

MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	753	Press Mis.
Dated	20. 7.	1866

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Department,

30th July 1866.

No. 144. Read the following letter from the Sanitary Commissioner, Madras, to the Secretary to Government, Fort Saint George; dated Madras, 17th July 1866, No. 135.

I have the honor to forward, for submission to Government, the accompanying Mortuary Report of the Town of Madras, for the 2nd Quarter in 1866.

Mortuary Report for the 2nd Quarter, 1866.

1. The health of Madras has not been so satisfactory during the past quarter as the one which preceded it. The total number of deaths registered has been 2926, which, contrasted with the average of corresponding quarters for ten previous years, shows an increase of 404 deaths.

1861.....	2967.
1862.....	3260.
1863.....	2949.
1864.....	2422.
1865.....	2319.

Mean...2783.

The average number of deaths during the second quarter of five previous years, as shown in the margin, is 2783, thus giving an increase in the mortality during the period under review of 143, and an increase of 607 over the same period for 1865.

2. The second quarter is usually the healthiest season in Madras; but this year, there is but a very slight difference between it and the first, as the number of deaths registered is only 34 less.

This is more a matter of surprise as the quarter immediately preceding it is one of the two most unhealthy periods of the year in Madras.

3. The deaths from Miasmatic diseases have amounted to 1469, or a little more than half the total number registered, showing an increase on the average of the past five years of 13 deaths, and a decrease of 52 on the first quarter.

4. The following table shows the total number of deaths registered amongst the different classes of the population :—

	Euro-peans.		East Indians.		Hindoos.		Mahomedans.		Total.		Grand Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
Fevers.	2	1	8	1	240	251	21	29	271	282	553
Diarrhœa.	...	1	2	4	99	103	9	7	110	115	225
Dysentery.	2	...	2	1	116	138	17	11	137	150	287
Small pox.	...	...	...	...	17	17	...	...	17	17	34
Cholera.	2	1	1	7	153	118	17	21	173	147	320
Other Miasmatic diseases.	1	...	3	1	24	14	4	3	32	18	50
Total Miasmatic....	7	3	16	14	649	641	68	71	740	729	1,469
Total of all other diseases.	17	12	17	28	633	517	108	125	775	682	1,457
Total....	24	15	33	42	1,282	1,158	176	196	1,515	1,411	2,926
<i>Mean mortality of 10 Second Quarters from 1856 to 1865.</i>											
Miasmatic diseases...	8.8	2.9	14.0	13.8	554.6	515.9	72.5	74.4	649.9	607.0	1,256.9
Other diseases...	16.8	5.3	21.1	20.4	526.1	468.2	103.4	103.5	667.4	597.4	1,264.8
Total...	25.6	8.2	34.1	34.2	1080.7	984.1	175.9	177.9	1,317.3	1,204.4	2,521.7
Increase.	5.2		5.7		375.2		18.2		504.3		
Decrease.	...		...		...		...		...		

5. From the above, it appears that the deaths from Miasmatic diseases have increased during the past quarter on the previous ten years by 212, and from all other diseases by 192; but taking only the last five years into consideration (which period is most to be relied on), it is seen that out of the 143 total number of deaths which have increased on the average for this period, only 13 have been due to Miasmatic diseases, leaving 130 to be accounted for by other causes.

6. Unfortunately, from the way in which the register has been hitherto kept, it is not possible, without a great deal of time and labor, to show exactly the different diseases which have made up this increased death rate; but, from a comparison of the register with those which have been kept during past years, it may be stated there has been an increase amongst local classes of disease, especially nervous disorders. Young children appear to have suffered largely from convulsions.

7. An examination of the accompanying diagram will show, far better than can be described, the course taken by the diseases which have made up more than half the total number of deaths during the past quarter; comparisons can also be made with the average death rates and the Meteorological phenomena of the hot season.

8. *Fevers*.—The mortality from the diseases registered under this head has been 553, or 23 more than the average. During April, it is seen that the deaths were below the five years' wave line, but from the 1st week in May, till the middle of June, they are considerably above it. During the last two weeks of the quarter, they begin to decrease.

