4	5	?	?	82	·691	5·3	9	?	?	5·74	3·10	+ 2·64	5·74	3·10	+ 2·64	Ahmednagar.	
10	5	11	...	1	...	...	...	4	4	3	+ 33	76	·686	4·5	9	4·09	+4·91	8·32	3·63	+ 4·69	8·32	3·63	+ 4·69	Akola . .	Berar.
4	...	11	13	1	...	1	1	...	5	3	+ 67	74	·661	4·2	5	4·09	+0·91	4·04	2·94	+ 1·10	4·04	2·94	+ 1·10	Amraoti .	

* Mean of 30 days.

† Mean of 26 days.

Table

Abstract of Observations taken at 8 A.M. at 175 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	28·865	−·003	29·879	28·969	7th	28·740	22nd	·229		74·2	89·1	−0·9	67·6	+1·3	78·4	+0·2	21·5	94·2	15th	60·1	17th	34·1
	Hoshangabad	1,020	28·896	−·016	29·888	28·991	7th	28·779	22nd	·212		73·7*	87·9	−1·5	68·6	+1·4	78·3	−0·1	19·3	92·4	4 days	62·8	17th	29·6
	Nagpur	1,025	28·871	−·007	29·859	28·971	7th	28·754	22nd	·217		77·2	88·1	−1·6	70·5	+2·1	79·3	+0·3	17·6	92·3	15th	65·2	16th	27·1
Central Provinces (Central).	Seoni	2,030	27·875	−·019	29·883	27·963	7th	27·763	31st	·200		74·7	84·5	−1·8	66·1	+1·5	75·3	−0·2	18·4	89·2	16th	60·0	16th	29·2
	Jubbulpore	1,327	28·580	0	29·882	28·664	6th	28·462	22nd	·202		73·2	86·1	−1·1	66·2	+2·1	76·2	+0·5	19·9	89·4	14th	57·8	16th	31·6
	Saugor	1,762	28·148	−·019	29·879	28·227	7th	28·034	22nd	·193		73·2	87·7	+0·8	65·1	−0·3	76·4	+0·3	22·6	91·3	14th	59·7	17th	31·6
Central Provinces (East).	Raipur	960	28·927	−·009	29·853	29·026	6th	28·810	22nd	·216		77·2	87·9	−0·2	71·6	+1·9	79·8	+0·9	16·3	91·0	14th	68·2	11th	22·8
	Sutna	1,040	28·854	−·013	29·866	28·928	7th	28·725	1st	·203		75·4	87·0	−0·6	65·6	+0·2	76·3	−0·2	21·4	91·1	16th	58·7	17th	32·4
	Sambalpur	463	29·425	?	29·839	29·520	6th	29·301	1st	·219		80·2	89·1	?	73·3	?	81·2	?	15·8	91·5	23rd	69·2	7th	22·3
Hyderabad (North).	Aurangabad	?	28·047	?	?	28·158	7th	27·909	26th	·249		77·2	87·3	?	68·0	?	77·7	?	19·3	91·0	10th	62·9	16th	28·1
	Indur	?				Not recorded						76·6	86·3	?	70·7	?	78·5	?	15·6	89·0	4th & 10th.	64·4	11th	24·6
	Beeder	?	27·726	?	?	27·841	6th & 7th.	27·600	22nd	·241		74·2	82·5	?	68·9	?	75·7	?	13·6	86·7	4th	62·4	8th	24·3
Hyderabad (South).	Gulburga	?	28·374	?	?	28·481	7th	28·247	22nd	·234		75·9	86·1	?	69·6	?	77·9	?	16·5	90·8	11th & 20th.	64·5	8th	26·3
	Raichur	?	28·510	?	?	28·637	3rd	28·380	21st	·257		75·5	84·9	?	71·3	?	78·1	?	13·6	89·9	11th	67·9	8th	22·0
	Hyderabad (Deccan).	1,690	28·188	−·045	29·831	28·305	6th	28·053	30th	·252		74·3	83·7	−2·8	†70·0	†+1·8	†70·8	−0·5	13·7	90·4	11th	65·2	8th	25·2
	Kamamet	?	29·501	?	29·426	29·626	7th	29·279	20th	·347		78·5	87·7	?	73·7	?	80·7	?	14·0	92·5	4th	69·3	8th	23·2
X.—West Coast		...	...	−·027	...	...	...	...	...	...		...	84·6	−1·1	74·2	−0·2	79·4	−0·7	10·4	...	...	...	...	17·9
Konkan	Bombay	37	29·859	−·033	29·836	29·993	3rd	29·709	18th	·284		79·9	87·0	−0·3	77·1	+0·8	82·1	+0·2	9·6	92·1	18th	74·5	17th	17·6
	Ratnagiri	110	29·770	−·023	29·818	29·890	3rd	29·630	18th	·260		79·3	86·4	−1·7	74·1	+0·5	80·3	−0·6	12·3	92·9	11th & 14th.	70·9	27th	22·0
	Mormugoa	60	29·840	?	29·835	29·973	3rd	29·725	18th	·248		74·8	85·4	?	74·7	?	80·1	?	10·7	94·0	11th	70·4	1st	23·6
	Karwar	44	29·850	−·033	29·826	29·964	3rd	29·740	22nd	·224		75·5	84·0	−1·0	71·7	−1·4	77·9	−1·2	12·3	88·3	9th	68·8	4 days	19·5
Malabar	Mangalore	26	29·888	−·028	29·845	29·984	3rd	29·797	18th	·187		77·7	84·4	−0·7	73·8	−0·4	79·1	−0·6	10·6	87·8	13th	71·4	2nd	16·4
	Calicut	27	29·886	−·031	29·843	29·978	3rd	29·809	17th	·169		77·7	84·9	?	73·5	?	79·2	?	11·4	88·3	12th	71·6	3 days	16·7
	Cochin	10	29·919	−·013	29·857	30·002	3rd	29·862	17th	·140		78·0	84·7	−1·1	74·2	−0·2	79·5	−0·7	10·5	87·7	12th	72·1	21st	15·6
	Trivandrum	198	29·725	?	29·854	29·794	3rd	29·672	17th	·122		76·5	80·5	?	74·5	?	77·5	?	6·0	83·0	6th & 7th	71·5	21st	11·5
XI.—South India		...	...	−·030	...	...	...	...	...	...		...	87·2	−0·3	72·6	−0·2	80·0	−0·3	14·6	...	...	...	...	24·1
Madras (South)	Pamban	37	29·859	?	29·823	29·973	3rd	29·790	17th	·18		81·9	87·1	?	78·2	?	82·7	?	8·9	89·3	20th	73·2	15th	16·1
	Tinnevelly	168	29·726	?	29·823	29·825	3rd	29·635	17th	·190		80·4	94·5	?	76·4	?	85·5	?	18·1	99·8	2nd	71·9	7th & 14th	27·9
	Madura	447	29·438	−·024	29·824	29·550	3rd	29·355	17th	·195		79·2	90·8	−1·3	73·2	−0·6	82·0	−1·0	17·6	93·4	1st	68·6	10th	24·8
Madras (South Central).	Salem	940	28·973	−·030	29·858	29·068	7th	28·871	17th	·197		76·4	89·8	+0·5	70·9	+0·5	80·4	+0·5	18·9	93·9	11th	62·9	9th	31·0
	Coimbatore	1,348	28·540	−·036	29·838	28·632	3rd	28·456	17th	·176		75·0	90·3	+2·2	69·4	−1·3	79·9	+0·5	20·9	94·3	5th	67·6	10th & 11th.	26·7
Coorg	Mercara	3,781	26·209	?	29·852	26·282	7th	26·144	18th	·138		66·2	75·3	−0·2	62·3	0	68·8	0·1	13·6	78·3	4th & 8th.	58·7	3 days	19·6
Mysore	Bangalore Bazar,	2,982	26·968	−·035	29·859	27·056	5th	26·872	17th	·184		70·7	81·5	+0·5	65·0	+0·1	73·3	+0·3	16·5	86·2	20th	58·9	9th	27·3
	Bangalore Fort	3,019	26·921	−·050	29·841	27·013	5th	26·834	17th	·172		70·3	81·5	+0·5	64·9	+0·1	73·2	+0·3	16·6	86·3	20th	58·4	9th	27·9
Madras (East Coast, South).	Negapatam	31	29·865	−·016	29·825	29·973	3rd	29·790	26th	·183		81·6	88·5	+0·5	76·1	+0·6	82·4	+0·6	12·4	93·2	21st	72·7	3 days	20·5
	Cuddalore	12	29·874	?	29·815	29·983	3rd	29·777	17th	·206		80·2	88·3	?	74·2	?	81·3	?	14·1	93·2	21st	68·2	9th	25·0
	Trichinopoly	255	29·635	−·026	29·825	29·724	3rd & 7th.	29·548	17th	·176		79·7	91·4	+0·3	73·4	−0·6	82·4	−0·2	18·0	96·6	12th	67·9	10th	28·7
	Madras	22	29·863	−·029	29·816	29·977	3rd	29·757	17th	·220		80·4	89·0	+0·2	74·2	−0·9	81·7	−0·3	14·7	93·5	10th	66·6	9th	26·9
Madras (East Coast, Central).	Nellore	71	29·795	?	29·800	29·920	6th	29·638	17th	·282		80·8	89·8	?	75·1	?	82·5	?	14·7	94·7	3rd & 10th	71·6	9th	23·1
	Masulipatam	15	29·857	−·035	29·807	29·985	7th	29·544	20th	·441		79·9	85·5	−3·9	75·3	−0·4	80·4	−2·7	10·2	91·6	3rd	69·1	30th	22·5

* Mean of 30 days. — † Mean of 29 days.

I—*continued.*

in India, Burma, etc., in October 1892—continued.

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 October to 31st October 1892.	Normal rainfall for period 1st October to 31st October 1892.	Variation from normal of period.		
7	8	9	3	...	...	...	2	2	3	3	0	73	·615	2·6	4	3·27	+0·73	1·72	1·97	− 0·25	1·72	1·97	− 0·25	Khandwa	Central Provinces (West).
4	4	9	8	...	4	1	1	...	4	2	+100	76	·637	2·3	2	3·18	−1·18	0·99	2·08	− 1·09	0·99	2·08	− 1·09	Hoshangabad	
9	9	10	2	...	...	...	...	1	4	4	0	73	·677	4·7	8	3·55	+4·45	3·74	3·02	+ 0·72	3·74	3·02	+ 0·72	Nagpur.	
8	2	9	6	...	...	2	3	1	3	3	0	74	·632	4·7	5	3·55	+1·45	5·73	1·98	+ 3·75	5·73	1·98	+ 3·75	Seoni	Central Provinces (Central).
17	1	5	2	...	3	2	...	1	1	2	− 50	79	·749	3·1	4	2·45	+1·55	1·77	2·07	− 0·30	1·77	2·07	− 0·30	Jubbulpore.	
18	...	4	3	3	...	3	...	...	2	3	− 33	66	·536	2·4	0	2·91	−2·91	0·05	1·74	− 1·69	0·05	1·74	− 1·69	Saugor.	
10	3	8	5	1	...	1	2	1	4	4	0	81	·748	5·5	6	3·82	+2·18	3·65	2·47	+ 1·18	3·65	2·47	+ 1·18	Raipur	Central Provinces (East).
7	6	2	6	1	1	...	3	5	4	4	0	64	·569	2·3	0	2·09	−2·09	0·02	2·22	− 2·20	0·02	2·22	− 2·20	Sutna.	
...	8	13	5	...	...	3	2	...	4	?	?	79	·815	3·5	5	?	?	1·77	2·40	− 0·63	1·77	2·40	− 0·63	Sambulpur.	
10	...	11	7	3	...	...	...	...	4	?	?	72	·664	4·2	7	?	?	4·00	2·96	+ 1·04	4·00	2·96	+ 1·04	Aurangabad	Hyderabad (North).
4	4	2	6	5	2	2	2	4	7	?	?	85	·777	5·8	4	?	?	1·82	2·63	− 0·81	1·82	2·63	− 0·81	Indur.	
...	1	14	2	2	2	7	...	3	5	?	?	81	·675	4·4	9	?	?	10·69	3·65	+ 7·04	10·69	3·65	+ 7·04	Beeder.	
16	1	2	1	4	2	1	1	3	5	?	?	78	·699	5·8	8	?	?	6·13	?	?	6·13	?	?	Gulburga.	Hyderabad (South).
8	3	1	3	2	3	4	3	4	5	?	?	82	722	8·0	9	?	?	10·42	3·83	+ 6·59	10·42	3·83	+ 6·59	Raichur.	
15	1	1	4	3	2	...	4	1	5	?	?	85	·719	6·1	11	?	?	12·20	3·38	+ 8·82	12·20	3·38	+ 8·82	Hyderabad (Deccan).	
12	5	1	2	6	2	1	1	1	5	?	?	86	·838	4·5	12	?	?	8·11	?	?	8·11	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14·07	7·48	+5·41	...	...	...	**X.—West Coast.**	
...	2	9	10	5	3	...	1	1	7	10	−100	85	·876	4·7	3	3·45	−0·45	1·89	2·84	−0·95	1·89	2·84	− 0·95	Bombay	Konkan.
12	...	...	...	12	5	1	...	1	4	7	− 43	83	·827	5·2	11	5·91	+5·09	8·85	4·00	+ 4·85	8·54	4·00	+ 4·85	Ratnagiri.	
2	8	1	3	9	3	2	3	...	6	?	?	90	·873	8·4	11	?	?	15·89	?	?	15·89	?	?	Mormugoa.	
9	4	14	...	...	1	2	1	...	1	?	?	91	·804	4·7	13	9·09	+3·91	15·98	7·66	+8·32	15·98	7·66	+ 8·32	Karwar.	
11	6	4	4	3	...	1	1	1	2	3	−·33	88	·830	5·9	12	9·90	+2·10	11·55	7·48	+ 4·07	11·55	7·48	+ 4·07	Mangalore	Malabar.
4	3	6	12	3	1	1	...	1	12	?	?	96	·815	6·0	16	10·44	+5·56	18·38	9·16	+ 9·22	18·38	9·16	+ 9·22	Calicut.	
1	1	14	7	4	...	...	1	3	5	?	?	85	·827	5·4	18	15·09	+2·91	20·66	13·73	+ 6·93	20·66	13·73	+ 6·93	Cochin.	
...	7	3	1	...	...	1	7	12	6	?	?	88	·815	6·6	20	?	?	19·33	?	?	19·33	?	?	Trivandrum.	
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·15	8·02	+2·51	...	...	...	**XI.—South India.**	
2	3	3	1	2	3	9	6	2	6	?	?	79	·861	3·1	4	7·50	−3·50	3·43	6·86	− 3·43	3·43	6·86	− 3·43	Pamban.	Madras, (South).
...	5	3	1	2	...	4	5	11	6	?	?	72	·753	6·4	6	7·3	− 1·3	6·22	5·52	+ 0·70	6·22	5·52	+ 0·70	Tinnevelly	
3	8	2	...	...	1	...	...	17	1	3	− 67	71	·713	4·2	9	9·73	−0·73	9·14	6·74	+ 2·40	9·14	6·74	+ 2·40	Madura.	
17	...	1	...	3	6	3	1	...	2	3	− 33	80	737	6·1	11	11·36	−0·36	4·91	7·42	− 2·51	4·91	7·42	− 2·51	Salem	Madras (South Central).
...	2	3	...	1	13	4	8	...	3	3	0	89	·777	4·6	6	8·91	−2·91	2·56	5·72	− 3·16	2·56	5·72	− 3·16	Coimbatore.	
...	4	1	10	...	...	...	11	5	2	4	− 50	87	·564	7·4	14	13·50	+0·50	7·01	9·61	− 2·60	7·01	9·61	− 2·60	Mercara	Coorg.
...	1	4	5	3	...	12	5	1	4	4	0	81	·618	7·3	5	10·00	−5·00	2·18	7·69	− 5·51	2·18	7·69	− 5·51	Bangalore Bazar.	Mysore.
3	...	2	5	3	2	9	5	2	5	?	?	83	·619	5·8	7	?	?	2·86	?	?	2·86	?	?	Bangalore Fort	
8	1	1	1	1	...	4	10	5	4	4	0	74	·805	6·5	4	10·82	−6·82	5·41	11·69	− 6·28	5·41	11·69	−. 6·28	Negapatam.	
...	5	2	1	1	2	3	10	7	2	?	?	90	·927	3·1	4	9·4	−5·4	4·77	9·11	− 4·34	4·77	9·11	− 4·34	Cuddalore.	Madras (East Coast, South).
7	...	...	1	...	...	6	14	3	3	4	− 25	77	·774	5·8	11	10·00	+1·00	9·53	6·21	+ 3·32	9·53	6·21	+ 3·32	Trichinopoly.	
2	4	2	...	2	4	8	3	6	5	5	0	83	·866	5·2	10	12·09	−2·09	6·44	12·62	− 6·18	6·44	12·62	− 6·18	Madras.	
11	2	...	...	3	1	1	5	8	5	?	?	84	·878	7·7	13	8·9	+ 4·1	16·23	10·25	+ 5·98	16·23	10·25	+ 5·98	Nellore	
6	11	4	1	1	3	1	1	3	5	4	+ 25	87	·884	6·8	15	9·91	+ 5·0	26·56	8·44	+18·12	26·56	8·44	+18·12	Masulipatam	Madras (East Coast, Central).

Table

Abstract of Observations taken at 8 A.M. at 175 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 actual pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure during month.	Date.	Lowest pressure during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Madras (Central)	Cuddapah	433	29·449	?	29·825	29·552	7th	29·325	17th	·227	79·5	88·8	?	73·4	?	81·1	?	15·4	95·1	5th	69·0	9th	26·1
	Kurnool	923	28·955	?	29·826	29·060	7th	28·829	17th	·231	76·9	86·9	?	70·8	?	78·9	?	16·1	92·5	6th & 11th.	65·8	9th	26·7
	Bellary	1,475	28·408	−·025	29·833	28·516	3rd	28·295	22nd	·221	76·0	87·5	−2·1	70·4	−0·4	79·0	−1·3	17·1	93·9	5th	65·5	9th	28·4
Madras (East Coast, North).	Rajahmundry	112	29·754	?	29·804	29·872	7th	29·529	20th	·343	79·3	87·7	?	74·7	?	81·2	?	13·0	94·0	10th & 11th.	72·6	8th	21·4
	Coconada	26	29·848	?	29·809	29·972	6th	29·634	20th	·338	79·4	85·9	?	75·1	?	80·5	?	10·8	92·7	3rd & 4th	72·2	13th	20·5
	Vizagapatam	31	29·847	−·027	29·816	29·958	7th	29·766	20th	·192	81·7	84·6	−1·3	78·2	+1·0	81·4	−0·2	6·4	88·9	9th	75·9	8th & 9th	13·0
	Gopalpur	21	29·876	?	29·837	29·938	3rd	29·757	1st	·181	78·7	87·2	?	74·3	?	80·8	?	12·9	92·2	2nd & 3rd	70·9	7th	21·3
XII.—Hill Stations.																							
Beluchistan	Quetta	5,502	24·722	+·017	?	24·815	12th	24·608	31st	·207	55·5	75·1	−0·2	38·7	−0·9	57·0	−0·6	36·4	83·2	6th	32·3	29th	50·9
Northern India	Srinagar	5,204	24·954	?	?	25·068	15th	24·817	31st	·251	45·4	72·0	?	36·4	?	54·2	?	35·6	77·8	10th	31·1	24th & 1st.	46·7
	Murree	6,344	23·889	−·030	?	23·967	12th	23·764	25th	·203	56·9	68·2	−1·6	52·0	−1·4	60·1	−1·5	16·2	73·1	8th & 9th	43·8	15th	29·3
	Simla	7,237	23·158	−·027	?	23·237	12th	23·056	1st	·181	53·7	61·1	?	49·9	?	55·5	?	11·2	63·5	1st	45·3	31st	18·2
	Chakrata	7,052	23·293	−·020	?	23·376	10th	23·185	1st	·191	57·7	64·5	−1·7	50·0	−0·9	57·3	−1·3	14·5	67·3	1st	45·2	31st	22·1
	Mussoorie	?	23·602	?	?	23·678	10th	23·480	1st	·198	56·6	64·4	0	50·7	−1·3	57·6	−0·7	13·7	68·3	1st	46·0	31st	22·3
	Ranikhet	6,069	24·152	+·007	?	24·228	10th	24·049	1st	·179	58·0	69·1	−0·3	53·0	−1·2	61·1	−0·8	16·1	73·0	3 days	48·5	31st	24·5
	Gnatong	?	19·287	?	?	19·348	17th	19·201	31st	·147	38·9	57·1	?	†23·1	?	†40·0	?	34·0	65·3	2nd	17·6	3 days	47·7
	Darjeeling	7,421	23·032	−·021	?	23·119	9th	22·885	1st	·234	53·7	60·5	−0·3	47·9	−1·1	54·2	−0·7	12·6	64·6	11th	43·7	2 days	20·9
Central India	Mount Abu	3,945				Not recorded.					69·3	75·4	−3·9	62·3	−2·0	68·5	−3·0	13·1	79·7	16th	57·9	26th	21·8
	Pachmarhi	3,511	26·486	−·017	?	26·574	6th	26·372	31st	·202	70·6	77·2	−0·2	60·2	+0·1	68·8	−0·1	17·0	80·7	10th & 16th.	53·2	16th	27·5
South India	Wellington	6,200	24·247	−·002	?	24·335	3rd	24·176	17th	·159	62·8	69·5	+0·9	53·3	−1·9	61·4	−0·5	16·2	72·7	17th	46·2	9th	26·5
	Kodaikanal	?				Not recorded.					58·9	?	?	52·7	?	?	?	?	?	?	48·1	9th	?
XIII.—Extra India.																							
Persia	Meshed	?				Not recorded.					51·4	64·0	?	46·1	?	55·1	?	17·9	77·0	4th	35·0	12th	42·0
	Bushire	14	29·932	?	29·903	30·029	24th	29·693	1st	·336	79·7	88·9	?	72·4	?	80·7	?	16·5	101·0	4th	64·2	29th	36·8
Arabia	Aden*	94	29·854	?	29·879	29·934	13th	29·769	1st	·165	82·4	90·6	?	77·3	?	84·0	?	10·1	99·1	24th & 25th.	73·9	14th	16·9
	Perim	?	29·714	?	?	29·813	13th	29·647	2nd	·166	83·8	90·6	?	80·6	?	85·6	?	10·0	93·9	2nd	78·1	22nd	15·8
Arabian Sea Islands.	Mincoy	10	29·932	?	29·867	30·020	3rd	29·840	18th	·180	80·1	85·4	?	78·8	?	82·1	?	6·6	89·7	13th	75·0	2nd	14·7
Africa	Zanzibar	73	30·019	?	30·019	30·098	3rd	29·902	26th	·196	78·5	82·9	?	74·9	?	78·9	?	8·0	85·0	31st	72·8	2nd	12·2

* Mean of 30 days. † Mean of 27 days.

I—*concluded.*

in India, Burma, etc., in October 1892—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.	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 October to 31st October 1892.	Normal rainfall for period 1st October to 31st October.	Variation from normal of period.		
...	2	9	7	2	...	5	4	2	?	?	?	77	·769	6·1	10	6·80	+3·20	8·88	6·33	+2·55	8·88	6·33	+ 2·55	Cuddapah .	Madras (Central)
30	...	...	...	...	...	1	...	...	?	?	?	82	·755	6·1	8	7·00	+1·00	9·22	4·93	+4·29	9·22	4·93	+ 4·29	Kurnool.	
20	1	...	...	...	1	2	1	6	4	4	0	80	·718	6·2	9	6·73	+2·27	5·62	4·06	+1·56	5·62	4·06	+ 1·56	Bellary.	
6	12	5	6	...	...	...	2	...	?	?	?	81	·825	5·8	11	7·8	+3·2	11·90	7·49	+4·41	11·90	7·49	+ 4·41	Rajahmundry	Madras (East Coast, North).
1	14	5	...	2	2	...	...	7	9	?	?	82	·825	5·1	17	10·0	+7·0	32·85	8·81	+24·04	32·85	8·81	+24·04	Coconada.	
...	4	3	2	...	...	1	14	7	2	2	0	78	·848	6·1	17	10·36	+6·64	28·24	10·30	+17·94	28·24	10·30	+17·94	Vizagapatam.	
1	13	2	...	1	1	1	1	11	10	6	+ 67	86	·837	2·4	12	9·44	+2·56	9·21	10·39	−1·18	9·21	10·39	− 1·18	Gopalpur.	
																								XII.—Hill Stations.	
31	..	...	...	...	...	...	...	...	1	3	− 66	42	·195	?	0	0·18	−0·18	0	0·07	−0·07	0	0·07	− 0·07	Quetta. .	Beluchistan.
22	1	...	4	3	1	...	...	...	1	?	?	80	·247	0·6	0	?	?	0·01	?	?	0·01	?	?	Srinagar .	Northern India.
12	2	1	...	2	2	1	1	10	6	6	0	44	·206	0·6	1	2·45	−1·45	0·16	1·11	−0·95	0·16	1·11	− 0·95	Murree.	
3	16	3	1	2	6	...	...	...	?	2	?	51	·209	?	0	1·27	−1·27	0	0·83	−0·83	0	0·83	− 0·83	Simla.	
23	...	4	4	...	...	...	...	...	3	?	?	65	·313	0·3	0	?	?	0	0·58	−0·58	0	0·58	− 0·58	Chakrata .	
...	3	3	13	5	...	...	2	5	?	8	?	68	·315	0·5	0	1·4	−1·4	0	0·74	−0·74	0	0·74	− 0·74	Mussoorie.	
23	...	...	5	...	...	3	...	...	3	2	+ 50	70	·338	0·2	0	1·09	−1·09	0	1·04	−1·04	0	1·04	− 1·04	Ranikhet.	
?	?	?	?	?	?	?	?	?	?	?	?	74	·183	1·5	14	?	?	3·85	?	?	3·85	?	?	Gnatong .	
17	1	2	6	2	...	2	1	...	*4	3	+ 33	84	·347	4·8	2	3·75	−1·75	1·02	5·04	−4·02	1·02	5·04	− 4·02	Darjeeling.	
6	2	6	6	3	...	2	4	2	4	4	0	56	·400	1·5	1	0·60	+0·40	0·59	0·87	−0·28	0·59	0·87	− 0·28	Mount Abu .	Central India.
...	3	6	12	3	...	...	5	2	4	3	+ 33	64	·471	3·8	8	4·27	+3·73	3·14	2·87	+0·27	3·14	2·87	+ 0·27	Pachmarhi.	
26	1	2	1	1	...	...	...	...	2	3	− 33	75	·439	5·0	13	15·89	−2·89	7·36	11·35	−3·99	7·36	11·35	− 3·99	Wellington .	South India.
5	5	4	...	2	...	3	2	10	8	?	?	74	·369	5·1	15	15·00	0	9·61	10·87	−1·26	9·61	10·87	− 1·26	Kodaikanal.	
																								XIII.—Extra India.	
1	7	1	7	...	...	1	3	11	?	?	?	?	?	2·3	4	?	?	2·18	?	?	2·18	?	?	Meshed .	Persia.
...	2	11	9	5	...	...	...	4	4	?	?	59	·605	0	0	?	?	0	0	0	0	0	0	Bushire .	
9	...	3	18	...	...	...	...	...	14	13	+ 8	64	·700	2·4	0	?	?	0	0	0	0	0	0	Aden* .	Arabia.
...	...	...	8	19	4	...	...	...	19	?	?	74	·860	1·9	0	?	?	0	?	?	0	?	?	Perim.	
1	...	1	1	...	...	4	20	4	4	?	?	82	·840	5·1	7	?	?	3·29	?	?	3·29	?	?	Mincoy .	Arabian Sea Islands.
...	...	1	4	15	8	2	1	...	7	?	?	76	·738	4·6	3	?	?	0·86	?	?	0·86	?	?	Zanzibar .	

* Mean of 27 days. † Mean of 30 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 96

Meteorological Province	Station.	Elevation of bar-cistern above sea-level.	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	...	29·823	29·719	·104	29·770	−·038	29·762	85·9	76·9	9·0	88·8	75·1	13·7	82·8	82·9	80·1	0	74·8	79·3	79·0	77·7
	Mergui	...	·816	·710	·106	·761	−·029	·790	86·6	?	?	90·6	?	?	83·0	81·6	?	?	?	77·1	77·1	?
	Rangoon	...	·879	·758	·121	·823	−·024	·802	87·2	75·1	12·1	89·7	72·9	16·8	82·8	84·1	79·5	− 0·2	73·4	78·2	78·1	76·6
	Diamond Island	...	·880	·772	·108	·824	−·020	·800	85·1	77·0	8·1	88·9	72·7	16·2	82·7	83·2	80·1	+ 0·4	74·2	77·6	77·1	76·3
	Cocos Island	111	·807	·715	·092	·759	?	·804	85·7	69·7	16·0	89·6	65·3	24·3	82·8	81·4	76·2	?	?	78·0	76·9	?
	Akyab	...	·903	·790	·113	·848	−·005	·811	86·8	75·1	11·7	92·2	72·2	20·0	81·9	83·9	80·2	− 1·3	72·9	78·2	78·3	76·5
Assam.	Silchar	...	·811	·694	·117	·756	−·019	·812	87·2	71·3	15·9	94·1	68·6	25·5	80·9	84·7	78·2	− 0·9	70·1	75·5	76·7	74·1
	Sibsagar	...	·600	·463	·137	·530	−·037	·823	84·5	71·5	13·0	88·0	68·1	19·9	78·2	83·1	77·0	+ 0·8	70·9	74·5	76·5	74·0
	Dhubri	...	·808	·678	·130	·739	−·028	·809	84·6	72·1	12·5	88·2	68·8	19·4	78·7	83·7	77·5	− 0·4	70·2	74·0	75·3	73·2
Bengal and Orissa.	Chittagong	...	·832	·731	·101	·782	−·004	·818	85·5	73·2	12·3	90·0	69·1	20·9	81·5	82·4	78·6	− 0·5	72·2	77·5	77·8	75·8
	Dacca	...	·885	·775	·110	·828	−·011	·799	87·6	74·6	13·0	92·0	69·5	22·5	83·4	84·7	80·7	+ 0·4	72·6	76·7	76·0	75·1
	Calcutta (Alipore)	...	·889	·783	·109	·830	−·005	·797	87·2	74·3	12·9	90·3	71·5	18·8	83·2	84·7	80·3	+ 0·4	72·7	75·9	75·5	74·7
	Calcutta (Chowringhee).	...	·897	?	?	?	?	?	88·9	74·7	14·2	92·0	71·4	20·6	85·1	?	81·8	?	73·6	77·6		?
	Saugor Island	...	·880	·772	·108	·821	−·007	·791	86·4	76·6	9·8	90·2	73·3	16·9	83·3	84·3	80·5	+ 0·5	74·0	78·5	78·0	76·9
	Burdwan	...	·824	·713	·111	·764	−·001	·811	88·7	75·6	13·1	92·1	70·4	21·7	83·0	86·1	81·4	+ 0·1	72·6	74·8	74·4	74·1
	Berhampore	...	·845	·734	·111	·785	−·008	·801	87·3	74·9	12·4	90·6	71·8	18·8	82·6	85·5	80·6	0	72·3	76·0	75·6	74·6
	False Point	...	·893	·786	·107	·838	−·007	·801	88·1	75·7	12·4	92·5	72·1	20·4	85·3	85·4	80·7	+ 0·9	74·0	78·0	7·75	76·5
	Cuttack	...	·825	·721	·104	·771	−·012	·794	89·0	75·0	14·0	92·9	71·8	21·1	85·2	86·0	81·0	+ 0·3	72·8	76·3	76·1	75·1
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·905	27·815	·090	27·863	−·004	·826	83·3	67·1	16·2	87·2	64·2	23·0	78·8	80·5	74·1	+ 0·8	62·7	68·6	68·4	66·6
	Patna	...	29·729	29·611	·118	29·666	−·018	·804	88·8	72·4	16·4	92·1	69·4	22·7	84·5	87·0	79·9	+ 0·7	69·4	73·5	72·6	71·8
	Darbhanga	...	·757	·640	·117	·695	−·011	·817	88·4	72·5	15·9	91·5	70·0	21·5	83·8	86·9	79·8	+ 0·4	70·9	74·8	74·6	73·4
	Allahabad	...	·598	·484	·114	·535	−·023	·802	92·5	67·9	24·6	95·4	60·6	34·8	85·5	90·9	79·2	+ 0·5	63·9	71·6	71·3	68·9
	Ghazipur	220	·691	·574	·117	·627	−·008	·804	92·4	70·8	21·6	95·3	65·9	29·4	86·2	88·5	80·5	+ 2·3	67·9	73·9	73·7	71·8
	Lucknow	...	·537	·425	·112	·475	−·025	·807	91·8	64·3	27·5	95·3	56·0	39·3	85·7	89·1	77·2	− 0·6	63·1	70·7	70·9	68·2
Upper Sub-Himalayas.	Dehra Dun	...	27·687	27·604	·083	27·634	−·020	·838	82·1	59·8	22·3	84·5	56·0	28·5	75·3	77·5	69·4	− 1·4	56·8	64·6	64·8	62·1
	Roorkee	...	29·011	28·910	·101	28·950	−·016	·817	88·4	60·0	28·4	91·0	54·4	36·6	78·8	85·7	73·1	− 1·1	58·0	67·9	69·3	65·0
	Meerut	...	·168	29·070	·098	29·112	−·006	·827	89·0	61·3	27·7	92·3	55·0	37·3	79·3	86·3	74·1	− 1·6	60·2	67·2	68·5	65·3
	Lahore	...	·186	·099	·087	·136	−·016	·818	93·4	58·4	35·0	98·3	50·4	47·9	83·8	91·5	74·7	+ 0·5	55·5	67·4	69·0	64·0
	Ludhiana	...	·083	28·988	·095	·028	−·016	·821	89·6	61·3	28·3	93·1	54·6	38·5	81·2	87·2	74·3	− 0·9	59·0	66·9	66·8	64·2
Indus Valley and N.W. Rajputana.	Peshawar	...	28·819	·721	·098	28·763	−·017	·876	87·3	57·1	30·2	93·0	50·4	42·6	76·4	85·6	71·1	+ 0·2	51·9	63·2	66·1	60·4
	Mooltan	...	29·454	29·362	·092	29·401	−·034	·794	95·7	64·8	30·9	103·4	57·7	45·7	80·4	93·8	79·1	+ 1·9	59·1	68·0	73·6	66·9
	Jacobabad	...	·720	·604	·116	·655	−·011	·802	99·0	61·2	37·8	104·3	50·5	53·8	88·8	95·9	78·6	+ 0·4	55·2	67·6	68·6	63·8
	Hyderabad (Sind)	...	·776	·683	·093	·731	−·018	·800	96·3	70·7	25·6	101·6	62·1	39·5	85·3	92·9	82·7	− 0·1	63·1	67·7	69·0	66·6
	Kurrachee	...	·857	·766	·091	·812	−·041	·814	93·2	71·6	21·6	101·3	63·0	38·3	86·9	89·1	81·4	+ 1·9	65·8	73·8	76·1	71·9
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·506	28·408	·098	28·451	−·008	·851	92·1	63·0	29·1	97·4	54·4	43·0	85·2	88·9	75·8	− 0·2	57·7	66·9	67·3	64·0
	Ajmere	...	·332	·240	·092	·282	−·010	·872	88·5	61·9	26·6	93·2	51·8	41·4	81·4	87·3	74·3	− 0·7	59·0	67·1	69·2	65·1
	Deesa	...	29·456	29·353	·103	29·398	−·019	·823	93·0	66·3	26·7	98·3	56·1	42·2	86·6	91·3	79·4	− 1·2	59·6	71·0	71·1	67·2
	Nowgong	...	·158	·052	·106	·100	−·008	·823	89·4	62·3	27·1	93·5	56·0	37·5	82·5	86·7	75·0	− 1·9	?	69·4	69·4	?
	Agra	...	·374	·277	·097	·315	+·001	·836	90·8	65·7	25·1	94·7	58·6	36·1	83·6	89·0	77·5	− 0·3	60·6	68·5	69·6	66·1
Deccan.	Belgaum	...	27·375	27·270	·105	27·321	−·035	·768	81·1	65·1	16·0	85·8	60·5	25·3	75·8	77·5	71·8	− 0·4	64·2	68·6	69·2	67·3
	Sholapur	...	28·304	28·180	·124	28·245	−·034	·780	87·6	69·4	18·2	92·8	62·2	30·6	80·6	83·8	76·9	− 0·1	67·4	72·1	72·0	70·5
	Poona	...	·058	27·948	·110	·007	−·038	·788	86·7	68·8	17·9	91·0	64·6	26·4	80·6	82·1	76·5	+ 0·7	67·1	71·2	70·5	69·6
	Akola	...	·967	28·848	·119	·904	−·032	·788	90·0	68·6	21·4	94·8	60·1	34·7	83·3	87·2	79·4	+ 1·4	67·2	73·8	73·9	71·6

II.

Stations in India, Burma, etc., for October 1892.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
·835	·958	·940	·911	+ ·003	91	86	84	87	+ 1	7·8	8·5	8·2	+ 2·4	6	3	6	5	17	10	5	7	3	S. 28° E.	S. 5° W.	29	24	177	152	Port Blair	Burma Coast and Bay Island.
?	·854	·875	?	?	?	75	82	?	?	4·7	8·4	6·6	− 0·5	...	13	17	3	16	2	...	...	11	N. 44° E.	S. 79° W.	43	22	48	36	Mergui	
·804	·906	·883	·864	− ·027	92	81	76	83	− 2	4·9	4·2	4·6	− 1·5	...	...	13	18	12	8	3	2	2	S. 74° E.	S. 37° E.	52	28	89	77	Rangoon	
·809	·877	·849	·845	− ·026	87	78	75	80	− 4	6·6	7·1	6·9	+ 1·6	...	5	9	14	17	8	2	3		S 74° E.	S. 59° E.	42	21	243*	159	Diamond Island.	
?	·898	·866	?	?	?	80	81	?	?	4·8	5·3	5·1	?	...	4	13	8	16	14	2	3	2	S. 62° E.	?	42	?	321?	?	Cocos Island	
·782	·919	·895	·865	− ·013	90	84	77	84	+ 2	4·6	4·6	4·6	− 0·3	...	4	16	9	4	13	2	12	2	S. 86° E.	S. 35° E.	13	12	59	58	Akyab	
·721	·812	·812	·782	− ·029	94	78	69	80	0	5·3	5·2	5·3	+ 0·5	51	...	2	5	1	1	...	1	1	N. 85° E.	S. 56° E.	8	9	13	47	Silchar	Assam.
·750	·810	·827	·796	+ ·004	97	84	73	85	0	5·1	4·8	5·0	− 1·5	2	1	22	5	16	4	11	...	1	S. 76° E.	N. 66° E.	39	53	46	47	Sibsagar	
·716	·780	·765	·754	− ·025	91	80	66	79	− 1	2·5	1·7	2·1	− 0·6	12	...	28	9	2	3	6	1	1	N. 64° E.	N. 47° E.	43	20	102	69	Dhubri	
·777	·892	·892	·854	0	95	83	81	86	+ 3	6·7	6·6	6·7	+ 2·4	5	4	13	4	7	9	7	5	8	S. 86° E	N. 10° W.	3	14	57	71	Chittagong	Bengal and Orissa.
·778	·832	·785	·798	− ·052	90	73	67	77	− 3	5·1	5·4	5·3	+ 1·2	...	6	10	9	5	5	10	8	9	N. 25° W.	S. 55° E.	6	4	68	58	Dacca	
·783	·799	·763	·782	− ·060	92	71	65	76	− 8	4·6	4·9	4·8	+ 0·6	1	12	14	10	5	...	5	10	5	N. 7° E	N. 48° W.	35	11	56	70	Calcutta (Alipore).	
·818	·849	?	?	?	95	71	?	?	?		Not re	corded		...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	Calcutta (Chowringhee).	
·808	·907	·878	·864	+ ·002	88	79	75	81	− 1	6·1	6·2	6·2	+ 1·6	...	14	9	4	6	6	6	8	9	N. 18° W.	N. 10° E.	21	13	196	156	Saugor Island	
·767	·756	·697	·750	− ·044	88	68	57	72	− 3	4·0	4·1	4·0	− 0·2	7	22	6	12	4	2	4	5	0	N. 31° E.	N. 19° E.	35	29	35	47	Burdwan	
·758	·811	·753	·774	− ·019	87	73	62	74	− 5	4·1	4·1	4·1	− 0·6	12	9	3	11	4	2	5	9	7	N. 11° W	N. 12° W.	13	16	33	51	Berhampore	
·819	·861	·839	·840	+ ·011	93	72	70	78	− 2	5·4	6·5	6·0	+ 1·4	1	7	11	13	7	8	3	9	3	N. 82° E.	N. 40° E.	21	25	162	142	False Point	
·780	·789	·770	·780	− ·005	90	66	63	73	− 2	5·1	6·6	5·9	+ 1·5	5	3	13	13	2	9	5	10	2	S. 2° E.	N. 32° E.	13	25	44	43	Cuttack	
·518	·575	·545	·546	+ ·001	78	59	54	64	− 1	6·4	6·2	6·3	+ 2·0	2	11	6	15	4	5	1	6	12	N. 23° E.	N. 42° W.	27	34	134	119	Hazaribagh	Gangetic Plain and Chota Nagpur.
·683	·680	·606	·655	− ·045	85	57	47	63	− 7	2·2	2·9	2·6	− 0·9	7	2	4	12	1	9	9	14	4	S. 42° W.	N. 21° E	18	4	59	46	Patna	
·738	·743	·695	·725	− ·040	92	64	55	70	− 6	0·6	1·2	0·9	− 1·9	4	4	8	10	9	2	8	11	6	S. 87° E.	N.68° E.	2	3	40	54	Darbhanga	
·546	·592	·505	·548	− ·082	80	48	35	54	− 14	1·9	3·2	2·6	+ 0·9	2	7	10	8	3	2	3	12	15	N. 22° W.	N. 42° W.	32	13	73	43	Allahabad	
·652	·675	·637	·654	+ ·034	85	54	48	62	+ 3	1·9	3·3	2·6	+ 0·4	15	2	2	11	7	3	11	9	2	S. 4° W.	S. 71° W.	17	23	40	33	Ghazipur	
·569	·555	·519	·548	− ·026	93	45	38	59	− 2	1·4	2·5	2·0	+ 0·3	20	5	3	...	...	...	3	12	15	N. 54° W.	N. 30° W.	45	39	46	47	Lucknow	
·425	·478	·458	·455	?	82	54	48	62	?	0	1·2	0·6	− 0·5	18	7	1	1	4	9	3	10	8	S. 87° W.	N. 38° W.	21	19	24	40	Dehra Dun	Upper Sub-Himalayas.
·461	·541	·500	·499	+ ·006	88	55	40	61	+ 2	0·1	0·6	0·4	− 0·4	47	...	...	5	1	...	...	3	6	N. 22° W.	S. 27° E.	6	11	?	34	Roorkee	
·516	·510	·465	·497	− ·001	94	50	37	60	+ 3	0	0·3	0·2	− 0·5	30	1	...	...	...	...	...	29	2	N. 85° W.	N. 48° W.	50	40	23	34	Meerut	
·410	·458	·412	·427	− ·024	82	39	27	49	+ 2	0	0·1	0·1	− 0·6	37	5	1	1	1	2	...	6	9	N. 47° W.	N. 3° W.	23	12	19	38	Lahore	
·476	·473	·389	·446	− ·028	86	44	30	53	− 1	0	0·1	0·1	− 0·8	55	1	..	1	...	...	...	4	1	N. 66° W.	N. 40° W.	6	24	9	25	Ludhiana	
·330	·420	·402	·384	+ ·016	70	47	33	50	+ 3	0·3	1·4	0·9	− 0·5	20	11	10	9	5	...	2	1	4	N. 43° E.	N. 54° E.	34	35	57*	59	Peshawar	Indus Valley and N.-W. Rajputana.
·435	·528	·566	·510	− ·022	69	59	35	51	− 3	0	0	0	− 0·3	6	...	2	...	26	...	28	...	...	S.	S. 70° W.	60	21	25*	45	Mooltan	
·375	·409	·344	·376	− ·062	66	30	20	39	− 4	0·2	0·3	0·3	− 0·1	32	1	...	2	7	6	6	...	8	S. 19° W.	S. 47° E.	14	11	62*	52	Jacobabad	
·490	·451	·399	·447	− ·037	64	37	26	42	− 2	1·0	0·3	0·7	+ 0·3	...	...	36	...	12	...	11	...	3	N. 65° E.	S. 61° W.	42	42	124*	188	Hyderabad (Sind)	
·574	·671	·735	·660	+ ·020	72	53	55	60	− 3	0·8	0·9	0·9	0	...	...	9	...	...	...	26	27	..	S. 73° W.	S. 67° W.	66	64	249	235	Kurrachee	
·422	·437	·409	·423	+ ·001	70	35	31	45	0	0·9	2·6	1·8	0	2	6	13	8	1	3	1	11	17	N. 7° W.	N. 4° W.	37	37	57	86	Jeypore	E. Rajputana, Central India, and Guzerat.
·478	·493	·496	·489	+ ·027	84	46	38	56	+ 7	1·1	2·0	1·6	+ 0·5	3	5	10	7	4	2	6	20	5	N. 59° W.	N. 76° W.	21	23	80	61	Ajmere	
·434	·557	·497	·496	+ ·052	65	45	34	48	+ 6	2·7	3·3	3·0	+ 1·1	...	1	12	16	8	3	16	6	...	S. 51° E.	N. 62° W.	26	16	146	161	Deesa	
?	·549	·492	?	?	?	49	38	?	?	1·4	3·8	2·6	− 0·1	2	9	5	16	...	1	1	19	9	N. 21° W.	N. 42° W.	31	35	32*	35	Nowgong	
·470	·502	·469	·478	− ·014	73	43	34	50	+ 1	0·3	0·5	0·4	− 0·5	...	...	4	...	3	1	14	1	39	N. 64° W.	N. 78° W.	60	40	72	72	Agra	
·592	·610	·612	·605	+ ·016	95	69	67	77	+ 5	5·5	6·0	5·8	+ 0·2	2	7	13	6	2	7	11	4	1	N. 81° E.	N. 88° E.	6	72	238	251	Belgaum	Deccan.
·651	·684	·633	·656	+ ·081	90	67	58	71	+ 10	7·4	8·2	7·8	+ 1·8	...	3	5	16	9	4	1	12	12	N. 51° E	N. 56° E.	10	30	214*	190	Sholapur	
·645	·649	·603	·632	+ ·079	91	63	58	71	+ 12	5·6	7·1	6·4	+ 1·5	22	...	9	15	3	2	1	6	4	N. 74 E.	N. 38° E.	23	17	123	139	Poona	
·654	·707	·662	·674	+ ·100	93	63	53	70	+ 9	6·1	7·0	6·6	+ 3·5	9	2	26	1	8	...	1	4	11	N. 30° E.	N. 20° E.	40	32	90	82	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 96

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level.	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.*	Buldana	2,132	27·769	27·668	·101	27·714	−·042	29·781	83·8	68·7	15·1	88·4	64·7	23·7	78·8	81·0	76·3	−0·2	64·9	69·6	69·3	67·9
	Khandwa	...	28·861	28·754	·107	28·804	−·022	·810	89·1	67·5	21·6	94·2	60·1	34·1	82·4	86·4	77·0	+0·3	64·5	71·6	71·8	69·3
	Hoshangabad	...	·903	·785	·118	·835	−·025	·823	87·8	68·4	19·4	92·8	62·8	30·0	81·2	86·4	77·0	+0·1	64·6	71·2	71·9	69·1
	Nagpur	...	·879	·759	·120	·815	−·006	·796	87·9	70·7	17·2	92·1	65·3	26·8	82·7	85·2	79·5	+0·8	66·5	72·9	72·4	70·6
	Sironcha	401	29·482	29·363	·119	29·418	−·055	·766	89·1	73·5	15·6	92·7	67·8	24·9	82·4	85·8	81·3	+0·4	71·7	76·1	75·3	74·5
	Chanda	634	·261	·154	·107	·205	−·022	·787	88·6	71·2	17·4	91·8	67·1	24·7	83·2	85·4	79·9	+1·4	69·7	74·7	75·7	73·4
	Seoni	...	27·883	27·785	·098	27·831	−·015	·806	84·3	65·9	18·4	88·6	59·8	28·8	80·4	81·1	74·7	+1·7	63·5	69·5	69·7	67·6
	Jubbulpore	...	28·588	28·481	·107	28·531	+·001	·825	86·0	66·0	20·0	89·2	57·8	31·4	80·5	83·1	74·7	+0·8	64·7	70·0	69·9	68·4
	Saugor	...	·158	·055	·103	·103	−·009	·825	87·3	65·2	22·1	91·3	59·7	31·6	82·0	85·3	75·1	−0·1	61·4	66·3	69·3	66·5
	Raipur	...	·941	·813	·128	·873	−·016	·783	87·6	71·6	16·0	91·0	68·2	22·8	82·7	85·5	79·9	+1·3	68·9	73·7	73·5	72·0
	Sutna	...	·863	·756	·107	·805	−·018	·815	87·0	65·6	21·4	91·1	58·7	32·4	83·5	85·8	75·4	−0·1	63·2	68·9	69·0	67·1
	Sambalpur	...	29·419	29·309	·110	29·362	−·010	·774	88·9	73·3	15·6	91·5	69·2	22·3	83·9	85·8	80·8	+0·6	71·7	76·4	76·0	74·7
	Secunderabad	1,787	28·104	27·990	·114	28·050	−·025	·782	84·7	69·3	15·4	90·6	64·0	26·6	78·5	80·2	75·3	−1·2	68·3	71·0	71·1	70·1
	Hyderabad (Deccan).	...	·197	28·085	·112	·141	?	·774	83·5	69·8	13·7	90·5	65·4	25·1	78·8	80·4	75·8	?	68·9	72·2	71·9	71·0
West Coast.	Bombay	...	29·864	29·760	·104	29·808	−·034	·785	87·0	77·0	10·0	92·1	74·5	17·6	82·6	84·1	81·2	+0·1	74·2	77·6	78·3	76·7
	Ratnagiri	...	·785	·676	·109	·726	−·029	·774	86·5	74·1	12·4	93·1	70·8	22·3	83·5	83·0	79·3	−0·5	72·1	76·7	78·1	75·6
	Karwar	...	·860	·762	·098	·807	−·025	·783	84·2	71·9	12·3	88·5	68·7	19·8	80·1	81·9	77·4	−0·8	70·2	75·5	76·1	73·9
	Cochin	...	·929	·826	·103	·874	−·014	·812	85·0	74·2	10·8	87·9	72·1	15·8	81·1	81·7	78·7	−0·8	73·0	76·1	76·0	75·0
South India.	Salem	...	28·979	28·841	·138	28·916	−·028	·795	90·2	70·9	19·3	94·0	63·0	31·0	81·2	86·2	78·5	+0·6	69·6	73·4	74·3	72·4
	Mercara	...	26·226	26·121	·105	26·173	−·030	·820	75·0	62·3	12·7	78·5	58·7	19·8	70·0	69·9	67·4	−0·2	60·6	65·4	65·8	63·9
	Bangalore	3,019	·926	·824	·102	·876	?	·785	81·5	65·3	16·2	86·1	58·3	27·8	75·2	78·2	72·6	?	63·5	68·1	68·6	66·7
	Chitaldroog	...	27·503	27·393	·110	27·448	?	·825	84·0	67·2	16·8	88·7	63·3	25·4	77·8	80·5	74·7	?	64·2	69·3	69·1	67·5
	Trichinopoly	...	29·640	29·514	·126	29·583	−·018	·769	91·6	73·4	18·2	96·7	68·1	28·6	84·9	88·6	80·7	+0·4	71·4	75·8	76·8	74·7
	Madras	...	·872	·763	·109	·821	−·018	·772	88·9	74·2	14·7	93·2	66·6	26·6	84·5	84·3	80·6	−0·5	?	77·3	77·3	76·4
	Bellary	...	28·415	28·295	·120	28·358	−·024	·776	87·4	70·4	17·0	93·9	65·3	28·6	80·8	83·5	77·3	−1·4	67·9	72·9	73·2	71·3
	Vizagapatam	...	29·865	29·751	·114	29·803	−·015	·772	84·5	78·3	6·2	89·2	76·0	13·2	83·7	84·5	83·1	−0·2	73·2	77·3	77·4	76·0
Hill Station, Beluchistan.	Quetta	...	24·726	24·650	·076	24·679	+·001	?	75·0	38·8	36·2	83·0	32·3	50·7	66·0	71·5	56·1	+0·2	35·2	49·2	51·4	45·2
Hill Stations, Northern India.	Leh	11,503	19·791	19·671	·120	19·740	+·008		59·3	29·5	29·8	67·4	23·3	44·1	47·8	56·3	44·7	+2·6	26·1	34·5	37·6	32·7
	Srinagar	...	24·962	24·847	·115	24·905	?	?	71·7	36·4	35·3	77·8	31·1	46·7	56·4	70·3	53·7	?	35·7	49·6	60·3	48·5
	Murree	...	23·917	23·887	·030	23·894	−·019	?	68·0	52·0	16·0	73·3	43·5	29·8	62·4	63·1	58·6	−0·7	43·3	49·9	50·3	47·9
	Chamba	3,005	26·955	26·863	·092	26·917	−·032	?	79·3	53·6	25·7	84·9	49·9	35·0	66·8	75·3	64·1	−1·1	50·4	56·8	62·4	56·5
	Kailang	10,087?	20·832	20·774	·068	20·806	−·002	?	62·4	31·6	30·8	68·0	29·0	39·0	52·1	55·7	43·9	+1·5	28·2	41·0	42·4	37·2
	Simla (Ridge)	...	23·175	23·129	·046	23·143	−·019	?	61·1	49·9	11·2	64·2	45·4	18·8	56·3	58·2	54·6	−2·0	42·4	47·0	48·5	45·9
	Simla (Chapslee)		Not recorded.					?	68·7	49·7	19·0	73·4	45·5	27·9	60·4	?	?	?	42·9	49·4	?	?
	Chakrata	...	·317	·254	·063	·276	−·028	?	64·2	50·0	14·2	66·8	45·3	21·5	60·7	61·0	56·1	−0·7	46·2	52·6	53·6	50·8
	Ranikhet	...	24·169	24·103	·066	24·121	+·005	?	68·9	53·0	15·9	73·2	48·5	24·7	64·2	66·9	60·2	−0·7	50·0	55·1	56·3	53·7
	Pithoragarh	5,363	·803	·733	·070	·753	+·013	?	73·5	54·4	19·1	77·4	48·0	29·4	66·4	72·9	63·6	−0·4	51·4	59·6	60·3	57·1
	Katmandu	4,388	25·676	25·587	·089	25·631	−·019	?	79·2	53·2	26·0	91·2	45·2	46·0	69·4	73·1	64·7	−2·9	52·1	62·0	63·7	59·3
	Darjeeling	...	23·049	22·980	·069	23·018	−·001	?	60·6	48·0	12·6	64·8	43·6	21·2	56·4	57·8	53·8	−0·7	45·8	52·9	54·3	51·2
	Pedong	...													Imperfect.							
	Demagiri	...	Not recorded.					?	85·5	65·2	20·3	89·4	60·1	29·3	81·9	82·6	74·6	−4·0	Not recorded.			
	Tura	...	Ditto.					?	83·0	69·5	13·5	87·2	63·9	23·3	76·1	79·6	75·4	?	?	71·1	73·4	?

