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has been *Obes vatory*

Recording report on
the — for the year 1873

22

Gobt. of {1894} Madras.
PUBLIC.

Issued

Recd.

Encl.

G.O., &c., 16th June 1894,
Nos. 437, 438.

JUNE.

Madras Observatory.

Recording report on the — for the year 1893.

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Recorded.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Government Astronomer.
Editors' Table.

ENDORSEMENT—dated 16th June 1894, No. 438, Public.

Copy to the Government of India, Revenue and Agricultural Department.

J. F. PRICE,
Chief Secretary.

APPENDIX I. Mean Monthly and Annual Meteorological Results at the Madras Observatory in 1893.

	Barometer.		Dry Bulb Thermometer.				Wet Bulb.	Tension of Vapour.	Relative Humidity.	Sun Max. in Vac.	Min. on Grass.	Wind.		Rain.		Clear Sky.	
	Reduced to 32°.	Daily Range.	Mean.	Max.	Min.	Range.	Mean.	By Blandford's Tables.	°	°	°	Miles.	Points.	Points.	Amount.		Days.
Inches.	Inches.	°	°	°	°	°	°	Inches.	Centas.	°	°	°	°	°	Inches.	No.	Centas.
29.955	0.104	75.1	85.1	65.4	19.7	69.8	0.660	76	141.2	62.4	129	5	N.E. by E.	0.33	4	73	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
January	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
February	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
March	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
April	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
May	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
June	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
July	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
August	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
September	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
October	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
November	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
December	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Annual	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

EXTREME Monthly Meteorological Records at the Madras Observatory in 1893.

	Barometer.			Dry Bulb Thermometer.			Humidity.		Sun Th. in Vacuo.		Grass Therm.		Wind.		Rain.					
	Highest.		Lowest.	Highest.		Lowest.	Lowest.		Highest		Lowest.		Highest.			Lowest.				
	Inches.	Day.	Inches.	Day.	Inches.	Day.	°	Day.	°	Day.	°	Day.	Miles.	Day.		Inches.	Day.			
January	30-103	29-843	13	0-261	87-8	27	69-5	18	48	25	148-2	23	56-6	18	233	11	62	10	0-17	6
February	30-091	29-856	22	0-235	89-8	25	63-1	2	53	1	147-6	12	59-7	2	212	21	69	9	0-02	26
March	30-067	29-705	23	0-382	93-9	31	68-1	19	44	18	150-1	26	65-1	19	230	9	56	18	1-56	14
April	30-069	29-990	28	0-419	104-7	29	69-8	1	40	30	154-2	30	66-8	1	245	30	119	14	..	..
May	29-884	29-554	1	0-330	105-4	1	75-5	21	39	2	158-8	2	71-9	21	289	8	150	15	0-24	21
June	29-851	29-649	16	0-302	102-0	19	74-9	30	35	18	150-4	18	73-2	12	289	20	110	10	0-25	14
July	29-835	29-566	24	0-269	96-9	4	72-3	1	44	6	149-8	6	72-0	1	209	29	66	7	0-90	31
August	30-114	29-619	20	0-284	100-1	31	74-4	13	47	27	156-9	81	72-9	13	222	7	75	18	0-62	18
September	30-914	29-824	9	0-290	99-6	8	72-3	15	40	8	153-9	8	71-0	15	209	11	57	19	0-95	12
October	30-007	29-664	3	0-243	97-3	4	70-5	29	47	2	154-4	4	67-7	30	171	16	63	25	3-59	11
November	30-075	29-705	6	0-370	87-9	3	69-4	29	67	29	149-2	11	66-8	29	490	5	60	16	7-25	5
December	30-096	29-879	31	0-217	85-6	4	63-6	22	52	28	149-0	24	59-4	22	290	17	102	25	0-94	31

APPENDIX II. MADRAS Observatory Meteorological Observations—Abnormals for monthly means.

