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MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	<i>248</i>	Press Mis.
Dated	<i>8-3-</i>	<i>1867.</i>

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Department,
8th March 1867.*

No. 52. Read the following letter from the Sanitary Commissioner for Madras, to the Secretary to Government, Fort Saint George; dated Madras, 22nd February 1867, No. 538.

I have the honor to forward, for submission to Government, the accompanying
ENCLOSURE. Mortuary Report of the Town of Madras,
1 Mortuary Report. for the 4th quarter in 1866.

REPORT
ON THE
CAUSES OF DEATH IN MADRAS,
For the 4th Quarter, 1866.

The fourth quarter of the past year shows a total mortality in considerable excess over the corresponding quarter of previous years.

The number of deaths has amounted to 3827, of which 2079 were from Miasmatic diseases, and 1748 from other causes.

The accompanying Diagram will show the wave line of mortality from all causes, and its variations are in general accord with those of deaths from all Miasmatic diseases.

The total number of deaths registered, 3827, bears unfavorable comparison with the death-rate of the fourth quarter during the five previous years, which averaged 3085, the maximum rate having been seen in 1862, and the minimum in 1864. There has, therefore, been an increase of mortality, as compared with similar periods in former years, of 742 deaths.

1861.....	3,303
1862.....	4,006
1863.....	2,629
1864.....	2,412
1865.....	3,077
Total...	15,427
Average...	3,085

Contrasted with the three preceding quarters of the year, as regards mortality from the different classes of diseases shown marginally, this quarter has been second in amount of mortality from all causes from Cholera, and from all Miasmatic diseases. In these latter two items it shows a considerable improvement upon the preceding quarter, which is notoriously unhealthy in all years.

	All Miasmatic Diseases.	Cholera.	All Causes.
1866.			
1st Quarter...	1,521	321	2,960
2nd do.....	1,469	290	2,926
3rd do.....	2,667	1,655	4,168
4th do.....	2,079	688	3,827

Assuming the population to amount to 450,000, the death-rate of this quarter was at an annual rate of 34 per mille.

Among Europeans there were 54 deaths, as against an average quarterly mortality of 36.5 during ten years from 1856 to 1865.

There has for the last three years been a steady increase in the rate of mortality of this class of the population. This is no doubt more apparent than real, and is due to an increase in the number of European inhabitants; but the actual mortality to strength cannot be duly estimated without a recent and reliable census. Indeed, this want renders all the calculations in the present Mortuary Reports of doubtful value.

Six cases of death from Cholera occurred among Europeans. One of these was a gentleman who was of advanced age, and another gentleman residing in the same house lost several of his servants from the disease, which was prevalent in the immediate neighbourhood of their residence. I directed the attention of the Municipal Commission of Madras to this locality, which is on the great thoroughfare of Madras, the Mount Road, and they immediately issued orders to have the place properly cleaned, and rank vegetation removed. An immediate improvement was observed, and the disease quickly disappeared on the adoption of these measures.

Fever proved fatal to Europeans in six cases, Dysentery in five, and Diarrhoea in four instances; these three figures being almost identical with the experience of 1865 during the same quarter.

Attention was drawn in last Quarterly Report to the number of deaths among European children from July to September. In the present quarter, the mortality among European children declined considerably.

Twenty-one deaths occurred among children of Civil and Military Europeans; and of the adult population who died, 22 were Civil and 11 Military—of the former nine were women. The deaths among Military occurred among males only.

Among East Indians, the death-rate has been extremely high, being about double that of the concluding quarters of 1864 and 1865, and 50 per cent. more than the average of the five preceding years. The actual number of deaths was 127, while the average mortality of the 4th quarters of ten years was only 65.6.

Twenty deaths were from Cholera, a number slightly in excess of the annual average of the last five years, but this latter is high in consequence of an unusual mortality from this disease in 1862, when 63 persons died of it. One fatal case of Small Pox occurred: this is the first witnessed during the fourth quarters of the past five years. Fevers, Dysentery, and Diarrhoea also show a slight increase upon the experience of previous years.