II—*continued.*

Stations in India, Burma, etc., for October 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
																									%	%				
·571	·612	·573	·585	+·046	81	64	56	67	+ 7	5·5	5·7	5·6	+1·6	9	14	15	9	4	...	...	2	9	N. 27° E	N. 29° E.	52	52	148	117*	Buldana.	Deccan—*contd.*
·575	·643	·598	·606	+·063	85	59	49	64	+ 6	3·0	3·8	3·4	+1·1	1	23	21	4	4	...	1	5	3	N. 20° E	N. 24° E.	63	28	68	68	Khandwa.	
·566	·644	·598	·601	+·004	81	61	49	64	+ 1	2·2	3·8	3·0	+0·5	2	10	20	14	1	6	2	4	2	N. 52° E.	N. 12° E.	45	25	93	38	Hoshangabad.	
·603	·690	·638	·644	+·062	80	63	55	66	+ 6	5·0	6·1	5·6	+1·6	10	6	27	15	2	1	...	...	1	N. 84° E.	N. 37° E.	56	51	99	89	Nagpur.	
·755	·818	·761	·778	+·052	91	74	63	76	+ 4	5·1	6·4	5·8	+2·1	30	9	2	3	1	2	1	9	5	N. 38° W.	N. 7° E.	21	32	39	64	Sironcha.	
·711	·749	·758	·739	+·052	93	66	63	74	+ 3	4·3	5·4	4·9	+1·1	18	2	11	13	4	2	1	3	5	N. 65° E.	N. 48° E.	29	32	63	55	Chanda.	
·561	·591	·587	·580	+·059	88	59	58	68	+ 8	5·1	5·8	5·5	+1·6	...	10	22	17	3	2	1	1	6	N. 49° E	N. 28° E.	61	49	82	73	Seoni.	
·600	·628	·568	·599	+·031	93	61	52	69	+ 4	2·8	4·1	3·5	+0·7	18	7	21	5	3	2	2	1	3	N. 44° E.	N. 3° E.	40	17	24	49	Jubbulpore.	
·500	·542	·517	·520	+·013	80	50	43	58	+ 1	2·6	3·2	2·9	+1·2	...	7	7	7	14	5	11	4	7	S. 41° E.	N. 28° W.	13	45	38	64	Saugor.	
·673	·711	·668	·684	+·043	87	65	56	69	+ 3	5·7	7·3	6·5	+3·0	13	3	18	13	3	...	2	3	7	N. 47° E	N. 28° E.	40	37	93*	95	Raipur.	
·553	·526	·503	·527	+·012	87	46	41	58	+ 1	2·1	2·7	2·4	+0·2	1	22	4	11	2	2	...	4	16	N. 1° W.	N. 34° W.	53	47	95*	105	Sutna.	
·756	·808	·769	·778	+·012	92	69	63	75	+ 1	3·4	4·9	4·2	+1·0	...	12	22	2	3	2	7	3	11	N. 8° E.	N. 7° E.	43	29	85*	53	Sambalpur.	
·682	·668	·649	·666	+·068	95	69	65	76	+10	6·1	7·3	6·7	+2·4	3	1	16	24	3	2	4	3	6	N. 70° E.	N. 37° E.	47	42	118	94	Secunderabad.	
·693	·709	·680	·693	?	95	73	67	78	?	6·3	6·7	6·5	?	19	3	9	13	7	2	1	7	1	N. 81° E.	?	26	?	104*	?	Hyderabad (Deccan).	
·812	·882	·894	·863	+·020	88	79	76	81	+ 1	4·6	3·9	4·3	+0·1	...	1	8	12	4	4	6	10	17	N. 36° W	N. 15° E.	14	38	183	231	Bombay.	West Coast.
·761	·831	·897	·830	+·039	90	73	79	81	+ 5	4·9	5·3	5·1	+0·6	5	6	1	3	6	8	13	8	12	S. 70° W.	S. 81° W.	31	17	139*	168	Ratnagiri.	
·717	·823	·824	·788	−·030	92	80	76	83	− 1	4·4	4·9	4·7	+0·2	7	5	10	...	...	...	3	30	7	N. 64° W.	N. 82° W.	53	56	32	?	Karwar.	
·797	·834	·822	·818	−·013	94	79	76	83	0	5·3	5·9	5·6	−0·2	4	...	5	3	1	2	4	33	10	N. 82° W.	S. 76° W.	58	40	121	?	Cochin.	
·709	·714	·696	·706	−·052	93	66	57	72	− 5	6·1	7·7	6·9	+1·3	29	1	3	...	3	7	12	5	2	S. 39° W.	S. 52° W.	27	39	42	63	Salem.	
·512	·575	·592	·560	−·022	91	79	82	84	− 2	7·1	7·8	7·5	−0·3	...	4	7	15	1	1	3	27	4	N. 55° W.	N. 36° W.	23	24	56	82	Mercara.	South India.
·569	·602	·581	·584	?	91	69	60	73	?	5·0	5·9	5·5	?	1	2	13	8	5	1	14	14	4	S. 86° W.	?	10	?	123*	?	Bangalore.	
·566	·613	·572	·584	?	84	65	56	68	?	6·3	7·0	6·7	?	9	3	11	9	2	3	9	9	7	N. 29° W.	?	8	?	127*	?	Chitaldroog.	
·713	·765	·764	·759	−·005	90	64	57	70	− 3	5·1	6·6	5·9	−1·6	22	2	3	3	2	...	6	21	3	S. 89° W.	N. 44° W.	32	33	66	93	Trichinopoly.	
?	·844	·845	·856	+·036	?	72	72	82	+ 3	5·5	5·3	5·4	−0·7	...	9	10	3	7	7	4	7	10	N. 21° E.	N. 35° E.	14	10	116	121	Madras.	
·653	·712	·689	·685	+·056	88	69	62	73	+ 9	6·9	7·4	7·2	+0·8	29	1	4	4	4	...	6	5	9	N. 60° W.	N. 24° E.	11	14	106	104	Bellary.	
·747	·857	·854	·819	+·003	77	74	72	74	+ 2	6·0	6·5	6·3	+1·7	...	13	11	3	4	7	8	9	7	N. 30° W.	S. 65° E.	19	18	29	44	Vizagapatam.	
·176	·182	·174	·176	−·017	74	28	22	41	− 1	0·2	0·7	0·5	+0·1	52	...	...	...	...	...	...	3	7	N. 59° W.	N. 56° W.	14	50	?	63	Quetta.	Hill Station, Beluchistan.
·116	·088	·068	·091	−·008	73	27	14	38	− 3	1·7	3·8	2·8	−1·0	25	1	...	...	1	2	11	16	6	S. 79° W.	S. 56° W.	45	34	7	45	Leh.	Hill Stations, Northern India.
·204	·281	·415	·300	?	95	62	56	71	?	1·1	2·9	2·0	?	23	4	7	3	6	2	3	10	4	N. 42° W.	?	6	?	45*	?	Srinagar.	
·193	·233	·235	·222	−·011	50	41	41	44	− 1	0·5	0·6	0·6	−1·5	17	3	...	1	14	10	4	5	7	S. 7° W.	S. 30° E.	24	10	141*	145	Murree.	
·331	·350	·417	·366	−·031	78	53	47	60	+ 6	0·2	1·7	1·0	−1·8	39	2	...	...	...	...	4	6	11	N. 68° W.	N. 11° E.	29	7	102	107	Chamba.	
·128	·161	·156	·148	+·022	72	42	35	50	+ 3	0·4	2·9	1·7	−1·7	...	...	...	3	15	5	27	11	1	S. 27° W.	S. 49° W.	61	68	37	37	Kailang.	
·195	·229	·245	·222	−·034	54	50	50	52	0	0·1	0·4	0·3	−1·1	15	31	1	...	1	6	1	4	3	N. 12° W.	N. 87 W.	43	35	?	?	Simla (Ridge).	
·209	·243	?	?	?	58	46	?	?	?	0·1	?	0·1	?	Not recorded.									?	?	?	?	?	?	Simla (Chapslee).	
·279	·317	·338	·311	+·034	77	59	63	66	+ 8	0·2	0·8	0·5	−1·2	23	...	1	...	...	...	4	34	...	S. 87° W.	S. 64° W.	58	30	79	120	Chakrata.	
·332	·334	·345	·337	+·009	82	56	52	64	+ 3	0·6	1·2	0·9	−0·7	15	...	...	3	...	2	39	3	...	S. 43° W.	S. 54° W.	64	55	66	42	Ranikhet.	
·352	·441	·393	·395	+·016	83	67	49	66	+ 3	1·3	1·5	1·4	−0·7	34	...	...	3	1	4	20	...	...	S. 29° W.	S. 15° E.	34	36	60	59	Pithoragarh.	
·384	·475	·486	·448	−·029	93	66	59	73	0	2·7	3·4	3·1	−0·7	1	...	...	13	...	...	...	42	6	N. 83° W.	W.	55	52	18	?	Katmandu.	
·290	·364	·393	·353	−·017	85	80	82	83	+ 1	5·4	5·7	5·6	+0·1	10	2	9	3	1	1	10	17	1	N. 89° W.	S. 3° E.	28	5	?	62	Darjeeling.	
										Imperfect.													?	?	?	?	?	?	Pedong.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	3	...	...	22	...	...	1	31	5	N. 78° W.	N. 54° W.	23	15	?	?	Demagiri.	
?	·704	·751	?	?	?	78	74	?	?	2·2	3·0	2·6	−1·8	...	13	2	...	...	38	7	...	2	S. 10° W.	S. 15° E.	45	43	?	?	Tura.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 96 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level.	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, Central India.	Mount Abu	...	?	?	?	?	?	?	75·6	62·3	13·3	79·6	57·9	21·7	73·0	73·3	68·4	−2·4	54·6	60·3	61·6	58·8
	Pachmarhi	...	26·502	26·422	·080	26·458	−·018	?	76·9	60·2	16·7	80·5	53·2	27·3	73·1	73·6	67·8	+0·8	56·9	63·9	63·8	61·6
	Chikalda	3,642	·367	·271	·096	·315	−·025	?	76·9	65·0	11·9	81·1	63·0	18·1	73·4	74·3	70·3	+0·5	60·7	65·4	66·1	64·1
	Makhla	...	Not recorded.						80·6	67·6	13·0	89·9	63·3	26·6	73·1	74·2	73·3	+1·1	64·8	72·3	73·4	70·1
Hill Stations, S. India.	Wellington	...	24·253	24·176	·077	24·215	−·002	?	69·6	53·2	16·4	72·7	46·0	26·7	65·9	63·8	61·0	+0·2	52·9	60·1	60·0	57·7
	Kodaikanal	...	Not recorded.						64·7	52·7	12·0	69·4	48·1	21·3	60·6	58·3	57·2	?	49·6	55·7	55·6	53·6
	Kotagiri	...	...	...	...	...	...	...	...	Register not received.			...	...	...	...	...	...	...	...	...	...
Extra India.	Aden	...	29·858	29·740	·118	29·799	−·034	·824	90·6	77·3	13·3	99·1	73·9	25·2	86·2	86·3	82·8	0	69·9	73·4	75·0	72·7
	Perim	...	·720	·600	·120	·660	?	?	90·4	80·3	10·1	93·9	78·1	15·8	87·0	86·9	84·5	?	74·6	78·5	78·5	77·2
	Minicoy	...	·943	·847	·096	·893	?	·829	85·5	78·8	6·7	89·7	75·0	14·7	82·3	82·8	81·4	?	74·5	77·1	77·0	76·2
	Zanzibar	...	30·024	·907	·117	·966	?	·966	83·6	74·9	8·7	85·7	72·8	12·9	79·4	83·4	79·2	?	71·9	74·1	73·7	73·2

II—*concluded.*

in India, Burma, etc., for October 1892—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
																									%	%				
·343	·383	·418	·381	+·043	61	48	51	53	+ 9	1·5	1·7	1·6	—0·5	...	4	13	11	8	3	8	8	7	N. 62° E.	N. 14° E.	13	6	86	98	Mount Abu.	Hill Stations, Central India.
·431	·492	·483	·469	+·021	82	62	60	68	+ 5	4·5	5·1	4·8	+1·6	7	8	15	20	2	1	1	6	2	N. 59° E.	N. 17° E.	45	37	107*	70	Pachmarhi.	
·486	·538	·549	·524	+·051	79	67	66	71	+ 7	5·5	5·6	5·6	+2·1	35	13	1	5	4	...	...	...	4	N. 23° E.	N. 3° E.	24	42	117	135	Chikalda.	
?	?	?	?	?	?	?	?	?	?	4·3	5·0	4·7	0	...	12	16	16	3	...	...	1	14	N. 31° E.	N. 67° W.	58	30	?	?	Makhia.	
·398	·466	·480	·448	+·007	97	74	81	84	+ 1	6·2	8·7	7·5	+0·2	3	5	5	2	16	22	7	1	1	S. 19° E.	S. 32° E.	50	27	42	56	Wellington.	Hill Stations, S. India.
·326	·398	·418	·381	?	82	75	85	81	?	6·6	8·4	7·5	?	4	12	14	1	5	2	2	1	21	N. 5° W.	?	48	?	182	?	Kodaikanal.	
...	...	...	...	...	...	...	...	...	Regis	ter no	t recei	ved.	...	...	...	...	...	..	...	...	...	...	...	?	...	?	...	...	Kotagiri.	
·639	·657	·718	·669	—·054	68	53	57	60	— 5	1·3	0·3	0·8	—0·9	7	...	7	33	3	11	...	1	...	S. 78° E.	S. 88° E.	64	55	345	307	Aden.	Extra India.
·778	·864	·861	·836	?	75	67	67	70	?	0·5	0·1	0·3	?	...	...	...	8	40	14	...	...	...	S. 41° E.	?	90	?	460	?	Perim.	
·795	·863	·853	·838	?	81	78	76	78	?	5·0	5·7	5·4	?	...	1	3	1	...	...	13	30	14	N. 85° W.	?	74	?	331	?	Minicoy.	
·743	·771	·705	·740	?	86	77	62	75	?	4·4	1·5	2·9	?	...	2	5	2	13	16	16	2	6	S. 6° W.	S. 9° W.	43	38	175	109	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.

Reg. No. 745 Wr 2—Mar. 93—415.

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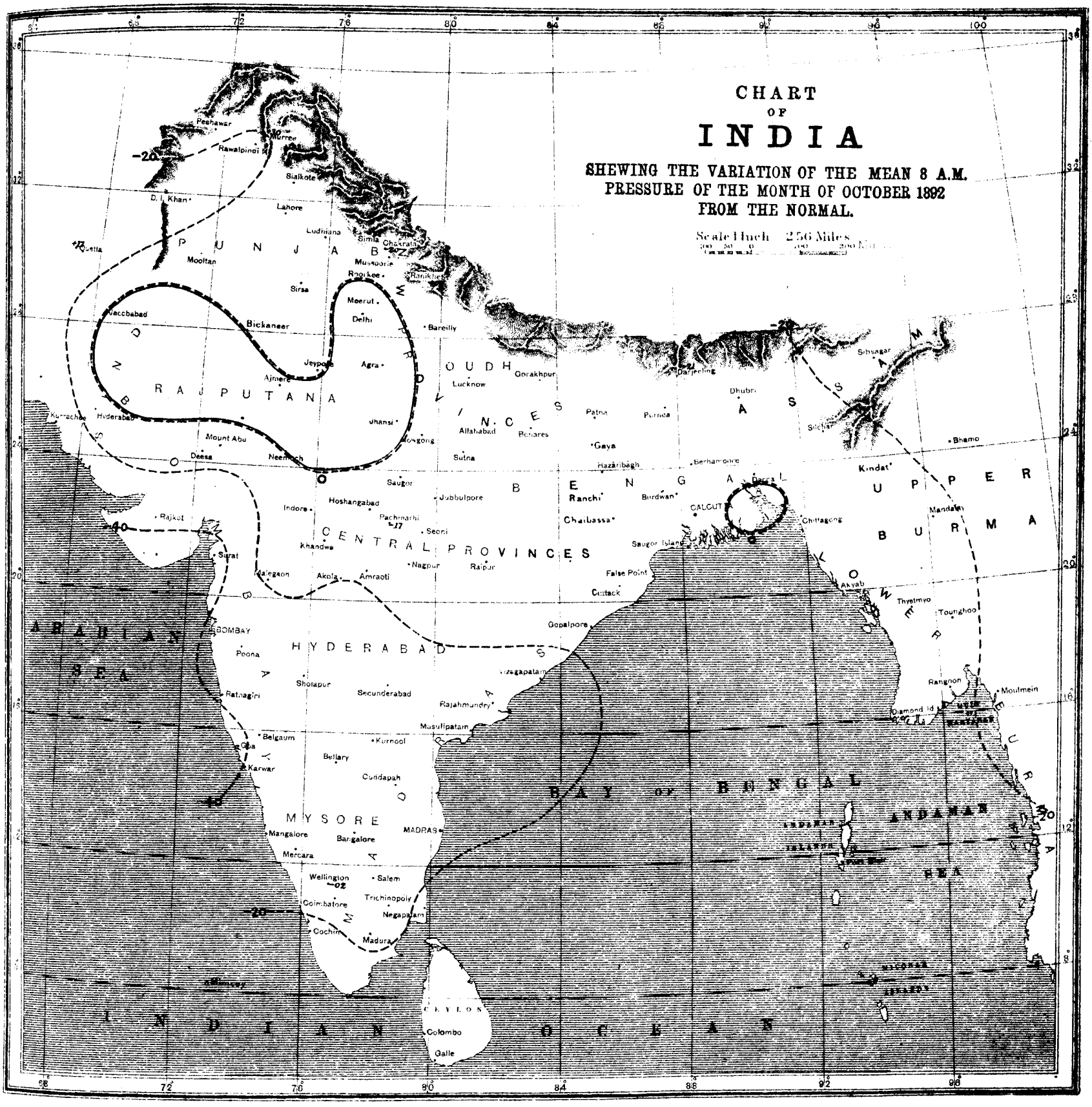

Explanation.

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. 5 Wr. - Mar. 93 - 415.

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

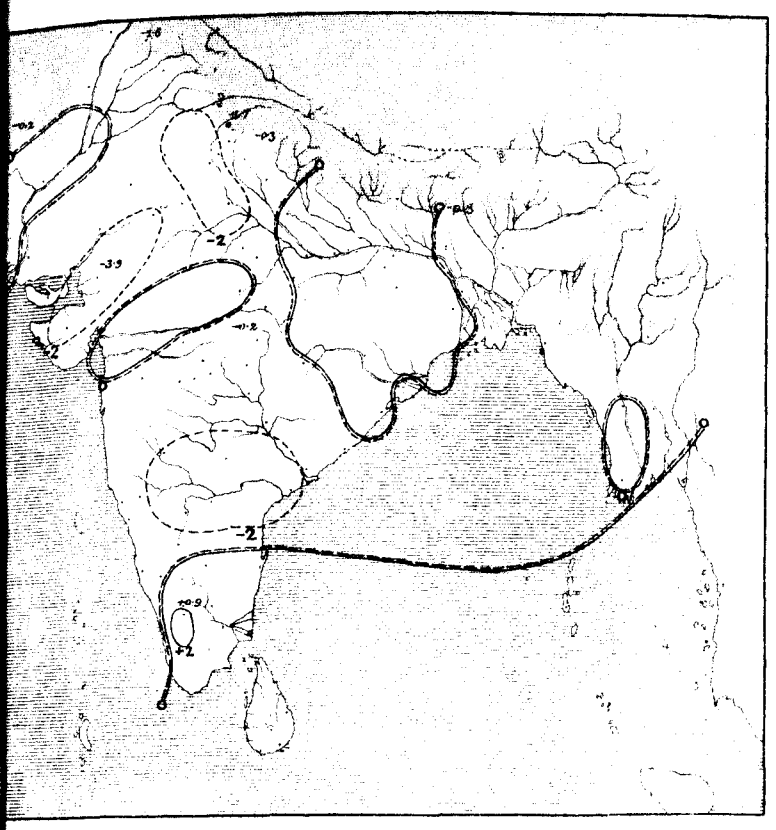
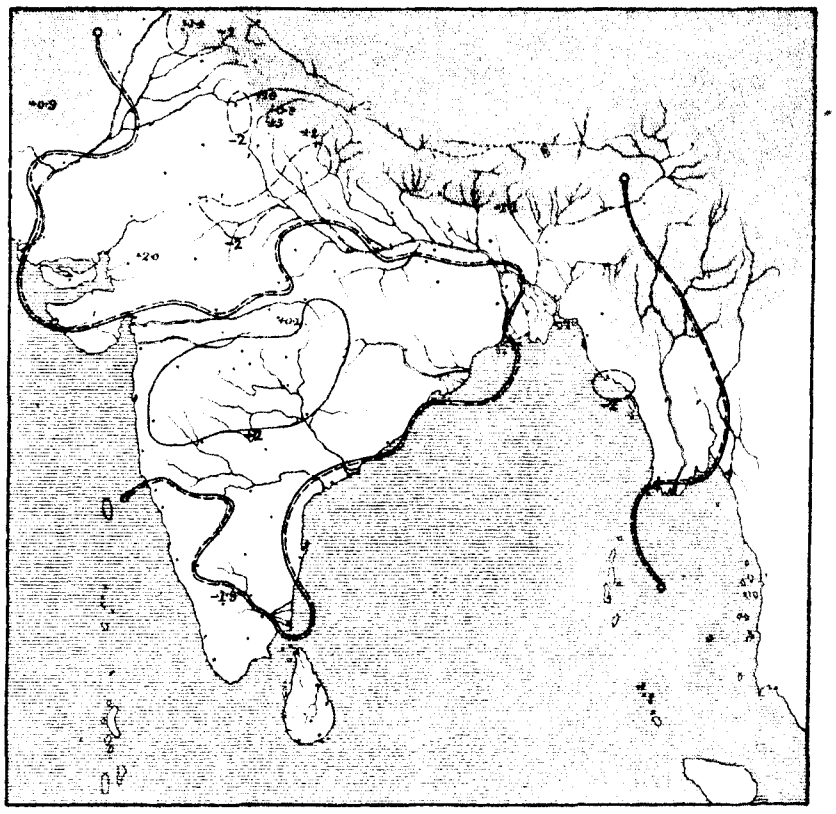


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

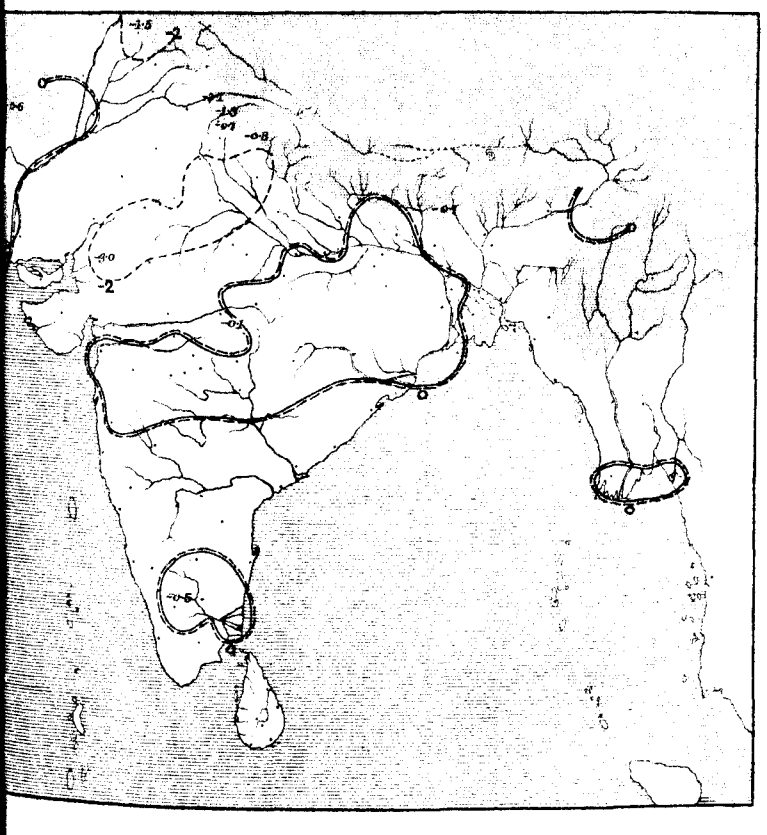
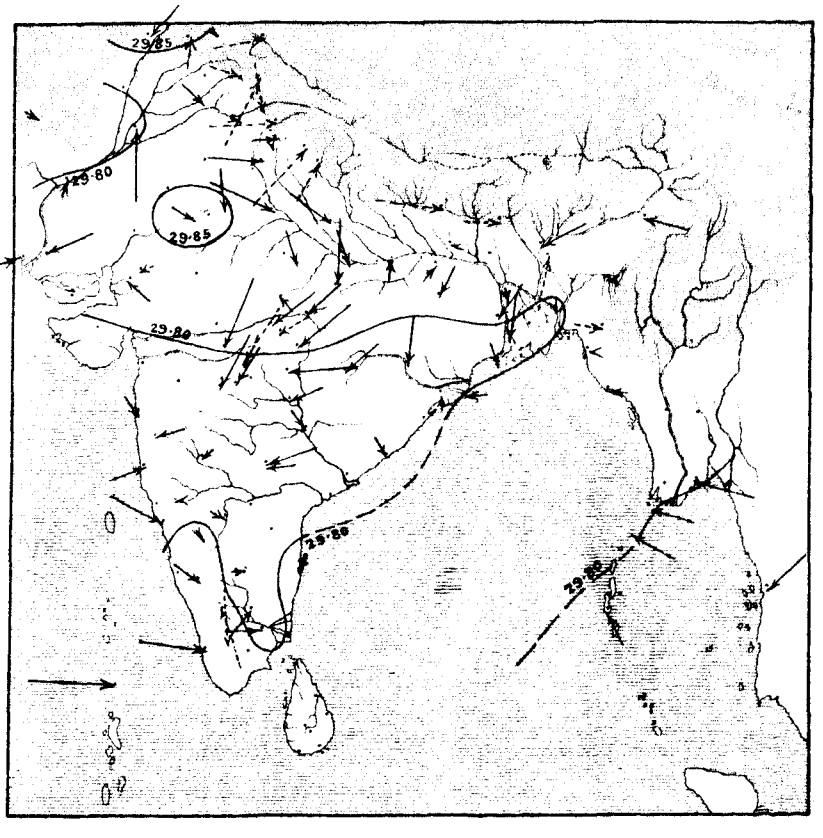


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF OCTOBER 1892.



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.

Rep. No. [illegible] Wr. I.—Mar. 93 — 1.5.

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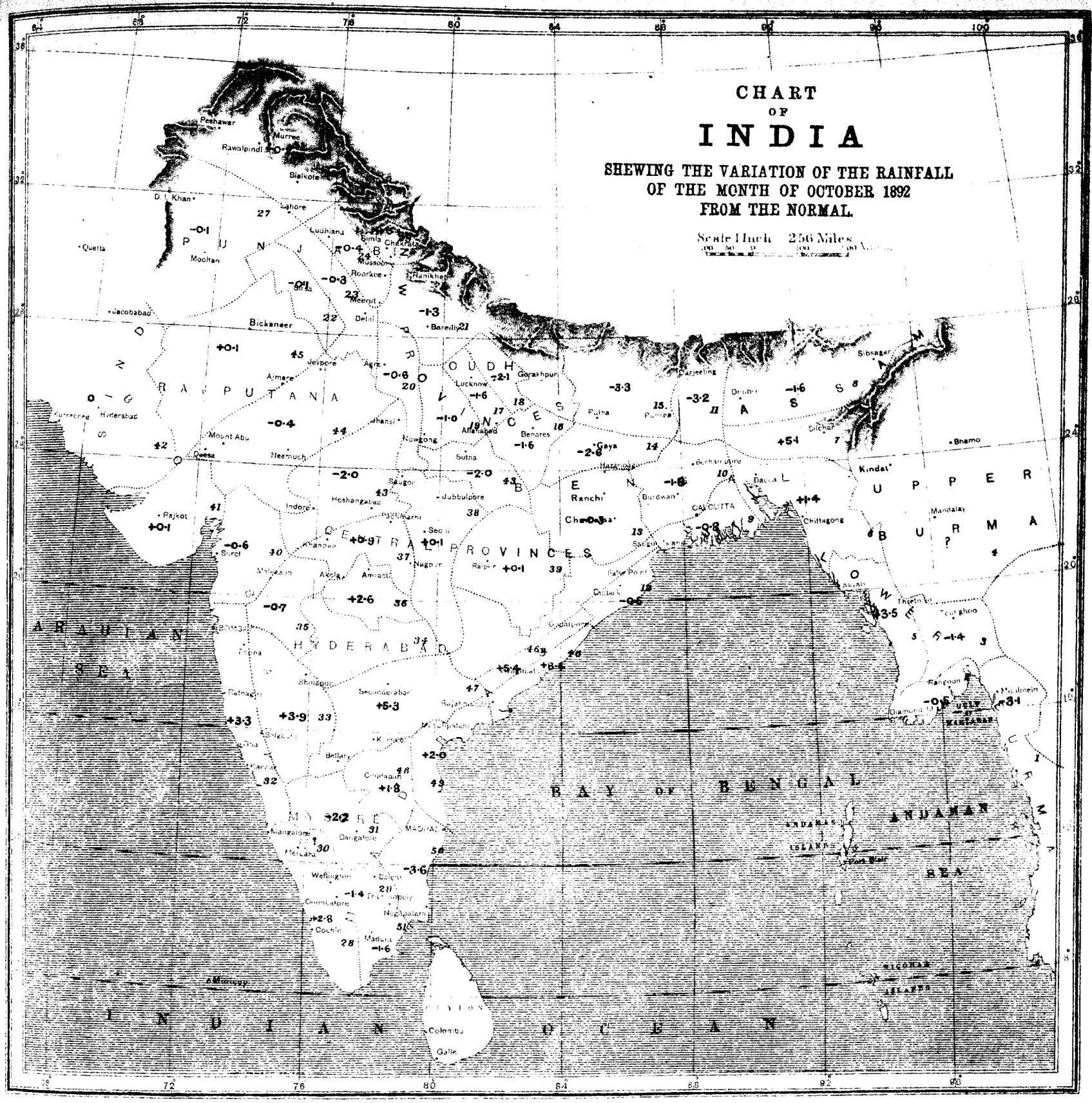

Explanation.

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)

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, NOVEMBER 1892.

INTRODUCTION.

THIS Review of the weather in India during the month of November 1892 is based on observations taken daily at 8 A.M. at 177 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 97 stations. The rainfall summary is based on 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. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of November 1892.

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 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 blowing 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.

November 1892 was remarkable for the almost entire failure of the retreating south-west monsoon (or so-called north-east monsoon) rains in Southern India. In many respects the meteorology of the month strongly resembled that of November 1891. It differed entirely in the absence of cyclonic storms.

Weather was slightly unsettled at the commencement of the month. Two shallow depressions, one in Kathiawar and Kutch and the other in Orissa and the north-west of the Bay, formed the chief features of the meteorology of the 1st and 2nd. The first determined moderate rain to the West Coast districts, Berar and the Deccan, and the latter gave heavy rain to East and South Bengal and Orissa. The Kathiawar depression filled up on the 2nd, but south-west winds continued for three or four days longer off the Malabar and Konkan coasts and gave occasional thunder showers. Northerly winds re-appeared off the Konkan coast on the 5th and extended rapidly southwards on the 6th and 7th. On the morning of the 8th north-east monsoon winds obtained over the whole of the Arabian Sea area and held steadily during the remainder of the month.

The depression in the north-west of the Bay filled up partly on the 2nd and the shallow residual depression was transferred slowly south-eastwards during the next three or four days and lay over the south-east of the Bay, the Gulf of Martaban and Lower Burma on the 5th. This depression was in fact the trough of low pressure in the Bay at this time, which usually forms an important feature of the meteorology of the month of November. It occupied a very unusual position on the 5th and following days over the south-east of the Bay and the Andaman Sea instead of running across the Bay between the Andamans and the Coromandel and Ceylon coasts. Northerly winds set in at the head of the Bay on the 3rd and rapidly extended southwards, replacing the southerly winds which had prevailed during the preceding week. Weather improved at the same time, and on the morning of the 7th, light north-easterly winds with fine weather obtained over the whole of the Bay area to the north of Lat. 8° N. Whilst these changes were in progress over the Indian sea areas, equally large and important changes had occurred in the land area. Dry land winds had set in over the whole of Northern and Central India and a rapid decrease in the amount of aqueous vapour present in the air and in the humidity occurred. Temperature was more or less above the normal over the whole of India except the areas of general rain in Bengal and the West Coast districts at the beginning of the month, but began to decrease rather rapidly on the 7th and following days. The following table, giving mean temperature and aqueous vapour data of the 1st and 7th, shows the character of the changes during this period:—

Province.	Mean aqueous vapour pressure.			Mean temperature.		
	1st.	7th.	Change.	1st.	7th.	Change
	"	"	"	°	°	°
Burma	·823	·803	—·020	79·0	78·7	—0·3
Bengal and Assam	·768	·525	—·243	75·2	71·9	—3·3
North-Western Provinces	·560	·348	—·212	74·9	68·1	—6·8
Punjab	·354	·290	—·064	70·5	65·5	—5·0
Sind and Rajputana	·379	·314	—·065	75·4	71·3	—4·1
Guzerat and Central India	·595	·387	—·208	77·3	71·8	—5·5
Central Provinces and Berar	·667	·424	—·243	77·0	70·8	—6·2
Bombay	·780	·703	—·077	77·6	77·8	+0·2
Madras	·818	·741	—·077	80·1	79·8	—0·3

Temperature had decreased relatively to the normal conditions of the period over the whole of India except Bombay. The change was greatest in the Central Provinces, Berar, Central India and the North-Western Provinces, where it averaged 6°. No change of importance occurred during the next fortnight. The pressure changes were very regular the barometer oscillating in periods averaging nearly four days for a complete rise and fall. The weather was unusually fine and dry and hence favoured rapid terrestrial radiation at night. Temperature hence continued steadily below the normal over the whole of Northern and Central India, and the cool wave extended on the 8th and 9th over the whole of the Deccan. The following temperature variation data for the 13th show fully the character of the temperature conditions in India during this period:—

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

The preceding data establish that the depression of temperature was chiefly in the night temperature, and was hence almost certainly due to the unusual clearness and dryness of the atmosphere.

A very slight disturbance gave cloudy weather to Upper India on the 20th and 21st, which caused a large increase in the temperature of North-Western India.

A rapid unequal increase of pressure on the 23rd and 24th modified very considerably the distribution of pressure in the Bay. Steep gradients were established in the northern half of the Bay, and the area or trough of shallow depression was transferred from the position in the Andaman Sea it had occupied during the previous fortnight to the south and centre of the Bay between the Andamans and the South Coromandel coast. These changes increased the strength of the outflow of land winds from India into the adjacent seas, and hence caused a considerable reduction of temperature, more especially in North-Western India. The following gives temperature data of the 21st and 27th illustrating the chief features of this change :—

Province.	Variation of mean temperature from normal.		
	21st.	27th.	Change.
	°	°	°
Burma	+0·5	—0·4	—0·9
Bengal and Assam	—0·9	—2·4	—1·5
North-Western Provinces	+1·0	—3·0	—4·0
Punjab	+5·2	—0·8	—6·0
Sind and Rajputana	+4·5	—2.2	—6·7
Guzerat and Central India	+0·9	—2·6	—3·5
Central Provinces and Berar	—0·2	—0·1	+0·1
Bombay	—1·1	—1·1	0
Madras	+0·2	—1·0	—1·2

Temperature continued steadily below the average during the remainder of the month.

Strong north-east winds prevailed from the 26th to the end of the month in the north and west of the Bay. Winds fell light to the west of the Andamans on the 26th, and southerly winds advanced northwards to the west of the Andamans and Nicobars, and gave heavy rain in the adjacent part of the Bay with occasional squalls. On the 29th and 30th a small depression formed in that area, which filled up on the 2nd and 3rd of December and was followed by a short period of showery weather in the South Madras coast districts. At the end of the month fine, dry and unusually cool weather prevailed over the whole of India with the exception of South Madras, where temperature was more or less above the average during the whole of the month in consequence of the prolonged drought in that area.

The mean pressure of the Indian land area was ·015″ below the normal. Pressure was locally in excess in the Peninsula and in defect in Northern Indaand Burma. The deficiency was greatest in Lower Burma and the Andaman Sea, and the excess was most marked in the Deccan and the Coromandal coast districts. These abnormal features were similar in character to those which obtained in November 1891, and were even more marked than in that month. These abnormal features in November almost invariably accompany a more or less complete failure of the retreating south-west monsoon rains in Madras, Mysore and the South Deccan.

The mean maximum or day temperature was considerably in excess in South Madras and Mysore, and slightly in excess in Rajputana, Central India, the South-West Punjab and Sind. It was below the normal over the remainder of India. The deficiency was greatest in South Bengal, where it slightly exceeded 2°. The mean minimum temperature was in defect over the whole of India except Upper India, South Madras and Lower Burma. The deficiency exceeded 2° over the Deccan, North Bombay, Berar, Orissa, South Bengal and North Bihar. It was absolutely greatest in Orissa (—4·3°) and locally at Poona (—4·6°) and Bellary (—4·7°). The mean temperature of the month was in slight excess in Upper India and Lower Burma, and in moderate excess in South Madras. It was more or less below the normal over the remainder of India. The deficiency was most marked in two areas—one, including South Bengal and Orissa, where it averaged 2½°, and the other, the West and Central Deccan, for which it averaged nearly 3°.

The following table gives mean 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	—0·5	+0·4	0
Burma Inland	+1·9	—1·5	+0·2
Assam	—0·6	—0·7	—0·7
Bengal and Orissa	—1·6	—2·6	—2·2
Gangetic Plain and Chota Nagpur	+0·3	—1·7	—0·7
Upper Sub-Himalayas	—0·8	—0·1	—0·5
Indus Valley and North-West Rajputana.	0	+0·7	+0·3
East Rajputana, Central India and Guzerat.	+0·4	—1·1	—0·4
Deccan	—0·3	—2·3	—1·4
West Coast	—0·5	—1·6	—1·0
South India	+1·4	—1·5	0

The air was much drier than usual over by far the greater part of India. The decrease the amount of aqueous vapour present in the air was very marked at Port Blair and in the Bombay or West coast of India districts. The humidity conditions differed little from the normal in Upper India and Rajputana and over the greater part of the Deccan.

Over the whole of Assam, Bengal, the eastern districts of the North-Western Provinces, Central India and the Central Provinces, the air was, on the other hand, abnormally dry. The decreased humidity was most strongly exhibited at Calcutta, Hazaribagh and Allahabad or approximately in the area of largest deficiency in the night temperature. It was also abnormally dry in South Madras, more especially at the interior stations of Salem and Trichinopoly, where the humidity was 13 and 12 in defect respectively.

Cloud was in slight excess in Burma and in Upper India, but was more or less largely in defect over the remainder of India, the deficiency being very marked in Bengal and Southern India. Skies were most free from cloud in Bihar and the eastern districts of the North-Western Provinces, where the mean cloud amount of the month was less than 0·5 (*i.e.*, skies were practically free from cloud during the whole month).

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

Division.	Variation of		
	Mean aqueous vapour pressure from normal.	Mean humidity from normal.	Mean cloud amount from normal.
Burma Coast and Bay Islands	—·023	0	+0·7
Assam	—·020	—1	—0·8
Bengal and Orissa	—·071	—4	—0·7
Gangetic Plain and Chota Nagpur.	—·040	—5	—1·0
Upper Sub-Himalayas	—·026	0	+0·3
Indus Valley and North-West Rajputana.	—·049	—6	+0·4
East Rajputana, Central India and Guzerat	—·016	—2	—0·1
Deccan	—·035	0	—1·2
West Coast	—·000	—5	—0·9
South India	—·058	—8	—1·7

Winds were much steadier and stronger than usual in the Gangetic Plain and also to a less extent in Bengal. Winds were normal in character at the West Coast stations. In the Peninsula and at the Madras coast stations, winds were on the average of the month much more northerly and less easterly than usual. The chief abnormal features of the air movement of the month were due to the prevalence of strongly marked anti-cyclonic conditions during the month and to the abnormal position of the low pressure trough in the Andaman Sea during the greater part of the month.

The rainfall of the month occurred almost solely during the slightly disturbed weather of the first three days of the month. South and East Bengal received heavy rain during this period and Burma, Orissa, the Deccan, Central Provinces and West Coast districts light to moderate rain. The remainder of the month was practically rainless over the whole of India.

No rain fell in Guzerat, Kathiawar, Cutch, Sind, Rajputana and nearly the whole of Central India, Bihar, the North-Western Provinces and the Punjab. East and South Bengal received average amounts considerably in excess of the normal, and Burma obtained somewhat less than usual. The rainfall was more or less in defect over the whole of the Peninsula, but the deficiency was not large or serious except in Central and South Madras and Mysore, which usually receive important rain in November. The deficiency was most pronounced in the districts for which data are given in the following table :—

District.	Actual average rainfall of month.	Variation from normal.	Percentage variation.
	Inch.	Inches.	
Chingleput	0·14	—11·32	—99
Nellore	0·23	—8·99	—98
Madras	0·96	—12·79	—93
North Arcot	0·68	—7·33	—92
South Arcot	0·88	—7·84	—90
Tinnevelly	0·33	—5·86	—82

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

Province.	Rainfall.		
	Mean actual for November 1892.	Mean normal for November.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	4·26	4·82	—1·10
Burma Inland	0·96	1·80	—0·84
Assam	2·02	0·73	+1·29
Bengal and Orissa	2·36	0·67	+1·79
Gangetic Plain and Chota Nagpur	0·26	0·18	+0·08
Upper Sub-Himalayas	0·02	0·17	—0·15
Indus Valley and North-West Rajputana	0·01	0·10	—0·09
East Rajputana, Central India and Guzerat	0·04	0·15	—0·10
Deccan	0·37	0·86	—0·52
West Coast	2·33	3·37	—1·06
South India	0·97	7·15	—6·15

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for November 1892 is shown by means of two charts. The first chart (Plate I) gives the distribution of the mean 8 A.M. 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 variations of the actual mean pressure from the normal pressure. These values are obtained from the barometric readings reduced for temperature only. A small chart, No. 4 of Plate III, gives the distribution of the

monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts given hitherto in the Annual Reports on the meteorology of India. The data on which this chart is based are given in Table II.

The more important pressure changes during the month are described in the following statement of the barometric depressions of the month. The data that are chiefly used in this discussion are the 8 A.M. reduced observations and the variations derived from a comparison of these observations and the normal values given in Table I. The means in the third column of that table are not only reduced or corrected to sea-level but also to constant gravity. The normal means are obtained from the observations of the period 1878-88, and in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases.

The mean pressure of the month for the whole of India was ·015″ below the normal.

Relatively to the general condition, pressure was locally in excess in the Peninsula and in defect in Northern India and Burma.

The local excess in the Peninsula was greatest in the Deccan and the South Madras coast districts. The positive anomalies exceeded ·030″ at the following stations :—

STATION.	Variation of mean daily pressure of month from the normal (from Table II).	Variation of the mean 8 A.M. pressure of month from the normal (from Table I).	Pressure anomaly at 8 A.M.
	″	″	″
Khandwa	−·004	+·021	+·036
Sholapur	+·010	+·024	+·039
Bellary	+·016	+·029?	+·044
Ratnagiri	+·008	+·018	+·033
Madras	−·002	+·015	+·030
Negapatam	...	+·018	+·033

Pressure was most deficient in the North-Western Provinces, North Bihar, Assam and Burma. The local deficiency (or negative pressure anomalies) exceeded ·030″ at the following stations :—

PROVINCE.	Station.	Variation of mean daily pressure of month from the normal (from Table II).	Variation of the mean 8 A.M. pressure of month from the normal (from Table I).	Pressure anomaly at 8 A.M.
		″	″	″
BURMA	Rangoon	−·053	−·048	−·033
	Toungoo	?	−·046	−·031
ASSAM	Sibsagar	−·062	−·051	−·036
N.-W. PROVINCES.	Roorkee	−·02	−·046	−·031
	Luck now	−·053	−·046	−·031
	Gora khpur	?	−·047	−·032
BIHAR	Patna	−·051	−·047	−·032

The abnormal pressure features of the month were remarkably persistent throughout the month, and were such as usually accompany a more or less complete failure of the retreating south-west monsoon rains in the Peninsula (more especially the Madras coast districts). In the present case they were associated with an unusually weak retreating south-west monsoon current. It in fact withdrew finally from the Bay on the 4th of December, three weeks earlier than the normal date.

The following summarizes the chief features of the distribution of pressure in November 1892—

(1) Moderate deficiency of pressure over the whole Indian area.

(2) Local excess of pressure in the Peninsula, greatest in the Deccan and the Coromandel coast districts.

(3) Local deficiency of pressure in Northern India and Burma, greatest in Burma, the North-Western Provinces and North Bihar.

The month was remarkable for the absence of cyclonic storms, and was hence unusually dry and fine over the whole of India, and more especially in the Peninsula. The following gives a brief statement of the chief pressure changes in the Indian area during the month :—

There were at the commencement of the month two shallow depressions in the Indian area, one covering Lower Sind and Cutch and the other Orissa and the north-west of the Bay. Light to moderate southerly winds obtained in the Bay, and general rain fell on the 1st over Orissa and the greater part of Bengal. Some large amounts were recorded in Central Bengal on the morning of the 2nd, of which the following were the most noteworthy : —

DISTRICT.	STATION.	DATE.	Amount in inches.
HOOGHLY	Serampore	2nd	5·23
	Hooghly	,,	3·34
JESSORE	Jessore	,,	2·56
	Magura	,,	3·13
	Bangaon	,,	2·48

A steady increase of pressure occurred d ring the next three days which was greatest in amount in North-Western India. The Sind depression filled up on the 2nd and the depression in the north-west of the Bay was apparently transferred southwards and covered the centre of the Bay on the morning of the 4th. Light north-easterly winds hence again set in over the north-west of the Bay, but southerly winds continued in the centre and south-east of the Bay. Weather was, however, fine and clear in that part of the Bay, but showers continued to fall in Burma and the Gulf of Martaban. On the morning of the 5th normal anticyclonic conditions were fully established in North-Western India and fine and clear weather obtained over the whole of the Indian area except Southern India, the south and east of the Bay and Lower Burma, where skies were partially clouded.

Pressure gave way on the 5th and 6th, the fall being considerably greater in North-Western India than in the Penin-

sula and the Bay. Notwithstanding these pressure changes, northerly winds extended rapidly over the whole of the north and centre of the Bay, and on the 7th and 8th northerly winds (with an unusual amount of westing) were recorded at Camorta and Port Blair and on board the ships in the eastern half of the Bay.

On the morning of the 9th a shallow depression lay over the northern half of the Andaman Sea, which gave cloudy weather and some showers in Tenasserim, but was otherwise of no importance. Pressure increased over the whole Indian area on the 9th and 10th, and was in general excess on the 10th by amounts ranging from ·02″ in Pegu to ·11″ in the West and Central Deccan and in Sind. Pressure decreased rapidly on the 12th and slightly on the 13th. Anti-cyclonic conditions continued with fine clear weather over nearly the whole of India. The following table giving pressure variation, and cloud data for the morning of the 14th illustrates the character of the pressure distribution at this time:—

PROVINCE.	Pressure variation.	Mean cloud amount, 8 A. M.
	″	
Burma	—·032	3·4
Bengal and Assam	+·002	0·8
North-Western Provinces and Oudh	—·001	0
Punjab	—·023	1·1
Bombay	+·017	0·8
Berar and Central Provinces	+·020	0
Guzerat and Central India	0	0·3
Sind and Rajputana	—·012	0
Madras	+·008	1·9

Pressure increased on the 14th and decreased briskly on the 16th. Pressure was, as it had been for some days previous, lowest in the Andaman Sea and was highest in Central Rajputana. Northerly winds held with unusual steadiness in the Bay, and light variable winds at the entrance of the Bay. Pressure gave way more or less steadily during the four days from the 19th to the 22nd, the fall being greatest in North-Western India. Fine clear weather continued in Northern India, but skies were clouded in Baluchistan and Afghanistan, and weather unsettled with snow on the higher elevations. The following table giving barometric variations and cloud data of the 20th and 23rd indicates fully the character of the changes during this period:—

PROVINCE.	20th.		23rd.	
	Pressure variation.	Mean cloud amount, 8 A.M.	Pressure variation.	Mean cloud amount, 8 A.M.
	″		″	
Burma	—·037	1·7	—·093	2·1
Bengal and Assam	—·022	0·8	—·095	0·8
North-Western Provinces and Oudh	—·028	0·9	—·139	0·8
Punjab	—·065	1·4	—·160	1·8
Bombay	—·001	0	—·053	0
Berar and Central Provinces	—·006	0	—·080	0
Guzerat and Central India	—·022	0	—·110	1·6
Sind and Rajputana	—·052	0	—·144	0·1
Madras	+·015	2·6	—·033	1·9

During the whole of this period pressure was lowest in the Andaman Sea, and abnormally steady northerly winds hence continued over the Bay area. A rapid increase of pressure occurred on the 23rd, which transferred the area of minimum pressure from the Andaman Sea to the south and entrance of the Bay, and normal gradients obtained on the 24th and following days. The pressure changes were slight and irregular during the next two days, but a moderate general rise on the 27th and 28th emphasized the prevailing pressure conditions. The following gives barometric variation data for the 24th, 27th and 29th:—

PROVINCE.	24th.	27th.	29th.
	Pressure variation.	Pressure variation.	Pressure variation.
	Inch.	Inch.	Inch.
Burma	—·032	—·033	—·032
Bengal and Assam	—·036	—·037	—·012
North-Western Provinces and Oudh	—·037	—·030	—·006
Punjab	—·003	—·039	—·031
Bombay	+·012	—·042	+·025
Berar and Central Provinces	—·003	—·017	+·022
Guzerat and Centrtal India	—·022	—·027	+·017
Sind and Rajputana	—·023	—·052	+·005
Madras	+·025	—·019	+·021

Pressure gave way on the 29th and 30th. Moderate gradients favouring northerly winds prevailed over the northern half of the Bay, and a shallow depression lay between the Bay Islands and the East Ceylon coast. Weather became unsettled and squally in this area, and a slight disturbance originated, which gave a short period of rain to the Coromandel coast districts in the first week of December.

In the preceding statement it has been pointed out that during by far the greater part of the month a shallow low pressure area covered the Andaman Sea, which determined unusually steady northerly winds in Burma and the Gulf of Martaban, but that it was, in consequence of large pressure changes on the 23rd, transferred south-westwards to the south of the Bay on the 24th and 25th, where it remained practically unchanged in position during the remainder of the month.

The following statement received from the Sub-Divisional Officer, Maliwun, through the Port Officer, Rangoon, of the weather in the Malay Peninsula is very interesting in connection with the preceding remarks. "From the 25th of November to date (16th December) we have been having strong north-east gales blowing across the Isthmus of Krah from the Gulf of Siam. The weather is cold and clear, quite European in character. These gales working with the strong tides are banking up the sea along the west shore of the Gulf, flooding also the paddy and causing immense mischief, especially in Champhon. The floods started a fortnight ago and are holding on still. The oldest

inhabitants say they never remember such a strong north-east monsoon. It set in early and blew the burst of the south-west monsoon south, so that we are about 25 inches below the average rainfall."

The Port Officer, Rangoon, when sending the copy of the letter, adds that it has been abnormally cold in Rangoon and in the Gulf of Martaban with strong easterly breezes blowing all the month at the head of the Gulf.

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

The following gives in full the whole of the information relating to snowfall during the month of November 1892 in the Himalayan and Afghan mountain areas received up to date.

I.—THE AFGHAN MOUNTAIN DISTRICTS.

The officer on special duty, Kurram, has sent the following memorandum of the snowfall on the Sufed Koh in Afghanistan :—

"Snow fell on the Sufed Koh on the 1st of November down to an altitude of 11,000 feet. This is very unusual. About 6 inches to a foot fell at intervals. During the following week snow fell down to 9,000 feet. The depth of the snowfall on this occasion on the top of the Sufed Koh is believed to be 2 feet. On the 25th of November there was a further heavy fall down to 8,000 feet, and on the 29th of November snow fell down to an altitude of 6,000 feet. The probable depth of snow on the top of the Sufed Koh at the end of the month was from 3 to 4 feet."

II.—THE PUNJAB AND KASHMIR HIMALAYAS.

According to information received from the Deputy Commissioner, Simla, a slight fall of snow was received on the higher slopes of the mountains down to 12,000 feet on the 20th of November. This was apparently the only fall during the month.

Ladakh.—The Revd. J. Weber, Superintendent of the Observatory at Leh, writing on the 1st of December, says: "We had a little snow on the 3rd November and the snow is lying unmelted on the adjacent hills. My servant crossed the Zatsi Pass on the 10th of November and found it covered with snow between 1 and 2 feet deep. Some days ago a missionary started for Nubra and crossed the Kardang Pass to the north of Leh, and was severely frost bitten, although he walked across. According to all accounts it is much colder than usual.

III.—THE NORTH-WESTERN PROVINCES HIMALAYAS.

Kumaon-Garhwal.—The Deputy Commissioner, Almora, from information received from the Patwaries of Malla-Danpur, and Choudans Byans Darma, states that about a foot of snow fell on the higher snow peaks in Garhwal.

Summary.—The preceding reports are valuable as showing that unusually early and moderately heavy snow has fallen in the higher Afghan mountain districts. The chief periods of snowfall were the 3rd, 10th, 20th and 23rd. It is probable (judging from the information sent by Mr. Weber) that this snowfall extended to the Kashmir Himalayas, but that it was smaller in amount there than on the Afghan highlands. The Western Himalayas between Kumaon and Garhwal received a slight fall of snow, chiefly on the 3rd.

Summary of Special Storm Reports.

The following is a statement of the only local storm of importance which was reported during the month :—

1st.—Severe thunderstorm with hail at Simla from 2-15 P.M. to 4-35 P.M.; rainfall during storm 0·25 inch. Temperature fell from 53·6° to 41·7° during the storm.

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

The following summary is drawn up from the extracts taken from the logs of vessels which entered the ports of Calcutta and Bombay during the month:—

Arabian Sea.—North-east winds with fine weather obtained over the west, centre and north of this sea area at the commencement of the month. Off the Malabar and Konkan coasts southerly winds prevailed and weather was showery. The S. S. *Loodiana* in Lat. 12° 58′ N. and Long. 74° 28′ E. at 8 A.M. of the 1st had S.E. winds force 2 and constant rain, and the S. S. *Umballa* 35 miles to the S.E. at the same hour reported S.W. to S.E. winds force 2 with heavy rain.

The southerly winds decreased in strength on the 2nd and 3rd, and on the morning of the 4th northerly winds were established off the Konkan coast. These winds continued to advance southwards, and on the morning of

the 7th northerly to easterly winds obtained to the north of the eighth parallel of latitude. The average wind force deduced from the observations of vessels on that day was 3·3. Fine weather had set in off the Malabar coast and hence now prevailed over the whole sea area and continued during the remainder of the month. The winds varied slightly in strength during the next ten days. Thus on the 9th, they were of average force 2·7, on the 15th of average force 2·3, and on the 20th of average force 2·9. The gradients favouring these north-easterly winds increased considerably in steepness during the next five days, and on the 24th and 25th the average wind force had increased to 3·6. N.E. winds of force 6 were experienced on the 25th by the S. S. *Clan Matheson* in Lat. 11° 16′ N. and Long. 56° 7′ E. The gradients decreased slightly during the remainder of the month, and the winds decreased in strength *pari passu*, and on the morning of the 30th averaged only 2·6 in force.

Bay of Bengal.—At the beginning of the month a shallow depression covered the north-west of the Bay and southerly winds obtained over the whole Bay area, and weather was hence cloudy and showery. Thus the S. *Harlona* in Lat. 11° 22′ N. and Long. 90° 59′ E. at 8 A.M. of the 1st had heavy rain, and the S.S. *Netherby Hall* in Lat. 18° 7′ N. and Long. 87° 4′ E. had S.S.E. winds of force 5 and steady heavy rain. Winds ranged in force from 3 to 5 on the 2nd, and heavy rain squalls were experienced by 8 out of 36 vessels in different parts of the Bay. The shallow depression began on the 3rd to be slowly transferred south-eastwards. Northerly winds hence set in at the head of the Bay on that day, and weather began to improve. Five vessels out of 35 in the Bay experienced squally weather on that day. Weather was fine with light westerly winds at the entrance to the Bay. On the 5th north-easterly winds prevailed over the western half of the Bay and also over the whole of the north of the Bay to the north of Lat. 18° N. Only three vessels out of 35 in the Bay on that day reported squalls. Northerly winds continued to advance southwards, and on the 7th prevailed to the north of Lat. 16° N. Weather was now generally fine and clear over the whole Bay area, and winds were strongest off the Madras coast where they were of force 3 to 5. On the 9th north-east winds prevailed over the whole of the Bay to the north of Lat. 10°N and light variable winds at the entrance to the Bay. Winds were of average force 2·5 and weather was fine over the whole sea area. No important change occurred during the next fortnight. Winds increased slightly in strength for some days and averaged in force 3·2 on the 15th. They then decreased slightly and were of average force 2·7 on the 20th.

During the period from the 7th to the 23rd pressure was slightly lower in the Gulf of Martaban than elsewhere, and winds were light and unsteady in that area. Fine weather with clear skies and partial cloud however prevailed throughout the period. A large change of pressure transferred the low pressure area or area of shallow depression on the 24th from the Gulf of Martaban to the south of the Bay between the Bay Islands and the East Ceylon coast. The average wind force on the 25th was 2·7, and on the 28th it was 2·8. Weather was showery during this period at the entrance to the Bay. Thus the S. *Brabloch* in Lat. 4° 3′ N. Long. 92° 55′ E. at 8 A.M. of the 25th, had W.N.W. winds force 5 and fresh squalls with heavy rain. Steepish gradients obtained during the remainder of the month in the northern half of the Bay, and the shallow depression increased and covered the greater part of the south of the Bay. On the 26th and following days strongish N.E. winds prevailed in the north of the Bay. Winds were unsteady in the south-east of the Bay. Southerly winds advanced over the half of the Bay on the 26th and 27th as far as the Andamans. On the 29th winds averaged in force 3·1 and were lightest to the west and south-west of the Andamans, where, as shewn by the Port Blair observations, steady heavy rain was now falling. A slight depression formed to the south-west of the Andamans during the next 48 hours, and weather became disturbed and squally in that part of the Bay. Thus the S. *West Lothian* at 8 A.M. of the 30th in Lat. 4° 37′ N. and Long. 94° 41′ E. had variable winds with squally weather and the S. *Phasis* in Lat. 12° 15′ N. and Long. 91° 50′ E. had easterly winds force 6, with showery weather. North-east winds with fine clear weather continued in the north and west of the Bay. Winds had increased considerably during the previous 24 hours, and averaged 3·7 in force at 8 A.M. of the 30th.

Temperature of the Air.

The distribution of temperature in India for November 1892 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. The continuous lines indicate that the temperature was in excess by the amount indicated by the number given near the line, and the broken lines 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 data by means of which these charts have been prepared are given in Table I. The mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.*, 1878 to 1888. 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 variation of the mean daily temperature from the normal, as determined by the use of this definition, agrees in almost all cases closely with the variation 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.

The mean maximum or day temperature of the month of November was below the normal over the greater part of India. It was normal or in excess in Southern India, Lower Burma, Rajputana, Central India, the south-eastern districts of the North Western Provinces and Bihar. The excess in the two areas of greatest excess, as defined by the following stations, is shown below:—

Area.	Station.	Mean maximum Temperature.		
		Actual, November 1892.	Normal, November.	Variation from normal.
		°	°	°
Southern India	Bangalore	80.6	77.4	+3.2
	Salem	90.4	86.6	+3.8
	Trichinopoly	89.8	86.6	+3.2
	Coimbatore	91.0	85.7	+5.3
Central India	Jhansi	87.2	84.1	+3.1
	Saugor	83.5	80.8	+2.7
	Allahabad	84.8	82.2	+2.6

The increased temperature in Southern India was due to the unusual dryness of the month in that area.

The deficiency in the day temperature was small in amount over the remainder of India, except in South Bengal, and at the hill stations in Northern India. The following gives data for South Bengal:—

Station.	Mean Maximum Temperature.		
	Actual, November 1892.	Normal, November.	Variation from normal.
	°	°	°
Jessore	80.1	83.6	−3.5
Dacca	81.5	83.8	−2.3
Saugor Island	79.5	81.6	−2.1
Silchar	82.6	84.6	−2.0

The deficiency at the hill stations was in all cases greater than at the neighbouring plain stations. The following table gives mean temperature data for these stations:—

Station.	Mean maximum Temperature.		
	Actual, November 1892.	Normal, November.	Variation from normal.
	°	°	°
Murree	59.0	61.3	−2.3
Simla	54.1	56.1	−2.0
Darjeeling	51.9	54.4	−2.5
Mount Abu	70.9	73.5	−2.6

The deficiency was much smaller at Leh and Quetta than at the preceding stations, and there was a slight local excess at Kailang. The deficiency was hence restricted to the hill stations nearest the plains of Northern India.

The mean minimum temperature of the month was below the normal over the whole of India, with the exception of Upper India, South Madras and Lower Burma. The excess in those areas was small in amount and less than 1½°, except at Peshawar (+2.5°), Moulmein (+3.4°), Jhansi (+2.6°), Sialkot and Sirsa (+1.5°), and Mooltan (+1.6°).