1893.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Reduced atmospheric pressure	..	..	..	..	..	..	..	..	..	..	..	..	..
Temperature of air	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. of evaporation	..	..	..	..	..	..	..	..	..	..	..	..	..
Percentage of humidity	..	..	..	..	..	..	..	..	..	..	..	..	..
Greatest solar heat in vacuo	..	..	..	..	..	..	..	..	..	..	..	..	..
Maximum in shade	..	..	..	..	..	..	..	..	..	..	..	..	..
Minimum in "	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. on grass	..	..	..	..	..	..	..	..	..	..	..	..	..
Rainfall in inches	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. since January 1st	..	..	..	..	..	..	..	..	..	..	..	..	..
General direction of wind	..	..	..	..	..	..	..	..	..	..	..	..	..
Daily velocity in miles	..	..	..	..	..	..	..	..	..	..	..	..	..
Percentage of clear sky	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. of bright sunshine	..	..	..	..	..	..	..	..	..	..	..	..	..

+ Means above and - below the average.

The rainfall was above the average in March, July, August and November, and below the average in all other months. The excess amounted to 10·57 inches in November and the defect to 5·79 inches in October. For the whole year the defect was 5·04 inches. The monsoon rainfall from October 15th to December 31st was 26·0 inches against an average of 27·6. The greatest fall on one day was 7·25 inches on November 5th.

The general direction of the wind was fairly normal except in March and October when it was 3 points more easterly, and February and June when it was 2 points more southerly, than the average. The daily velocity was considerably below normal in most months, and in July the defect amounted to 62 miles per day. The highest recorded velocity for any one day was 490 miles on November 5th during the cyclone of November 5th and 6th. The highest velocity for any hour was 34 miles during the same storm. The north-easterly winds of the retreating south-west monsoon first appeared on October 7th, but were not finally established till the 25th.

The amount of cloud was above normal during a great part of the year, the excess amounting to 10 per cent. in May and 16 per cent. in November. There were 2,544 hours of bright sunshine during 1893, against 2,722 hours in 1892 and 2,894 hours in 1891.

The diagram shows the abnormals (*i.e.*, the differences between the actual and normal values) for the monthly means. The abnormal curve for deaths from fever in Madras town, drawn from data supplied by the Health Officer of the municipality, has been added to those given in last year's report.

8. The service books and a list of the valuable property belonging to the Observatory are in order.

Date.	Signal.	Fault.	Cause.
1893.			
May 11 ..	Semaphore ..	Failed at 1, dropped at 2 ..	Bad connection at T.O.
" 18 ..	8 P.M. gun ..	Failed ..	Tube broke.
" 19 ..	Do. ..	Fired 10 seconds late ..	Gun wrongly placed.
" 23 ..	Semaphore ..	Failed ..	Interruption in line.
June 8 ..	4 P.M. time signal ..	Do. ..	Fault at T.O.
" 16 ..	Noon and 8 P.M. guns ..	Do. ..	Bad tubes.
July 26 ..	Semaphore ..	Failed at 1, dropped at 2 ..	Bad connection at T.O.
August 19 ..	Noon gun ..	Failed ..	Bullock tied to earth wire.
September 15 ..	Semaphore ..	Failed at 1, dropped at 2 ..	Bad connection at T.O.
October 26 ..	Noon gun ..	Failed ..	Gunner late.
November 6 and 7 ..	Semaphore ..	Do. ..	Line broken by cyclone.
" 15 ..	Do. ..	Failed at 1, dropped at 2 ..	Bad connection at T.O.
" 22 ..	Do. ..	Failed ..	Earth wire broken at Marine Office.
December 12 ..	Do. ..	Failed at 1, dropped at 2 ..	Bad connection at T.O.
" 20 ..	8 P.M. gun ..	Failed ..	Gunner late.
" 26 ..	Noon gun ..	Do. ..	Bad tube.

In none of the above cases did the fault lie at the Observatory.