9. *Diarrhœa*.—The number of deaths registered from this cause amounts to 225, being an increase of 12 on the average for five years. The only disturbance in the wave line of this disease, which runs tolerably equally with that of the other, occurs in the week ending the 2nd June, when a sudden rise takes place, and as sudden a fall during the following weeks.

10. *Dysentery*.—The number of deaths during the quarter amounts to 287, being 17 above the average. During the first part of the period, the deaths were below the average, but during the latter half they rise considerably above it. It is observed that there is no correspondence between the wave line of this and the former disease.

11. *Small Pox*.—The number of deaths registered has been 34 against an average of 126 deaths. This continued and striking difference in the deaths from this disease, as compared with former periods, speaks of itself for the prophylactic advantages derived from vaccination, which has of late been so actively carried on in Madras. It is to be observed that the only deaths which have occurred are amongst Hindoos, a race prejudiced by religious ideas against the operation. Out of 28 deaths which occurred during the first quarter, 27 were of this class, and as will be shown in the annual mortuary report for 1865 (now passing through the press), out of a total of 44 deaths during the year, 41 were Hindoos. The almost total cessation of deaths from this disease amongst all classes, but this one, should overcome, if anything can, the prejudices imbibed by religious superstitions.

12. *Cholera*.—The number of deaths registered from this disease has been 320 or 36 more than the 5 year average. A glance at the chart shows that it has never once been absent from Madras, and that its increment and decrement have been erratic, as compared with the average wave line. On the last week of the first quarter, the deaths rise to 55. At the commencement of the second, the wave line falls steadily throughout April, till the middle of May, when it reaches its minimum in the 5th week ending May 5th. At this time only 8 deaths were registered. A sudden rise then occurs extending from the 6th week to the 8th, a minimum of 31 being reached during the week ending May 19th. During this outbreak, 64 deaths were registered, the cases chiefly occurring in Royapooram and the neighbouring districts of the 7th Division.

A steady rise in the mortality again takes place from the week ending June 9th, till the 12th week ending the 23rd of June, when the maximum number of deaths, 50, is reached. This is the largest number that has occurred in any one week of the quarter. During the five weeks over which this outbreak extended, 169 deaths were registered, the cases being chiefly confined to Peddoo Naik's Pettah.

13. The season has been remarkable for the very high temperature which has existed at certain times. Not only has the mean temperature been far above the average for the past 20

years, but the past quarter is distinguished as being one in which has occurred the hottest day on record. This excessive heat has doubtless been due to the almost entire absence of any rainfall; and, as might be expected, these extraordinary meteorological conditions have exercised a very marked influence on the death rate of the town of Madras as well as other parts of the Presidency. These peculiarities will be better understood by a reference to the chart.

14. *Atmospheric Pressure*.—This element has averaged during the quarter 29.745 reduced to 32° F., being .01 lower than the average. A rapid descent in the Barometer is noticed during the weeks ending the 5th and 12th of May.

15. *Temperature*.—The temperature during the past quarter has been excessive, as has just been stated, and more especially so during the period commencing with the last week in May, and ending with the 2nd week in June. At this time, both the days and nights were very oppressive and trying to all classes.

The average mean temperature has been 88.8° F., or 3.7° F., hotter than the same period for twenty years previous. The excess is shown by the wave lines on the diagram.

The line of temperature rises steadily during the first two weeks of the quarter, and with the exception of a slight fall during the last half of April, and a sudden dip during the week ending the 26th May, the thermometer continued to rise till the middle of June, when, during the week ending June 9th, the average daily maximum registered 106° F. in the shade.

On the 28th of May, the thermometer stood at 110.6° in the shade, and the Government Astronomer remarks that this "was the hottest and driest day on record at Madras."

"The wet bulb thermometer read 35.8 below the standard at 4 p. m., and the quantity of moisture in the air was only 16 per cent. of that required to saturate the atmosphere and produce rain. The thermometer reached above 106° F. on six days during the half month (May), the average maximum of past years being only 95° F. The greatest reading of a black bulb in vacuo was 155° F. on the 19th."

16. *Humidity*.—The percentage of Humidity has been 63° during the quarter, which is 7 degrees below the average, as will be observed from the chart; the excessive dryness of the air existed chiefly during May and June.

