

Govt. of {1894} Madras.
LOCAL AND MUNICIPAL.

Issued

Recd.

Encl.

G.O., &c., 2nd July 1894,
Nos. 1210, 1211 L.

JULY.

Reports.

Reviewing the Sanitary Commissioner's and
the Sanitary Engineer's — for 1893.

No. 1839 W. d. 24 July 1894

Communicated to
Superintending Engineers
for information.

(Ld.) J. P.
W.

Suptg. Engrs:
C.A. to Govt.
Ch. Engrs for Secy.

Subject to the North-East Monsoon.

IV. East Coast, Central ..	Chingleput. Madras. Nellore.
V. East Coast, South ..	North Arcot. Tanjore. South Arcot. Trichinopoly.
VI. South Midland ..	Salem. Coimbatore.
VII. South-Eastern ..	Madura. Tinnevely.

which from its geographical position is more subject to the influence of the north-east monsoon, actually derives a larger rainfall from the more intense south-west monsoon. In the year under review, both monsoons were satisfactory in quantity and the total mean registered for the Presidency, viz., 50.93 inches, though less than that of 1892 by 7.50 inches, was above

the average of the 10 years ending 1890 by 5.65 inches. The increase was most marked in Group No. III, East Coast, North, according to Dr. King's classification, where the rainfall was 54.28 inches or over 14 inches more than the decennial average. While there was no decrease as compared with that average in any of the seven groups, there was only a very slight variation from it in Groups I and IV, viz., South-Western and East Coast, Central. Taking individual districts, however, there was a decrease of 9.37 inches in Madras, of 13.20 inches in Malabar and of 0.89 inches in Tinnevely. The north-east monsoon was particularly favorable in Tanjore, South Arcot, Trichinopoly and Nellore, though the short period in which it was received led to heavy floods causing considerable damage to property.

The following table shows the prices of the three principal grains during the year as compared with those of the preceding two years and the average for the last five years:—

	Number of seers for the rupee.			Average for the last five years.
	1893.	1892.	1891.	
Rice	11.2	10.3	11.8	12.7
Ragi	20.1	17.3	22.4	24.6
Cholam	18.1	16.1	21.1	22.2

In spite of the favorable rainfall of the year, prices which were very high in 1892, owing to the failure of the north-east monsoon, did not fall as much as might have been expected, being in all districts still considerably above the average of the ten years ending with 1890. The reasons assigned by Dr. King in paragraph 4 of his report for the continuance of these high rates during the year under review appear to Government to have much of probability about them, and it is hoped that prices which have since declined will, if the present south-west monsoon proves favorable, assume normal rates later on in the current year. The diagrams which Dr. King has prepared with reference to the suggestions of the Army Sanitary Commission, and the deductions which he draws from them form an interesting addition to the report. His suggestion that the scarcity rates in Kurnool, Cuddapah, Madras, Bellary and Nellore require revision will be considered in the Revenue Department.

4. *Vital Statistics.*—The population for which returns of births and deaths were received was 33,733,121 according to the census figures, or, allowing for the estimated increase, 35,137,219. The total population according to the census being 35,630,440, it may be assumed that vital statistics have not been received in respect of some 2,000,000.*

5. *Births.*—The number of births recorded during the year (909,153), though in advance of the figure for 1892, was less than that reported for 1891, in the thirteen years previous to which there had been an almost continuous progressive increase in the number of births registered. The mean reported birth-rate for the Presidency was 27.0 per mille against 25.1 in 1892, the rates for municipalities, rural towns and rural villages being 34.1, 24.8 and 26.5, respectively, against 31.4, 22.5 and 24.7, respectively, in that year. There has been a slight but general improvement in the accuracy

* The figures given in this paragraph include Europeans and Eurasians numbering some 40,000; the succeeding paragraphs give statistics touching Natives only, excluding Europeans and Eurasians from consideration. Full particulars regarding the vital statistics relating to these classes will be found in Statement XII.

of these returns, though registration seems to be much neglected in the 36 rural towns shown in Statement VI, which contain more than 10,000 inhabitants each. As the Sanitary Commissioner suggests, it appears desirable to appoint paid registrars in these towns; the charge is, however, one which cannot be defrayed from local funds as Act V of 1884 at present stands, and the consideration of the proposal will be deferred until the Act is amended; a note of the question will be made in the Legislative Department. Taking the districts individually, there was an advance in all except Anantapur, Bellary, South Canara, Cuddapah, Kistna, Kurnool and Malabar. Excluding Madras, the highest birth-rate was recorded in Chingleput (35.6 per mille) and in South Arcot, Tanjore and Bellary also the rate was above 30, while in Ganjam, Nellore, Vizagapatam, Cuddapah, Gódvári and Malabar (not Madura, as stated in paragraph 25 of the report), in which the results are admitted to be defective, it ranged from 18.4 to 23.2. The Collectors of these last-named districts will be requested to state what measures they propose to adopt in view to improve the registration of vital statistics. It may be admitted that in Ganjam, Vizagapatam and Nellore the difficulties in the way of accurate registration are great, owing to the large zemindari areas to be dealt with; but in Cuddapah, Gódvári and Malabar the Collectors should be able to obtain as good results as in other ryotwari districts. Excluding Madras, the birth-rate was in excess of the death-rate in all districts, except Cuddapah, where fever carried off no less than 19.8 per mille of the native population. Among municipalities, the rate of 40 per mille was reached in five towns—Vaniyambádi, Tiruppattúr, Dindigul, Madras and Mánnargudi—against two in 1892. In 36 towns the rate ranged from 30 to 40; in 14 others it was between 20 and 30; and in the remaining one (Cuddapah), it was only 16.1, owing, it is stated, to the influence of continued exposure to malaria. Dr. King's proposal that Government should select certain areas and appoint a special officer in order to secure reliable vital statistics relating thereto deserves consideration. Dr. King should submit a detailed scheme.