5. *Reductions and Publication.*—Vol. VI of the "Madras Meridian Circle Observations" was issued in May and the next volume dealing with the years 1880, 1881 and 1882 was at once taken in hand. This volume would have been far advanced before the close of the year had it not been for the discovery that a large number of the results were affected by a systematic error. The source of this error was traced and the necessary corrections were applied, but the work involved has been very heavy. The error affected, not only the observations in Vol. VI, but also those in the following volume, amounting in all to over 13,000 observations. These had to be revised throughout and for most of the stars the whole of the reductions have been gone over in duplicate so as to eliminate arithmetical errors which are sure to be made in work of this kind. A certain number of the results in the volumes already published are affected—though to a less degree—by the same error, and the necessary revision will be made before the publication of Vol. VIII. The volume of hourly meteorological observations for the years 1856–61 was completed and issued in April. Tables of the mean daily rainfall and height of the barometer deduced from 5-day means for 80 and 50 years, respectively, were prepared and printed. Similar tables for temperature are in course of preparation.

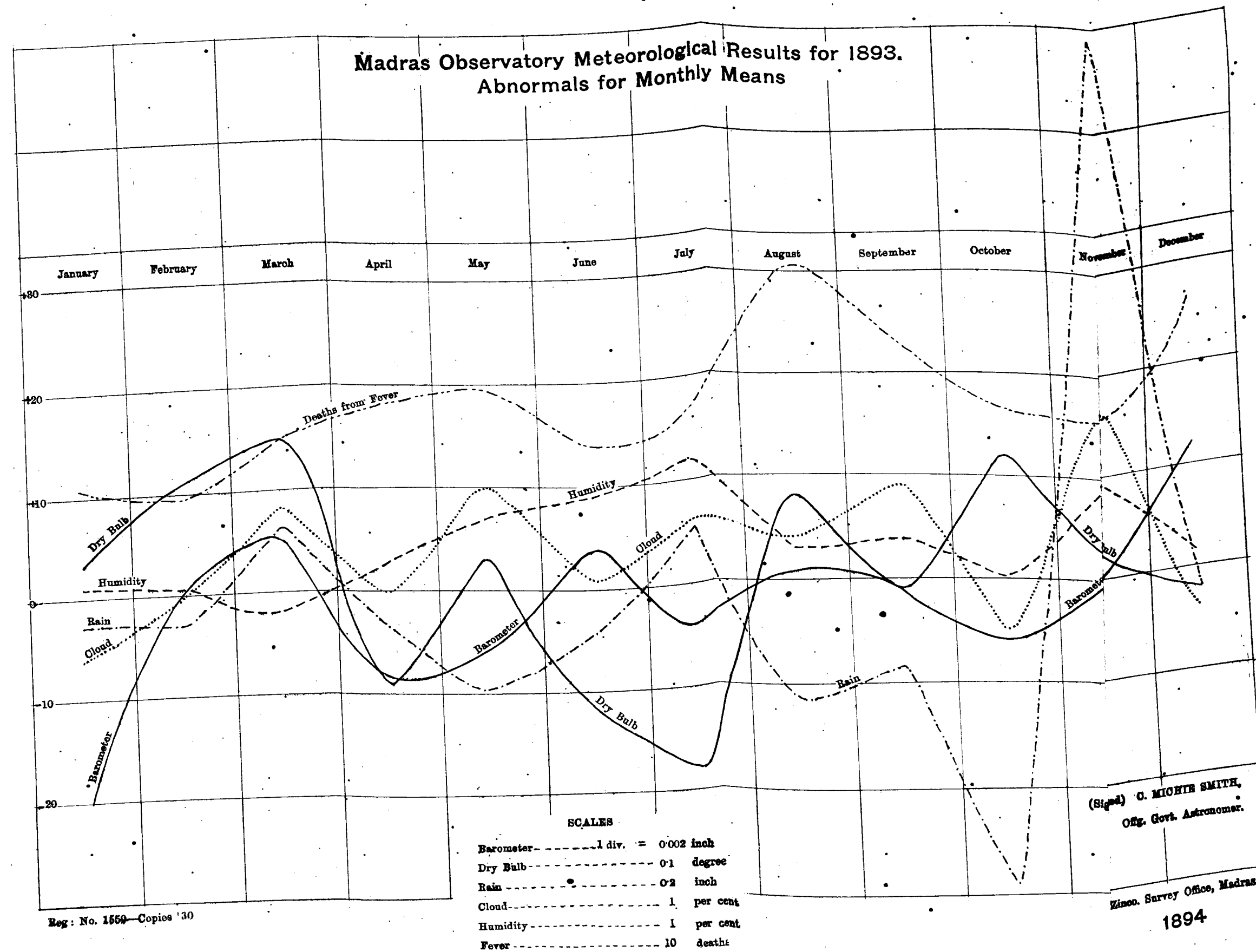
6. *The Library.*—A manuscript catalogue of the bound books in the library has now been completed and lists have been prepared of the unbound volumes, pamphlets, manuscripts, &c. Binding has been carried on as rapidly as the Government Press was able to undertake the work. Several of the incomplete sets of publications have been completed during the year and special thanks are due to the Royal Society for sending copies of all the missing parts of the Royal Society Proceedings with the exception of a single number which is out of print. The Observatory is again indebted to Professor Holden, of the Lick Observatory, for some excellent photographs—6 positives on glass—of the total solar eclipse of 1893.