The deaths from Non-miasmatic diseases were 67, as against a quinquennial quarterly average of 46.6.

Among Hindoos, 3042 deaths occurred, being considerably in excess (20 per cent.) of the quinquennial average, and 50 per cent. more than during the corresponding period in 1865. The death-rate from Cholera is high (530), as compared with the quinquennial average (391.) But Diarrhoea, Dysentery, and Fevers were not unusually fatal, although the distress of the lower orders during the period under notice would have accounted for a large fatality from bowel complaints.

Among Mahomedans, the total deaths (604) were much in excess of the quinquennial average 402, and of the fourth quarters of 1863-1865, when totals of only 324, 345, and 363 were recorded. The deaths from Cholera were 132, of whom 70 were females. The quinquennial average is only 54.8, and the increase in Fevers, Dysentery and Diarrhoea was considerable.

It is not improbable that among this portion of the community, the distress arising from the high price of all articles of food was more severely felt than among the Hindoo population. Their occupations are more restricted, and they are, as a rule, less industrious than the Hindoos.

The deaths from Fever were 662 in number. Those in the three preceding quarters were 541, 553, and 500. The fourth quarter is therefore the highest, and considerably above the quinquennial average, which held good through the rest of the year.

FEVERS.	
1861.....	585
1862.....	569
1863.....	512
1864.....	493
1865.....	624

Total... 2,783

Average 556.6

was always above, and in the 12th week very considerably above it. The 4th and 12th weeks were the most fatal, and the range of the disease ran between 40 and 60 deaths, with general evenness.

The total deaths from Small Pox were 12, which bears a favorable comparison with 35.4, which is the average of five preceding years.

SMALL POX.	
1861.....	126
1862.....	17
1863.....	19
1864.....	3
1865.....	12

Total.. 177

Average... 35.4

year, the deaths were consecutively 28, 34, and 29, so that in this respect the health of Madras was much improved.

The disease was entirely absent in the 1st, 3rd, 5th, 6th, 7th, and 12th weeks. The highest mortality was in the second week (3). During the other six weeks, when the disease was fatal, the cases were equally 2 and 1 per week. During the previous quarters of the

The deaths from Dysentery are 409 being 90 above the quinquennial average. The numbers in the three preceding quarters were 337, 287 and 285. Except in the first week, the range of mortality from this disease was above the average of the preceding years; and, as shown in Diagram II, the progress of the disease and its relative intensity kept pace almost exactly with that of Fevers. Each of these classes reached their culminating points in the 4th and

DYSENTERY.	
1861..	361
1862..	305
1863..	300
1864..	252
1865..	375
Total...	1,593
Average.....	318.6

12th weeks, and each in the 12th week showed the greatest excess over the average of previous 4th quarters. It ought, however, to be borne in mind that a good deal of rain had fallen, that the Thermometer had reached its lowest point of maximum heat at the end of the tenth week, and of minimum heat a week earlier, and that the percentage of humidity had also reached its maximum during the quarter. These atmospheric conditions may be considered as influencing the public health, and in some measure accounting for the high mortality rate shown by this disease.

Two hundred and eighty-three deaths from Diarrhoea occurred during the fourth quarter, being only 16 in excess of those recorded in the first quarter of the year. In the second quarter 225, and in the third 172, were recorded. The death-rate was slightly in excess of that observed during corresponding quarters in previous years, and this excess is probably due to the atmospheric influences noticed under the head of Fevers and Dysentery. Diarrhoea was most fatal during the twelfth week, and generally the range and intensity of the disease was proportionate to, but lower than, Dysentery.