6. *Deaths.*—The following statement shows the total reported number of deaths per mille in the year under review as compared with the previous five years:—

	* 1888.	* 1889.	* 1890.	† 1891.	† 1892.	† 1893.
Cholera	2.1	2.7	1.2	2.9	2.3	1.0
Small-pox	0.8	1.0	1.0	1.2	1.3	0.8
Fevers	7.3	8.2	9.2	7.3	8.3	7.7
Dysentery and Diarrhoea	† 1.0	† 1.0	† 0.9	1.0	1.0	0.7
Injuries	0.4	0.4	0.4	0.4	0.3	0.3
Other causes	9.8	10.2	10.1	9.4	9.1	8.8
Total	21.4	23.5	22.8	22.2	22.3	19.3

* Calculated on the Census figure of 1881.
† Do. do. of 1891.
† Includes other bowel-complaints also.

The mortality in 1893 was less than in any of the preceding five years, the reported rate being below the decennial average by 2.7 per mille. Except in regard to fevers, the year was, on the whole, a healthy one. The rate of mortality among infants under one year, though less than in the previous two years by 17.3 and 10.8, respectively, per mille, was still excessive, being 156.6 per mille of the births registered during the year. Taking separately the districts and municipalities, it is observed that the district rates of infant mortality are more favorable than those of the municipalities, no less than 23 towns, including Madras (294 per mille), having returned a death-rate of over 200 per mille, while this rate was exceeded in only one district, viz., Tanjore. It must be remembered, however, that better registration in municipalities is probably responsible for much of this difference. As Dr. King remarks, this enormous mortality among infants is no doubt due to the insanitary conditions which surround them, and especially to the drastic treatment to which the new-born child is subjected owing to the ignorance of the Hindu female.

The total mortality in Madras—41.4 per mille—though less than in the previous year, was as usual very high, and this in spite of the fact that Madras, as Dr

King remarks, "possesses an advantage as regards age constitution as affecting mortality when compared with average municipal towns." This result may be ascribed partly to the greater accuracy of the returns and partly to the more insanitary condition of the town. The attention of the Municipal Commissioners will be drawn to the Sanitary Commissioner's remarks in paragraphs 84 *et seq* of his report. Dr. Laing's inspection notes of 1892 have now been discussed by the Commissioners and disposed of in G.O., dated 12th May 1894, No. 617 M., but Mr. Cousins' scheme for the drainage of Madras is still under the consideration of the Chief Engineer. The town was again inspected by the Acting Sanitary Commissioner towards the end of the year under review, but his report has not yet been received by Government.

The average death-rate in rural villages was 18.5 per mille against 21.6 in 1892, the mortality being highest in Tanjore (26.5), while in seven other districts, viz., Cuddapah, Kurnool, Trichinopoly, Bellary, Tinnevely, Chingleput and Nilgiris, the rate ranged between 23.6 and 20.2. In the remaining ones it was below 20. The rates in Nellore (15.2), Vizagapatam (13.8) and Ganjam (11.9) were extremely low and indicate the untrustworthy nature of the returns. In rural towns also the rates were generally low, the average being 18.7 per mille, and there can be no doubt that as regards these registration is very defective.

	1893.	1892.	Turning to the district municipalities where more reliable statistics are available, the highest death-rate—47.3 per mille—was attained in Cuddapah, where 32.2 per mille of the population succumbed to fever. Erode and Srirangam followed next with rates of 39.2 and 38.1, respectively, per mille; in eighteen towns the rates ranged from 30 to 37, in 29 others from 20 to 30, and in the remaining five, viz., Berhampur, Cocanada, Nellore, Cuddalore and Anantapur, the rate was below 20. As compared with the previous year, there were noteworthy variations in the towns noted in the margin, for which no explanation has been furnished.
Mannargudi	36.3	24.2	
Kurnool	30.3	55.2	
Trichinopoly	36.7	25.7	
Bellary	23.4	35.2	
Adoni	22.3	34.6	
Cochin	29.5	50.3	
Calicut	27.2	38.0	
Tellicherry	22.7	34.0	
Erode	39.2	21.7	
Guntur	26.0	37.4	
Anantapur	18.9	36.3	
Salem	28.3	18.2	
Periyakulam	20.7	38.2	
Cocanada	19.5	35.9	
Bimlipatam	25.7	40.7	

7. *Principal Diseases—Cholera.*—The mortality from this cause was smaller than that recorded in any year since 1887. The disease was, however, prevalent throughout the year and no district was free from it. It was felt most severely in the last two months of the year in the districts of Tanjore and Trichinopoly, causing deaths to the extent of 4.8 and 4.7, respectively, per mille. Dr. King attributes this to the influence of the floods to which these districts were subjected shortly after the importation of the disease and the consequent wholesale spread of choleraic excreta by water. The average death-rate from this cause in municipal and other towns was 2.2 against 3.2 per mille in 1892, and that in the districts 0.9 against 2.3. Of the municipalities, Trichinopoly and Gudiyattam headed the list with a rate of 13.6 each per mille, and Erode and Tanjore followed next with rates of 11.6 and 10.2, respectively. The mortality from this cause in the remaining municipalities was moderate and twelve of them enjoyed perfect freedom from cholera. The comparative immunity enjoyed by Negapatam as compared with the rest of Tanjore goes to show the possibility of reducing mortality from cholera by taking proper sanitary precautions. The Government has read with much interest the portions of Dr. King's report dealing with the origin and spread of cholera and its incidence according to season, but observes that general dissertations of the kind are out of place in an annual report.