7. *Meteorological.*—The meteorological registers were maintained as in former years. The chief features of the year's meteorology are shown in the tables and the diagram which form an appendix to this report.

The mean barometer differed but little from the average during any month except January when it was 0.040 inches below, and December when it was 0.024 above, the average. The highest daily mean was 30.103 on January 1st, and the lowest 29.835 on July 2nd.

The temperature of the air was considerably above the average in February, March, August and October; slightly above in January and May; slightly below in September and December; and considerably below in April, June and July. The highest shade temperature recorded was 105.4 on May 1st, and the lowest 59.5 on January 18th.

The humidity was abnormally high throughout almost the whole year, only in March did it fall below the average. The driest day in the year was June 18th with only 35 per cent. of saturation.



Public Depart.

From

H. M.
P.S.

Order

Recorded.

13/8/94

The Govt. Astronomer
Madras

16 June 1894.
No 437

No. 105
94

To

The Govt Astronomer 6 Dec 1897
Editor's Table — Ciff 17/1

Despatch N^o 438.

18/7/94
Copy to the Govt. of India
Revenue and Agricultural Depts

Dated 7th June/94
Recd.

Enclosures. 4

Submitting the report on
the Observatory for the year 1893

WITH ORDER

16TH JUNE 1894, Nos. 437, 438, PUBLIC.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper :—

From C. MICHIE SMITH, Esq., Officiating Government Astronomer, to the
Chief Secretary to Government, dated Madras, 7th June 1894, No. 105.

I have the honour to submit, enclosed, my report on the Madras Observatory for
the year 1893.

ADMINISTRATION REPORT ON THE MADRAS OBSERVATORY FOR THE YEAR 1893.

1. *Staff.*—The Third Assistant, L. Thunsing, retired in December owing to ill-health and his place was taken by S. Solomon, the Fifth Assistant. The vacancy thus caused was filled by the appointment of K. S. Lakshminarasa Aiyar, B.A., who was selected by examination from a number of candidates. The work of the assistants throughout the year was, on the whole, satisfactory.

2. *Instruments and Buildings.*—These have been maintained in good order throughout the year. A new mean time chronometer was obtained during the year. Its rate has been most satisfactory.

3. *Observations.*—As for several years past, the only systematic astronomical observations made were those required for the time service and this state of affairs must continue for at least another year.

4. *Time Service.*—The time service has been maintained as in former years. The time gun at Fort St. George was fired correctly on 710 occasions, giving a percentage of success of 97.3. The semaphore at the Port Office was dropped correctly at 1 o'clock on every day except 13 and on 7 of these it was dropped correctly at 2 P.M., giving a percentage of success of 97.3, if $\frac{1}{2}$ be allowed for those days on which it failed at 1 and dropped at 2. The comparatively large number of failures of the gun was due chiefly to the breaking down of the firing apparatus in February, which rendered it necessary to use a less satisfactory apparatus pending the repairs of the proper one. The 4 P.M. signal was received at the Telegraph Office every day except one.