DIARRHOEA.	
1861...	253
1862...	288
1863...	236
1864...	217
1865...	286
Total...	1,280
Average...	256.0

As before shown, Cholera bears a high proportion to the total deaths from all Miasmatic diseases, and during this quarter it has tended very considerably to increase this proportion. Six hundred and eighty-eight cases occurred as against a quinquennial average of 466.0, and this latter number is much in advance of that shown in 1864-65. During the first four weeks, the rate was high (91, 70, 61, 71); in the

CHOLERA.	
1861...	614
1862...	1,341
1863...	133
1864...	34
1865...	208
Total...	2,330
Average...	466.0

next four weeks it rapidly declined; and for the next three rose slowly. A slight fall occurred in the twelfth week, and a rapid and considerable increase occurred in the concluding week of the quarter.

Of the several divisions of the Town, the 7th shows the highest total mortality; the 1st Division stands lowest, although embracing Black Town within its limits. The different localities in the Police Divisions were very unequally affected. Triplicane, Royapooram, Peddoo Naik's Pettah and Casemode—all suffered severely. One case of the disease occurred in Fort Saint George, in the quarters occupied by the Band. These quarters are ill-ventilated, and close to the Fort Ditch.

The accompanying Chart will sufficiently explain the meteorological condition of Madras during the past quarter. The Barometer showed an average mean atmospheric pressure of 29.926 reduced to 32° F., and the weekly registers show that the rise and fall differed slightly from those of previous years. In them an average pressure of 29.918 was observed. A slight fall occurred in the 4th week, and a corresponding rise in the following one; the Barometer then followed the average line until the tenth week, when it slightly fell; and rising very slightly during the two weeks next following, it became again almost identical with the average height.

Thermometer.

Proceedings of the Madras Government, Public Department,
8th March 1867.

The mean maximum temperature averaged above that of the previous 20 years in which it was recorded. During the tenth and eleventh weeks (when heavy rain fell), the maximum temperature was *below* the average.

Barometer.

The mean temperature was .7 above the 20 years average, in this respect being much closer to the average than in the previous quarter, when it was 2 degrees above the average.

The mean maximum temperature of the 13 weeks noted was 83.0, and the mean minimum 73.3, the former being .7 and the latter .8 above the average.

In this respect, a much greater variation from previous results was shown. In the first four weeks, a fall from 140 to 83 miles took place; in the 5th week a rapid rise occurred (from 83 to 157). During the following four weeks, the velocity of the wind continued high, and in the 10th week rose to 211 miles, slightly falling (to 200 miles) in the 11th and 12th weeks; it rose rapidly in the concluding week of the quarter, when it reached its maximum of 250.

The direction of the wind was generally from N. and N. E., as was to be expected during the prevalence of the N. E. monsoon.

The percentage of humidity has been nearly identical with that of previous years. It has, however, at its maximum and minimum points shown an unusual range of difference, amounting to

Humidity.

20. The dates of these maximum and minimum points correspond accurately with the tenth week, one of unusual rain, and the other with the fifth week in which usually rain falls, although no rain fell during this period in 1866.

The rainfall amounted to 42.58 inches in the 13 weeks as against an average of 31.06 from 1st March 1841 to 28th February 1861, and

Rainfall.

of 28.52 during the corresponding quarter of 58 years.

The increasing rate of mortality in Madras from Miasmatic disease, the intensity of which is due to the unfavorable sanitary condition of the town, may, I trust, plead my excuse for urging upon the Government an early consideration of the project for a comprehensive scheme of drainage which has been submitted to them by Captain Tulloch. Until the present and imperfect drains are re-placed by a complete system of drainage, and until pure drinking water is available to the poorer classes, the Mortuary Returns will continue, as at present, to show an increasing death-rate. This high mortality, which falls in the first instance on the poorest classes, re-acts on all classes by the spread of epidemic diseases, of which one, Cholera, threatens to become endemic in Madras.

TABLE showing the mortality from Miasmatic Diseases in the last 13 weeks.