8. *Small-pox.*—The total number of deaths from small-pox was reported to be 27,289 against 43,757 in the previous year and 41,322 in 1891. This represents a rate of only 0.8 per mille of the population against 1.3 in the preceding year. In local fund areas the deaths from this cause represented 0.8 per mille of the population and in municipal areas 0.5; but if the exceptional district of Malabar, where the mortality was very high (4.8 per mille) be excluded, the rate for the former would

be only 0.49. The Acting Sanitary Commissioner ascribes the high rate in Malabar to the great mortality among Mappilas, whose dislike to vaccination and habit of living in crowded houses render them peculiarly subject to small-pox. The death-rate in the remaining districts was less than 1 per mille, except in Bellary and Gódvári, where it was 1.2 and 1.0, respectively. In municipalities the death-rate was vari, where it was 1.2 and 1.0, respectively. In municipalities the death-rate was heavy in Tirupati (4.1), Palghat (2.3), Madura (2.3), Anakapalle (1.9), Cochin (1.7) and Mannargudi (1.5); only 10 towns were altogether free from this disease. With reference to Dr. King's suggestion in paragraph 66 of his report that arrangements should be made for the introduction of compulsory vaccination in major unions, it will be observed that the necessary provision has already been made in the draft Bill to amend the Local Boards Act, which will shortly be laid before the Legislative Council. The subject of vaccination will be more fully discussed in reviewing the vaccination report for 1893-94.

9. *Fevers.*—The number of deaths recorded under this head was 258,415, against 280,627 in 1892 and 247,029 in 1891. The Ceded Districts suffered most severely, the highest death-rates recorded being 19.7 per mille in Cuddapah and 18.6 in Kurnool, while the rate in Bellary also was high—10.6. Paragraph 72 of the report discusses the causes which have led to the high mortality in these districts and in Madras town where the death-rate was 15 per mille. Trichinopoly (3.7), Tinnevely (3.2) and Tanjore (1.8) were the districts which were least affected by fevers. Unlike the preceding years, the mortality in municipalities was higher than in rural tracts. The death-rate was especially high in Cuddapah (32.2), Kurnool (17.5), Madras (15.0), Tiruppattur (13.2), and Parlákimedi (13.1). On the other hand the least affected towns were Cocanada (2.5) and Dindigul (1.3). Dr. King's suggestion that the tendency to cultivate irrigated lands in the immediate proximity of inhabited houses should be curbed by law, though doubtless desirable from a sanitary point of view, is hardly practicable. The mischief is already done, and it is financially impossible to buy up the land the cultivation of which is open to this objection.

10. *Dysentery and Diarrhoea.*—The total reported mortality from dysentery and diarrhoea was 23,814 against 32,293 in 1892. The total district rate was only 0.7 per mille and ranged from 2.3 in Chingleput to 0.2 in Kistna. In rural tracts the mortality was only 0.5 per mille, whereas in urban circles it was 3.1. This marked difference, as Dr. King points out, shows how much these diseases are influenced by the insanitary conditions of town life and more especially by the foulness of soil in the more thickly inhabited areas. In municipal towns the death-rate was highest in Vizagapatam (9.7), Tanjore (7.8), Madras and Karur (6.0), and lowest in Anantapur (0.3) and Adoni (0.1).

11. *Injuries, &c.*—There was no considerable variation in the number of deaths registered under the head "Injuries"—10,709—but the deaths from unspecified causes fell from 303,733 in 1892 to 297,346 in the year under review.

12. *Sanitary Works—Civil.*—Such of the subjects reported upon by the Sanitary Commissioner under this head as have not already been separately dealt with will be discussed in the reviews of the administration reports of the local bodies concerned and in the General Municipal and Local Fund reviews. Dr. King's suggestion regarding the organization of District Sanitary Boards does not commend itself to Government.

13. *General Remarks.*—In consequence, probably, of the changes of incumbents of the offices of Sanitary Commissioner and his Deputy, only 52 minor towns and villages in the Presidency were inspected by them against 128 in the preceding year. Dr. Laing, the permanent Sanitary Commissioner, was also deputed to visit Bangalore and to report upon the water-supply of that town, and Dr. King who succeeded him made special investigation on the spot regarding the cholera epidemics at Tirupati and Trichinopoly. The inspection work of the District Medical and Sanitary Officers was on the whole satisfactory, the average number of places visited by them being 58 against 51 in 1892, the minimum prescribed by Government being 40. The Medical officer of Cuddapah again showed commendable zeal, visiting 162 localities. The Medical officer of Gódvári, on the other hand, inspected only 18 places—a shortcoming for which some explanation should be furnished. The matter of urging the

advantage of sewage farming upon the attention of municipalities is stated to have been steadily kept in view by the Sanitary Commissioner, but the advance made in this direction was very slow. In addition to the towns of Madras and Tanjore which pursue this system profitably, though on bad sanitary principles, sewage farming on a small scale was commenced in Negapatam during the year under review. It is to be regretted that want of funds at present prevents the serious consideration of the proposal to establish a Museum of Hygiene at Madras. The Government is pleased to note the testimony borne by Dr. King to the good work done by his Deputy, Surgeon-Captain Bannerman.

The Sanitary Commissioner's report would have been improved had foot-notes been subjoined to the text stating clearly whether the statistics to be found therein included Europeans and Eurasians. While the Government considers that Dr. King deserves high praise for the extreme care and thoroughness with which the report has been prepared, it desires that he should in future years endeavour to considerably curtail the length of it. Much of the information which this report contains is of a *quasi* permanent character and need not be repeated.

SANITARY ENGINEERING.

14. During the year under review, which is the fourth since the organization of this department, the Sanitary Engineer visited 15 towns and the Assistant Sanitary Engineer 10, against 18 and 10, respectively, in the previous year. During the absence on privilege leave of the Sanitary Engineer, the officer who was appointed to act for him was, however, owing to ill-health, unable to tour.