The mean night temperature was more than 3° lower than the normal of the month over nearly the whole of the Peninsula except South Madras, and a large portion of Bengal. The deficiency was greatest in the areas represented by the following stations, and at Darbhanga (−3.7°) and the hill station of Wellington in Southern India (−3.9°) at which it exceeded 3½°:—

Province.	Station.	Mean minimum Temperature.		
		Actual, November 1892.	Normal, November.	Variation from normal.
		°	°	°
Orissa	False Point	61.2	65.8	−4.6
	Cuttack	62.2	66.2	−4.0
Deccan	Bellary	61.3	66.0	−4.7
	Poona	55.5	60.1	−4.6
	Sholapur	58.9	62.6	−3.7

The variations of the mean day and mean night temperatures were similar in character over by far the greater part of the country, and hence the variations of the mean temperature were well marked. The mean temperature of the month was in slight excess in the Punjab, Upper Sind, North Rajputana and the southern districts of the North-Western Provinces and also in Lower Burma. It was in slight to moderate excess in South Madras and Mysore. The excess in that area was greatest at Salem (+2.4°), Coimbatore (+1.9°) and Trichinopoly (+1.8°). The mean temperature of the month was more or less below the normal in all other districts. The deficiency exceeded 2

in the two areas for which data are given in the following table :—

Area.	Station.	Variation of: Mean daily temperature of month from the normal (from Table II).	Variation of: Mean temperature of month from the normal (from Table I).
		°	°
Deccan	Bellary	−3·3	−3·4
	Poona	−2·9	−2·9
	Sholapur	−2·3	−2·7
	Belgaum	−1·9	−2·4
	Ratnagiri	−2·2	−2·3
South Bengal, Orissa and Ganjam.	Cuttack	−2·3	−2·8
	Vizagapatam	−2·3	−2·7
	Calcutta	−2·1	−2·7
	False Point	−2·7	−2·4
	Saugor Island	−2·5	−2·5
	Dacca	−1·7	−2·5
	Jessore	?	−2·4
	Akyab	−1·4	−2·1

The following is a statement of the chief changes in the temperature conditions of the Indian land area during the month.

At the commencement of the month rain was falling in Burma, Bengal and Assam and on the West Coast. Dry weather prevailed in other districts. Temperature was below the normal in the rainfall areas and above it in other districts. The following gives temperature variation data for the 24 hours ending 8 A.M. of the 2nd :—

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

A rapid decrease of humidity occurred in Northern India on the 4th and following days, and at the same time temperature fell below the normal at the foot of the hills. The area of deficient temperature gradually extended southwards on the 5th, 6th and 7th and covered nearly the whole of India on the 8th. The following table gives variation data of the 24 hours' period preceding 8 A.M. of the 9th :—

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

A reference to the data of the preceding table indicates that the deficiency was almost exclusively in the night temperature, and was hence almost certainly due to the extension of dry land winds over Northern India, which occurred during this period. The following, giving the two cases of greatest deficiency of temperature on each day from the 5th to the 12th, shows the southward extension very clearly :—

24 hours period preceding 8 A.M. of	Station.	Variation of: Mean maximum temperature from normal.	Variation of: Mean minimum temperature from normal.	Variation of: Mean temperature from normal.
		°	°	°
6th	Rawalpindi	−5·8	−3·2	−4·5
	Bareilly	−1·4	−7·2	−4·3
7th	Do.	−3·5	−6·8	−5·2
	Purnea	−2·4	−7·1	−4·8
8th	Bareilly	−2·8	−7·4	−5·1
	Jessore	−4·9	−5·9	−5·4
9th	Saugor Island	−3·9	−7·0	−5·5
	Cuttack	−3·3	−8·5	−5·9
10th	Sholapur	−2·9	−9·4	−6·2
	Khandwa	−4·2	−8·0	−6·1
11th	Poona	−3·5	−9·9	−6·7
	Sholapur	−4·2	−9·0	−6·6
12th	Poona	−6·4	−10·7	−8·6
	Bellary	−4·0	−9·1	−6·6

The preceding data not only illustrate the southward extension of the area of reduced temperature, but also show that the deficiency of temperature was greater at the Deccan stations than in Northern India.

No large change occurred for some days. Temperature increased to a slight extent in North-Western India on the 14th, 15th and 16th, due to the formation of cloud.

Temperature continued more or less considerably above the normal in Southern India, whilst it was most largely in defect in the Deccan. The following variation data of the

24 hours' period preceding 8 A.M. of the 17th illustrate the temperature conditions of this period :—

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

Weather was very slightly disturbed with moderate cloud in North-Western India on the 19th and 20th. This caused a further considerable increase of temperature in North-Western India, which was shewn almost as largely in the night as in the day temperature, as is seen by the following variation data for the 21st :—

PROVINCE.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Punjab	+3·4	+6·9	+5·2
Sind and Rajputana	+4·4	+4·6	+4·5
North-Western Provinces and Oudh	+2·0	0	+1·0

No change of importance occurred until the 24th when a cold wave advanced eastwards through Baluchistan.

The following gives variation data for the 24 hours preceding 8 A.M. of that day :—

STATION OR PROVINCE.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
	°	°	°
Quetta	−7·4	−0·9	−4·2
Punjab	−1·4	+2·7	+0·7
Sind and Rajputana	+1·0	+4·8	+2·9
North-Western Provinces and Oudh	+2·7	+2·0	+2·4
Guzerat and Central India	+2·7	+0·4	+1·6

This cold wave extended rapidly over India and temperature was more or less below the normal over the whole of India on the 27th, for which day variation data are given below :—

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

Weather was slightly disturbed on the 29th and 30th with moderate cloud in the Punjab. This caused a rapid increase of temperature in that area. The temperature conditions in the remainder of the Indian area were similar to those which obtained on the 27th. The following gives variation data of the 24 hours preceding 8 A.M. of the 30th :—

PROVINCE.	VARIATION OF		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.
		°	°
Burma	−1·4	+1·9	+0·3
Bengal and Assam	−0·6	−1·0	−0·8
North-Western Provinces	−1·4	−3·6	−2·5
Punjab	−1·8	+3·2	+0·7
Sind and Rajputana	−2·0	−1·6	−1·8
Guzerat and Central India	−3·3	−4·9	−4·1
Central Provinces	−3·9	−6·3	−5·1
Bombay	−1·5	−2·8	−2·2
Madras	+0·9	−3·5	−1·3

Winds.

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.

The mean wind directions at 8 A.M. during the month are shown in Plate I by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which an equal value is given to every wind. The data are given in Table I. The mean wind directions derived from the

wind observations at 10 A.M. and 4 P.M. are given in the small chart, No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in Table II, together with the normal directions obtained from the observations of the past 10 to 20 years.

The normal air movement in the month of November is similar to that of the month of October over the greater part of India. Light north-westerly to westerly winds prevail in the Gangetic plain, and feeble easterly winds in the Assam valley. This air movement is continued as a southerly current, giving northerly winds in Bengal and north-easterly winds over the north and centre of the Bay. In Rajputana, light northerly winds prevail, and in Central India and the Central Provinces, north-east to easterly winds. North-easterly winds obtain in the Madras coast districts and are continued as easterly winds in the Deccan and Mysore. This air movement feeds into and forms part of the south-westward air motion or north-east monsoon current over the whole of the Arabian Sea except the most southern portion. In the south of the Arabian Sea and Bay of Bengal winds are somewhat variable. Humid south-west winds usually prevail during the greater part of the month. In the Bay of Bengal these south-west winds are continued as south, south-east, east and north-east winds, and hence the north-east winds which usually prevail in this month on the Coromandel coast are humid rain-giving winds.

Winds in November 1892 were on the average of the month normal in direction and slightly stronger and steadier than usual in the Punjab. They were much stronger and steadier than usual in the eastern and central districts of the North-Western Provinces and in Bihar and Chota-Nagpur.

The following gives data for three representative stations :—

Station.	Direction.		Steadiness.		Velocity.	
	Average direction, November 1892.	Normal direction, November.	Average percentage November 1892.	Normal percentage November.	Average daily air movement, November 1892.	Normal daily air movement, November.
					Miles.	Miles.
Hazaribagh .	N 27°W	N 42°W	77	55	170	104
Patna . .	N 89°W	N 61°W	73	29	71	36
Allahabad . .	N 54°W	N 65°W	73	21	77	34

The mean air movement of the month was about twice as large as usual in the centre of the Gangetic plain (represented by the stations of Patna and Allahabad). Winds were also on the whole more northerly than usual. Winds were also steadier and stronger in Bengal, but to a much less marked extent than in Bihar. The influence of the abnormal conditions of the month on the winds in Bengal was chiefly shown in the increased westing in the mean wind directions. The following gives data in illustration :—

Station.	Mean wind direction.		
	Average direction, November 1892.	Normal direction, November.	Increased westing.
Burdwan	N 13°W	N 7°W	6°
Saugor Island	N 13°W	N 5°E	8°
Dacca	N 26°W	N 17°W	9°

In Burma winds were less steady than usual and contained a strongly northerly component. Thus at Diamond Island the mean wind direction of the month was N. 32° E., the normal being N. 59° E. The influence of the low pressure area in the Gulf of Martaban during the greater part of the month was even more strongly exhibited at Port Blair where the mean wind direction was S. 70° E., the normal being N. 62° E.

Northerly winds prevailed in Sind to an abnormal extent, and winds although unsteady were on the average of the month much stronger than usual. Winds were also abnormally strong and steady in Rajputana and the westerly element more marked than usual. The following gives data for three stations :—

Station.	Velocity.			Direction.		Increased westing.
	Average daily air movement November 1892.	Normal daily air movement November.	Percentage variation.	Mean, November 1892.	Normal, November.	
	Miles.	Miles.				
Ajmere . .	57	35	+63	N 36°W	N 32°E	68°
Jeypore . .	87	70	+24	N 50°W	N 12°W	38°
Mount Abu .	68	90	−24	N 24°W	N 73°E	97°

Winds were approximately normal in strength in Madras and the Deccan, but the easterly element was very feeble. This northerly deflection of the winds was most strongly shown at the following stations :—

Station.	Direction.		Decreased easting.
	Mean, November 1892.	Normal, November.	
Vizagapatam	N 16°E	N 75°E	59°
Madras	N 2°E	N 24°E	22°
Salem	N 10°E	S 65°E	55°

The increased northing or decreased easting of the winds is shown in the mean wind direction at the greater number of stations in Berar and the Central Provinces, and more especially at Akola, Buldana, Nagpur and Sambalpur, where the exposure of the wind instruments is most satisfactory.

Winds were, on the whole, normal in character on the west coast of India.

The chief features of the air movement of the month in India were hence as follow:—

(1) Increased strength and steadiness of the land winds in the Gangetic plain and Rajputana.

(2) Weakness of the easterly element in the winds in the Deccan and Madras, which was most strongly shown at the coast stations.

(3) Abnormal unsteadiness of the winds in Burma and the Andamans.

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 the minimum, of the vapour tension and humidity at the same hours, and also the daily means of these elements. The hygrometric data are taken from the tables given in 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 five to twenty 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 month of November 1892 was unusually dry over nearly the whole of India. The air contained less vapour at Port Blair and in Burma, Bengal, Assam, the North-Western Provinces, the Punjab and Rajputana. The deficiency was greatest in an area stretching from False Point and Calcutta to the central districts of the North-Western Provinces. The following give data for representative stations in this dry area:—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	Actual November 1892.	Normal November.	Variation from normal.	Actual November 1892.	Normal November.	Variation from normal.
	"	"	"	%	%	
False Point	·530	·626	−·096	69	74	− 5
Calcutta	·510	·592	−·082	68	75	− 7
Burdwan	·466	·546	−.080	60	67	− 7
Cuttack	·487	·586	−.099	61	68	− 7
Hazaribagh	·301	·353	−·052	46	54	− 8
Allahabad	·340	·407	−·067	50	63	−13

The deficiency was also large in Upper and Central Sind, but it should be noted that the humidity returns of Hyderabad are of doubtful accuracy. A recent inspection of the observatory shews that the observer has fallen into careless habits. The following give data for Jacobabad and Hyderabad:—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	Actual November 1892.	Normal November.	Variation from normal.	Actual November 1892.	Normal November.	Variation from normal.
	"	"	"	%	%	
Jacobabad	·233	·299	−·066	38	45	− 7
Hyderabad	·225	·371	−·146 ?	31	46	−15

The air was on the whole slightly damper in the Central Provinces, Berar and the North and Central Deccan, but the variations were small and of little importance. It was, on the other hand, considerably drier at the Bombay coast stations, more especially at the following:—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	Actual November 1892.	Normal November.	Variation from normal.	Actual November 1892.	Normal November.	Variation from normal.
	"	"	"	%	%	
Bombay	·616	·693	−·077	64	71	−7
Karwar	·617	·716	−·099	68	76	−8

Humidity was even more largely in defect at the Southern India and Madras coast stations than in the dry area in Northern India, due to the abnormal prevalence of dry land winds. The following give data for five stations in the area of greatest deficiency in Southern India:—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	Actual November 1892.	Normal November.	Variation from normal.	Actual November 1892.	Normal November.	Variation from normal.
	"	"	"	%	%	
Salem	·604	·653	−·049	63	76	−13
Trichinopoly	·658	·734	−·076	64	76	−12
Bangalore	·476	·528	−·052	66	73	− 7
Madras	·741	·758	−·017	78	80	− 2
Vizagapatam	·567	·660	−·093	64	66	− 2

The air was damper than usual over the greater part of India at the commencement of the month. A rapid decrease of humidity occurred on the 4th, 5th and 6th, and the amount of vapour in the air diminished slowly from the 7th to the end of the month. The following gives mean data for the 1st, 7th and 30th, and illustrates the general

character of the changes in the aqueous vapour and humidity conditions during the month:—

Station.	Mean aqueous vapour pressure.			Mean humidity.		
	1st.	7th.	30th.	1st.	7th.	30th.
	"	"	"	%	%	%
Burma	·823	·803	·644	87	90	83
Bengal and Assam	·768	·525	·454	92	76	77
North-Western Provinces	·560	·328	·283	75	59	71
Punjab	·354	·290	·241	62	61	65
Sind and Rajputana	·362	·314	·258	48	59	56
Guzerat and Central India	·595	·387	·289	71	56	54
Central Provinces	·655	·424	·276	81	63	62
Bombay	·780	·703	·428	88	78	64
Madras	·818	·741	·532	83	78	70

The variations in the mean cloud amount of the month from the normal differed in character to some extent from the variations of the aqueous vapour pressure.

There was more cloud than usual at the Bay Islands and in Lower Burma. The excess was largest at Port Blair and Diamond Island for which data are given below:—

Station.	Mean cloud amount.		
	Actual, November 1892.	Normal, November.	Variation, from normal.
Port Blair	7·1	5·0	+2·1
Diamond Island	6·2	4·4	+1·8

The cloud amount was more or less considerably in defect in Bengal, Bihar, Chota Nagpur, the eastern districts of the North-Western Provinces and the Central Provinces. The following give mean data for these areas:—

Station.	Mean cloud amount.		
	Actual, November 1892.	Normal, November.	Variation from normal.
Assam	2·3	3·1	—0·8
Bengal	2·0	2·7	—0·7
Bihar	0·1	1·3	—1·2
Chota Nagpur	0·4	2·4	—2·0
Central Provinces	1·0	2·2	—1·2
Central India	0·8	2·0	—1·2

The skies were most free from cloud in a portion of this area, defined by the following stations at which the mean cloud amount was 0·5 or less:—

Station.	Mean cloud amount.		
	Actual, November 1892.	Normal, November.	Variation from normal.
Darbhanga	0	0·8	—0·8
Patna	0·2	1·7	—1·5
Hazaribagh	0·4	2·4	—2·0
Allahabad	0·2	1·1	—0·9
Ghazipur	0·2	1·2	—1·0
Saugor	0·5	1·1	—0·6
Jabbulpur	0·5	1·7	—1·2
Khandwa	0·5	1·6	—1·1

Skies were hence most serene in North Bihar, the eastern districts of the North-Western Provinces and the northern districts of the Central Provinces.

There was a slight excess of cloud in the western districts of the North-Western Provinces, North Rajputana and the Punjab. The excess was small in amount except in the case of the two following stations:—

Station.	Mean cloud amount.		
	Actual, November 1892.	Normal, November.	Variation from normal.
Peshawar	3·6	2·0	+1·6
Ludhiana	2·7	1·6	+1·1

The mean cloud amount was as largely in defect in the Peninsula as in North-Eastern India. The following gives mean data for that area:—

Province.	Mean cloud amount.		
	Actual, November 1892.	Normal, November.	Variation from normal.
Berar	0·8	2·0	—1·2
Central Provinces	1·0	2·1	—1·1
Deccan	1·9	3·3	—1·4
Madras coast	3·3	5·2	—1·9
Mysore	3·8	5·8	—2·0
Bombay coast	1·7	2·6	—0·9

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 November 1892 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. 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. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart, illustrating the distribution of the rainfall of the month, is given in Plate V, and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the Provincial rainfall statements of the month or the rainfall information telegraphed by District Officers, of which a summary is given in the following table, and the actual figures utilized are those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall: a number given in a corner of each district in small slanting figures serves as an index, by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

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 north-east current 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 chart (Plate IV) of the distribution of rainfall of the month shows that it departed very largely from the normal distribution.

The following were the chief features of the rainfall of the month.

(1) Absence of rain over nearly the whole of Northern and Central India, the deficiency being largest and most marked in Bihar.

(2) Rainfall largely in excess in South and East Bengal due to a heavy burst on the 1st, 2nd and 3rd of the month.

(3) Moderate rain in Tenasserim and heavy rain in the Andamans.

(4) Abnormally deficient rain in Southern India, more especially in the Coromandel Coast districts and the southern and central districts of Madras and in Mysore.

(5) M rain in the Malabar coast districts.
oderate

PROVINCES.	DIVISION.	RAINY DAYS.				
		Actual.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
BURMA	Tenasserim*	?	?	2·83	1·59	+1·24
	Lower Burma*	?	?	2·45	3·71	—1·26
	Central do. *	?	?	1·09	1·96	—0·87
	Upper do. *	?	?	1·97	?	?
	Arakan*	?	?	1·34	3·78	—2·44

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

Provinces.	Division.	Rainy days. Actual.	Rainy days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	2·4	1·4	3·18	1·11	+2·07
	Assam (Surma)*	?	?	2·19	0·84	+1·35
	Do. (Brahmaputra)*	?	?	0·29	0·51	−0·22
	Deltaic Bengal	2·2	1·0	3·42	0·36	+3·06
	Central do.	0·8	0·7	0·55	0·25	+0·30
	North do.	0·7	0·4	0·47	0·14	+0·33
	Orissa	1·5	2·1	1·07	1·38	−0·31
	Chota Nagpur	0·6	0·9	0·58	0·38	+0·20
	Bihar (South)	0·1	0·4	0·03	0·22	−0·19
	Do. (North)	0	0·3	0	0·09	−0·09
North-Western Provinces and Oudh.	North-Western Provinces (East)	0·1	0·2	0·10	0·11	−0·01
	Oudh (South)	0·5	0·1	0·21	0·02	+0·19
	Do. (North)	0·3	0·1	0·09	0·04	+0·05
	North-Western Provinces (Central)	0·2	0·1	0·07	0·03	+0·04
	Do. do. (West)	0	0·1	0	0·04	−0·04
	Do. do. (Submontane)	0	0·2	0·01	0·11	−0·10
Punjab	Punjab (South)	0	0·1	0	0·07	−0·07
	Do. (Central)	0	0·2	0	0·06	−0·06
	Do. (Submontane)	0	0·3	0	0·16	−0·16
	Do. (Hill Districts)	0·4	0·8	0·11	0·63	−0·52
	Do. (North-West)	0	0·5	0·08	0·53	−0·45
	Do. West	0	0·3	0	0·17	−0·17
Bombay and Malabar coast districts (Madras).	Malabar	3·5	5·6	2·54	4·01	−1·47
	Madras (South Central)	1·0	5·9	0·42	3·73	−3·31
	Coorg	1·2	?	0·50	?	?
	Mysore*	?	?	0·39	2·56	−2·17
	Konkan	1·4	1·7	0·76	1·10	−0·34
	Bombay Deccan	1·3	2·4	0·60	1·46	−0·86
	Hyderabad (North)	...	...	...	...	...
	Khandesh	0·6	1·4	0·32	0·91	−0·59
Central Provinces and Berar.	Berar*	?	?	0·31	0·52	−0·21
	Central Provinces (West)*	?	?	0·26	0·35	−0·09
	Do. (Central)*	?	?	0·19	0·30	−0·11
	Do. (East)*	?	?	1·80	0·50	+1·30
Bombay (North)	Guzerat	0·2	0·4	0·11	0·18	−0·07
	Kattiawar	0	0·1	0	0·08	−0·08
	Sind	0	?	0	0·07	−0·07
Rajputana and Central India.	Central India (East)	0·2	?	0·06	0·37	−0·31
	Rajputana (East), Central India (West)	0	?	0·01	0·08	−0·07
	Rajputana (West)	0	?	0	0·02	−0·02
Madras	East Coast (North)	0·8	3·5	0·55	3·27	−2·72
	Do. do.	1·5	4·6	0·20	2·80	−2·60
	Hyderabad (South)*	?	?	2·57	0·44	+2·13
	Madras (Central)	0·6	3·3	0·34	2·27	−1·93
	East Coast (Central)	0·4	7·6	0·23	9·22	−8·99
	East Coast (South)	1·7	8·8	1·00	8·73	−7·73
	Madras (South)	2·1	8·4	1·06	6·27	−5·21

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

A few local showers were received in Baluchistan, Kashmere, and the North Punjab, but they were of no importance. The month was absolutely or practically rainless in the Punjab, Sind, Cutch, Kathiawar, Guzerat, Rajputana, Central India, and the greater part of the North-Western Provinces and Bihar.

Burma received occasional showers during the month. The total rainfall of the month was in moderate excess in Tenasserim, and probably also over the greater part of Upper Burma Lower Burma received an average of 2·45 inches, 34 per cent. below the normal, and Central Burma an average of 1·09 inches, or 44 per cent. in defect. Arakan obtained an average total fall of 1·24 inches, or 65 per cent. less than the normal fall of the month.

Orissa, South-West Bengal, East Bengal, and Chota Nagpur received general rain during the first three days of the month. The rainfall was very irregularly distributed and was heaviest in the southern districts of South-West Bengal. The following were the most noteworthy falls in 24 hours:—

District.	Station.	Date.	Rainfall in inches.
Midnapore	Contai	1st	5·67
24-Parganas	Diamond Harbour	,,	5·42
Hooghly	Serampur	2nd	5·23
Faridpur	Faridpur	,,	5·07
Dacca	Dacca	,,	6·20

The Kuch Bihar, Jalpaiguri and Sikkim hill districts had moderate showers on the 27th. With this exception no rain fell in the province after the 3rd of the month. East Bengal received an average of 3·5 inches and South-West Bengal 2·5 inches, amounts very considerably in excess of the normal fall of the month. The rainfall was in slight excess in Orissa and Chota Nagpur. North Bihar was rainless throughout the month and South Bihar received an average of less than a tenth of an inch. The following gives data for the seven meteorological divisions in the Province :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average Actual, November 1892.	Variation from normal.	Percentage Variation.	Average Actual, November 1892.	Variation from normal.	Percentage Variation.
				Inches.	Inches.	
Orissa	1·4	−0·7	− 33	0·98	−0·38	− 28
South-West Bengal	1·7	+0·9	+113	2·44	+2·11	+639
North Bengal	0·3	−0·1	− 25	0·14	−0·03	− 18
East Bengal	2·6	+1·2	+ 86	3·44	+2·37	+221
North Bihar	0	−0·3	−100	0	−0·09	−100
South Bihar	0·1	−0·3	− 75	0·05	−0·15	− 75
Chota Nagpur	0·6	−0·4	− 40	0·49	+0·15	+ 44

The districts of Sylhet and Cachar and the Assam hill districts received moderate to heavy rain on the first three days of the month. The rainfall was much heavier in the Cachar plains than in the adjacent hills, in strict accordance with the usual rule in these short periods of feeble influx of humid winds into North-Eastern India during the retreat of the south-west monsoon. Thus Nemotha in Cachar obtained 8·78 inches and Langla in Sylhet 4·29 inches between the 1st and 3rd, whilst Chera Punjee only obtained 0·48 inch and Jawai 0·70 inch. Sibsagar and Lakhimpur also obtained light to moderate showers during the period from the 1st to the 4th. The eastern and central districts of the Brahmaputra valley were rainless throughout the period. No rain fell during the remainder of the month in the province. The following gives a summary of the rainfall data of the month published in the Provincial Gazette :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average Actual, November 1892.	Variation from normal.	Percentage Variation.	Average Actual, November 1892.	Variation from normal.	Percentage Variation.
				Inches.	Inches.	
Assam Surma	2·7	+1·2	+80	4·03	+3·17	+369
Do. Brahmaputra	0·4	−0·8	−67	0·18	−0·35	− 66
Do. Hill districts	2·3	+0·5	+28	1·09	+0·11	+ 11

No rain was received over the whole of the Punjab with the exception of a few light showers of no importance in the Rawal Pindi, Peshawar and Hazara districts. Sind, Cutch, Kathiawar, Guzerat, Rajputana, Central India and the western districts of the North-Western Provinces were absolutely or practically rainless throughout the month Oudh and the central and eastern districts of the North-Western Provinces obtained local scattered showers on the 1st and 2nd, which gave an average of less than a tenth of an inch to the whole of the eastern half of the province.

The southern and eastern districts of the Central Provinces obtained light to moderate showers on the 1st, 2nd and 3rd of the month. The rainfall was most general in the Chanda, Sambalpur and Raipur districts. Raigarh in the Sambalpur district received a total of 3·84 inches during the 24 hours preceding 8 A.M. of the 1st. No rain fell during the remainder of the month. The following gives a summary of the rainfall data of the month published in the Provincial Gazette :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average Actual, November 1892.	Variation from normal.	Percentage Variation.	Average Actual, November 1892.	Variation from normal.	Percentage Variation.
				Inches.	Inches.	
Central Provinces, West	0·4	−0·3	−43	0·10	−0·28	−74
Central Provinces, Central	0·1	−0·5	−83	0·04	−0·33	−89
Central Provinces, East	0·1	0·6	−86	0·32	−0·16	−33

The greater part of the Bombay Presidency obtained light to moderate rain during the first week of the month The North Kanara and Ratnagiri districts of Bombay had frequent showers during the first week of the month; the Southern Deccan districts of Dharwar, Bijapur, Belgaum, Satara and Kolhapur received moderate rain during the first four days of the month. In the districts of Thana, Colaba, Poona and Sholapur the rainfall was limited to the first three days of the month and was moderate in amount. The rainfall of the period was, on the whole, most general in the Satara, Bijapur and Sholapur districts. The Northern Deccan districts of Nasik, Ahmednagar and Khandesh and Surat received light to moderate showers on the 1st and 2nd. No rain fell in Sind or Kathiawar during the month. The following table gives a summary of the rainfall data of the month published in the Provincial Gazette :—

Meteorological Division	Number of rainy days.			Rainfall.		
	Average Actual, November 1892.	Variation from normal	Percentage Variation.	Average Actual, November 1892.	Variation from normal.	Percentage Variation.
				Inch.	Inch.	
Konkan	1·4	−0·3	−18	0·76	−0·34	−31
Bombay Deccan	1·3	−1·1	−46	0·60	−0·86	−59
Khandesh	0·6	−0·8	−57	0·32	−0·59	05
Guzerat	0·2	−0·2	−50	0·11	−0·07	−39
Kathiawar	0	−0·1	−100	0	−0·08	−100
Sind	0	?	?	0	−0·07	−100

The month was singularly dry in the Madras Presidency. The northern districts received moderate and fairly general rain on the 1st and 2nd, and were practically rainless during the remainder of the month. In the central and southern districts light local showers were obtained, chiefly during the first week of the month, and on the 21st, 22nd and 23rd. The rainfall of the month in these districts was very largely in defect, and is one of the smallest on record in the month of November. The deficiency was greatest in the districts of Nellore, Chingleput and Godavari, which obtained an average of less than a quarter of an inch or less than 3 per cent. of the normal fall. The failure of the rains was almost complete in these districts. The southern coast districts obtained an average of 1 inch or barely 14 per cent. of the normal fall of the month, and the south districts of Madura and Tinnevelly received an average of only 1·06 inch or 16 per cent. of the normal.

The following summary gives comparative data of the eight meteorological divisions into which the Madras Presidency is sub-divided :—

Division.	Rainfall.		
	Average actual November 1892.	Variation from normal.	Percentage variation.
	Inches.	Inches.	
East Coast (North)	0·55	—2·72	—83
Ditto (a)	0·20	—2·60	—93
Madras (Central)	0·34	—1·93	—85
East Coast (Central)	0·23	—8·99	—98
Ditto (South)	1·00	—7·73	—89
Madras (South Central)	0·42	—3·31	—89
Ditto (South)	1·06	—5·21	—86
Malabar	2·54	—1·47	—37

The following table gives comparative data for each of the Collectors' districts in the Madras Presidency, and shows more fully than the preceding statement the extent to which the rainfall of the month was in defect in each district of the Presidency :—

District.	Number of rainy days.			Rainfall.		
	Average actual, November 1892.	Variation from normal.	Percentage variation.	Average actual, November 1892.	Variation from normal.	Percentage variation
				Inches.	Inches.	
Ganjam	1·3	— 2·0	—61	0·75	— 2·62	—78
Vizagapatam	1·0	— 3·3	—77	0·91	— 2·29	—72
Godavari	0·5	— 2·7	—84	0·13	— 3·16	—96
Kistna	0·5	— 2·8	—85	0·22	— 2·93	—93
Nellore	0·4	— 7·2	—95	0·23	— 8·99	—98
Madras	1·0	—10·0	—91	0·96	—12·79	—93
Chingleput	0·6	— 9·3	—94	0·14	—11·32	—99
North Arcot	0·9	— 6·6	—88	0·68	— 7·33	—92
South Arcot	1·5	— 7·7	—84	0·88	— 7·84	—90
Tanjore	3·5	— 6·7	—66	2·30	— 8·12	—78
Trichinopoly	1·3	— 5·8	—82	0·48	— 4·05	—89
Madura	1·4	— 6·3	—82	0·84	— 4·69	—85
Tinnevelly	2·9	— 6·3	—68	1·33	— 5·86	—82
Malabar	3·8	— 2·8	—42	2·41	— 2·26	—49
South Canara	3·1	— 1·2	—28	2·72	— 0·35	—11
Salem	1·1	— 4·8	—81	0·43	— 3·37	—92
Coimbatore	0·9	— 5·0	—85	0·41	— 3·23	—89
Nilgiris	3·5	— 5·1	—60	2·01	— 3·61	—64
Cuddapah	0·5	— 4·3	—89	0·32	— 3·53	—92
Anantapur	0·4	— 2·7	—87	0·21	— 1·92	—90
Bellary	1·3	— 1·0	—44	0·71	— 0·59	—45
Kurnool	0·4	— 2·5	—86	0·17	— 1·33	—89

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at stations in India during the month of November 1892.

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 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.

Table

Abstract of Observations taken at 8 A.M., at 177 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.		...	...	—·038	...	...	...	...	...	...	...	86·4	−0·5	73·2	+0·4	79·7	0	13·1	...	...	...	...	21·7
Bay Islands	Port Blair	61	29·845	?	29·837	25·916	12th	29·772	1st	·144	79·4	86·7	?	76·3	?	81·5	?	10·4	90·3	16th	73·8	3rd, 28th & 30th.	16·5
	Camorta	?	29·905	?	?	29·972	11th	29·864	22nd	·108	78·8	84·7	?	74·5	?	79·6	?	10·2	87·3	25th	72·1	3rd	15·2
Tenasserim	Mergui	96	29·821	?	29·850	29·890	4th	29·773	8th	·117	78·5	86·8	?	?	?	?	?	?	89·3	18th	?	?	?
	Tavoy	26	29·915	?	29·872	29·971	11th	29·874	2nd	·097	77·7	88·5	?	71·8	?	80·2	?	16·7	91·2	25th & 26th.	66·2	30th	25·0
	Moulmein	94	29·842	—·041	29·874	29·902	11th	29·779	2nd	·123	78·1	89·2	+0·8	74·4	+3·4	81·8	+2·1	14·8	91·5	22nd	69·8	28th	21·7
	Toungoo	181	29·749	—·046	29·876	29·812	11th	29·657	2nd	·155	73·6	86·4	—0·6	70·3	—0·1	78·4	−0·4	16·1	89·7	2nd & 9th.	61·2	24th	28·5
Lower Burma	Rangoon	41	29·890	—·048	29·868	29·948	11th	29·809	2nd	·139	76·1	86·2	−0·9	73·1	+0·1	79·7	—0·4	13·1	89·2	23rd	67·8	24th & 25th.	21·4
	Bassein	27	29·922	—·026	29·884	29·981	12th	29·795	2nd	·186	76·0	86·2	+0·3	71·8	0	79·0	+0·2	14·4	89·2	18th	65·0	26th	24·2
	Diamond Island	41	29·894	—·035	29·870	29·952	12th	29·755	2nd	·197	79·8	84·5	−1·2	76·5	+1·4	80·5	+0·1	8·0	88·1	14th	70·9	28th	17·2
Arrakan	Akyab	20	29·936	—·029	29·899	30·001	11th	29·803	2nd	·198	73·6	84·3	−1·4	69·7	—2·1	77·0	—1·8	14·6	87·2	4 days	61·4	24th	25·8
2. Burma, Inland		...	...	—·020	...	...	...	...	...	...	...	84·1	+1·9	62·7	—1·5	73·4	+0·2	21·4	...	...	...	...	32·0
Central Burma	Thayetmyo	134	29·826	—·020	29·904	29·892	12th	29·712	2nd	·180	75·8	89·3	+1·9	66·7	—1·5	78·0	+0·2	22·6	91·8	3 days	56·8	24th & 25th.	35·0
Upper Burma	Mandalay	?	29·710	?	?	29·787	26th	29·567	2nd	·220	73·5	87·0	?	63·3	?	75·2	?	23·7	89·5	8th & 9th.	56·1	25th	33·4
	Kindat*	?	29·599	?	?	29·692	12th	29·454	2nd	·238	67·2	79·7	?	62·3	?	71·0	?	17·4	83·3	9th	57·0	16th	26·3
	Bhamo	?	29·592	?	?	29·670	12th	29·428	1st	·242	64·7	80·4	?	58·4	?	69·4	?	22·0	84·5	9th	51·3	30th	33·2
3. Assam		...	...	—·039	...	...	...	...	...	...	...	80·4	−0·6	61·6	−0·7	71·0	−0·7	18·8	...	...	...	...	27·9
Assam (Surma)	Silchar	104	29·876	—·026	29·935	29·940	12th	29·711	2nd	·229	68·7	83·4	—1·2	62·9	—0·8	73·2	—1·0	20·5	87·5	11th & 19th.	57·6	30th	29·9
Brahmaputra	Sibsagar	333	29·671	—·051	29·973	29·753	15th	29·492	2nd	·261	63·0	77·7	−0·8	59·0	−0·7	68·4	—0·8	18·7	81·6	4th	53·2	17th	28·4
	Dhubri	115	29·878	—·039	29·952	29·952	15th & 29th	29·703	2nd	·249	66·3	80·1	+0·1	62·8	−0·7	71·5	−0·3	17·3	83·2	4th	57·9	29th & 30th.	25·3
4. Bengal and Orissa		...	...	—·021	...	...	...	...	...	...	...	80·7	—1·6	61·6	—2·6	71·6	−2·2	19·7	...	...	...	...	30·8
East Bengal	Chittagong	87	29·883	—·024	29·920	29·955	12th	29·719	2nd	·236	70·2	81·2	—1·6	64·2	−2·0	72·7	—1·8	17·0	85·2	19th	59·1	30th	26·1
	Lungleh	...	?	?	?	?	?	?	?	?	59·6	60·1	?	?	?	?	?	?	?	...	?	...	?
	Noakhali	43	29·923	?	29·914	30·000	28th	29·758	2nd	·242	70·5	80·8	?	62·1	?	71·5	?	18·7	83·5	6th & 19th.	54·8	26th	28·7
	Comilla	35	29·936	?	29·920	30·003	29th	29·773	2nd	·230	69·3	81·5	?	62·0	?	71·8	?	19·5	84·9	19th	57·0	25th & 29th.	27·9
	Sirajganj	46	29·923	?	29·921	29·986	29th	29·744	2nd	·242	67·8	81·3†	?	60·1*	?	70·8	?	21·2	84·7	6th	55·2	24th	29·5
	Dacca	22	29·948	—·030	29·918	30·011	12th	29·768	2nd	·243	69·3	81·5	−2·3	63·4	−2·6	72·4	−2·5	18·1	84·6	5th & 6th.	57·3	28th	27·3
	Barisal	13	29·960	—·008	29·918	30·023	11th	29·775	2nd	·248	69·8	81·0	?	62·2	?	71·6	?	18·8	83·8	5th	53·1	28th	30·7
	Mymensingh	63	29·912	—·028	29·929	29·976	12th	29·748	2nd	·228	67·9	80·9	?	61·5	?	71·3	?	19·4	83·7	4th & 5th.	54·9	28th	28·8
Deltaic Bengal	Faridpur	46	29·942	?	29·937	30·015	29th	29·751	2nd	·264	68·7	80·1	?	62·4	?	71·3	?	17·7	84·5	15th	55·5	28th	29·0
	Jessore	33	29·948	—·029	29·929	30·019	29th	29·744	2nd	·275	68·5	80·1	—3·5	62·8	−1·2	71·4	—2·4	17·3	84·2	5th & 6th.	56·5	27th	27·7
	Calcutta	21	29·970	—·028	29·937	30·045	12th	29·760	2nd	·285	67·9	79·9	—1·8	61·2	−3·5	70·6	—2·7	18·7	84·6	6th	54·2	27th	30·4
	Saugor Island	25	29·965	—·023	29·935	30·035	11th	29·756	1st	·279	69·6	79·5	—2·1	64·2	−2·8	71·9	—2·5	15·3	84·2	6th	56·9	28th	27·3
	Krishnagar	47	29·941	?	29·938	30·019	12th	29·736	2nd	·283	68·2	81·4	?	60·6	?	71·0	?	20·8	86·3	5th	49·0	27th	37·3
	Midnapore	149	29·851	?	29·952	29·928	29th	29·636	1st	·292	68·8	82·5	?	60·4	?	71·5	?	22·1	88·3	5th	52·2	28th	36·1
Central Bengal	Bankura	298	29·666	?	29·928	29·738	12th	29·460	1st	·278	65·4	81·6	?	59·7	?	70·7	?	21·9	87·1	5th	52·8	27th	34·3
	Raniganj	345	29·653*	?	29·964*	29·747	12th	29·467	1st & 2nd	·280	64·1	?	?	58·9	?	?	?	?	?	?	52·2	27th & 28th.	?
	Burdwan	99	29·906	—·022	29·956	29·991	29th	29·715	2nd	·276	67·4	81·9	—0·8	62·6*	−1·4	72·3*	—1·1	19·3	86·5	5th	55·3	27th	31·2

* Mean of 2 days. — † Mean of 28 days.

I.

in India, Burma, etc., in November 1892.

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 1892.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	..	...	...	...	...		...	...	..	...	...	...	...	...	...	4·26	4·82	—1·10	...	...	...	**1. Burma Coast and Bay Islands.**	
15	6	1	...	2	2	1	1	2	5	7	−29	90	·903	6·2	9	?	?	14·85	8·97	+ 5·88	25·95	21·14	+ 4·81	Port Blair .	Bay Islands.
21	...	1	1	1	2	2	...	1	2	?	?	91	·894	9·6	11	?	?	9·19	?	?	?	?	?	Camorta.	
...	9	5	1	4	2	1	...	8	2	2	0	86	·835	3·8	7	?	?	3·13	3·63	− 0·50	9·91	17·17	− 7·26	Mergui .	Tenasserim.
23	1	2	...	1	...	1	...	2	2	?	?	88	·834	1·4	5	?	?	4·08	2·33	+ 1·75	6·94	12·84	− 5·90	Tavoy.	
0	2	9	12	4	1	1	1	..	2	2	0	88	·855	2·3	6	2·18	+3·82	2·56	2·56	0	7·03	10·84	− 3·81	Moulmein.	
8	9	...	2	...	...	..	...	11	2	2	0	90	·739	5·5	3	2·36	+0·64	1·42	1·25	+ 0·17	8·69	8·26	+ 0·43	Toungoo.	
...	5	9	3	2	2	2	2	5	4	4	0	91	·822	4·5	5	3·18	+1·82	3·59	3·09	+ 0·50	8·71	10·18	− 1·47	Rangoon .	Lower Burma.
3	3	10	3	1	1	1	...	8	4	3	+33	89	·795	4·7	3	5·55	−2·55	1·16	4·88	− 3·72	7·32	13·09	− 5·77	Bassein.	
...	6	14	3	1	1	...	1	4	10	9	+11	79	·803	5·4	2	7·10	−5·10	0·73	13·78	—13·05	8·28	22·70	—14·42	Diamond Island.	
...	19	9	1	...	1	...	...	...	2	2	0	90	·750	3·2	5	3·09	+1·91	1·92	2·93	− 1·01	25·80	12·96	+12·84	Akyab .	Arrakan.
...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	..	...	...	0·96	1·80	—0·84	...	...	...	**2. Burma, Inland.**	
...	20	...	2	...	7	...	...	1	5	4	+25	76	·678	3·8	0	3·45	−3·45	0·15	2·40	− 2·25	2·39	6·87	− 4·48	Thayetmyo	Central Burma.
...	19	4	1	1	1	1	...	3	3	?	?	82	·682	3·1	3	?	?	1·31	1·16	+ 0·15	12·92	4·01	+ 8·91	Mandalay .	Upper Burma.
18	4	2	...	...	...	1	2	2	?	?	?	94	·635	6·4	2	?	?	0·45	2·91	− 2·46	6·37	8·90	− 2·53	Kindat.*	
...	...	10	...	1	...	1	...	18	?	?	?	89	·547	4·9	3	?	?	1·93	0·74	+ 1·19	12·56	5·19	+ 7·37	Bhamo.	
..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	..	2·02	0·73	+1·29	...	...	...	**3. Assam.**	
29	...	...	1	...	...	...	...	...	0	2	−100	88	·617	5·2	4	2·15	+1·82	5·68	1·25	+ 4·43	20·37	6·12	+14·25	Silchar .	Assam (Surma).
10	...	13	1	2	3	1	...	...	2	2	0	99	·575	3·8	1	1·18	−0·18	0·37	0·66	− 0·29	5·38	5·83	− 0·45	Sibsagar .	Brahmaputra.
1	...	18	8	2	...	1	...	...	4	5	−20	88	·569	1·3	0	0·38	−·38	0	0·27	− 0·27	0·35	3·70	− 3·35	Dhubri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·36	0·67	+1·79	...	...	...	**4. Bengal and Orissa.**	
11	3	9	3	1	1	...	...	2	2	3	−33	89	·659	6·0	4	1·73	+2·27	4·81	1·70	+ 3·11	17·15	6·73	+10·42	Chittagong	East Bengal.
?	?	?	?	?	?	?	?	?	?	?	?	93	·484	?	3	?	?	1·99	?	?	19·25	?	?	Lungleh.	
2	21	3	2	...	...	...	1	1	3	?	?	89	?	0·7	3	1·55	+1·45	6·55	1·82	+ 4·73	17·73	8·68	+ 9·05	Noakhali.	
17	10	2	...	1	...	...	...	...	1‡	?	?	87	?	1·8	3	1·89	+1·11	3·14	0·94	+ 2·20	11·41	5·17	+ 6·24	Comilla.	
...	6	12	4	...	...	...	2	6	1*	?	?	88	?	0·9	1	0·80	+0·20	0·14	0·38	− 0·24	0·87	4·76	− 3·89	Sirajganj.	
6	10	3	...	...	1	...	2	8	2	2	0	82	·591	1·8	3	0·82	+2·18	8·19	0·32	+ 7·87	13·39	5·03	+ 8·36	Dacca.	
28	1	1	...	...	...	...	...	...	2	?	?	82	·605	1·5	3	1·45	+1·55	2·61	1·25	+ 1·36	9·35	6·23	+ 3·12	Barisal.	
9	5	7	4	2	...	...	...	3	2	?	?	90	·619	1·9	1	0·80	+0·20	0·24	0·30	− 0·06	2·24	5·99	− 3·75	Mymensingh.	
24	3	2	...	...	...	...	1	...	1	?	?	87	?	1·3	3	1·10	+1·90	6·11	0·39	+ 5·72	11·47	4·69	+ 6·78	Faridpur .	Deltaic Bengal.
12	7	2	1	...	...	..	...	8	2	2	0	86	·603	1·3	3	0·73	+2·27	7·71	0·53	+ 7·18	14·34	4·28	+10·06	Jessore.	
8	14	2	...	1	...	...	...	5	2	3	−33	79	·550	0·9	2	0·82	+1·18	1·74	0·51	+ 1·23	5·09	4·30	+ 0·79	Calcutta.	
...	17	6	...	...	...	1	...	6	9	6	+50	87	·634	1·7	2	1·55	+0·45	7·42	0·97	+ 6·45	14·70	8·93	+ 5·77	Saugor Island.	
1	4	...	1	1	...	...	9	14	3	?	?	77	?	1·3	2	0·70	+1·30	2·62	0·34	+ 2·28	6·14	4·53	+ 1·61	Krishnagar.	
0	22	2	...	...	...	...	1	5	10	?	?	70	?	1·1	2	0·90	+1·10	4·90	0·23	+ 4·67	7·42	5·01	+ 2·41	Midnapore.	
5	13	...	1	...	1	...	2	8	2	?	?	72	?	1·0	2	0·75	+1·25	1·90	0·25	+ 1·65	6·19	4·40	+ 1·79	Bankura .	Central Bengal.
1	1	2	1	...	..	...	8	17	2	?	?	86	...	0·2	1	0·60	+0·40	0·19	0·20	− 0·01	3·47	3·61	− 0·14	Raniganj.	
5	7	1	...	...	...	...	5	12	3	2	+50	67	·463	1·5	2	0·82	+1·18	1·93	0·68	+ 1·25	5·85	3·99	+ 1·86	Burdwan.	

‡ Mean of 22 days.

Table

Abstract of Observations taken at 8 A.M., at 177 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.
Central Bengal—*contd.*	Naya Dumka	489	29·486	?	29·954	29·563	12th	29·295	2nd	·268	66·2	81·2	?	57·2	?	69·3	?	24·0	86·1	4th & 5th.	48·6	27th	37·5
	Berhampore	67	29·922	—·039	29·940	29·998	29th	29·731	2nd	·267	66·9	81·0	−0·9	62·3	−1·6	71·7	—1·3	18·7	86·6	5th	53·7	26th	32·9
	Rampur Boalia.	70	29·905	?	29·926	29·976	29th	29·725	2nd	·251	68·9	80·8	?	60·5	?	70·7	?	20·3	86·8	5th	53·7	26th	33·1
	Malda	80	29·918	?	29·953	29·996	29th	29·748	2nd	·248	66·6	82·1	?	59·4‖	?	70·8‖	?	22·7	85·8	5th	50·9	26th	34·9
	Bogra	61	29·903*	—·008	29·918*	29·966	29th	29·739	2nd	·227	67·8*	81·7†	?	60·4‡	?	71·6†	?	21·3	85·3	5th	54·2	27th	31·1
North Bengal	Dinajpur	118	29·866	—·010	29·941	29·951	29th	29·687	2nd	·264	69·1	82·1	?	59·1	?	70·6	?	23·0	85·1	4th & 5th,	54·9	23rd	30·2
	Rangpur	123	29·870	?	29·951	29·943	29th	29·707	2nd	·236	67·1	81·8	?	60·0	?	70·9	?	21·8	85·7	19th	55·1	24th	30·6
	Jalpaiguri	284	29·702	—·027	29·951	29·785	29th	29·537	2nd	·248	66·2	81·3	?	59·0	?	70·2	?	22·3	83·4	4th	53·6	28th	29·8
Orissa	Balasore	56	29·941	—·024	29·946	30·019	12th	29·701	1st	·318	66·4	82·2	?	59·4§	?	70·8§	?	22·8	86·4	6th	48·4	28th	38·0
	False Point	21	29·979	—·015	29·942	30·055	12th	29·742	1st	·313	68·5	81·8	−0·2	61·2	−4·6	71·5	−2·4	20·6	84·9	6th & 7th,	54·0	27th	30·9
	Cuttack	80	29·925	—·007	29·950	30·005	12th	29·686	1st	·319	68·2	83·6	−1·6	62·2	−4·0	72·9	−2·8	21·4	88·4	5th	54·9	28th	33·5
	Shortt's Island	?	29·976	?	?	30·049	11th	29·735	1st	·314	74·8	80·2	?	70·8	?	75·5	?	9·4	84·0	6th	65·5	29th & 30th,	18·5
	Puri	9	29·980	?	29·929	30·054	12th	29·742	1st	·312	70·1	83·9	?	66·1	?	75·0	?	17·8	87·7	6th	59·6	28th	28·1
5. Gangetic Plain and Chota Nagpur.		...	...	—·038	...	...	...	...	...	...	...	82·1	+0·3	55·4	—1·7	68·8	−0·7	26·6	...	...	...	...	40·0
Chota Nagpur	Hazaribagh	2,007	27·956	—·034	29·964	28·027	12th	27·777	2nd	·250	64·7	76·6	−0·1	55·5	−1·5	66·1	−0·8	21·1	82·7	4th	47·9	27th	34·8
	Ranchi	2,128	27·830	?	29·956	27·900	12th	27·640	1st	·260	64·3	75·0	?	54·6	?	64·9	?	20·4	81·0	4th	47·9	28th	33·1
	Chaibassa	760	29·205	—·027	29·943	29·285	12th	28·977	1st	·308	63·8	81·1	?	57·2	?	69·2	?	23·9	86·4	5th	47·5	28th	38·9
Bihar, South	Gaya	375	29·631	—·027	29·975	29·713	29th	29·449	2nd	·264	66·0	83·0	+0·7	57·9	—1·1	70·5	−0·2	25·1	87·9	5th	49·8	28th	38·1
	Dehri	351	29·647	?	29·970	29·737	29th	29·446	2nd	·291	63·5	83·3	?	57·6	?	70·5	?	25·7	88·3	5th	50·0	27th & 28th,	38·3
	Patna	183	29·820	—·047	29·963	29·911	29th	29·625	2nd	·286	67·1	81·5	+0·1	58·2	—1·6	69·9	—0·8	23·3	87·7	1st	49·9	27th	37·8
	Arrah	190	29·807	?	29·957	29·904	29th	29·613	2nd	·291	63·3	83·8	?	56·0	?	69·9	?	27·8	89·4	5th	47·8	27th	41·6
	Buxar	239	29·759	?	29·963	29·855	29th	29·559	2nd	·296	66·0	83·3	?	57·0	?	70·2	?	26·3	87·9	5th	47·4	27th	40·5
Bihar, North	Purnea	125	?	?	?	?	?	?	?	?	60·2	81·1	−0·9	56·1	—2·7	68·6	—1·8	25·0	84·2	3 days	48·3	26th	35·9
	Bhagalpur	160	29·826	?	29·946	29·912	29th	29·634	2nd	·278	66·0	83·2	?	56·4	?	69·8	?	26·8	88·2	5th	48·0	27th	40·2
	Darbhanga	166	29·831	—·042	29·958	29·923	11th	29·627	2nd	·296	65·4	82·3	+1·7	58·5	−3·7	70·4	—1·0	23·8	85·9	3 days	51·7	26th & 27th	34·2
	Muzaffarpur	178	29·818§	?	29·958§	29·908	29th	29·622	2nd	·286	63·1	81·8	?	55·3	?	68·6	?	26·5	86·2	3rd	46·3	27th	39·9
	Motihari	224	29·758	?	29·949	29·851	29th	29·560	2nd	·291	62·5	82·5	?	52·6	?	67·6	?	29·9	87·2	2nd & 3rd.	44·9	27th	42·3
	Chapra	181	29·811	?	29·953	29·906	29th	29·618	2nd	·288	64·1	82·3	?	57·1	?	69·7	?	25·2	87·3	5th	49·1	27th	38·2
N.-W. Provinces (Eastern Districts).	Benares	267	29·737	—·037	29·974	29·832	29th	29·551	1st & 2nd	·281	61·8	83·1	+0·6	53·3	−2·1	68·2	−0·8	29·8	88·7	4th & 5th.	45·0	28th	43·7
	Allahabad	309	29·695	—·039	29·975	29·784	29th	29·501	1st & 2nd	·283	63·9	84·8	+1·3	53·9	—1·8	69·4	—0·2	30·9	91·0	1st	43·9	28th	47·1
N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·728	—·047	29·954	29·821	30th	29·537	2nd	·284	65·5	81·3	−0·7	56·4	—0·8	68·9	−0·8	24·9	86·9	1st	49·3	30th	37·6
Oudh, South	Lucknow	370	29·615	—·046	29·972	29·719	30th	29·433	2nd	·286	61·0	83·0	—0·2	51·7	+0·2	67·4	0	31·3	88·3	1st	42·0	30th	46·3
Oudh, North	Bahraich	403	29·581	?	29·967	29·678	15th	29·406	2nd	·272	61·6	82·8	?	53·7	?	68·2	?	29·1	88·4	1st	47·0	3 days	41·4
N.-W. Provinces (Central).	Cawnpore	416	29·579	?	29·974	29·674	29th	29·385	1st	·289	64·5	83·6	?	52·2	?	67·9	?	31·4	87·0	1st & 10th.	43·0	28th	44·0
	Mainpuri	516	29·467	?	29·971	29·562	29th	29·285	1st	·277	59·6	83·9	?	52·6	?	68·3	?	3.·3	88·8	2nd	42·6	30th	46·2
6. Upper—Sub-Himalayas		...	...	—·033	...	...	...	...	...	...	...	79·9	—0·8	48·9	—0·1	64·3	—0·5	30·8	...	...	...	...	44·7
N.-W. Provinces (Sub-montane).	Bareilly	568	29·404	—·041	29·969	29·495	15th	29·244	2nd	·251	57·3	81·1	−0·2	49·5	—2·6	65·3	—1·4	31·6	88·3	3rd & 11th.	42·2	30th	46·1
	Dehra Dun	2,233	27·724	?	29·999	27·816	15th	27·602	2nd	·214	55·8	75·7	?	49·4	?	62·6	?	26·3	78·0	4 days.	43·0	26th	35·0
	Roorkee	887	29·077	—·046	29·986	29·176	28th	28·929	2nd	·247	53·6	79·9	—0·8	47·3	—1·8	63·6	—1·3	32·6	84·8	1st	38·9	26th	45·9
	Meerut	737	29·240	—·035	29·989	29·347	28th	29·074	2nd	·273	55·6	80·7	—0·8	49·7	+0·3	65·2	—0·3	31·0	85·2	9th & 10th,	42·1	28th & 29th,	43·1
Punjab (Central).	Delhi	718	29·272	—·028	29·989	29·371	11th	29·096	2nd	·275	61·7	81·2	—2·5	56·0	+0·9	68·6	—0·8	25·2	92·5	22nd	49·6	29th	42·9
	Lahore	702	29·283	—·029	29·999	29·372	11th	29·114	2nd	·258	55·5	82·2	+0·5	46·2	+0·3	64·2	+0·4	36·0	88·3	1st	37·2	29th	51·1

* Mean of 25 days. † " " 23 " ‡ Mean of 24 days. § " " 29 " ‖ Mean of 28 days.

