

THE
THIRTEENTH ANNUAL REPORT OF THE
SANITARY BOARD,

THE FORTY-FIFTH ANNUAL REPORT OF THE
SANITARY COMMISSIONER,

AND THE

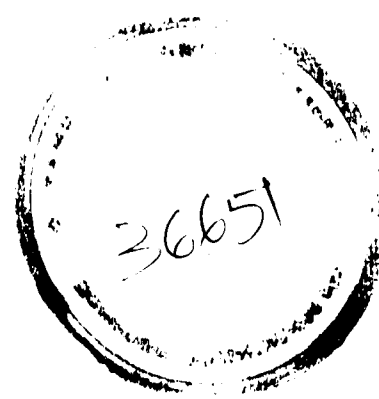
NINETEENTH ANNUAL REPORT OF THE
SANITARY ENGINEER,

MADRAS.

1908.

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THIRTEENTH REPORT OF THE SANITARY BOARD.

THIRTEENTH REPORT OF THE SANITARY BOARD

FOR THE YEAR 1908.

The following report of work done by the Sanitary Board during the year 1908 is submitted to Government.

2. It has been explained in previous reports that the Sanitary Board of this Presidency exercises no powers of executive control, but that its functions are confined to advising local bodies on questions of sanitation and examining such sanitary schemes as they may desire to carry out. Such schemes include water-supply and drainage works, the laying out of village-sites and townships, and the construction of public buildings intended either for the accommodation of the sick or the amelioration of the condition of the inhabitants generally of local areas, such as markets, abattoirs, bakeries and dhobi-khanas, and bathing and washing platforms. Type plans for a large number of these buildings have already been issued for guidance. These designs are accompanied by schedules of quantities, with blank columns for local rates, thus rendering the preparation of estimates of cost a matter of great facility.

3. During the year the Board examined schemes estimated to cost Rupees 7,28,944 in the aggregate. Of these, 31 works estimated to cost Rs. 5,48,526 were for Municipalities, and 59 estimated to cost Rs. 1,80,418 were for Local Fund Boards.

4. The following are among the more important of the schemes examined by the Board :—

	Estimated cost.
	RS.
(1) Water-pumping installation for the use of pilgrims at Periyapalayam (Chingleput District)	11,450
(2) Conversion of the old Dutch market at Negapatam into a fish market	15,750
(3) The 'South' market at Madura	13,363
(4) The 'West' market at Madura	18,683
(5) Extension of the water-supply system at Guntur	6,900
(6) Vegetable market at Mannargudi	7,780
(7) Stalls in the market at Tindivanam (South Arcot District)	4,090
(8) Constructing a drinking water tank at Neerulani Rangapuram (Kurnool District)	4,779
(9) Extension of the water-supply system of Madura	3,100
(10) Water-supply, Masulipatam	3,11,900
(11) General Hospital, Dindigul	30,777
(12) Women and Children's Hospital, Dindigul	12,431
(13) Extension of the Ootacamund drainage works	48,000
(14) Dhobi-khana, Ootacamund	20,914
(15) Dispensary and ward, Koraput	12,200
(16) Dispensary at Pattikonda (Kurnool District)	5,200
(17) Dispensary at Siruguppa (Bellary District)	5,300
(18) Dispensary at Kudligi (do.)	5,460
(19) Dispensary at Rajampet (Cuddapah District)	5,100
(20) Dispensary at Siddhavattam (Cuddapah District)	4,900
(21) Improvements to the Rajah Mirasdar Hospital at Tanjore	9,550
(22) Dispensary at Turaiyur (Trichinopoly District)	4,970
(23) Improvements to the market buildings at Ootacamund	4,140
(24) Draw well at Kandanati (Kurnool District)	3,950
(25) Dispensary at Devipatam (Madura District)	5,800
(26) Dispensary at Allagadda (Kurnool District)	5,000
(27) Vegetable market at Tirupati	4,300
(28) Laying out of new house-sites at Karur	11,500
(29) Filter wells at Kumbakonam	2,900

5. Of the works passed by the Board the following were under execution at the close of the year :—

	Estimated cost.
	RS.
(1) Two stalls in, and compound wall round, the weekly market at Pochampalli (Salem District)	2,960
(2) Well at Variguntapadu (Nellore District)	1,350
(3) Extension of the water pipe lines at Guntur	6,900
(4) Reroofing the market sheds at Pentapadu (Kistna District).	4,000

	Estimated cost.
	RS.
(5) Fish and vegetable stalls in the market at Chittoor ...	2,620
(6) Stall for the sale of cloth in the market at Nagari ...	1,200
(7) Lying-in ward at Mannārgudi ...	3,000
(8) Sheds in the cattle market at Palakollu (Kistna District) ...	3,080
(9) Boiler rooms in the pumping station of the water-works at Madura ...	2,255
(10) Isolation shed at Mandapam (Madura District) ...	1,575
(11) Dispensary at Pattikonda (Kurnool District) ...	5,200
(12) Dispensary at Siruguppa (Bellary District) ...	5,300
(13) Dispensary at Kudligi (Bellary District) ...	5,460
(14) Dispensary at Rajampet (Cuddapah District) ...	5,100
(15) Dispensary at Siddhavattam (Cuddapah District) ...	4,900
(16) Improvements to the Rajah Mirasdar Hospital at Tanjore ...	9,550
(17) Dispensary at Turaiyūr (Tāchinopoly District) ...	4,970
(18) Dispensary at Allagadda (Kurnool District) ...	5,000
(19) Additional scour valves and hydrants for Marlimund water-supply, Ootacamund ...	2,000
(20) Reroofing the market sheds at Vellore ...	3,600
(21) Verandah to the Hospital at Yemmiganūru (Bellary District) ...	1,320
(22) Kitchen and a room for accidental injuries in the Dispensary at Sivagiri (Tinnevely District) ...	1,130
(23) Compound wall to the Dispensary at Sivagiri (Tinnevely District) ...	1,230
(24) Drinking water well at Devadanapatti (Madura District) ...	1,050
(25) Compound wall to the market at Emakkalapuram (Madura District) ...	2,220
(26) Dispensary with Hospital Assistant's quarters at Nellakota (the Nilgiris) ...	3,600
(27) Improvements to the Perumandi burning and burial grounds at Kumbakonam ...	3,625
(28) Filter wells at Kumbakonam ...	2,900
6. The following were completed :—	
(1) Improvements to the in-patients' wards in the Municipal Hospital at Mannārgudi ...	5,300
(2) Market at Narasaraopet ...	2,030
(3) Additional stalls in the weekly market at Kangayam ...	1,900
(4) Store and operation room in the hospital at Erode ...	1,450
(5) Two market sheds at Tenali ...	2,000
(6) Extending the Bazaar Street drain at Madanapalle ...	1,570
(7) Salt stall in the market at Pollachi ...	1,500
(8) Extension of the pipe lines at Coonoor ...	1,600
(9) Hospital Assistant's quarters in the Municipal Hospital at Bezwada ...	2,138
(10) Improvements to the Central block of the market buildings at Ootacamund ...	4,140
(11) Permanent fruit stall in the market at Ootacamund ...	1,610
(12) Special Hospital Assistant's quarters at Rāméswarem ...	2,200
(13) Compound wall to the vegetable market at Rāméswarem ...	3,775
(14) Cholera shed of 12 beds at Rāméswarem ...	2,700
(15) Two lines of 4 huts each for pilgrims at Rāméswarem ...	3,400
(16) Extension of the water-works to the railway buildings on Mount Pleasant at Coonoor ...	2,000
(17) Widening the lower platform of the market at Coonoor ...	1,090

7. Sixteen works estimated to cost Rs. 40,928 had to be deferred by local bodies—six from lack of funds. Sixteen, estimated to cost Rs. 38,460, were reserved for execution as famine relief works.

8. The following was the only change in the personnel of the Board. Surgeon-General William Richard Brown retired in March 1908, and was succeeded as Medical Member by Surgeon-General Percy Hugh Benson, M.B., V.H.S., I.M.S.

9. The reports of the Sanitary Commissioner and the Sanitary Engineer, which are appended, complete the record of the sanitary work in this Presidency.

PART I.

GENERAL SANITATION.

THE FORTY-FIFTH ANNUAL REPORT

OF THE

SANITARY COMMISSIONER WITH THE GOVERNMENT OF MADRAS, 1908.

SECTION V.

GENERAL POPULATION.

RAINFALL.

1. The total average rainfall for the Presidency during the year under report was 42·44 inches and was less than that of 1907 by 3·17 inches and the average by 2·73. There was an increase in nine districts and a decrease in fourteen as compared with the previous year, the increase being most marked in South Canara (11·90) inches and Madras (10·19) inches, and the decrease in Malabar (41·77) inches, the Nilgiris (24·41) and Tinnevely (10·83). Compared with the average, four districts showed an excess which amounted to no less than 26·3 inches in South Canara. Considered with reference to the monsoons, all the districts in the Presidency except six have been benefited by the south-west monsoon in a larger measure than in 1907, the most favoured being South Canara with an excess of 18·89 inches. In six districts the increase was from 4 to 7 inches and in the others inconsiderable. The districts of Chingleput, Madras and Nellore, generally supplied with rain by the north-east monsoon, also benefited by the south-west, while the Nilgiris and Malabar chiefly dependent on the latter received considerably less than what they had in 1907—the shortage amounting to 18·16 and 30·33, respectively. With the solitary exception of Madras the north-east monsoon was generally a failure, the quantity measured, namely, 10·24 inches, being less than the previous year and the average by 3·4 and 4·6 inches, respectively. The districts of Tanjore, Tinnevely and Trichinopoly were particularly unfortunate in this respect.

PRICES OF FOOD-GRAINS.

2. The prices of the staple food-grains rose higher than in the previous year and were very much above the average. During the year rice was sold for the rupee at 7·6, ragi 13·1, cholam 13·0 and cumbu 12·3 seers of 80 tolas against an average of 12·2, 23·9, 21·4 and 21·5, respectively. These figures represent a corresponding rise in the prices by 60·5, 82·4, 64·6 and 74·8 per cent. above the average. The steady increase in prices observed in previous years continued without alteration. Apart from the fact that the north-east monsoon was generally a failure and that the current burst late, it cannot be held that the harvest was so

miserable as to warrant these prices. Unless other causes were in active operation, such as, the financial operation of merchants in holding back grain, wholesale exportation, etc., it is difficult to decide whether a partial failure of the monsoons would alone bring about the existing conditions.

GENERAL POPULATION.

3. The population of the Presidency according to the last census was 38,212,712 exclusive of Europeans and Eurasians, and that for which statistics were furnished for the year under report was 36,744,483, leaving a total of 1,468,229 souls unaccounted for. This excluded population is composed of the hill tribes of the Ganjam and Vizagapatam districts and of the inhabitants of the Laccadive and the Amindivi Isles and of the Banganapalle State in Kurnool. The estimated population for the year is 40,359,493; the natural increase, as ascertained by adding to the census figure of 1901 the excess of births over deaths during the succeeding years up to the end of December 1908, is 40,268,011. It is interesting to note that the estimate and the actual almost coincided. Emigration and immigration statistics for the year show that the Presidency lost 64,651 souls.

4. The machinery employed for the registration of vital statistics both in urban and rural areas and the method adopted for the collection and tabulation of the results have undergone no change. Act III of 1899 was, as in the previous year, in operation in 3,558 towns and villages. The corresponding figure (707) appearing in the report for 1907 was arrived at by taking all Government villages included in a taluk as representing one town or village. The mistake has now been rectified. Registration in rural areas is far from accurate both in numbers and in terminology. The weekly diaries of Deputy Inspectors of Vaccination employed in the districts and the Sanitary Inspection reports of the District Medical and Sanitary Officers bring to light many instances of neglect on the part of the village officers entrusted with this task. If delinquents in this respect be dealt with suitably by the district authorities, improvement in this direction can certainly be looked for. The new combined scheme of compulsory vaccination and compulsory registration now being given a trial in certain districts will, it is hoped, improve this state of affairs when it is extended to the Presidency as a whole.

5. In the matter of enforcing registration in mufassal municipalities, 1,277 prosecutions were instituted which resulted in 1,269 convictions with an aggregate fine of Rs. 812-13-0.

BIRTHS IN DISTRICTS.

6. The recorded birth-rate for the Presidency for the year under report was 32.4 per mille and was the highest ever yet attained. Compared with the previous year and with the decennial average there was an increase of 1.6 and 2.5 per mille, respectively. In eighteen districts the rate showed an advance, and in five a decline in contrast with the previous year. Of the eighteen districts referred to above, twelve recorded an increase of over 2 per mille. In Coimbatore the birth-rate was 7.1 per mille above the previous year, in the Nilgiris (6.4), Salem (5.5), and Madura and Tinnevely (4.4 each). This improvement can only be ascribed to greater care taken to register events. On the other hand, the falling off observable in the districts of Cuddapah, Ganjam, Guntur, Malabar and South Canara must be the result of the reverse state of things as regards registration, ignoring the common factor of dearth of food-grains. The lowest birth-rate (21.6) was returned by Guntur which recorded a rate of 37.3 in 1907. Why there has been such a sudden fall is difficult to explain.

7. Leaving Madras out of account, the highest birth-rate was recorded in Chingleput (37.4), followed by Tinnevely (37.0), South Arcot (36.6), Kistna and Salem (35.2 each) and Anantapur (35.0). In eleven others it exceeded 2 per mille.