The following table shows all the failures in the time signals throughout the year and their causes so far as could be ascertained :—

Date.	Signal.	Fault.	Cause.
1893.			
February 17 ..	Noon gun ..	Failed ..	} Instrument out of order.
" 18 ..	Do. ..	Fired 2 minutes late ..	
" 19 ..	Noon and 8 P.M. gun.	Failed ..	
" 20 ..	Noon gun ..	Do. ..	
" 20 ..	Semaphore ..	Failed at 1 P.M. dropped at 2.	} Contact between the Observatory line and the Negapatam line.
March 18 ..	Do. ..	Fell too soon at 1, dropped at 2.	
" 19 ..	Do. ..	Fell too soon ..	
" 28 ..	Noon gun ..	Fired 3 minutes late ..	
" 31 ..	Semaphore ..	Failed ..	} Instrument not working.
April 4 ..	Noon gun ..	Do. ..	
" 5 ..	Do. ..	Do. ..	
" 20 ..	Do. ..	Do. ..	
" 21 ..	Do. ..	Fired 1 second late ..	} Instrument not working.
" 27 ..	Do. ..	Failed ..	

the average in February, March, August and October; slightly above in January & May; slightly below in September and December; and considerably below in April, June, and July. The highest shade temperature recorded was 105.4 on May 1, and the lowest 59.5 on January 18.

The humidity was abnormally high throughout almost the whole year, only in March did it fall below the average. The driest ~~day~~ in the year was June 18 with only 35 per cent. of saturation.

The rainfall was above the average in March, July, August, and November and below the average in all other months. The excess amounted to 10.57 inches in November and the defect to 5.79 inches in October. For the whole year the defect was 5.04 inches. The monsoon rainfall from October 15 to December 31 was 26.0 inches against an average of 27.6. The greatest fall on one day was 7.25 inches on November 5.

The general direction of the wind was fairly normal except in March and October when it was 3 points more easterly and February & June when it was 2 points more southerly than the average.

The daily velocity was considerably below normal in most months and in July the defect amounted to 62 miles per day. The highest recorded velocity for any one day was 49.0 miles on November 5 during

during the cyclone of November 5-6. The highest velocity for any hour was 34 miles during the same storm.

The north-easterly winds of the retreating south-west monsoon first appeared on October 7 but were not finally established till the 25th.

The amount of cloud was above normal during a great part of the year, the excess amounting to 10 per cent. in May and 16 per cent. in November. There were 2,544 hours of bright sunshine during 1893 against 2722 hours in 1892 and 2894 hours in 1891.

The diagram shows the abnormal (i.e. the differences between the actual and normal values) for the monthly means. The abnormal ^{curve} for deaths from fever in Madras Town, drawn from data supplied by the Health Officer of the Municipality, has been added to those given in last year's report.

8. The service books & a list of the valuable property belonging to the Observatory are in order.

C. Christie Smith
Offg. Govt. Astronomer.

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The mean barometer differed but little from the average during the month except January when it was 0.040 inches below, and December when it was 0.024 above the average. The highest daily mean was 30.103 on January 1 and the lowest 29.835 on July 2.

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maintained as in former years. The time gun at Fort St. George was fired correctly on 710 occasions giving a percentage of success of 97.3. The Semaphore at the Port Office was dropped correctly at 1 o'clock on every day except 13 and on 7 of these it was dropped correctly at 2 P.M. giving a percentage of success of 97.3, if $\frac{1}{2}$ be allowed for those days on which it failed at 1 and dropped at 2. The comparatively large number of failures of the gun was due chiefly to the breaking down of the firing apparatus in February which rendered it necessary to use a less satisfactory apparatus pending the repairs of the proper one. The 4 P.M. signal was received at the Telegraph Office every day except one.