15. Seven water-supply and two drainage works, estimated to cost Rs. 16,40,000 in the aggregate, were under execution, and of these the Cuddapah water-supply and Coonoor drainage works were completed, while very little remained to be done to the drainage scheme of Kumbakonam. Fair progress was made in carrying out the schemes for the water-supply of Madura, Tanjore and Trichinopoly, but the prevalence of cholera and the occurrence of heavy floods proved serious obstacles to their completion. It is much to be regretted that the November floods practically destroyed the whole of the Trichinopoly water-works, besides causing considerable damage to those at Tanjore. Further delay was caused in the case of Madura by the necessity for modifying the estimates, due to the discovery that the water in the bed of the Vaigai river was much less than originally anticipated. Schemes for the water-supply of Conjeevaram and Tuticorin and the drainage of Karur were submitted by the Sanitary Engineer, but final orders have not yet been passed on them by Government, as the projects are under reference either to the Sanitary Commissioner or to the municipal councils concerned.

16. With regard to the Sanitary Engineer's remarks regarding the inability of many municipalities to finance schemes, it will be observed that it is proposed in the Bill to amend Act IV of 1884 to remedy this defect by raising the maximum rates of house and water taxes. The Sanitary Engineer will be informed that the refusal of Government to reconsider its order directing the Military Works Department to prepare a separate scheme for supplying water to Bellary was only of a temporary nature, and that he may reopen the question as soon as the Military Works Department scheme is complete. The Coimbatore water-supply scheme has not been temporarily abandoned, as the Sanitary Engineer infers in paragraph 30 of the report. Government is awaiting a report from the municipal council as to the possibility of financing the project. The matter has been before the municipality for over six months, and the delay in submitting the report required is not creditable to the councillors. As regards paragraph 37 of the report it will be remarked that it is now time for the Coonoor Municipal Council to reconsider the question of providing a water-supply, which was allowed to lie over in G.O., No. 719 M., dated 21st April 1892. There is no difficulty in financing the scheme as Mr. Jones considers. The delay in carrying out the Negapatam drainage scheme is due to the discussion as to whether it should be preceded or accompanied by the execution of a water-supply project; the Sanitary Board has just reported on the matter and it is now under the

consideration of Government. The Government fully concurs in the Sanitary Engineer's remarks regarding the apathy of the Tirupati Municipal Council, to which the past delay in executing the drainage scheme sanctioned for that town is solely attributable. The question has, however, recently been raised whether it would not be wiser to improve the water-supply of Tirupati before touching the drainage scheme; and until this matter, which is now under disposal, is settled, further delay is unavoidable.

17. Of the 55 district municipalities in the Presidency, 36 have now been surveyed for the purpose of collecting the information necessary for the preparation of schemes of water-supply or drainage and it will be many years before the majority of these schemes can be completed; the Government therefore approves of the Sanitary Engineer's proposal to abstain from undertaking any further surveys for the present unless specially called for. The Sanitary Engineer will thus have more time to devote to the execution of the work which is already on hand.

18. The department scrutinized plans and estimates for 114 sanitary works—45 municipal and 69 local fund—of the total estimated value of Rs. 1,54,000 and furnished new plans and designs wherever necessary. The inference which Mr. Jones draws in paragraph 129 of his report, though logically sound, is one which it is difficult to accept as accurate in fact. That 39 municipalities and 82 local boards should have carried out no sanitary work exceeding Rs. 200 in amount is, if true, anything but satisfactory. The Government is disposed to believe that other such works must have been executed without reference to the Sanitary Board. The attention of the municipal councils and local boards will accordingly again be drawn to G.O., dated 16th January 1891, No. 79 L., prescribing a reference in such cases.

19. The Sanitary Engineer or his Assistant further submitted reports to the authorities concerned regarding the construction of side drains in Hospet (Bellary) and the improvement of the water-supply of Saidapet (Chingleput), the Government House at Guindy and the Coimbatore and Rajahmundry jails. The Government notes with pleasure the remarks made by the Sanitary Engineer regarding the good services of Messrs. Hormusji Nowroji and Minchin.

(True Extract.)

A. P. G. Shelley
Capt. R. L.
for Chief Secretary.

To the Sanitary Commissioner.

- „ the Sanitary Engineer.
- „ the Sanitary Board.
- „ the Surgeon-General.
- „ the Public Department.
- „ the Public Works Department.
- „ the Military Department.
- „ the Revenue „
- „ the Legislative Department.
- „ the Inspector-General of Police.
- „ the Inspector-General of Prisons.
- „ the Accountant-General.
- „ all Collectors.
- „ all Presidents of District Boards.
- „ all Chairmen of Municipal Councils.
- „ the President, Municipal Commission, Madras.

Editors' Table.

ENDORSEMENT—dated 2nd July 1894, No. 1211 L., Local and Municipal.

Copy to the Government of India, Home Department.

J. F. PRICE,
Chief Secretary.

N^o. 440 W of 16-2-91

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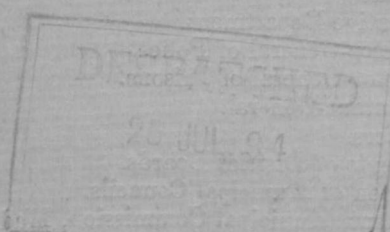
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Suptg. Engrs.

C. A. to Govt.

Ch. E. for Engrs.

INDEXED

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2ND JULY 1894, Nos. 1210, 1211, L., LOCAL AND MUNICIPAL.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following papers:—

From R. E. ELLIS, Esq., ASSOC. M. INST. C.E., Acting Sanitary Engineer to Government, to the Chief Secretary to Government, dated Fort St. George, 28th February 1894, No. 513.

I have the honour to submit herewith four copies of the Administration Report of this department for the calendar year 1893.

2. The report was written by Mr. J. A. Jones, Sanitary Engineer to Government, just before he availed himself of the furlough granted to him.