8. Contrasting the rates obtained in the areas in which Act III of 1899 was in force with those for the districts as a whole, marked fluctuations are noticeable. In no less than 12 districts the results secured in the compulsory areas were unfavourable, the decline exceeding 5 per mille in Ganjam, South Arcot, Tinnevely, Bellary and Nellore, in the last two of which the decrease was 10.2 and 13.2 respectively.

Among the districts which produced favourable results, Madura recorded an increase of 6.2 per mille and in the others the measure of success achieved was insignificant. Other things being equal, the variations can at best admit of but one explanation, namely, the degree of care taken to register occurrences which must be assumed to have been properly exercised in the districts which show an improvement and to have been lax elsewhere.

9. Registration in rural towns having a population of 5,000 and upwards was greatly neglected in no less than 93 out of a total of 171 such towns. The results obtained in St. Thomas' Mount, Kollegal, Rajampet, Madanapalle, Vempalli, Tuni, Karaikudi and Ayyampettai were absurdly low, the birth-rate in no case exceeding 9.6 per mille. The death-rates also were likewise very small.

10. Considered with reference to sex, the proportion of male to female births was 104.9 to 100, the same as in the previous year. Classified according to race, the birth-rates were as follows:—

Muhammadans	...	...	...	...	...	...	...	...	34.4
Hindus	...	...	...	...	...	...	...	...	32.4
Native Christians	...	...	...	...	...	...	...	...	30.4

DEATHS IN DISTRICTS.

11. The deaths registered during the year amounted to 960,919, representing an annual ratio of 26.2 per mille of the census population under registration, or 1.9 and 3.8 more than the previous year and the decennial average, respectively, the increase being caused by the prevalence of cholera during the year. Guntur, the Nilgiris, South Arcot, South Canara, Tanjore and Trichinopoly excepted, the other districts showed a rise in mortality which was most marked in Kurnool (9.5), Vizagapatam (9.0), Ganjam (6.8), Cuddapah (5.9), Bellary (5.7), and Kistna (5.6). In the districts of Kurnool and Ganjam the increase occurred under cholera, fevers and dysentery and diarrhoea, in Vizagapatam under cholera, small-pox and fevers, in Kistna under cholera and fevers, and in Cuddapah and Bellary under cholera. Six districts showed a decrease, Gódvári having registered a rate equal to that obtained in the previous year. Excluding Madras, the highest death-rate was produced by Malabar (39.0), followed by South Canara (30.8), Kurnool (30.4) and Ganjam (30.0). The lowest rate was returned by Guntur (15.6), Madura (19.3), Salem (21.6), Coimbatore (21.7), Nellore (22.3) and Trichinopoly (23.4).

12. The proportion of male to female deaths was 104.5 to 100. According to race the death-rates were as follows:—

Muhammadans	...	...	...	...	...	...	...	...	31.7
Hindus	...	...	...	...	...	...	...	...	25.9
Native Christians	...	...	...	...	...	...	...	...	22.1

13. The mortality among children under one year of age for the districts averaged 183.7 against 177.0 in 1907. Distinguished by sex, the rate of mortality of male infants was 193.8 and that of female infants 173.1. These figures would represent 54.0 male and 46.0 female deaths for every 100 deaths, showing an increase of 0.3 in the case of the former and a corresponding decrease in the case of the latter as compared with the previous year. Excluding Madras, the incidence of infant deaths was heavy in Guntur (232.0), the Nilgiris (214.1), Chingleput (207.7), Kistna (202.9), Tanjore (197.0) and South Arcot (193.5). Compared with the previous year, there was an increase in fifteen and a decrease in eight districts. Of the former, Guntur and Vizagapatam showed an excess of 56.2 and 54.9, respectively, and of the latter, the Nilgiris and South Canara produced a deficit of 38.3 and 31.1, respectively.

BIRTHS IN MUNICIPALITIES.

14. The total births registered in the municipal towns amounted to 91,432, representing an annual ratio of 37.7 per mille against 36.3 in 1907 and 36.7, the quinquennial average. The highest rate (62.2) was recorded in Vaniyambadi and Kodaikanal. Dindigul came next with 52.1. The rate was also large in Salem (47.7), Srivilliputtur (46.8), Guntur (45.5) and Rajahmundry (45.2). It varied from 40 to 45 in 17 towns and in 32 others it was between 40 and 30. There thus remained Srirangam, Kumbakonam, Tirupati, Chicacole and Bellary, where the rates were only 29.9, 28.5, 27.3, 27.1 and 22.9, respectively. Comparing the year's results with those of 1907, it is observed that there was an increase in the birth-rate in 40 towns and a decrease in 18, while in the remaining three towns (Adoni, Bezwada and Tanjore) the rates were identical. Of the towns which showed an increase, Kodaikanal takes the lead with an excess of 16.2 per mille, followed by Palni (12.3), Anantapur (9.7), Nellore (8.3), Madura (8.1), Rajahmundry (7.8), Chidambaram (7.7) and Trichinopoly (7.0). Greater attention paid to registration may in part account for the increase. Among the towns showing a falling off in contrast with the previous year, Calicut shows a decrease of (6.9), Bimlipatam (4.1), Tellicherry and Tirupati (3.9 each), Cuddalore (3.7) and Gudiyattam (3.1). In the absence of specific causes the decline must be set down to defective registration.

DEATHS IN MUNICIPALITIES.

15. The death-rate for Municipal towns averaged 38.2 per mille against 33.4 in 1907 and 34.7, the five-year average, or 4.8 and 3.5 more than the previous year and the average respectively. The increase occurred mainly under cholera and fevers. The highest death-rate was returned by Calicut (70.8). The mortality was also heavy in Tellicherry (58.2), Bezwada (56.3), Cannanore (55.7), Nandyal (50.9), Guntur (50.7), and Cuddapah (50.4). The heavy incidence in the towns named above was due to the prevalence of cholera. In Calicut and Cannanore it was also due to plague and in Bezwada to dysentery and diarrhoea. As compared with the quinquennial average there was an increase in 42 towns and a decrease in 17 and in the remaining two towns (Anantapur and Ootacamund) the rates were identical. In contrast, however, with the results of the previous year, the death-rate showed an increase in 48 and a decrease in 13 towns. The excess was most marked in Calicut (34.1), Cannanore (26.1), Nandyal (20.7), Tellicherry (20.1) and Bezwada (18.1). The diminution was large in Cochin (34.9), Tuticorin (16.5) and Nellore (11.3) and occurred chiefly under cholera and dysentery and diarrhoea.

16. The total average infantile death-rate for the Municipalities was 234.7 per mille against 223.4 in 1907. Considered with reference to sex, the mortality among male infants was 247.3 and among females 221.2, or, in other words, in every 100 infantile deaths there were 54.4 males and 45.6 females. The rate of mortality was very heavy in Bezwada (345.4), Tirupati (334.1), Bellary (324.6), Guntur (317.9), Ellore (311.3), Madras (300.4) and Masulipatam (272.5). It varied in 19 towns from 220.9 in Ootacamund to 258.2 in Berhampur. Compared with the previous year there was an increase in 38 and a decrease in 23 towns. There was a large excess amounting to over 50 in Bellary (98.2), Tirupati (93.8), Bimlipatam (74.0), Vizagapatam (60.8), and Ongole (50.8), and a large decrease exceeding 40 in Coonoor (91.7), Anantapur (61.9), Cochin (58.9), Mannargudi (45.7) and Ellore (44.8).

The heavy mortality among infants must be ascribed to want of nutrition in consequence of the prevailing scarcity, to the ignorance of mothers in rearing their children and to the insanitary environments amidst which they are born and brought up.

SECTION VI.

GENERAL HISTORY OF CHIEF DISEASES.

CHOLERA.

17. The mortality from cholera amounted to 141,970, or 3.9 per mille against 81,565 or 2.2 in the previous year. In 18 districts it was but a continuation of the epidemic that raged in the previous year. It was reported from all the districts of the Presidency and was present all the year round in no less than 18 districts. Malabar suffered most with a death-rate of 9.9 as in the previous year. The rate of mortality was also large in Anantapur (8.5), Kurnool (7.4), Ganjam (5.7), Cuddapah (5.1), Tinnevely (4.3) and Kistna and South Arcot (4.0 each). The incidence of cholera mortality was heaviest in the districts chiefly affected by the south-west monsoon in the months of June to September.

18. From sixty district municipalities 11,194 deaths from cholera were reported against 4,749 in the previous year. The towns of Kodaikanal and Coonoor returned only one sporadic case, and Ootacamund two during the year. The disease was largely prevalent in Calicut (29.7), Tellicherry (23.7), Nandyal (18.5), Cannanore (16.4), Tinnevely (13.5), Vaniyambadi (12.7), Periyakulam (12.4), Bezwada (12.3), Berhampur (11.2), Cuddapah (9.6), Erode (8.8), Bimlipatam (7.7) and Palamcottah (7.3).

Out of 43,133 towns and villages in the Presidency, deaths from cholera were reported from 11,286 as against 6,430 in 1907.

19. The rules for combating cholera in certain urban areas published with G.O., No. 1536 M., dated 9th September 1896, continued to be in operation throughout the year, and their working was closely watched by this office. The Chairmen of the Municipal Councils concerned acted upon the timely warnings and advice given by this office. In the case of towns to which the rules have not been extended, advice was given to employ the additional staff enjoined by the rules in the interests of public health.

20. Permanganate of potash as a means of purifying contaminated sources of water-supply is freely used and continues to be favourably reported on by medical officers.

SMALL-POX.

21. Small-pox accounted for 22,204 deaths against 22,455 in 1907. It was reported from all the districts of the Presidency and was severe in Vizagapatam (1.8), South Arcot (1.6), North Arcot (1.4) and Malabar (1.3). It was also prevalent in Nellore, Bellary and Cuddapah, and perennial in 17 districts. In the above-named districts the disease formed a continuation of the previous epidemic. Of the deaths registered, 6,665 were under one year and 5,955 from 1 to 10 years of age, or 30.0 and 26.8 per cent., respectively, of the total mortality. As remarked in previous reports, it is impossible to look for a marked reduction in infant deaths due to this cause without resort to legislation. It is hoped that the introduction throughout the Presidency of the revised scheme of vaccination, which provides for compulsion in this respect, will secure the end in view.

22. Eighteen municipal towns enjoyed immunity. In the remaining 43 towns, a total of 928 deaths was registered. In 18 of these the number of deaths reported did not exceed 4 in each. The death-rate exceeded 2 per mille in the following five towns:—Palghat (6.8), Ellore (3.2), Rajahmundry (2.3), and Guntur and Tiruvannamalai (2.2 each).

23. From 4,430 towns and villages small-pox cases were reported against 4,514 in the previous year. In urban areas the death-rate was 0.3 and in rural tracts 0.6—thus evidencing the value of compulsory vaccination in municipal areas.

PLAGUE.

24. Plague contributed 3,358 deaths against 2,872 in the previous year. Eleven districts showed a clean bill and in four others 10 imported cases in all were reported. These may also be ranked with the districts which enjoyed immunity. In the remaining eight districts from which indigenous cases of plague were reported, the death-rate in the Nilgiris was 1.3, Bellary (0.6) and Coimbatore (0.5). The total of the rates in all the other affected districts was less than 1 per mille. The disease was present all the year round in the districts of the Nilgiris, Salem and South Canara.

25. Of the twelve mofussal municipalities which reported cases of plague, Anantapur, Vaniyambadi and Negapatam recorded one imported fatal attack each, and Conjeevaram two. The remaining eight towns produced a total of 810 deaths, the largest death-rate being returned by Cannanore (10.9), Mangalore (4.7), Ootacamund (3.4) and Calicut (2.7). As usual the measures adopted for grappling with the disease were the employment of observation and preventive staffs in and about the affected areas, disinfection of infected houses and of persons and their effects, segregation of patients and contacts, passporting persons arriving from infected areas and keeping them under surveillance for a number of days (7), and destroying rats by poisoning or trapping, or by both processes.

26. During the year under report 183 deaths from plague (1 in Tanjore, 2 in South Canara, 7 in Bellary, 21 in Malabar and 152 in Coimbatore) were recorded among persons who had been previously inoculated with anti-plague vaccine.

FEVERS.

27. A total of 295,834 deaths was returned under this head against 284,430 in 1907, the rates being 8.0 and 7.8 per mille, respectively. Fevers were largely prevalent in Vizagapatam (19.9), Ganjam (19.8), Kurnool (13.8), Madras (12.3) and Cuddapah (12.0) and in 7 other districts in which the rate of mortality varied from 7.8 in Guntur to 11.3 in Kistna. Out of 43,133 villages in the Presidency 23,599 returned deaths from this cause against 22,769 in 1907. Compared with the five-year average there was an increase in the death-rate in 10 districts. The deaths were larger in the cold weather months, the greatest number being recorded in December.

28. The number of deaths registered under this head in the Municipal towns was 16,298 against 14,315 in 1907, representing annual ratios of 6.7 and 5.9 per mille respectively. Excluding Madras, the rate of mortality was large in Kurnool and Nandyal (16.8 each), Nellore (12.3), Anakapalle (12.1), Rajahmundry (11.9) and Cuddapah (11.0). In 23 others the rate varied from 10 to 5. There was an increase in 38 towns as compared with the previous year. It is observed that fever mortality in Cuddapah, as compared with the previous year, rose by 1.4 per mille. The prohibition of wet cultivation in and around the town since the 1st of July 1904 seems to have had no effect up to now in reducing the fever rate in the town.