	5th October.	12th October.	19th October.	26th October.	2nd Novem-ber.	9th Novem-ber.	16th Novem-ber.	23rd Novem-ber.	30th Novem-ber.	7th Decem-ber.	14th Decem-ber.	21st Decem-ber.	28th Decem-ber.	Total.
Fever.....	34	51	52	60	47	54	55	48	54	50	44	61	44	654
Diarrhoea.....	19	23	15	27	25	17	21	18	22	19	16	31	19	272
Dysentery.....	25	27	29	40	31	21	25	30	31	34	32	44	28	397
Small Pox.....	3	3	1	1	...	...	...	1	2	2	1	2	...	12
Cholera.....	91	70	61	71	34	26	10	10	38	45	73	65	88	682
Other Miasmatic Diseases.....	...	2	...	2	1	...	2	3	2	1	2	1	8	24
Total....	169	176	157	201	138	118	113	110	149	151	168	204	187	2041

AVERAGE of the corresponding weeks for five previous years.

	41.0	42.6	41.2	45.0	41.6	42.4	41.0	39.8	40.0	45.2	42.4	36.8	42.6	541.4
Fever.....	24.0	19.8	20.0	22.2	23.0	17.8	18.2	19.4	16.0	15.8	18.4	17.2	19.0	250.8
Diarrhoea.....	26.0	25.4	23.4	26.2	24.0	22.8	22.8	24.6	26.0	24.4	25.4	21.2	21.2	311.0
Dysentery.....	2.8	1.8	3.0	1.4	2.2	3.0	3.6	3.0	1.6	3.0	2.4	2.2	5.4	35.6
Small Pox.....	49.2	48.0	41.0	37.8	36.8	35.8	28.0	30.4	24.6	21.6	27.2	28.8	38.4	447.6
Other Miasmatic Diseases.....	2.4	1.6	3.0	2.0	2.0	3.8	2.2	2.6	3.0	3.8	4.0	1.0	1.0	33.0
Total....	145.4	139.2	131.6	134.6	130.2	125.6	115.8	119.8	111.2	113.8	119.8	107.8	127.6	1622.4

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8th March 1867.

MEAN Meteorological Observations for the past 13 weeks.

	29-771	29-834	29-866	29-770	29-921	29-925	29-950	29-933	29-958	29-913	30-016	30-073	30-062	Ave- rage.
Barometer reduced to 32° F.....	29.771	29.834	29.866	29.770	29.921	29.925	29.950	29.933	29.958	29.913	30.016	30.073	30.062	29.925
Mean Maximum Temperature.....	88.5	88.3	85.6	86.8	85.0	85.9	82.4	81.3	79.1	78.3	78.0	80.0	79.0	83.0
Mean Minimum Temperature.....	76.6	76.5	76.4	76.0	74.2	74.0	73.1	73.3	68.8	72.1	71.7	71.8	69.4	73.3
Mean Temperature.....	81.8	82.5	80.7	80.2	79.6	80.0	77.5	77.4	73.8	74.9	74.8	76.2	74.4	77.9
Mean Humidity.....	81	82	84	81	73	77	81	83	78	90	83	76	69	80.0
Prevailing Wind.....	SW by S	S.	E N E	W N W	N E by N	N E	N E	N by E	N by E	N by E	N N E	N E	N E	N E
Mean Velocity in Miles.....	127	116	92	83	157	161	169	169	174	211	204	201	250	161.9
Rain-fall.....	2.71	1.02	4.42	0.62	0.03	...	7.64	2.55	1.74	17.95	2.59	0.30	0.37	3.54

TABLE showing the mean half monthly Meteorological condition of Madras for 20 years from 1st March 1841 to 28th February 1861.