I—*continued.*

in India, Burma, etc., in November 1892—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 1892.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Station.	Meteorological Province or District.
3	5	1	2	2	...	...	3	14	3*	?	?	69	?	0·5	0	0·42	− 0·42	0·06	0·18	− 0·12	3·23	4·26	− 1·03	Naya Dumka	Central Bengal—*contd.*
...	7	1	1	...	1	2	5	13	2	2	0	82	·547	0·8	1	0·55	+ 0·45	0·14	0·51	− 0·37	1·63	5·08	− 3·45	Berhampore.	
7	4	14	...	...	...	...	...	5	2	?	?	76	?	0·5	0	0·45	− 0·45	0·08	0·14	− 0·06	1·50	4·58	− 3·08	Rampur Boalia.	
2	...	...	...	3	...	3	...	22	3	?	?	81	?	0·4	0	0·35	− 0·35	0	0·16	− 0·16	2·65	4·54	− 1·89	Malda.	
10	6	2	2	...	...	...	1	4	1†	?	?	84‡	·576‡	0·8‡	0	0·50	− 0·50	0·02	0·27	− 0·25	1·01	4·25	− 3·24	Bogra.	
...	7	8	3	...	1	2	5	4	1	?	?	79	·563	0·7	0	0·30	− 0·30	0	0·09	− 0·09	0·35	5·22	− 4·87	Dinajpur	North Bengal.
4	3	6	11	1	...	...	5	...	2	?	?	87	?	0·3	0	0·10	− 0·10	0	0·10	− 0·10	3·54	5·42	− 1·88	Rangpur.	
9	6	7	2	4	...	1	...	1	?	?	?	83	·536	2·2	1	0·15	+ 0·85	0·19	0·10	+ 0·09	1·26	5·70	− 4·44	Jalpaiguri.	
1	17	4	...	...	...	1	...	7	2	?	?	80	·528	0·4	2	1·70	+ 0·30	1·02	0·91	+ 0·11	9·00	7·32	+ 1·68	Balasore	Orissa.
...	11	1	...	...	1	...	2	15	7	7	0	79	·561	2·2	2	3·00	− 1·00	3·29	2·09	+ 1·20	8·47	10·91	− 2·44	False Point.	
11	...	1	...	1	...	3	12	2	2	2	0	69	·484	1·6	2	2·45	− 0·45	0·58	1·22	− 0·64	12·86	5·40	+ 7·46	Cuttack.	
...	9	11	1	...	...	1	3	5	10	?	?	69	·596	1·1	0	?	?	0	?	?	0	?	?	Shortt's Island.	
1	27	1	...	...	...	...	...	1	8	?	?	76	?	1·2	2	2·95	− 0·95	3·36	2·30	+ 1·06	10·33	11·11	− 0·78	Puri.	
...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	0·26	0·18	+0·08	...	...	...	**5 Gangetic Plain and Chota Nagpur.**	
...	2	1	1	...	...	2	19	5	7	4	+ 78	58	·360	0·6	0	1·09	− 1·09	0·02	0·33	− 0·31	2·68	3·43	− 0·75	Hazaribagh.	Chota Nagpur.
12	...	...	1	...	1	2	7	7		?	?	57	?	0·4	1	0·85	+ 0·15	0·72	0·40	+ 0·32	6·34	3·38	+ 2·96	Ranchi.	
7	...	2	...	2	4	10	5	...	1	?	?	82	·496	0·9	2	1·00	+ 1·00	3·25	0·24	+ 3·01	6·00	3·19	+ 2·81	Chaibassa.	
...	.	...	...	1	23	2	4	...	6	1	+500	69	·453	0·6	0	0·91	− 0·91	0	0·49	− 0·49	0·41	2·86	− 2·45	Gaya	Bihar, South.
...	...	...	1	...	2	27	...	...		?	?	71	?	0·5	0	0·57	− 0·57	0	0·25	− 0·25	0·36	3·14	− 2·78	Dehri.	
...	1	...	1	...	2	3	22	1	3	2	+ 50	61	·432	0·3	0	0·45	− 0·45	0·02	0·21	− 0·19	0·14	3·33	− 3·19	Patna	
...	1	...	1	...	2	4	17	5	2	?	?	70	?	0·2	0	0·40	− 0·40	0	0·15	− 0·15	0·37	3·43	− 3·06	Arrah.	
...	...	...	1	...	...	4	21	4	3	?	?	62	?	0·4	1	0·35	+ 0·65	0·60	0·17	+ 0·43	0·68	3·52	− 2·84	Buxar.	
25	...	1	...	...	...	...	4	...	1	1	0	92	·482	0·4	0	0·27	− 0·27	0	0·14	− 0·14	0·03	3·83	− 3·80	Purnea	Bihar, North.
26	...	1	...	...	1	...	2	...	6	?	?	70	?	0·3	0	0·30	− 0·30	0	0·27	− 0·27	0·49	3·47	− 2·98	Bhagalpur.	
11	...	...	1	2	3	3	6	4	2?	2	0	76	·482	0	0	0·27	− 0·27	0	0·07	− 0·07	0·02	3·66	− 3·64	Darbhanga.	
18	...	...	1	...	...	4	5	2	2	?	?	83	?	0·2	0	0·42	0·42	0	0·09	− 0·09	0	3·56	− 3·56	Muzaffarpur.	
7	...	...	1	...	...	3	14	5	3	?	?	84	?	0	0	0·17	− 0·17	0	0·02	− 0·02	0	3·51	− 3·51	Motihari.	
3	...	...	1	1	...	14	11	0	3‖	?	?	72	?	0·3	0	0·40	0·40	0	0·29	− 0·29	0·09	3·89	− 3·80	Chapra.	
7	...	...	1	...	...	19	3	...	3	2	+ 50	74	·420	0·4	0	0·82	− 0·82	0	0·39	− 0·39	0·05	2·84	− 2·79	Benares	N.-W. Provinces (Eastern Districts).
3	...	1	1	...	1	2	12	10	3	1	+200	60	·373	0·3	2	0·45	+ 1·55	0·30	0·14	+ 0·16	0·30	1·79	− 1·49	Allahabad.	
4	4	...	...	1	1	...	15	5	1	1	0	66	·422	0·2	0	0·18	− 0·18	0	0·06	− 0·06	0	3·86	− 3·86	Gorakhpur	N.-W. Provinces (East Sub-montane).
14	1	...	...	...	...	...	...	...	?	1	?	72	·393	1·2	1	0·09	+ 0·91	0·34	0	+ 0·34	0·54	0·73	− 0·19	Lucknow§	Oudh, South.
7	4	...	...	4	...	1	3	11	2	?	?	81	·443	0·4	0	?	?	0·06	0	+ 0·06	0·06	1·69	− 1·63	Bahraich	Oudh, North.
7	3	...	1	...	...	1	16	2	2	?	?	59	·363	0·9	0	0	0	0·09	0·02	+ 0·07	0·09	0·77	− 0·68	Cawnpore	N.-W. Provinces (Central).
9	1	2	...	...	...	...	1	17	1	?	?	77	·368	0·5	0	?	?	0	0	0	0·01	0·82	− 0·81	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·02	0·17	−0·15	...	...	...	**6. Upper—Sub-Himalayas.**	
27	1	...	...	...	...	...	...	2	0	2	0	70	·335	0·5	0	0·27	− 0·27	0	0·20	− 0·20	0	1·17	− 1·17	Bareilly	N.-W. Provinces (Sub-montane).
29	...	...	...	...	...	...	1	...	1¶	2	− 50	68	·307	1·5	0	0·60	− 0·60	0	0·23	− 0·23	0	1·08	− 1·08	Dehra Dun.	
25	1	...	1	2	...	...	...	1	1‖	1	0	78	·330	1·2	1	0·64	+ 0·36	0·15	0·21	− 0·06	0·15	0·64	− 0·49	Roorkee.	
15	1	...	...	...	...	1	13	...	1	1	0	63	·282	0·2	0	0·36	− 0·36	0	0·08	− 0·08	0	0·68	− 0·68	Meerut.	
8	...	...	...	1	...	8	13	...	2	2	0	50	·280	0·2	0	0·18	− 0·18	0	0·07	− 0·07	0	0·24	− 0·24	Delhi	Punjab, Central.
28	...	2	...	...	...	...	...	...	1	1	0	75	·330	1·1	0	0·27	− 0·27	0	0·07	− 0·07	0	0·29	− 0·29	Lahore.	

* Mean of 26 days. † Mean of 24 days. ‡ Mean of 25 days. § Wind direction of 15 days. ‖ Mean of 29 days. ¶ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M., at 177 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	902 ?	29·068	?	29·986	29·148	15th	28·923	2nd	·225	57·2	81·3	?	?	?	?	?	?	86·0	1st	?	?	?
	Ludhiana	·812	29·170	—·023	29·998	29·246	1th & 12th,	29·018	2nd	·228	57·0	80·1	—0·7	50·2	+0·2	65·1	—0·3	29·9	85·6	5th	42·0	29th	43·6
Punjab, North	Sialkot	829	29·139	—·028	29·989	29·218	11th	28·997	2nd	·221	56·0	80·6	—0·4	49·7	+1·5	65·2	+0·6	30·9	87·1	1st & 2nd,	40·2	29th	46·9
	Rawalpindi	1,649	28·32	—·033	30·012	28·420	24th	28·182	2nd	·238	50·2	75·7	—1·4	42·1	+0·2	58·9	—0·6	33·6	82·5	1st	34·9	29th	47·6
7. Indus Valley and North-West Rajputana.		...	...	—·026	...	...	...	...	...	...	...	84·6	0	52·4	+0·7	68·5	+0·3	32·2	...	...	...	...	46·1
Punjab, West	Peshawar	1,110	28·911	—·023	30·021	29·011	15th	28·743	1st & 2nd,	·268	52·9	76·9	—0·4	46·3	+2·5	61·6	+1·1	30·6	82·1	18th	37·9	29th	44·2
	Khushab	612	29·388	?	30·008	29·478	24th	29·229	2nd	·249	55·9	80·5	?	49·0	?	64·8	?	31·5	87·9	1st	41·1	29th	46·8
	Montgomery	558	29·438	?	29·996	29·533	11th	29·249	1st	·284	59·2	83·8	?	48·4	?	66·1	?	35·4	90·8	1st	39·8	29th	51·0
	D. I. Khan	573	29·423	—·035	30·008	29·513	16th	29·242	1st	·271	52·7	82·7	+0·5	46·9	+1·0	64·9	+0·8	35·8	87·6	3 days	37·9	26th	49·7
	Mooltan	420	29·578	—·040	29·993	29·679	28th	29·367	2nd	·312	59·7	84·2	—0·3	53·0	+1·6	68·6	+0·7	31·2	90·3	1st	46·2	26th	44·1
	Sirsa	662	29·324	—·030	29·991	29·431	11th	29·139	1st & 2nd	·292	56·6	84·7	+0·2	49·1	+1·5	66·9	+0·9	35·6	90·0	1st	41·2	29th & 30th	48·8
Sind and Cutch.	Jacobabad	186	29·837	—·021	29·995	29·947	25th	29·608	1st	·339	60·2	86·8	+0·6	48·3	—0·9	67·6	—0·2	38·5	92·5	1st	38·6	26th	53·9
	Hyderabad	117	29·906	—·021	29·981	30·016	11th	29·652	1st	·364	65·9	88·0	+0·4	59·0	0	73·5	+0·2	29·0	95·7	8th	51·2	27th	44·5
	Kurrachee	49	29·989	—·014	29·991	30·098	12th	29·748	1st	·350	67·3	86·3	—1·0	59·8	—1·1	73·0	—1·1	26·5	91·0	1st & 9th	53·0	29th	38·0
	Bhuj	395	29·613	?	29·972	29·711	12th	29·382	1st	·329	71·6	88·0	?	60·3	?	74·2	?	27·7	94·5	1st	53·0	27th	41·5
Rajputana, West	Bickaneer	753	29·243	?	29·988	29·365	11th	28·993	2nd	·372	64·5	84·2	?	58·3	?	71·3	?	25·9	88·7	9th	49·0	29th	39·7
	Pachpadra	380	29·635	?	29·995	29·760	11th	29·363	1st	·397	58·6	89·5	?	50·3	?	70·0	?	39·2	94·5	1st	43·9	27th	50·6
8. East Rajputana, Central India and Guzerat.		...	...	—·013	...	...	...	...	...	...	...	85·9	+0·4	55·4	—1·1	70·8	0·4	30·7	...	...	...	...	42·2
Rajputana, East	Jeypore	1,431	28·577	—·020	30·022	28·685	11th	28·380	2nd	·305	63·3	85·1	+0·6	53·4	+0·5	69·3	+0·6	31·7	89·1	3rd & 9th,	43·7	28th	45·4
	Sambhar	1,254	28·734	—·030	30·009	28·834	11th	28·534	1st	·300	58·9	82·7	+0·3	50·6	—1·4	66·7	—0·6	32·1	86·9	1st	40·9	28th	46·0
	Ajmere	1,611	28·403	—·012	30·050	28·519	11th	28·195	1st	·324	57·9	83·5	+0·2	50·0	+1·0	66·8	+0·6	33·5	86·4	2nd & 18th,	41·4	3 days	45·0
	Deesa	466	29·551	—·010	29·994	29·659	12th	29·325	1st	·334	65·2	90·4	0	53·9	—2·7	72·2	—1·4	36·5	94·3	1st	49·1	27th	45·2
Kathiawar	Rajkot	429	29·573	—·010	29·970	29·675	12th	29·379	1st	·296	68·4	88·1	—2·1	56·3	—2·1	72·2	—2·1	31·8	92·9	1st	51·0	30th	41·9
	Veraval	?	29·589	?	29·949	30·092	12th	29·814	1st	·268	74·2	88·9	?	63·0	?	76·0	?	25·9	93·1	6th	58·3	17th	34·8
	Bhavnagar	?	29·997	?	29·984	30·095	12th	29·788	1st	·307	67·6	86·8	?	62·2	?	74·5	?	24·6	93·4	2nd	57·0	30th	36·4
Central India	Nowgong	757	29·253	—·022	30·003	29·350	11th	29·047	1st	·303	61·7	83·1	+0·6	?	?	?	?	?	90·0	3rd	?	?	?
	Indore	1,823	28·174	—·004	29·994	28·268	11th	27·973	1st	·295	66·0	82·4	+0·8	50·9	—3·1	66·7	—1·2	31·5	87·5	1st	43·0	30th	44·5
	Neemuch	1,630	28·387	—·004	30·027	28·482	11th	28·177	1st	·305	64·5	83·9	+0·4	52·1	—2·1	68·0	—0·9	31·8	87·8	1st & 2nd,	44·9	30th	42·9
Guzerat	Surat	36	29·968	0	29·948	30·071	12th	29·787	1st	·284	69·7	90·0	0	59·7	—2·9	74·9	—1·5	30·3	94·2	1st	56·0	6 days	38·2
N.-W. P., West	Agra	555	29·472	—·016	30·016	29·569	11th	29·282	2nd	·287	61·6	84·7	+0·3	54·2	0·7	69·5	—0·2	30·5	88·6	3 days	45·1	30th	43·5
	Jhansi	840	29·157	—·010	30·001	29·246	11th	28·950	2nd	·296	68·3	87·2	+3·1	58·9	+2·6	73·1	+2·9	28·3	91·4	10th	49·4	28th & 30th	42·0
9. Deccan		...	...	+·001	...	...	...	...	...	...	...	82·7	—0·3	56·5	—2·3	69·5	—1·4	26·3	...	...	...	...	39·1
Bombay, Deccan	Belgaum	2,524	27·444	+·008	29·926	27·528	12th	27·334	1st	·194	68·1	80·1	—1·6	58·8	—3·1	69·5	—2·4	21·3	83·3	8th & 22nd	52·9	18th & 30th	30·4
	Sholapur	1,590	28·410	+·024	29·970	28·498	11th	28·244	1st	·254	70·3	85·3	—1·6	58·9	—3·7	72·1	—2·7	26·4	91·2	23rd	50·1	17th	41·1
	Poona	1,840	28·157	+·010	29·989	28·239	11th	28·000	1st	·239	65·2	83·8	—1·2	55·5	—4·6	69·7	—2·9	28·3	88·5	7th & 8th,	49·0	17th	39·5
	Bijapur	?	28·044	?	?	28·127	12th	27·895	1st	·232	67·6	81·6	?	55·1	?	68·3	?	26·5	84·8	8th	46·1	17th	38·7
Khandesh	Malegaon	1,430	28·581	+·005	30·010	28·679	12th	28·406	1st	·273	64·2	85·2	—0·4	53·7	—3·2	69·5	—1·8	31·5	89·4	8th	47·5	17th	41·9
	Ahmednagar	2,152	27·850	?	29·992	27·937	12th	27·686	1st	·251	65·3	81·6	?	51·4	?	66·5	?	30·2	85·3	6th	42·4	20th & 21st,	42·9
Berar.	Akola	930	29·083	+·009	29·996	29·175	11th	28·885	1st	·290	64·7	85·2	—0·8	54·6	—2·4	70·0	—1·6	30·6	88·0	5 days	47·2	16th & 30th,	40·8
	Amraoti	1,215	28·789	+·008	29·987	28·871	12th	28·605	1st	·266	68·8	?	?	60·4	—0·1	?	?	?	?	...	53·4	29th	...

I—*continued.*

in India, Burma, etc., in November 1892—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 1892.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period.	Station.	Meteorological Province or District.
8	...	2	1	4	1	...	...	14	2	?	?	71	·341	0·9	0	?	?	0	0·18	−0·18	0	0·49	−0·49	Umbaila .	Punjab (Sub-montane).
23	...	...	1	3	...	...	2	1	1	1	0	64	·298	1·7	0	0·36	−0·36	0	0·16	−0·16	0	0·58	−0·58	Ludhiana.	
25	2	1	1	1	...	...	...	...	0	1	−100	63	·284	1·1	0	0·18	−0·18	0	0·10	−0·10	0	0·31	−0·31	Sialkot .	Punjab, North.
26	...	1	...	...	...	...	...	3	1	1	0	68	·252	1·8	0	0·36	−0·36	0·01	0·40	−0·39	0·50	0·92	−0·42	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·01	0·10	−0·09	...	...	...	**7. Indus Valley and North-West Rajputana.**	
17	1	...	...	3	1	7	...	1	2	2	0	67	·272	3·0	0	0·64	−0·64	0·12	0·38	−0·26	0·24	0·50	−0·26	Peshawar .	Punjab, West.
23	...	4	3	...	...	...	...	...	2	?	?	52	·236	1·7	0	0·4	−0·4	0	0·33	−0·33	0·11	0·40	−0·29	Khushab.	
14	1	1	5	3	4	...	1	1	2	?	?	57	·292	1·7	0	0·2	−0·2	0	0·07	−0·07	0	0·13	−0·13	Montgomery	
21	...	3	1	...	...	2	2	1	1	1	0	64	·257	1·8	0	0·45	−0·45	0	0·14	−0·14	0	0·18	−0·18	D. I. Khan.	
13	...	2	...	9	...	4	...	2	1	1	0	63	·328	0·5	0	0·09	−0·09	0	0·07	−0·07	0	0·07	−0·07	Mooltan.	
19	1	1	...	3	...	2	3	1	1	2	−50	61	·284	1·6	0	0·09	−0·09	0	0·03	−0·03	0	0·22	−0·22	Sirsa.	
16	2	2	1	3	1	...	...	5	2	2	0	46	·242	1·0	0	0	0	0	0	0	0	0	0	Jacobabad .	Sind and Cutch.
...	1	27	...	...	...	...	...	2	6	6	0	45	·284	0·2	0	0·20	−0·20	0	0·06	−0·06	0	0·06	−0·06	Hyderabad.	
...	2	21	7	...	...	...	...	...	11	8	+38	60	·419	0·3	0	0·09	−0·09	0	0	0	0	0	0	Kurrachee.	
9	3	...	...	...	1	3	6	7	6	?	?	64	·501	0·2	0	?	?	0	?	?	1·88	?	?	Bhuj. *	
1	2	3	2	2	2	9	4	5	4	3	+33	41	·256	1·0	0	?	?	0	0·06	−0·06	0·14	0·14	0	Bickaneer .	Rajputana, West.
†29	...	...	...	...	...	...	...	...	2	2	0	47	·236	0·2	0	?	?	0	0	0	0	0·05	−0·05	Pachpadra.*	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·04	0·15	−0·10	...	...	...	**8. East Rajputana, Central India and Guzerat.**	
9	4	1	3	2	...	1	1	9	4	3	+33	56	·332	1·2	0	0·20	−0·20	0·02	0·08	−0·06	0·02	0·44	−0·42	Jeypore .	Rajputana, East.
15	6	1	1	...	...	1	2	4	3	3	0	60	·302	0·5	0	0·30	−0·30	0	0·08	−0·08	0	0·30	−0·30	Sambhar.	
24	1	...	...	...	...	2	...	3	2	1	+50	62	·301	0·5	0	0·27	−0·27	0	0·07	−0·07	0	0·82	−0·82	Ajmere.	
...	1	6	10	4	...	1	7	1	?	8	?	51	·323	0·4	0	0·18	−0·18	0	0·08	−0·08	0·37	0·48	−0·11	Deesa.	
14	2	3	7	1	...	1	2	...	4	5	−20	60	·417	0·1	0	0·18	−0·18	0	0·35	−0·35	1·85	0·74	+1·11	Rajkot .	Kathiawar.
2	9	19	...	...	...	...	...	...	6	?	?	50	·428	0·9	0	?	?	0	?	?	0·96	?	?	Veraval.	
...	4	2	...	...	...	13	7	4	6	?	?	80	·540	0·3	0	?	?	0	?	?	0·26	?	?	Bhavnagar.	
6	4	1	3	1	4	1	4	6	1	1	0	67	·372	0·7	0	0·55	−0·55	0	0·28	−0·28	0·33	1·42	−1·09	Nowgong .	Central India.
14	5	3	2	2	1	...	2	1	1	2	−50	51	·332	0	1	0·73	+0·27	0·50	0·36	+0·14	0·75	2·18	−1·43	Indore.	
17	...	11	1	...	...	...	1	...	4	8	−50	40	·252	0·1	0	0·18	−0·18	0	0·06	−0·06	0	0·79	−0·79	Neemuch.	
...	5	10	5	1	2	2	...	5	?	6	?	68	·503	0·3	0	0·55	−0·55	0	0·18	−0·18	0·05	1·93	−1·88	Surat .	Guzerat.
4	...	2	...	1	...	8	...	15	3	3	0	54	·296	0·7	0	0·18	−0·18	0	0	0	0	0·45	−0·45	Agra . .	N.-W. P., West.
12	1	1	...	...	1	5	3	7	1	2	−50	43	·306	0·5	0	0·36	−0·36	0	0·08	−0·08	0·01	0·87	−0·86	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·37	0·86	−0·52	...	...	...	**9. Deccan.**	
12	...	4	11	3	...	...	...	...	?	12	?	63	·440	2·1	2	2·73	−0·73	0·30	1·86	−1·56	10·38	7·16	+3·22	Belgaum .	Bombay, Deccan.
1	...	6	10	8	1	...	3	1	9	8	+13	58	·440	2·1	2	1·73	+0·27	0·68	0·94	−0·26	9·84	5·44	+4·40	Sholapur.	
21	...	1	5	3	...	...	...	..	5	6	−17	68	·435	1·6	1	2·64	−1·64	0·34	1·22	−0·88	17·69	5·53	+12·16	Poona.	
...	...	5	13	7	...	1	2	2	3	?	?	71	·490	1·4	3	2·20	+0·80	1·89	2·22	−0·33	10·06	8·41	+1·65	Bijapur.	
5	...	...	...	...	...	2	13	10	7	4	+75	57	·354	1·2	1	1·75	−0·75	0·17	0·75	−0·58	2·72	4·27	−1·55	Malegaon .	Khandesh.
15	2	3	2	5	...	1	1	1	4	?	?	71	·453	1·6	1	?	?	0·29	0·72	−0·43	6·03	3·82	+2·21	Ahmednagar	
18	3	4	2	2	...	...	...	1	3	3	0	69	·430	0·9	0	1·18	−1·18	0	0·81	−0·81	8·32	4·44	+3·88	Akola .	Berar.
6	...	18	4	...	...	...	1	1	3	3	0	54	·386	0·9	1	1·27	−0·27	0·21	0·64	−0·43	4·25	3·58	+0·67	Amraoti.	

* Wind direction of 29 days.

Table

Abstract of Observations taken at 8 A.M., at 177 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.
Central Provinces, West.	Khandwa	1,044	28·975	+·021	30·020	29·070	12th	28·774	1st	·296	61·3	84·6	−0·7	53·2	−2·7	68·9	−1·7	31·4	89·2	1st	43·1	30th	46·1
	Hoshangabad	1,020	28·999	−·014	30·023	29·096	12th	28·792	1st	·304	61·1	82·9	−0·9	55·1	−1·4	69·0	−1·2	27·8	87·8	1st	44·8	29th	43·0
	Nagpur	1,025	28·985	+·011	29·999	29·070	12th	28·782	1st	·288	66·2	83·5	−0·7	58·0	−1·6	70·8	−1·2	25·5	87·3	6th	50·2	29th & 30th	37·1
Central Provinces, Central.	Seoni	2,030	27·956	−·020	30·011	28·034	12th	27·761	1st	·273	64·6	80·1	−0·7	53·5	−1·8	66·8	−1·3	26·6	85·1	3rd	44·0	30th	41·1
	Jubbulpore	1,327	28·676	−·006	30·022	28·767	12th	28·464	1st	·303	58·3	81·8	+0·8	50·8	−1·4	66·3	−0·3	31·0	86·4	3rd	39·9	29th	46·5
	Saugor	1,762	28·234	−·021	30·006	28·328	12th	28·034	1st	·294	63·0	83·5	+2·7	53·6	−2·4	68·6	+0·2	29·9	87·3	5th	43·1	29th	44·2
Central Provinces, East.	Raipur	960	29·036	+·004	29·990	29·119	12th	28·800	1st	·319	66·1	81·5	−0·7	58·7	−1·3	70·2	−1·0	22·8	87·0	4th	49·9	30th	37·1
	Sutna	1,040	28·950	−·030	29·994	29·032	11th & 12th, 29th	28·748	1st	·284	62·2	82·2	+1·8	50·7	−2·1	66·5	−0·2	31·5	87·6	1st	41·7	30th	45·9
	Sambalpur	463	29·543	?	29·972	29·618		29·273	1st	·345	67·4	81·9	?	58·7	?	70·3	?	23·2	87·5	4th	50·2	29th	37·3
Hyderabad, North.	Aurangabad	?	28·150	?	?	28·250	11th	27·972	1st	·278	70·0	84·6	?	55·6	?	70·1	?	29·0	87·6	7th	49·0	17th	38·6
	Indur	?	?	?	?	?	...	?	...	?	66·6	81·8	?	55·5	?	68·6	?	26·3	87·4	6th	47·0	30th	40·4
	Bidar	?	27·819	?	?	27·891	11th	27·651	1st	·240	67·5	79·0	?	61·4	?	70·2	?	17·6	83·6	2nd	55·4	30th	28·2
Hyderabad, South.	Gulburga	?	28·489	?	?	28·574	11th	28·325	1st	·249	69·0	83·6	?	58·9	?	71·3	?	24·7	88·8	5th	50·5	17th	38·3
	Raichur	?	28·610	?	?	28·706	12th	28·459	1st	·247	69·9	82·8	?	63·6	?	73·2	?	19·2	86·1	4th & 5th	57·2	17th	28·9
	Hyderabad (Deccan).	1,690	28·297	−·001	29·975	28·374	12th	28·120	1st	·254	66·5	81·2	−0·6	58·9	−3·2	70·1	−1·9	22·3	84·9	4th	51·8	30th	33·1
	Kamamet	?	29·629	?	?	29·717	12th	29·421	1st	·296	69·2	83·8	?	61·6	?	72·7	?	22·2	90·5	4th	53·2	30th	37·3
10. West Coast		...	...	+·008	...	...	...	...	...	...	...	86·2	−0·5	71·3	−1·6	78·8	−1·0	14·9	...	...	...	...	
Konkan	Bombay	37	29·962	+·014	29·939	30·064	12th	29·801	1st	·263	74·7	85·7	−0·9	71·8	−1·4	78·8	−1·2	13·9	87·9	7th	69·0	30th	18·9
	Ratnagiri	110	29·854	+·018	29·903	29·949	12th	29·726	1st	·223	76·7	88·6	−1·8	67·4	−2·8	78·0	−2·3	21·2	91·9	25th	61·9	15th & 18th	30·0
	Mormugoa	60	29·914	?	29·909	30·016	12th	29·801	1st	·215	72·7	85·7	?	70·1	?	77·9	?	15·6	88·0	6th & 10th	65·3	19th	22·7
	Karwar	44	29·915	+·005	29·892	30·011	12th	29·821	1st	·190	71·4	86·1	−0·7	66·7	−2·9	76·4	−1·8	19·4	88·3	3 days	61·5	17th	26·8
Malabar	Mangalore	26	29·929	+·004	29·887	30·008	12th	29·874	22nd	·134	75·9	87·3	+0·2	71·3	−1·6	79·3	−0·7	16·0	90·8	26th	67·0	14th	23·8
	Calicut	27	29·921	−·004	29·877	29·998	12th	29·869	23rd	·129	74·9	87·3	?	73·4	?	80·4	?	13·9	89·8	20th	70·6	30th	19·2
	Cochin	10	29·946	+·010	29·884	30·029	12th	29·891	23rd	·138	79·0	87·5	+0·8	75·1	+0·9	81·3	+0·9	12·4	90·3	30th	72·7	3rd & 28th	17·6
	Trivandrum	198	29·748	?	29·877	29·829	12th	29·699	23rd	·130	77·4	81·5	?	74·8	?	78·2	?	6·7	83·0	3 days	72·5	27th	10·5
11. South India		...	...	+·009	...	...	...	...	...	...	...	85·1	+1·4	67·7	−1·5	76·4	0	17·4	...	...	...	...	26·9
Madras, South.	Pamban	37	29·918	?	29·882	29·991	12th	29·842	2nd	·149	79·9	83·9	?	77·3	?	80·7	?	6·6	88·3	3rd	74·2	11th & 18th	14·1
	Tinnevelly	168	29·794	?	29·893	29·895	12th	29·698	1st	·197	78·4	91·3	?	75·5	?	83·4	?	15·8	98·3	3rd	72·9	24th & 28th.	25·4
	Madura	447	29·511	+·014	29·898	29·602	12th	29·413	1st	·189	78·7	88·3	+0·8	72·7	+0·4	80·5	+0·6	15·6	91·8	1st & 3rd	69·6	24th & 30th	22·2
Madras, South Central.	Salem	940	29·041*	+·007*	29·950*	29·124	12th	28·947	1st	·177	75·7	90·4	+3·8	68·7	+0·9	79·6	+2·4	21·7	92·4	17th & 21st	64·4	13th	28·0
	Coimbatore	1,348	28·608	+·004	29·910	28·673	12th	28·510	1st	·163	74·9	91·0	+5·3	67·9	−1·5	79·4	+1·9	23·1	94·3	3 days	63·6	28th	30·7
Cooro	Mercara	3,781	26·250	?	29·913	26·305	12th	26·195	1st	·110	63·7	76·2	+1·3	59·7	−0·9	67·9	+0·2	16·5	78·8	3 days	55·7	18th & 29th	23·1
Mysore	Bangalore Fort	3,019	26·986	−·006	29·933	27·073	12th	26·891	1st	·182	67·1	81·4	+2·4	60·0	−2·1	70·7	+0·2	21·4	84·8	4th	54·9	18th	29·9
	Bangalore	2,962	27·032	+·008	29·951	27·110	12th	26·941	1st	·169	67·2	80·6	+2·4	60·1	−2·1	70·4	+0·2	20·5	84·2	4th	54·9	18th	29·3
Madras, East Coast, South.	Negapatam	31	29·933	+·018	29·893	30·011	12th	29·842	2nd	·169	77·9	84·0	+0·4	73·3	−0·6	78·7	−0·1	10·7	93·2	2nd	69·7	3 days	23·5
	Cuddalore	12	29·961	?	29·902	30·045	12th	29·837	1st	·208	76·5	85·7	?	70·2	?	78·0	?	15·5	90·7	4th	63·3	30th	27·4
	Trichinopoly	255	29·712	+·011	29·903	29·790	12th	29·606	1st	·184	78·1	85·8	+3·2	72·0	+0·4	80·9	+1·8	17·8	95·5	2nd	68·9	29th & 30th	26·6
	Madras	22	29·960	+·015	29·913	30·046	12th	29·823	1st & 2nd.	·223	76·9	86·5	+1·9	70·6	−2·0	78·6	−0·1	15·9	91·0	3rd & 4th	66·0	23rd & 30th	25·0
Madras, East Coast, Central.	Nellore	71	29·914	?	29·919	29·999	12th	29·746	1st	·253	77·0	87·3	?	70·2	?	78·8	?	17·1	94·2	4th	64·1	30th	30·1
	Masulipatam	15	29·985	+·009	29·935	30·071	11th	29·779	1st	·292	74·8	83·7	−0·9	69·4	−2·1	76·6	−1·5	14·3	88·5	3rd	62·7	30th	25·8
Madras, Central	Cuddapah	433	29·565	?	29·946	29·662	12th	29·423	1st	·239	74·9	87·2	?	66·7	?	77·0	?	20·5	91·0	5th	61·9	17th	29·1
	Kurnool	923	29·076	?	29·962	29·168	12th	28·910	1st	·258	71·3	84·9	?	60·0	?	72·5	?	24·9	90·0	7th	51·7	17th	38·3
	Bellary	1,475	28·515	+·029	29·963	28·602	12th	28·369	1st	·233	65·7	84·5	−2·0	61·3	−4·7	72·9	−3·4	23·2	87·9	3 days	55·1	17th & 18th	32·8
Madras, East Coast, North.	Rajahmundry	112	29·875	?	29·927	29·951	12th	29·657	1st	·294	72·0	85·9	?	66·0	?	76·0	?	19·9	91·0	4th	62·0	3 days	29·0

* Mean of 29 days. † Mean of 23 days. ‡ Mean of 15 days.

I—*continued.*

in India, Burma, etc., in November 1892—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 1892.	Normal rainfall for period, 1st October to 30th November 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
14	3	4	5	...	2	...	...	2	2	3	− 33	68	·383	0·3	2	1·09	+0·91	0·44	0·35	+ 0·09	2·16	2·32	− 0·16	Khandwa .	Central Provinces, West.
3	...	10	14	...	3	...	...	...	3	2	+ 50	74	·408	0·5	1	0·91	+0·09	0·34	0·39	− 0·05	1·33	2·47	− 1·14	Hoshangabad.	
6	19	3	...	...	...	...	...	2	4	3	+ 33	63	·420	1·5	0	1·09	− 1·09	0	0·79	− 0·79	3·74	3·81	− 0·07	Nagpur.	
14	2	8	2	...	...	1	1	2	2	3	− 33	64	·396	0·9	0	0·82	−0·82	0·05	0·42	− 0·37	5·78	2·40	+ 3·38	Seoni .	Central Provinces, Central.
10	...	1	...	10	5	2	1	1	1	2	− 50	76	·379	0·5	0	1·27	−1·27	0	0·51	− 0·51	1·77	2·58	− 0·81	Jubbulpore.	
22	2	...	4	1	...	...	1	...	1	2	− 50	54	·317	0·4	0	0·55	−0·55	0	0·46	− 0·46	0·05	2·20	− 2·15	Saugor.	
15	3	5	4	...	...	...	1	2	3	3	0	69	·456	1·6	1	1·82	−0·82	0·11	0·55	− 0·44	3·76	3·02	+ 0·74	Raipur .	Central Provinces, East.
3	9	1	1	1	1	...	6	8	4	3	+ 33	57	·325	0·4	1	0·73	+0·27	0·26	0·28	− 0·02	0·28	2·50	− 2·22	Sutna.	
1	16	5	2	1	3	...	...	2	4	?	?	78	·533	0·9	1	?	?	1·23	0·30	+ 0·93	3·00	2·70	+ 0·30	Sambalpur.	
10	1	8	8	2	...	1	...	...	4	?	?	56	·419	1·1	0	?	?	0	0·61	− 0·61	4·00	3·57	+ 0·43	Aurangabad	Hyderabad, North.
15	2	...	3	2	1	2	2	3	5	?	?	78	·526	1·2	0	?	?	0·05	1·06	− 1·01	1·87	3·69	− 1·82	Indur.	
...	2	16	9	1	...	2	...	...	5	?	?	70	·476	1·5	2	?	?	0·40	1·15	− 0·75	11·09	4·80	+ 6·29	Bidar.	
15	...	3	6	4	...	...	...	2	3	?	?	63	·462	1·7	2	?	?	0·29	0·64	− 0·35	?	?	?	Gulburga .	Hyderabad, South.
2	1	7	12	4	1	...	1	2	5	?	?	71	·534	3·7	1	?	?	0·23	1·00	− 0·77	10·65	4·83	+ 5·82	Raichur.	
23	...	1	2	2	2	...	...	...	4	6	− 33	76	·511	1·1	2	?	?	0·53	2·05	− 1·52	12·73	5·43	+ 7·30	Hyderabad (Deccan).	
22	4	1	...	...	1	...	2	...	4	?	?	82	·599	0·6	3	?	?	0·98	?	?	9·09	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·33	3·37	−1·06	...	...	...	**10. West Coast.**	
...	1	11	16	2	...	...	...	...	9	10	−10	72	·628	1·0	1	1·09	−0·09	0·67	0·58	+ 0·09	2·56	3·42	− 0·86	Bombay .	Konkan.
4	4	2	12	10	2	...	...	...	5	8	− 38	59	·546	1·1	1	1·18	−0·18	0·41	0·51	− 0·10	9·26	4·51	+ 4·75	Ratnagiri.	
2	1	2	13	8	2	1	...	...	7	?	?	81	·667	0·8	3	?	?	2·44	?	?	18·33	?	?	Mormugoa.†	
6	...	22	1	...	...	1	...	...	2	?	?	77	·602	0·9	3	3·82	−0·82	1·43	2·87	− 1·44	17·41	10·53	+ 6·88	Karwar.	
2	1	10	14	3	...	...	...	...	2	3	− 33	78	·702	1·4	3	5·10	−2·10	4·25	3·29	+ 0·96	15·80	10·77	+ 5·03	Mangalore.	Malabar.
1	...	8	17	4	...	...	...	...	10	?	?	80	·774	3·3	4	8·44	−4·44	3·54	5·64	− 2·10	21·92	14·80	+ 7·12	Calicut.	
2	1	17	7	...	1	...	1	1	5	?	?	82	822	3·1	5	10·09	−5·09	3·57	7·34	− 3·77	24·23	21·07	+ 3·16	Cochin.	
...	2	4	1	...	...	3	9	11	4	?	?	87	·826	5·0	6	?	?	2·34	?	?	21·67	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·97	7·15	−6·15	...	...	...	**11. South India.**	
...	15	8	1	...	1	1	1	3	10	?	?	88	·893	3·9	5	8·00	−3·00	3·38	9·55	− 6·17	6·81	16·41	− 9·60	Pamban .	Madras, South.
...	16	1	...	...	...	...	3	10	5	?	?	72	·702	5·9	4	10·50	−6·50	1·31	8·48	− 7·17	7·53	12·00	− 6·47	Tinnevelly.	
...	13	7	...	1	...	...	...	9	3	4	+ 25	69	·682	2·7	2	7·09	−5·09	1·20	4·83	− 3·63	10·34	11·57	− 1·23	Madura.	
11	4	11	...	...	...	3	...	1	3	3	0	68	·616	2·9	1	7·36	−6·36	0·77	4·53	− 3·76	5·68	11·95	− 6·27	Salem .	Madras, South, Central.
...	7	1	17	1	3	...	1	...	5	3	+ 67	82	·724	4·0	1	8·09	−7·09	0·12	4·15	− 4·03	2·68	9·87	− 7·19	Coimbatore	
...	...	5	21	...	1	...	3	...	6	4	+ 50	80	·478	4·6	2	7·20	−5·20	0·43	4·06	− 3·63	7·44	13·67	− 6·23	Mercara .	Coorg.
...	..	18	7	1	...	2	2	...	7	?	?	77	·519	1·5	2	?	?	0·44	?	?	3·30	?	?	Bangalore Fort.	Mysore.
...	4	15	7	...	...	2	2	...	3	4	− 25	76	·514	3·9	2	6·09	−4·09	0·56	3·69	− 3·13	2·74	11·38	− 8·64	Bangalore.	
1	3	...	1	...	...	...	14	11	10	5	+100	80	·768	6·2	5	13·09	−8·09	3·21	17·88	−14·67	8·62	29·57	−20·95	Negapatam	Madras, East Coast, South.
...	14	2	...	...	...	1	2	11	4	?	?	91	·835	2·3	5	11·8	−6·8	2·02	15·22	−13·20	6·79	24·53	−17·74	Cuddalore.	
3	12	9	...	...	...	1	2	3	4	4	0	69	·666	4·3	1	8·45	−7·45	1·31	5·50	− 4·16	10·87	11·71	− 0·84	Trichinopoly	
1	20	1	...	...	1	1	1	5	7	7	0	79	·735	4·6	2	13·00	−11·00	1·12	16·67	−15·55	7·56	29·29	−21·73	Madras.	
7	1	...	...	...	...	...	5	17	5	?	?	76	·715	6·7	0	9·4	−9·4	0·04	12·35	−12·31	16·27	23·76	− 7·49	Nellore .	Madras, East Coast, Central.
6	15	5	...	1	...	...	...	3	3	6	− 50	80	·608	2·7	1	5·91	− 4·91	0·31	7·00	− 6·69	26·87	15·44	+11·43	Masulipatam.	
...	2	5	3	7	2	4	3	4	?	?	?	74	·644	1·8	1	7·00	− 6·00	0·38	5·43	− 5·05	9·26	11·76	− 2·50	Cuddapah.	Madras, Central.
30	...	...	...	...	...	...	...	...	?	?	?	72	·566	1·5	0	3·17	−3·17	0·02	1·01	− 0·99	9·24	5·94	+ 3·30	Kurnool.	
2	2	4	1	...	...	...	...	1	3*	3	0	78	·575	1·8	1	3·82	− 2·82	0·25	2·09	− 1·84	5·87	6·15	− 0·28	Bellary.	
1	27	...	...	...	...	...	1	1	?	?	?	73	·580	1·4	1	2·80	−1·80	0·55	2·41	− 1·86	12·45	9·90	+ 2·55	Rajahmundry	Madras, East Coast, North.

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

Table

Abstract of Observations taken at 8 A.M., at 177 Station

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.
Madras, East Coast, North —*contd.*	Coconada	26	29·968	?	29·929	30·051	11th	29·735	1st	·316	72·6	81·9	?	66·6	?	74·3	?	15·3	87·2	3rd	62·2	28th	25·0
	Vizagapatam	31	29·964	−·007	29·933	30·034	11th	29·725	1st	·309	74·4	79·7	−1·7	69·3	−3·6	74·5	−2·7	10·4	83·9	3rd	63·9	24th & 25th	20·0
	Gopalpur	21	29·986	?	29·947	30·060	12th	29·739	2nd	·321	68·1	82·5	?	63·5*	?	73·0*	?	19·0	85·7	3rd & 6th.	57·0	28th	28·7
12. Hill Stations		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	Quetta	5,502	24·745	−·003	?	24·871	12th	24·610	1st	·261	43·3	63·8	−0·2	30·7	0	47·3	−0·1	33·1	71·7	17th	23·8	25th	47·9
	Kelat	?	?	?	?	?	?	?	?	?	?	68·9	?	22·0	?	45·5	?	46·9	80·0	20th	13·0	25th	67·0
Northern India	Chaman	?	25·797	?	?	25·906	25th	25·690	27th	·261	49·3	64·8	?	42·2	?	53·5	?	22·6	73·1	19th	31·5	25th	41·6
	Srinagar	5,204	24·977	?	?	25·090	12th	24·830	2nd	·260	34·5	59·4	?	29·3	?	44·4	?	30·1	67·9	1st	21·1	26th	46·8
	Murree	6,344	23·889	−·034	?	23·979	12th	23·763	23rd	·216	47·9	59·0	−2·3	43·7	−1·5	51·4	−1·9	15·3	66·1	19th	36·7	3 days	29·4
	Simla	7,237	23·138	−·047	?	23·208	17th	23·036	2nd	·172	42·8	54·1	−2·0	43·2	−1·2	48·6	−1·6	10·9	58·3	20th	34·3	26th	24·0
	Chakrata	7,052	23·279	−·039	?	23·353	12th	23·188	2nd	·165	57·1	59·0	−0·4	42·7	−0·5	50·9	−0·5	16·3	65·2	20th	35·6	26th	29·6
	Mussoorie	?	23·597	?	?	23·699	28th	23·501	2nd	·198	48·8	57·6	?	44·1	?	50·8	?	13·5	63·2	20th	38·0	26th	25·2
	Ranikhet	6,069	24·157	−·007	?	24·245	15th	24·065	2nd	·180	51·6	63·6	+1·2	46·4	−0·1	55·0	+0·6	17·2	68·6	18th & 20th.	39·5	26th	29·1
	Gnatong	?	19·210	?	?	19·276	17th	19·139	2nd	·137	34·7	?	?	15·2	?	?	?	?	?	...	5·3	30th	...
	Darjeeling	7,421	23·022	−·034	?	23·100	11th	22·906	2nd	·194	45·6	51·9	−2·5	40·4	−1·0	46·2	−1·8	11·5	58·1	4th	31·1	27th	27·0
Central India	Mount Abu	3,945	?	?	?	?	?	?	...	?	64·3	70·9	−2·6	55·7	−1·2	63·3	−1·9	15·2	74·1	1st & 19th.	50·0	29th & 30th	24·1
	Pachmarhi	3,511	26·549	−·009	?	26·625	12th	26·378	1st	·247	62·9	72·3	+0·3	48·0	−3·1	60·2	−1·4	24·3	76·3	1st	38·3	29th & 30th	38·0
South India	Wellington	6,200	24·284	+·030	?	24·342	12th	24·232	1st	·110	59·5	69·5	+2·9	49·0	−3·9	59·3	−0·5	20·5	72·2	16th	41·2	30th	31·0
	Kodai Kanal	?	?	?	?	?	...	?	...	?	58·0	?	?	51·2	?	58·0‖	?	?	?	...	47·3	27th	?
	Kotagiri	?	...	...	...	Not	receiv	ed.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13. Extra India		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Persia	Bushire	14	30·053	?	30·024	30·213	12th	29·909	1st	·304	69·2	79·0	?	63·6	?	71·3	?	15·4	86·6	4th	55·7	23rd	30·9
Arabia	Aden	94	29·912	?	29·939	29·985	25th	29·795	2nd	·190	78·5	84·7	?	75·1	?	79·9	?	9·6	91·5	2nd	72·7	10th	18·8
	Perim				Re	jected.					80·5	87·1	?	77·3§	?	82·2‡	?	9·8	89·1	3rd	75·6	30th	13·5
Arabian Sea Islands,	Minicoy	10	29·960	?	29·895	30·033	12th	29·916	9th	·117	80·4	86·5	?	77·8‡	?	82·1§	?	8·7	88·5	29th	74·8	22nd	13·7
Africa	Zanzibar	73	29·945	?	29·944	30·040	12th	29·821	23rd	·219	80·0	84·0	?	76·9	?	80·5	?	7·1	87·1	29th	74·1	10th	13·0

* Mean of 29 days. ‡ Mean 26 days.
§ Mean of 18 days. ‖ „ „ 15 „ ¶ „ 19

I —*concluded.*

in India, Burma, etc., in November 1892 —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 1892.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period	Station.	Meteorological Province or District.
...	21	2	...	...	...	1	...	6	7	?	?	78	·627	0·9	0	4·3	— 4·3	0·01	4·65	— 4·64	32·86	14·71	+18·15	Coconada.	Madras, East Coast, North —*contd.*
...	7	...	...	...	...	...	17	6	1	2	— 50	71	·618	1·4	1	7·18	— 6·18	2·37	8·45	— 6·08	30·61	18·75	+11·86	Vizagapatam.	
...	15	..	...	...	...	1	...	14	9	7	+ 29	80	·552	0·5	2	4·33	— 2·33	0·64	5·06	— 4·42	9·85	15·45	— 5·60	Gopalpur.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**12. Hill Stations.**	
30	...	...	...	...	...	...	...	...	3	3	0	48	·133	1·7	0	0·09	— 0·09	0·06	0	+ 0·06	0·06	0·07	— 0·01	Quetta .	Baluchistan.
...	...	...	...	...	...	10	...	20	?	?	?	?	?	?	0	?	?	0	?	?	?	?	?	Kelat.	
...	1	...	3	5	4	1	...	1	9	?	?	48	·168	5·9	0	?	?	0·01	?	?	0·01	?	?	Chaman.	
10	3	4	4	4	4	...	...	1	3	?	?	83	·135	2·5	0	?	?	0·05	?	?	0·06	?	?	Srinagar .	Northern India.
10	2	1	3	6	1	...	...	7	7	6	+ 17	38	·123	2·3	2	0·73	+ 1·27	0·47	0·84	— 0·37	0·63	1·95	— 1·32	Murree.	
5	16	...	...	1	5	...	...	3	?	2	?	37	·114	1·3	1	1·18	— 0·18	0·36	0·65	— 0·29	0·36	1·48	— 1·12	Simla.	
17	...	1	11	...	...	1	...	...	2	?	?	37	·172	0·9	0	?	?	0	0·79	— 0·79	0	1·37	— 1·37	Chakrata.	
...	2	2	11	...	1	...	5	9	?	?	?	48	·168	0·7	0	?	?	0	?	?	0	?	?	Mussoorie.	
26	...	...	3	...	...	...	1	...	3	1	+200	59	·227	0·8	0	1·00	— 1·00	0	0·46	— 0·46	0	1·50	— 1·50	Ranikhet.	
...	5	3	4	5	...	5	5	3	6	?	?	54	·114	0·7	1	?	2	0·53	?	?	4·38	?	?	Gnatong.	
7	1	4	10	3	1	2	2	...	3	2	+ 50	83	·255	3·4	1	0·63	+ 0·37	0·30	0·42	— 0·12	1·32	5·46	— 4·14	Darjeeling.	
16	...	1	2	2	...	...	3	6	3	4	— 25	40	·238	0·7	0	0·18	— 0·18	0	0·07	— 0·07	0·59	0·94	— 0·35	Mount Abu	Central India.
9	1	5	8	1	...	1	3	2	3	3	0	52	·299	0·9	0	1·09	— 1·09	0	0·58	— 0·58	3·14	3·45	— 0·31	Pachmarhi.	
25	...	...	2	2	1	...	...	...	2	2	0	76	·400	1·6	7	13·22	— 6·22	3·62	9·55	— 5·93	10·98	20·90	— 9·92	Wellington.	South India.
3	4	5	...	2	...	1	...	15	8	?	?	80	·380	3·5	2	10·50	— 8·50	0·64	5·59	— 4·95	10·25	16·46	— 6·21	Kodai Kanal.	
...	...	...	...	...	...	...	...	Not	recei	ved.	...	...	...	...	...	...	...	...	...	...	..	...	...	Kotagiri .	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**13. Extra India.**	
...	2	10	8	8	1	...	...	1	5	6	— 16	69	·498	?*	5	?	?	3·40	1·53	+ 1·87	3·40	1·53	+ 1·87	Bushire.	Persia.
2	...	8	18	2	...	...	...	...	14	12	+ 17	72	·700	4·7	0	?	?	0·14	0·11	+ 0·03	0·14	0·11	+ 0·03	Aden. .	Arabia.
...	...	...	13	17	...	...	...	...	22	?	?	73	·766	3·0	0	?	?	0	?	?	0	0	0	Perim.	
2	5	3	1	2	...	2	7	8	7	?	?	81	·840	4·1	3	?	?	2·23	?	?	5·52	?	?	Minicoy.	Arabian Sea Islands.
...	2	5	7	13	2	...	...	1	6	?	?	79	·807	5·3	7	?	?	7·27	?	?	8·13	?	?	Zanzibar .	Africa.

* Mean of 29 days.

Table

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

Meteorological Province.	Station.	Elevation of Bar.-cistern above sea-level.	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	...	29·861	29·753	·108	29·800	−·043	29·792	86·4	76·3	10·1	90·3	73·8	16·5	82·9	83·6	80·6	+0·1	74·2	78·6	78·4	77·1
	Mergui	...	·832	·717	·115	·774	−·038	·802	86·7	?	?	89·3	?	?	82·2	82·9	?	?	?	76·6	77·1	?
	Rangoon	...	·900	·787	·113	·843	−·053	·821	85·8	72·9	12·9	89·3	67·4	21·9	80·0	82·6	77·4	−0·6	71·1	75·6	76·3	74·3
	Diamond Island	...	·910	·808	·102	·858	−·036	·834	84·3	76·6	7·7	87·9	71·0	16·9	81·9	82·2	79·5	+0·5	72·6	75·6	75·7	74·6
	Cocos Island	111	·843	·752	·091	·793	?	·838	85·2	73·1	12·1	88·5	69·7	18·8	82·7	81·5	77·8	?	70·0	77·0	76·0	74·3
	Akyab	...	·951	·844	·107	·901	−·035	·864	84·2	69·7	14·5	87·4	61·4	26·0	78·7	81·3	76·7	−1·4	67·6	74·4	75·1	72·4
Assam.	Silchar	...	·889	·769	·120	·825	−·049	·882	83·5	62·9	20·6	87·5	57·6	29·9	75·4	81·2	72·0	−0·6	61·8	69·7	71·1	67·5
	Sibsagar	...	·676	·553	·123	·614	−·062	·914	77·7	59·0	18·7	81·6	53·2	28·4	70·9	76·4	67·2	−0·4	58·8	67·6	69·4	65·2
	Dhubri	...	·893	·764	·129	·823	−·033	·896	80·0	62·8	17·2	83·2	57·9	25·3	72·3	79·0	69·8	−0·3	61·7	66·8	68·6	65·7
Bengal and Orissa.	Chittagong	...	·897	·794	·103	·843	−·032	·881	81·2	64·2	17·0	85·4	59·4	26·0	76·0	77·7	72·2	−1·8	63·0	71·2	71·3	68·5
	Dacca	...	·966	·852	·114	·905	−·043	·875	81·7	63·4	18·3	84·6	57·3	27·3	76·2	79·5	72·8	−1·7	61·5	68·4	69·0	66·3
	Calcutta (Alipore)	...	·984	·872	·112	·920	−·041	·887	80·0	61·2	18·8	84·8	54·2	30·6	74·7	78·7	70·2	−2·1	60·0	66·4	66·0	64·1
	Calcutta (Chowringhee)	...	·983	?	?	?	?	?	81·3	61·7	19·6	86·1	53·9	32·2	76·3	?	?	?	60·7	68·3	?	?
	Saugor Island	...	·976	·860	·116	·912	−·039	·882	79·3	64·2	15·1	84·1	56·7	27·4	75·2	77·4	70·9	−2·5	61·5	69·1	67·9	66·2
	Burdwan	...	·920	·804	·116	·855	−·028	·905	82·0	62·6	19·4	86·5	55·3	31·2	74·7	79·8	71·7	−1·8	59·0	64·5	65·7	63·1
	Berhampore	...	·938	·826	·112	·875	−·037	·892	81·0	62·4	18·6	86·6	53·7	32·9	74·4	79·3	71·3	−1·9	59·5	66·6	67·8	64·6
	False Point	...	·991	·883	·108	·936	−·037	·899	81·6	61·2	20·4	85·0	54·0	31·0	77·0	76·9	70·3	−2·7	60·5	67·1	67·3	65·0
	Cuttack	...	·933	·820	·113	·875	−·032	·900	83·6	62·2	21·4	88·4	54·8	33·6	77·5	81·9	72·3	−2·3	59·9	66·4	66·7	64·3
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·976	27·894	·082	27·931	−·034	·936	76·7	55·5	21·2	82·8	47·9	34·9	71·5	74·3	65·2	−1·5	49·7	57·6	58·5	55·3
	Patna	...	29·827	29·714	·113	29·766	−·051	·909	81·2	58·2	23·0	85·2	49·9	36·3	75·3	79·6	69·0	−1·3	55·0	64·0	64·8	61·4
	Darbhanga	...	·860	·736	·124	·793	−·027	·919	82·1	58·7	23·4	86·1	51·9	34·2	74·8	80·0	69·5	−2·0	57·3	65·4	65·9	62·9
	Allahabad	...	·717	·608	·109	·653	−·031	·929	84·0	53·9	30·1	89·2	44·0	45·2	74·2	82·1	67·6	−0·9	50·3	61·3	62·6	58·1
	Ghazipur	220	·796	·691	·105	·736	−·026	·917	82·9	56·7	26·2	88·6	47·5	41·1	73·9	80·5	69·0	+1·0	53·1	62·6	63·4	59·7
	Lucknow	...	·636	·537	·099	·578	−·053	·927	82·8	51·8	31·0	86·5	42·0	44·5	74·0	79·5	66·4	−1·4	50·4	60·7	62·1	57·8
Upper Sub-Himalayas.	Dehra Dun	...	27·745	27·674	·071	27·699	−·044	·960	75·4	49·5	25·9	78·1	43·1	35·0	66·1	69·7	60·3	−2·3	46·1	55·8	57·5	53·1
	Roorkee	...	29·099	29·006	·093	29·041	−·042	·933	79·5	47·1	32·4	83·3	39·1	44·2	67·9	75·5	61·6	−2·3	45·4	57·6	59·1	54·0
	Meerut	...	·267	·177	·090	·213	−·033	947	80·3	49·7	30·6	85·2	42·1	43·1	69·4	76·8	63·5	−1·3	47·8	56·5	59·1	54·5
	Lahore	...	·303	·220	·083	·252	−·046	·956	81·8	46·3	35·5	87·5	37·2	50·3	71·0	77·9	61·7	−0·3	44·1	58·4	60·7	54·4
	Ludhiana	...	·184	·096	·088	·129	−·036	·944	79·5	50·3	29·2	83·9	42·1	41·8	70·4	76·4	62·9	+0·3	47·7	57·2	58·9	54·6
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·922	28·846	·076	28·874	−·030	30·018	76·5	46·4	30·1	82·1	37·9	44·2	65·3	72·5	59·0	+1·0	42·2	54·5	57·1	51·3
	Mooltan	...	29·591	29·491	·100	29·531	−·057	29·939	83·8	53·0	30·8	89·3	46·2	43·1	67·8	81·6	66·4	+1·3	49·0	57·3	63·0	56·4
	Jacobabad	...	·860	·748	·112	·794	−·021	·948	86·3	48·2	38·1	91·9	38·6	53·3	75·9	83·5	65·1	+0·2	43·4	57·7	60·9	54·0
	Hyderabad (Sind)	...	·915	·820	·095	·864	−·025	·936	87·7	59·0	28·7	95·6	51·0	44·6	75·3	84·5	73·2	0	51·0	56·8	59·8	55·8
	Kurrachee	...	·996	·902	·094	·946	−·015	·949	85·4	59·8	26·6	91·0	53·1	37·9	78·5	82·3	72·7	−1·1	53·4	65·3	68·9	62·5
E. Rajputana, C. India and Guzerat.	Jeypore	...	28·600	28·504	·096	28·542	−·017	·969	84·8	53·4	31·4	89·1	43·9	45·2	77·1	81·1	67·2	−0·3	47·0	59·9	61·6	56·2
	Ajmere	...	·419	·323	·096	·368	−·027	·932	83·1	50·0	33·1	86·4	41·4	45·0	73·8	81·7	65·2	−0·3	47·1	58·4	62·4	56·0
	Deesa	...	29·558	29·465	·093	29·504	−·005	·939	90·1	53·9	36·2	93·1	49·1	44·0	80·9	88·1	71·9	−1·8	43·8	61·5	63·7	56·3
	Nowgong	...	·258	·158	·100	·201	−·028	?	82·6	?	?	87·5	?	?	72·0	79·9	?	?	?	60·0	63·3	?
	Agra	...	·485	·389	·096	·427	−·015	·961	84·2	54·2	30·0	88·6	44·9	43·7	74·8	82·0	68·2	+0·5	48·0	59·2	62·3	56·5
Deccan.	Belgaum	...	27·451	27·346	·105	27·393	−·004	·864	80·2	58·6	21·6	83·1	52·7	30·4	74·0	78·4	68·8	−1·9	56·4	62·1	62·6	60·4
	Sholapur	...	28·416	28·288	·128	28·350	+·010	·909	85·5	58·9	26·6	91·4	50·0	41·4	77·9	83·4	71·3	−2·3	56·0	63·9	64·8	61·5
	Poona	...	·158	·046	·112	·104	+·003	·918	83·6	55·4	28·2	88·4	49·0	39·4	76·6	81·6	69·3	−2·9	53·8	62·0	62·6	59·4
	Akola	...	29·092	·980	·112	29·032	+·003	·936	85·0	54·6	30·4	88·0	47·1	40·9	76·8	83·9	70·4	−1·6	53·1	64·0	65·2	60·8

II.

at 97 Stations in India, Burma, etc., for November 1892.