DYSENTERY AND DIARRHŒA.

29. These caused 60,874 deaths against 60,326 in 1907. The rate of mortality was 1.7 per mille. The highest rate was recorded in Madras (6.0). It was also large in 5 other districts wherein it exceeded 2 per mille. It was above the five-year average in 11 districts. The consumption of inferior food and other unwholesome articles of diet by the poorer classes coupled with an insufficient water-supply,

generally polluted by surface drainage during the monsoons, was doubtless the immediate cause of the increased mortality under the above heads.

30. The mofussal municipal towns returned a total of 8,817 deaths, being 452 more than in the previous year. The rate was large in Bimlipatam (9.9), Vizianagram (9.6), Tirupati (9.0), Tellicherry (8.7), Kurnool (8.4), Vellore (8.2), Palamcottah (8.1) and Chidambaram (7.2). The crowded state of dwellings in Municipalities and the insanitary environments amidst which the major portion of the people live, brought about the increased mortality in these towns. There was an increase in 34 towns and a decrease in 24, in the remaining 3 the rates being identical.

31. Compared with the rural death-rate (1.7), the urban (Municipal) shows a large increase of 3.2. Setting aside the question of insanitary surroundings as influencing the rate of mortality from this cause, this variation may be due to the greater accuracy in the classification of diseases secured in Municipal areas where the agency employed for the registration of vital statistics is somewhat better educated and supervised than in rural areas.

RESPIRATORY DISEASES.

32. The deaths registered under this cause aggregated 27,779 against 24,638 in 1907, the rates being 0.8 and 0.7 per mille respectively. As in previous years the death-rate was large in the Nilgiris and Madras (2.5 each). Registration under this head cannot be relied on, especially in rural areas, where the agency employed is completely ignorant of diagnostics.

33. A total of 4,886 deaths was registered under this head in Municipal areas, or 483 more than in the previous year. The rate of mortality was largest in Cochin (9.1), Tellicherry (6.6), Coonoor (6.2), Ootacamund (5.2), Bimlipatam (4.5), and Kumbakonam (4.4). No deaths were reported from this cause in 11 towns.

INJURIES.

34. The casualties under this head amounted to 11,192, being 246 more than in 1907. As usual, suicides among females occurred more frequently than among males, the proportion being 115.4 female to every 100 male deaths.

ALL OTHER CAUSES.

35. Under this comprehensive head 397,708 deaths were recorded against 395,292 in 1907. Nearly one half of the total deaths registered fell under this head. As compared with the previous year there was an increase in 14 and a decrease in 9 districts. The rate exceeded 10 per mille in 13 districts. The districts of Cuddapah, Ganjam and Vizagapatam returned fewer deaths under this head as in previous years, whereas the fever rate recorded in them was proportionately large. These districts being notorious for the prevalence of malarial fever, deaths have been registered freely under fevers without any attempt at an enquiry into the cause of death.

36. In Municipal towns the death rate was 18.4 against 17.6 in 1907. It exceeded 20 per mille in 18 towns and was between 10 and 20 in 40 others. The highest rate was recorded in Vaniyambadi (29.9) as in the previous year and the lowest in Kurnool (6.5).

SECTION IX.

SANITARY WORKS—CIVIL.

MUNICIPALITIES.

37. The Madras District Municipalities Act (IV of 1884) was in force in 6 towns as in previous years, the City of Madras being administered under a separate enactment.

38. The sanitary progress in the majority of mufassal municipalities is found to be somewhat slow. The income of many of these small towns is not sufficient for them to do more than, what may be termed, their daily work, and leaves very little margin for improvements. Large undertakings, such as, water-supply schemes, drainage schemes, etc., can only be started with financial aid. It is not always quite understood how difficult it is for small municipalities to keep within their budget allotment and yet to carry out a certain amount of improvements annually. On the other hand I regret to state that there are a fair number of municipal councils, who do not display any conspicuous ability in the management of their affairs and who do not receive anything like the full value for the money expended.

39. The major sanitary works carried out during the year will be found described in the report of the Sanitary Engineer to Government which forms Part II of this report. The works of minor importance executed during the year consisted in the sinking and repair of wells, construction and repair of latrines, markets, slaughter-houses, drains, etc.

40. The opening up of congested areas in municipalities has claimed a very considerable amount of attention during the past year. With the help of grants from Government very fair progress has been made in this direction in many towns. All municipalities that are prosperous and increasing in population should be prepared to regulate increase of the town and to see that new suburbs are laid down on sound sanitary principles and not allowed to spring up haphazard. This part of the duty is only now being satisfactorily carried out. In the year under report some improvement has been made and a fair number of municipalities have commenced extension schemes. A very great deal more is necessary in this direction and constant watch should be kept by the sanitary supervising staff to prevent insanitary collections of houses from springing up within the municipal area. The opening up of congested areas has a considerable influence on the spread of plague and cholera and it also very materially increases the efficiency of the conservancy staff. Steady progress in this direction should be made year by year.

41. The conservancy staff and plant employed by Municipal Councils show a general improvement but in many instances it is deficient in numbers and bad in quality. Such deficiencies and requirements have been brought to the notice of the Councils concerned in reviewing their annual budgets and in the inspection notes of the Sanitary Commissioner and his Deputy. Night-soil conservancy is defective in many towns, particularly in the matter of public latrine accommodation and where the private scavenging system has not been largely taken advantage of.

42. The number of public latrines provided was insufficient in 47 towns and of these, the most backward were the towns of Rajahmundry, Masulipatam,

Madura, Calicut, Cochin, Palghat, Tellicherry, Tiruvannamalai, Mangalore, Kumbakonam, Negapatam and Srivilliputtur.

43. The private scavenging system was in operation in all the towns and worked fairly well in the towns of Cuddapah, Cocanada, Kodaikanal, Madura, Tirupattur, Negapatam, Palamcottah, Tinnevely and Bimlipatam. It was greatly neglected in 24 towns. The amount realized by the sale of town sweepings and night-soil may be described as fair in 16 towns, insignificant in 26, and next to nothing in the rest.

44. Municipal Councils do not get the best value out of their conservancy staff. Sanitary Inspectors are in reality not much better than the inferior staff, unless they are properly looked after, and, in many instances, these men do not supervise the work under them to the best of their abilities, because the members of the Council take very little interest in keeping the sanitary staff up to mark. However poor a municipality the satisfactory removal of night-soil and the proper cleansing of the town at least once a day should be insisted on. The unsatisfactory arrangement of requiring Sanitary Inspectors to perform duties other than sanitary is still in force in many of the municipalities notwithstanding the orders of Government to the contrary on the subject. This greatly detracts from the usefulness of these subordinates.

SEWAGE.

45. Although advice in this matter has not been wanting, the profitable disposal of sewage has, I regret to observe, remained in very much the same state as in previous years. With the exception of Kumbakonam, Dindigul and Cannanore no new towns undertook the irrigating of lands with town sewage; whilst, on the other hand, the Municipalities of Cocanada, Coonoor, Chingleput and Tinnevely abandoned the attempt. In Cocanada, the sewage was diverted into the salt creek, but my advice to utilize a piece of ground beyond the railway as a sewage farm is now under the consideration of the Municipal Council; in Chingleput the farm in use was abandoned on the advice of the District Medical and Sanitary Officer and the sewage is now used for watering the avenue trees on the trunk road. Sewage filtration is attempted in the Municipalities of Salem and Kumbakonam. In Kottacamund sewage is disposed of by means of a septic tank and the effluent is irrigated over land. Analyses of the land and tank effluents have been made throughout the year and show that the installation is working very satisfactorily on the whole. The septic tank gives about 50 per cent. purification on the crude sewage calculated in terms of oxygen absorption from acid potassium permanganate. The result of land filtration varies somewhat on account of the difference in the density of the soil and probably also due to the variation in the amount per acre put on to the land. Some of the best results show that a clean nitrification has gone on, yielding as much as two parts of nitric nitrogen per 100,000. The farm produces vegetables, oat and grass. In Vizagapatam a good sewage farm exists and pays extremely well. This requires considerable extension and should in time bring a very satisfactory income to the municipality if worked intelligently. The crops raised on other existing sewage farms are chiefly vegetables of various kinds, grass, tobacco, grain of sorts, plantains, etc., but the financial results are disappointing, the expenditure in many cases far exceeding the income. In Rajahmundry and Tanjore the farm is maintained by contractors, the latter town deriving an income of Rs. 2,560 from this source. With the introduction of comprehensive drainage schemes which are contemplated in several of the larger municipalities it is hoped that sewage farming will receive greater attention and the income derived therefrom will form a substantial addition to the municipal revenues.

46. The raising of crops on night-soil trenching grounds, where there is no demand for the buried product, receives no more attention than sewage farming. The municipalities certainly display a want of energy in this direction. Whenever

possible night-soil deposited in trenches should be sold as manure one year or eighteen months after burial. In many towns such as Chicacole, Berham, Parlakimedi, Anakapalle, Kumbakonam, Mayavaram, which are situated in proximity to extensive agricultural operations, there is no demand for night-soil for manuring. This is due to prejudices which the ryots have to using night-soil on their fields; with a little enterprise it should be possible for the municipal authorities to demonstrate the utility of this material as a fertilizer by cultivating plot of land manured with night-soil and thus affording object lessons to the ryots. The best results in cultivating the trenching ground were secured by Ootacamund where a portion of the night-soil depot has been leased for Rs. 250 per month. The largest income from the sale of night-soil as manure was realized by Madurai which derived Rs. 11,700 from this source; Kurnool Rs. 2,091, Palamco Rs. 1,727 and Karur Rs. 1,536 followed by Salem Rs. 266, Nandyal Rs. 219, Tirupati Rs. 214 thus demonstrating to what profitable account the night-soil can be turned. In Palghat the night-soil mixed with rubbish is incinerated and sold as manure, whilst in Trichinopoly the manufacture of poudrette is in contemplation. The trenching grounds in most towns are badly laid out and badly managed and in very many cases the grounds used are insufficient for the requirements of the town. Advice as to how these depots should be laid out and managed has been given in individual inspection reports.

DISTRICT BOARDS.

47. The number of districts administered under the Madras Local Board Act continued the same as in the previous year, namely, 23. The sanitary work executed during the year were, as usual, the sinking and repair of wells, construction and repair of tanks, latrines, drains, dustbins, markets, slaughter-houses, and the improvement of village-sites and water-supply generally. The ryots population resorted as usual for their supply of drinking-water to either tanks, wells, ponds, rivers, springs or canals. Over many of these sources watchmen were placed to guard them from pollution. Side cuttings for getting rid of storm water were the only approach to a drainage system in villages. Out of a total of 43,000 villages, 596 were conserved against 603 in the previous year. Of these, 1,000 were unions and 210 other villages.

48. The allotment for sanitation was Rs. 10,35,567, and of this sum Rs. 4,96,890 or 47.9 per cent. were expended during the first nine months of the year. In fourteen districts less than 50 per cent. of the allotment was utilized, the result being that at the end of the year a considerable portion of it would lapse.

49. As regards the maintenance of village sanitary inspection books information has not been received from the Koraput district. Excluding this and Nilgiris and South Canara in which the record has not been maintained owing to the absence of unions in them, in the remaining districts it appears to have been properly maintained.

MECCA PILGRIMAGE.

50. The Collectors of the Maritime districts of this Presidency were requested by a circular letter to report if any pilgrims embarked from any of their ports for the Haj at Mecca in 1908. With the exception of Madura, all replied in the negative. The information furnished by the Collector of Madura is abstracted below:—

Number of pilgrims	...	...	Two, being natives of Kilakarai.
Port of embarkation	...	...	Bombay.
Name of steamer	...	...	S.S. <i>Lavia</i> . No medical examination was made either at Kilakarai or at Bombay, the place of embarkation.

Port of landing Cameran. Here they were kept at quarantine for seven days. Provisions were properly supplied. On the eighth day, as three persons of the crew belonging to S.S. *Lavia* died of plague, all pilgrims were turned back to Cameran where they were kept for another twelve days. Clothing was disinfected in hot water and returned to the owners.

Quantity of water allowed per head 3 quarts daily.

Amount of floor space allowed for a group of six pilgrims. 50 square feet (10' x 5').

Both the pilgrims returned safely.

SECTION X.

GENERAL REMARKS AND PERSONAL PROCEEDINGS.