	Half month ending 15th October.	Half month ending 31st October.	Half month ending 15th November.	Half month ending 30th November.	Half month ending 15th December.	Half month ending 31st December.	Average.
Barometer reduced to 32° F.....	29.832	29.873	29.914	29.950	29.957	29.996	29.918
Mean Maximum Temperature.....	86.5	84.2	82.3	81.1	80.1	79.5	82.3
Do. Minimum.....	75.9	74.3	73.1	71.7	70.8	69.5	72.5
Mean Temperature.....	80.8	79.0	77.6	76.2	75.3	74.5	77.3
Mean Humidity.....	81	82	77	78	79	76	78
Prevailing Wind.....	S by E	N E	N N E	N N E	N N E	N N E	N N E
Mean Velocity in Miles.....	120	126	145	175	171	189	154.3
Rain-fall.....	5.08	7.87	6.28	5.52	3.98	2.33	5.17
Do. 58 years 1/2 monthly average.....	4.66	7.23	5.77	5.07	3.65	2.14	4.75

* Average of 6 years only (1861 to 1866.)

DEATHS IN MADRAS.
FOURTH QUARTER OF 1866.

	Euro-peans.		East In-dians.		Hindoos.		Mahome-dans.		Total.		General Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Miasmatic Diseases.....											
Small Pox.....	...	...	...	1	5	5	...	1	5	7	12
Fever.....	5	1	6	12	284	280	31	43	326	336	662
Dysentery.....	4	2	5	3	177	160	24	34	210	199	409
Diarrhoea.....	3	1	8	4	113	122	11	21	135	148	283
Cholera.....	4	2	11	9	266	264	60	72	341	347	688
Other Miasmatic diseases.....	2	1	1	...	9	8	4	...	16	9	25
Total Miasmatic.....	18	7	31	29	854	839	130	171	1,033	1,046	2,079
Total of all other diseases.....	17	12	37	30	774	575	161	142	989	759	1,748
Total....	35	19	68	59	1,628	1,414	291	313	2,022	1,805	3,827
Mean Mortality of ten 4th Quarters, from 1856 to 1865.	54		127		3,042		604		3,827		
Miasmatic diseases.....	10.3	3.0	14.2	13.3	605.5	569.7	78.6	84.7	708.6	670.7	1379.3
Other diseases.....	16.7	6.5	20.2	17.9	577.1	476.1	97.0	97.3	711.0	597.8	1308.8
Total....	27.0	9.5	34.4	31.2	1182.6	1045.8	175.6	182.0	1419.6	1268.5	2688.1
Increase.....	17.5		61.4		813.6		246.4		...		1138.9
Decrease.....	...		...		...		...		...		...

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

8th March 1867.

No. 53.