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.		
·818	·922	·906	·882	−·065	90	82	79	84	0	6·9	7·2	7·1	+2·1	7	8	10	4	14	11	2	2	2	S 70° E	N 63° E	28	53	133	165	Port Blair	Burma Coast and Bay Islands.
?	·845	·854	?	?	?	76	76	?	?	4·0	5·6	4·8	−0·6	...	22	11	1	6	2	5	...	13	N 1° E	N 28° E	48	42	38	39	Mergui	
·740	·830	·825	·798	0	91	81	74	82	+ 3	5·1	5·6	5·4	+0·8	...	10	15	8	8	7	3	2	6	N 57° E	N 60° E	32	57	92	102	Rangoon	
·749	·806	·803	·786	−·020	82	74	73	76	− 4	5·8	6·6	6·2	+1·8	...	12	19	7	5	4	2	2	9	N 32° E	N 59° E	45	64	233*	195	Diamond Island	
·695	·853	·827	·792	?	85	76	77	79	?	4·9	5·0	5·0	?	...	14	10	14	5	5	5	2	3	N 57° E	?	33	?	?	?	Cocos Island	
·659	·799	·793	·751	−·005	90	81	74	82	+ 2	3·0	2·5	2·8	−0·5	...	16	17	2	...	4	2	8	11	N 6° W	N 6° W	52	29	57	54	Akyab	
·542	·653	·629	·608	−·011	84	74	80	76	− 1	4·3	3·2	3·8	+0·4	50	...	1	6	3	...	...	...	...	S 81° E	S 77° E	15	30	9	45	Silchar	Assam.
·500	·631	·627	·587	−·001	99	84	69	84	0	3·0	2·2	2·6	−1·9	6	...	37	2	2	8	4	...	1	N 62° E	N 62° E	50	69	36	39	Sibsagar	
·541	·586	·563	·563	−·049	94	74	57	75	− 2	0·6	0·5	0·6	−0·8	9	...	30	17	1	...	3	..	...	N 64° E	N 47° E	68	46	99	118	Dhubri	
·566	·704	·684	·652	−·037	93	78	72	81	+ 2	4·6	5·3	5·0	+2·2	8	9	9	2	1	2	...	10	16	N 27° W	N 20° W	47	53	39	73	Chittagong	Bengal and Orissa.
·527	·593	·572	·564	−·061	90	66	57	71	− 1	1·7	2·5	2·1	−0·1	...	17	9	2	1	1	8	5	17	N 26° W	N 17° W	52	38	53	47	Dacca	
·511	·544	·476	·510	−·082	93	63	49	68	− 7	0·9	1·7	1·3	−1·4	...	38	6	...	1	...	1	2	12	N 7° W	N 17° W	84	58	56	65	Calcutta (Allipore).	
·525	·590	?	?	?	94	65	?	?	?	?	?	?	?	Not recorded.									?	?	?	?	?	?	Calcutta (Chowringhee).	
·519	·634	·561	·571	−·067	85	72	60	72	− 3	1·5	2·0	1·8	−1·0	...	35	5	...	...	2	1	3	14	N 13° W	N 5° E	78	58	207	154	Saugor Island.	
·463	·483	·452	·466	−·080	80	56	44	60	− 7	1·2	1·6	1·4	−1·3	8	26	3	4	...	...	1	4	14	N 13° W	N 7° W	63	69	43	44	Burdwan	
·477	·555	·531	·521	−·042	83	65	53	67	− 7	0·8	0·7	0·8	−1·7	5	20	2	2	...	...	1	10	20	N 32° W	N 25° W	68	54	41	40	Berhampore	
·529	·539	·522	·530	−·096	96	58	52	69	− 5	2·2	2·4	2·3	−1·4	...	20	15	8	3	1	1	1	11	N 18° E	N 22° E	60	57	166	157	False Point	
·494	·508	·460	·487	−·099	86	53	42	61	− 7	1·4	1·8	1·6	−1·0	15	14	16	4	...	2	2	1	6	N 18° E	N 1° W	45	43	37	40	Cuttack	
·293	·310	·299	·301	−·052	64	40	35	46	− 8	0·5	0·2	0·4	−2·0	...	23	2	2	1	...	...	8	24	N 27° W	N 42° W	77	55	170	104	Hazaribagh	Gangetic Plain and Chota Nagpur.
·399	·450	·420	·426	−·033	80	51	41	57	− 5	0·3	0	0·2	−1·5	8	...	...	2	...	2	2	41	5	N 86° W	N 64° W	73	29	71	36	Patna	
·458	·507	·454	·473	−·059	92	58	44	65	− 5	0	0	0	−0·8	8	...	...	2	5	3	8	23	11	S 82° W	S 79° W	52	55	36	44	Darbhanga	
·327	·378	·314	·340	−·067	77	44	28	50	−13	0·1	0·3	0·2	−0·9	2	7	1	1	2	...	1	18	28	N 54° W	N 65° W	73	21	77	34	Allahabad	
·365	·427	·360	·384	−·024	77	50	35	54	+ 1	0·2	0·2	0·2	−1·0	9	...	1	3	...	1	12	31	3	S 80° W	S 83° W	63	32	33	22	Ghazipur	
·355	·364	·330	·350	−·005	91	43	33	56	+ 2	0·7	1·3	1·0	0	?	?	?	?	?	?	?	?	?	?	N 45° W	?	46	?	34	Lucknow	
·273	·322	·326	·307	?	77	50	45	57	?	0·8	1·0	0·9	−0·3	20	6	...	...	1	5	11	11	4	S 78° W	N 76° W	35	18	25	41	Dehra Dun	Upper Sub-Himalayas.
·277	·344	·287	·302	−·034	85	50	33	56	− 1	1·1	1·8	1·5	+0·6	52	...	1	...	...	...	...	1	6	N 43° W	S 36° W	12	28	?	27	Roorkee	
·311	·290	·270	·290	−·037	88	40	29	53	− 2	0·1	1·4	0·8	+0·1	23	...	...	1	...	...	1	31	4	N 86° W	N 50° W	57	46	35	30	Meerut	
·264	·326	·305	·298	−·015	84	43	32	53	+ 4	1·2	1·5	1·4	+0·2	40	4	...	1	2	...	...	7	6	N 52° W	N 47° W	18	22	20	33	Lahore.	
·297	·297	·268	·287	−·018	82	40	29	50	− 2	2·1	3·2	2·7	+1·1	27	1	...	3	3	...	...	15	11	N 70° W	N 44° W	32	36	26	22	Ludhiana	
·222	·298	·280	·267	−·004	70	48	36	51	− 3	3·1	4·0	3·6	+1·6	26	1	4	4	5	7	7	2	4	S 5° E	N 73° E	15	15	63*	51	Peshawar	Indus Valley and N.-W. Rajputana.
·298	·334	·329	·320	−·032	74	49	30	51	− 3	0·9	1·0	1·0	+0·2	9	...	3	...	29	...	12	...	7	S 23° E	S 73° W	40	8	24*	33	Mooltan	
·220	·240	·239	·233	−·066	65	27	21	38	− 7	0·7	1·0	0·9	−0·2	26	7	...	2	7	3	2	...	13	N 27° W	N 12° W	13	16	55*	38	Jacobabad	
·271	·215	·190	·225	−·146	54	24	16	31	−15	1·8	1·9	1·9	+1·1	...	1	55	...	...	...	...	...	4	N 40° E	N 18° W	94	44	122*	147	Hyderabad (Sind).	
·333	·457	·532	·439	+·002	63	48	49	53	− 1	0·4	0·6	0·5	−0·6	...	...	22	9	..	...	14	14	...	N 4° E	S 81° W	10	18	254	190	Kurrachee	
·250	·306	·314	·290	+·003	60	32	29	40	− 3	1·0	1·4	1·2	+0·2	6	4	3	4	3	1	4	9	26	N 50° W	N 12° W	48	39	87	70	Jeypore	E. Rajputana, Central India and Guzerat.
·292	·304	·325	·307	−·001	80	36	30	49	+ 3	1·0	0·9	1·0	+0·1	7	11	10	1	4	3	7	10	7	N 36° W	N 32° E	25	10	57	35	Ajmere	
·158	·293	·268	·239	−·040	37	28	29	28	− 6	0·6	0·6	0·6	−0·8	...	2	8	16	10	2	4	9	4	S 85° E	N 33° E	23	31	?	181	Deesa	
·?	·365	·366	?	?	?	45	36	?	?	0·6	1·2	0·9	−0·4	1	15	2	3	3	2	1	20	13	N 48° W	N 10° W	52	32	29*	24	Nowgong	
·259	·302	·302	·288	−·024	61	35	28	41	− 3	0·6	0·9	0·8	+0·2	...	...	3	...	4	...	12	...	41	N 59° W	N 81° W	63	36	77	60	Agra	
·439	·418	·381	·412	−·058	87	49	39	59	0	1·6	1·8	1·7	−1·9	...	1	12	27	13	1	4	2	...	S 85° E	N 84° E	67	67	233	280	Belgaum	Deccan.
·428	·428	·389	·415	−·053	82	44	34	54	+ 1	1·9	2·5	2·2	−1·6	...	3	17	22	9	...	...	5	4	N 71° E	N 69° E	57	63	221*	191	Sholapur	
·407	·383	·338	·376	−·047	89	41	31	54	+ 6	1·9	2·4	2·2	−0·6	16	1	4	30	7	...	2	...	...	S 86° E	N 83° E	62	45	124	138	Poona	
·396	·430	·378	·402	+·002	90	46	32	56	+ 4	0·5	0·8	0·7	−0·8	26	13	15	3	2	...	...	...	1	N 32° E	N 64° E	45	50	63	84	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 97 Stations

Meteorological Province.	Station.	Elevation of Bar. cistern above sea-level.	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	27·872	27·772	·100	27·818	−·012	29·919	79·5	60·0	19·5	83·2	53·6	29·6	75·3	77·0	70·0	−2·0	52·9	59·1	60·3	57·4
	Khandwa	...	28·970	28·863	·107	28·913	−·004	·941	84·4	53·2	31·2	87·2	43·2	44·0	75·6	82·6	68·4	−1·7	50·6	61·3	63·0	58·3
	Hoshangabad	...	29·014	·902	·112	·954	−·010	·961	82·4	55·1	27·3	86·7	44·8	41·9	72·7	80·9	68·4	−2·1	51·6	62·1	64·0	59·3
	Nagpur	...	·000	·885	·115	·938	+·003	·941	83·2	58·1	25·1	87·2	50·0	37·2	75·8	81·6	71·2	−1·2	53·8	63·2	68·6	60·2
	Stroncha	401	·630	29·514	·116	29·568	−·002	·925	84·3	60·2	24·1	89·9	51·6	38·3	76·3	81·5	72·5	−2·7	58·0	67·4	66·4	63·9
	Chanda	634	·384	·272	·112	·324	−·005	·922	82·6	56·2	26·4	89·2	45·8	43·4	73·0	81·0	69·9	−2·0	55·1	65·1	66·0	62·1
	Seoni	..	27·975	27·875	·100	27·921	−·019	·933	79·7	53·4	26·3	85·1	44·0	41·1	74·1	77·7	67·0	−1·0	50·8	60·2	61·0	57·3
	Jubbulpore	...	28·691	28·582	·109	28·633	−·011	·956	81·5	50·8	30·7	86·2	39·9	46·3	71·3	79·8	65·8	−0·6	49·4	5[illegible]·8	61·0	56·7
	Saugor	...	·251	·150	·101	·197	−·006	·950	83·1	53·6	29·5	87·3	43·1	44·2	76·7	81·4	68·0	−1·5	48·8	59·1	61·0	56·3
	Raipur	...	29·052	·927	·125	·986	−·007	·917	81·4	58·8	22·6	87·0	49·9	37·1	73·7	80·1	70·7	−0·9	55·3	63·0	63·2	60·5
	Sutna	...	28·962	·862	·100	·905	−·030	·941	81·8	50·7	31·1	87·1	40·7	46·4	75·7	79·7	65·1	−0·9	47·8	59·1	59·6	55·5
	Sambalpur	...	29·540	29·424	·116	29·481	−·003	·904	81·7	58·7	23·0	87·3	50·4	36·9	73·5	79·7	70·2	−2·8	57·1	65·6	66·2	63·0
	Secunderabad	1,787	28·214	28·097	·117	28·154	+·008	·913	82·1	58·9	23·2	89·1	52·9	36·2	75·3	79·1	69·4	−3·0	57·2	63·0	63·8	61·3
	Hyderabad (Deccan).	...	·315	·200	·115	·258	?	·923	81·4	58·9	22·5	85·0	51·8	33·2	75·8	78·4	69·4	?	57·5	63·9	63·4	61·6
West Coast.	Bombay	...	29·969	29·862	·107	29·910	0	·887	86·2	71·8	14·4	88·3	69·0	19·3	79·1	83·3	78·0	−1·0	66·1	70·1	72·5	69·6
	Ratnagiri	...	·865	·758	·107	·805	+·008	·854	88·8	67·4	21·4	91·7	61·9	29·8	84·2	83·2	76·4	−2·2	64·0	69·5	73·3	68·9
	Karwar	...	·926	·824	·102	·869	+·010	·845	86·3	66·8	19·5	88·3	61·3	27·0	79·0	83·5	75·5	−1·7	63·5	69·6	73·3	68·8
	Cochin	...	·952	·846	·106	·893	−·004	·831	87·6	75·1	12·5	90·3	72·7	17·6	83·8	84·8	80·4	+0·7	73·5	76·2	76·7	75·5
South India.	Salem	...	·052	28·909	·143	28·986	−·013	·867	90·5	68·7	21·8	92·6	64·2	28·4	81·3	87·4	78·4	+2·6	66·0	70·7	72·3	69·7
	Mercara	...	26·265	26·168	·097	26·217	−·007	·874	76·1	59·7	16·4	78·8	55·7	23·1	68·3	72·7	66·9	+0·3	56·2	62·5	64·4	61·0
	Bangalore (Fort)	...	·997	·888	·109	·943	−·020	·877	81·3	59·9	21·4	84·7	55·0	29·7	73·8	78·1	69·8	−0·3	58·5	64·7	64·7	62·6
	Hassan	...	...	...	...	...	...	...	Observa	tory was	opened	on the 2	0th of th	is mont	h.	...	...	...	...	...	...	...
	Chitaldroog	...	27·588	27·478	·110	27·533	?	·853	82·0	60·9	21·1	85·4	56·7	28·7	75·5	79·3	70·8	?	56·9	64·2	63·7	61·6
	Trichinopoly	...	29·719	29·594	·125	29·663	+·004	·851	89·9	72·0	17·9	95·3	68·9	26·4	83·4	86·7	79·8	+1·5	68·3	72·4	74·1	71·6
	Madras	...	·965	·871	·094	·917	−·002	·869	86·4	70·2	16·2	91·2	65·0	26·2	82·1	82·2	77·5	−0·7	?	74·3	73·4	72·6
	Bellary	...	28·524	28·398	·126	28·459	+·016	·898	84·5	61·3	23·2	88·0	54·8	33·2	77·6	82·1	71·9	−3·3	?	70·1	72·4	?
	Vizagapatam	...	29·973	29·864	·109	29·914	−·016	·884	79·7	69·4	10·3	84·0	64·0	20·0	77·7	79·1	76·8	−2·3	64·2	68·2	69·3	67·2
Hill Station, Baluchistan.	Quetta	...	24·754	24·679	·075	24·707	−·014	?	63·3	30·7	32·6	71·8	23·9	47·9	54·0	59·5	46·1	−0·7	28·3	41·8	44·5	38·2
Hill Stations, Northern India.	Leh	11,503	19·726	19·632	·094	19·680	−·047	?	45·2	20·4	24·8	58·4	10·4	48·0	35·3	39·2	32·0	−0·3	19·5	29·5	31·3	26·8
	Srinagar	...	25·001	24·896	·105	24·949	?	?	59·0	29·3	29·7	66·2	21·1	45·1	46·1	57·2	43·7	?	28·3	40·1	47·3	38·5
	Murree	...	23·918	23·884	·034	23·891	−·033	?	58·6	43·8	14·8	65·9	34·9	31·0	53·2	53·0	49·6	−1·0	35·6	41·6	42·1	39·8
	Chamba	3,005	27·018	26·929	·089	26·983	−·042	?	71·6	45·9	25·7	77·2	40·8	36·4	56·9	64·0	55·0	−1·2	41·9	47·8	51·6	47·1
	Kailang	10,087?	20·816	20·753	·063	20·793	−·031	?	50·3	25·1	25·2	58·7	17·6	41·1	39·3	44·2	34·3	+0·9	22·7	31·3	33·1	29·0
	Simla (Ridge)	...	23·162	23·125	·037	23·134	−·027	?	53·9	43·1	10·8	58·4	31·3	24·1	49·6	49·7	47·2	−2·9	34·2	38·4	39·8	37·5
	Simla (Chapslee)	?			Not recorded.				61·3	42·9	18·4	68·1	34·8	33·3	53·6	?	?	?	35·2	41·3	?	?
	Chakrata	...	·310	·252	·058	·271	−·043	?	58·9	42·7	16·2	65·1	35·6	29·5	55·6	53·1	49·2	−1·5	36·6	43·9	43·3	41·3
	Ranikhet	...	24·185	24·131	·054	24·146	−·008	?	63·3	46·4	16·9	68·7	39·5	29·2	58·2	60·2	53·9	−0·2	41·8	47·9	49·3	46·3
	Pithoragarh	5,363	·815	·757	·058	·773	−·016	?	67·8	46·1	21·7	71·4	39·9	31·5	58·7	67·0	56·5	−0·5	42·3	51·1	52·5	48·6
	Katmandu	4,388	25·712	25·618	·094	25·661	−·047	?	71·5	43·8	27·7	75·9	37·8	38·1	59·8	65·0	56·0	−2·7	42·5	53·8	56·2	50·9
	Darjeeling	...	23·044	22·973	·071	23·004	−·028	?	53·1	40·4	12·7	58·0	31·1	26·9	49·4	50·1	46·0	−1·5	38·0	45·4	47·1	43·5
	Pedong	?	25·364	25·271	·093	25·313	−·059	?	63·4	49·1	14·3	67·6	44·0	23·6	59·3	59·4	55·1	−0·8	47·5	54·3	54·3	51·7
	Demagiri	?			Not recorded.			?	86·6	58·6	28·0	94·4	49·6	44·8	76·3	81·0	71·2	−2·4	...	Not recorded		...
	Tura	3,943			Ditto.			?	78·1	64·1	14·0	80·7	59·2	21·5	72·0	75·1	70·5	?	?	64·9	66·4	?

* Mean of 20 days.

II —*continued.*

in India, Burma, etc., for November 1892—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.		
·319	·308	·322	·316	−·088	60	35	35	43	−8	1·0	0·7	0·9	−1·6	3	8	21	6	4	...	1	3	14	N 19° E	N 69° E	52	59	142*	113	Buldana	Deccan—*continued.*
·347	·372	·336	·352	−·007	83	41	30	51	+3	0·2	0·7	0·5	−1·1	1	8	21	14	3	2	4	7	...	N 53° E	N 63° E	43	55	53	62	Khandwa	
·349	·431	·391	·390	+·002	78	53	37	56	+2	0·7	0·6	0·7	−0·7	4	9	17	16	6	5	1	1	1	N 68° E	N 60° E	53	66	57	48	Hoshangabad	
·374	·430	·369	·391	−·024	75	47	33	52	−1	1·2	1·2	1·2	−1·3	10	12	30	8	...	...	...	...	...	N 41° E	N 60° E	73	60	97	71	Nagpur	
·469	·565	·454	·496	−·077	86	61	42	63	−5	1·2	2·1	1·7	−1·1	43	7	2	1	...	2	1	2	2	N 12° W	N 7° E	12	53	21	59	Sironcha	
·438	·523	·450	·470	−·038	93	63	42	66	0	1·1	1·1	1·1	−1·7	4	12	22	11	...	...	...	6	5	N 29° E	N 62° E	60	48	?	44	Chanda	
·347	·355	·333	·345	−·005	82	41	35	53	+2	0·9	1·5	1·2	−2·5	1	5	29	14	1	3	4	1	2	N 56° E	N 55° E	60	54	49	61	Seoni	
·341	·373	·302	·339	−·029	90	49	30	56	0	0·4	0·6	0·5	−1·2	23	5	5	3	3	6	5	5	5	N 83° W	N 47° E	5	25	23	41	Jubbulpore	
·292	·289	·288	·290	−·006	69	31	27	42	−1	0·3	0·7	0·5	−0·6	...	18	12	4	6	3	6	2	9	N 11° E	N 20° E	37	47	27	56	Saugor	
·405	·443	·361	·403	−·042	79	52	35	55	−4	1·5	2·0	1·8	−0·4	15	10	21	8	...	...	1	1	4	N 34° E	N 31° E	55	57	54*	83	Raipur	
·307	·303	·265	·291	−·007	80	33	25	46	0	0·1	0·7	0·4	−0·8	...	26	1	3	2	2	1	10	15	N 26° W	N 21° W	62	33	102*	82	Sutna	
·459	·533	·471	·488	−·057	91	63	46	67	0	0·8	1·0	0·9	−1·5	...	28	6	1	...	1	5	5	14	N 19° W	N 1° W	67	53	83*	43	Sambalpur	
·460	·433	·408	·434	−·054	90	49	41	60	−2	1·5	1·8	1·7	−1·5	1	5	25	22	1	...	...	2	4	N 55° E	N 53° E	72	75	81	85	Secunderabad	
·470	·457	·409	·445	?	92	51	42	62	?	1·5	1·5	1·5	?	13	3	10	18	10	4	...	...	1	S 89° E	?	?	?	83*	?	Hyderabad (Deccan.)	
·571	·621	·657	·616	−·077	73	62	57	64	−7	0·7	0·4	0·6	−1·6	...	1	13	15	4	...	1	4	22	N 17° E	N 17° E	38	59	225	236	Bombay	West Coast.
·562	·536	·689	·596	−·064	82	46	61	63	−1	1·0	1·6	1·3	+0·1	3	8	6	13	3	1	4	4	18	N 1° W	N 1° W	32	30	182*	199	Ratnagiri	
·552	·607	·693	·617	−·099	83	61	61	68	−8	0·9	1·8	1·4	−1·1	2	...	26	...	...	...	6	6	20	N 12° W	N 26° W	48	46	59	?	Karwar	
·806	·814	·811	·810	+·002	92	72	68	77	−3	3·7	3·1	3·4	−1·1	2	1	10	4	...	1	...	28	14	N 58° W	S 49° W	53	24	120	?	Cochin	
·606	·613	·594	·604	−·049	86	57	46	63	−13	3·5	6·0	4·8	−0·2	27	8	13	2	...	...	1	2	7	N 10° E	S 65° E	37	22	78	74	Salem	South India.
·417	·504	·512	·478	−·063	80	73	64	72	−11	5·1	6·3	5·7	−0·8	...	8	9	31	...	...	1	11	...	N 62° E	N 61° E	48	49	141	90	Mercara	
·477	·502	·448	·476	−·052	91	60	46	66	−7	1·3	2·3	1·8	−3·1	2	3	30	17	2	1	2	3	...	N 60° E	N 60° E	68	63	155*	90	Bangalore (Fort)	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	?	...	?	Hassan	
·422	·464	·401	·429	?	77	52	40	56	?	1·9	1·8	1·9	?	3	...	31	18	2	1	2	2	1	N 63° E	?	70	?	103*	?	Chitaldroog	
·648	·652	·674	·658	−·076	82	57	53	64	−12	4·2	5·3	4·8	−2·2	7	21	21	4	...	...	...	3	4	N 19° E	N 31° E	68	53	85	100	Trichinopoly	
?	·750	·708	·741	−·017	?	68	64	78	−2	4·9	4·6	4·8	−1·3	...	38	10	2	...	...	1	1	8	N 2° E	N 24° E	84	59	165	159	Madras	
?	·649	·679	?	?	?	68	62	?	?	2·5	1·5	2·0	−2·7	43	4	2	4	5	...	...	...	2	N 67° E	N 80° E	13	56	59	78	Bellary	
·534	·574	·593	·567	−·093	73	59	59	64	−2	1·6	2·0	1·8	−1·6	...	27	18	4	...	4	...	5	2	N 16° E	N 75° E	65	56	23	53	Vizagapatam	
·138	·142	·140	·138	−·012	77	34	28	46	−2	2·1	2·2	2·2	+1·0	12	...	...	...	1	1	2	17	27	N 67° W	N 41° W	67	46	55*	60	Quetta	Hill Station, Baluchistan.
·101	·119	·114	·111	+·026	90	58	48	65	+15	4·5	6·3	5·4	+1·5	11	...	...	...	1	11	27	9	1	S 43° W	S 4° W	68	24	17	46	Leh	
·146	·182	·215	·181	?	89	59	46	65	?	2·2	4·7	3·5	?	22	6	6	6	3	2	3	3	8	N 10° E	?	17	?	56*	?	Srinagar	Hill Stations, Northern India.
·126	·145	·158	·143	−·015	44	36	40	40	−2	3·3	3·8	3·6	+0·7	11	3	3	3	19	6	5	3	7	S 29° E	S 46° E	25	17	159*	138	Murree	
·223	·229	·242	·232	−·044	71	50	41	54	+3	3·2	4·0	3·6	+1·4	40	2	...	...	3	...	4	2	9	N 70° W	S 65° E	17	14	86	87	Chamba	
·104	·111	·100	·105	+·004	76	49	38	54	+4	3·2	5·1	4·2	+0·6	...	2	...	3	15	7	13	17	3	S 33° W	S 53° W	45	65	43	29	Kailang	
·107	·119	·146	·125	−·054	39	34	41	38	−10	1·3	2·9	2·1	+0·2	11	24	2	...	1	14	4	...	4	N 17° W	S 89° W	18	32	?	?	Simla (Ridge)	
·129	·135	?	?	?	46	33	?	?	?	1·2	?	?	?	Not recorded.									?	?	?	?	?	?	Simla (Chapslee)	
·156	·168	·182	·169	−·027	57	38	45	46	−9	0·5	1·0	0·8	−0·8	30	...	...	2	1	...	1	26	...	S 87° W	S 55° W	40	28	51	109	Chakrata	
·219	·230	·241	·230	−·016	69	47	46	54	−4	1·0	1·0	1·0	−0·3	18	...	...	9	1	1	22	7	2	S 46° W	S 52° W	38	35	60	30	Ranikhet	
·233	·298	·247	·259	−·013	75	60	37	57	−2	0·9	1·0	1·0	−0·7	28	...	...	4	...	9	19	...	...	S 23° W	S 19° E	40	35	58	44	Pithoragarh	
·263	·349	·354	·322	−·015	91	68	57	72	+1	2·6	2·9	2·8	+0·7	5	5	...	3	7	1	2	23	14	N 74° W	N 81° W	47	60	15	?	Katmandu	
·207	·266	·296	·256	−·010	82	75	81	80	0	4·7	5·2	5·0	+0·8	5	2	7	8	3	1	7	22	4	N 83° W	N 61° W	25	8	78	40	Darjeeling	
·313	·367	·367	·346	−·023	88	72	72	77	−3	3·6	4·1	3·9	+0·3	17	...	10	9	7	5	...	3	...	S 81° E	?	30	?	?	?	Pedong	
?	?	?	?	?	?	?	?	?	?	Not recorded.				...	...	4	6	5	...	23	16	6	S 63° W	N 59° W	45	34	?	?	Demagiri	
?	·536	·550	?	?	?	68	63	?	?	1·9	1·9	1·9	−1·6	...	4	2	5	11	15	21	...	2	S 4° W	S 17° E	52	47	?	?	Tura	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 97 Stations

Meteorological Province.	Station.	Elevation of Barometer cistern above sea-level.	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, Central India.	Mount Abu	...	?	?	?	?	?	?	70·7	55·6	15·1	74·1	50·0	24·1	68·3	68·3	62·6	−2·0	47·0	52·6	53·6	51·0
	Pachmarhi	...	26·572	26·497	·075	26·531	−·007	?	71·9	48·0	23·9	75·8	38·1	37·7	68·2	69·1	60·1	−1·5	44·4	53·5	55·0	51·0
	Chikalda	3,642	·437	·347	·090	·388	−·011		72·9	58·0	14·9	77·2	48·5	28·7	69·0	70·6	65·7	−0·9	50·3	56·4	58·3	55·0
	Makhla	...			Not re	corded.			75·1	60·0	15·1	78·8	50·4	28·4	67·5	72·0	67·7	0	55·8	61·0	64·2	60·3
Hill Stations, South India.	Wellington	...	24·290	24·221	·069	24·256	+·014	?	69·4	49·3	20·1	72·2	41·4	30·8	65·4	64·1	59·6	+1·1	47·5	59·1	59·5	55·3
	Khodai Kanal	...			Not re	corded.			63·7	51·2	12·5	68·5	47·3	21·2	59·6	57·3	56·0	?	47·5	54·6	55·1	52·4
	Kotagiri	...	...	...	...	...	...	...					Not re	ceived.					...	...	...	...
Extra India.	Aden	...	29·918	29·810	·108	29·864	−·045	·891	84·5	75·2	9·3	91·5	72·7	18·8	81·2	81·7	79·2	+0·7	69·6	72·5	71·9	71·3
	Perim	...	?	?	?	?	?	?	87·0	77·3	9·7	89·1	75·6	13·5	83·7	83·4	81·2	?	72·2	75·1	75·0	74·1
	Minicoy	...	·969	·876	·093	·921	?	?	86·5	?		88·5	?	?	83·1	83·2	?	?	73·9	77·2	76·8	76·0
	Zanzibar	...	·947	·826	·121	·887	?	·886	84·0	76·8	7·2	87·8	74·1	13·7	81·0	83·6	80·3	?	73·7	75·9	75·8	75·1

II—*concluded.*

in India, Burma, etc., for November 1892—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.		
·226	·217	·243	·229	—·002	51	32	35	39	+ 2	0·5	0·7	0·6	−0·7	...	6	9	9	5	6	4	13	8	N 24° W	N 73° E	10	20	68	90	Mount Abu	Hill Stations, Central India.
·262	·246	·276	·261	—·040	75	35	39	50	− 4	0·9	0·9	0·9	−1·1	2	12	12	17	2	...	1	3	11	N 30° E	N 52° E	50	46	79*	60	Pachmarhi	
·280	·316	·351	·316	—·052	58	44	47	50	− 6	1·2	2·2	1·7	−0·5	37	11	1	2	4	1	...	1	3	N 13° E	N 3° W	17	21	91	114	Chikalda	
?	?	?	?	?	?	?	?	?	?	1·8	2·1	2·0	−1·2	...	12	17	16	2	1	2	3	7	N 51° E	S 87° W	53	24	?	?	Makhia	
·320	·439	·462	·404	−·010	92	70	77	80	− 4	2·9	6·6	4·8	−2·0	1	3	1	1	30	23	1	...	...	S 28° E	S 41° E	78	53	42	56	Wellington	Hill Stations, South India.
·293	·378	·411	·361	?	77	74	88	80	?	5·3	8·4	6·9	?	1	16	19	2	9	...	...	...	13	N 21° E	?	59	?	202	?	Khodai Kanal	
														Not received															Kotagiri	
·650	·682	·650	·661	+·011	74	64	60	66	− 1	3·2	1·6	2·4	+0·3	2	1	10	32	12	1	...	...	2	E	E	77	65	324	286	Aden	Extra India.
·717	·757	·755	·738	?	76	65	66	69	?	2·2	1·0	1·6	?	...	...	...	13	39	8	...	...	...	S 49° E	?	90	?	535	?	Perim	
?	·857	·840	?	?	?	76	74	?	?	3·6	5·1	4·4	?	2	17	4	5	2	...	3	9	17	N 26° W	?	52	?	168	?	Minicoy	
·791	·827	·792	·803	?	86	78	69	78	?	5·8	2·2	4·0	?	...	4	14	8	11	11	9	1	2	S 60° E	S 6° W	31	9	153	104	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.

Ref. No. 51, Wr., I.—Mar. 93.—416.

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. 61. Wr., I.—Mar. 93.—415.

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

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

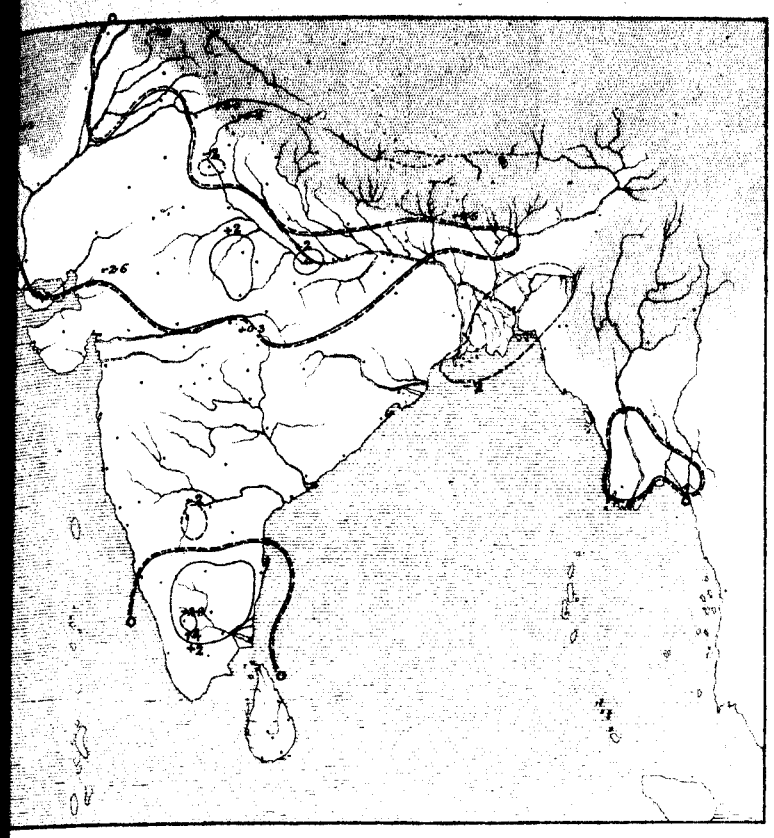
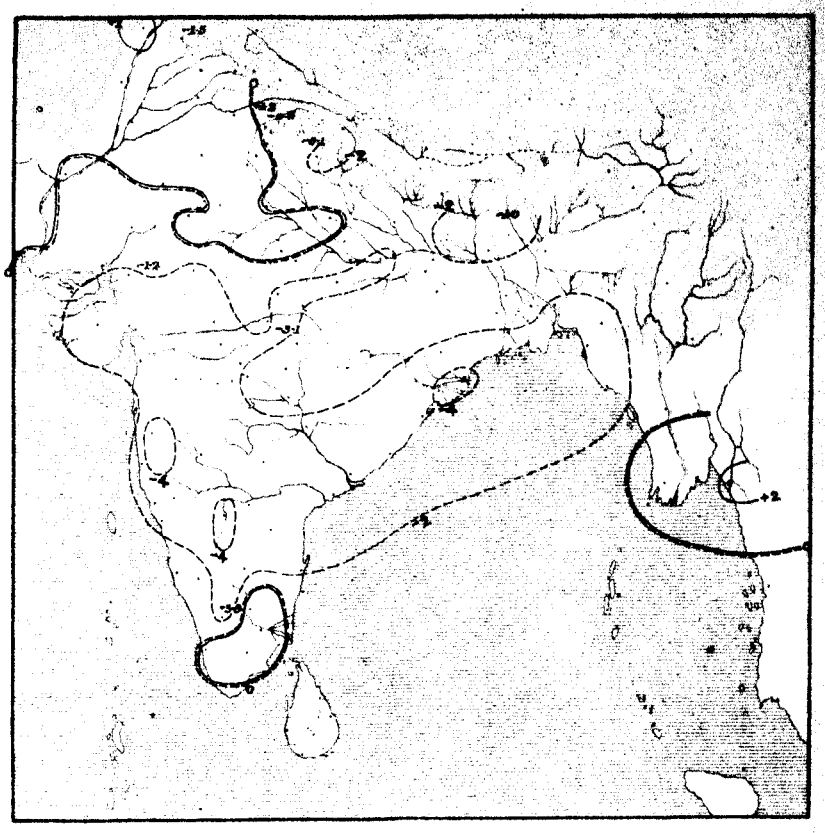


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

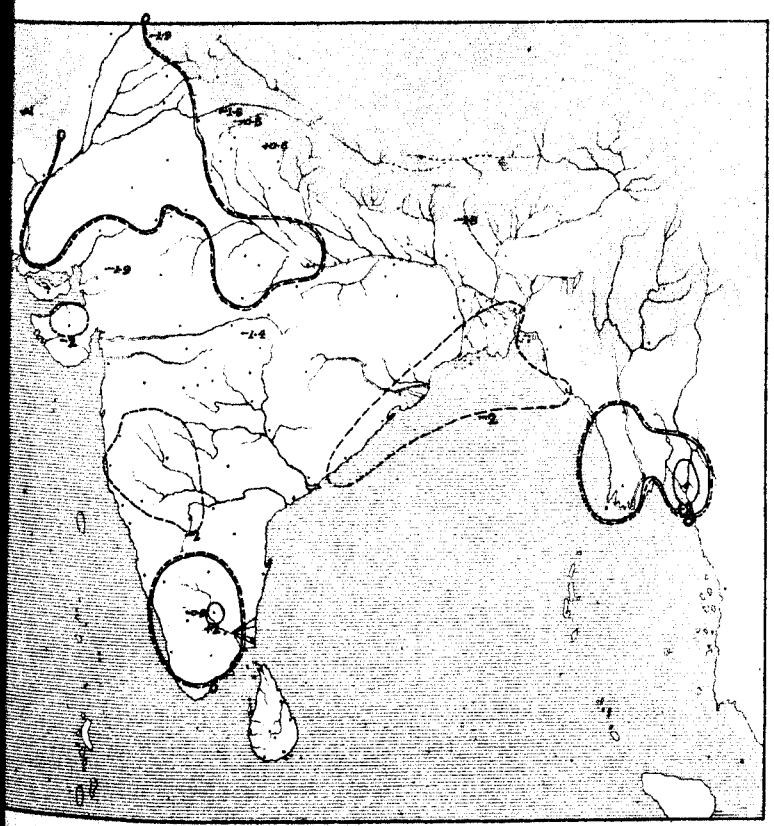
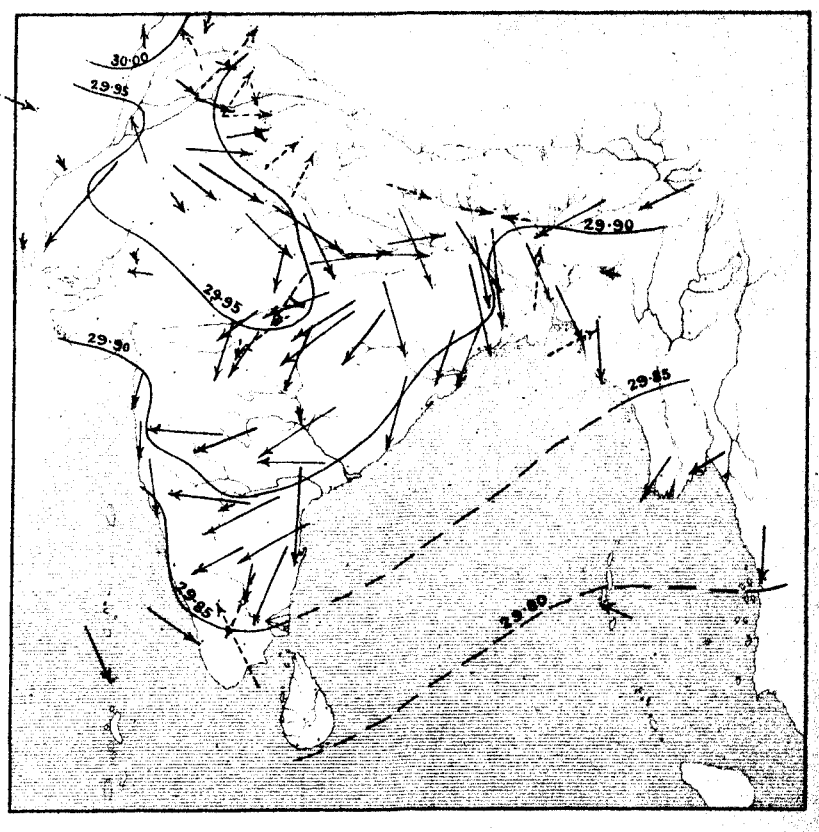


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF NOVEMBER 1892.



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.

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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)

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METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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INTRODUCTION.

THIS Review of the weather in India during the month of December 1892 is based on observations taken daily at 8 A.M. at 180 stations and on additional observations taken at 10 A.M. and 4 P.M. at 98 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 1892.

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 obtain. 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.

The mean pressure of the Indian land area during the month of December 1892 was ·035″ above the normal. Pressure was, relatively to this general condition, in local defect in Northern India and in excess in the Peninsula. The increased pressure was most pronounced in the Deccan, as represented by the stations of Sholapur and Bellary. The local deficiency in Northern India was largest in amount at the foot of the hills in the Punjab and western submontane districts of the North-Western Provinces. Pressure was in excess by smaller amounts at the hill stations than at the neighbouring plain stations, or the vertical pressure anomalies (*i.e.*, hill variations *minus* plain variations) were negative, a condition which usually precedes and accompanies normal or heavier winter rains in Northern India than usual.

The month was unusually free from storms in the Bay of Bengal, and was on the whole less disturbed than usual in Northern India. At the commencement of the month, a shallow depression lay to the west of the Andamans and Nicobars in the Bay of Bengal. Weather was squally, with heavy rain-showers in the south of the Bay The depression filled up on the 2nd and 3rd and north-east winds extended over the whole Bay on the 3rd and 4th, and continued with great steadiness during the remainder of the month. The south-west monsoon hence finally retreated from the Bay at the beginning of December 1892, fully three weeks before the normal date. Winds varied in strength in the Bay from day to day with the variation of the gradients. The South Madras coast districts and South India received light to moderate showers during three brief periods when the north-east winds were blowing strongly in the south-west of the Bay (force 4 to 6.) These periods were from the 3rd to the 5th, the 16th to the 18th and the 24th to the 26th. The rainfall was very light except in the immediate neighbourhood of the South Coromandel Coast, where some heavy local showers were received.

North-east monsoon winds obtained over the Arabian Sea during the whole of the month and the weather was generally fine with moderate winds.

Weather was disturbed with squalls and rain in the Persian Gulf and Gulf of Oman on the 1st and 2nd. This was part of a general feeble disturbance which gave light rain or snow in Baluchistan, the North Punjab and Kashmir on the 1st, 2nd and 3rd. Fine clear weather was re-established on the 4th, and a cool wave advanced eastwards across Northern India. Temperature on the 7th and following days was considerably below the normal over the whole of Northern India. It was in moderate excess in Berar, the Central Provinces and North Deccan. No important change occurred in the temperature conditions until the 14th. During this period temperature was steadily below the normal in Northern India, and in excess in the northern half of the Peninsula, more especially in Berar and Khandesh. A very feeble disturbance gave some light showers in the North Punjab on the 15th. Temperature during the next three days increased in North-Eastern India and the Peninsula, and was generally above the normal. It continued to be in moderate defect in North-Western India, more especially in Sind and Rajputana. Temperature then decreased to a moderate extent in Northern India on the 19th and 20th. At the same time it decreased very rapidly in Burma and was unusually low for the season during the remainder of the month in that area. Thus the mean temperature of the 24 hours preceding 8 A.M. of the 21st at Rangoon was 7·2° below the normal, on the 26th it was 5·6° in defect at Rangoon and Toungoo, and on the 31st it was 9·3° in defect at Toungoo.

Temperature increased in Northern India on the 21st and 22nd. The temperature changes were rapid and somewhat irregular during the next five days, but the chief features of the temperature conditions were, as hitherto, deficient temperature in Northern India and higher temperature than usual in the Peninsula, and more especially in Bihar, the Central Provinces and the North Deccan.

A rapid increase of temperature on the 28th in North Western India preceded the appearance of the first important storm of the present cold weather season. This storm apparently formed on the North-West frontier on the 28th and 29th, and on the morning of the 30th there was a moderately deep depression covering Upper Sind, West Rajputana and the South-West Punjab. It advanced eastwards during the day, but filled up very rapidly, and on the morning of the 31st there was no trace of its existence. The storm was hence short-lived and, judging from the amount of the depression, of moderate importance.

It nevertheless gave a general and moderate burst of

rain to the whole of the Punjab, Rajputana and the North-Western Provinces, and moderate snow to the Afghan mountains and Punjab Himalayas. Its disappearance was followed by the advance of a cool wave across Northern India. The following temperature variation data of the 31st show approximately the position and character of the warm and cool waves related to this storm on that day:—

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

The mean day temperature of the month was below the normal over Northern India and Burma. The deficiency was large at the hill stations, more especially Darjeeling (−5·7°) and in Lower Burma and the Central Punjab, where it slightly exceeded 2°. It was in excess in Central India and the Peninsula. The excess ranged from 2° to 3½° in Mysore and the South Central districts of Madras. The night temperature was in defect over the whole of Burma and India, except the northern half of the Peninsula and North-Western India. It was from 2° to 4° in excess in Berar, Khandesh and Nimar. The night temperature was unusually low in Burma and South Bengal. The deficiency was greatest at Thayetmyo (−4·8°), Akyab (−4·2°), Bassein and Calcutta (−3·8°) and Rangoon (−3·7°).

The mean temperature of the month was in defect over the whole of India except in two areas, *viz.*, South Madras and Central India, Berar, Khandesh and the Central Provinces. The excess in the latter area was more than 2° in amount at Khandwa (+3·1°) and Malegaon (+3·0°). The deficiency was large in Burma and South Bengal, exceeding 2° at nearly all stations in that area. It was actually greatest at Rangoon (−3·2°) and Akyab (−3·1°).

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

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

The mean air movement over India during the month presents few features of interest. Stronger north-easterly winds than usual prevailed in Burma and at Port Blair. Winds were of normal strength in Bengal, but somewhat more westerly than usual. They were even weaker and more unsteady than usual in Upper and Central India. They were also feebler in the Konkan and Bombay Deccan, although approximately normal in direction. The north-east winds in Madras were not only feebler than usual but the easterly element was less strongly pronounced.

The chief features of the air movement during the month were directly related to the slightly decreased mean gradients of the month and to the excess of pressure in the Deccan and Southern India as compared with the Bay and Burma (and to a still greater extent Northern India).

The air was much drier than usual over the whole of North-Eastern India (excepting Assam), Burma and the Bay Islands. The deficiency in the amount of vapour present in the air was as great at Port Blair as at Rangoon and Diamond Island, and hence it is very probable that this condition obtained over the whole of the Andaman Sea and the centre and north of the Bay. The mean humidity conditions of the month were practically normal in Assam, the central and western districts of the North-Western Provinces, the Central Provinces, Berar and North Deccan. The air contained less vapour and was drier than usual in the Punjab, Sind and Rajputana. The deficiency in that area was most marked in Sind. The air was, on the other hand, considerably more humid than usual at the great majority of the hill stations in Northern India. Thus the mean humidity of the month was 12 in excess at Quetta and Leh and 11 at Darjeeling. There was a local deficiency at Simla and Chakrata.

The air was much drier than usual in Southern India, Malabar and the Konkan. The deficiency in the humidity was most pronounced in Coorg, Mysore and the central districts of South Madras, and was absolutely greatest at Mercara (−11) and Salem (−9).

The mean cloud amount of the month was below the normal to a moderate extent in Burma, North-Eastern

India and the Peninsula. There was a large excess of cloud in the North-Western Provinces, Central India, Rajputana, Sind, the Punjab and the Himalayan and Afghan mountain areas. The excess was largest and most marked at the Sikkim hill stations and in Rajputana and Sind. It is noteworthy that there was a considerable deficiency at Aden. Skies were most free from cloud at the stations of Calcutta, Akyab, Dhubri and Darbhanga in North-Eastern India. The average cloud amount of the month was less than 1 at these four stations.

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

Meteorological Province.	Variation from normal of		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	Inch.		
Burma Coast and Bay Islands	—·084	—6	—0·4
Assam	—·005	0	—0·2
Bengal and Orissa	—·054	—5	—0·4
Gangetic Plain and Chota Nagpur	—·026	—4	—0·1
Upper Sub-Himalayas	—·021	+1	+0·9
Indus Valley and North-Western Rajputana.	—·039	—6	+1·4
East Rajputana, Central India and Guzerat.	—·016	—3	+1·5
Deccan	—·003	+1	—0·3
West Coast	—·027	—3	—0·8
South India	—·011	—3	—0·5

December 1892 was drier than usual over the greater part of India. Burma, Bengal (except the districts of Jalpaiguri, Kuch Bihar and Darjeeling), Orissa, Chota Nagpur, Bihar, Oudh, the eastern districts of the North-Western Provinces, Bombay, Guzerat, Sind, the Central Provinces, Hyderabad and North Madras received practically no rain during the month. The Assam Valley obtained light showers on the 4th and 5th, which gave it the normal fall of the month. The storm of the last three days of the month gave a moderate burst of rain to Rajputana, the Punjab and the western and central districts of the North-Western Provinces. The total rainfall of the month was hence in moderate excess in the Punjab and Rajputana and normal in the western districts of the North-Western Provinces. The South Madras coast and central districts and Mysore received showers during three short periods (*viz.*, the 4th to the 6th, the 15th to the 17th and the 25th to the 27th) from intensified north-east monsoon winds.

The rainfall was very light except along a narrow belt of not more than 20 miles wide extending from Madras southwards. The rainfall of the month was hence seriously in defect in the southern districts of Madras, including Tinnevelly, Madura, Tanjore, Trichinopoly and South Arcot. The following gives data for the eight divisions into which the Madras Presidency is divided for rainfall comparison :—

Province.	Division.	Rainfall.		
		Actual average, December 1892.	Variation from normal.	Percentage variation.
		Inches.	Inches.	
Madras	East Coast, North	*Nil*	—1·26	—100
	Ditto (A)	*Nil*	—0·37	—100
	Madras (Central)	0·46	—0·11	—19
	East Coast (Central)	1·14	—0·72	—39
	Ditto (South)	2·05	—3·44	—63
	Madras (South)	0·97	—2·71	—74
	Malabar	0·35	—0·48	—58
	Madras (South Central)	1·28	—0·79	—38

The following table gives a summary of the rainfall data of the eleven meteorological provinces in India :—

Meteorological Province.	Rainfall.		
	Mean actual for December 1892.	Mean normal for December.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	0·18	1·12	—0·95
Burma Inland	0	0·22	—0·22
Assam	0·36	0·55	—0·19
Bengal and Orissa*	0·01	0·33	—0·32
Gangetic Plain and Chota Nagpur	0·03	0·29	—0·25
Upper Sub-Himalayas	0·98	0·43	+0·55
Indus Valley and North-Western Rajputana	0·47	0·09	+0·38
East Rajputana, Central India and Guzerat*	0·26	0·18	+0·10
Deccan*	0·06	0·55	—0·49
West Coast*	0·37	0·77	—0·62
South India*	1·34	3·17	—1·72

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

Atmospheric Pressure.

The distribution of mean 8 A.M. pressure for December 1892 is shown by means of two charts. The first chart (Plate I) gives 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 one-twentieth of an inch. The second chart (Plate II) gives the variations of the actual mean 8 A.M. pressure from the normal 8 A.M. pressure. These

values are obtained from the barometric readings reduced for temperature only. A small chart (No. 4 of Plate III) gives the distribution of the monthly mean daily pressure and of the mean winds in the same form and manner as in the monthly charts given hitherto in the Annual Reports on the meteorology of India. The data on which this chart is based are given in Table II. The pressure data used in this chart are, it should be noted, reduced to constant gravity (that of Lat. 45°) as well as to sea-level.

The more important barometric changes and movements during the month are fully described in the following statement of the barometric depressions of the month. The data that are chiefly used in this discussion are the 8 A.M. reduced observations and the variations derived from a comparison of these observations and the normal values given in Table I. The means in the third column are not only reduced or corrected to sea-level, but also to constant gravity (that of Lat. 45°). The normal means are obtained from the observations of the period 1878-88, and in order that the means and variations may be strictly comparable, the means have been calculated for observations of the same period in all cases. It should be noted that all pressure data means in the tables are reduced and corrected to sea-level and to constant gravity for all stations the elevations of which are less than 3,500 feet.

The mean pressure of the Indian land area for the month was ·035″ in excess of the normal. It was stated in the Monthly Review of December 1891, that increased pressure in India during the cold weather appears to occur under two entirely different sets of conditions. In the majority of cases it accompanies decreased temperature, and hence represents chiefly a condensation of the atmosphere in the lower strata, and under these conditions the excess at the plain stations is always large compared with that at the hill stations, and sometimes actually accompanies deficiency at the level of the hill stations in Northern India. In some cases increased pressure in India accompanies increased temperature, and the ordinary relation between pressure at the level of the hill stations and plains (stated above) is reversed, that is, the increase of pressure in that case is usually greatest at the level of the hill stations. The latter combination of pressure conditions is much less frequent and more abnormal than the preceding.

Pressure in December 1891 was in excess by nearly the same amount (·041″) as in the month under discussion. The increased pressure in December 1891 was due to the second combination of conditions stated above, whereas in December 1892, it was almost certainly due to the first and more frequent combination of conditions.

This is established by the following considerations:—

1st.—Pressure was more or less above the normal and temperature generally below it over the Indian area. The following gives data for nine meteorological provinces:—

Meteorological Province.	Variation from normal of	
	Mean pressure of month.	Mean temperature of month.
	″	°
Assam	+·030	−0·7
Bengal and Orissa	+·043	−1·6
Gangetic Plain and Chota Nagpur	+·023	−0·9
Upper Sub-Himalayas	+·022	−1·1
Indus Valley and North-West Rajputana	+·023	−0·5
East Rajputana, Central India and Guzerat	+·027	+0·1
Deccan	+·034	+1·1
West Coast	+·043	−0·2
South India	+·049	+0·1
Whole of India	+·033	−0·4

2nd.—Pressure was more largely in excess at the plain stations than at the neighbouring hill stations, and hence there was a relative deficiency of pressure in the middle atmospheric strata over India. The following gives pressure and temperature variation data at six hill stations and the neighbouring plain stations:—

Station.	Variation from normal of		Vertical presure anomaly.
	Mean pressure of month.	Mean temperature of month.	
	″	°	″
Quetta	+·028	−1·6	−·010
Jacobabad	+·038	−1·2	
Murree	−·002	−1·9	−·025
Peshawar	+·023	+1·4	
Simla	+·018	−2·4	−·006
Ludhiana	+·024	−0·4	
Pachmarhi	+·034	+1·8	+·013
Hoshangabad	+·021	+0·8	
Darjeeling	+·011	−2·0	−·016
Dhubri	+·027	−0·5	
Leh	+·018	−1·7	−·006
Lahore	+·024	−0·3	

The preceding data establish that in every case, except Pachmarhi and Hoshangabad, the variation of the mean pressure from the normal was smaller at the hill stations than at the neighbouring plain stations, and also that the temperature was in every case in defect to a larger amount at the hill than the plain stations. It may be noted that the conditions of the Central Provinces and adjacent districts differed considerably from those of the west of India.

With the one exception of the general excess of pressure, the meteorological conditions of December 1892 were the opposite of those of December 1891. The conditions in the latter month preceded an unusually dry and quiet cold weather. Those of December 1892 have, on the other hand, initiated one of the most disturbed cold weathers on record in Upper India.

Pressure was locally in defect relatively to the general conditions (or the barometric anomalies were negative) over the whole of Northern India with the exception of South Bengal. The anomalies were small and less than ·02″ except in the case of the following stations:—

Station.	Negative pressure anomaly, December 1892.
	″
Rawalpindi	—·026
Dera Ismail Khan	—·021
Roorkee	—·027
Bareilly	—·022
Pachpadra	—·026

Pressure was locally in excess in the Peninsula, South Bengal and Burma. The excess was small in amount except in the Madras Deccan and South Madras, represented by Bellary (+·025″), Madura (+·024″) and Negapatam (+·023″).

The excess of pressure in the Deccan and Southern India has been a very marked and persistent feature of the meteorology of the past three months, and is important, as it is undoubtedly related to the partial failure of the rains in Southern India during this period.

Barometric depressions and cyclonic storms of the month.

At the commencement of the month, pressure was above the normal of the period to a moderate extent except in Baluchistan and Sind, where it was in slight defect. This depression accompanied a very slight disturbance in Baluchistan and Upper India, which received light to moderate showers from the 1st to the 4th. Snow fell locally in some parts of the Western Himalayas and Afghanistan, but the amounts were nowhere large. Pressure increased on the 2nd and 3rd over the whole of India, rapidly in North-Western India, and slightly in Burma and Southern India. On the morning of the 4th, pressure ranged from 29·92″ in South Ceylon and the south of the Bay to 30·20″ in Upper India. North-east winds were fully established in the first week of the month over the whole of the Bay. They strengthened considerably on the 4th and 5th with the increase of gradients, and South Madras received light to moderate showers on the 4th and 5th from these intensified north-east winds. Pressure gave way on the 5th and 6th over the Indian area, most rapidly in Upper India, and fine dry weather set in again over South Madras. Fine weather with clear skies obtained on the morning of the 6th over the whole of India except North Bengal.

The following gives data for the morning of the 6th:—

Meteorological Province.	Variation from Normal of		Mean cloud amount.
	Mean pressure.	Mean temperature.	
	″	°	
Burma	—·004	—0·3	2·4
Bengal and Assam	—·042	—0·2	1·7
North-Western Provinces and Oudh	—·084	+1·5	0
Punjab	—·077	+1·7	0·7
Rajputana and Sind	—·036	+2·4	0·6
Central India and Guzerat	—·013	+1·0	0
Central Provinces and Berar	+·004	+0·9	0
Bombay	+·035	—0·1	0·4
Madras	+·041	—0·6	0·9

From the 5th to the 29th the barometric movements over India were very regular, pressure oscillating in periods of four days over the whole of India. A reference to the November Review will shew that pressure in that month was marked by oscillatory changes of the same period. The following givss a summary of the character and average

amount of the change of pressure from day to day during this period over the Indian land area:—

Date.	Character of change of pressure.	Average amount of change of pressure.
		"
5th	General fall	—·044
6th	Ditto	—·024
7th	General rise	+·052
8th	Irregular changes	0
9th	General fall	—·019
10th	Ditto	—·028
11th	General rise	+·037
12th	Ditto	+·038
13th	Slight and irregular changes	—·003
14th	General fall	—·043
15th	General rise	+·027
16th	Ditto	+·035
17th	Ditto	+·008
18th	General fall	—·033
19th	Ditto	—·027
20th	General rise	+·043
21st	Ditto	+·026
22nd	General fall	—·039
23rd	Variable changes	—·002
24th	General rise	+·017
25th	Ditto	+·007
26th	General fall	—·022
27th	Variable changes	+·002
28th	General rise	+·042
29th	General fall	—·044

During this period from the 5th to the 28th, in which the pressure changes over India were even to a more marked extent than usual uniformly oscillatory, there were three slight local disturbances accompanied with rainfall. Some light showers were received in the northern districts of the Punjab on the 13th and 14th. Pressure was at this time steadily in excess, and a rapid increase of pressures in North-Western India on the 15th and 16th gave much steeper gradients than usual in December over the Indian area.