51. Lieutenant-Colonel Thomson was in charge of the Office of Sanitary Commissioner up to 9th March 1908. During the period he made a routine inspection of the municipal town of Vellore. I relieved him on the 10th March when he was placed on special duty. Whilst on this duty he proceeded to Coimbatore to report, in consultation with the Sanitary Engineer, upon certain changes in the water-supply scheme of that town necessitated by the establishment of the Agricultural College and Research Institute. He was then required by Government to select a site for the establishment of a plague camp at Shoranur and to report upon the working of the King Institute of Preventive Medicine. On the termination of this duty he proceeded on sixteen months' combined privilege leave and furlough. I held charge of the office for the rest of the year and the following statement exhibits the inspection work performed by me including routine sanitary inspection, special inspections in connection with opening up congested areas, selection of sites for house extension, inspection of all water-supplies, etc. :—

Date.	Place visited.	Purpose of visit.
March 1908.	Ootacamund	To enquire into and report upon a complaint as to the position of the sewage farm and the prevalence of enteric fever.
April 1908 ..	Porur in Chingleput district ..	Inspection of vaccination.
	Madura	Town inspection.
	Mandapam, Rameswaram and Alagarcovil.	Inspection with reference to making suitable arrangements for the lodging of pilgrims and sanitary arrangements generally.
	Srirangam	Town inspection and as regards proposals for curtailment of municipal limits.
May 1908 ..	Ootacamund	To attend committee meeting convened for considering the revision of jail diets.
	Calicut and Cannanore ..	Town inspection.
	Rajahmundry	To report on the proposed water-supply scheme.
	Trichinopoly	Inspection with special reference to drainage scheme.
	Palamcottah	Town inspection.
June 1908 ..	Tinnevely	Do.
	Salem	Inspection of the Panamarathupatti tank with reference to the extent of land to be acquired for the water-supply.
	Trichinopoly	Inspection of site proposed for increased house accommodation.
	Negapatam	Inspection of town with reference to the drainage scheme.
	Mangalore	Inspection with reference to the drainage scheme.
	Cannanore	Inspection with reference to plague arrangements.
July 1908 ..	Vizagapatam	Town inspection.
	Bellary	Town inspection and proposals for opening up congested areas.
	Cuddapah	To inspect and explain Lieut.-Colonel Thomson's proposals in regard to the drainage of Sayyapet.
	Madura	Inspection of result of experiments in the disinfection of certain tanks with chloride of lime.
	Dindigul	Town inspection and selection of site for a Muhammadan burial-ground.

Date.	Place visited.	Purpose of visit.
July 1908— <i>cont.</i>	Palni	Inspection of site for a Muhammadan burial-ground and water-supply.
	Madura	Inspection of tanks under experiment.
	Kumbakonam	Town inspection and conference for concerting measures for the Mahamakam festival.
	Rajahmundry	To attend conference in connection with the sanitary arrangements for the Pushkaram festival.
	Rameswaram	To inspect the actual conditions under which pilgrims lodged during the festival.
July and August 1908.	Ootacamund	To inspect night-soil shoot and certain features of the Ootacamund drainage scheme.
August 1908.	Bombay	Inspection of plague work and rat-proof houses and to confer with Captain Liston on certain plague matters.
	Adoni	Inspection of areas to be opened up and water-works.
	Palghat	Town inspection and sanitary schemes proposed by the Municipality.
	Cochin	Town inspection.
	Kumbakonam	To attend conference with reference to the Mahamakam festival and inspection of certain burial-grounds.
September 1908.	Coimbatore	Inspection of hospital building and to confer with District Medical and Sanitary officer and Collector re plague in Kollegal.
	Kollegal	Inspection of plague measures.
	Kodaikanal	Town inspection and water-supply scheme.
	Anantapur	Town inspection and inspection of site proposed for town extension.
October 1908.	Coonoor	Town inspection and water-works.
	Trichinopoly and Tanjore ..	Inspection of water-works with reference to quarterly analysis of water.
	Red Hills	To report on the extent of land in the catchment area that should be put out of cultivation.
	Bellary	Inspection of area proposed to be opened up.
November 1908.	Coimbatore	Inspection of hospital building and part of town.
	Cocanada	Town inspection and inspection of filter beds.
	Chicacole	Inspection of proposed water-supply scheme.
	Dindigul	Inspection of head water-works at the request of the Chairman with reference to the quarterly analysis of water.
	Mangalore	Town inspection, inspection of proposed water scheme and opening up of congested areas.
	Vizianagram	Town inspection and of sanitary schemes proposed by Municipality.
December 1908.	Nellore	Inspection of head water-works with reference to the quarterly analysis of water.
	Maddur	To investigate certain matters connected with the inoculation work at Kollegal.
	Kilore	Inspection of proposed water scheme and sanitary schemes proposed by the Municipality.
	Bezwaia	Inspection of town with reference to sanitary arrangements for the ensuing Kistna Pushkaram.
	Tanjore	To attend conference with reference to Mahamakam festival.
	Thirupattur	Inspection of sanitary schemes proposed by council.
	Arkonam	Inspection of site selected for town extension.
	Cocanada	Inspection of filter beds.
	Vizagapatam	Inspection of proposals for extension of water-supply.
	Berhampur	Town inspection.
	Parlakimedi	Inspection of sanitary schemes proposed.

52. In addition to the above, whilst at head-quarters, besides attending to routine office duties, I was called upon for an opinion as to certain burial-grounds within the city and to advise as to certain sanitary arrangements in the Chief Presidency Magistrate's Court at Egmore. The King Institute of Preventive Medicine engaged my constant attention necessitating frequent visits. The water analysis work and the research work were carried out under my orders.

53. In regard to plague measures the rules as to disinfection and rat extermination were revised by me and brought up to date in accordance with the latest information on the subject. With the permission of Government I visited Bombay in August and saw a good deal of the plague work in that city paying particular attention to rat-proof houses. I also conferred with Captain Liston on various plague matters.

54. On my recommendation Government were pleased to order the quarterly analysis of the water-supply of all towns, provided with a protected water-supply and orders in regard to the analysis of the jail supplies have recently been received. The results of this work carried on during the three quarters of 1908 have amply fulfilled expectations and will prove to be of the utmost value, thus justifying the expenditure incurred.

55. The King Institute of Preventive Medicine continues to fulfil its sphere of usefulness. On my advice the pathological work, hitherto carried on in the Bacteriological Section, has been transferred to the Medical College. The whole work of the chemical analysis of water, formerly conducted by the Chemical Examiner, was taken over by the King Institute, thus concentrating all public health work in one institution. The work in this section has been of great interest from a public health point of view. The staff has been augmented by the appointment of a Chemical Assistant. Work in the Serum Section has still not commenced owing to the question of the refrigerating plant being under correspondence. Details of the work in the Vaccine and Bacteriological Sections will be separately reported upon.

56. Forty-one candidates qualified as Assistant Sanitary Inspectors and 24 took the higher qualification of Sanitary Inspectors during the year, thus making a total of 686 Qualified Sanitary Inspectors and Assistant Sanitary Inspectors. I regret to note that no Assistant Surgeons were deputed to attend the class in Minor Sanitary Engineering at the King Institute to qualify as Sanitary Assistants. During the latter end of the year, proposals were submitted for improving the course of training for Sanitary Assistants in Public Health and Minor Sanitary Engineering, the revised syllabus providing for a course of lectures and demonstrations by the Sanitary Commissioner or his Deputy and the Sanitary Engineer has just received the sanction of Government. Seventeen candidates were trained as Special Inspectors for plague duty and 25 underwent training as vaccinators.

57. Two-hundred and thirty-seven reports from the District Medical and Sanitary officers dealing with sanitation, registration and vaccination in rural and municipal areas and schools were scrutinized and the attention of the authorities concerned was drawn to the defects brought to notice. The progress of epidemics was carefully watched and the necessity for the employment of staff and preventive measures urged upon the local bodies.

58. Captain Justice held the office of Inspector of Vaccination and Deputy Sanitary Commissioner throughout the year. He trained a class of 17 men as Special Inspectors for plague duty. He inspected the trial scheme areas of Chingleput, Madura and North and South Arcot and submitted reports on 122 villages and unions besides 2 villages in the non-compulsory area of the Madura district. He also inspected and submitted a written report on the Municipality of Bimlipatam. In November he proceeded to Masulipatam to enquire into certain complaints as to the ill effects produced on children operated on with vaccine supplied by the King Institute. Investigation however showed the allegations to be unfounded.

59. The checking of stores and the maintenance of the service registers of my office establishment were duly attended to.

60. Captain Justice's time has been also entirely taken up with the vaccination of the Presidency. He knows this part of his work extremely well and was of great assistance to me on my arrival in Madras. I consider him a very competent and pains-taking officer.

61. My Manager and Assistant M.R.Ry. S. Balasundara Mudaliyar Avargal, B.A., and office staff fulfilled their duties satisfactorily.

WM. WESLEY CLEMESHA, Major, I.M.S.,
Ag. Sanitary Commissioner for Madras.

OFFICE OF SANITARY COMM., CATHEDRAL,
MADRAS, 7th May 1909.

APPENDIX.

VITAL STATISTICS OF THE GENERAL POPULATION.

No. 1.—Statement showing the Births registered in the districts of the Madras Presidency during the year 1908.

1	2	3	4	Population (exclusive of Europeans and Eurasians) as per census of 1901.		Population (exclusive of Europeans and Eurasians) for which returns were received.		Number of births registered (exclusive of Europeans and Eurasians and still-births).		Ratio of births per 1,000 of population.		7	8	9	10			
				Districts.		Total.		Total.		Total.						Excess of births over 1,000 of population.	Excess of deaths over birth population.	Mean ratio of births per 1,000 during previous five years.
				Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.							
1	403,090	384,682	Anantapur	403,090	384,682	787,758	14,160	13,429	27,589	15.0	17.0	35.0	105.4	5.3	15.1	14.8	39.9	
2	485,612	471,425	Bellary	485,612	471,425	967,067	16,009	15,420	31,429	16.7	16.2	33.9	103.6	6.5	15.5	14.9	30.4	
3	659,002	619,168	Chingleput	659,002	619,168	1,309,370	25,096	23,820	48,918	19.2	18.2	37.4	105.4	13.2	17.8	17.1	34.9	
4	1,082,628	1,118,115	Coimbatore	1,082,628	1,118,115	2,200,673	37,307	36,046	73,353	16.9	16.4	33.3	103.5	11.6	14.5	14.0	38.5	
5	655,730	635,395	Cuddalore	655,730	635,395	1,291,125	17,969	17,410	35,389	13.9	13.5	27.4	103.3	2.8	13.7	13.5	27.8	
6	981,706	1,048,243	Cuddalore	981,706	1,048,243	1,436,931	23,413	21,547	44,960	16.2	15.0	31.3	108.7	1.3	17.4	16.3	33.7	
7	710,907	734,055	Gadavari	710,907	734,055	1,446,003	24,639	23,628	48,267	17.1	16.3	33.4	104.4	9.3	15.4	14.9	30.3	
8	752,727	737,908	Guntur	752,727	737,908	1,480,835	16,590	15,664	32,254	11.1	10.5	31.6	105.9	6.0	18.6	18.0	36.6	
9	869,811	873,764	Kistna	869,811	873,764	1,743,565	31,522	29,931	61,453	18.1	17.1	35.3	105.3	7.5	16.9	16.1	33.0	
10	456,779	447,428	Kurnool	456,779	447,428	871,948	13,887	13,517	27,404	15.9	15.5	31.4	102.7	1.0	15.5	15.0	30.5	
11	248,712	244,938	Madras	248,712	244,938	493,680	9,891	9,481	19,372	20.2	19.1	39.3	105.9	8.2	20.7	19.5	40.3	
12	1,356,653	1,473,951	Madras	1,356,653	1,473,951	2,830,644	30,933	29,878	60,811	16.6	15.7	32.3	105.4	...	17.3	16.3	33.6	
13	1,391,300	1,444,281	Madras	1,391,300	1,444,281	2,785,307	46,158	43,780	89,938	17.1	16.5	33.6	104.1	5.5	13.2	12.8	36.0	
14	640,023	632,315	Nellore	640,023	632,315	1,272,338	18,020	17,359	35,379	17.1	16.5	33.6	104.1	7.9	15.1	14.3	39.4	
15	58,350	49,323	Nellore	58,350	49,323	107,673	2,846	1,773	4,619	17.0	16.2	33.3	104.8	9.2	14.5	14.0	38.5	
16	1,100,354	1,106,463	North Arcot	1,100,354	1,106,463	2,208,817	37,551	35,825	73,376	17.0	16.2	33.3	104.8	13.6	15.7	15.2	38.9	
17	1,085,080	1,118,943	Salem	1,085,080	1,118,943	2,249,177	40,012	37,567	77,579	18.2	17.0	36.3	106.6	...	17.2	16.5	38.7	
18	1,167,748	1,181,429	South Arcot	1,167,748	1,181,429	2,349,177	43,919	42,063	86,982	18.7	17.9	36.8	104.7	8.7	17.2	16.5	38.7	
19	518,345	587,011	South Arcot	518,345	587,011	1,130,761	18,760	17,911	36,671	16.8	16.3	34.2	104.9	1.6	17.3	16.5	33.8	
20	1,065,791	1,178,158	Tanjore	1,065,791	1,178,158	2,243,949	30,331	29,609	59,940	17.5	16.7	34.2	104.9	8.4	17.3	16.5	33.8	
21	1,001,578	1,067,625	Tanjore	1,001,578	1,067,625	2,069,203	39,331	37,173	76,504	18.9	18.1	37.0	104.8	9.3	17.5	16.8	34.3	
22	689,274	744,121	Tanjore	689,274	744,121	1,443,695	24,645	23,776	48,421	17.1	16.4	33.5	103.7	13.1	16.6	16.1	33.7	
23	1,445,508	1,482,590	Tanjore	1,445,508	1,482,590	2,081,328	30,518	29,388	59,906	14.7	14.1	33.8	103.8	0.7	14.9	14.4	33.3	
24	18,841,708	19,371,004	Grand Total for the Presidency.	18,841,708	19,371,004	36,744,483	610,268	581,868	1,192,136	16.6	15.8	33.4	104.9	6.2	15.9	15.3	31.1	
25	2,085,242	2,164,807	Total of Town circles in the Presidency.	2,085,242	2,164,807	4,250,049	73,898	69,123	142,951	17.4	16.2	33.6	106.8	1.3	16.8	16.8	33.6	
26	16,756,466	17,206,197	Total of Rural circles in the Presidency.	16,756,466	17,206,197	32,494,434	536,440	512,745	1,049,185	16.5	15.8	33.3	104.6	7.0	15.8	15.1	30.9	

* Including the Hill Tracts.