The following table shows all the failures in the time signals throughout the year and their causes so far as could be ascertained.

Date	Signal	Fault	Cause
1893 Feby. 17	noon gun	Failed	Instrument out of order
18	do	Fired 2 ^m late	Do.
19	noon + 8 P.M. gun	Failed	Do
20	noon gun	do	Do.
.	Semaphore	Failed at 1 P.M. dropped at 2	—

Continued:—

Date	Signal	Fault	Cause
1893 March 18	Semaphore	Fall too soon at 1, dropped at 2.	Contact between the Observatory line & the Megapattam line.
19	do	Fall too soon	
28	noon gun	Fired 3 ^m late	
31	Semaphore	Failed	Interruption in line
April 4	noon gun	Failed	Instrument out working
5	do	do	do
20	do	do	do
21	do	Fired 1 st late	do
27	do	Failed	do
May 11	Semaphore	Failed at 1, dropped at 2	Bad connection at S.O.
18	8 P.M. gun	Failed	Tube broke
19	do	Fired 10 th late	Gun wrongly placed
23	Semaphore	Failed	Interruption in line
June 8	4 P.M. time signal	do	Fault at S.O.
16	noon + 8 P.M. guns	Failed	Bad tubes
July 26	Semaphore	Failed at 1, dropped at 2	Bad connection at S.O.
Aug. 19	noon gun	Failed	Ballcock tied to earth wire
Sep. 15	Semaphore	Failed at 1, dropped at 2	Bad connection at S.O.
Oct. 26	noon gun	Failed	Gunner late
Nov. 6 & 7	Semaphore	Failed	Line broken by cyclone
15	do	Failed at 1, dropped at 2	Bad connection at S.O.
22	do	Failed	Earth wire broken at Marine Office
Dec. 12	do	Failed at 1, dropped at 2	Bad connection at S.O.
20	8 P.M. gun	Failed	Gunner late
26	noon gun	Failed	Bad tube

In none of the above cases did the fault lie at the Observatory.

5. Reductions & Publication. Vol. VI. of the 'Madras Meridian Circle Observations' was issued in May and the next volume dealing with the years 1880-81-82 was at once taken in hand. This volume would have been far advanced before the close of the year had

Administration Report on the Madras Observatory
for the year 1893.

1. Staff. The Third Assistant, L. Shumasing, retired in December owing to ill health and his place was taken by S. Solomon, the Fifth Assistant. The vacancy thus caused was filled by the appointment of K. S. Lakshminarasappa Aiyar, B.A., who was selected by examination from a number of candidates. The work of the assistants throughout the year was, on the whole, satisfactory.
2. Instruments & Buildings. These have been maintained in good order throughout the year. A new mean time Chronometer was obtained during the year. Its rate has been most satisfactory.
3. Observations. As for several years past, the only systematic astronomical observations made were those required for the time service and this state of affairs must continue for at least another year.
4. Time Service. The time service has been maintained

1736
THE OBSERVATORY,

Madras, 7th June 1894.

No. 105
94

FROM

THE GOVERNMENT ASTRONOMER,

Madras.

CHIEF SECRETARY
9 JUN. 1894
GOVERNMENT OF MADRAS

To

The Honble. J. F. Price
Chief Secretary to Govt.

SIR,

I have the honor to submit
enclosed my report on the Madras
Observatory for the year 1893.

I have the honor to be,

Sir

Your most obedient servant

C. M. Smith

Offg. Govt. Astronomer.