3. The report will, as usual, be bound with that of the Sanitary Commissioner for Madras when ready.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Acting Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated Fort St. George, 1st June 1894, No. 1072-S.

I have the honour to forward four stitched copies of my Sanitary Report for 1893. The diagrams and cholera map are inserted in only one copy.

2. Two copies have, as usual, been forwarded to the Sanitary Commissioner with the Government of India.

3. The title page, table of contents, cholera map and the diagrams will be inserted in the bound copies.

ORDER—dated 2nd July 1894, No. 1210 L., Local and Municipal.

With the letters read above, the Acting Sanitary Commissioner and the Acting Sanitary Engineer submit the reports on the administration of their departments during the year 1893.

2. There was no alteration in the constitution of the Sanitary Board or in the rules framed for the conduct of its business. The Sanitary Commissioner has however—as he remarks in paragraph 78 of his report—recently brought to notice the desirability of making certain changes therein and the whole subject is now under the consideration of Government.

GENERAL SANITATION.

3. Rainfall and Prices of Food-grains.—In accordance with the instructions of Government contained in paragraph 3 of the order reviewing the report for 1892, the Sanitary Commissioner has grouped the districts of the Presidency, as shown in the margin, according as they are more affected by the south-west or north-east monsoon, and the first diagram annexed to the report graphically shows the mean rainfall of the several sub-divisions of the two groups. It is noticeable that Salem,

Subject to the South-West Monsoon.

- | | |
|------------------------|---------------|
| I. South-Western | South Canara. |
| | Malabar. |
| | Nilgiris. |
| | Cuddapah. |
| II. North Midland | Bellary. |
| | Kurnool. |
| | Anantapur. |
| | Vizagapatam. |
| III. East Coast, North | Ganjam. |
| | Goddavari. |
| | Kistna. |

O.L.S. 210 25/7

Subject to the North-East Monsoon.

IV. East Coast, Central ..	Chingleput. Madras. Nellore. North Arcot.
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4. *Vital Statistics.*—The population for which returns of births and deaths were received was 33,733,121 according to the census figures, or, allowing for the estimated increase, 35,137,219. The total population according to the census being 35,630,440, it may be assumed that vital statistics have not been received in respect of some 2,000,000.*

5. *Births.*—The number of births recorded during the year (909,153), though in advance of the figure for 1892, was less than that reported for 1891, in the thirteen years previous to which there had been an almost continuous progressive increase in the number of births registered. The mean reported birth-rate for the Presidency was 27.0 per mille against 25.1 in 1892, the rates for municipalities, rural towns and rural villages being 34.1, 24.8 and 26.5, respectively, against 31.4, 22.5 and 24.7, respectively, in that year. There has been a slight but general improvement in the accuracy

* The figures given in this paragraph include Europeans and Eurasians numbering some 40,000; the succeeding paragraphs give statistics touching Natives only, excluding Europeans and Eurasians from consideration. Full particulars regarding the vital statistics relating to these classes will be found in Statement XII.

of these returns, though registration seems to be much neglected in the 36 rural towns shown in Statement VI, which contain more than 10,000 inhabitants each. As the Sanitary Commissioner suggests, it appears desirable to appoint paid registrars in these towns; the charge is, however, one which cannot be defrayed from local funds as Act V of 1884 at present stands, and the consideration of the proposal will be deferred until the Act is amended; a note of the question will be made in the Legislative Department. Taking the districts individually, there was an advance in all except Anantapur, Bellary, South Canara, Cuddapah, Kistna, Kurnool and Malabar. Excluding Madras, the highest birth-rate was recorded in Chingleput (35.6 per mille) and in South Arcot, Tanjore and Bellary also the rate was above 30, while in Ganjam, Nellore, Vizagapatam, Cuddapah, Gódvári and Malabar (not Madura, as stated in paragraph 25 of the report), in which the results are admitted to be defective, it ranged from 18.4 to 23.2. The Collectors of these last-named districts will be requested to state what measures they propose to adopt in view to improve the registration of vital statistics. It may be admitted that in Ganjam, Vizagapatam and Nellore the difficulties in the way of accurate registration are great, owing to the large zemindari areas to be dealt with; but in Cuddapah, Gódvári and Malabar the Collectors should be able to obtain as good results as in other ryotwari districts. Excluding Madras, the birth-rate was in excess of the death-rate in all districts, except Cuddapah, where fever carried off no less than 19.8 per mille of the native population. Among municipalities, the rate of 40 per mille was reached in five towns—Vaniyambádi, Tiruppattúr, Dindigul, Madras and Mánnargudi—against two in 1892. In 36 towns the rate ranged from 30 to 40; in 14 others it was between 20 and 30; and in the remaining one (Cuddapah), it was only 16.1, owing, it is stated, to the influence of continued exposure to malaria. Dr. King's proposal that Government should select certain areas and appoint a special officer in order to secure reliable vital statistics relating thereto deserves consideration. Dr. King should submit a detailed scheme.

6. *Deaths.*—The following statement shows the total reported number of deaths per mille in the year under review as compared with the previous five years:—

	* 1888.	* 1889.	* 1890.	† 1891.	† 1892.	† 1893.
Cholera	2.1	2.7	1.2	2.9	2.3	1.0
Small-pox	0.8	1.0	1.0	1.2	1.3	0.8
Fevers	7.3	8.2	9.2	7.3	8.3	7.7
Dysentery and Diarrhoea	† 1.0	† 1.0	† 0.9	1.0	1.0	0.7
Injuries	0.4	0.4	0.4	0.4	0.3	0.3
Other causes	9.8	10.2	10.1	9.4	9.1	8.8
Total	21.4	23.5	22.8	22.2	22.3	19.3

* Calculated on the Census figure of 1881.
† Do. do. of 1891.
† Includes other bowel-complaints also.