APPENDIX.

1	2	3	4	5		6		7		8	9						10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Serial number.	Districts.	Area in square miles.	Average population per square mile.	Population (exclusive of Europeans and Eurasians) for which returns were received.		Births.	Total number.	Number of deaths registered (exclusive of Europeans and Eurasians and born dead).		Number of deaths of males to every 100 deaths of females.	Ratio of deaths per 1,000 of population from						Mean ratio of deaths per 1,000 during previous five years.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				Males.	Females.			Total.	Total number.		Males.	Females.	Total.	Cholera.	Small-pox.	Plague.		Revers.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.		Males.	Females.	Total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

Note.—The born-dead cases are not included in this or any of the other statements.

VITAL STATISTICS OF THE GENERAL POPULATION.

No. III.—Deaths registered in the districts of the Madras Presidency during each month of the year 1908.

Number.	Districts.	Month.												Total deaths registered during the year.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
1	Anantapur	1,455	1,386	1,408	1,842	1,502	2,341	3,140	3,206	2,372	1,759	1,715	1,730	28,416
2	Bellary	1,912	1,589	1,735	1,698	1,728	1,772	2,882	3,033	2,821	2,355	2,063	1,856	25,239
3	Chingleput	3,306	2,794	2,546	2,053	2,316	2,403	2,409	2,655	2,746	2,602	2,888	2,858	31,676
4	Coimbatore	4,534	3,473	2,910	2,735	3,052	3,100	3,364	4,187	4,883	4,771	5,228	5,480	47,727
5	Cuddapah	2,431	2,114	2,265	2,849	2,205	2,073	2,851	3,753	3,042	3,514	2,838	2,922	32,458
6	Ganjam	2,991	1,844	3,177	3,803	4,507	5,349	4,618	3,100	4,736	2,932	3,030	3,254	43,141
7	Godavari	2,796	2,017	2,478	2,475	2,119	2,720	3,222	3,550	2,344	3,628	3,988	3,584	34,921
8	Guntur	2,320	1,685	2,538	2,079	2,155	2,572	2,027	2,890	1,550	1,415	811	1,154	23,186
9	Kistna	3,518	3,034	3,534	2,712	3,321	4,813	5,988	5,048	4,253	3,144	3,854	4,998	48,317
10	Kurnool	1,491	1,378	1,668	1,606	1,996	2,018	3,115	1,871	2,923	2,049	1,642	1,716	26,480
11	Madras	1,839	1,713	1,695	1,465	1,499	1,356	1,555	2,510	2,701	1,972	1,877	1,539	31,781
12	Madura	5,176	4,343	4,219	4,357	4,350	3,739	4,035	3,885	4,131	4,437	5,030	4,840	54,628
13	Malabar	9,683	7,870	8,603	8,271	8,564	8,938	14,435	19,279	8,084	5,624	4,538	4,840	108,089
14	Nellore	3,856	2,688	2,038	1,714	1,967	1,770	1,821	3,088	2,622	1,969	2,319	2,514	28,371
15	Nilgiris, The	196	157	180	197	248	248	282	245	200	263	274	233	2,767
16	North Arcot	5,900	4,195	3,849	3,225	3,885	3,091	3,832	4,702	4,836	4,531	5,139	5,204	53,038
17	Salem	4,167	3,598	3,406	3,541	3,250	3,250	3,105	3,758	4,167	4,221	5,136	5,428	47,531
18	South Arcot	9,506	7,921	6,393	4,732	4,247	4,300	4,480	1,535	4,881	4,500	4,962	1,997	65,564
19	South Canara	6,003	2,857	2,432	1,950	1,772	2,214	2,759	2,401	2,404	2,582	2,608	3,806	34,837
20	Tanjore	7,034	6,642	5,055	3,914	3,639	3,661	4,512	4,263	4,533	4,363	5,119	5,315	57,960
21	Tinnevely	7,687	5,357	4,892	4,380	4,031	1,163	4,594	3,901	3,490	3,937	4,213	6,403	57,048
22	Trichinopoly	3,837	2,857	2,651	2,451	2,704	2,347	2,465	2,358	2,407	2,592	3,353	3,712	33,739
23	Vizagapatnam	5,214	3,873	4,378	4,261	4,514	5,431	6,455	5,218	5,312	6,092	3,985	4,872	58,505
Total, Madras Presidency		96,862	75,883	74,050	67,144	69,981	74,263	88,066	96,811	81,417	74,302	77,390	84,750	960,919
Ratio of deaths per 1,000 in each month		2.7	2.1	2.0	1.8	1.9	2.0	2.4	2.7	2.2	2.0	2.1	2.3	26.2

No. IV.—Deaths registered according to Age in the districts of the Madras Presidency during the year 1908.

1	2	3		4		5		6		7		8		9		10		11		12	
		Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 29.		30 to 39.		40 to 49.		50 to 59.		60 and upwards.	
Number.	Districts.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	Anantapur	2,674	2,232	1,123	1,092	670	594	534	380	491	636	1,051	1,323	1,234	1,114	1,214	1,000	914	2,034	1,840	
2	Bellary	3,136	2,928	1,752	1,755	745	773	418	406	440	511	916	1,272	1,051	983	1,108	860	791	2,262	2,296	
3	Chingleput	5,490	4,471	2,079	2,118	776	834	503	480	479	685	965	1,367	1,079	1,034	1,141	910	835	2,518	2,466	
4	Coimbatore	6,904	6,001	2,777	2,818	1,385	1,260	1,116	867	1,075	1,088	1,892	2,216	2,108	1,977	1,970	1,635	1,721	3,467	3,605	
5	Cuddapah	3,175	2,706	1,630	1,532	940	901	605	551	640	750	1,348	1,789	1,670	1,641	1,927	1,597	1,894	2,689	2,815	
6	Ganjām	4,420	3,776	2,767	2,866	1,806	1,648	1,039	1,071	1,233	1,304	1,794	1,853	1,987	1,893	2,083	1,765	1,773	2,135	3,000	
7	Godavari	4,252	3,812	2,291	2,267	1,183	1,142	890	847	940	1,074	1,466	1,532	1,522	1,293	1,332	1,056	1,300	2,731	3,000	
8	Guntūr	4,027	3,457	2,046	2,013	786	818	461	432	420	524	806	913	715	637	688	481	630	1,444	1,373	
9	Kistna	6,731	5,735	3,250	2,911	1,831	1,704	1,337	1,071	1,056	1,363	2,120	2,519	1,812	1,631	1,606	1,227	1,417	3,451	3,537	
10	Kurnool	2,358	2,124	1,762	1,660	885	874	508	463	524	576	1,189	1,364	1,377	1,236	1,537	1,138	1,469	2,170	2,080	
11	Madras	3,190	2,915	1,850	1,598	472	457	294	303	287	412	898	1,069	793	831	865	760	700	1,745	2,178	
12	Madura	6,725	5,637	3,223	3,209	1,402	1,340	1,071	817	1,053	1,112	2,374	2,880	2,728	2,339	2,781	2,084	2,419	4,376	5,021	
13	Malabar	8,361	7,160	7,993	7,086	4,414	4,133	2,613	2,570	2,144	2,362	5,602	7,200	6,751	7,293	5,615	4,938	4,314	6,245	7,577	
14	Nellore	3,052	2,536	1,505	1,593	889	777	616	573	571	634	1,088	1,206	1,230	1,088	1,157	954	1,373	3,279	3,072	
15	Nilgiris, The	388	387	240	229	72	75	53	57	68	63	128	125	155	111	126	76	95	102	132	
16	North Arcot	6,678	5,778	3,038	4,088	1,577	1,475	1,002	822	814	1,134	1,811	2,386	2,062	1,919	2,242	1,738	2,347	4,686	4,648	
17	Salem	7,780	6,467	2,943	2,951	1,218	1,170	911	814	808	1,049	1,570	1,965	1,862	1,788	2,031	1,652	1,896	3,365	3,520	
18	South Arcot	8,998	7,730	3,968	5,789	2,137	1,961	1,336	1,315	1,308	1,960	2,246	2,563	2,455	2,290	2,542	2,054	2,444	4,218	4,096	
19	South Canara	5,642	3,225	2,178	2,342	903	963	561	532	611	762	1,651	2,086	1,880	1,806	1,916	1,429	1,727	2,451	2,880	
20	Tanjore	8,371	6,770	3,140	3,120	1,409	1,404	874	768	817	1,255	2,058	2,787	2,353	2,282	2,424	1,960	2,438	5,391	6,429	
21	Tinnevely	7,562	6,401	4,529	4,719	1,830	1,605	1,175	1,027	982	1,065	2,225	2,504	2,308	2,029	2,317	1,787	2,296	4,071	4,750	
22	Trichinopoly	4,785	4,203	2,303	2,316	822	854	542	441	477	628	992	1,361	1,177	1,186	1,281	1,054	1,264	3,151	3,320	
23	Vizagapatam	5,753	4,967	4,532	4,456	2,164	1,895	1,412	1,142	1,256	1,245	2,331	2,539	2,480	2,393	2,921	2,182	2,433	4,446	4,946	
Total Madras Presidency		118,271	100,747	65,618	65,561	30,410	28,747	20,794	18,307	18,724	22,192	38,521	46,509	42,698	40,773	42,914	34,327	40,711	54,384	72,411	
Total Population according to the Census of 1901		544,854	508,373	2,928,300	2,930,769	2,638,151	2,603,197	2,398,166	2,167,949	1,519,940	1,430,421	2,689,334	3,180,476	2,694,899	2,694,510	1,919,215	1,857,734	1,710,921	1,222,963	963,260	1,134,114
* Ratio per mille of population		217.1	177.8	34.0	33.3	11.5	10.8	8.7	8.4	12.2	15.5	14.3	14.6	16.5	15.3	22.4	18.2	23.6	55.2	69.1	

* Calculated on the total population as per census of 1901 including Europeans and Eurasians, though the statistics are exclusive of Europeans.

VITAL STATISTICS OF THE GENERAL POPULATION.

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No. V.—Deaths registered according to Classes in the districts of the Madras Presidency during the year 1908.

Number.	Districts.	Population for which returns were received.					Number of deaths registered.					Ratio of deaths per 1,000 of population.				
		Native Christians.	Muhammadians.	Hindus.	Other classes.	Total.	Native Christians.	Muhammadians.	Hindus.	Other classes.	Total.	Native Christians.	Muhammadians.	Hindus.	Other classes.	Total.
1	Anantapur	2,173	58,917	718,361	8,301	787,752	46	1,747	21,510	113	23,416	21.2	29.7	29.9	13.6	30.7
2	Bellary	3,756	97,474	854,056	1,781	957,067	111	2,458	22,523	147	25,230	29.6	25.2	29.4	82.5	36.4
3	Chingleput	23,714	30,010	1,255,257	389	1,309,370	356	502	30,609	60	31,676	15.0	19.7	24.4	154.2	24.3
4	Coimbatore	17,808	50,745	2,126,068	6,052	2,200,673	583	1,330	45,709	106	47,727	32.7	26.2	21.5	17.3	21.7
5	Cuddapah	18,781	129,537	1,142,454	353	1,289,125	456	3,423	28,879	...	32,458	24.3	29.4	25.0	...	25.1
6	Ganjām	2,541	5,818	1,380,281	50,181	1,438,821	61	132	42,906	42	43,141	24.0	22.7	31.1	0.8	30.6
7	Godavari	4,538	24,646	1,411,573	4,245	1,445,002	110	534	34,176	71	34,921	30.9	31.7	24.2	16.7	24.1
8	Guntūr	101,225	97,524	1,284,592	7,294	1,490,635	1,111	1,928	20,080	58	23,186	11.0	19.8	18.6	8.0	18.6
9	Kistna	28,613	61,471	1,651,396	2,085	1,743,565	865	1,097	40,582	73	48,217	30.2	27.6	27.6	35.0	27.7
10	Kurnool	33,936	107,626	728,782	1,904	871,948	1,112	3,349	21,754	263	26,460	32.8	31.1	29.8	165.2	30.4
11	Madras	25,292	57,331	410,648	409	493,680	945	2,947	17,889	...	21,781	37.4	31.4	43.6	...	44.1
12	Madura	111,201	168,618	2,550,783	43	2,830,644	1,647	4,140	48,841	...	54,628	14.8	24.8	19.1	...	19.3
13	Malabar	48,519	832,970	1,804,474	1,344	2,785,307	1,582	34,091	72,918	98	108,089	34.0	40.0	38.3	72.9	39.0
14	Nellore	35,772	74,779	1,157,882	3,905	1,272,338	621	1,82	2,058	274	2,707	23.1	31.0	23.7	67.5	22.3
15	Nilgiris, The	11,081	5,867	95,668	4,057	107,673	256	182	2,058	...	2,496	9.4	23.4	24.3	19.4	15.7
16	North Arcot	22,069	103,038	2,098,386	13,324	2,206,817	207	2,414	50,159	258	53,038	18.7	24.1	21.5	...	21.6
17	Salem	18,701	68,467	2,116,764	67	2,204,933	349	1,654	45,328	...	47,331	17.5	24.3	28.3	32.5	27.9
18	South Arcot	65,748	64,976	2,212,548	3,905	2,340,177	1,152	1,542	62,638	192	65,964	26.4	29.4	31.5	28.3	30.6
19	South Canara	83,779	123,261	914,147	9,594	1,030,781	2,209	3,626	28,750	232	34,637	23.0	29.6	25.7	133.6	23.6
20	Tanjore	85,899	123,033	1,798,519	598	2,008,049	4,139	3,745	48,564	...	57,048	26.1	32.8	27.6	...	27.7
21	Tinnevely	158,809	101,875	1,798,519	23	1,948,605	1,701	1,111	30,915	12	33,739	22.5	25.6	33.3	521.7	23.4
22	Trichinopoly	76,585	43,319	1,324,768	...	1,443,665	49	705	57,963	168	58,505	17.7	13.6	28.9	3.3	23.1
23	Vizagapatam	2,757	22,476	2,005,926	50,069	2,081,228	21,671	77,893	830,064	2,301	900,919	22.1	31.7	23.9	17.5	26.3
Total, Madras Presidency.		980,297	2,463,628	35,132,736	171,622	36,744,483	21,671	77,893	830,064	2,301	900,919	22.1	31.7	23.9	17.5	26.3

No. VI.—Births and Deaths registered from Different Causes in the districts and towns of the Madras Presidency during the year 1908.