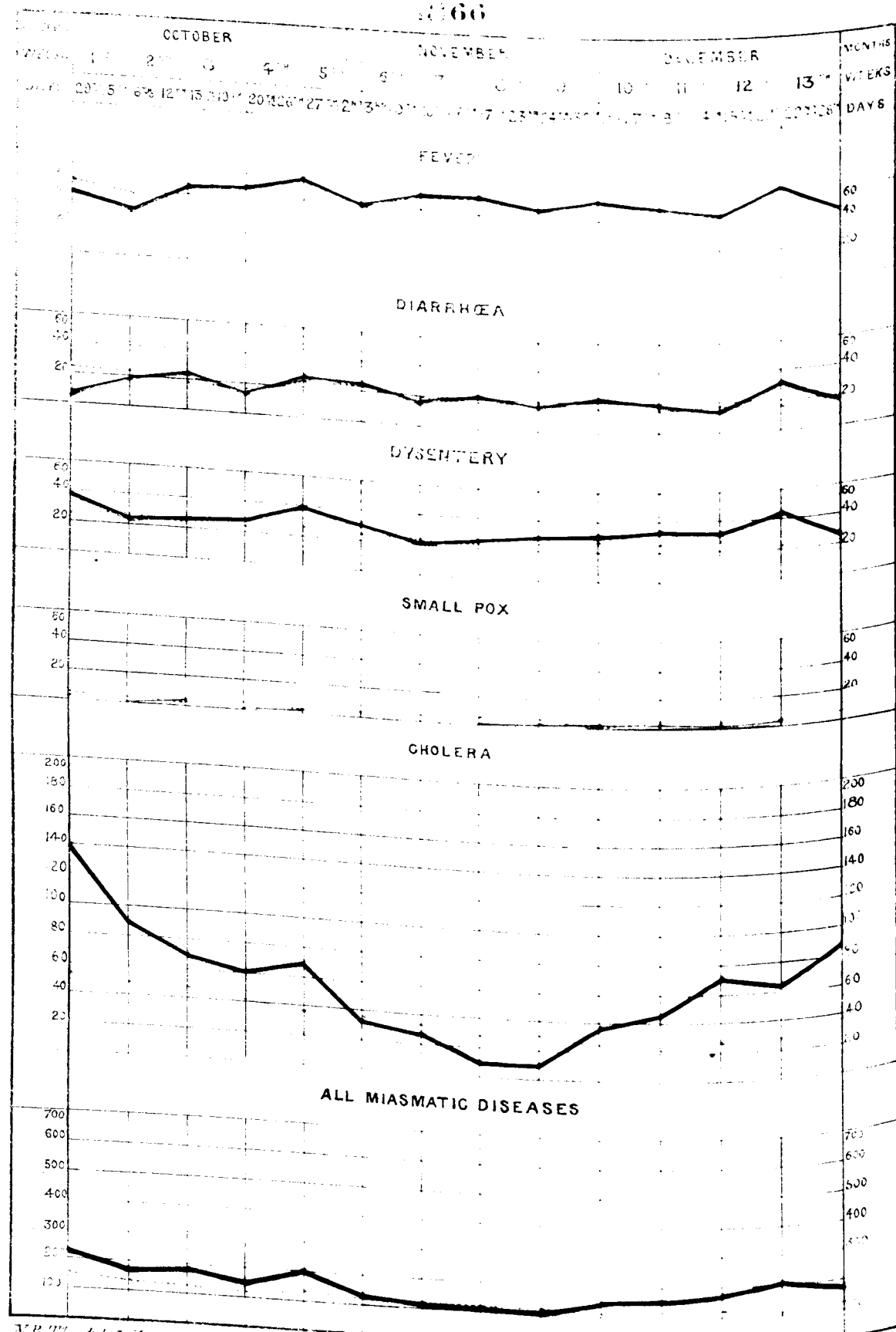
ORDER THEREON, 8th March 1867, No. 248.

To be recorded.

(True Extract).