The mortality in 1893 was less than in any of the preceding five years, the reported rate being below the decennial average by 2.7 per mille. Except in regard to fevers, the year was, on the whole, a healthy one. The rate of mortality among infants under one year, though less than in the previous two years by 17.3 and 10.8, respectively, per mille, was still excessive, being 156.6 per mille of the births registered during the year. Taking separately the districts and municipalities, it is observed that the district rates of infant mortality are more favorable than those of the municipalities, no less than 23 towns, including Madras (294 per mille), having returned a death-rate of over 200 per mille, while this rate was exceeded in only one district, viz., Tanjore. It must be remembered, however, that better registration in municipalities is probably responsible for much of this difference. As Dr. King remarks, this enormous mortality among infants is no doubt due to the insanitary conditions which surround them, and especially to the drastic treatment to which the new-born child is subjected owing to the ignorance of the Hindu female.

The total mortality in Madras—41.4 per mille—though less than in the previous year, was as usual very high, and this in spite of the fact that Madras, as Dr

King remarks, "possesses an advantage as regards age constitution as affecting mortality when compared with average municipal towns." This result may be ascribed partly to the greater accuracy of the returns and partly to the more insanitary condition of the town. The attention of the Municipal Commissioners will be drawn to the Sanitary Commissioner's remarks in paragraphs 84 *et seq* of his report. Dr. Laing's inspection notes of 1892 have now been discussed by the Commissioners and disposed of in G.O., dated 12th May 1894, No. 617 M., but Mr. Cousins' scheme for the drainage of Madras is still under the consideration of the Chief Engineer. The town was again inspected by the Acting Sanitary Commissioner towards the end of the year under review, but his report has not yet been received by Government.

The average death-rate in rural villages was 18.5 per mille against 21.6 in 1892, the mortality being highest in Tanjore (26.5), while in seven other districts, viz., Cuddapah, Kurnool, Trichinopoly, Bellary, Tinnevely, Chingleput and Nilgiris, the rate ranged between 23.6 and 20.2. In the remaining ones it was below 20. The rates in Nellore (15.2), Vizagapatam (13.8) and Ganjam (11.9) were extremely low and indicate the untrustworthy nature of the returns. In rural towns also the rates were generally low, the average being 18.7 per mille, and there can be no doubt that as regards these registration is very defective.

	1893.	1892.	Turning to the district municipalities where more reliable statistics are available, the highest death-rate—47.3 per mille—was attained in Cuddapah, where 32.2 per mille of the population succumbed to fever. Erode and Srirangam followed next with rates of 39.2 and 38.1, respectively, per mille; in eighteen towns the rates ranged from 30 to 37, in 29 others from 20 to 30, and in the remaining five, viz., Berhampur, Cocanada, Nellore, Cuddalore and Anantapur, the rate was below 20. As compared with the previous year, there were noteworthy variations in the towns noted in the margin, for which no explanation has been furnished.
Mannargudi	36.3	24.2	
Kurnool	30.3	55.2	
Trichinopoly	36.7	25.7	
Bellary	23.4	35.2	
Adoni	22.3	34.6	
Cochin	29.5	50.3	
Calicut	27.2	38.0	
Tellicherry	22.7	34.0	
Erode	39.2	21.7	
Guntur	26.0	37.4	
Anantapur	18.9	36.3	
Salem	28.3	18.2	
Periyakulam	20.7	38.2	
Cocanada	19.5	35.9	
Bimlipatam	25.7	40.7	

7. *Principal Diseases—Cholera.*—The mortality from this cause was smaller than that recorded in any year since 1887. The disease was, however, prevalent throughout the year and no district was free from it. It was felt most severely in the last two months of the year in the districts of Tanjore and Trichinopoly, causing deaths to the extent of 4.8 and 4.7, respectively, per mille. Dr. King attributes this to the influence of the floods to which these districts were subjected shortly after the importation of the disease and the consequent wholesale spread of choleraic excreta by water. The average death-rate from this cause in municipal and other towns was 2.2 against 3.2 per mille in 1892, and that in the districts 0.9 against 2.3. Of the municipalities, Trichinopoly and Gudiyattam headed the list with a rate of 13.6 each per mille, and Erode and Tanjore followed next with rates of 11.6 and 10.2, respectively. The mortality from this cause in the remaining municipalities was moderate and twelve of them enjoyed perfect freedom from cholera. The comparative immunity enjoyed by Negapatam as compared with the rest of Tanjore goes to show the possibility of reducing mortality from cholera by taking proper sanitary precautions. The Government has read with much interest the portions of Dr. King's report dealing with the origin and spread of cholera and its incidence according to season, but observes that general dissertations of the kind are out of place in an annual report.

8. *Small-pox.*—The total number of deaths from small-pox was reported to be 27,289 against 43,757 in the previous year and 41,322 in 1891. This represents a rate of only 0.8 per mille of the population against 1.3 in the preceding year. In local fund areas the deaths from this cause represented 0.8 per mille of the population and in municipal areas 0.5; but if the exceptional district of Malabar, where the mortality was very high (4.8 per mille) be excluded, the rate for the former would

be only 0.49. The Acting Sanitary Commissioner ascribes the high rate in Malabar to the great mortality among Mappilas, whose dislike to vaccination and habit of living in crowded houses render them peculiarly subject to small-pox. The death-rate in the remaining districts was less than 1 per mille, except in Bellary and Gódvári, where it was 1.2 and 1.0, respectively. In municipalities the death-rate was heavy in Tirupati (4.1), Palghat (2.3), Madura (2.3), Anakapalle (1.9), Cochin (1.7) and Mannargudi (1.5); only 10 towns were altogether free from this disease. With reference to Dr. King's suggestion in paragraph 66 of his report that arrangements should be made for the introduction of compulsory vaccination in major unions, it will be observed that the necessary provision has already been made in the draft Bill to amend the Local Boards Act, which will shortly be laid before the Legislative Council. The subject of vaccination will be more fully discussed in reviewing the vaccination report for 1893-94.