Number.	Districts and towns.	Population for which returns were received.	Births.										Deaths.														
			Total number.	Birth-rate per mille of population.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Suicides.	Injuries.	Total deaths from all causes.	Cholera.	Small-pox.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.	From all causes.					
1	Anantapur	675,322	24,903	35.5	5,849	162	103	794	600	1,121	11	12	121	30	174	11,089	19,941	8.7	0.2	0.1	1.2	1.0	1.6	0.3	10.4	29.5	37.1
2	Bellary	785,872	26,972	34.3	2,362	967	436	1,099	1,240	735	76	63	116	46	320	13,346	20,175	3.0	0.8	0.6	1.4	1.6	0.9	0.4	17.6	35.7	39.3
3	Chingleput	1,119,948	43,220	38.6	1,526	481	1	3,691	2,868	2,063	47	41	8	269	303	17,468	27,062	1.4	0.4	0.001	3.3	2.4	0.6	0.3	15.6	24.8	36.0
4	Coimbatore	2,041,419	68,221	33.4	4,958	582	1,008	8,692	3,563	1,229	21	44	318	66	449	57,336	43,274	2.4	0.3	0.4	4.3	1.8	1.0	0.4	10.3	21.3	21.9
5	Cuddapah	1,172,286	33,698	28.7	5,987	905	4	14,945	1,026	1,229	21	44	318	66	449	3,738	30,293	0.1	0.8	0.003	12.7	0.9	1.0	0.4	4.9	23.8	28.7
6	Ganjām	1,244,067																									

No. VI.—Births and Deaths registered from Different Causes in the districts and towns of the Madras Presidency during the year 1908—cont.

Number.	Districts and towns.	Population for which returns were received.	Births.			Deaths.			Injuries.			Ratio of deaths per 1,000 of population.						From all causes.							
			Total number.	Birth-rate per mille of population.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Males.	Females.	Wounds and accidents.	Snake-bite and killed by wild beasts.	Total.	Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	For the year.
1																									
B.—Towns.																									
1	Amantapur—	7,498	331	44.2	31	2	1	13	32	16					3	134	242	3.9	0.4	0.1	1.2	2.0	0.4	16.9	30.5
2	T.C. Andampet	19,575	528	27.0	17	8	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
3	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
4	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
5	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
6	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
7	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
8	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
9	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
10	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
11	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
12	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
13	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
14	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
15	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
16	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
17	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
18	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
19	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
20	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
21	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
22	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
23	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
24	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
25	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
26	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
27	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
28	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
29	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
30	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
31	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
32	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
33	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
34	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
35	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
36	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
37	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
38	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
39	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
40	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
41	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
42	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1
43	T.C. Andampet	10,859	418	38.5	93	11	1	68	15	15					4	281	249	12.7	0.3	0.1	0.8	0.8	0.2	14.4	19.1

APPENDIX.

No. VI.—Births and Deaths registered from Different Causes in the districts and towns of the Madras Presidency during the year 1908—cont.

Number.	Districts and towns.	3	4		5	6	7	8	9	10	11			12	13	14													
			Births.								Injuries.					Ratio of deaths per 1,000 of population.													
		Population for which returns were received.	Total number.	Birth-rate per mille of population.	Cholera.	Small-pox.	Plague.	Rever.	Dysentery and diarrhoea.	Respiratory diseases.	Males.	Females.	Wounds and accidents.	Snake-bite and killed by wild beasts.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	For the year.	Mean of previous 5 years.		
43	Coimbatore—cont.	10,227	182	14.9	8	9	1	28	17	24					1	35	110	0.8	0.4	0.1	2.5	1.7	2.4	0.1	3.4	10.8	8.5		
44	T.C. Coimbatore	8,468	279	31.1	47	1	1	45	30	27					1	78	191	2.3	0.1	0.1	5.0	3.4	3.0	0.1	8.8	21.3	21.6		
45	T.C. Coimbatore	8,468	279	31.1	47	1	1	45	30	27					1	78	191	2.3	0.1	0.1	5.0	3.4	3.0	0.1	8.8	21.3	20.8		
46	T.C. Tiruppur	6,056	215	35.5	26			43	46	10					2	61	187	4.3			7.1	7.4	1.7	0.3	10.1	30.9	29.3		
47	Cuddapah—	16,432	499	30.4	157	32		180	46	68					3	351	828	9.6	1.4		11.0	2.8	4.1	0.2	21.3	50.4	30.5		
48	T.C. Cuddapah	15,287	67	4.4				22							3	13	13	0.3	0.1		1.4			0.1	0.8	2.8	1.6		
49	T.C. Rajampet	14,370	148	10.3	06	6	1	74	4	1					3	51	203	4.0	0.1		5.2	0.3		0.1	3.5	14.1	12.1		
50	T.C. Proddit	14,084	113	8.0	1	1		7	2						4	23	85	0.7	0.1		3.3	0.6		0.1	0.3	1.6	6.0	12.2	
51	T.C. Madamallapalle	13,652	273	19.7	12	2		91	12	22					3	113	252	0.9	0.1		8.6	0.9	1.6		0.1	18.2	13.8	15.6	
52	T.C. Badali	10,885	176	16.2	17	3		7	2	8					1	77	124	1.6	0.3		0.6	0.2	0.7		0.1	10.5	13.7	17.2	
53	T.C. Vempalli	10,763	78	7.2	78			44							1	1	1	1.4			4.1				0.1	11.5	7.2		
54	T.C. Kadiri	10,493	211	20.1	190			13	10	14					8	116	357	18.1			3.8	1.0	1.3	0.8	11.0	34.0	23.8		
55	T.C. Rayachoti	7,123	143	20.1	34			1		2					3	38	77	4.8	0.2		14.8			0.6	1.1	16.7	15.1		
56	T.C. Poranamallu	5,822	95	17.2				32								3	62	92											
57	Guntur—	18,196	493	27.1	128	6		135	96						2	201	585	0.7	0.3		8.5	5.4			0.1	11.1	32.1	27.9	
58	M.T.C. Chittoor	22,739	543	26.7	289	10		165	101						3	213	1,122	11.2	0.4		9.8	3.0	1.1	0.3	20.7	44.0	29.7		
59	M.T.C. Rajahmundry	17,336	593	34.3	25	1		170	52	24					2	213	1,840	5.1	1.0		9.4	0.6	0.1	0.1	1.5	14.4	11.2		
60	M.T.C. Parlakimedi	9,075	234	25.5	26			94	6	1					1	15	114	2.6	0.1		13.9	0.9	0.6	0.3	0.1	2.5	10.0	29.8	
61	T.C. Ichchapuram	7,996	189	24.0	5	2		110	8	17					3	15	150	1.0	0.3		4.3	2.8	2.2		2.0	12.2	21.5		
62	T.C. Narasannapeta	7,567	152	20.1	6			33	21							70	174	3.3	0.3		6.8	4.0	1.2	0.5	10.9	37.0	21.5		
63	T.C. Takkali	6,425	141	25.9	21	2		41	26						2	3	80	1.92	0.5		10.2	0.5		0.5	0.5	0.5	21.7		
64	T.C. Sompetta	14,067	1,561	40.9	33	26		146	204	136					1	7	877	1,473	0.7	0.5		4.0	1.2	2.9	0.1	18.2	30.8	28.5	
65	M.T.C. Cocanada	36,404	1,714	16.2	175	7		435	153						5	19	827	1,756	4.8	2.3		11.9	1.2	1.9	0.5	22.7	48.3	35.0	
66	M.T.C. Rajahmundry	15,419	153	13.9	62	1		82	18						1	6	82	199		0.5		3.9	1.1	1.0	0.3	4.2	11.3	16.8	
67	T.C. Pithapuram	12,699	283	22.4	4	3		121	26						1	14	56	225	0.3	0.2		6.2	0.7	0.1	0.1	5.6	17.8	29.8	
68	T.C. Pithapuram	10,304	265	25.7	45	5		153	53	26					3	70	210	2.4	0.5		5.1	0.4	0.1	0.1	14.3	24.3	28.1		
69	T.C. Duvvichervu	9,310	325	23.7	35	1		57	4						4	129	210	2.4	0.5		5.5	0.9	0.4	0.7	12.6	23.0	21.2		
70	T.C. Tanapam	8,942	79	8.9	2	1		48	6						7	37	80	0.6	0.1		5.4	0.7	0.1	0.1	3.1	9.6	12.2		
71	T.C. Tanapam	8,340	39.9	3.79	4			47	4						1	4	80	1.92	0.5		10.2	0.5		0.5	0.5	0.5	21.7	33.6	
72	T.C. Mandlapeta	14,067	1,561	40.9	33	26		146	204	136					1	7	877	1,473	0.7	0.5		4.0	1.2	2.9	0.1	18.2	30.8	28.5	
73	Guntur—	20,833	1,493	45.5	190	79		247	125	125					15	19	822	1,543	5.8	2.2		5.0	4.2	3.2	0.6	26.7	59.7	39.8	
74	M.T.C. Guntur	16,964	536	41.7	34	1		241	86						7	8	227	395	0.6	0.1		8.2	3.0	0.5	0.6	17.7	30.7	25.9	
75	M.T.C. Ongole	16,964	536	41.7	34	1		241	86						1	2	134	543	2.1	0.1		14.8	4.2	3.8	0.1	8.3	33.4	22.1	
76	T.C. Chirala	10,304	265	25.7	45	5		153	53	26					2	6	73	266	6.1	0.7		9.6	0.2	2.0	0.1	7.1	26.1	16.5	
77	T.C. Tenali	9,547	329	32.4	12	7		125	15						2	2	90	332	1.3			18.3	1.6		0.5	8.4	23.5	15.6	
78	T.C. Vedaravolu	4,595	113	11.3	68	39		96	15							151	151	3.2	6.5		11.2	2.1	0.1	0.1	21.1	13.0	29.1		
79	T.C. Rajapala	7,996	189	24.0	5	2		110	8	17					10	7	104	388	8.8	5.1		19.0	1.2	6.5	2.3	13.5	50.4	29.8	
80	T.C. Manalagiri	7,996	189	24.0	5	2		110	8	17					10	7	104	388	8.8	5.1		19.0	1.2	6.5	2.3	13.5	50.4	29.8	
81	T.C. Aluru Kotapalem	7,256	254	31.6	17	14		66	9						3	63	136	0.5			8.7	1.0	0.1	0.1	3.2	17.8	6.7		
82	T.C. Vinakonda	7,256	254	31.6	17	14		66	9						3	63	136	0.5			8.7	1.0	0.1	0.1	3.2	17.8	6.7		
83	T.C. Addanki	7,108	137	19.3	21	1		37	19						5	57	90	2.3	1.9		6.3	0.6	0.7	0.1	1.7	19.8	21.3		
84	T.C. Narasannapeta	7,108	137	19.3	21	1		37	19						5	57	90	2.3	1.9		6.3	0.6	0.7	0.1	1.7	19.8	21.3		

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Number.		Districts and towns.
		<i>B. - Towns - cont.</i>
4	K. Jaina-	
5	M. T. C. Ellore	
6	M. T. C. Mosulipatnam	
7	M. T. C. Rayachoti	
8	T. C. Palakollu	
9	T. C. Narasapur	
10	T. C. Nuzvid	
11	T. C. Jagajayapeta	
12	T. C. Achanta	
	T. C. Gudivada	
	Kurnool -	
	M. T. C. Kurnool	
	M. T. C. Naidyal	
	T. C. Cumbum	
	Madras -	
	M. T. C. Madras	
	Madurai -	
	M. T. C. Madurai	
	M. T. C. Dindigul	
	M. T. C. Periyakulam	
	M. T. C. Palni	
	M. T. C. Kodaikanal	
	T. C. Aruppukottai	
	T. C. Bodinayakanur	
	T. C. Paramagudi	
	T. C. Ramnad	
	T. C. Karaikudi	
	T. C. Kiliakudi	
	T. C. Melur	
	T. C. Uttamapalayam	
	T. C. Devakottai	
	T. C. Sivakanga	
	T. C. Tirumangalam	
	T. C. Utharam	
	T. C. Annamudi	
	T. C. Rameswaram	
	T. C. Tirupattur	
	Malabar -	
	M. T. C. Tellicherry	
	M. T. C. Calicut	
	M. T. C. Ponnani	
	M. T. C. Cochin	
	M. T. C. Cannanore	
	T. C. Badagara	
	T. C. Ponnani	

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APPENDIX.