17. *Rainfall*.—The rainfall has been very far below the average, having amounted to only .286 inches during the quarter, and only .316 since the first of January. The average rainfall up to the present time is 7.64 inches, of which 5.16 inches should fall during the 2nd quarter. As it is, there is a deficiency of 6.35 inches this year.

18. *Velocity and direction of wind*.—During the first five weeks of the quarter, the prevailing wind was from the S. S. E.—During May it was S., and for the last three weeks it has blown from a westerly quarter. Throughout the quarter, its velocity has been very high, compared with former years, and on several occasions these high winds have been accompanied by dust storms.

The average daily velocity has been 235 miles, or 30 more than the usual average.

19. As before stated, the increased mortality of the present quarter must be to a certain extent attributable directly and indirectly to a season of such an exceptional character, and although this increase is not due to the class of diseases which have been shown in the diagram, there are still a few points of interest which may be briefly noticed in comparing these meteorological and sickness charts. Before doing so, however, it may be remembered that, although the meteorological conditions which have existed during the past quarter, such as extreme heat, low percentage of humidity, southerly and south easterly winds with increased velocity, *alias* ventilating powers, are such as might be expected to retard the development of miasmatic causes of disease, still the enervating effects of continued high temperature will naturally, in common with all other debilitating causes, render the constitution more liable to miasmatic influences, and thus indirectly increase the death rate of the population.

20. It is to be observed, by a reference to the diagrams, that the wave line of deaths registered as fevers, follows in a most marked manner the wave line of high temperature. It commences to

Proceedings of the Madras Government, Public Department,
30th July 1866.

rise above the average during the 5th week of the quarter, describes a curve, the highest part of which passes through the 6th week, and falls lowest in the 8th. It again rises in the following weeks (9th and 10th), and falls through the 11th and 12th. Almost precisely the same curve is taken by the wave line of high temperature.

21. A sudden ascent takes place in the temperature during the 9th week, with a fall in the humidity of the air; an equally sudden rise in the deaths by Diarrhoea takes place. At the same period, a fall takes place in the deaths from Dysentery. Singularly the curve of deaths from the latter disease takes an almost opposite course to that showing the deaths from Diarrhoea.

22. On the wind shifting from a southerly to a westerly quarter, the deaths from Fevers, Diarrhoea, and Dysentery, all fall below the average.

23. During the 1st and 2nd weeks of the quarter in which the first rise in temperature occurs, there were two deaths from Apoplexy. During the 6th and 7th weeks of the quarter in which a rapid rise in the temperature takes place, there were 2 deaths from sun-stroke, and 5 from Apoplexy, registered. Of the former, one was a European and the other a Mahomedan. Of the latter, two were Europeans, one an East Indian, and two were Hindoos.

24. In the hottest part of the quarter extending over the 9th, 10th, and 11th weeks, two deaths from sun-stroke and four from Apoplexy occurred. The former were two Hindoos. Of the latter, two were Europeans, one an East Indian, and one a Hindoo.

During the quarter, therefore, four sun-strokes have occurred, and eleven deaths from Apoplexy, due to the excessive heat of the weather.

OFFICE OF SANITARY COMMISSIONER, MADRAS,

17th July 1866.

(Signed) R. S. ELLIS,
Sanitary Commissioner for Madras.

Table showing the mortality from Miasmatic diseases in the last 13 weeks, as illustrated by the accompanying diagram.