9. *Fevers.*—The number of deaths recorded under this head was 258,415, against 280,627 in 1892 and 247,029 in 1891. The Ceded Districts suffered most severely, the highest death-rates recorded being 19.7 per mille in Cuddapah and 18.6 in Kurnool, while the rate in Bellary also was high—10.6. Paragraph 72 of the report discusses the causes which have led to the high mortality in these districts and in Madras town where the death-rate was 15 per mille. Trichinopoly (3.7), Tinnevely (3.2) and Tanjore (1.8) were the districts which were least affected by fevers. Unlike the preceding years, the mortality in municipalities was higher than in rural tracts. The death-rate was especially high in Cuddapah (32.2), Kurnool (17.5), Madras (15.0), Tiruppattur (13.2), and Parlákimedi (13.1). On the other hand the least affected towns were Cocanada (2.5) and Dindigul (1.3). Dr. King's suggestion that the tendency to cultivate irrigated lands in the immediate proximity of inhabited houses should be curbed by law, though doubtless desirable from a sanitary point of view, is hardly practicable. The mischief is already done, and it is financially impossible to buy up the land the cultivation of which is open to this objection.

10. *Dysentery and Diarrhoea.*—The total reported mortality from dysentery and diarrhoea was 23,814 against 32,293 in 1892. The total district rate was only 0.7 per mille and ranged from 2.3 in Chingleput to 0.2 in Kistna. In rural tracts the mortality was only 0.5 per mille, whereas in urban circles it was 3.1. This marked difference, as Dr. King points out, shows how much these diseases are influenced by the insanitary conditions of town life and more especially by the foulness of soil in the more thickly inhabited areas. In municipal towns the death-rate was highest in Vizagapatam (9.7), Tanjore (7.8), Madras and Karur (6.0), and lowest in Anantapur (0.3) and Adoni (0.1).

11. *Injuries, &c.*—There was no considerable variation in the number of deaths registered under the head "Injuries"—10,709—but the deaths from unspecified causes fell from 303,733 in 1892 to 297,346 in the year under review.

12. *Sanitary Works—Civil.*—Such of the subjects reported upon by the Sanitary Commissioner under this head as have not already been separately dealt with will be discussed in the reviews of the administration reports of the local bodies concerned and in the General Municipal and Local Fund reviews. Dr. King's suggestion regarding the organization of District Sanitary Boards does not commend itself to Government.

13. *General Remarks.*—In consequence, probably, of the changes of incumbents of the offices of Sanitary Commissioner and his Deputy, only 52 minor towns and villages in the Presidency were inspected by them against 128 in the preceding year. Dr. Laing, the permanent Sanitary Commissioner, was also deputed to visit Bangalore and to report upon the water-supply of that town, and Dr. King who succeeded him made special investigation on the spot regarding the cholera epidemics at Tirupati and Trichinopoly. The inspection work of the District Medical and Sanitary Officers was on the whole satisfactory, the average number of places visited by them being 58 against 51 in 1892, the minimum prescribed by Government being 40. The Medical officer of Cuddapah again showed commendable zeal, visiting 162 localities. The Medical officer of Gódvári, on the other hand, inspected only 18 places—a shortcoming for which some explanation should be furnished. The matter of urging the

advantage of sewage farming upon the attention of municipalities is stated to have been steadily kept in view by the Sanitary Commissioner, but the advance made in this direction was very slow. In addition to the towns of Madras and Tanjore which pursue this system profitably, though on bad sanitary principles, sewage farming on a small scale was commenced in Negapatam during the year under review. It is to be regretted that want of funds at present prevents the serious consideration of the proposal to establish a Museum of Hygiene at Madras. The Government is pleased to note the testimony borne by Dr. King to the good work done by his Deputy, Surgeon-Captain Bannerman.

The Sanitary Commissioner's report would have been improved had foot-notes been subjoined to the text stating clearly whether the statistics to be found therein included Europeans and Eurasians. While the Government considers that Dr. King deserves high praise for the extreme care and thoroughness with which the report has been prepared, it desires that he should in future years endeavour to considerably curtail the length of it. Much of the information which this report contains is of a *quasi* permanent character and need not be repeated.

SANITARY ENGINEERING.

14. During the year under review, which is the fourth since the organization of this department, the Sanitary Engineer visited 15 towns and the Assistant Sanitary Engineer 10, against 18 and 10, respectively, in the previous year. During the absence on privilege leave of the Sanitary Engineer, the officer who was appointed to act for him was, however, owing to ill-health, unable to tour.

15. Seven water-supply and two drainage works, estimated to cost Rs. 16,40,000 in the aggregate, were under execution, and of these the Cuddapah water-supply and Coonoor drainage works were completed, while very little remained to be done to the drainage scheme of Kumbakonam. Fair progress was made in carrying out the schemes for the water-supply of Madura, Tanjore and Trichinopoly, but the prevalence of cholera and the occurrence of heavy floods proved serious obstacles to their completion. It is much to be regretted that the November floods practically destroyed the whole of the Trichinopoly water-works, besides causing considerable damage to those at Tanjore. Further delay was caused in the case of Madura by the necessity for modifying the estimates, due to the discovery that the water in the bed of the Vaigai river was much less than originally anticipated. Schemes for the water-supply of Conjeeveram and Tuticorin and the drainage of Karur were submitted by the Sanitary Engineer, but final orders have not yet been passed on them by Government, as the projects are under reference either to the Sanitary Commissioner or to the municipal councils concerned.