Number.	Districts and towns.	Population for which returns received.	Births.		Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.		Injuries.		Total.	All other causes.	Total deaths from all causes.	Ratio of deaths per 1,000 of population.														From all causes.	Mean of previous 5 years.
			Total number.	Birth-rate per mille of population.						Males.	Females.	Wounds and accidents.	Snake-bite and killed by wild beasts.				Cholera.	Small-pox.	Plague.	Peters.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.								
166	South Canara—	44,108	1,418	32.1	189	1	208	40	278	111	2	2	16	22	794	1,643	4.3	0.02	4.7	0.9	6.3	2.5	0.1	0.5	18.0	37.2	30.5					
167	M.T.C. Mangalore	8,691	272	35.8	44	1	...	62	22	1	...	...	...	4	120	254	5.5	0.1	...	7.7	5.7	0.1	0.5	15.0	31.6	26.6						
168	M.T.C. Tanjore	57,870	2,360	40.8	84	23	...	235	277	...	...	...	...	7	1,300	1,926	1.4	0.4	...	4.1	4.8	...	0.1	22.5	33.3	31.7						
169	M.T.C. Kanyakumari	59,673	1,701	28.5	175	2	...	259	277	264	...	...	...	15	939	1,783	2.9	0.63	...	4.3	2.2	...	0.3	12.5	29.9	32.2						
170	M.T.C. Karaikal	24,276	905	37.3	58	3	...	167	107	12	...	...	...	8	468	823	2.4	0.1	...	6.9	4.1	...	0.3	13.3	33.9	31.2						
171	M.T.C. Negapatnam	27,190	1,796	30.4	200	3	1	377	156	104	...	...	...	10	954	1,801	3.5	...	0.02	6.6	2.7	...	1.8	16.7	31.5	33.3						
172	M.T.C. Maragudi	20,446	665	32.5	86	21	...	65	48	...	...	...	...	3	378	601	4.2	...	...	3.2	2.4	...	0.1	18.5	29.4	30.0						
173	M.T.C. Tirunelveli	15,436	467	30.3	43	13	...	72	77	23	...	...	...	1	259	461	2.8	0.8	...	4.7	5.0	...	1.5	0.5	16.7	32.0	29.6					
174	M.T.C. Vedarur	14,138	331	24.8	27	15	...	44	44	6	...	...	...	3	185	283	1.9	...	...	3.3	1.9	...	0.2	1.9	20.4	23.8						
175	M.T.C. Tirunelveli	13,142	336	30.1	15	...	...	44	44	10	...	...	...	1	232	308	1.1	...	...	3.3	0.8	...	0.5	0.1	17.6	23.4	27.4					
176	M.T.C. Tirunelveli	11,237	426	37.9	28	7	...	34	26	9	...	...	...	4	211	312	2.3	...	...	3.0	2.3	...	0.8	0.4	18.8	27.8	28.7					
177	M.T.C. Tirunelveli	10,494	298	28.4	77	7	...	49	49	6	...	...	...	...	177	293	7.3	...	...	4.7	0.6	...	...	...	14.6	27.9	24.3					
178	M.T.C. Shiyali	9,722	309	31.8	67	4	...	23	23	2	...	...	...	...	154	253	2.4	...	...	2.9	1.2	...	...	...	18.2	30.2	29.4					
179	M.T.C. Ayyampettai	9,454	65	6.9	19	3	...	23	23	2	...	...	...	...	41	83	3.9	...	...	2.4	0.2	...	...	...	4.4	9.4	23.6					
180	M.T.C. Mutpet	9,089	264	29.0	111	13	...	43	43	4	...	...	...	1	131	206	1.2	...	...	2.5	1.0	...	...	...	0.1	17.7	33.6	26.5				
181	M.T.C. Tirunelveli	7,821	323	41.3	30	1	...	19	19	3	...	...	...	3	181	261	0.3	...	...	2.5	1.0	...	...	...	0.4	33.1	30.4					
182	M.T.C. Vedarur	7,560	291	38.3	1	...	...	27	27	12	...	...	...	2	142	201	0.3	...	...	3.6	1.6	...	...	...	0.3	18.3	26.5	31.0				
183	M.T.C. Tirunelveli	6,727	131	19.5	48	2	...	8	8	1	...	...	...	...	182	290	6.5	...	...	3.6	1.6	...	...	...	0.6	15.3	38.6	31.6				
184	M.T.C. Karaikal	5,410	192	35.4	54	5	...	28	15	3	...	...	...	4	103	124	0.5	...	...	1.9	0.1	...	...	...	0.4	10.6	17.3	36.3				
185	M.T.C. Karaikal	5,410	192	35.4	54	5	...	28	15	3	...	...	...	2	103	124	0.5	...	...	1.9	0.1	...	...	...	0.4	10.6	17.3	36.3				
186	M.T.C. Tirunelveli	5,400	360	66.7	17	...	...	34	12	...	...	...	...	1	183	247	3.1	...	...	6.3	2.2	...	...	...	0.2	33.9	45.7	29.1				
Tirunelveli—		40,469	1,530	37.8	547	...	...	88	171	63	...	...	...	9	869	1,746	18.5	...	...	2.2	4.2	...	...	...	1.5	45.1	38.6					
187	M.T.C. Tirunelveli	29,455	1,028	34.9	176	...	...	96	322	152	...	...	...	6	505	1,375	7.3	...	...	2.2	4.2	...	...	...	1.5	45.1	38.6					
188	M.T.C. Palamcottah	28,048	1,003	35.8	176	1	...	107	119	53	...	...	...	7	505	1,375	7.3	...	...	2.2	4.2	...	...	...	1.5	45.1	38.6					
189	M.T.C. Tirunelveli	26,862	1,235	46.8	21	...	...	77	119	47	...	...	...	8	413	976	6.5	...	0.03	7.0	4.6	...	...	...	1.8	34.7	31.9					
190	M.T.C. Srivilliputhur	25,980	1,102	42.0	29	...	...	47	12	57	...	...	...	25	307	794	1.5	...	...	2.9	4.5	...	...	...	1.8	30.1	30.0					
191	M.T.C. Tirunelveli	19,898	530	26.6	29	...	...	212	15	22	...	...	...	...	137	307	0.9	...	...	1.8	0.5	...	...	...	0.5	11.8	9.2					
192	M.T.C. Rajahmundry	18,150	407	22.4	12	...	...	74	14	29	...	...	...	5	234	468	0.3	...	...	8.3	0.6	...	...	...	0.5	9.2	22.9					
193	M.T.C. Kullasekarampattanam	17,327	311	17.9	104	...	...	67	82	1	...	...	...	1	266	420	1.5	...	...	3.7	0.7	...	...	...	1.5	13.3	21.1					
194	M.T.C. Sivagiri	16,775	457	27.2	25	...	...	12	43	34	...	...	...	2	154	180	0.7	...	...	3.7	0.7	...	...	...	0.1	18.3	18.3					
195	M.T.C. Tirunelveli	14,913	530	35.5	34	...	...	46	38	33	...	...	...	1	346	637	7.7	...	...	3.7	0.7	...	...	...	0.1	19.0	35.1					
196	M.T.C. Tirunelveli	13,939	584	41.9	48	...	...	71	43	34	...	...	...	...	298	336	6.9	...	...	1.1	0.1	...	...	...	0.1	12.1	29.9					
197	M.T.C. Tirunelveli	13,474	440	32.7	60	...	...	119	64	9	...	...	...	6	261	336	8.2	...	...	7.1	3.8	...	...	...	0.5	15.5	27.7					
198	M.T.C. Tirunelveli	12,921	328	25.5	116	...	...	58	58	12	...	...	...	3	126	232	1.5	...	...	3.4	0.5	...	...	...	0.4	7.5	35.5					
199	M.T.C. Tirunelveli	11,746	232	19.7	20	...	...	46	38	33	...	...	...	...	97	148	2.3	...	...	3.1	0.2	...	...	...	0.5	19.9	30.0					
200	M.T.C. Tirunelveli	10,550	429	40.7	162	...	...	71	43	34	...	...	...	...	111	182	1.7	...	...	4.3	0.2	...	...	...	0.5	17.7	26.3					
201	M.T.C. Tirunelveli	9,722	309	31.8	67	4	...	23	23	2	...	...	...	...	160	249	1.2	...	...	3.1	0.1	...	...	...	0.1	12.6	32.9					
202	M.T.C. Tirunelveli	9,454	65	6.9	19	3	...	23	23	2	...	...	...	...	170	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					
203	M.T.C. Tirunelveli	9,089	264	29.0	111	13	...	43	43	4	...	...	...	...	180	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					
204	M.T.C. Tirunelveli	7,821	323	41.3	30	1	...	19	19	3	...	...	...	...	187	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					
205	M.T.C. Tirunelveli	7,560	291	38.3	1	...	...	27	27	12	...	...	...	...	187	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					
206	M.T.C. Tirunelveli	6,727	131	19.5	48	2	...	8	8	1	...	...	...	...	187	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					
207	M.T.C. Tirunelveli	5,410	192	35.4	54	5	...	28	15	3	...	...	...	...	187	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					
208	M.T.C. Tirunelveli	5,400	360	66.7	17	...	...	34	12	...	...	...	...	...	187	266	0.9	...	...	2.0	0.1	...	...	...	0.1	12.6	32.9					

No. VI.—Births and Deaths registered from Different Causes in the districts and towns of the Madras Presidency during the year 1908—cont.

No. VI.—Births and Deaths registered from Different Causes.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
1		2		3		4		5		6		7		8		9		10		11				12		13		Ratio of deaths per 1,000 of population.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Number.	Districts and towns.	Population for which returns were received.	Births.		Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Injuries.				Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injures.	Snake-bite and wounds.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injures.	All other causes.	From all causes.	Mean of previous 5 years.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
			Total number.	Birth-rate per mille of population.						Males.	Females.	Wounds and accidents.	Suicides.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
B.—Towns—cont.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
200	Tinnevely—cont.	8,788	338	38.5	70	...	...	5	...	1	...	...	...	230	803	...	...	...	...	...	...	...	...	2	230	803	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

No. VII.—Deaths registered from Cholera in the districts of the Madras Presidency during each month of the year 1908.

Number.	Districts.	Circles of registration.		Villages.		Total.												Ratio of deaths per 1,000 of population.	
		Number in each district.	Number from which deaths from cholera were reported.	Number in each district.	Number from which deaths from cholera were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.
1	Anantapur	19	18	965	263	1	...	...	...	187	1,148	1,853	1,770	1,069	356	213	114	3,638	3,073
2	Bellary	19	17	914	276	...	...	...	...	...	...	...	...	...	...	...	...	1,506	1,419
3	Chingleput	21	20	2,271	360	171	138	154	50	248	121	779	982	769	227	26	8	3,638	3,073
4	Coimbatore	21	20	1,558	443	711	207	98	91	39	132	121	461	851	759	860	1,186	3,111	2,495
5	Cuddapah	21	20	1,338	411	116	106	48	90	213	358	924	1,740	1,130	1,170	443	208	3,407	5,806
6	Ganjam	12	12	4,537	479	281	43	161	927	1,466	2,421	1,694	435	340	200	176	43	4,304	6,546
7	Godavari	17	15	2,950	482	10	4	46	165	56	118	518	537	280	272	60	30	1,096	3,885
8	Guntur	19	19	979	952	22	120	562	368	139	200	333	718	144	...	...	...	1,002	2,098
9	Kistna	19	19	1,787	460	173	595	516	301	202	1,015	2,244	1,066	374	107	73	50	3,805	3,211
10	Kurnool	11	11	787	432	...	...	...	...	...	...	...	...	...	...	...	...	1,170	2,658
11	Madras	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	2,098	7,016
12	Madura	28	28	4,132	632	28	65	30	7	427	1,407	2,730	917	377	33	10	8	2,900	6,424
13	Malabar	18	17	765	617	1,070	1,173	1,245	1,268	1,567	2,125	5,707	10,222	1,647	636	1,058	1,250	4,194	1,172
14	Nellore	19	19	1,718	327	1,415	878	259	61	32	14	167	881	477	122	127	40	2,485	1,938
15	Nilgiris, The.	6	5	51	...	...	...	...	...	...	...	...	...	...	...	...	...	21	4
16	North Arcot	22	22	3,427	750	891	595	157	161	511	486	776	1,153	788	730	685	4,028	3,346	7,376
17	Salem	20	18	3,404	473	279	239	196	466	400	100	9	367	606	543	828	1,019	2,637	2,455
18	South Arcot	18	18	2,711	938	2,906	2,175	1,339	560	373	417	462	177	505	144	99	60	5,149	4,308
19	South Canara	7	7	1,280	407	1,833	492	170	39	17	24	3	...	...	...	...	...	1,878	2,118
20	Tanjore	28	28	2,825	892	1,833	492	170	39	17	24	3	...	...	...	...	...	3,596	6,766
21	Tinnevely	38	37	1,624	702	1,361	865	1,105	1,003	718	766	704	236	255	146	181	503	3,596	6,766
22	Trichinopoly	11	11	940	632	482	333	360	126	18	29	63	34	6	34	271	760	1,413	1,103
23	Vizagapatam	27	25	2,669	311	404	515	528	811	634	1,013	1,531	859	259	280	26	52	3,616	3,266
Total, Madras Presidency...		422	407	43,133	11,286	15,649	11,081	8,829	7,375	8,102	11,095	19,956	25,685	12,128	7,036	6,079	8,065	73,684	68,286
																		141,970	141,970
																		41	37
																		39	39

No. VIII.—Deaths registered from Small-pox in the districts of the Madras Presidency during each month of the year 1908.