Hence, as on the 5th and 6th, winds increased in strength in the Bay, more especially off the Coromandel Coast. These intensified north-east winds gave showers in the South Madras districts, heaviest in the coast districts of Chingleput, South Arcot and Tanjore, on the 16th, 17th and 18th. Pressure gave way briskly to rapidly in North-Western India on the 18th, and fine dry weather again set in over South Madras. On the 20th pressure was slightly in defect on the North-West frontier and above it over the remainder of India, the excess being greatest in Burma, where it was above a tenth of an inch. Pressure increased generally on the 23rd and 24th, and as usual in the cold weather months, more largely in Upper India than elsewhere. This rise accompanied light showers in the southern districts of South Madras on the 24th and 25th. This rainfall, like that of the preceding periods of slight disturbance and rainfall in Southern India, was due to intensified north-east winds. North-east winds continued to prevail steadily over the whole of the Bay from the 3rd to the end of the month, the only changes being of strength due to the changes from day to day of the gradients determining the winds. The western districts of the Central Provinces, Berar and Central India obtained light thunder-showers on the 26th, 27th and 28th, due to feeble local disturbance. The following gives the meteorological conditions on the morning of the 28th:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF				Cloud amount.
	Mean 8 A.M. pressure.	Mean maximum.	Mean minimum.	Mean temperature.	
	"	°	°	°	
Burma	+·094	—2·1	—4·0	—3·1	2·4
Bengal and Assam	+·081	—0·1	—2·0	—1·1	0·2
North-Western Provinces and Oudh	+·083	+0·6	+3·1	+1·9	2·5
Punjab	+·118	+0·2	+0·4	+0·3	0·4
Rajputana and Sind	+·056	—0·3	+4·2	+2·0	4·9
Central India and Guzerat	+·034	—1·0	+3·3	+1·2	4·3
Central Provinces and Berar	+·049	+0·2	+4·9	+2·6	4·6
Bombay	+·020	—1·4	+1·3	—0·1	1·2
Madras	+·064	+1·4	—1·1	+0·2	1·5

The barometric changes on the 26th and 27th were less regular and uniform than they had hitherto been. Pressure increased briskly to rapidly on the 27th, and was on the morning of the 28th more or less considerably above the normal. The excess ranged from ·02" on the West Coast districts to ·10" in Burma and ·14" in the East Punjab. Notwithstanding this rapid rise, the cloud amount had increased and skies were partially covered over the greater part of India. Hence also the night temperature was unusually high and the mean temperature of the preceding 24 hours' period above the normal. Pressure gave way over the whole "Indian land area" on the 28th and at the same time a disturbance appeared or formed in the North-West frontier.

Cold weather storm of the 29th to 31st of December 1892.—The barometric observations at Bushire show that no cyclonic depression passed across Central Persia prior to the appearance of this depression in Northern India. The observations at Quetta, Chaman and Khelat in Baluchistan indicate that the disturbance did not pass through that area as a well-defined barometric depression. So far as can be judged from the data, the disturbance formed on the North-West frontier on the night of the 28th and morning of the 29th. The following gives 8 A.M.

observations of the 29th at stations in Baluchistan and the North-West frontier :—

Station.	Barometer.			Wind.		Cloud amount.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.	
	"	"	"		Miles.	
Chaman	...	—·032	?	NW	15	10
Quetta	...	—·054	—·014	SSE	7	8
Peshawar	30·174	—·113	+·045	WSW	4	10
Mooltan	30·150	—·101	+·030	N	1	6
Jacobabad	30·101	—·109	+·001	NW	3	10
Kurrachee	29·971	—·157	—·115	NE	17	9

The barometric anomalies indicate that the disturbance was due to a shallow depression covering Sind, the centre of which was near Kurrachee. Weather was at this time fine with light to moderate north-west winds in the Persian Gulf and Gulf of Oman, thus showing that the storm had not advanced across Persia. Skies had clouded over and were generally overcast in Sind, the greater part of the Punjab, the Punjab Himalayas and were clouding over in Rajputana. Light showers had fallen at Chaman and Quetta during the preceding 24 hours.

30th December.—Pressure gave way rapidly in the Punjab and increased in Lower Sind and the greater part of the Peninsula and North-Eastern India during the 24 hours preceding 8 A.M. of the 30th. A fairly well-defined depression now covered West Rajputana, Upper Sind and the South-West Punjab. The following gives 8 A.M. observations at stations in the area of depression :—

Station.	Barometer.			Wind.		Cloud amount.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity during past 24 hours.	
	"	"	"		Miles.	
Sirsa	29·993	—·143	—·101	SE	1	10
Montgomery	30·008	—·152	?	NNE	3	10
Mooltan	29·999	—·151	—·113	NW	1	10
Jacobabad	30·029	—·072	—·068	NW	7	1
Hyderabad	30·056	+·042	—·038	NE	20	10
Kurrachee	30·054	+·083	—·027	ENE	21	0
Ajmere	30·050	—·054	—·055	S	9	5
Bikanir	29·954	—·122	?	SSE	7	8
Quetta	...	—·094	—·112	SSW	3	10
Mount Abu	?	?	?	SSW	8	9
Murree	...	—·086	—·035	SE	8	10

The centre of the depression was a little to the west of Bikanir. Pressure was about a sixth of an inch below the normal at the centre. Winds were very light in the Punjab, averaging in velocity only 1 mile per hour during the previous 24 hours. Strong winds prevailed in Rajputana and Sind at some distance from the centre. A remarkable feature of the air movement at this stage was the prevalence of strong east-north-east winds in Lower Sind at Kurrachee and Hyderabad, apparently indicating outdraught from the area of depression instead of the normal indraught. It is probably an example of the irregularity of the cyclonic air movement in the lower air strata, which is one of the most striking features of these storms. Moderately strong cyclonic winds prevailed at Mount Abu and the Punjab hill stations. The cloud canopy had thickened and extended during the previous 24 hours and now covered the North-Western Provinces and Central India as well as the Punjab and Rajputana. Light to moderate showers were received during the previous 24 hours in Baluchistan, Upper Sind, Rajputana, Kathiawar and the South Punjab.

31st December.—Pressure had increased over the whole of India during the previous 24 hours. The rise was large in Upper India and completely obliterated the depression in existence on the previous day. It had, so far as can be judged from the 4 P.M. observations of the 30th, drifted eastwards on the afternoon and night of the 30th, filling up at the same time. Calms and light variable winds now obtained over the whole of North-Western and Central India and the skies were clearing rapidly, although there was still much cloud in the Punjab and Western Himalayas. The following shows the change in the amount of cloud which had occurred during the previous 24 hours :—

Meteorological Province.	Cloud, 8 A.M.		
	30th.	31st.	Change in 24 hours.
Punjab	9·6	5·6	—4·0
Rajputana and Sind	5·5	5·0	—0·5
Central India and Guzerat	3·6	1·4	—2·2
North-Western Provinces and Oudh	8·7	1·7	—7·0
Central Provinces and Berar	4·5	0·1	—4·4
Bengal and Assam	1·3	0·5	—0·8

Moderate to heavy general rain had been received over the whole of the Punjab and North-Western Provinces during the previous day and light local showers in Rajputana.

The storm hence apparently originated in Baluchistan and Sind. It developed rather rapidly on the 29th and filled up as rapidly on the 30th. It drifted eastwards, but it is not possible to determine its rate of motion as it was a very short-lived storm. Although it did not give rise to a subsidiary depression in the Punjab it gave a general moderate burst of rain to the north and east of the centre. It also gave a moderate fall of snow to the Afghan mountains and Western Himalayas.

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 December 1892 in the Western Himalayan and Afghan mountain areas received up to date.

I.—THE AFGHAN HIGHLANDS.

(*a*) *Hills west of Dera Ismail Khan.*—Heavy snow is stated to have fallen on the Waziri hills on the nights of the 2nd and 3rd. It was reported to be a foot deep at Kanigoram (7,000 feet high). On the same nights snow also fell on the Zamarai and Sherani hills as well as on Kashmir Kar. It fell as low as 6,500 feet on the Ziarat mountain in Kashmir Kar. The Marwatti mountains were also covered, and it did not melt on Kundighar, which is 8,000 feet high until the 10th December. Snow was visible from Razmak in the north to the Zamarai mountain in the south, *i.e.* all along the border of the Dera Ismail Khan district, from the 3rd to the 10th. There was a slight fall on the above-mentioned hills on the 29th and 30th. It is stated to have exceeded a foot at Marwatti, where the fall was locally heavy.

(*b*) *Sufed Koh.*—The officer on special duty at Kurrum states that snow fell on the Sufed Koh on the 20th, 27th and 30th. The fall on the 20th lasted 8 hours. The total depth of the fall during the month is estimated at from 6 to 18 inches.

(*c*) *Hills west of the Peshawar district.*—No snow fell in Tirah or the Khyber hills in October and November 1892. A small amount fell in Tirah during the latter part of December.

(*d*) *Mountains in and beyond the Hazara district.*—Snow fell on the 31st December on the Gali hills, Black Mountain and hills north of Hazara. On the 1st of January it was 4 feet deep on the crest of the Black mountains (7,500 to 9,000 feet in height) and 2 feet deep at heights of above 6,000 feet.

II.—THE PUNJAB AND KASHMIR HIMALAYAS.

(*a*) *Kulu.*—The Assistant Commissioner reports that in the Kulu Tehsil snow fell on the 3rd, 4th, 13th, 14th, 17th and 30th December, and in the Plach Tehsil on the 2nd, 3rd and 4th. The snowfall descended to an elevation of 7,000 to 7,500 feet on the 3rd and 4th, and the fall of the 13th and 14th to 8,000 feet. Both falls melted rapidly at elevations below 9,000 feet, and generally the month was exceptionally dry and during the latter half warmer than usual.

The following table gives the reported depth of snow on the higher peaks and passes in the district:—

Tehsil.	Name of Pass.	Reported depth of snow.
Kulu	Rotang	4½ feet.
	Hamta	3 "
	Chandar Khani	4 "
	Barsai	1½ "
	Pashtar	1½ "
	Bhubhu	2 "
	Lohri Achri	¾ "
	Majhang	1 "
	Bojanhar	2 "
Plach	Siri Khand	3 "

III.—THE NORTH-WESTERN PROVINCES HIMALAYAS.

(*a*) *Kumaun.*—The Patwari of Malla Danpur reports that snow fell to a depth of 2 or 3 feet on the high impassable peaks of Pinduri, Kaphina and Neta, and about a foot on the parts of the mountains where the cattle are located in the rains and none in the populated parts.

Summary.—The higher elevations in Baluchistan and the mountains to the west of Dera Ismail Khan received more frequent and heavier snow than usual in December. The snowfall in the Afghan mountains and Western Himalayas appears to have been moderate in amount, and on the whole to have been below the average. The deficiency appears to have been more marked in Kulu, the Simla Hill districts, Peshawar and Kumaon than in Kashmir and on the Sufed Koh.

Summary of the weather in the Bay of Bengal and Arabian Sea in the month of December 1892.

Bay of Bengal.—At the commencement of the month a shallow depression lay to the west of the Andamans and Nicobars. Weather was squally in the south and south-east of the Bay. Thus the S.S. *Mount Hebron* in Lat. 11° 34′ N. and Long. 84° 7′ E. at 8 A.M. of the 1st had heavy rain squalls and the S. *West Lothian* in Lat. 5° 39′ N. and Long. 94° 22′ E. had variable winds with torrents of rain. The depression filled up during the next 48 hours, and winds at the same time fell off considerably in strength. Winds were of average force 3·9 on the 2nd

and 2·9 on the 3rd. Fine weather with light to moderate north-east winds prevailed over the whole Bay area on the 3rd, and only one vessel out of 35 contributing data for that day experienced squalls. North-east monsoon winds obtained steadily during the remainder of the month over the whole Bay area. They varied to some extent in force from day to day, but weather continued almost without exception fine, with clear skies or passing clouds over the whole sea area.

Winds strengthened on the 4th and following days, and on the 8th the average force as determined from the observations of 37 vessels was 4·1. They decreased to average force 3·0 on the 10th and increased slightly during the next week. They averaged in force 3·4 on the 15th. Several vessels experienced heavy rain off the Ceylon coast on the 15th and 17th. Winds strengthened from the 15th to the 21st, when they averaged 4·0 in force and ranged from force 2 at the head of the Bay to 5 and 6 off the Coromandel Coast, where they were strongest. They decreased rapidly in strength on the 22nd and 23rd, on which day they averaged only 2·9 in force. They increased slowly and steadily during the remainder of the month, and averaged 3·7 in force on the 31st. Fine clear weather obtained at the end of the month over the whole of the north and centre of the Bay and fine weather with passing clouds in the south of the Bay.

Arabian Sea.—Weather was squally with moderately strong winds at the beginning of the month in the Persian Gulf and Gulf of Oman. It was fine with light to moderate north-east winds in the Arabian Sea. The mean force of the winds on the 1st as determined from the observations of 31 vessels was 2·5. Weather improved in the Persian Gulf on the 3rd and was fine with light winds during the remainder of the month in that area.

Winds increased considerably in force on the 3rd, 4th and 5th in the Arabian Sea and averaged 4·8 in force on the 5th. Weather was fine with clear skies over the whole sea area. Winds decreased steadily in force during the next fortnight. They averaged in force 3·8 on the 11th, 3·5 on the 15th and 2·9 on the 20th. Winds were during this period lightest off the Malabar coast. They ranged on the 20th in force from 3 to 5 over the greater part of the north and centre of the sea area.

Winds increased slightly in strength during the remainder of the month. Their average force on the 25th, as determined from the observations of 32 vessels was 3·5 and on the 31st was 3·6. Weather was fine over the whole sea area at the end of the month. It is worthy of notice that the weather in the Persian Gulf during the last week of the month was fine with light winds and moderate cloud, and hence that the cold weather storm of the 29th to the 31st did not appreciably influence the weather in the north of the Arabian Sea or the Persian Gulf.

Temperature of the Air.

The distribution of temperature in India for December 1892 is exhibited by means of three charts, which show the variations of the mean maximum, mean minimum and mean daily temperature from the 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 data by means of which these charts have been prepared are given in Table I. The normal mean maximum and minimum temperatures have been obtained for each station from the observations of the same number of years, *viz.* 1878 to 1888. 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 variation of the mean daily temperature from normal, as determined by the use of this definition, agrees in almost all cases very closely with the variation 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.

The mean maximum or day temperature of the month was above the normal in Central India and the greater

part of the Peninsula. The excess was 2° and upwards in two areas for which data are given below :—

Area.	Station.	Mean Maximum Temperature.		
		Actual, December 1892.	Normal, December.	Variation from normal.
		°	°	°
South India	Bangalore	79·5	77·2	+2·3
	Salem	88·3	85·6	+2·7
	Coimbatore	87·7	84·4	+3·3
	Trichinopoly	87·4	84·1	+3·3
Northern Districts of the Central Provinces.	Jubbulpore	77·8	75·8	+2·0
	Saugor	78·8	75·5	+3·3
	Khandwa	83·9	81·4	+2·5

The mean maximum temperature of the month was below the normal over the remainder of India. The deficiency was most marked in Lower Burma and the Central and South-East Punjab, in both of which areas it exceeded 2°. The deficiency was greatest at the following stations :— Dera Ismail Khan (—3·3°), Ludhiana (—3·1°), Rangoon (—2·7°) and Diamond Island (—2·6°).

The mean minimum or night temperature of the month was lower than usual over nearly the whole of India with the exception of Upper and Central India, Berar, Guzerat and the Central Provinces. The night temperature was unusually low over the greater part of Burma and Bengal. The deficiency exceeded 3° at stationsfor which data are given below :—

Province.	Station.	Mean Minimum Temperature.		
		Actual, December 1892.	Normal December.	Variation from normal.
		°	°	°
North Bihar	Darbhanga	51·0	54·2	−3·2
	Purnea	46·8	49·9	−3·1
South Bengal	Calcutta	52·4	56·2	−3·8
Burma	Akyab	60·3	64·5	−4·2
	Thayetmyo	54·7	59·5	−4·8
	Toungoo	59·7	63·1	−3·4
	Rangoon	64·2	67·9	−3·7
	Bassein	61·7	65·5	−3·8

As will be seen below, this area of unusually low temperature was also characterized by greater dryness of the air than usual, by a considerable deficiency in the amount of aqueous vapour and by decreased amount of cloud.

The mean minimum temperature was most considerably above the normal in Khandesh, Berar and the western districts of the Central Provinces. The following table gives data for stations in that area :—

Station.	Mean Minimum Temperature.		
	Actual, December 1892.	Normal, December.	Variation from normal.
	°	°	°
Malegaon	54·1	50·0	+4·1
Khandwa	54·3	48·6	+3·7
Amraoti	57·9	54·8	+3·1

The mean temperature of the month was below the normal over the greater part of India. It was above it in two areas, the first including Central India, the Central Provinces, Berar, Guzerat and North Deccan, and the second Mysore and Central and South Madras. In the latter area the increased temperature was related to the continued partial failure of the retreating south-west monsoon rains. The increased temperature in the former area, *viz.* Central India and the north-western half of the Peninsula, was very marked at the stations for which data are given below :—

Station.	Mean Temperature.		
	Actual, December 1892.	Normal, December.	Variation from normal.
	°	°	°
Malegaon	69·4	66·4	+3·0
Khandwa	68·1	65·0	+3·1
Saugor	65·5	63·2	+2·3
Pachmarhi	58·6	56·8	+1·8

The mean temperature of the month was in slight to moderate defect over the remainder of India. The deficiency was small and less than 1° over nearly the whole area, with the exception of South Bengal and Burma, where it was unusually large, ranging from 2° to 3°. The following gives data for the stations in that area at which the mean temperature was most largely in defect :—

Station.	Mean Temperature.		
	Actual, December 1892.	Normal, December.	Variation from normal.
	°	°	°
Rangoon	74·5	77·7	−3·2
Akyab	70·3	73·4	−·1
Toungoo	70·9	73·8	−2·9
Bassein	72·8	75·1	−2·3
Thayetmyo	69·7	72·0	−2·3
Jessore	64·1	66·5	−2·4
Calcutta	64·1	66·1	−2·0

The most noteworthy features of the disribution of temperature in the Indian area during the month were hence as follows :—

1st.—General deficiency of temperature averaging 00·4 in the maximum or day temperature and 00·5 in the minimum or night temperature.

2nd.—Moderate local excess of temperature in the area of partial drought in Southern India. The day temperature was considerably in excess and the night temperature slightly in defect.

3rd.—Considerable excess of temperature in the Central Provinces, Berar, Khandesh and Central India. In this area both the day and night temperatures were in excess by nearly equal amounts. The excess was greatest in Khandesh and Berar, where it averaged nearly 3°.

4th.—Considerable deficiency of temperature in Burma and South Bengal. The night temperature was somewhat more largely in defect than the day temperature over the greater part of the area; the deficiency ranged between 2° and 3°.

The following gives a statement of the more important changes in the temperature conditions during the month.

At the commencement of the month temperature was below the normal over the whole of India except the Punjab. The deficiency was greatest in the Deccan, more especially at Bellary (−7·1°) and Sholapur (−5·7°). The following variation data for the 24 hours' period ending 8 A.M. of the 1st exhibit the pressure and temperature conditions prevailing at this time:—

Meteorological Province.	Variation from Normal of			
	Mean pressure, 1st December.	Mean maximum temperature, 1st December.	Mean minimum temperature, 1st December.	Mean temperature, 1st December.
	"	°	°	°
Burma	+·008	−1·0	+0·5	−0·3
Bengal and Assam	+·029	−0·3	−0·1	−0·2
N.-W. P. and Oudh	+·040	−2·4	−2·2	−2·3
Punjab	+·046	−2·9	+5·9	+1·5
Rajputana and Sind	+·008	−1·0	+3·2	+1·1
Central India and Guzerat	+·024	−3·0	−3·5	−3·3
Central Provinces and Berar	+·044	−3·2	−4·0	−3·6
Bombay	+·034	−2·1	−3·8	−3·0
Madras	+·027	+0·4	−4·3	−2·0

Temperature increased rapidly in India excepting the North-West frontier during the next three days, and was generally above the average on the 4th and 5th. The following gives variation data for the 5th :—

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

A rapid fall of temperature occurred on the 5th and 6th on the North-West frontier, following a slight disturbance in the Afghan Mountains and Western Himalayas. It extended eastwards across Northern India during the next three days, and temperature was hence more or less considerably below the normal over nearly the whole of India on the 9th and following days. The following table gives temperature variation data for the 24 hours preceding 8 A.M. of the 10th, when the effect of the cool wave was on the whole most strongly shown :—

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

It will be observed that the reduction of temperature was much greater in the night than in the day temperature. It is noteworthy that during this cool period there was throughout a local excess of temperature in the Central Provinces and North Deccan. Thus, on the 10th the mean temperature was 4·1° above the normal at Khandwa, 3·5° above it on the 11th at Malegaon, 8·3° above it on the 12th at Khandwa and 5·4° above it on the 13th at Malegaon. The following mean variation data for the 24 hours' period preceding 8 A.M. of the 14th show

strikingly this local excess of temperature in Berar, Khandesh and the Central Provinces :—

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

This local excess of temperature in Berar and the Central Provinces is a frequent feature of the cold weather, more especially in months when slight cold weather disturbances appear in Northern India and are accompanied by the passage of cold and warm waves across Northern India.

Temperature increased generally during the next two or three days, except on the North-West frontier, where a slight disturbance gave snow in the Western Himalayas. A cold wave hence rapidly advanced across Northern India. The following table giving variations of the mean temperature from the normal on the 17th and 20th illustrates the changes due to the advance of this cold wave :—

Meteorological Province.	Variation from Normal of Mean Temperature of 24 hours ending at 8 A.M. of the			
	17th.	18th.	19th.	20th.
	°	°	°	°
Punjab	—3·0	—1·0	—1·1	—0·9
Sind and Rajputana	—1·9	—2·7	—1·9	—1·5
N.-W. P. and Oudh	0	+1·0	—0·8	—1·1
Central India and Guzerat	+1·1	+0·5	—0·5	+0·1
Central Provinces and Berar	+3·1	+3·3	+1·0	+0·4
Bengal and Assam	—0·1	+0·5	—1·5	—1·7
Burma	—1·4	—1·8	—2·3	—3·8

During the next five days, from the 20th to the 25th, temperature increased except in Burma. The changes were small and temperature was generally above the normal, but was very considerably below it in Burma, where the air was unusually dry and skies free from cloud, and abnormally strong north-easterly winds were blowing. The temperature variation data of the 23rd illustrate clearly the temperature conditions of this period :—

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

No change of importance occurred between the 25th and 29th. Temperature continued considerably in defect in Burma and in moderate excess in the Deccan and Central India. A rapid rise set in over North-Western India on the 29th in front of the first important cold weather disturbance of the present winter. This was followed on the 31st by the appearance of the cold wave in North-Western India. The following variation data illustrate the temperature changes during the progress of this storm across Northern India :—

Meteorological Province.	Variation from Normal of Mean Temperature of 24 hours ending at 8 A.M. of the		
	29th.	30th.	31st.
	°	°	°
Punjab	+2·3	+3·3	—1·2
Rajputana and Sind	+5·1	+1·9	—2·2
Central India and Guzerat	+2·8	+2·5	+0·9
Central Provinces and Berar	+1·5	+2·1	+2·5
N.-W. P. and Oudh	+3·1	+3·7	+3·5
Bengal and Assam	—0·3	+0·6	+1·6
Burma	—3·7	—4·3	—4·8

Hence at the end of the month temperature was considerably below the normal of the period in North-Western India and Burma, and in excess over the remainder of India, the excess being greatest in the eastern districts of the North-Western Provinces and adjacent districts of Central India and the Central Provinces.

Winds.

The mean wind directions at 8 A.M. during the month are shown in Plate I, by arrows flying with the wind. They are obtained by the use of Lambert's formula, in which equal values are given to all winds. The data are given in Table I. The mean wind directions derived from the wind observations at 10 A.M. and 4 P.M. are shown in the small chart, No. 4 of Plate III, by means of arrows flying with the wind. The data for these will be found in

Table II, together with the normal directions as obtained from the observations of the past 10 to 20 years.

The normal air motion of the month of December in India is very similar to that of the preceding month but is generally stronger and steadier.

In Northern India the mean wind direction is north-west in the East Punjab and North-Western Provinces, west in Bihar, north-west to north in Bengal and east in Assam. Northerly winds obtain in the Indus valley, north-easterly winds in the South-West Punjab and Central India, and easterly winds in the Central Provinces, Berar and the Deccan. In the Madras coast districts and the Deccan, winds range between north-east and east, east-north-east being the predominant direction. Northerly winds prevail in the Irrawaddy Valley in Burma and north-east winds in Tennasserim and at Port Blair. It will thus be seen that over the whole of Northern India and Burma the mean direction of the air-motion appears to a large extent to be determined by the direction of the great river valleys or plains.

The most important feature of the air-motion of the month is the final withdrawal of the humid winds of the retreating south-west monsoon from the south of the Bay. This usually occurs in the third or fourth week of the month. The mean wind direction of the month at Port Blair is north-east and at Nancowry is east-south-east. Hence the north-east winds of the Bay are modified in character to some extent during the month. They become north-east trade winds, similar in character to those which usually prevail during the whole month in the Arabian Sea, and hence are after the third or fourth week of the month comparatively dry winds, which give little or no rain to Madras.

Winds are throughout the month local in character at the Bombay coast stations. These stations are shielded by the West Ghats from the easterly winds of the Deccan' and hence the winds at these stations are almost solely land and sea breezes. The mean wind directions of the month are north at Bombay, Ratnagiri and Karwar, east at Goa and south-west at Cochin and Calicut.

It was stated in the November Weather Review that the retreating south-west monsoon winds were abnormally feeble in the Bay during that month. These winds in December 1892 gave squally weather, and rain in the south of the Bay on the 1st, 2nd and 3rd, and finally retreated on the 4th, after which date north-east monsoon winds proper prevailed steadily throughout the month. They were hence fully established in the Bay at least three weeks earlier than usual. North-east monsoon winds obtained over the Arabian Sea during the whole of the month. The mean air movement in these two seas varied slightly from day to day in obedience to the changing conditions and varying gradients over the whole Indian monsoon region. The larger variations have been noted in the section describing the weather in the Arabian Sea and Bay of Bengal.

It has been stated, under the pressure section, that pressure relatively to the general state was in defect in Northern India, and in excess in the Peninsula and the south of the Bay. Hence gradients were on the average of the month smaller than usual and, as might be expected, winds were somewhat feebler and less steady over the greater part of the Indian land area than usual.

Winds were on the whole steadier, and stronger in Burma and the Bay Islands. The mean wind directions agreed approximately with the normal and the wind features in this part of the Indian area presented no feature of importance except increased strength.

Winds were slightly steadier, but not quite so strong as usual in Bengal. The westerly element in the winds was more strongly marked than usual. The following data for three stations illustrate this feature :—

Station.	Wind Direction.		
	Mean actual, December 1892.	Mean normal, December.	Increased westing, December 1892.
Dacca	N 49° W	N 36° W.	1
Saugor Island	N 10° W	N 7° E	1
Berhampore	N 47° W	N 26° W	2

Winds were strong and abnormally steady in Bihar and the eastern districts of the North-Western Provinces, and approximately normal in direction. They were even feebler than usual in the western districts of the North-Western Provinces and the Punjab, but the mean wind directions present no important variations from the normal.

Winds were light and unsteady in the Central Provinces, Central India and Berar, and the variations of the mean wind directions from the normal were very irregular, varying largely from station to station.

Winds were remarkably unsteady in the Konkan and Bombay Deccan, and were feebler than usual, as is shown by the data of the following three stations :—

Station.	Steadiness.		Velocity.	
	Actual percentage, December 1892.	Normal percentage, December.	Actual daily, December 1892.	Normal daily, December.
			Miles.	Miles.
Bombay	31	63	198	238
Ratnagiri	10	36	177	213
Belgaum	16	70	301	296

Winds were weaker than usual at the Madras stations and were generally less steady than usual. The most important feature in the north-east winds of the Peninsula was the diminished easting (or the increased northing) in

the winds. The following data for four stations illustrate this feature:—

STATION.	WIND DIRECTION.		
	Mean actual, December 1892.	Mean normal, December.	Decrease easting, December 1892.
Vizagapatam . .	N 37° E	N 83° E	46°
Madras	N 17° E	N 24° E	7°
Trichinopoly . .	N 34° E	N 39° E	5°
Salem	N 29° E	N 89° E	60°

The decreased easting in this part of the Peninsula was in conformity with the slightly increased pressure in the Deccan relatively to the Bay of Bengal and Burma.

The winds at the Himalayan stations were normal in character. At Mount Abu the mean wind direction was N. 62° W., the normal being N. 48° E.

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 the minimum of the 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 means for periods varying from 5 to 25 years of the available cloud data for the same hours.

The amount of moisture contained in the air over the whole of Northern and Central India in the cold weather is less than half of that present during the rains. As the daily range of temperature is large, the humidity varies greatly during the day, frequently ranging in the plains of Northern India from 30 or 40 in the middle of the day to saturation in the early morning. Dews are hence of almost regular occurrence at night in many districts, more especially in Assam, the North-Western Provinces, the Central Provinces and Berar.

In December 1892 the air was abnormally dry and contained much less moisture than usual in the Andamans, Burma, Bengal and the eastern districts of the North-Western Provinces. The deficiency in the amount of aqueous vapour was most marked in Lower Burma and the Andamans, and hence, although temperature was considerably below the normal, the humidity was largely below the normal. The following gives data for three stations at which the deficiency was most noteworthy:—

STATION.	MEAN AQUEOUS VAPOUR PRESSURE.			MEAN HUMIDITY.		
	Actual, December 1892.	Normal, December.	Variation from normal.	Actual, December 1892.	Normal, December.	Variation from normal.
	"	"	"	%	%	
Rangoon . .	·562	·671	−·109	67	73	−6
Diamond Island .	·608	·698	−·090	67	75	−8
Port Blair . .	·736	·834	−·098	71	80	−9

These variation data are very interesting in connection with the statements of the Sub-divisional Officer, Maliwun, and Port Officer, Rangoon, as to the abnormal character of the weather in Siam and the Malayan Peninsula given in the November Review. According to the former officer abnormally strong north-east winds prevailed in the last week of November and in December in Siam and the weather was unusually cool and clear.

The deficiency in the amount of vapour present in the air was almost as large in South Bengal as in Lower Burma. The following gives data for three representative stations:—

STATION.	MEAN AQUEOUS VAPOUR PRESSURE.			MEAN HUMIDITY.		
	Actual, December 1892.	Normal, December.	Variation from normal.	Actual, December 1892.	Normal, December.	Variation from normal.
	"	"	"	%	%	
Dacca . .	·423	·479	−·056	66	71	−5
Calcutta . .	·365	·445	−·080	63	72	−9
Cuttack . .	·385	·457	−·072	58	65	−7

The humidity conditions differed little from the normal in Assam and the central and western districts of the North-Western Provinces, the air being slightly damper in consequence of the diminished temperature.

The air was, on the other hand, much drier than usual in the Punjab and Sind and slightly drier in Rajputana. The following gives mean variation data for these three areas :—

Meteorological Province.	Variation from Normal of	
	Mean aqueous vapour pressure, December 1892.	Mean humidity, December 1892.
	"	
Punjab	−·028	−2
Sindh	−·046	−7
Rajputana	−·017	−2

The deficiency was hence largest and most pronounced at the Sind stations.

The air was more humid than usual at all the hill stations in Northern India with the exception of Simla and Chakrata. The following gives data for the four stations at which the variations from the normal humidity conditions were greatest :—

Station.	Mean Aqueous Vapour Pressure.			Mean Humidity.		
	Actual, December 1892.	Normal, December.	Variation from normal.	Actual, December 1892.	Normal, December.	Variation from normal.
	"	"	"	%	%	
Quetta	·169	·145	+·024	68	56	+12
Leh	·086	·079	+·007	72	60	+12
Darjeeling	·220	·200	+·020	87	76	+11
Simla	·110	·142	—·032	38	46	−8

The mean humidity conditions of the month were practically normal in the Central Provinces, Berar, the North Deccan and the Konkan. The air was much drier than usual over the whole of Central and South Madras and Malabar.

The following gives data of the most noteworthy variations :—

Station.	Variation from Normal of	
	Aqueous vapour pressure, December 1892.	Humidity, December 1892.
	"	
Mercara	−·056	−11
Salem	−·045	−9
Trichinopoly	−·043	−7
Cochin	−·052	−7

The chief features of the mean hygrometrical conditions of India during the month of December are hence as follows :—

(1) Normal conditions in Assam, the northern half of the Peninsula and the western half of the North Western Provinces.

(2) Abnormal dryness of the air in Burma, Bengal, Punjab, Sind, Rajputana and South and Central Madras. The decreased humidity was most marked in Burma, South Bengal, Sind and South Madras.

(3) Increased humidity at the hill stations and hence over the Himalayan and Afghan mountain areas except in a part represented by the stations of Simla and Chakrata. The increase was as marked at Darjeeling as at Leh and Quetta.

The month was unusually free from disturbed weather in the Bay of Bengal and Southern India. It was slightly more disturbed than usual in Upper India. The variations in the amount of cloud from the normal agree more closely with the weather features noted above than with the variations in the humidity conditions from the normal.

In Burma and the Andamans the returns of three stations show a slight excess of cloud and those of two a considerable deficiency. It is almost certain the cloud amount was less than usual and skies unusually serene.

There was a general deficiency of cloud in Assam, Bengal, Orissa, Chota Nagpur and Bihar. The following gives variation data for these provinces :—

Meteorological District.	Mean Cloud Amount.		
	Actual, December 1892.	Normal, December.	Variation from normal.
Arakan	0·4	2·4	−2·0
Assam	2·6	2·8	−0·2
Bengal	1·5	1·8	−0·3
Orissa	1·6	2·2	−0·6
Chota Nagpur	1·9	2·0	−0·1
Bihar	1·2	1·4	−0·2

Skies were most free from cloud at the following stations in these areas :—

Station.	Mean cloud amount.		
	Actual, December 1892.	Normal, December.	Variation, from normal.
Akyab	0·4	2·4	−2·0
Calcutta	0·9	1·8	−0·9
Dhubri	0·8	1·2	−0·4
Darbhanga	0·9	1·0	−0·1

Skies were more largely clouded than usual over the whole of the North-Western Provinces, the Punjab, Sind,

Rajputana and Central India. The following gives mean variation data for these provinces :—

Meteorological Province.	Mean Cloud Amount.		
	Actual December 1892.	Normal, December.	Variation, from normal.
North-Western Provinces	2·6	1·8	+0·8
Punjab	3·3	2·6	+0·7
Sind	2·9	1·9	+1·0
Rajputana	3·4	1·7	+1·7
Central India	2·2	1·6	+0·6

The variations of the mean cloud amount from the normal were somewhat irregular in the northern half of the Peninsula and were of little significance. There was much less cloud than usual in South and Central Madras, Mysore Coorg and Malabar, the decrease being most marked at the inland stations. The following gives data for the stations where the deficiency was most conspicuous :—

Station.	Mean Cloud Amount.		
	Actual, December 1892	Normal, December,	Variation from normal.
Cochin	1·0	3·2	−2·2
Bangalore	1·4	4·1	−2·7
Secunderabad	1·4	2·4	−1·0
Bellary	2·8	3·4	−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 December 1892 are based in part on the rainfall data of the meteorological observatories throughout India, and in part on the rainfall information relating to the month telegraphed to Simla by district officers.

The first rainfall chart (Plate IV) shows the actual distribution of the rainfall of the month as far as it is indicated by the returns of upwards of 160 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. The line of no rainfall is indicated by two parallel lines separated by a short distance, one continuous and the other dotted, the latter facing the districts of no rainfall.

The second chart illustrating the distribution of the rainfall of the month is given in Plate V and shows by figures the variation of the mean actual rainfall of the month from the normal rainfall in each of the 52 meteorological districts into which India and Burma have been divided for purposes of comparing crops and rainfall. The data of this chart are deduced from the rainfall information published in the Provincial gazettes, or telegraphed by district officers, of which a summary is given in the following table, and the actual figures utilized are those given in the last column. The numbers given in the centre of each district are the variations of the actual mean rainfall of the district from the normal mean rainfall. A number given in a corner of each district in small slanting figures serves as an index by means of which, on referring to the list of districts at the foot of the chart, the name of the district can be at once ascertained.

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 ten 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, Trichinopoly, Salem, Cuddapah, and Ongole.

The following table gives mean actual and variation rainfall data for the 52 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.	Normal.	Actual.	Normal.	Variation.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0	0	0
	Lower Burma*	?	?	0·12	0·24	— 0·12
	Central do.*	?	?	0·01	0·13	— 0·12
	Upper do.*	?	?	0	?	?
	Arakan*	?	?	0	0·31	— 0·31

Province.	District.	Rainy Days. Actual.	Rainy Days. Normal.	Rainfall. Actual.	Rainfall. Normal.	Rainfall. Variation.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	0	0·5	0	0·37	— 0·37
	Assam (Surma)	0·1	0·6	0·01	0·73	— 0·72
	Do. (Brahmaputra)	1·4	1·2	0·47	0·44	+ 0·03
	Deltaic Bengal	0	0·4	0	0·26	— 0·26
	Central do.	0	0·3	0	0·17	— 0·17
	North do.	0·6	0·4	0·17	0·19	— 0·02
	Orissa	0	0·8	0	0·51	— 0·51
	Chota Nagpur	0	0·5	0	0·30	— 0·30
	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	— 0·26
	Oudh (South)	0·4	0·6	0·10	0·41	— 0·31
	Do. (North)	0·5	0·6	0·09	0·38	— 0·29
	North-Western Provinces (Central)	0·4	0·4	0·14	0·37	— 0·23
	Do. do. (West)	0·9	0·5	0·37	0·34	+ 0·03
	Do. do. (Submontane)	0·5	0·7	0·25	0·41	— 0·16
Punjab	Punjab (South)	1·5	0·4	0·77	0·24	+ 0·53
	Do. (Central)	1·1	0·5	0·68	0·28	+ 0·40
	Do. (Submontane)	1·4	0·8	1·01	0·58	+ 0·43
	Do. (Hill Districts)	1·9	1·3	1·19	0·87	+ 0·32
	Do. (North-West)	1·2	0·8	0·96	0·51	+ 0·45
	Do. (West)	1·5	0·2	0·61	0·12	+ 0·49
Bombay and Malabar Coast Districts (Madras).	Malabar*	?	?	0·35	0·83	— 0·48
	Madras (South Central)*	?	?	1·28	2·07	— 0·79
	Coorg*	?	?	0	0·75	— 0·75
	Mysore*	?	?	0·16	0·70	— 0·54
	Konkan	0·1	0·3	0·02	0·14	— 0·12
	Bombay Deccan	0·1	0·7	0·09	0·41	— 0·32
	Hyderabad (North)	...	...	...	...	...
	Khandesh	0·4	0·9	0·16	0·56	— 0·40
Central Provinces and Berar.	Berar*	?	?	0·06	0·74	— 0·68
	Central Provinces (West)	0·3	0·5	0·09	0·52	— 0·43
	Do. (Central)	0·1	0·5	0·01	0·33	— 0·32
	Do. (East)	0	0·4	0	0·30	— 0·30
Bombay (North)	Guzerat	0·1	0·1	0·05	0·05	0
	Kathiawar	0·1	0·1	0·02	0·04	— 0·02
	Sind	0·3	?	0·07	0·11	— 0·04
Rajputana and Central India.	Central India (East)	0·6	?	0·33	0·46	— 0·13
	Rajputana (East), Central India (West)	0·9	?	0·38	0·19	+ 0·19
	Rajputana (West)	0·8	?	0·39	0·02	+ 0·37
Madras	East Coast (North)*	?	?	0	1·26	— 1·26
	Do. (do.) (a)*	?	?	0	0·37	— 0·37
	Hyderabad (South)*	?	?	0	0·27	— 0·27
	Madras (Central)*	?	?	0·46	0·57	— 0·11
	East Coast (Central)*	?	?	1·14	1·86	— 0·72
	Do. (South)*	?	?	2·05	5·49	— 3·44
	Madras (South)*	?	?	0·97	3·68	— 2·71

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

The Brahmaputra Valley districts of Assam received light showers on the 5th, 6th, 7th and 8th, which gave a total slightly exceeding the small normal fall of the month. No rain fell in the Cachar and Sylhet districts.

The Jalpaiguri, Kuch Bihar, and Darjeeling districts obtained light showers on the 5th, 6th and 7th, and again on the 23rd and 24th, but the total amounts were small and of no importance. No rain fell over the remainder of Bengal, or in Orissa, Bihar and Chota Nagpur during the month.

The disturbance of the last three days of the month gave light general rain to the whole of Oudh and the North-western Provinces (except the most eastern districts and the hill districts) on the 30th and 31st. The rainfall was most general in the 24 hours preceding 8 A.M. of the 31st. The largest fall in 24 hours was 1·2 inches at Ambári in the Dehra-Dun district.

There were two periods of light to moderate rainfall during the month in the Punjab. The first was from the 1st to the 3rd or 4th during which the northern and western districts and the hill districts received light showers. The second burst of rain was due to the storm of the last three days of the month. Local showers were received on the 30th and moderate general rain over the whole province on the 31st, *i. e.* the 24 hours period ending at 8 A.M. of the 31st. The following amounts exceeding two inches were recorded at that hour :—

District.	Station.	Rainfall.
		Inches.
Simla	Kasauli	2·35
Rawal Pindi	Rawal Pindi	2·34
.....	Kahuta	2·70

The rainfall of the month was in moderate excess over the province. The following gives a summary of the monthly rainfall statement published in the *Punjab Gazette*:—

Division.	Rainfall.			Number of Rainy Days.		
	Average actual, December 1892.	Variation from normal.	Variation expressed as percentage.	Average actual, December 1892.	Variation from normal.	Variation, expressed as percentage.
	Inches	Inch.				
Punjab (South)	0·77	+ 0·53	+ 221	1·5	+ 1·1	+ 275
Do. (Central)	0·68	+ 0·40	+ 143	1·1	+ 0·6	+ 120
Do. (Submontane)	1·01	+ 0·43	+ 74	1·4	+ 0·6	+ 75
Do. (Hill Districts)	1·19	+ 0·32	+ 37	1·9	+ 0·6	+ 46
Do. (North-West)	0·96	+ 0·45	+ 88	1·2	+ 0·4	+ 50
Do. (West)	0·61	+ 0·49	+ 408	1·5	+ 1·3	+ 650

Baluchistan received general rain during two well-defined periods. The first period was from the 1st to the 3rd. The following amounts of two inches or upwards were registered during the period :—

Date.	Station.	Rainfall.
		Inches.
1st	Yarookarez	2·20
"	Shalabagh	2·40
2nd	Pishin	2·20
"	Kuchlak	2·00
"	Bostan	2·00
"	Shirinoo	2·35
"	Gulistan	2·03
"	Killa Abdulla	2·50
3rd	Syad Hamid	2·10

The second burst of rain occurred between the 27th and 31st. The fall during the period was much lighter than in the first period. The largest fall in 24 hours recorded during this period was 1·1 inch at Sharigh. A few light showers of little importance were also recorded on the 21st.

The rainfall of the month was unusually large in amount. It ranged from a quarter of an inch in the Derajat to five and six inches in Peshin and the central districts of North Baluchistan. Thus 5·87 inches were recorded at Shirinoo, 5·19 inches at Bostan, 5·07 inches at Gulistan, and 5·09 inches at Pishin. The normal rainfall in December in Baluchistan is less than half an inch. Hence at many stations from six to ten times the normal fall of the month was registered.

The following gives comparative data for the three stations in Baluchistan for which normal data are available :—

Station.	Rainfall.		
	Actual, December 1892.	Normal, December.	Variation from normal.
	Inches.	Inches.	Inches.
Pishin	5·09	0·35	+ 4·74
Quetta	3·48	0·36	+ 3·12
Kelat	1·78	0·30	+ 1·48

The excessive precipitation in Baluchistan was hence one of the more remarkable features of the meteorology of the month.

In Rajputana light local showers fell on the 29th, 30th and 31st, but the amounts were in all cases small and the rainfall of the month was hence generally even less than the normal rainfall. The following gives data for the larger states :—

State.	Rainfall.		
	Average actual, December 1892.	Average normal, December.	Variation from normal.
	Inches.	Inches.	Inches.
Jodhpur	0·45	0·02	+ 0·43
Jeypore	0·13	0·18	− 0·05
Ulwar	0·15	0·39	− 0·24
Dholpur	0·17	?	?
Ajmere	0·16	0·22	− 0·06

The rainfall was on the whole heaviest and most general in the western states of Jodhpore, Bikaneer, and Jeysulmere.

A few light local showers were received in Central India during the last week of the month. The rainfall was absolutely *nil* over by far the greater part of it, and practically *nil* (less than a tenth of an inch) over Maihar state. No rain fell over by far the greater part of the Central Provinces. Light showers occurred in the Saugor, Hoshangabad, Nimar and Betul districts on the 27th, 28th and 29th, but the amounts were very small and unimportant.

As is usual in December, no rain was received over by far the greater part of the Bombay Presidency. The Dharwar district obtained local showers on the 17th, Khandesh light showers on the 27th and 28th, and Upper Sind light showers on the 30th.

No rain was received in the Northern Coast districts of Ganjam, Vizagapatam, Godavari and Kistna, nor in the Deccan districts of Bellary and practically none in Kur-

nool and the west coast districts of Malabar and South Canara. The remaining districts received light to moderate showers during the following periods :—

1st.—From the 3rd to the 5th. The largest amounts were received in the coast districts of Chingleput, North and South Arcot and Tanjore.

2nd—From the 16th to the 18th. The burst of rain was heavier and more general than the preceding. Chingleput, North Arcot, and South Arcot received average total amounts of between 1 and 2 inches ; Cuddapah, Coimbatore and Salem districts also received a fair burst of rain during this period.

3rd.—From the 24th to the 26th. Light scattered showers of little value fell during the period, chiefly in the Southern districts.

The following table gives a summary of this rainfall data for the nine meteorological divisions of the Presidency based on the rainfall data published in the *Madras Gazette*, and hence differing to some extent from the data given in the rainfall above : -

Meteorological Divisions.	Number of Rainy Days.		Rainfall.		Variation from normal.
	Actual, December 1892.	Normal, December.	Actual, December 1892.	Normal, December.	
			Inch.	Inch.	Inch.
East Coast North . .	0	0·8	0·01	0·94	−0·93
Ditto North (*a*) .	0	0·7	0	0·34	−0·34
Ditto Central . .	2·4	2·9	2·41	2·72	−0·31
Ditto South . .	3·6	4·8	2·39	4·74	−2·35
Madras, South . .	2·3	4·8	1·07	3·94	−2·87
Malabar Coast . .	0·3	1·4	0·11	0·80	−0·69
Madras, South Central.	2·0	2·6	0·83	1·40	−0·57
Madras Hills . .	3·1	4·5	2·14	2·95	−0·81
Ditto, Central . .	0·9	0·9	0·51	0·46	+0·05

The following table gives comparative data for each of the 21 collectorates in the Presidency :—

Meteorological Division.	District.	Rainfall.			Number of Rainy Days.		
		Average actual.	Average normal.	Variation from normal.	Average actual.	Average normal.	Variation.
		Inch.	Inch.	Inch.			
East Coast, North.	Gangam . .	0	1·40	−1·40	0	1·1	−1·1
	Vizagapatam .	0	1·06	−1·06	0	0·8	−0·8
	Gadavari . .	0	0·69	−0·69	0	0·7	−0·7
	Kistna . .	0·07	0·52	−0·45	0·2	0·7	−0·5
Do. Central .	Nellore . .	2·41	2·72	−0·31	2·4	2·9	−0·5
Do. South .	Chingleput . .	2·58	5·03	−2·45	3·5	4·7	−1·2
	North Arcot .	1·77	2·97	−1·20	2·9	3·4	−0·5
	South Arcot .	2·53	5·64	−3·11	3·4	5·4	−2·0
	Tanjore . .	3·10	8·02	−4·92	5·8	7·3	−1·5
	Trichinopoly	1·34	3·69	−2·35	2·8	5·2	−2·4
Madras South	Madura . .	0·79	4·02	−3·23	1·9	4·9	−3·0
	Tinnevelley . .	1·43	3·83	−2·40	2·9	4·7	−1·8
Malabar Coast	Malabar . .	0·14	1·02	−0·88	0·4	1·8	−1·4
	South Canara .	0·08	0·48	−0·40	0·2	0·9	−0·7
Madras, South Central.	Salem . . .	0·87	1·47	−0·60	2·0	2·6	−0·6
	Coimbatore . .	0·79	1·31	−0·52	2·0	2·5	−0·5
Madras Hills .	Nilgiris . .	2·14	2·95	−0·81	3·1	4·5	−1·4
Do. Central.	Cuddapah . .	1·10	1·06	+0·04	2·2	1·7	+0·5
	Anantapur . .	0·70	0·23	+0·47	0·6	0·7	−0·1
	Bellary . .	0	0·17	−0·17	0	0·4	−0·4
	Kurnool . .	0·12	0·28	−0·16	0·4	0·6	−0·2

The preceding data show that the rainfall was slightly in excess in two districts only, *viz.* Cuddapah and Anantapur. The rainfall in these two districts is always small in amount in December. The rainfall of the month was more or less in defect in all other districts. The deficiency was large and varies in the coast districts south of Nellore, and in the districts of Madura and Tinnevelly. The deficiency was absolutely greatest in the districts of Tanjore, Madura, Tinnevelly, Trichinopoly and South Arcot, in which the average district deficiency ranged between two and five inches. Madura received only one-fifth of its normal fall, and the remaining districts between 20 and 40 per cent.

Explanation of Tables.

Table I gives an abstract of the meteorological observations at 8 A.M. daily, taken at 180 stations in India during the month of December 1892.

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 52 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 98 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 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.

Table

Abstract of Observations taken at 8 A.M. at 189

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.
I.—Burma Coast and Bay Islands.		...	...	+ ·044	...	...	...	...	...	...	...	83·3	−2·1	64·9	−2·8	74·1	−2·5	18·5	...	...	...	...	29·6
Bay Islands	Port Blair	61 ?	29·936	?	29·928	30·021	31st	29·851	1st	·170	79·2	84·8	?	75·7	?	80·2	?	9·1	87·0	7th	69·9	24th	17·1
	Camorta	96										Imperfect.											
Tenasserim	Mergui	26	29·932	?	29·962	30·023	20th	29·834	11th	·189	72·0	83·7	?	56·5	?	70·1	?	27·2	88·4	13th	47·8	21st	40·6
	Tavoy	94	30·023	?	29·980	30·111	20th	29·943	8th	·168	69·1	84·3	?	60·3	?	72·3	?	24·0	89·2	9th	49·6	23rd	39·6
	Moulmein	181	‡29·966	+ ·040	‡30·004	30·067	20th	29·877	10th	·190	69·2	85·0	−2·3	65·9	−0·4	75·5	−1·4	19·1	89·5	9th	56·4	23rd	33·1
	Tounghoo	41	29·890	+ ·045	30·018	29·970	21st	29·785	10th	·185	64·2	82·0	−2·3	59·7	−3·4	70·9	−2·9	22·3	87·8	7th	51·1	2 days	36·7
Lower Burma	Rangoon	27	30·020	+ ·033	29·999	30·106	21st	29·919	9th	·187	69·2	84·6	−2·7	64·2	−3·7	74·5	−3·2	20·4	87·7	7th	56·7	24th	31·0
	Bassein	41	30·058	+ ·057	30·021	30·143	21st	29·973	9th	·170	67·5	83·8	−0·7	61·7	−3·8	72·8	−2·3	22·1	87·2	8th	55·0	23rd & 27th.	32·2
	Diamond Island.	20	30·020	+ ·044	29·997	30·093	28th	29·940	9th	·153	75·0	82·0	−2·6	71·2	−1·2	76·6	−1·9	10·8	85·6	3rd	66·9	23rd	18·7
Arrakan	Akyab		30·068	+ ·043	30·031	30·145	28th	29·978	10th	·167	64·2	80·2	−1·9	60·3	−4·2	70·3	−3·1	19·9	85·7	2nd	57·2	2 days	28·5
II.—Burma, Inland		...	...	+ ·056	...	...	...	...	...	...	...	78·4	+0·2	53·7	−4·8	66·0	−2·3	24·7	...	...	...	...	39·2
Central Burma	Thayetmyo	134	29·959	+ ·056	30·040	30·042	31st	29·860	6th	·182	65·2	84·7	+0·2	54·7	−4·8	69·7	−2·3	30·0	90·3	4th	47·8	26th & 29th.	42·5
Upper Burma	Mandalay	?	29·840	?	?	29·929	28th	29·715	6th	·214	65·0	81·7	?	54·2	?	68·0	?	27·5	92·5	2nd	45·1	30th	47·4
	Kendat	?	29·738	?	?	29·828	28th	29·609	6th	·219	58·6	71·2	?	54·1	?	62·7	?	17·1	79·8	1st	48·9	22nd	30·9
	Bhamo	?	29·708	?	?	29·806	28th	29·594	10th	·212	57·0	75·8	?	51·6	?	63·7	?	24·2	81·0	3rd	44·9	2 days	36·1
III.—Assam		...	...	+ ·030	...	...	...	...	...	...	...	74·7	−0·6	53·6	−0·3	64·2	−0·5	21·1	.	...	...	...	30·0
Assam (Surma)	Silchar	104	30·007	+ ·045	30·068	30·086	21st	29·928	10th	·158	59·7	78·6	−0·8	54·4	−0·8	66·5	−0·8	24·2	83·6	2nd	50·9	25th	32·7
Brahmaputra	Sibsagar	333	29·806	+ ·030	30·118	29·879	21st	29·688	6th	·191	53·8	70·9	−0·9	51·4	+0·8	61·2	−0·1	19·5	75·8	2nd	45·4	28th	30·4
	Dhubri	115	30·000	+ ·017	30·077	30·073	21st	29·886	6th	·187	57·5	74·7	0	55·0	−1·0	64·9	−0·5	19·7	77·3	1st	50·5	27th	26·8
IV.—Bengal and Orissa		...	...	+ ·043	...	...	...	...	...	...	...	76·7	−0·8	53·4	−2·3	65·2	−1·6	23·0	...	...	...	...	30·9
East Bengal	Chittagong	87	30·014	+ ·045	30·053	30·087	2 days	29·925	10th	·162	61·4	77·0	−0·8	55·5	−2·7	66·3	−1·8	21·5	81·7	2nd	53·1	7 days	28·6
	Lungleh	?	?	?	?	?	?	?	?	?	53·4	56·0	?	48·7	?	52·3	?	7·3	61·8	1st	38·4	8th	23·4
	Noakhali	43	30·057	?	30·048	30·114	16th	29·959	10th	·155	61·5	76·8	?	52·7	?	64·8	?	24·1	81·3	1st	50·0	21st & 22nd.	31·3
	Comilla	35	30·070	?	30·054	30·132	21st	29·981	10th	·151	60·9	77·7	?	52·9	?	65·3	?	24·8	81·9	1st	50·1	21st	31·8
	Sirajganj	46	30·054	?	30·052	30·121	21st	29·951	6th	·170	58·2	76·2	?	51·5	?	63·9	?	24·7	79·9	1st	46·8	26th	33·1
	Dacca	22	30·080	+ ·039	30·051	30·149	21st	29·989	6th	·160	60·1	77·4	−0·9	55·6	−1·7	66·6	−1·3	21·8	82·1	1st	51·8	27th	30·3
	Barisal	13	30·091	+ ·053	30·050	30·162	28th	30·009	10th	·153	60·2	76·4	?	53·1	?	64·8	?	23·3	80·3	1st	50·1	3 days	30·2
	Mymensingh	63	30·038	+ ·035	30·056	30·108	21st	29·935	6th	·173	58·1	75·5	?	52·8	?	64·2	?	22·7	80·2	2nd	49·4	31st	30·8
Deltaic Bengal	Faridpur	46	30·075	?	30·071	30·149	28th	29·989	6th	·160	59·4	73·7	?	53·0	?	63·4	?	20·7	78·5	1st	49·0	9th & 27th.	29·5
	Jessore	33	30·081	+ ·040	30·062	30·143	21st	29·988	6th	·155	58·6	75·7	−2·2	52·5	−2·6	64·1	−2·4	23·2	79·2	1st	48·4	2 days	30·8
	Calcutta	21	30·103	+ ·039	30·071	30·164	28th	30·015	6th	·149	58·4	75·8	−0·2	52·4	−3·8	64·1	−2·0	23·4	78·7	31st	49·2	4 days	29·5
	Saugor Island	25	30·097	+ ·042	30·068	30·165	28th	30·015	6th	·150	61·2	74·1	−1·6	56·6	−2·3	65·4	−2·0	17·5	77·7	1st	51·7	3 days	26·0
	Krishnagar	47	30·072	?	30·071	30·141	28th	29·973	6th	·168	58·1	76·7	?	49·8	?	63·3	?	26·9	80·2	31st	45·3	27th	34·9
	Midnapore	149	29·983	?	30·087	30·046	28th	29·900	6th	·146	60·5	79·1	?	52·5	?	65·8	?	26·6	83·3	31st	48·2	11th & 13th.	35·1
Central Bengal	Bankura*	298	29·791	?	30·062	29·848	28th	29·699	6th	·149	56·5	77·4	?	51·8	?	64·6	?	25·6	81·1	30th	47·8	10th	33·3
	Raniganj	345	29·787	?	30·105	29·862	28th	29·699	6th	·163	56·5	?	?	51·4	?	?	?	?	?	...	47·2	11th & 12th.	?
	Burdwan	99	30·032	+ ·040	30·083	30·098	21st	29·934	6th	·164	57·7	77·3	−0·3	?	?	?	?	?	80·5	1st	?	?	?

* Mean of 30 days.
" " 28 "

I.

Stations in India, Burma, etc., in December 1892.