16. With regard to the Sanitary Engineer's remarks regarding the inability of many municipalities to finance schemes, it will be observed that it is proposed in the Bill to amend Act IV of 1884 to remedy this defect by raising the maximum rates of house and water taxes. The Sanitary Engineer will be informed that the refusal of Government to reconsider its order directing the Military Works Department to prepare a separate scheme for supplying water to Bellary was only of a temporary nature, and that he may reopen the question as soon as the Military Works Department scheme is complete. The Coimbatore water-supply scheme has not been temporarily abandoned, as the Sanitary Engineer infers in paragraph 30 of the report. Government is awaiting a report from the municipal council as to the possibility of financing the project. The matter has been before the municipality for over six months, and the delay in submitting the report required is not creditable to the councillors. As regards paragraph 37 of the report it will be remarked that it is now time for the Coonoor Municipal Council to reconsider the question of providing a water-supply, which was allowed to lie over in G.O., No. 719 M., dated 21st April 1892. There is no difficulty in financing the scheme as Mr. Jones considers. The delay in carrying out the Negapatam drainage scheme is due to the discussion as to whether it should be preceded or accompanied by the execution of a water-supply project; the Sanitary Board has just reported on the matter and it is now under the

consideration of Government. The Government fully concurs in the Sanitary Engineer's remarks regarding the apathy of the Tirupati Municipal Council, to which the past delay in executing the drainage scheme sanctioned for that town is solely attributable. The question has, however, recently been raised whether it would not be wiser to improve the water-supply of Tirupati before touching the drainage scheme; and until this matter, which is now under disposal, is settled, further delay is unavoidable.

17. Of the 55 district municipalities in the Presidency, 36 have now been surveyed for the purpose of collecting the information necessary for the preparation of schemes of water-supply or drainage and it will be many years before the majority of these schemes can be completed; the Government therefore approves of the Sanitary Engineer's proposal to abstain from undertaking any further surveys for the present unless specially called for. The Sanitary Engineer will thus have more time to devote to the execution of the work which is already on hand.

18. The department scrutinized plans and estimates for 114 sanitary works—45 municipal and 69 local fund—of the total estimated value of Rs. 1,54,000 and furnished new plans and designs wherever necessary. The inference which Mr. Jones draws in paragraph 129 of his report, though logically sound, is one which it is difficult to accept as accurate in fact. That 39 municipalities and 82 local boards should have carried out no sanitary work exceeding Rs. 200 in amount is, if true, anything but satisfactory. The Government is disposed to believe that other such works must have been executed without reference to the Sanitary Board. The attention of the municipal councils and local boards will accordingly again be drawn to G.O., dated 16th January 1891, No. 79 L., prescribing a reference in such cases.

19. The Sanitary Engineer or his Assistant further submitted reports to the authorities concerned regarding the construction of side drains in Hospet (Bellary) and the improvement of the water-supply of Saidapet (Chingleput), the Government House at Guindy and the Coimbatore and Rajahmundry jails. The Government notes with pleasure the remarks made by the Sanitary Engineer regarding the good services of Messrs. Hormusji Nowroji and Minchin.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Sanitary Commissioner.
 „ the Sanitary Engineer.
 „ the Sanitary Board.
 „ the Surgeon-General.
 „ the Public Department.
 „ the Public Works Department.
 „ the Military Department.
 „ the Revenue „
 „ the Legislative Department.
 „ the Inspector-General of Police.
 „ the Inspector-General of Prisons.
 „ the Accountant-General.
 „ all Collectors.
 „ all Presidents of District Boards.
 „ all Chairmen of Municipal Councils.
 „ the President, Municipal Commission, Madras.
 Editors' Table.

ENDORSEMENT—dated 2nd July 1894, No. 1211 L., Local and Municipal.

Copy to the Government of India, Home Department.

J. F. PRICE,
Chief Secretary.

Exd. A. Raith.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following papers:—

From R. E. ELLIS, Esq., ASSOC. M. INST. C.E., Acting Sanitary Engineer to Government, to the Chief Secretary to Government, dated Fort St. George, 28th February 1894, No. 513.

I have the honour to submit herewith four copies of the Administration Report of this department for the calendar year 1893.

2. The report was written by Mr. J. A. Jones, Sanitary Engineer to Government, just before he availed himself of the furlough granted to him.

3. The report will, as usual, be bound with that of the Sanitary Commissioner for Madras when ready.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Acting Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated Fort St. George, 1st June 1894, No. 1072-S.

I have the honour to forward four stitched copies of my Sanitary Report for 1893. The diagrams and cholera map are inserted in only one copy.

2. Two copies have, as usual, been forwarded to the Sanitary Commissioner with the Government of India.

3. The title page, table of contents, cholera map and the diagrams will be inserted in the bound copies.

ORDER—dated 2nd July 1894, No. 1210 L., Local and Municipal.

With the letters read above, the Acting Sanitary Commissioner and the Acting Sanitary Engineer submit the reports on the administration of their departments during the year 1893.

2. There was no alteration in the constitution of the Sanitary Board or in the rules framed for the conduct of its business. The Sanitary Commissioner has however—as he remarks in paragraph 78 of his report—recently brought to notice the desirability of making certain changes therein and the whole subject is now under the consideration of Government.

GENERAL SANITATION.

3. *Rainfall and Prices of Food-grains.*—In accordance with the instructions of Government contained in paragraph 3 of the order reviewing the report for 1892, the Sanitary Commissioner has grouped the districts of the Presidency, as shown in the margin, according as they are more affected by the south-west or north-east monsoon, and the first diagram annexed to the report graphically shows the mean rainfall of the several sub-divisions of the two groups. It is noticeable that Salem,

Subject to the South-West Monsoon.

I. South-Western	..	{ South Canara. Malabar. Nilgiris. Cuddapah.
II. North Midland	..	{ Bellary. Kurnool. Anantapur. Vizagapatam.
III. East Coast, North	..	{ Ganjam. Godavari. Kistna.