A. J. ARBUTHNOT,
Chief Secretary.

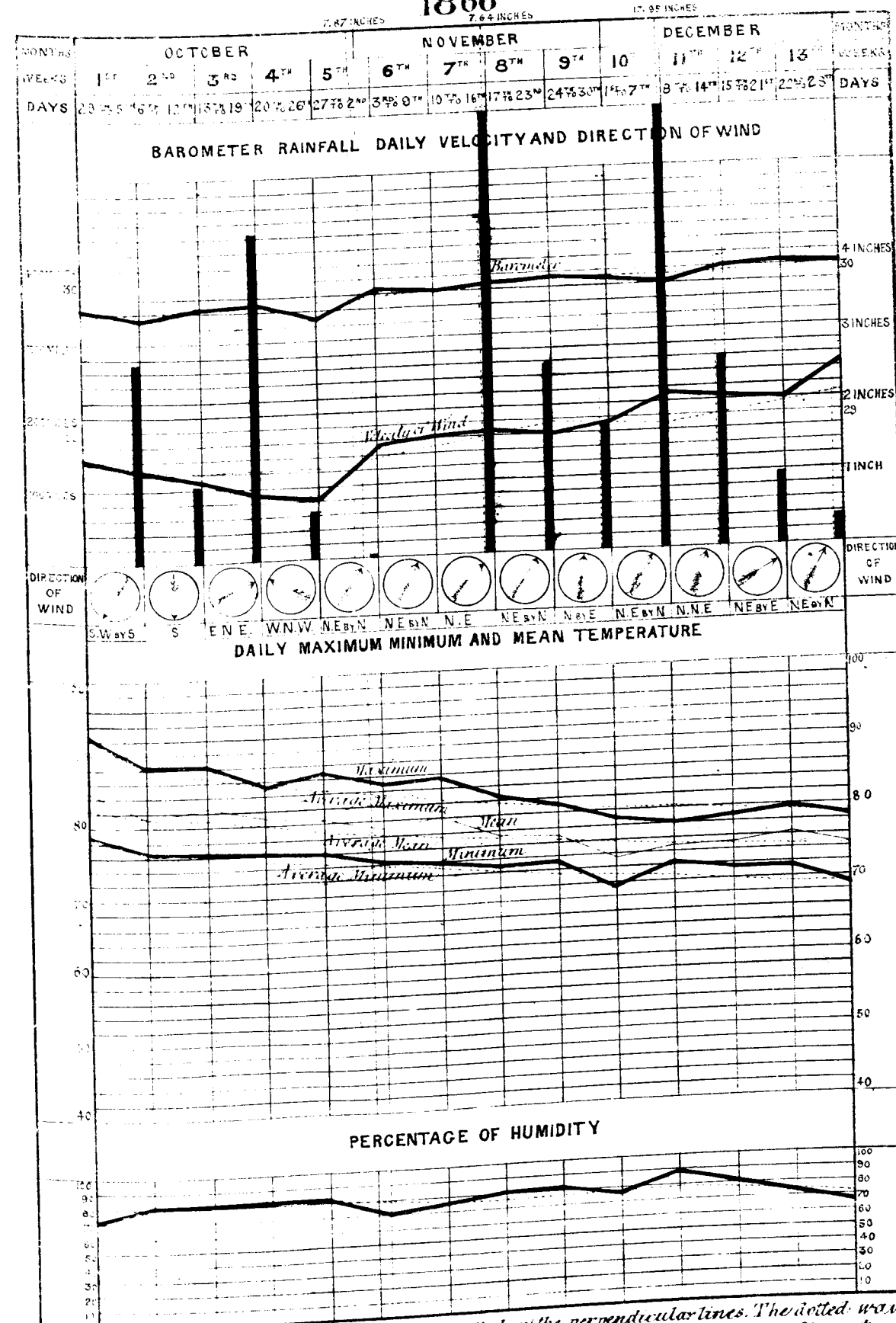
MADRAS DURING THE 4TH QUARTER 1866



N.B. The total Mortality from each disease during each week is plotted on the perpendicular lines which represent these periods. The horizontal dotted wave lines show the average mortality from each disease for the previous five years.