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 October to 31st December 1892.	Normal rainfall for period 1st October to 31st December 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·18	1·12	—0·95	...	...	...	**I.—Burma Coast and Bay Islands.**	
2	6	8	6	5	2	...	...	2	8	7	+ 14	74	·746	5·1	5	?	?	1·26	5·94	— 4·68	27·21	27·08	+ 0·13	Port Blair .	Bay Islands.
				Imperfect.											14	?	?	4·87	?	?	28·00	?	?	Camorta.	
...	19	8	3	...	...	...	...	1	2	2	0	72	·572	3·6	0	?	?	0	0·57	— 0·57	10·48	17·74	— 7·26	Mergui .	Tenasserim.
27	...	2	1	...	...	...	...	1	2	?	?	79	·576	0·5	0	?	?	0	0·14	— 0·14	4·61	12·98	— 8·37	Tavoy.	
...	5	14	3	8	...	...	...	1	3	3	0	79	·575	0	0	0·18	—0·18	0	0·02	— 0·02	7·03	10·86	— 3·83	Moulmein.	
5	18	1	...	...	1	...	...	6	2	2	0	87	·551	1·4	0	0·36	—0·36	0	0·25	— 0·25	8·69	8·51	+ 0·18	Tounghoo.	
...	6	13	9	3	...	...	...	...	4	5	— 20	81	·586	1·2	0	0·45	—0·45	0	0·08	— 0·08	8·71	10·26	— 1·55	Rangoon .	Lower Burma.
4	1	15	6	1	...	...	...	4	3	3	0	86	·588	2·7	0	0·55	—0·55	0	0·18	— 0·18	7·32	13·27	— 5·95	Bassein.	
...	5	20	5	...	...	...	...	1	10	7	+ 43	72	·623	2·9	1	0·90	+0·10	0·16	1·17	— 1·01	8·44	23·87	—15·43	Diamond Island.	
...	27	4	...	...	...	...	...	...	3	2	— 50	89	·550	0·7	0	1·27	—1·27	0	1·20	—1·20	25·80	14·16	+11·64	Akyab .	Arrakan.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·22	—0·22	...	...	...	**II.—Burma, Inland.**	
...	19	2	4	4	1	1	...	...	4	3	+ 33	75	·470	1·2	0	0·36	— 0·36	0	0·11	— 0·11	2·39	6·98	— 4·59	Thayetmyo .	Central Burma.
...	13	9	2	1	...	1	...	5	3	?	?	81	·499	3·3	0	?	?	0	0·29	— 0·29	12·92	4·30	+ 8·62	Mandalay .	Upper Burma.
10	4	...	...	...	1	...	7	9	?	?	?	95	·474	7·6	0	?	?	0	0·15	— 0·15	6·37	9·05	— 2·68	Kendat.	
...	...	6	...	2	...	1	1	21	?	?	?	91	·424	5·9	0	?	?	0	0·33	— 0·33	12·56	5·52	+ 7·04	Bhamo.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·36	0·55	—0·19	...	...	...	**III.—Assam.**	
31	...	...	...	...	...	...	...	...	1	2	— 50	90	·466	4·5	0	1·09	—1·09	0	1·01	— 1·01	20·37	7·13	+13·24	Silchar .	Assam (Surma).
9	1	11	5	2	2	1	...	...	2	2	0	100	·423	4·3	4	2·18	+1·82	1·07	0·56	+ 0·51	6·45	6·39	+ 0·06	Sibsagar .	Brahmaputra.
1	1	16	9	1	...	2	1	...	3	5	— 40	93	·443	1·4	0	0·13	—0·13	0	0·07	— 0·07	0·35	3·77	— 3·42	Dhubri.	
...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	0·01	0·33	— 0·32	...	...	...	**IV.—Bengal and Orissa.**	
11	7	9	3	...	...	...	...	1	2	3	— 33	92	·505	2·0	0	0·91	—0·91	0	0·88	— 0·88	17·15	7·61	+ 9·54	Chittagong .	East Bengal.
?	?	?	?	?	?	?	?	?	?	?	?	92	·378	?	0	?	?	0	?	?	14·75	?	?	Lungleh.	
2	22	...	...	...	2	1	1	3	3	?	?	88	?	0	0	0·65	—0·65	0	0·59	— 0·59	17·73	9·27	+ 8·46	Noakhali.	
13	14	...	4	...	...	...	...	...	1	?	?	88	?	0·4	0	0·61	—0·61	0	0·44	— 0·44	11·41	5·61	+ 5·80	Comilla.	
...	13	1	2	2	4	1	3	5	1	?	?	89	?	0·5	0	0·50	—0·50	0	0·14	— 0·14	0·87	4·90	— 4·03	Sirajganj.	
10	8	4	...	...	...	...	1	8	2	2	0	83	·430	1·2	0	0·73	—0·73	0	0·24	— 0·24	13·39	5·27	+ 8·12	Dacca.	
30	...	...	...	...	...	...	...	1	2	?	?	85	·448	0	0	0·50	—0·50	0	0·36	— 0·36	9·35	6·75	+ 2·60	Barisal.	
7	10	9	3	...	...	...	1	1	1	?	?	93	·453	1·3	0	0·40	—0·40	0	0·20	— 0·20	2·24	6·38	— 4·14	Mymensingh.	
23	8	...	...	...	...	...	...	...	1	?	?	87	?	0·3	0	0·40	—0·40	0	0·15	— 0·15	11·47	4·84	+ 6·63	Faridpur .	Deltaic Bengal.
19	5	...	...	...	...	...	...	7	2	2	0	86	·427	0·7	0	0·64	—0·64	0	0·31	— 0·31	14·34	4·59	+ 9·75	Jessore.	
13	11	...	...	...	...	...	1	6	2	3	— 33	82	·400	0·3	0	0·73	—0·73	0	0·39	— 0·39	5·09	4·69	+ 0·40	Calcutta.	
...	20	7	...	...	...	...	...	4	8	6	+ 33	90	·488	1·1	0	1·27	—1·27	0	0·55	— 0·55	14·70	9·48	+ 5·22	Saugor Island.	
1	3	...	2	...	...	...	11	14	2	?	?	80	?	0·9	0	0·25	—0·25	0	0·11	— 0·11	6·14	4·64	+ 1·50	Krishnagar.	
5	20	...	...	...	...	...	...	6	7	?	?	64	?	0·7	0	0·40	—0·40	0	0·37	— 0·37	7·42	5·38	+ 2·04	Midnapore.	
11	2	...	...	...	...	1	5	11	2	?	?	71	?	0·9	0	0·50	—0·50	0	0·22	— 0·22	6·19	4·62	+ 1·57	Bankura* .	Central Bengal.
5	2	...	...	...	...	...	6	18	1	?	?	72	?	0·2	0	0·35	—0·35	0	0·12	— 0·12	3·47	3·73	— 0·26	Raniganj.	
18	5	...	...	...	...	...	3	5	2	2	0	67	·319	0·8	0	0·27	—0·27	0	0·16	— 0·16	5·85	4·15	+ 1·70	Burdwan.	

Table

Abstract of Observations taken at 8 A.M. at 180 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.
Central Bengal —*contd.*	Naya Dumka	489	29·611	?	30·092	29·668	28th	29·511	6th	·157	57·0	75·6	?	49·1	?	62·3	?	26·5	78·6	30th	44·0	11th	34·6
	Berhampore	67	30·054	+·033	30·073	30·131	28th	29·960	6th	·171	56·7	76·1	−0·3	53·7	−1·4	64·9	−0·9	22·4	78·6	2 days	48·1	19th	30·5
	Rampur Boalia.	70	30·037	?	30·060	30·102	28th	29·942	6th	·160	59·6	?	?	51·1	?	?	?	?	?	?	46·5	19th	?
	Malda	80	30·047*	?	30·084*	30·116	21st	29·941	5th	·175	57·1	76·3†	?	?	?	?	?	?	78·9	1st & 2nd	?	?	?
	Bogra	61	30·031	+·056	30·048	30·090	21st	29·944	6th	·146	56·9	?	?	51·3	?	?	?	?	?	?	46·2	26th	?
North Bengal	Dinajpur	118	25·988	+·054	30·067	30·054	21st	29·883	6th	·171	57·6	76·2	?	50·0	?	63·1	?	26·2	80·1	1st	45·0	26th	35·1
	Rangpur	123	29·992	?	30·076	30·064	21st	29·883	6th	·181	56·6	75·6	?	50·4	?	63·1	?	25·2	79·6	1st	45·6	26th	34·0
	Jalpaiguri	284	29·814*	+·023	30·068*	29·882	21st	29·697	6th	·185	58·9	75·0	?	52·7	?	63·8	?	22·3	79·4	2 days	49·1	26th	30·3
Orissa	Balasore	56	30·074	+·043	30·078	30·166	20th	29·984	6th	·182	58·4	78·7	?	52·1	?	65·4	?	26·6	82·4	2 days	47·7	2 days	35·0
	False Point	21	30·108	+·045	30·072	30·188	28th	30·028	6th	·160	61·7	77·3	+0·2	54·7	−2·4	66·0	−1·1	22·6	80·4	3 days	49·5	11th	30·9
	Cuttack	80	30·051	+·052	30·078	30·125	28th	29·973	6th	·152	61·5	80·6	−1·4	56·3	−1·7	68·5	−1·6	24·3	83·3	2 days	51·9	11th	31·4
	Shortt's Island	?	30·108	?	?	30·170	28th	30·028	6th	·142	69·6	75·3	?	65·8	?	70·6	?	9·5	79·8	6th	62·7	14th	17·1
	Puri	9	30·104*	?	30·053	30·175	28th	30·029	6th	·146	64·4	79·6	?	60·2	?	69·9	?	19·4	83·7	9th	56·6	11th & 14th	27·1
V.—Gangetic Plain and Chota Nagpur.		...	...	+·023	...	...	...	...	...	...	...	74·6	−0·3	48·0	−1·4	61·3	−0·9	26·6	...	...	...	...	35·9
Chota Nagpur	Hazaribagh	2,007	28·048	+·024	30·092	28·093	16th	27·958	6th	·135	57·5	72·5	+1·1	48·8	−1·3	60·6	−0·1	23·7	76·2	16th	44·7	10th	31·5
	Ranchi	2,128	27·919	?	30·083	27·974	28th	27·837	6th	·137	57·3	72·5	?	48·9	?	60·7	?	23·6	76·5	17th	44·2	13th	32·3
	Chaibassa	760	29·320	+·035	30·077	29·376	28th	29·242	6th	·134	54·3	77·8	?	49·7	?	63·8	?	28·1	80·8	18th	45·3	14th	35·5
Bihar (South)	Gaya	375	29·726	+·011	30·069	29·805	21st	29·644	6th	·161	56·1	75·7	0	50·1	−0·8	63·0	−0·4	25·6	79·9	30th	45·5	2 days	34·4
	Dehri	351	29·767	?	30·097	29·832	21st	29·656	6th	·176	56·4	75·9	?	50·7	?	63·3	?	25·2	80·9	31st	45·6	12th	35·3
	Patna	183	29·946	+·017	30·092	30·013	28th	29·833	6th	·180	58·2	73·8	−0·2	49·9	−1·0	61·8	−0·6	23·9	77·8	2 days	45·4	26th	32·4
	Arrah	190	29·931	?	30·087	29·990	21st	29·819	6th	·171	54·3	75·4	?	48·0	?	61·7	?	27·4	80·3	5th	42·4	12th	37·9
	Buxar	239	29·889	?	30·099	29·959	16th & 21st	29·756	6th	·203	58·1	75·0	?	49·4	?	62·2	?	25·6	[illegible]	3 days	44·4	26th	35·0
Bihar (North)	Purnea	125	29·999	+·042	30·089	30·076	21st	29·905	10th	·171	50·2	74·5	−1·6	46·8	−3·1	60·7	−2·4	27·7	75·2	1st	43·3	2 days	35·9
	Bhagalpur	160	29·955	?	30·078	39·031	21st	29·832	6th	·199	56·9	76·5	?	48·9*	?	62·7*	?	27·6	80·3	1st	44·5	27th	35·8
	Darbhanga	166	29·956	+·025	30·087	30·025	21st	29·828	6th	·197	55·8	74·8	+0·9	51·0	−3·2	62·9	−1·2	23·8	79·3	1st	47·1	11th	32·2
	Muzaffarpur	178	29·949	?	30·094	30·017	21st	29·828	6th	·189	52·9	72·4	?	48·1	?	60·2	?	24·3	76·7	1st	44·3	4 days	32·4
	Motihari	224	29·878	?	30·076	29·962	1s	29·750	6th	·212	52·9	75·0	?	44·9	?	58·9	?	30·1	79·2	1st	41·0	27th	38·2
	Chupra	181	29·934	?	30·081	30·004	16th	29·818	6th	·186	54·4	74·7	?	49·1	?	61·9	?	25·6	78·8	30th	44·7	27th	34·1
N.-W. P. (Eastern Districts).	Benares	267	29·854	+·021	30·098	29·920	21st	29·748	6th	·172	52·4	74·1	−1·1	45·9	−1·7	60·0	−1·4	28·2	79·6	5th	39·9	11th	39·7
	Allahabad	309	29·811	+·018	30·099	29·866	28th	29·704	6th	·162	53·3	76·5	+1·7	46·7	−0·5	61·6	+0·6	29·8	80·5	3 days	40·9	3 days	39·6
N.-W. P. (East Submontane).	Gorakhpur	256	29·851	+·020	30·084	29·932	28th	29·729	6th	·203	56·1	72·4	−2·3	49·0	−0·9	60·7	−1·6	23·4	75·5	1st	44·6	26th	30·7
Oudh (South)	Lucknow	375	29·730	+·011	30·098	29·808	28th	29·612	6th	·196	50·9	74·1	−1·4	45·0	−0·3	59·6	−0·9	29·1	78·9	4th	38·0	11th & 12th	40·9
Oudh (North)	Bahraich	403	29·686	?	30·081	29·774	16th	29·555	18th	·219	52·0	74·0	?	46·6	?	60·3	?	27·4	78·4	4th	41·1	11th & 12th	37·3
N.-W. Provinces (Central).	Cawnpore	416	29·704	?	30·111	29·760	21st	29·604	6th.	·156	53·4	74·7	?	45·2	?	60·0	?	29·5	79·1	4th & 7th	37·0	12th	42·1
	Mainpuri	516	29·578	?	30·094	29·644	17th	29·476	6th	·168	50·4	74·6	?	45·5	?	60·1	?	29·1	79·3	4th	38·0	11th & 12th	41·3
VI.—Upper Sub-Himalayas		...	...	+·022	...	...	...	...	...	...	...	70·0	−2·0	42·8	−0·1	56·4	−1·1	27·0	..	...	...	...	40·1
N.-W. Provinces (Submontane).	Bareilly	568	29·511	+·013	30·089	29·582	28th	29·388	6th	·194	49·2	71·9	−0·9	44·2	−1·1	58·1	−1·0	27·7	76·2	3rd & 4th	36·7	11th	39·5
	Dehra Dun	2,233	27·801	?	30·111	27·903	28th	27·696	6th	·207	49·5	69·1	?	45·4	?	57·3	?	23·7	75·5	4th	41·0	11th	34·5
	Roorkee	887	29·175	+·008	30·103	29·267	28th	29·061	6th	·206	45·9	72·0	−0·6	42·9	−0·3	57·5	−0·5	29·1	78·8	3rd	34·8	11th	44·0
	Meerut	737	29·351	+·027	30·112	29·437	28th	29·242	6th	·195	48·0	71·4	−1·9	43·8	+0·1	57·6	−0·9	27·6	77·2	4th	37·5	11th	39·7
Punjab (Central)	Delhi	718	29·378	+·022	30·112	29·456	17th	29·274	6th	·182	52·7	70·9	−3·9	48·9	+0·5	59·9	−1·7	22·0	75·1	3rd & 7th	44·1	19th	31·0
	Lahore	702	29·394	+·025	30·132	29·512	28th	29·279	6th	·233	43·8	70·8	−0·9	39·6	−0·6	55·2	−0·8	31·2	77·3	6th	31·2	11th	46·1

* Mean of 30 days.
† „ „ 25 „

I—continued.

in India, Burma, etc., in December 1892—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 1892.	Normal rainfall for period 1st October to 31st December 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
5	3	...	1	...	...	1	7	14	2	?	?	69	?	0	0	0·42	−0·42	0	0·22	− 0·22	3·23	4·48	− 1·25	Naya Dumka.	Central Bengal—*contd.*
3	6	1	...	...	...	3	12	6	1	2	− 50	87	·403	1·1	0	0·45	−0·45	0	0·21	− 0·21	1·63	5·29	− 3·66	Berhampore.	
9	13	...	...	...	...	1	4	4	3	?	?	77	?	0·5	0	0·30	−0·30	0	0·11	− 0·11	1·50	4·69	− 3·19	Rampur Boalia.	
...	...	...	...	...	...	...	...	31	3	?	?	81	?	0	0	0·30	−0·30	0	0·18	− 0·18	2·65	4·72	− 2·07	Malda.	
16	4	1	...	...	...	...	5	5	1	?	?	84	·391	0	0	0·25	−0·25	0	0·10	− 0·10	1·01	4·38	− 3·37	Bogra.	
...	2	9	1	...	1	3	12	3	1	?	?	84	·400	0·1	0	0·30	−0·30	0	0·06	− 0·06	0·35	5·20	− 4·85	Dinajpur	North Bengal.
7	10	4	10	...	...	...	...	...	2*	?	?	91	?	0·2	0	0·25	−0·25	0	0·10	− 0·10	3·54	5·52	− 1·98	Rangpur.	
10	11	5	2	1	1	...	1	...	1	?	?	89	·445	3·4	2	0·20	+1·80	0·32	0·13	+ 0·19	1·58	5·69	− 4·11	Jalpaiguri.	
2	20	1	1	...	...	1	2	4	2	?	?	81	·401	0	0	0·70	−0·70	0	0·44	− 0·44	9·00	7·52	+ 1·48	Balasore	Orissa.
...	16	...	...	...	...	...	2	13	6	6	0	84	·463	1·9	0	1·18	−1·18	0	1·20	− 1·20	8·47	12·11	− 3·64	False Point.	
22	...	...	...	...	...	1	6	2	1	1	0	71	·390	1·0	0	1·18	−1·18	0	0·49	− 0·49	12·86	5·89	+ 6·97	Cuttack.	
...	10	7	1	...	...	...	5	8	9	?	?	70	·508	0·5	0	?	?	0	?	?	0	?	?	Shortt's Island	
...	30	1	...	...	...	...	...	...	7	?	?	75	?	0·3	0	0·90	−0·90	0	0·68	− 0·68	10·33	11·79	− 1·46	Puri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·03	0·29	−0·25	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**	
9	...	...	...	...	2	8	10	2	5	5	0	56	·272	1·3	0	0·45	−0·45	0	0·31	− 0·31	2·68	3·74	− 1·06	Hazaribagh.	Chota Nagpur.
22	...	...	...	...	...	3	3	3	5	?	?	66	?	0·7	0	0·55	−0·55	0	0·29	− 0·29	6·34	3·67	+ 2·67	Ranchi.	
6	...	...	...	...	2	13	10	...	1	?	?	81	·343	0·4	0	0·70	−0·70	0	0·37	− 0·37	6·00	3·56	+ 2·44	Chaibassa.	
...	...	...	...	2	24	...	4	1	5	1	+400	66	·299	1·5	0	0·27	−0·27	0	0·31	− 0·31	0·41	3·17	− 2·76	Gaya	Bihar (South).
...	...	...	...	...	...	30	1	...	?	?	?	74	?	0·2	0	0·71	−0·71	0	0·57	− 0·57	0·36	3·71	− 3·35	Dehri.	
2	1	...	...	...	2	3	23	...	3	2	+ 50	70	·339	1·0	0	0·36	−0·36	0	0·21	− 0·21	0·14	3·54	− 3·40*	Patna.	
...	4	1	...	...	...	4	11	11	2	?	?	76	?	0·4	0	0·35	−0·35	0	0·21	− 0·21	0·37	3·64	− 3·27*	Arrah.	
...	1	...	...	1	1	5	18	5	2	?	?	63	?	1·6	0	0·45	−0·45	0	0·23	− 0·23	0·68	3·75	− 3·07*	Buxar.	
21	...	...	...	...	4	4	1	1	1	1	0	91	·330	0·5	0	0·36	−0·36	0	0·16	− 0·16	0·03	3·99	− 3·96*	Purnea	Bihar (North).
30	...	...	...	...	...	...	1	...	0	?	?	70	?	0·6	0	0·35	−0·35	0	0·10	− 0·10	0·49	3·57	− 3·08*	Bhagalpur.	
7	1	...	...	...	1	8	10	4	2	2	0	83	·372	0·5	0	0·36	−0·36	0	0·15	− 0·15	0·02	3·81	− 3·79*	Darbhanga.	
13	1	...	1	...	...	8	7	1	2	?	?	90	?	0·7	0	0·20	−0·20	0	0·13	− 0·13	0	3·69	− 3·69*	Muzaffarpur	
9	...	...	...	...	...	6	14	2	3	?	?	88	?	1·1	0	0·56	−0·56	0	0·18	− 0·18	0	3·69	− 3·69*	Motihari.	
12	...	...	...	...	2	9	7	1	3	?	?	77	?	0·9	0	0·35	−0·35	0	0·18	− 0·18	0·09	4·07	− 3·98*	Chupra.	
18	...	...	...	1	1	7	3	1	3	2	+ 50	85	·338	1·3	0	0·45	−0·45	0	0·33	− 0·33	0·05	3·17	− 3·12*	Benares	N.-W. P. (Eastern Districts).
15	2	1	2	...	...	3	5	3	3	2	+ 50	76	·383	2·5	0	0·64	−0·64	0·02	0·43	− 0·41	0·32	2·22	− 1·90	Allahabad.	
...	2	...	...	2	3	1	20	3	1	1	0	72	·328	1·5	0	0·45	−0·45	0·02	0·21	− 0·19	0·02	4·07	− 4·05	Gorakhpur	N.-W. P. (East Submontane).
24	...	...	...	...	...	...	7	...	1†	2	− 50	83	·307	3·4	1	0·82	+0·18	0·24	0·40	− 0·16	0·78	1·13	− 0·35	Lucknow.	Oudh (South).
6	...	...	...	...	...	6	4	15	2	?	?	85	·331	2·1	0	?	?	0·05	0·45	− 0·40	0·11	2·14	− 2·03	Bahraich	Oudh (North).
16	...	2	1	...	...	2	8	2	3	?	?	90	·333	3·3	0	0·5	−0·5	0·04	0·30	− 0·26	0·13	1·40	− 1·27	Cawnpore	N.-W. Provinces (Central).
10	1	2	...	...	...	1	4	13	2	?	?	79	·293	3·3	1	?	?	0·33	0·48	− 0·15	0·34	1·30	− 0·96*	Mainpuri.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·98	0·43	+0·55	...	...	...	**VI.—Upper Sub-Himalayas.**	
24	...	1	...	...	...	...	...	6	1	2	− 50	77	·273	1·5	1	0·64	+0·36	0·11	0·38	− 0·27	0·11	1·55	− 1·44	Bareilly	N.-W. Provinces (Submontane).
30	1	...	...	...	...	...	...	...	1*	2	− 50	72	·258	4·3	1	1·10	−0·10	0·75	0·73	+ 0·02	0·75	1·81	− 1·06	Dehra Dun.	
27	...	1	...	...	...	...	1	2	1	1	0	86	·272	3·3	1	0·91	+0·09	1·04	0·29	+ 0·75	1·19	0·93	+ 0·26	Roorkee.	
18	1	...	...	...	...	...	11	1	2	2	0	71	·237	2·0	1	1·00	0	0·81	0·34	+ 0·47	0·81	1·02	− 0·21	Meerut.	
13	...	...	...	...	1	4	13	...	2	3	−33	59	·237	2·4	1	0·55	+0·45	0·13	0·38	− 0·25	0·13	0·62	− 0·49	Delhi	Punjab (Central).
25	...	...	1	...	1	...	2	2	1	1	0	82	·238	3·2	2	0·55	+1·45	0·80	0·19	+ 0·61	0·80	0·48	+ 0·32	Lahore.	

* Mean of 30 days. † Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 180 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.
Punjab (Submontane).	Umballa	P	29·157	P	30·093	29·265	17th	29·065	6th	·200	49·6	71·3	P	P	P	P	P	P	77·0	4th	P	P	P
	Ludhiana	812	29·279	+·033	30·125	29·379	28th	29·167	6th	·212	47·8	68·5	−3·1	43·1	0	55·8	−1·6	25·4	72·6	7th	34·3	11th	38·3
Punjab (North)	Sialkot	829	29·252	+·036	30·125	29·370	28th	29·124	6th	·246	46·1	68·2	−2·4	41·5	+0·3	54·9	−1·1	26·7	73·5	2nd & 8th.	29·3	11th	44·2
	Rawalpindi	1,649	28·414	+·009	30·142	28·532	28th	28·312	6th	·220	40·6	65·8	−2·1	35·9	0	50·9	−1·1	29·9	70·1	20th	26·9	11th	43·2
VII.—Indus Valley and N.-W. Rajputana.		...	...	+·023	...	...	...	...	...	...	...	74·7	−1·5	45·6	+0·5	60·0	−0·5	29·1	...	...	...	...	42·0
Punjab (West)	Peshawar	1,110	29·012	+·020	30·149	29·140	17th	28·894	30th	·246	44·0	68·2	+0·2	40·3	+2·6	54·3	+1·4	27·9	74·1	20th	30·9	14th	43·2
	Khushab	612	29·499	P	30·139	29·616	17th	29·399	30th	·217	44·7	70·8	P	40·4	P	55·6	P	30·4	76·9	20th	33·1	11th & 14th.	43·8
	Montgomery	558	29·560	P	30·135	29·685	17th	29·436	30th	·249	47·5	72·3	P	40·4	P	56·4	P	31·9	77·8	22nd	33·3	17th	44·5
	D. I. Khan	573	29·537	+·014	30·138	29·658	17th	29·414	30th	·244	43·2	69·8	−3·3	38·9	−0·7	54·4	−2·0	30·9	75·7	1st	32·0	13th	43·7
	Mooltan	420	29·709	+·026	30·135	29·821	28th	29·577	30th	·244	50·4	73·1	−0·9	45·3	+2·5	59·2	+0·8	27·8	81·3	6th	39·1	17th	42·2
	Sirsa	662	29·442	+·030	30·127	29·562	17th	29·320	30th	·242	46·1	74·1	−0·9	42·1	+0·2	58·1	−0·4	32·0	78·5	2nd	36·2	9th	42·3
Sind and Cutch	Jacobabad	186	29·962	+·033	30·126	30·093	17th	29·868	30th	·225	49·3	75·3	−1·5	42·5	−0·7	58·9	−1·1	32·8	81·4	6th	34·0	18th	47·4
	Hyderabad	117	30·018	+·017	30·097	30·150	17th	29·923	9th	·227	55·6	76·3	−2·6	52·4	0	64·4	−1·3	23·9	86·2	6th	46·3	9th & 18th.	39·9
	Kurrachee	49	30·087	+·019	30·090	30·200	17th	29·969	29th	·231	60·6	78·8	−1·3	55·3	−0·5	67·1	−0·9	23·5	84·0	7th	48·1	18th & 19th.	35·9
	Bhuj	395	†29·697	P	†30·064	29·795	17th	29·616	14th	·179	63·4†	85·0†	P	54·4‡	P	67·4‡	P	30·6	86·9	7th	50·0	15th	36·9
Rajputana (West)	Bickaneer	753	29·350	P	30·116	29·472	17th	29·207	30th	·265	53·4	72·6	P	48·3‡	P	60·6*	P	24·3	79·1	6th	43·1	11th	36·0
	Pachpadra	380	29·739	P	30·103	29·873	17th	29·613	1st	·260	55·3	80·4	P	47·1	P	63·8	P	33·3	86·6	6th	38·0	9th	48·6
VIII.—East Rajputana, Central India and Guzerat.		...	...	+·027	...	...	...	...	...	...	...	79·3	−0·5	51·2	+0·6	65·3	+0·1	28·1	...	...	..	...	39·7
Rajputana (East)	Jeypore	1,431	28·661	+·016	30·135	28·758	17th	28·585	6th	·173	55·0	75·7	−2·0	48·9	+0·8	62·3	−0·6	26·8	1·0	4th	39·2	9th	41·8
	Sambhar	1,254	28·822	+·009	30·128	28·925	17th	28·737	6th	·188	49·4	73·7	−1·6	44·2	−1·6	59·0	−1·6	29·5	77	7th	36·5	8th	41·3
	Ajmere	1,611	28·485	+·027	30·166	28·594	17th	28·402	30th	·192	50·1	76·1	−0·1	45·7	+1·8	60·9	+0·9	30·4	79·9	4th	35·0	9th	44·9
	Deesa	466	29·630	+·023	30·080	29·728	17th	29·553	29th	·175	60·0	84·3	−0·5	52·0	+0·2	68·2	−0·2	32·3	90·7	6th	44·1	10th	46·6
Kathiawar	Rajkot	429	29·650	+·019	30·053	29·723	17th	29·583	14th	·140	63·4	83·4	−2·1	52·2	+0·3	67·8	−0·9	31·2	88·9	7th	47·0	25th & 27th.	41·9
	Veraval	P	30·066	P	30·026	30·145	31st	29·999	14th	·146	68·4	83·4	P	60·6	P	72·0	P	22·8	91·1	7th	52·8	10th	38·3
	Bhavnagar	P	30·069	P	30·057	30·143	4th	30·000	15th	·143	§62·5	81·8	P	58·7	P	70·3	P	23·1	85·4	30th	54·0	10th & 11th.	31·4
Central India	Nowgong	757	29·355	+·028	30·120	29·396	21st	29·272	6th	·124	54·1	75·4	+0·1	46·2†	+0·7	60·7‡	+0·4	29·2	79·1	7th	40·2	9th	38·9
	Indore	1,823	28·239	+·030	30·084	28·300	3rd	28·170	14th	·130	60·5	79·6	+1·4	50·3	+1·5	65·0	+1·5	29·3	83·5	11th	45·0	1st & 2nd.	38·5
	Neemuch	1,630	28·459	+·032	30·127	28·535	17th	28·399	10th	·136	57·0	77·7	−0·1	49·4	+0·5	63·6	+0·2	28·3	82·3	7th	42·4	9th	39·9
Guzerat	Surat	36	30·044	+·025	30·024	30·107	31st	29·979	14th	·128	65·0	86·9	+0·3	57·7	+1·0	72·3	+0·7	29·2	89·1	7 days	51·1	10th	38·0
N.-W. P. (West)	Agra	555	29·586	+·042	30·144	29·660	17th	29·473	6th	·187	52·5	74·7	−1·2	47·8	−0·2	61·3	−0·7	26·9	80·6	7th	41·6	3 days	39·0
	Jhansi	840	29·267	+·050	30·131	29·349	17th	29·173	6th	·176	59·2	78·5	+0·7	52·0	+1·8	65·3	+1·3	26·5	82·9	4th & 7th.	47·9	10th & 11th.	35·0
IX.—Deccan	...	...	...	+·034	...	...	...	...	...	...	...	81·2	+1·1	54·0	+1·2	67·6	+1·1	27·2	...	...	...	...	36·7
Bombay (Deccan)	Belgaum	2,524	27·510	+·038	30·012	27·552	31st	27·460	10th	·092	65·3	80·8	−0·3	57·6	−0·4	69·2	−0·4	23·2	83·3	5th & 17th.	53·4	1st	29·9
	Sholapur	1,590	28·484	+·050	30·063	28·542	31st	28·430	14th	·112	66·1	85·3	+0·7	56·6	−0·3	71·0	+0·2	28·7	88·2	3 days	49·1	22nd	39·1
	Poona	1,840	28·222	+·041	30·076	28·280	21st	28·177	14th	·103	62·1	84·6	+1·7	53·4	−0·5	69·0	+0·6	31·2	87·5	3 days	48·0	1st & 2nd	39·5
	Bijapur	P	28·115	P	P	28·160	31st	28·060	10th	·100	65·9	82·4	P	54·4	P	68·4	P	28·0	84·3	7 days	47·1	1st & 22nd.	37·2
Khandesh	Malegaon	1,430	28·645	+·030	30·089	28·722	18th	28·585	10th	·137	60·4	84·6	+1·8	54·1	+4·1	69·4	+3·0	30·5	87·4	10th & 11th.	46·0	2nd	41·4
	Ahmednagar	2,152	27·919	P	30·089	27·967	31st	27·862	27th	·105	60·7	81·5	P	48·1	P	64·8		33·4	83·8	9th	39·9	22nd	43·4
Berar	Akola	...	...								Obse	rvatio	ns not	record	ed.								
	Amraoti	1,215	28·874	+·042	30·084	28·940	21st	28·801	10th	·139	65·5	81·7	+0·3	57·9	+3·1	69·3	+1·7	23·8	84·4	11th & 12th.	51·9	1st	32·5

* Mean of 29 days. † Mean of 28 days. ‡ Mean of 27 days. § Instrumental correction not applied.

I—*continued.*

in India, Burma, etc., in December 1892—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 1892.	Normal rainfall for period 1st October to 31st December 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
14	...	...	...	2	...	...	...	15	2	?	?	79	·284	3·3	1	?	?	1·17	0·44	+ 0·73	1·17	0·93	+ 0·84	Umballa	Punjab (Submontane).
23	1	...	...	...	...	...	5	2	1	1	0	73	·245	4·8	1	1·27	−0·27	0·81	0·52	+ 0·29	0·81	1·10	− 0·29	Ludhiana	
28	...	...	2	1	...	...	...	...	1	1	0	76	·239	2·4	1	0·82	+0·18	1·51	0·41	+ 1·10	1·51	0·72	+ 0·79	Sialkot	Punjab (North).
28	...	...	1	...	...	...	...	2	1	1	0	75	·196	3·5	2	1·27	+0·73	2·71	0·63	+ 2·08	3·21	1·55	+ 1·66	Rawalpindi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·47	0·09	+0·38	...	...	...	**VII.—Indus Valley and N.-W. Rajputana.**	
9	...	...	2	1	6	8	5	...	3	2	+ 50	64	·189	3·4	1	0·64	+0·36	0·37	0·15	+ 0·22	0·61	0·65	− 0·04	Peshawar	Punjab (West).
24	2	2	...	...	...	1	...	2	2	?	?	64	·198	3·0	2	0·2	+ 1·8	0·82	0·16	+ 0·66	0·93	0·56	+ 0·37	Khushab	
16	3	3	1	3	...	1	2	2	2	?	?	63	·227	3·1	2	0·4	+ 1·6	0·62	0·20	+ 0·42	0·62	0·33	+ 0·29	Montgomery.	
21	1	2	...	...	...	2	1	4	1	1	0	67	·192	3·1	2	0·27	+1·73	0·39	0·08	+ 0·31	0·39	0·26	+ 0·13	D. I. Khan.	
8	3	7	...	6	1	5	...	1	1	1	0	68	·257	2·0	3	0·18	+2·82	0·69	0·07	+ 0·62	0·69	0·14	+ 0·55	Mooltan.	
18	1	...	...	2	...	2	3	5	3	2	+ 50	70	·220	3·9	1	0·73	+0·27	0·63	0·30	+ 0·33	0·63	0·52	+ 0·11	Sirsa.	
20	...	1	...	3	...	...	1	6	2	2	0	56	·204	2·9	1	0·09	+0·91	0·21	0	+ 0·21	0·21	0	+ 0·21	Jacobabad	Sind and Cutch.
...	1	29	...	...	...	...	...	1	7	7	0	55	·243	5·8	0	0	0	0	0	0	0	0·06	− 0·06	Hyderabad.	
...	1	26	4	...	...	...	...	...	12	9	+ 33	57	·308	3·2	0	0·10	−0·10	0	0·	0	0	0	0	Kurrachee.	
7	1	4	...	1	1	8	3	3	6‖	5	+ 20	61‖	·362‖	3·1‖	0	?	?	0	0·03	− 0·03	1·88	0·85	+ 1·03	Bhuj.‡	
1	6	8	3	1	1	7	1	3	3	3	0	57	·246	3·6	2	?	?	1·50	0·02	+ 1·48	1·64	0·16	+ 1·48	Bickaneer	Rajputana (West).
26	1	1	...	1	...	1	...	1	8	2	+300	57	·252	3·6	2	?	?	0·38	0·03	+ 0·35	0·38	0·08	+ 0·30	Pachpadra.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·26	0·18	+0·10	...	...	...	**VIII.—East Rajputana, Central India and Guzerat.**	
3	2	3	9	3	1	...	3	7	4	3	+ 33	57	·249	3·1	1	0·30	+0·70	0·13	0·07	+ 0·06	0·15	0·51	− 0·36	Jeypore	Rajputana (East).
5	9	3	4	1	2	1	2	4	4	4	0	65	·236	1·7	0	0·60	−0·60	0·09	0·22	− 0·13	0·09	0·52	− 0·43	Sambhar.	
19	2	5	...	1	1	2	...	1	2	1	+100	70	·256	2·6	0	0·45	−0·45	0·07	0·12	− 0·05	0·07	0·44	− 0·37	Ajmere.	
...	3	17	6	3	1	...	1	...	8§	8	0	52	·268	3·5	0	0·09	− 0·09	0·07	0·07	0	0·44	0·55	− 0·11	Deesa.	
13	...	7	8	1	...	1	...	1	4	5	− 20	59	·346	1·4	0	0	0	0·03	0	+ 0·03	1·88	0·74	+ 1·14	Rajkot	Kathiawar.
9	8	14	...	...	...	...	...	...	5	?	?	48	·337	3·6	1	?	?	0·39	?	?	1·35	?	?	Veraval.	
...	3	2	...	1	...	15	4	6	6	?	?	74	·424	3·0	0	?	?	0	?	?	0·26	?	?	Bhavnagar.	
14	1	2	4	1	1	...	5	3	1	1	0	73	·306	2·8	0	0·64	−0·64	0·10	0·73	− 0·63	0·43	2·15	− 1·72	Nowgong.	Central India.
13	3	...	2	7	...	...	2	4	2	2	0	61	·324	1·4	2	0·55	+1·45	0·31	0·28	+ 0·03	1·06	2·46	− 1·40	Indore.	
7	1	16	5	1	...	...	...	1	5	8	− 38	51	·236	1·1	2	0·73	+1·27	1·27	0·20	+ 1·07	1·27	0·99	+ 0·28	Neemuch.	
...	8	8	2	1	1	...	2	9	?	5	?	71	·445	2·4	0	0·18	−0·18	0	0	0	0·05	0·45	− 0·40	Surat	Guzerat.
5	...	3	...	1	...	8	1	13	3	3	0	66	·262	2·5	1	0·55	+0·45	0·81	0·15	+ 0·66	0·81	0·60	+ 0·21	Agra	N.-W. P. (West).
18	3	2	...	1	...	3	...	4	1	2	− 50	55	·277	1·8	1	0·36	+0·64	0·16	0·14	+ 0·02	0·17	1·01	− 0·84	Jhansi.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·06	0·55	−0·49	...	...	...	**IX.—Deccan.**	
8	...	2	14	7	...	...	...	...	?	12	?	62	·396	2·3	0	0·18	−0·18	0	0·07	− 0·07	10·38	7·23	+ 3·15	Belgaum	Bombay (Deccan).
2	...	5	15	7	1	...	...	1	9	7	+ 29	59	·387	2·6	0	0·91	−0·91	0	0·72	− 0·72	9·84	6·16	+ 3·68	Sholapur.	
24	...	1	5	1	...	...	...	...	4	6	− 33	65	·368	2·0	0	0·82	−0·82	0	0·38	− 0·38	17·69	5·91	+11·78	Poona.	
3	...	3	7	13	5	...	...	...	3	?	?	65	·420	3·4	0	0·09	−0·09	0	0·59	− 0·59	10·06	9·00	+ 1·06	Bijapur.	
4	1	2	...	...	2	...	12	10	7	3	+133	58	·306	2·8	0	0·82	−0·82	0	0·48	− 0·48	2·72	4·75	− 2·03	Malegaon	Khandesh.
15	1	3	1	5	3	2	1	...	2	?	?	76	·411	1·4	0	?	?	0	0·16	− 0·16	6·03	3·98	+ 2·05	Ahmednagar.	
													Obse	rvatio	ns not	record	ed.							Akola	Berar.
4	3	14	9	1	...	...	...	...	4	3	+ 33	55	·350	2·1	0	1·09	−1·09	0·02	1·00	− 0·98	4·27	4·58	− 0·31	Amraoti.	

‡ Wind directions of 28 days. § Mean of 28 days. ‖ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 180 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.
Central Provinces (West).	Khandwa	1,044	29·041	+·044	30·095	29·100	18th	28·974	14th	·126	58·9	83·9	+2·5	52·3	+3·7	68·1	+3·1	31·6	87·7	5th	45·6	21st	42·1
	Hoshangabad	1,020	29·081	+·021	30·116	29·134	3rd	29·009	10th	·125	57·1	78·4	−0·3	52·2	+1·8	65·3	+0·8	26·2	82·3	8th	44·8	21st	37·5
	Nagpur	1,025	29·073	+·046	30·099	29·126	21st	29·007	10th	·119	62·1	81·1	+1·0	54·5	+1·5	67·8	+1·3	26·6	84·3	8th	50·2	20th & 21st,	34·1
Central Provinces (Central).	Seoni	2,030	28·029	+·016	30·116	28·075	18th	27·970	10th	·105	58·2	78·0	+1·0	49·6	+0·7	63·8	+0·9	28·4	83·1	7th	44·5	1st & 21st,	38·6
	Jubbulpore	1,327	28·763	+·038	30·129	28·815	18th	28·702	10th	·113	52·5	77·8	+2·0	45·9	+0·9	61·9	+1·5	31·9	81·9	31st	37·9	9th	44·0
	Saugor	1,762	28·317	+·028	30·111	28·367	17th	28·262	6th	·105	58·4	78·8	+3·3	52·1	+1·2	65·5	+2·3	26·7	82·3	4th	43·1	19th	39·2
Central Provinces (East).	Raipur								Observations not recorded.														
	Sutna	1,040	29·050	+·021	30·115	29·094	17th	28·971	6th	·123	54·4	74·6	+0·1	45·3	−0·7	60·0	−0·3	29·3	79·0	7th	38·6	9th & 10th,	40·4
	Sambalpur	463	29·656	?	30·095	29·706	28th	29·586	10th	·120	61·0	79·1	?	51·7	?	65·4	?	27·4	81·5	3 days	46·2	10th	35·3
Hyderabad (North).	Aurangabad	?	28·226	?	?	28·280	21st	28·164	10th	·116	67·3	83·7	?	54·3	?	69·0	?	29·4	87·1	8th	47·6	1st	39·5
	Indur	?	...	Not recorded.			...	...	...	...	63·2	81·1	?	53·5	?	67·3	?	27·6	83·7	19th	44·6	1st	39·1
	Bidar	?	27·898	?	?	27·945	3rd	27·824	10th	·121	66·1	78·7	?	59·8	?	69·3	?	18·9	81·4	8th & 10th.	55·2	1st & 2nd,	26·2
Hyderabad (South).	Gulburga	?	28·566	?	?	28·608	31st	28·506	10th	·102	65·6	82·8	?	56·9	?	69·9	?	25·9	86·1	8th	51·1	1st	35·0
	Raichur	?	28·679	?	?	28·736	31st	28·594	18th	·142	67·7	83·3	?	62·3	?	72·9	?	21·0	85·0	4th	57·7	1st	27·9
	Hyderabad (Deccan).	1,690	28·387	+·032	30·082	28·444	31st	28·325	10th	·119	62·9	81·0	+0·2	56·3	0	68·7	+0·1	24·7	84·4	8th & 19th,	51·3	3 days	33·1
	Kamamet	?	29·734	?	?	29·808	31st,	29·666	10th	·142	65·6	82·7	?	58·5	?	70·6	?	24·2	86·0	8th & 19th.	53·2	22nd	32·8
X.—West Coast		...	...	+·043	...	...	...	...	...	...	...	86·7	+0·2	69·2	−0·6	78·0	−0·2	17·4	...	...	...	...	25·1
Konkan	Bombay	37	30·034	+·039	30·011	30·085	31st	29·978	14th	·107	72·6	83·7	−0·4	70·0	+0·7	76·9	+0·2	13·7	87·9	19th	67·0	24th	20·9
	Ratnagiri	110	29·930	+·048	29·981	29·975	31st	29·886	10th	·089	74·2	89·0	−0·2	66·7	−0·3	77·9	−0·3	22·3	91·9	21st	60·4	24th	31·5
	Mormugoa	60	29·994	?	29·986	30·030	21st	29·938	14th	·092	71·2	85·8	?	68·3	?	77·1	?	17·5	89·0	3 days	64·3	9th & 23rd,	24·7
	Karwar	44	29·999	+·048	29·976	30·040	31st	29·949	14th	·091	68·9	87·2	+0·2	65·0	−1·4	76·1	−0·6	22·2	91·3	4th	60·6	10th	30·7
Malabar	Mangalore	26	30·004	+·039	29·962	30·052	25th	29·960	10th	·092	73·8	89·2	+0·8	69·1	−1·5	79·2	−0·4	20·1	93·8	4th	65·0	10th	28·8
	Calicut	27	29·992	+·033	29·949	30·046	25th	29·954	10th	·092	75·0	87·6	?	69·7	?	78·7	?	17·9	89·8	1st & 5th	64·7	10th & 11th	25·1
	Cochin	10	30·009	+·053	29·947	30·057	25th	29·967	10th & 14th	·090	75·7	88·5	+0·8	72·1	−0·7	80·3	+0·1	16·4	91·3	5th & 29th,	67·8	9th	23·5
	Trivandrum	198	29·800	?	29·931	29·859	31st	29·753	14th	·106	75·4	82·4	?	73·0	?	77·7	?	9·4	85·5	30th & 31st,	70·0	21st	15·5
XI.—South India		...	...	+·049	...	...	...	...	...	...	...	82·9	+1·1	64·3	−0·9	73·7	+0·1	18·6	...	...	...	...	26·3
Madras (South)	Pamban	37	30·003	?	29·967	30·063	31st	29·961	2nd & 14th,	·102	76·5	81·4	?	74·7	?	78·1	?	6·7	84·3	4th	70·7	21st	13·6
	Tinnevelly	168	29·877	?	29·977	29·944	31st	29·793	10th	·151	75·4	88·9	?	72·4	?	80·7	?	16·5	97·3	21st	68·9	28th	28·4
	Madura	447	29·596	+·059	29·987	29·660	31st	29·545	2nd	·115	75·4	85·6	−1·2	69·6	−0·9	77·6	−0·6	16·0	87·3	3rd & 5th	65·6	13th	21·7
Madras (South Central).	Salem	940	*29·140	+·052	*30·041	29·187	31st	29·094	15th	·093	71·7	88·3	+2·7	64·6	−0·3	76·5	+1·2	23·7	91·9	4th & 31st	57·9	10th	34·0
	Coimbatore	1,348	28·688	+·040	30·001	28·737	28th	28·656	10th	·081	71·8	87·7	+3·3	65·5	−0·9	76·6	+1·2	22·2	90·8	24th & 30th	61·1	10th & 11th,	29·7
Coorg	Mercara	3,781	26·301	?	29·992	26·332	31st	26·247	10th	·085	60·9	74·2	−0·2	57·4	−0·3	65·8	−0·3	16·8	76·8	2nd & 5th	53·7	10th	23·1
Mysore	Bangalore Bazar,	2,982	27·103	+·043	30·048	27·158	31st	27·054	10th	·104	64·2	79·5	+2·3	57·7	−1·0	68·6	+0·7	21·8	82·7	4th	52·9	8th & 23rd,	29·8
	Bangalore Fort	3,019	27·058	+·030	30·031	27·109	31st	27·009	10th	·100	64·0	80·4	+2·3	57·8	−1·0	69·1	+0·7	22·6	83·2	4th	52·9	8th	30·3
	Hassan	?	26·986	?	?	27·039	31st	26·917	4th	·122	67·0	81·5	?	55·0	?	68·3	?	26·5	83·7	27th	47·5	23rd	36·2
Madras (East Coast, South).	Negapatam	31	30·019	+·058	29·979	30·086	31st	29·956	2nd	·130	75·3	80·8	−0·1	70·9	−1·0	75·9	−0·6	9·9	83·2	2nd & 26th,	67·2	1st	16·0
	Cuddalore	12	30·056	?	29·998	30·110	31st	29·999	2nd	·111	73·7	83·2	?	68·4	?	75·8	?	14·8	87·7	2nd	62·8	1st	24·9
	Trichinopoly	255	29·801	+·049	29·995	29·858	31st	29·750	2nd	·108	74·6	87·4	+3·3	68·9	0	78·2	+1·7	18·5	91·0	2nd	64·9	13th	26·1
	Madras	22	30·060	+·053	30·013	30·116	31st	30·003	1st	·113	74·1	84·5	+1·8	68·3	−1·8	76·5	0	16·2	87·0	4th	64·5	10th	22·5
Madras (East Coast, Central).	Nellore	71	30·013	?	30·019	30·078	31st	29·952	10th	·126	73·5	84·4	?	67·3	?	75·9	?	17·1	86·2	3 days	63·6	22nd	22·6
	Masulipatam	15	30·093	+·054	30·043	30·162	31st	30·029	10th	·133	70·3	82·0	−0·3	65·1	−1·4	73·6	−0·9	16·9	85·0	5th	60·2	22nd	24·8

* Mean of 27 days.

I—*continued.*

in India, Burma, etc., in December 1892—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 October to 31st December 1892.	Normal rainfall for period from 1st October to 31st December 1892.	Variation from normal of period.		
8	7	1	6	2	5	...	...	2	3	2	+ 50	70	·353	0·9	0	0·64	−0·64	0·09	0·64	− 0·55	2·25	2·96	− 0·71	Khandwa .	Central Provinces (West).
6	...	13	12	...	...	...	...	...	3	2	+ 50	70	·329	3·1	1	1·00	0	0·20	0·87	− 0·67	1·53	3·34	− 1·81	Hoshangabad	
9	13	5	1	...	...	...	...	3	4	3	+ 33	69	·384	2·3	0	1·00	−1·00	0·03	0·66	− 0·63	3·77	4·47	− 0·70	Nagpur.	
14	2	3	2	1	...	2	2	5	2	2	0	79	·386	2·7	0	0·91	−0·91	0	0·85	− 0·85	5·78	3·25	+ 2·53	Seoni .	Central Provinces (Central).
22	...	...	...	5	3	1	...	...	1	2	− 50	76	·302	1·8	0	0·91	−0·91	0	0·54	− 0·54	1·77	3·12	− 1·35	Jubbulpore.	
15	1	3	3	8	1	...	...	...	2	2	0	56	·273	1·7	0	0·73	−0·73	0·08	1·04	− 0·96	0·13	3·24	− 3·11	Saugor.	
												Observations not recorded.												Raipur .	Central Provinces (East).
5	12	1	...	...	...	1	9	3	4	4	0	61	·262	1·7	0	0·91	−0·91	0	0·59	− 0·59	0·28	3·09	− 2·81	Sutna.	
...	11	14	3	2	...	...	...	1	3	?	?	77	·413	1·1	0	?	?	0	0·33	− 0·33	3·00	3·03	− 0·03	Sambalpur.	
8	...	12	9	1	...	1	...	...	4	?	?	56	·378	1·3	1	?	?	0·40	0·78	− 0·38	4·40	4·35	+ 0·05	Aurangabad	Hyderabad (North).
12	6	2	4	5	...	1	...	1	5	?	?	83	·484	3·1	0	?	?	0·02	0·40	− 0·38	1·89	4·09	− 2·20	Indur.	
...	...	9	6	6	6	3	1	...	6	?	?	71	·458	0·3	1	?	?	0·40	0·61	− 0·21	11·49	5·41	+ 6·08	Bidar.	
24	...	2	3	2	...	...	...	...	3	?	?	62	·388	2·4	0	?	?	0	0·40	− 0·40	?	?	?	Gulburga.	Hyderabad (South).
3	...	4	9	10	5	...	...	...	6	?	?	75	·512	4·5	0	?	?	0	0·10	− 0·10	10·65	4·93	+ 5·72	Raichur.	
24	...	...	4	1	2	...	...	...	3	?	?	77	·449	2·4	0	?	?	0	0·39	− 0·39	12·73	5·82	+ 6·91	Hyderabad (Deccan).	
20	5	2	...	3	...	...	...	1	4	?	?	80	·508	0·5	0	?	?	0	?	?	9·09	?	?	Kamamet.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·37	0·77	−0·62	...	...	...	**X.—West Coast.**	
...	...	13	17	1	...	...	...	...	8	10	− 20	77	·588	1·6	0	0·18	−0·18	0	0·21	− 0·21	2·56	3·63	− 1·07	Bombay .	Konkan.
3	...	2	4	16	5	1	...	...	4	9	− 56	57	·484	0·7	0	0·27	−0·27	0	0·11	− 0·11	9·26	4·62	+ 4·64	Ratnagiri.	
...	...	...	13	18	...	...	...	...	7	?	?	79	·606	1·1	0	?	?	0	?	?	18·33	?	?	Mormugoa.	
10	2	17	2	...	...	...	...	...	2	?	?	75	·540	1·3	0	0·18	−0·18	0	0·14	− 0·14	17·49	10·67	+ 6·82	Karwar.	
1	...	10	20	...	...	...	...	...	3	4	− 25	70	·585	0·9	0	1·10	−1·10	0	0·39	− 0·39	15·80	11·16	+ 4·64	Mangalore .	Malabar.
...	...	14	17	...	...	...	...	...	12	?	?	77	·651	2·0	0	2·11	−2·11	0·09	1·65	− 1·56	22·01	16·45	+ 5·56	Calicut.	
...	...	23	7	...	...	1	...	...	5	?	?	74	·663	1·5	2	3·36	−1·34	0·81	2·10	− 1·29	25·04	23·17	+ 1·87	Cochin.	
...	8	7	9	...	1	...	4	2	4	?	?	79	·697	3·4	4	?	?	2·07	?	?	23·74	?	?	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·34	3·17	−1·72	...	...	...	**XI.—South India.**	
...	18	7	1	...	...	...	...	5	11	?	?	88	·808	5·3	5	7·00	−2·00	2·64	9·11	− 6·47	9·45	25·52	−16·07	Pamban. .	Madras (South).
...	12	3	...	...	...	...	...	16	7	?	?	73	·649	4·9	5	6·50	−1·50	2·31	4·16	− 1·85	9·84	18·16	− 8·32	Tinnevelly	
1	15	11	...	...	...	...	...	4	4	5	− 20	70	·625	3·3	2	4·36	−2·36	0·63	2·44	− 1·81	10·97	14·01	− 3·04	Madura.	
14	4	8	1	...	...	3	1	...	4	4	0	74	·581	4·1	3	3·18	−0·18	1·02	1·65	− 0·63	6·70	13·60	− 6·90	Salem .	Madras (South Central).
...	10	3	18	...	...	...	...	...	4	3	+ 33	82	·650	4·7	1	3·45	−2·45	1·10	1·57	− 0·47	3·78	11·44	− 7·66	Coimbatore.	
...	...	5	26	...	...	...	...	...	8	5	+ 60	82	·445	5·5	0	1·50	−1·50	0	0·81	− 0·81	7·44	14·48	− 7·04	Mercara .	Coorg.
...	2	18	9	1	...	...	...	1	4	4	0	82	·500	5·0	0	1·36	−1·36	0·09	0·74	− 0·65	2·83	12·12	− 9·29	Bangalore Bazar.	Mysore.
...	...	17	12	2	...	...	...	...	9	?	?	81	·487	2·2	1	?	?	0·20	?	?	3·50	?	?	Bangalore Fort	
...	...	9	16	6	...	...	...	...	4	?	?	79	·520	0·4	1	?	?	0·27	?	?	?	?	?	Hassan.	
...	2	8	1	...	...	...	10	10	11	7	+ 59	80	·705	7·1	8	11·00	−3·00	8·43	12·84	− 4·41	17·05	42·41	−25·36	Negapatam.	Madras (East Coast, South).
...	17	3	2	...	...	...	1	8	4	?	?	94	·786	3·1	3	6·9	−3·9	2·83	8·06	− 5·23	9·62	32·59	−22·97	Cuddalore.	
17	4	10	...	...	...	...	...	...	3	5	− 40	72	·622	4·7	2	5·64	−3·64	0·53	3·15	− 2·62	11·40	14·86	− 3·46	Trichinopoly.	
2	15	6	...	...	...	...	...	8	7	8	− 13	82	·695	4·9	5	5·73	−0·73	4·74	6·94	− 2·20	12·30	36·23	−23·93	Madras.	
7	1	...	1	...	...	...	8	14	5	?	?	86	·715	7·0	4	3·8	+ 0·2	2·86	3·26	− 0·40	19·13	27·02	− 7·89	Nellore .	Madras (East Coast, Central).
2	17	11	1	...	...	...	...	...	5	6	− 17	83	·615	1·9	0	1·45	−1·45	0·01	1·25	− 1·24	26·88	16·69	+10·19	Masulipatam	

Table

Abstract of Observations taken at 8 A.M. at 180 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.
Madras (Central)	Cuddapah	433	29·654	?	30·040	29·703	31st	29·596	10th	·107	71·3	85·3	?	64·2	?	74·8	?	21·1	88·0	5th	58·8	22nd	29·2
	Kurnool	923	29·163	?	30·058	29·215	31st	29·110	10th	·105	68·9	84·3	?	57·7	?	71·0	?	26·6	87·0	19th	51·2	23rd	35·8
	Bellary	1,475	28·593	+·060	30·053	28·651	31st	28·538	10th	·113	67·0	84·4	−0·9	59·5	−1·2	72·0	−1·1	24·9	86·4	3 days	53·0	1st	33·4
Madras (East Coast, North).	Rajahmundry	112	29·984	?	30·037	30·042	31st	29·926	10th	·116	68·4	85·1	?	63·0	?	74·1	?	22·1	89·0	4th	58·9	29th	30·1
	Cocanada	26	30·079	?	30·040	30·144	31st	30·019	10th	·125	69·5	79·1	?	63·7	?	71·4	?	15·4	81·2	3rd & 9th	60·7	3 days	20·5
	Vizagapatam	31	30·078	+·040	30·048	30·150	28th	30·013	10th	·137	71·4	77·2	−0·7	66·3	−1·0	71·8	−0·9	10·9	79·9	5th	62·9	11th & 12th.	17·0
	Gopalpur	21	30·109	?	30·071	30·178	28th	30·037	6th	·141	62·5	78·8	?	57·6	?	68·2	?	21·2	82·7	6th	54·5	15th	28·2
XII.—Hill Stations.																							
Baluchistan	Quetta	5,502	24·759	+·034	?	24·880	7th	24·614	30th	·266	34·9	51·3	−6·0	31·2	+2·8	41·3	−1·6	20·1	61·7	19th	23·8	13th	37·9
	Kelat	?				Not recorded.					?	67·1	?	24·9	?	46·0	?	42·2	80·0	15th, 16th & 22nd.	15·0	23rd	65·0
	Chaman	?	25·837	?	?	25·986	7th	25·695	2nd	·291	41·9	54·8	?	37·7	?	46·3	?	17·1	71·1	20th	30·1	14th	41·0
Northern India	Srinagar	5,204	25·037	?	?	25·124	28th	24·975	9th	·149	31·8	46·7	?	28·7	?	37·7	?	18·0	58·9	6th	21·1	11th	37·8
	Cherat*	?	25·838	?	?	25·945	17th	25·754	30th	·191	48·3	54·9	?	45·3	?	50·1	?	9·6	60·2	20th	35·1	31st	25·1
	Murree	6,344	23·910	+·005	?	23·978	17th	23·840	6th	·138	41·9	51·4	−2·6	37·3	−2·5	44·4	−2·6	14·1	60·6	20th	29·7	31st	30·9
	Simla	7,224	23·167	−·001	?	23·252	3rd	23·069	6th	·183	42·8	49·8	−2·1	39·6	−0·3	44·7	−1·2	10·2	54·0	15th	30·2	31st	23·8
	Chakrata	7,052	23·315	+·013	?	23·396	16th	23·216	6th	·180	51·6	56·4	+1·5	39·8	+0·4	48·1	+1·0	16·6	62·3	6th	31·6	31st	30·7
	Mussoorie	?	23·623	?	?	23·726	15th	23·497	6th	·229	43·6	52·3	?	40·9	?	46·6	?	11·4	57·2	3 days	31·0	31st	26·2
	Ranikhet	6,069	24·196	+·041	?	24·281	28th	24·097	6th	·184	47·4	59·0	+1·0	43·0	+0·7	51·0	+0·9	16·0	64·2	19th	34·0	20th	30·2
	Darjeeling	7,421	23·041	+·014	?	23·114	13th	22·945	6th	·169	38·7	45·9	−3·0	35·4	−1·4	40·6	−2·2	10·5	50·3	2nd	33·6	27th	16·7
	Gnatong	?	19·196	?	?	19·295	16th	19·110	6th	·185	28·8	33·5	?	11·8	?	21·7	?	21·7	43·3	20th	5·2	1st	38·0
Central India	Mount Abu	3,945	?	?	?	?	?	?	?	?	58·8	66·5	−2·5	52·6	+0·3	59·6	−1·1	13·9	71·1	9th & 21st,	44·6	31st	26·5
	Pachmarhi	3,511	26·614	+·034	?	26·665	17th	26·553	10th	·112	60·3	71·2	+2·4	45·9	+1·1	58·6	+1·8	25·3	73·8	31st	35·8	9th	38·0
South India	Wellington	6,200	24·336	+·059	?	24·382	31st	24·283	14th	·099	56·5	67·4	+2·0	45·5	−4·0	56·5	−1·0	21·9	71·7	8th	38·2	15th	33·5
	Kodaikanal	?				Not recorded.					55·6	63·0	?	48·1	?	55·6	?	14·9	70·0	8th	44·1	29th	25·9
	Kotagiri	?	23·819	?	?	23·887	31st	23·782	20th	·105	58·5	68·0	?	49·9	?	59·0	?	18·1	71·1	31st.	45·2	7th	25·9
XIII.—Extra India.																							
Persia	Meshed	?	...	...	...	Not recorded.					34·0	46·0	?	30·0	?	38·0	?	16·0	55·0	18th	25·0	11th & 21st.	30·0
	Bushire	14	30·163	?	30·135	30·312	4th	29·937	1st	·375	56·8	66·1	?	52·6	?	59·4	?	13·5	75·6	19th	43·8	23rd	31·8
Arabia	Aden	94	29·982	?	30·010	30·067	13th	29·890	2nd	·177	75·4	81·0	?	72·8	?	76·9	?	8·2	85·0	7th	67·3	15th	17·7
	Perim	?	29·826	?	?	29·917	13th	29·724	30th	·193	76·9	83·9	?	†74·5	?	†79·1	?	9·4	86·0	6th	72·6	29th	13·4
Arabian Sea Islands.	Minicoy	10	30·012	?	29·947	30·064	31st	29·971	10th	·093	79·8	86·6	?	‡76·7	?	81·7	?	9·9	87·9	2nd & 29th	74·0	26th	13·9
Africa	Zanzibar	73	29·936	?	29·938	30·005	13th	29·851	10th	·154	82·0	84·9	?	79·6	?	82·2	?	5·3	87·2	29th	78·8	3 days	8·4

* Mean of 22 days. † Mean of 29 days. ‡ Mean of 21 days.