	April 7th	April 14th	April 21st	April 28th	May 5th	May 12th	May 19th	May 26th	June 2nd	June 9th	June 16th	June 23rd	June 30th	Total.
Fevers.....	37	40	40	38	42	53	50	42	47	49	41	37	37	553
Diarrhoea.....	17	20	17	16	18	20	18	15	25	18	11	16	14	225
Dysentery.....	21	24	23	18	21	24	23	28	18	27	26	18	16	287
Small Pox.....	5	1	2	5	5	3	4	2	2	2	...	2	1	34
Cholera.....	33	18	20	9	8	22	31	11	13	24	38	50	43	320
Other Miasmatic Diseases.....	2	2	4	4	3	5	6	3	6	4	5	4	2	50
	115	105	106	90	97	127	132	101	111	124	121	127	113	1469
Average of the corresponding Weeks for 5 previous years.														
Fevers.....	38.2	40.8	40.8	39.6	42.6	40.0	41.4	39.0	40.8	39.0	43.2	41.6	43.8	530.8
Diarrhoea.....	17.2	14.0	17.8	15.6	17.8	17.6	18.8	14.2	15.6	16.2	14.6	15.6	18.8	213.8
Dysentery.....	21.0	24.0	23.6	20.2	21.4	22.4	19.4	22.0	17.6	15.8	19.0	21.2	270.6	270.6
Small Pox.....	16.6	15.8	15.6	11.0	12.0	10.4	8.2	8.4	7.0	4.8	5.8	5.2	5.6	126.4
Cholera.....	24.4	23.4	20.6	22.6	22.6	23.4	21.2	19.9	16.0	20.2	18.6	14.8	17.0	264.7
Other Miasmatic Diseases.....	6.4	4.4	5.0	5.4	3.2	4.0	2.8	3.4	2.4	4.0	2.6	3.4	3.4	50.4
	133.8	122.4	122.8	117.8	118.4	116.8	114.8	104.3	103.8	101.8	100.6	99.6	109.8	1456.7
Mean Meteorological Observations for the past 13 Weeks.														
Barometer reduced to 32° F.....	29.821	29.787	29.844	29.894	29.782	29.684	29.713	29.701	29.681	29.706	29.649	29.701	29.734	29.745
Mean Maximum Temperature.....	91.3	94.9	93.6	93.2	95.3	101.8	102.1	97.6	105.5	106.05	102.4	99.1	101.7	98.61
Do. Minimum do.....	77.9	79.6	79.6	80.3	80.1	82.4	82.5	82.7	83.8	84.05	84.1	82.4	83.6	81.77
Mean Temperature.....	84.4	86.3	85.8	86.3	86.8	90.3	89.5	89.2	91.9	91.1	90.6	88.4	90.08	88.51
Mean Humidity.....	74.8	71.0	72.8	73.7	71.7	61.5	63.7	68.0	56.7	55.8	48.5	55.5	51.5	63.4
Prevailing Wind.....	S. E.	S. S. E.	S. S. E.	S. S. E.	S. S. E.	S	S	S	S. S. W.	S	W	W. S. W.	W. by S.	S
Mean Velocity in Miles.....	192.2	253.2	249.4	191.1	167.4	261.2	299.5	253.1	246.1	268.5	336.0	306.2	310.5	256.4
Rain fall.....	...	...	...	...	0.08	...	...	...	...	...	0.016	0.16	0.03	0.286

Proceedings of the Madras Government, Public Department,
30th July 1866.

Table showing the mean half-monthly Meteorological condition of Madras for 20 years past.

	Half month ending 15th April.	Half month ending 30th April.	Half month ending 15th May.	Half month ending 31st May.	Half month ending 15th June.	Half month ending 30th June.	Total.
Barometer reduced to 32° F.....	29.843	29.806	29.756	29.707	29.692	29.704	29.751
Mean Maximum Temperature.....	90.0	91.0	93.0	95.1	95.8	93.7	93.1
Do. Minimum do.....	77.4	78.4	79.8	80.4	80.7	79.4	79.3
Mean Temperature.....	83.1	84.9	85.2	86.2	86.6	85.0	85.03
Mean Humidity.....	75	75	73	68	64	67	70.5
Prevailing Wind.....	S. by E.	S. by E.	S.	S. S. W.	S. W.	S. W.	S. W.
Mean Velocity in Miles.....	173	175	201	218	230	235	205
Rainfall.....	0.16	0.65	1.32	1.60	0.92	.51	5.16

No. 145.

ORDER THEREON, 30th July 1866, No. 753.

To be recorded.
(True Extract).

A. J. ARBUTHNOT,
Chief Secretary.

Exd. J. H. Burns.

Pro 23rd May/66 nos 135-136

Public 1866 Dept
From

The Sanitary Commissioner

To

The Secretary to Government
Public Department

Dated 17th
Rec^d 19th July 1866.

No 135.

No 894

Rec

Forwards for submission
to Government the Mortuary
Report of the town of Madras
for the 2nd quarter in 1866.

30th July 1866 No 753
Recorded

23rd May
430

1445