~~Jan 11~~
Jul 437-8 of 166

Mean Monthly and Annual Meteorological Results at the Madras Observatory in 18

	Barometer.		Dry Bulb Thermometer.		Wet Bulb.		Tension of Vapour.		Relative Humidity.		Sun Max in Vac.		Min on Grass.		Wind.		Rain.		Clear Sky.		General Weather.	
	Reduced to 32°.	Inches.	Mean.	Max.	Min.	Range.	Mean.	Min.	Inches.	Cents.	°	°	°	°	Daily Velocity.	Mean Direction.	Amount.	Days.	Cents.	°	°	°
January																						
February																						
March																						
April																						
May																						
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October																						
November																						
December																						
Annual																						

Extreme Monthly Meteorological Records at the Madras Observatory in 18

	Barometer.		Dry Bulb Thermometer.		Wet Bulb.		Humidity.		Sun Th. in Vacuo.		Grass Therm.		Wind.		Rain.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
January																
February																
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October																
November																
December																

Appendix II

Madras Observatory Meteorological Observations. - Abnormals for monthly Means.

	1893	January	February	March	April	May	June	July	August	September	October	November	December	Year
Reduced atmospheric pressure.		2	3	4	5	6	7	8	9	10	"	12	13	14
Temperature of air	-0.040	+0.001	+0.010	-0.017	-0.011	+0.008	-0.008	-0.008	+0.002	-0.002	-0.012	-	+0.024	-0.004
Do of evaporation	+0.3	+1.1	+1.5	-0.9	+0.3	-1.2	-1.2	-1.8	+0.8	-0.1	+1.2	+0.2	-0.2	+0.1
Percentage of humidity	+0.9	+1.7	+1.2	-	+0.8	+1.5	+9	+1.6	+1.3	+1.0	+1.2	+2.3	-	+1.1
Greatest solar heat in various	+1	+1	-2	+3	+7	+9	+12	+1.2	+3	+4	-	+9	+1	+4
Maximum in shade	+2.7	+2.9	+1.3	-0.2	+4.7	+0.8	-0.3	-0.3	+1.7	+1.5	+9.5	+2.7	+4.8	+3.4
Minimum in shade	+2.3	+1.6	+1.7	+1.1	+0.5	-1.6	-2.8	-2.8	+0.9	+0.5	+2.1	-0.2	+0.8	+0.4
Do on grass	-2.2	-0.3	+1.7	+1.7	+0.5	-1.8	-1.8	-2.2	+0.2	-0.4	-0.2	+0.7	-1.6	-0.7
Rainfall in inches	-0.7	+2.6	+3.2	-1.5	+1.3	-1.2	-1.2	-1.0	+0.8	+0.6	+0.4	+1.8	-1.2	+0.4
Do since January 1 st	-0.56	-0.56	+1.27	-0.63	-1.07	-0.93	-2.98	-1.89	-2.25	-1.65	-11.58	+10.57	-5.04	-8.04
General direction of wind	-	-0.82	+0.45	-0.18	-2.05	-2.98	-	-	-4.14	-5.79	-	-	-	-
Daily velocity in miles	-	2-8	3-E	1-8	1-8	2-5	3-2	1-8	-	-	3-E	1-E	1-N	-
Percentage of clear sky	-20	+7	-8	-26	+4	-32	-62	-62	-18	-25	-17	+5	-7	-16
Do of bright sunshine	+6	-	-8	-	-4	-1	-6	-6	-4	-9	+5	-16	+4	-3
Do of bright sunshine	+1	-1	-1	+1	-6	-4	-2	-2	-3	-8	-1	-22	-8	-4

+ means above and - below the average.

Appendix I.