Govt. Litho Press, Calcutta.
Madras April 1867

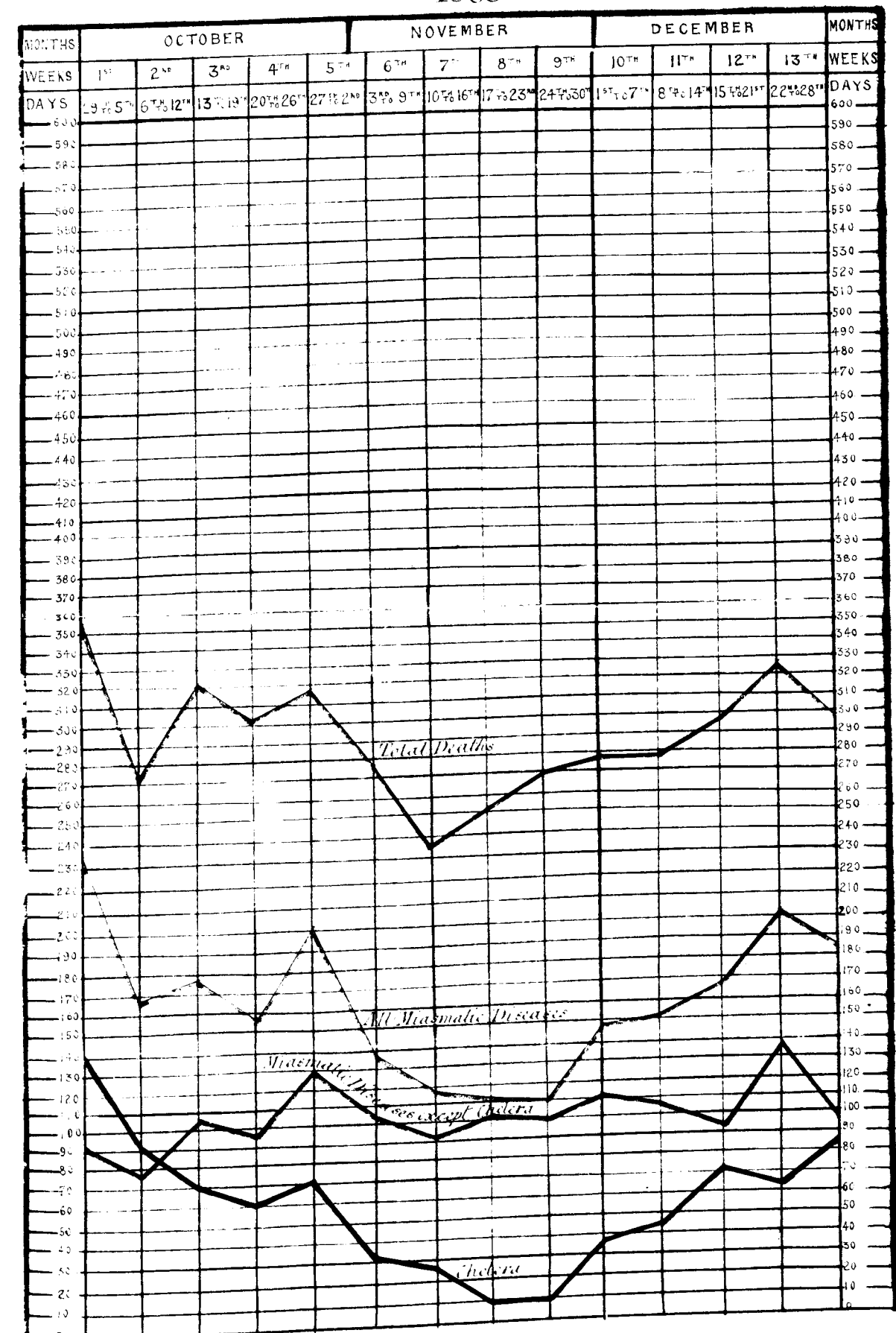
DIAGRAM SHOWING THE METEOROLOGICAL CONDITION OF MADRAS DURING THE 4TH QUARTER 1866



The mean weekly Meteorological elements are plotted on the perpendicular lines. The dotted wave lines show the bimonthly average for twenty years from observations kept at the Madras Observatory.

Govt. Litho Press, Calcutta.
Madras April 1867

1866



No. 257.

OFFICE OF SANITARY COMMISSIONER,
Madras, 23rd February 1867.

From

The Honorable P. L. Ellis C.E.
Sanitary Commissioner for Madras.

To

The Secretary to Government
Public Department
Fort Saint George.

Sir

Enclosure
1 Mortuary Report.

Have the honor to forward for submission
to Government the accompanying Mortuary Report
of the Town of Madras for the 4th quarter in 1866.

Have the honor to be
Sir

Your most obedient servant

P. L. Ellis
Sanitary Commissioner for Madras

25th. Received
23rd Feb 67

No 30 July 1866 Nov 144-145

Atlantic 1867 2400
from No. 8 1867

The Country from Kent
to London

The Country to London
from Kent

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from Kent

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Robert Brown
The Department of
Public Works, with reference
to its construction from
- 1864 -

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