I—*concluded.*

in India, Burma, etc., in December 1892—concluded.

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 October to 31st December 1892.	Normal rainfall for period 1st October to 31st December 1892.	Variation from normal of period.	Station.	Meteorological Province or District.
...	3	5	4	5	1	7	4	2	?	?	?	78	·598	3·3	4	1·50	+2·50	1·78	0·76	+1·02	11·04	12·52	− 1·48	Cuddapah	Madras (Central).
31	...	...	...	...	...	...	...	...	?	?	?	73	·518	1·5	0	1·00	−1·00	0·01	0·31	−0·30	9·25	6·25	+ 3·00	Kurnool.	
21	...	...	2	8	...	...	...	...	3	3	0	80	·530	2·7	0	0·45	−0·45	0	0·21	−0·21	5·87	6·36	− 0·49	Bellary.	
5	25	...	...	...	...	...	...	1	?	?	?	71	·492	2·1	0	0·03	−0·03	0	0·30	−0·30	12·45	10·20	+ 2·25	Rajahmundry	Madras (East Coast, North).
...	23	6	...	...	...	...	...	2	10	?	?	74	·527	1·2	0	1·0	−1·0	0	1·16	−1·16	32·86	15·87	+16·99	Cocanada.	
...	7	2	...	2	...	1	13	6	1	2	− 50	70	·540	1·5	0	1·82	−1·82	0	3·28	−3·28	30·61	22·03	+ 8·58	Vizagapatam.	
...	15	...	...	...	...	...	...	16	10	?	?	78	·439	0·2	0	1·18	−1·18	0	1·46	−1·46	9·85	16·91	− 7·06	Gopalpur.	
																								XII.—Hill Stations.	
24	...	...	...	2	3	2	...	...	3	3	0	76	·160	2·9	5	0·91	+4·09	3·36	0·41	+2·95	3·42	0·48	+ 2·74	Quetta.	Baluchistan.
...	...	...	2	...	...	12	...	13	?	?	?	?	?	?	3	?	?	1·78	?	?		?	?	Kilat.	
1	...	...	6	14	7	1	1	1	7	?	?	69	·185	4·5	5	?	?	4·18	?	?	4·19	?	?	Chaman.	
22	1	1	1	2	4	...	...	...	1	?	?	87	·161	6·1	5	?	?	1·27	?	?	1·33	?	?	Srinagar	Northern India.
...	8	3	...	...	1	...	...	10	8	?	?	37	·127	3·9	1	?	?	1·32	?	?	1·32†	?	?	Cherat*	
4	...	...	3	19	...	...	...	5	9	6	+ 50	40	·110	3·6	3	1·55	+1·45	1·03	0·66	+0·37	1·66	2·61	− 0·95	Murree.	
4	12	...	...	2	12	1	...	...	?	2	?	34	·094	4·8	1	1·45	−0·45	1·11	0·70	+0·41	1·47	2·18	− 0·71	Simla.	
21	...	5	5	...	...	...	...	...	3	?	?	40	·149	3·1	0	?	?	0	0·84	−0·84	0	2·21	− 2·21	Chakrata.	
...	1	4	11	...	...	...	7	8	?	?	?	53	·147	1·8	1	1·5	−0·5	0·77	?	?	0·77	?	?	Mussoorie.	
21	...	...	3	1	1	2	3	...	2	1	+100	55	·180	3·1	0	1·00	−1·00	0·06	0·66	−0·60	0·06	2·16	− 2·10	Ranikhet.	
8	2	5	9	2	1	2	1	1	3	2	+ 50	88	·208	4·6	2	0·75	+1·25	0·58	0·28	+0·30	1·90	5·74	− 3·84	Darjeeling.	
5	2	1	6	6	2	2	3	4	5	?	?	67	·106	1·2	3	?	?	0·92	?	?	5·02	?	?	Gnatong.	
10	2	1	2	1	2	5	1	7	4	4	0	48	·233	2·9	1	0·18	+0·82	0·18	0·13	+0·05	0·77	1·07	− 0·30	Mount Abu	Central India.
9	1	...	2	4	5	5	2	3	3	3	0	57	·298	1·9	0	0·91	−0·91	0·07	0·72	−0·65	3·21	4·17	− 0·96	Pachmarhi.	
21	...	4	3	2	1	...	...	...	2	2	0	66	·309	3·1	4	6·78	−2·78	3·12	4·85	−1·73	14·10	25·75	−11·65	Wellington	South India.
6	7	7	3	6	...	...	...	2	7	?	?	57	·238	4·0	6	8·50	−2·50	2·22	7·39	−5·17	12·47	23·85	−11·38	Kodaikanal.	
9	0	0	10	10	2	0	0	0	3	?	?	63	·308	5·1	5	?	?	3·30	?	?	?	?	?	Kotagiri.	
																								XIII.—Extra India.	
5	5	...	2	...	5	2	4	8	1	?	?	?	?	3·3	1	?	?	0·20	?	?	?	?	?	Meshed	Persia.
...	1	15	4	8	...	...	...	3	5	7	− 29	68	·319	?	4	?	?	1·97	3·60	−1·63	5·37	5·13	+ 0·24	Bushire.	
2	...	8	19	2	...	...	...	...	15	12	+ 25	71	·629	1·7	0	?	?	0	0·24	−0·24	0·14	0·35	− 0·21	Aden	Arabia.
...	...	...	21	8	2	...	...	...	21	?	?	77	·705	3·9	1	?	?	0·16	?	?	0·16	?	?	Perim.	
4	5	11	9	1	...	...	...	1	7	?	?	78	·796	3·2	2	?	?	0·53	?	?	6·05	?	?	Minicoy	Arabian Sea Islands.
...	6	18	4	3	...	...	...	...	8	6	+ 33	79	·859	4·5	5	?	?	2·07	?	?	10·20	?	?	Zanzibar	Africa.

* Mean of 22 days. † Rainfall from 10th December 1892.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 98

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	...	29·945	29·846	·099	29·892	+·020	29·884	84·8	75·7	9·1	87·0	69·9	17·1	82·2	82·5	79·3	+ 3·1	70·5	74·6	74·9	73·2
	Mergui	...	·931	·822	·109	·871	+·033	·901	83·7	?	?	88·4	?	?	78·6	80·6	?	?	?	68·8	70·7	?
	Rangoon	...	30·029	·902	·127	·964	+·026	·943	84·6	64·2	20·4	87·7	56·5	31·2	76·4	82·3	72·9	− 2·6	61·9	68·7	69·3	66·7
	Diamond Island	...	·032	·920	·112	·971	+·030	·947	81·9	71·2	10·7	85·3	66·9	18·4	77·8	80·1	75·7	− 1·3	66·4	70·0	69·9	68·8
	Cocos Island	111	29·950	·857	·099	·899	?	·944	81·4	67·8	13·6	83·8	63·2	20·6	79·3	78·0	73·3	?	66·4	70·8	70·3	69·2
	Akyab	...	30·079	·962	·117	30·019	+·029	·982	80·3	60·8	19·5	85·9	57·2	28·7	72·8	76·9	70·1	− 2·3	58·5	67·2	68·2	64·6
Assam.	Silchar	...	·019	·893	·126	29·952	+·020	1·011	78·4	54·4	24·0	83·6	50·9	32·7	67·4	76·0	65·3	− 0·4	53·5	62·8	64·7	60·4
	Sibsagar	...	29·805	·670	·135	·736	+·006	1·044	70·8	51·4	19·4	75·8	45·4	30·4	60·6	69·1	59·9	+ 1·2	51·3	59·4	63·4	58·0
	Dhubri	...	30·022	·881	·141	·945	+·027	1·020	74·5	55·0	19·5	77·3	50·5	26·8	64·8	73·1	64·0	− 0·5	54·5	60·5	63·7	59·6
Bengal and Orissa.	Chittagong	...	·024	·919	·105	·968	+·033	1·007	76·9	55·5	21·4	81·6	52·9	28·7	70·1	72·9	65·6	− 1·8	55·0	65·4	65·3	61·9
	Dacca	...	·100	·980	·120	30·036	+·028	1·006	77·3	55·6	21·7	81·1	51·6	29·5	69·5	75·1	66·6	− 0·9	53·2	62·1	63·4	59·6
	Calcutta (Alipore)	...	·119	·996	·123	·048	+·027	1·016	75·8	52·4	23·4	79·5	49·0	30·5	68·2	74·7	63·4	− 1·8	51·3	59·2	60·5	57·0
	Calcutta (Chowringhee).	...	·121	?	?	?	?	?	77·0	52·9	24·1	80·6	48·9	31·7	69·8	?	?	?	52·1	62·1	?	?
	Saugor Island	...	·111	·991	·120	·043	+·027	1·013	74·2	56·6	17·6	77·2	51·7	25·5	69·4	72·6	64·6	− 1·9	54·1	62·9	62·3	59·8
	Burdwan	...	·052	·921	·131	29·976	+·034	?	77·4	?	?	80·5	?	?	68·1	75·5	?	?	50·5	57·5	59·7	55·9
	Berhampore	...	·071	·950	·121	30·001	+·031	1·019	76·2	53·8	22·4	79·1	48·1	31·0	67·1	74·7	64·6	− 1·3	51·1	59·8	62·0	57·7
	False Point	...	·125	30·008	·117	·065	+·029	1·028	77·6	54·5	23·1	82·4	49·8	32·6	72·4	74·8	65·0	− 1·6	54·0	64·0	64·3	60·8
	Cuttack	...	·062	29·934	·128	29·995	+·029	1·021	80·7	56·4	24·3	85·3	51·9	33·4	72·7	79·7	68·0	− 1·4	54·7	61·2	63·0	59·6
Ganges Plain and Chota Nagpur.	Hazaribagh	...	28·067	27·981	·086	28·013	+·017	1·046	72·6	48·8	23·8	77·2	44·7	32·5	66·0	69·9	59·7	− 0·7	44·0	53·4	54·2	50·5
	Patna	...	29·952	29·843	109	29·892	+·012	1·037	73·7	49·9	23·8	77·8	45·4	32·4	67·0	72·0	61·3	− 1·1	47·3	58·7	61·5	55·8
	Darbhanga	...	·982	·858	·124	·914	+·030	1·044	74·8	51·2	23·6	79·0	47·3	31·7	66·5	72·5	62·3	− 1·5	50·2	59·1	61·1	56·8
	Allahabad	...	·839	·717	·122	·766	+·018	1·049	76·4	46·7	29·7	80·2	40·7	39·5	65·8	74·5	60·0	− 0·7	44·3	55·5	58·1	52·6
	Ghazipur	220	·918	·813	·105	·857	+·023	1·044	75·3	47·9	27·4	79·9	42·5	37·4	65·9	73·0	60·6	− 0·1	46·4	56·7	58·6	53·9
	Lucknow	...	·755	·643	·112	·688	+·006	1·044	74·3	45·0	29·3	78·9	37·0	41·9	65·3	70·7	58·4	− 1·3	44·3	55·6	58·2	52·7
Upper Sub-Himalaya.	Dehra Dun	...	27·827	27·750	·077	27·778	+·007	1·069	69·1	45·5	23·6	75·5	40·8	34·7	60·3	63·8	55·1	− 1·3	42·4	51·5	53·8	49·2
	Roorkee	...	29·207	29·109	·098	29·145	+·013	1·054	71·8	42·9	28·9	79·0	34·8	44·2	58·5	68·2	55·5	− 1·1	41·5	52·0	56·1	49·9
	Meerut	...	·379	·290	·089	·326	+·028	1·076	71·1	43·8	27·3	77·2	37·5	39·7	60·0	67·8	56·0	− 1·2	43·0	50·9	54·5	49·5
	Lahore	...	·430	·343	·087	·375	+·024	1·098	70·2	39·6	30·6	77·3	31·2	46·1	58·9	66·1	52·6	− 0·3	37·8	50·4	53·8	47·3
	Ludhiana	...	·299	·212	·087	·244	+·024	1·078	68·0	43·7	24·3	73·1	34·3	38·8	58·1	65·8	54·1	− 0·4	42·1	50·5	53·8	48·8
Indus Valley and N.W. Rajputana.	Peshawar	...	·035	28·961	·074	28·986	+·023	1·150	67·9	40·4	27·5	73·2	30·9	42·3	55·5	64·4	52·0	+ 1·4	36·5	46·9	50·9	44·7
	Mooltan	...	·729	29·637	·092	29·671	+·024	1·090	72·6	45·3	27·3	81·3	39·1	42·2	57·9	70·7	57·2	+ 1·1	42·2	50·1	56·7	49·7
	Jacobabad	...	·992	·885	·107	·926	+·038	1·085	74·9	42·6	32·3	81·4	34·0	47·4	64·9	71·7	56·6	− 1·2	38·6	51·6	55·1	48·4
	Hyderabad (Sind)	...	30·035	·934	·101	·980	+ 018	1·055	76·3	52·2	24·1	86·0	46·3	39·7	66·3	73·6	63·2	− 1·0	45·9	51·6	54·7	50·8
	Kurrachee	...	·103	·993	·110	30·041	+·014	1·045	78·9	55·5	23·4	84·0	48·1	35·9	70·6	76·8	66·3	− 0·7	48·3	59·2	64·5	57·4
E. Rajputana, Central India and Guzerat.	Jeypore	...	28·691	28·592	·099	28·631	+·026	1·082	75·6	48·8	26·8	81·0	42·1	38·9	67·1	72·5	60·1	+ 0·2	43·5	53·6	56·3	51·1
	Ajmere	...	·502	·406	·096	·448	+·013	1·096	75·0	46·0	29·0	79·9	35·0	44·9	64·2	73·0	59·4	− 0·5	43·7	53·4	59·0	52·0
	Deesa	...	29·641	29·535	·106	29·580	+·030	1·021	84·7	52·0	32·7	90·7	44·2	46·5	74·3	82·3	67·5	− 0·5	40·3	58·3	61·5	53·4
	Nowgong	...	·364	·253	·111	·299	+·017	1·050	75·5	46·5	29·0	79·1	40·1	39·0	64·1	73·1	59·9	0	45·2	53·3	59·9	53·7
	Agra	...	·605	·503	·102	·542	+·041	1·088	74·6	47·8	26·8	80·4	41·4	39·0	64·3	72·2	60·5	− 0·5	43·3	54·1	58·2	51·9
Deccan.	Belgaum	...	27·519	27·402	·117	27·457	+·023	·932	81·1	57·6	23·5	83·5	53·6	29·9	72·9	79·7	69·1	− 0·2	54·0	60·7	61·0	58·6
	Sholapur	...	28·495	28·358	·137	28·425	+·036	·992	85·6	56·6	29·0	88·4	49·0	39·4	76·0	83·6	70·2	− 0·3	52·9	63·3	64·7	60·3
	Poona	...	·227	·103	·124	·166	+·023	·986	84·8	53·4	31·4	87·4	47·8	39·6	75·1	82·7	69·0	+ 0·6	51·0	59·8	61·5	57·4
	Akola	...								Imperfect.												

II.

Stations in India, Burma, etc., for December 1892.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
																									%	%				
·682	·759	·768	·736	− ·098	77	69	69	71	− 9	5·3	5·3	5·3	+ 0·9	...	17	23	10	10	2	...	...	...	N. 54° E.	N. 51° E.	66	72	199	171	Port Blair	Burma Coast and Bay Islands.
?	·582	·624	?	?	?	58	59	?	?	2·7	4·4	3·6	+ 0·5	...	36	19	4	...	...	...	...	3	N. 17° E.	N. 27° E.	87	65	37	43	Mergui	
·531	·607	·549	·562	− ·109	87	66	49	67	− 6	0·8	2·1	1·5	− 1·6	...	10	24	22	3	1	...	...	...	N. 60° E.	N. 36° E.	78	60	109	114	Rangoon	
·589	·634	·601	·608	− ·090	76	66	58	67	− 8	2·8	3·8	3·3	+ 0·2	...	11	25	11	4	...	...	2	9	N. 36° E.	N. 34° E.	64	74	233	166	Diamond Island.	
·633	·646	·642	·640	?	92	64	66	74	?	2·3	1·7	2·0	?	...	13	35	14	...	...	...	...	...	N. 46° E.	?	87	?	337*	?	Cocos Island	
·463	·594	·576	·545	− ·038	86	73	62	74	− 1	0·4	0·4	0·4	− 2·0	...	18	15	1	...	1	...	12	15	N. 16° W.	N. 15° W.	64	39	59	56	Akyab	
·402	·512	·463	·459	− ·014	94	77	52	74	− 1	3·3	3·7	3·5	+ 0·6	58	...	1	1	2	..	...	...	...	S. 79° E.	S. 57° E.	5	35	3	42	Silchar	Assam.
·380	·494	·509	·461	+ ·012	99	94	72	88	+ 3	4·0	2·9	3·5	− 0·9	18	...	26	9	4	3	2	...	...	N. 69° E.	N. 65° E.	50	61	36	37	Sibsagar	
·421	·470	·468	·453	− ·014	97	77	58	77	− 1	0·8	0·7	0·8	− 0·4	15	1	27	14	1	...	4	...	...	N. 62° E.	N. 58° E.	56	42	75	109	Dhubri	
·429	·568	·524	·507	− ·013	97	77	64	79	+ 4	2·0	3·3	2·7	+ 0·7	4	6	13	7	2	...	2	16	12	N. 21° W.	N. 23° W.	35	59	46	76	Chittagong	Bengal and Orissa.
·378	·461	·430	·423	− ·056	85	64	49	66	− 5	1·2	2·1	1·7	+ 0·3	...	13	4	...	1	4	9	5	26	N. 49° W.	N. 36° W.	56	44	54	48	Dacca	
·368	·385	·342	·365	− ·080	93	55	40	63	− 9	0·4	1·3	0·9	− 0·9	1	31	4	1	...	...	...	7	18	N. 19° W.	N. 26° W.	79	60	44	66	Calcutta (Alipore).	
·383	·460	?	?	?	95	63	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	Calcutta (Chowringhee).	
·388	·492	·430	·437	− ·066	84	68	53	68	− 6	1·0	1·7	1·4	− 0·8	...	36	6	...	...	4	3	2	11	N. 10° W.	N. 7° E.	68	56	185	153	Saugor Island	
?	·336	·305	?	?	?	52	34	?	?	1·0	1·5	1·3	− 0·6	15	20	2	1	...	...	2	9	13	N. 31° W.	N. 23° W.	55	67	27	43	Burdwan	
·343	·421	·389	·384	− ·048	83	63	45	64	− 8	0·7	1·5	1·1	− 0·8	3	19	...	1	...	...	2	19	18	N. 47° W.	N. 26° W.	71	62	34	38	Berhampore	
·414	·488	·467	·456	− ·043	96	61	54	70	− 5	1·7	2·5	2·1	− 0·5	...	24	10	13	3	3	1	2	6	N. 27° E.	N. 43° E.	53	64	139	151	False Point	
·409	·391	·356	·385	− ·072	90	49	35	58	− 7	0·9	1·7	1·3	− 0·5	22	5	16	8	...	...	1	5	5	N. 28° E.	N. 12° E.	35	35	23	29	Cuttack	
·231	·256	·230	·239	− ·016	66	40	31	46	− 6	1·9	1·8	1·9	− 0·1	3	14	...	...	...	4	2	13	26	N. 51° W.	N. 54° W.	68	64	131	110	Hazaribagh	Gangetic Plain and Chota Nagpur.
·295	·389	·414	·366	− ·068	82	59	53	65	0	1·4	1·6	1·5	− 0·3	3	1	...	...	...	4	4	48	2	S. 85° W.	N. 83° W.	85	52	68	41	Patna	
·353	·406	·389	·383	− ·045	93	62	49	68	− 6	0·7	1·1	0·9	− 0·1	4	1	1	...	1	2	14	26	13	S. 88° W.	S. 79° W.	71	58	44	51	Darbhanga	
·262	·307	·269	·279	− ·063	82	48	31	54	− 13	2·7	2·3	2·5	+ 1·0	3	9	4	3	1	2	3	16	21	N. 51° W.	N. 54° W.	55	22	68	42	Allahabad	
·298	·342	·307	·316	− ·039	89	53	38	60	− 1	1·8	1·4	1·6	+ 0·4	29	1	1	1	1	...	8	21	...	S. 79° W.	S. 81° W.	40	49	29	25	Ghazipur	
·286	·317	·323	·309	+ ·004	94	51	43	63	+ 4	2·7	2·8	2·8	+ 1·1	40	..	...	...	...	...	...	18	...	W.	N. 53° W.	31	49	22	40	Lucknow	
·234	·273	·291	·266	?	76	52	49	59	?	2·8	3·4	3·1	+ 0·7	24	1	...	1	2	10	9	10	5	S. 53° W.	N. 73° W.	35	16	19	40	Dehra Dun	Upper Sub-Himalayas.
·249	·304	·293	·282	− ·004	89	62	43	65	+ 2	2·7	3·5	3·1	+ 1·0	48	1	...	...	...	...	...	4	7	N. 56° W.	N. 82° W.	18	11	?	32	Roorkee	
·268	·256	·253	·259	− ·026	93	49	38	60	− 2	2·0	2·9	2·5	+ 0·8	22	1	1	2	...	2	1	30	3	N. 88° W.	N. 52° W.	48	50	40	39	Meerut	
·210	·256	·255	·240	− ·040	84	51	41	59	+ 2	2·9	3·5	3·2	+ 1·0	29	9	2	2	2	...	1	9	8	N. 37° W.	N. 36° W.	27	22	29	35	Lahore	
·252	·271	·260	·261	− ·015	87	56	42	62	+ 1	4·5	3·9	4·2	+ 1·2	30	1	...	2	2	...	...	19	8	N. 66° W.	N. 30° W.	19	24	35	26	Ludhiana	
·175	·222	·209	·201	− ·047	68	51	36	52	− 9	3·6	4·0	3·8	+ 0·3	9	2	6	5	7	10	13	4	6	S. 13° W.	S. 2° E.	23	8	82*	59	Peshawar	Indus Valley and N.-W. Rajputana.
·233	·264	·278	·258	− ·011	76	55	38	56	0	2·0	2·2	2·1	+ 0·1	17	...	12	1	17	...	8	...	7	S. 68° E.	N. 14° E.	19	11	21*	30	Mooltan	
·189	·209	·217	·205	− ·036	67	34	29	43	− 6	3·3	3·1	3·2	+ 1·2	25	5	3	5	2	...	4	2	16	N. 28° W.	N. 15° W.	26	22	52*	38	Jacobabad	
·234	·189	·180	·202	− ·074	59	29	22	37	− 9	6·1	5·8	6·0	+ 4·9	...	2	56	...	...	...	...	...	4	N. 40 E.	N. 6° W.	93	64	205*	156	Hyderabad (Sind)	
·250	·357	·449	·353	− ·027	55	48	49	50	− 6	2·2	2·7	2·5	+ 0·7	...	...	46	8	...	...	5	1	...	N. 51° E	N. 42° E.	77	14	290	216	Kurrachee	
·221	·248	·256	·242	− ·030	63	37	32	44	− 5	3·2	3·7	3·5	+ 1·6	1	5	9	16		3	...	5	16	N. 37° E.	N. 14° W.	29	29	99	79	Jeypore	E. Rajputana, Central India and Guerrat.
·263	·277	·328	·290	+ ·021	82	46	41	57	+ 7	2·7	3·5	3·1	+ 1·7	8	6	13	5	5	9	7	4	5	N. 72° W.	N. 84° E.	5	15	63	35	Ajmere	
·107	·278	·271	·219	− ·042	26	33	25	28	− 9	3·1	4·0	3·6	+ 1·9	...	10	20	13	8	2	1	3	3	N. 57° E.	N. 17° E.	52	27	194	195	Deesa	
?	·325	·343	?	?	?	54	43	?	?	2·6	3·2	2·9	+ 1·0	2	3	5	19	1	...	...	23	9	N. 27° W.	N. 34° W.	23	29	28*	27	Nowgong	
·225	·288	·302	·272	− ·012	66	48	38	51	− 2	2·2	2·8	2·5	+ 1·1	...	4	11	2	3	1	14	...	27	N. 44° W.	N. 64° W.	40	28	75	63	Agra	
·378	·383	·309	·356	− ·020	78	47	30	52	+ 3	3·0	2·2	2·6	− 0·2	...	8	3	3	6	10	9	5	10	S. 69° W.	S. 84° E.	16	70	301	296	Belgaum	Deccan.
·361	·428	·378	·389	+ ·009	77	47	33	52	+ 3	2·5	3·7	3·1	+ 0·1	...	...	6	28	22	5	...	...	1	S. 72° E.	N. 89° E.	81	57	221*	169	Sholapur	
·350	·328	·285	·321	− ·010	85	37	25	49	+ 6	1·9	2·8	2·4	− 0·3	28	1	2	19	8	1	2	1	...	S. 77° E.	S. 78° E	39	56	109	136	Poona	
											Imperfect.												...	N. 61° E.	...	58	...	77	Akola	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 98

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	27·939	27·836	·103	27·880	+·019	29·996	80·8	57·7	23·1	86·8	52·3	34·5	74·7	77·2	67·7	+0·5	52·3	59·5	59·9	57·2
	Khandwa	...	29·048	28·917	·131	28·976	+·022	1·009	84·1	52·6	31·5	87·7	45·6	42·1	72·8	82·5	67·4	+2·5	49·2	60·2	63·2	57·5
	Hoshangabad	...	·100	·973	·127	29·029	+·019	1·047	78·3	52·2	26·1	82·1	44·6	37·5	66·3	77·6	64·5	−1·0	48·5	57·2	62·4	56·0
	Nagpur	...	·092	·961	·131	·020	+·041	1·034	81·2	54·6	26·6	84·5	50·2	34·3	71·7	79·8	67·0	+0·3	50·7	60·4	63·0	58·0
	Sironcha	401	·720	29·599	·121	·653	+·026	1·016	83·2	55·1	28·1	86·8	49·1	37·7	72·7	80·7	67·9	−1·2	53·3	64·3	66·0	61·2
	Chanda	634	·484	·360	·124	·415	+·033	1·021	81·3	51·3	30·0	84·0	44·8	39·2	71·5	79·8	65·3	−0·8	50·0	62·1	65·3	59·1
	Seoni	...	28·048	27·936	·112	27·985	+·014	1·018	78·2	49·6	28·6	83·1	43·8	39·3	69·9	76·0	63·1	+0·4	48·9	60·7	63·5	57·7
	Jubbulpore	...	·781	28·660	·121	28·713	+·034	1·053	77·9	45·9	32·0	81·7	38·1	43·6	65·6	76·1	60·9	+0·2	44·8	55·6	59·1	53·2
	Saugor	...	·332	·225	·107	·272	+·036	1·043	78·9	52·1	26·8	82·3	43·3	39·0	70·7	77·1	64·4	+1·1	46·6	56·4	59·6	54·2
	Raipur	...	Imperfect.											Imperfect.								
	Sutna	...	29·066	·952	·114	·999	+·014	1·052	74·8	45·3	29·5	79·1	38·6	40·5	67·4	74·4	59·0	−0·7	42·7	54·1	56·8	51·2
	Sambalpur	...	·648	29·525	·123	29·584	+·039	1·015	79·2	51·8	27·4	82·4	46·4	36·0	70·0	77·5	64·6	−1·8	50·0	60·8	63·0	57·9
	Secunderabad	1,787	28·298	28·188	·110	28·243	+·049	1·013	81·7	56·4	25·3	85·2	50·9	34·3	72·9	79·0	68·0	−1·4	54·8	61·5	62·6	59·6
	Hyderabad (Deccan).	...	·401	·282	·119	·342	?	1·017	81·1	56·2	24·9	84·4	51·1	33·3	73·2	77·7	67·8	?	54·5	62·7	62·3	59·8
West Coast.	Bombay	...	30·041	29·931	·110	29·979	+·031	·956	84·2	66·9	14·3	88·7	66·8	21·9	76·1	80·8	75·6	−0·3	65·1	68·9	71·6	68·5
	Ratnagiri	...	29·939	·824	·115	·874	+·036	·924	88·8	66·8	22·0	92·4	60·8	31·6	84·0	83·6	75·9	−0·6	61·9	68·7	72·4	67·7
	Karwar	...	30·002	·882	·120	·935	+·036	·911	87·4	65·3	22·1	91·3	60·6	30·7	77·6	83·9	74·9	−0·7	62·2	68·4	71·9	67·5
	Cochin	...	·011	·896	·115	·946	+·031	·884	88·5	72·1	16·4	91·3	67·8	23·5	82·9	85·8	79·0	0	69·2	72·7	74·1	72·0
South India.	Salem	...	29·144	28·995	·149	·072	+·031	·963	88·6	64·6	24·0	92·0	58·1	33·9	79·3	85·1	75·5	+1·5	62·8	68·7	69·5	67·0
	Mercara	...	26·311	26·217	·094	26·264	+·021	·937	74·2	57·5	16·7	76·6	53·9	22·7	66·6	72·8	65·7	+0·5	54·5	59·8	60·8	58·4
	Bangalore	...	27·067	·950	·117	27·009	+·012	·958	80·5	57·8	22·7	83·1	52·7	30·4	71·8	77·5	68·4	+0·8	56·2	62·8	64·0	61·0
	Hassan	...	26·989	·874	·115	26·932	?	·913	81·6	55·0	26·6	83·7	47·5	36·2	73·3	78·2	67·4	?	54·5	65·1	66·2	62·2
	Chitaldroog	...	27·652	27·537	·115	27·595	?	·950	81·8	60·0	21·8	86·2	54·2	32·0	74·0	79·5	70·3	?	56·9	63·8	63·8	61·5
	Trichinopoly	...	29·808	29·675	·133	29·744	+·039	·934	87·7	69·0	18·7	91·2	65·0	26·2	74·4	84·1	77·2	+1·1	66·2	70·8	72·1	69·7
	Madras	...	30·063	·966	·097	30·012	+·037	·965	84·5	68·4	16·1	86·9	64·8	22·1	80·0	79·8	75·4	−0·6	?	72·5	72·4	71·1
	Bellary	...	28·603	28·469	·134	28·535	+·050	·981	84·5	59·5	25·0	86·6	53·2	33·4	75·5	82·4	71·1	−1·2	58·2	68·0	71·5	65·7
	Vizagapatam	...	30·090	29·978	·112	30·027	+·032	·997	77·1	66·3	10·8	80·0	63·0	17·0	75·3	77·0	74·2	−1·0	59·5	66·4	67·3	64·4
Hill Station, Baluchistan.	Quetta	...	24·774	24·710	·064	24·730	+·028	?	51·4	31·2	20·2	64·6	23·9	40·7	43·7	48·1	40·5	−1·6	30·4	37·7	40·2	36·1
Hill Stations, Northern India.	Leh	11,503	19·762	19·677	·085	19·716	+·018	?	34·3	12·6	21·7	39·4	5·0	34·4	24·2	30·0	22·6	−1·7	11·1	21·1	25·6	19·3
	Srinagar	...	25·072	24·988	·084	25·030	?	?	46·4	28·7	17·7	58·7	21·1	37·6	36·5	45·3	37·3	?	27·9	34·3	39·8	34·0
	Murree	...	23·934	23·900	·034	23·905	−·002	?	50·9	37·1	13·8	60·6	29·9	30·7	46·4	45·5	42·4	−1·9	31·3	36·8	37·9	35·3
	Chamba	3,005	27·101	27·005	·096	27·005	+·008	?	63·8	42·9	20·9	70·0	38·3	31·7	50·6	57·3	49·6	−0·9	39·7	44·4	48·2	44·1
	Kailang	10,087													Not received.							
	Simla (Ridge)	...	23·196	23·149	·047	23·161	+·018	?	49·8	39·4	10·4	54·0	30·2	23·8	46·2	45·7	43·3	−2·4	31·1	35·6	37·5	34·7
	Simla (Chapslee)		Not recorded.					?	55·0	39·4	15·6	61·9	31·3	30·6	48·7	?	?	?	31·5	37·2	?	?
	Chakrata	...	·346	·282	·064	·302	−·004	?	56·4	39·8	16·6	62·1	31·4	30·7	52·4	47·7	45·7	−0·1	33·3	41·2	39·4	38·0
	Ranikhet	...	24·219	24·159	·060	24·174	+·032	?	58·9	43·1	15·8	64·1	34·0	30·1	53·4	54·9	49·7	+0·2	38·7	44·6	45·6	43·0
	Pithoragarh	5,363	·863	·797	·066	·815	+·030	?	64·4	42·2	22·2	69·8	38·9	30·9	54·4	61·0	52·2	−0·3	38·2	47·5	48·9	44·9
	Katmandu	4,388	25·775	25·667	·108	25·719	+·014	?	64·6	37·2	27·4	67·5	32·2	35·3	50·1	58·3	49·3	−3·2	36·1	46·5	50·5	44·4
	Darjeeling	...	23·057	22·974	·083	23·014	+·011	?	46·0	35·3	10·7	50·3	33·6	16·7	42·8	43·0	39·9	−2·0	34·3	40·3	41·3	38·7
	Pedong	...	25·412	25·311	·101	25·359	+·005	?	57·0	44·7	12·3	60·1	42·0	18·1	53·4	53·8	50·1	−0·6	43·4	49·8	49·6	47·6
	Demagiri	...	Not recorded.					?	74·7	49·2	25·5	86·9	45·1	41·8	68·4	70·7	61·0	−5·4	Not recorded.			
	Tura	...	Ditto.					?	72·6	58·6	14·0	77·6	53·7	23·9	66·5	69·4	64·8	?	?	59·9	61·1	?

II—*continued.*

Stations in India, Burma, etc., for December 1892—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
																									%	%				
·329	·322	·303	·318	−·019	68	37	32	46	− 3	0·8	1·3	1·1	−1·6	9	4	7	4	17	6	5	1	9	S. 60° E.	N. 82° E.	19	52	150*	116	Buldana.	Deccan—*concld.*
·316	·368	·341	·342	+·021	78	45	30	51	0	1·7	2·2	2·0	+0·1	...	9	13	5	10	13	6	3	3	S. 70° E.	N. 66° E.	21	41	77	57	Khandwa.	
·300	·358	·378	·345	+·009	76	55	40	57	+ 2	2·3	2·8	2·6	+1·0	8	2	26	10	4	5	1	4	2	S. 52° E.	N. 61° E.	52	63	79	58	Hoshangabad.	
·325	·388	·366	·360	+·015	75	49	36	53	+ 1	1·9	1·9	1·9	−0·5	6	7	26	19	3	1	...	...	...	N. 61° E.	N. 64° E.	72	52	84	68	Nagpur.	
·389	·493	·446	·443	−·019	89	61	43	64	− 1	1·1	1·4	1·3	−0·7	47	4	...	1	...	3	2	2	3	N. 69° W.	N. 3° W.	8	48	14	46	Sironcha.	
·349	·435	·432	·405	+·002	92	56	42	63	+ 1	2·0	1·7	1·9	−0·6	9	12	14	16	1	...	...	1	9	N. 35° E.	N. 63° E.	55	37	40	39	Chanda.	
·341	·421	·435	·399	+·098	95	58	49	67	+15	2·2	2·7	2·5	−1·1	...	6	13	8	9	9	7	5	5	N. 66° E.	N. 44° E.	18	38	62	59	Seoni.	
·286	·326	·293	·302	+·002	91	52	32	58	+ 1	1·5	1·7	1·6	−0·3	25	4	3	...	3	8	2	3	12	N. 71° W.	N. 32° E.	14	17	15	41	Jubbulpore.	
·255	·280	·295	·277	+·012	65	38	32	45	0	1·6	2·4	2·0	+0·8	...	6	9	5	23	8	4	3	4	S. 58° E.	N. 37° E.	35	38	43	60	Saugor.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N. 35° E.	...	48	...	66	Raipur.	
·245	·258	·249	·251	+·001	80	38	29	49	+ 1	1·5	1·4	1·5	+0·1	2	22	5	5	..	2	2	7	17	N. 19° W.	N. 31° W.	58	39	91*	89	Sutna.	
·339	·412	·384	·378	−·046	88	56	40	61	− 4	1·1	1·0	1·1	−0·8	...	16	9	2	2	10	8	3	12	N. 28° W.	N. 13° W.	26	48	78*	38	Sambalpur.	
·416	·412	·366	·398	−·015	91	52	37	60	+ 2	1·5	1·3	1·4	−1·0	...	3	22	28	7	2	...	...	...	N. 76° E.	N. 65° E.	81	76	88	81	Secunderabad.	
·416	·442	·374	·411	?	89	54	39	61	?	1·9	2·4	2·2	?	8	1	11	21	16	5	...	...	...	S. 79° E.	?	66	?	74*	?	Hyderabad (Deccan).	
·560	·612	·654	·609	−·011	76	68	62	69	− 1	1·3	2·4	1·9	+0·1	...	...	10	20	1	...	...	14	17	N. 7° E.	N. 17° E.	31	63	198	238	Bombay.	West Coast.
·494	·501	·650	·548	−·010	75	43	56	58	0	0·7	0·7	0·7	−0·2	1	4	4	14	9	1	5	10	14	N. 2° W.	N. 4° W.	10	36	177*	213	Ratnagiri.	
·523	·578	·625	·574	−·036	83	61	54	66	− 3	0·9	0·9	0·9	−0·7	10	2	27	...	...	...	...	6	17	N. 2° E.	N. 1° E.	53	57	40	?	Karwar.	
·678	·672	·687	·679	−·052	86	60	56	67	− 7	0.9	1·1	1·0	−2·2	1	...	27	1	...	...	...	20	13	N. 18° W.	S. 50° W.	48	15	116	?	Cochin.	
·552	·565	·516	·544	−·045	90	56	43	63	− 9	5·0	5·1	5·1	+1·0	3	12	29	12	1	...	...	...	5	N. 29° E.	N. 89° E.	64	48	102	91	Salem.	South India.
·395	·439	·399	·411	−·056	82	67	50	66	−11	5·4	5·8	5·6	+0·5	...	3	12	46	...	...	...	1	...	N. 78° E.	N. 73° E.	89	75	193	117	Mercara.	
·438	·461	·428	·442	−·014	91	59	46	65	− 4	1·1	1·7	1·4	−2·7	...	...	28	23	10	1	...	...	...	N. 77° E.	N. 70° E.	82	84	198*	93	Bangalore.	
·427	·525	·499	·488	?	97	64	52	71	?	3·1	3·3	3·2	?	2	2	24	26	8	...	...	...	...	N. 75° E.	?	81	?	115	?	Hassan.	
·432	·463	·402	·435	?	83	57	41	60	?	2·2	2·4	2·3	?	...	...	23	28	11	...	...	...	...	N. 81° E.	?	85	?	190*	?	Chitaldroog.	
·610	·622	·628	·620	+·043	86	59	55	67	− 7	5·1	5·7	5·4	−0·5	13	7	37	1	...	...	...	1	3	N. 34° E.	N. 39° E.	69	75	75	121	Trichinopoly.	
?	·701	·687	·705	+·013	?	69	68	80	+ 2	5·4	4·4	4·9	−0·4	...	32	25	1	...	...	...	...	4	N. 17° E.	N. 24° E.	89	75	159	179	Madras.	
·473	·595	·640	·559	+·094	91	67	58	71	+13	3·0	2·6	2·8	−0·6	22	1	13	16	9	1	...	...	...	N. 85° E.	S. 87° E.	52	69	73	75	Bellary.	
·417	·540	·551	·503	−·047	64	61	59	61	− 2	1·4	2·3	1·9	−0·6	...	18	22	9	6	...	1	5	1	N. 37° E.	N. 83° E.	10	55	34	49	Vizagapatam.	
·168	·168	·170	·169	+·024	93	59	52	68	+12	2·9	3·2	3·1	+0·1	17	1	...	...	3	7	6	9	19	N. 88° W.	N. 48° W.	40	37	79*	58	Quetta.	Hill Station, Baluchistan.
·065	·089	·105	·086	+·007	85	69	63	72	+12	5·7	5·7	5·7	+0·2	29	...	1	...	1	2	17	11	1	S. 59° W.	S. 1° W.	42	34	3	30	Leh.	
·147	·175	·187	·170	?	92	81	63	79	?	5·8	5·9	5·9	?	40	1	1	3	7	5	...	2	3	S. 37° E.	?	13	?	38*	?	Srinagar.	
·120	·124	·151	·131	−·004	55	40	51	49	0	3·9	4·9	4·4	−0·3	19	1	1	2	32	3	1	1	2	S. 44° E.	S. 58° E.	52	31	266*	167	Murree.	Hill Stations, Northern India.
·211	·224	·235	·223	−·015	75	61	51	62	+ 7	4·9	4·7	4·8	+0·4	48	2	...	...	3	2	1	...	6	N. 64° W.	S. 58° E.	5	16	59*	70	Chamba.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S. 44° W.	...	46	...	20	Kailang.	
·092	·102	·142	·110	−·032	38	33	46	38	− 8	4·8	4·7	4·8	+1·2	12	20	1	...	...	22	4	1	2	S. 59° W.	N. 83° W.	8	18	?	?	Simla (Ridge).	
·101	·105	?	?	?	42	31	?	?	?	4·7	?	?	?	Not recorded.									?	?	?	?	?	?	Simla (Chapslee).	
·128	·145	·159	·144	−·005	53	37	48	46	− 5	2·7	3·0	2·9	−0·3	33	...	1	2	1	...	3	21	1	S. 87° W.	S. 55° W.	32	14	35	100	Chakrata.	
192	·205	·214	·204	+·007	70	51	49	57	+ 1	3·8	3·4	3·6	+1·1	28	1	1	3	2	...	16	11	...	S. 58° W.	S. 54° W.	32	22	45	35	Ranikhet.	
·192	·260	·226	·226	+·003	71	62	41	58	0	3·0	3·0	3·0	+0·7	38	...	1	1	1	8	13	...	...	S. 22° W.	S. 36° E.	31	30	51	49	Pithoragarh.	
·197	·278	·278	·259	−·024	87	77	57	74	+ 1	3·1	4·2	3·7	+0·8	13	6	1	6	4	2	...	13	17	N. 48° W.	N 64° W.	34	61	15	?	Katmandu.	
·188	·226	·244	·220	+·020	90	82	88	87	+11	5·7	7·4	6·6	+2·3	3	10	8	4	1	...	6	19	10	N. 48° W.	N. 54° W.	44	4	77	46	Darjeeling.	
·268	·318	·309	·299	−·001	90	77	74	81	+ 2	5·5	7·3	6·4	+1·9	31	...	6	4	11	6	1	2	...	S. 52° E.	?	28	?	?	?	Pedong.	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	...	...	4	...	...	...	4	4	50	N. 48° W.	N. 58° W.	85	33	?	?	Demagiri.	
?	·454	·443	?	?	?	68	62	?	?	2·1	2·1	2·1	−0·9	...	2	2	4	11	19	19	1	4	S. 7° W.	S. 15° E.	55	45	?	?	Tura.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 98

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.
Hill Stations, Central India.	Mount Abu	...	...	Doubt	ful.	...	...	?	66·4	52·6	13·8	71·1	44·7	26·4	63·1	63·2	58·7	—1·0	45·3	50·5	51·9	49·3
	Pachmarhi	..	26·634	26·551	·083	26·586	+·030	?	71·3	45·9	25·4	73·8	35·8	38·0	66·3	68·1	57·9	+2·7	42·6	53·3	54·5	50·1
	Chikalda	3,642	·503	·411	·092	·450	+·026	?	71·1	55·7	15·4	74·2	50·4	23·8	65·3	69·3	63·0	0	49·5	54·8	56·9	53·8
	Makhla	...	Not recorded.						73·6	55·6	18·0	76·1	50·0	26·1	64·4	71·1	63·4	?	51·6	57·4	62·2	57·1
Hill Stations, S. India.	Wellington	...	24·345	24·270	·075	24·307	+·044	?	67·4	45·5	21·9	71·8	38·4	33·4	62·2	62·0	55·1	—1·0	42·8	53·5	55·6	50·6
	Kodaikaual	...	Not recorded.						63·0	48·1	14·9	70·0	44·1	25·9	58·5	55·6	54·1	?	42·3	50·0	52·7	48·2
	Kotagiri	...	23·823	23·761	·062	23·792		?	67·9	50·1	17·8	71·1	45·2	25·9	60·8	61·8	57·5	?	45·2	54·8	57·5	52·5
Extra India.	Aden	...	29·987	29·881	·106	29·934	—·019	29·961	80·8	73·1	7·7	85·0	67·3	17·7	78·0	78·9	76·5	—0·1	67·1	70·2	69·7	69·0
	Perim	...	·843	·732	·111	·788	?	?	83·8	74·7	9·1	86·0	72·6	13·4	80·1	80·7	78·5	?	70·2	72·6	72·6	71·8
	Amini Divi	15 ?	30·002	·902	·100	·947	+·020	·890	86·2	72·3	13·9	88·3	67·1	21·2	84·2	82·8	77·8	—0·7	70·0	75·7	75·0	73·6
	Minicoy	...	30·022	·917	·105	·965	?	·904	86·6	76·5	10·0	88·1	74·0	14·1	82·8	83·2	80·1	?	72·3	76·2	76·2	74·9
	Zanzibar	...	29·940	·814	·126	·877	?	·876	86·4	80·8	5·6	87·9	77·9	10·0	83·1	85·6	83·4	?	75·8	77·3	76·7	76·6

II—*concluded.*

Stations in India, Burma, etc., for December 1892—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		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.		
																									%	%				
·222	·225	·260	·236	+·024	56	40	45	47	+ 6	2·5	3·3	2·9	+1·1	1	5	8	1	11	5	8	5	18	N. 62° W.	N. 48° E.	16	14	91	86	Mount Abu.	Hill Stations, Central India.
·239	·260	·272	·257	—·010	76	40	39	52	— 2	2·0	2·1	2·0	—0·1	1	8	4	10	4	8	4	15	8	N. 71° W.	N. 29° E.	13	22	80	63	Pachmarhi.	
·284	·313	·334	·310	+·002	64	50	47	54	+ 1	2·8	2·8	2·8	+0·5	29	5	1	...	7	13	5	...	2	S. 2° E.	N. 77° W.	23	49	116	117	Chikalda.	
?	?	?	?	?	?	?	?	?	?	2·7	2·9	2·8	?	...	5	5	11	18	8	4	4	7	S. 57° E.	?	31	?	?	?	Makhla.	
·257	·326	·380	·318	—·029	82	60	69	69	— 7	3·5	4·6	4·1	—1·4	1	2	8	7	24	19	1	...	...	S. 45° E.	S. 35° E.	66	60	53	55	Wellington.	Hill Stations, S. India.
·219	·277	·369	·288	?	63	56	84	68	?	4·1	6·7	5·4	?	...	3	29	3	23	2	...	...	2	N. 80° E.	?	63	?	175	?	Kodaikanal.	
·254	·371	·431	·352	?	69	70	78	72	?	4·7	5·2	5·0	?	...	1	...	26	21	13	...	1	...	S. 56° E.	?	77	?	81*	?	Kotagiri.	
·588	·638	·605	·611	—·026	72	66	61	66	— 4	2·6	1·2	1·9	—2·1	...	...	9	35	14	2	1	...	1	S. 84° E.	N. 89° E.	81	69	356	299	Aden.	Extra India.
·680	·702	·691	·691	?	79	68	66	71	?	3·6	0·5	2·1	?	...	...	...	23	35	3	...	...	1	S. 60° E.	?	87	?	514	?	Perim.	
·705	·776	·766	·749	—·033	88	66	68	74	— 2	4·2	4·4	4·3	—0·5	4	31	21	...	1	...	...	...	5	N. 14° E.	N. 11° E.	81	62	?	149	Amini Divi.	
·739	·818	·812	·791	?	81	73	71	75	?	3·6	4·1	3·9	?	...	13	32	41	2	...	...	...	1	N. 47° E.	?	82	?	162	?	Minicoy.	
·826	·859	·798	·828	?	79	76	65	73	?	4·6	2·0	3·3	?	...	15	28	9	1	1	5	1	2	N. 37° E.	N. 26° E.	63	30	180	140	Zanzibar.	

* Corrected.

Government of India Central Printing Office.—No. 106 Meteor.—26-4-93.—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.

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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.

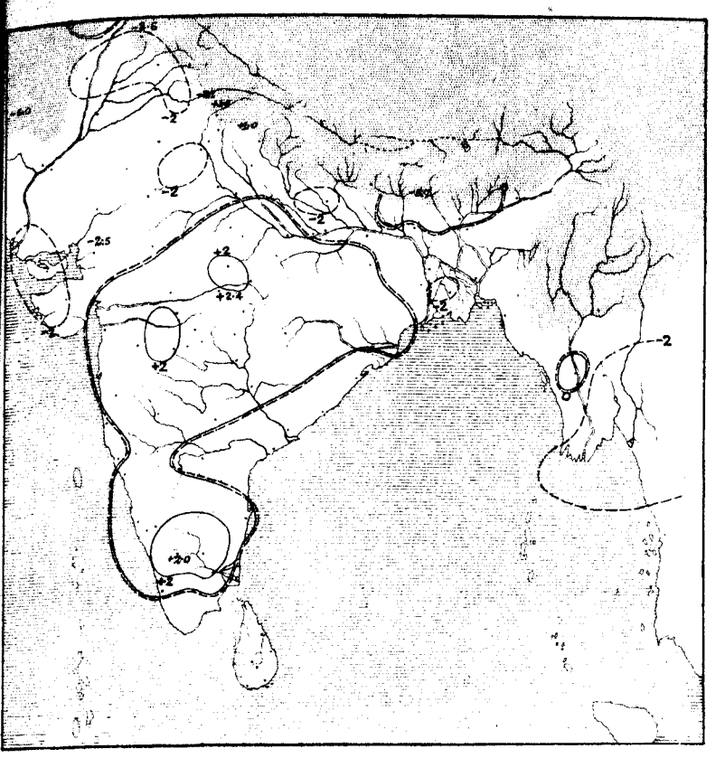
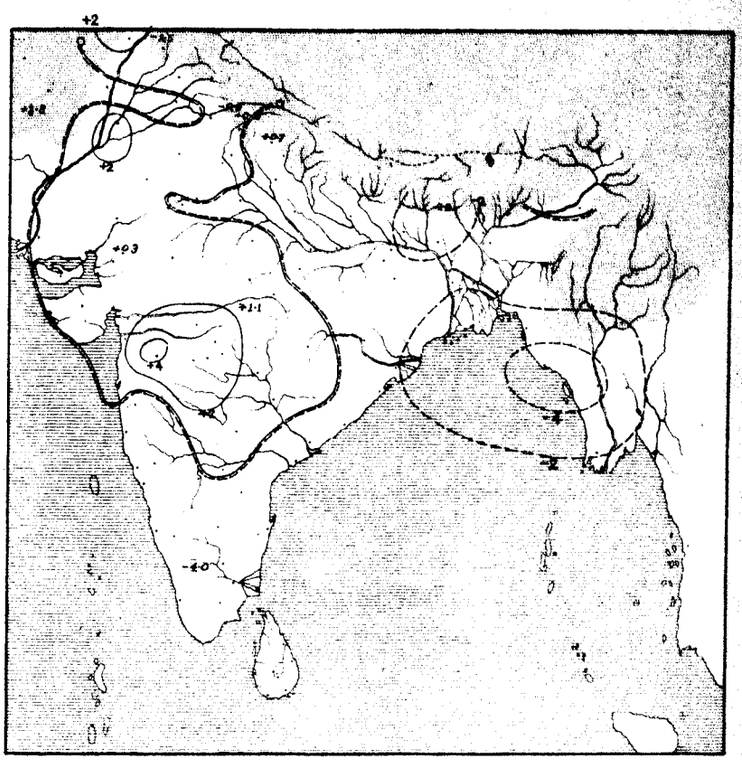


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

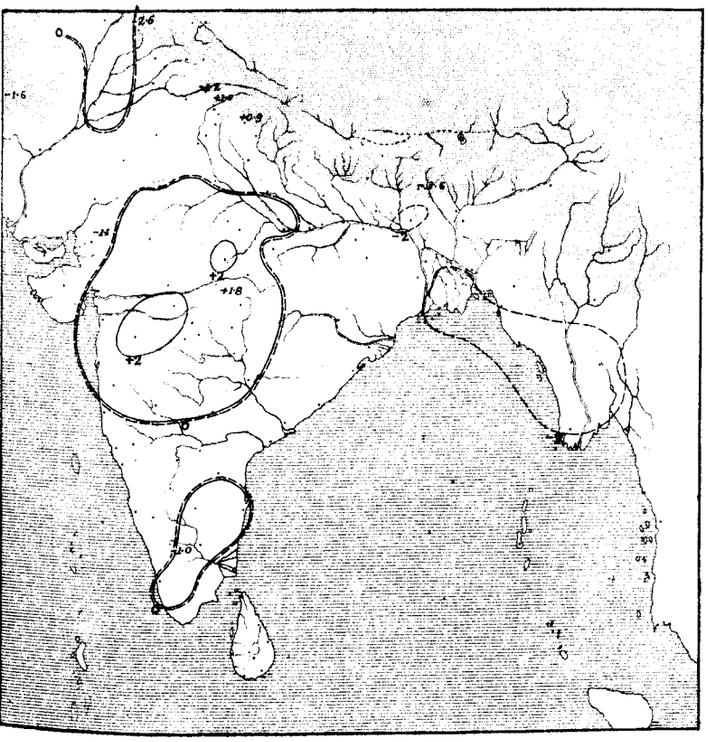
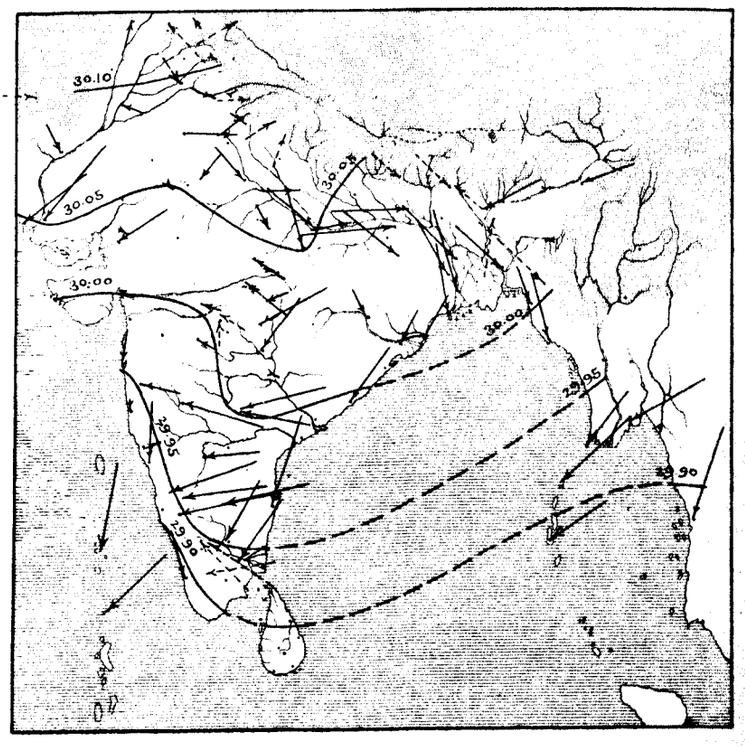


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF DECEMBER 1892.



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.

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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)