Mean Monthly and Annual Meteorological Results at the Madras Observatory in 1893

	Barometer.		Dry Bulb Thermometer.				Wet Bulb.		Tension of Vapour. By Blanford's Tables.	Relative Humidity. By Blanford's Tables.	Sun Max in Vac.	Min on Grass.	Wind.		Rain.		Clear Sky.	General Weather.	
	Reduced to 32°.	Daily Range.	Mean.	Max.	Min.	Range.	Mean.	Min.					Daily Velocity.	Mean Direction.	Inches.	Days.			
																			Inches.
January	29.955	0.104	75.1	85.1	65.4	19.7	69.8	—	0.660	76	141.2	62.4	149	5°	N.E. by E.	0.33	4	73	
February	9.63	.119	77.9	87.0	68.8	18.2	72.5	—	.728	76	142.7	66.4	158	10	E.S.E.	0.02	1	74	
March	.914	.124	81.4	90.1	73.8	16.3	74.7	—	.772	72	145.8	71.6	143	9	E by S	1.66	3	68	
April	.809	.122	83.3	93.8	75.0	18.8	77.5	—	.871	76	145.6	72.8	160	14	S.S.E.	—	—	72	
May	.722	.123	87.3	98.2	81.4	16.8	79.2	—	.892	74	147.2	80.1	228	16	South	0.24	1	62	
June	.710	.114	85.5	96.5	78.8	17.7	78.2	—	.868	71	140.6	77.4	188	7	S by W.	1.18	13	35	
July	.716	.103	80.0	92.8	76.5	16.3	77.3	—	.870	77	136.6	75.7	136	19	S.W. by S	4.96	20	23	
August	.749	.125	84.0	94.4	77.6	16.8	77.4	—	.853	73	141.0	76.1	156	19	S.W. by S	2.31	14	29	
September	.771	.132	83.1	93.3	76.8	16.5	77.2	—	.852	76	141.8	75.5	131	18	S.S.W.	3.44	11	28	
October	.828	.118	82.0	90.8	75.2	15.6	76.8	—	.855	78	146.0	73.3	106	7	E by N.	5.21	10	47	
November	.922	.102	77.8	84.3	73.1	11.2	75.1	—	.838	88	136.2	71.4	167	4	N.E.	23.78	22	25	
December	30.003	.098	76.3	83.5	68.5	15.0	70.5	—	.883	78	138.4	65.2	173	1	N. by E.	1.25	3	52	
Annual	29.839	0.115	81.3	90.8	74.2	16.6	76.5	—	.812	76	141.9	72.3	154	12	S.E.	43.98	102	48	

Extreme Monthly Meteorological Records at the Madras Observatory in 1893

	Barometer.		Dry Bulb Thermometer.		Wet Bulb.		Humidity.		Sun Th. in Vacuo.		Grass Therm.		Wind.		Rain.	
	Highest.	Inches.	Lowest.	Inches.	Range.	Highest.	Day.	Lowest.	Day.	Highest.	Day.	Lowest.	Miles.	Day.	Inches.	Day.
January	30.103	29.842	29.842	29.842	0.261	97.8	27	59.5	18	148.2	23	56.6	233	11	0.17	5
February	30.091	29.856	29.856	29.856	0.235	89.8	25	63.1	2	147.6	12	59.7	212	21	0.02	26
March	30.067	29.814	29.814	29.814	0.262	93.9	31	67.8	19	150.1	26	65.1	200	9	1.56	14
April	30.009	29.722	29.722	29.722	0.280	104.7	29	69.8	1	154.2	30	66.8	245	30	—	—
May	29.884	29.622	29.622	29.622	0.264	105.4	1	75.5	21	158.8	2	71.9	289	3	0.24	21
June	29.851	29.566	29.566	29.566	0.282	102.0	19	74.8	30	150.4	18	73.2	289	20	0.25	14
July	29.855	29.619	29.619	29.619	0.269	96.9	4	72.6	1	149.8	6	72.0	209	29	0.90	31
August	29.883	29.624	29.624	29.624	0.264	100.1	31	74.4	13	156.9	31	72.9	222	7	0.12	18
September	29.914	29.664	29.664	29.664	0.290	99.6	8	72.3	15	153.9	8	71.0	209	11	0.95	12
October	30.007	29.705	29.705	29.705	0.343	97.3	4	70.5	29	157.4	4	67.7	171	16	3.59	21
November	30.075	29.879	29.879	29.879	0.370	87.9	3	69.4	29	149.2	11	66.8	490	5	7.25	5
December	30.096	29.879	29.879	29.879	0.217	85.6	4	63.6	22	149.0	24	59.4	200	17	0.94	31

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Madras Observatory Meteorological Results for 1893.
Abnormals for Monthly Means.