Number.	Districts.	Circles of registration.		Villages.		Total.												Ratio of deaths per 1,000 of population.	
		Number in each district.	Number from which deaths from small-pox were reported.	Number in each district.	Number from which deaths from small-pox were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.
1	Anantapur	19	13	965	87	15	16	26	19	19	10	9	8	12	22	11	25	103	93
2	Bellary	19	14	914	329	50	38	52	51	33	74	65	60	61	65	44	44	304	318
3	Chingleput	21	21	2,271	200	45	59	23	29	49	66	37	34	43	45	66	66	225	207
4	Coimbatore	21	21	1,558	102	56	61	24	44	38	62	54	56	58	71	77	66	277	276
5	Cuddapah	21	21	1,338	84	68	80	115	91	101	73	68	79	50	34	31	500	442	492
6	Ganjam	12	12	4,537	156	23	20	72	27	33	72	20	9	17	28	23	35	179	147
7	Godavari	17	15	2,950	196	16	34	99	85	51	81	48	37	14	25	23	81	351	268
8	Guntur	19	19	979	97	13	69	70	41	50	45	12	11	3	3	27	155	150	169
9	Kistna	19	19	1,787	460	173	595	516	301	202	1,015	2,244	1,066	374	107	73	50	3,805	3,211
10	Kurnool	11	11	787	432	...	...	...	...	...	...	...	...	...	...	...	...	1,170	2,658
11	Madras	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	2,098	7,016
12	Madura	28	28	4,132	632	28	65	30	7	427	1,407	2,730	917	377	33	10	8	2,900	6,424
13	Malabar	18	17	765	617	1,070	1,173	1,245	1,268	1,567	2,125	5,707	10,222	1,647	636	1,058	1,250	4,194	1,172
14	Nellore	19	19	1,718	327	1,415	878	259	61	32	14	167	881	477	122	127	40	2,485	1,938
15	Nilgiris, The.	6	5	51	...	...	...	...	...	...	...	...	...	...	...	...	...	21	4
16	North Arcot	22	22	3,427	750	891	595	157	161	511	486	776	1,153	788	730	685	4,028	3,346	7,376
17	Salem	20	18	3,404	473	279	239	196	466	400	100	9	367	606	543	828	1,019	2,637	2,455
18	South Arcot	18	18	2,711	938	2,906	2,175	1,339	560	373	417	462	177	505	144	99	60	5,149	4,308
19	South Canara	7	7	1,280	407	1,833	492	170	39	17	24	3	...	...	...	...	...	1,878	2,118
20	Tanjore	28	28	2,825	892	1,833	492	170	39	17	24	3	...	...	...	...	...	3,596	6,766
21	Tinnevely	38	37	1,624	702	1,361	865	1,105	1,003	718	766	704	236	255	146	181	503	3,596	6,766
22	Trichinopoly	11	11	940	632	482	333	360	126	18	29	63	34	6	34	271	760	1,413	1,103
23	Vizagapatam	27	25	2,669	311	404	515	528	811	634	1,013	1,531	859	259	280	26	52	3,616	3,266
Total, Madras Presidency...		422	293	43,133	4,430	2,275	2,435	3,204	2,493	1,958	1,553	1,512	1,264	1,236	1,242	1,436	1,596	11,240	10,964
																		22,204	6,665
																		5,955	0.6
																		0.6	0.6

No. IX.—Deaths registered from Fevers in the districts of the Madras Presidency during each month of the year 1908.

No. 1. A. — Deaths registered.		3		4		5												6		7		8	
Number.	Districts.	Circles of registration.		Villages.		Total.												Ratio of deaths per 1,000 of population.					
		Number in each district.	Number from which deaths from fevers were reported.	Number in each district.	Number from which deaths from fevers were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.				
1	Anantapur	19	18	965	241	81	96	136	90	83	73	57	100	72	93	118	77	579	497				
2	Bellary	19	19	914	355	110	102	...	161	101	115	152	113	159	140	126	137	750	666				
3	Chingleput	21	21	2,271	967	478	380	350	318	317	311	337	384	334	384	305	375	2,248	2,115				
4	Coimbatore	21	21	1,558	873	897	862	743	696	726	664	721	676	778	780	864	874	4,607	4,528				
5	Cuddapah	21	21	1,338	1,357	1,124	1,286	1,369	1,217	1,001	1,120	1,160	1,181	1,159	1,358	1,702	1,729	7,884	7,690				
6	Ganjam	12	12	4,537	2,572	2,144	2,576	2,359	2,513	2,178	2,262	1,977	3,721	2,186	2,401	2,729	14,387	11,694					
7	Godavari	17	17	2,950	1,248	1,407	948	1,142	1,086	975	1,250	1,213	1,349	1,001	1,338	2,249	2,983	8,293	7,942				
8	Guntur	19	19	979	979	1,258	779	1,015	967	1,170	1,259	980	1,347	1,067	1,347	1,867	1,456	9,809	9,689				
9	Kistna	19	19	1,787	1,203	1,515	1,000	1,185	1,055	1,434	1,711	1,697	1,914	1,666	1,456	1,969	2,555	6,181	5,845				
10	Kurnool	11	11	787	693	891	800	1,024	933	953	901	974	1,251	1,166	1,028	1,069	1,056	2,878	2,874				
11	Madras	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8,440	8,336				
12	Madura	28	28	4,132	1,674	1,639	1,388	1,327	1,386	1,211	1,329	1,269	1,200	1,359	1,604	1,706	1,606	12,060	12,060				
13	Malabar	18	17	765	762	2,261	2,056	2,189	2,134	2,194	2,245	2,719	2,779	2,066	1,701	1,354	1,447	6,686	6,123				
14	Nellore	19	19	1,718	1,034	1,241	976	966	841	1,104	956	845	1,174	1,206	915	1,175	1,383	6,451	6,451				
15	Nilgiris, The.	6	6	51	51	58	52	53	54	54	54	54	54	54	54	54	54	4,451	4,279				
16	North Arcot	22	22	3,427	1,633	940	633	606	561	706	622	701	750	702	739	829	881	4,451	4,279				
17	Salem	20	20	3,894	1,804	1,205	1,000	978	959	1,036	1,003	1,000	1,111	1,058	1,327	1,351	1,685	6,685	6,613				
18	South Arcot	18	18	2,711	1,245	1,746	1,006	1,298	1,137	1,135	1,175	1,161	1,121	1,140	1,202	1,300	1,310	7,720	7,447				
19	South Canara	7	7	1,289	358	1,383	1,060	853	778	744	1,001	1,197	1,147	881	827	783	1,034	5,557	5,361				
20	Tanjore	28	28	2,825	1,258	750	701	638	598	697	553	617	549	582	597	724	653	8,059	8,039				
21	Tinnevely	38	38	1,624	981	1,117	864	743	613	718	687	848	628	632	717	750	1,102	4,796	4,637				
22	Trichinopoly.	11	11	940	753	819	572	518	596	633	542	586	548	573	616	648	632	3,329	3,268				
23	Vizagapatam.	27	26	2,689	1,192	4,036	2,086	2,946	2,662	2,965	3,408	3,775	3,355	4,271	4,000	3,198	3,930	21,352	20,160				
Total, Madras Presidency...		422	419	43,133	23,599	27,817	21,528	23,102	21,578	23,166	23,369	24,904	25,613	26,359	24,382	25,501	28,515	150,321	145,513				
																		295,834	295,834				
																		8'3	7'8				
																		8'0	8'0				
																		1'9	1'9				
																		1'5	1'5				
																		3'4	3'3				
																		4'3	4'0				
																		12'0	12'0				
																		21'0	18'7				
																		11'7	10'9				
																		7'9	7'7				
																		11'4	11'1				
																		14'0	13'5				
																		15'6	15'8				
																		14'6	13'5				
																		11'6	10'7				
																		8'5	8'6				
																		9'7	9'7				
																		7'6	8'3				
																		4'0	3'9				
																		6'2	5'9				
																		10'4	9'3				
																		8'5	8'5				
																		10'2	10'3				
																		3'4	3'3				
																		4'8	4'4				
																		5'0	5'1				
																		10'0	10'9				

No. XI.—Deaths registered from Respiratory Diseases in the districts of the Madras Presidency during each month of the year 1908.

Number.	Districts.	Circles of registration.		Villages.		Total.												Ratio of deaths per 1,000 of population.	
		Number in each district.	Number from which deaths from respiratory diseases were reported.	Number in each district.	Number from which deaths from respiratory diseases were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.
1	Anantapur	19	19	965	260	116	106	126	116	119	87	134	114	116	118	124	137	15,111	12,638
2	Bellary	19	19	914	277	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
3	Chingleput	19	19	2,271	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
4	Chingleput	19	19	2,271	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
5	Cuddapah	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
6	Ganjani	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
7	Godavari	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
8	Guntur	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
9	Kistna	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
10	Kurnool	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
11	Madras	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
12	Madura	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
13	Malabar	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
14	Nellore	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
15	Nilgiris, The	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
16	North Arcot	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
17	Salem	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
18	South Arcot	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
19	South Canara	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
20	Tanjore	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
21	Tinnevely	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
22	Trichinopoly	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
23	Vizianapatnam	19	19	1,558	314	106	86	114	116	119	87	134	114	116	118	124	137	15,111	12,638
24	Total, Madras Presidency	122	354	43,133	6,310	2,665	2,257	2,273	2,062	2,169	2,000	2,352	2,253	2,197	2,273	2,554	2,647	15,111	12,638

No. XII.—Deaths registered from Plague in the districts of the Madras Presidency during each month of the year 1908.

Number.	Districts.	Circles of registration.		Villages.		Total.												Ratio of deaths per 1,000 of population.	
		Number in each district.	Number from which deaths from plague were reported.	Number in each district.	Number from which deaths from plague were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.
1	Anantapur	19	11	965	16	43	58	44	4	4	1	1	1	1	1	1	1	1	1
2	Bellary	19	13	914	75	43	136	46	4	4	1	1	1	1	1	1	1	1	1
3	Chingleput	19	13	2,271	267	43	136	46	4	4	1	1	1	1	1	1	1	1	1
4	Chingleput	19	13	2,271	267	43	136	46	4	4	1	1	1	1	1	1	1	1	1
5	Cuddapah	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
6	Ganjani	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
7	Godavari	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
8	Guntur	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
9	Kistna	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
10	Kurnool	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
11	Madras	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
12	Madura	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
13	Malabar	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
14	Nellore	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
15	Nilgiris, The	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
16	North Arcot	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
17	Salem	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
18	South Arcot	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
19	South Canara	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
20	Tanjore	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
21	Tinnevely	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
22	Trichinopoly	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
23	Vizianapatnam	19	6	1,558	12	43	136	46	4	4	1	1	1	1	1	1	1	1	1
24	Total, Madras Presidency	122	63	43,133	259	484	318	399	201	138	114	236	191	314	324	223	136	1,699	1,669

No. XIII.—Statement prescribed by the Government of India in Letter No. 10—328, dated 8th December 1894, Home Department (Sanitary), communicated with G.O., No. 2654 L., Mis., dated 20th December 1894.

(Comparative table showing percentage of mortality to total mortality from year to year under each head of death causation.)

1		2	3	4				5		6													
Name of municipality.	Date of completion of works of	Average annual death-rate since the introduction of drainage system or water-supply.		Percentage of deaths to total mortality under each head of death causation.						Average annual death-rate for the five-year period preceding the introduction of drainage system or water-supply.		Percentage of deaths to total mortality under each head of death causation.											
		Drainage.	Water-supply.	Years.	Death-rate.	Cholera.	Small-pox.	Fevers.	Dysentery and Diarrhoea.	Injuries.	All other causes.	Years.	Death-rate.	Cholera.	Small-pox.	Fevers.	Dysentery and Diarrhoea.	Injuries.	All other causes.				
Ádóni	...	September 1895.	1895	23.6	0.3	...	38.1	0.3	0.8	60.5	1890	19.2	...	...	...	51.6	...	...	2.1	40.3			
			1896	25.4	1.0	0.1	31.2	0.9	0.6	66.2	1891	38.1	31.0	...	...	...	31.0	0.4	0.5	20.2			
			1897	37.9	9.3	...	31.7	3.9	0.7	54.4	1892	34.7	38.1	...	...	...	38.1	3.0	1.0	4.8			
			1898	26.5	...	0.3	29.7	5.3	2.7	62.0	1893	22.2	13.1	...	...	...	51.7	0.3	1.4	46.6			
			1899	24.1	0.1	...	22.1	2.4	1.3	74.1	1894	24.3	0.3	...	...	...	37.0	...	1.4	61.3			
			1900	24.4	...	...	34.9	5.3	0.5	59.3	...	...	...	...	...	...	...	...	...	...	...		
			1901	20.1	0.3	...	30.0	2.9	0.7	68.1	...	...	...	...	...	...	...	...	...	...	...		
			1902	56.5	11.2	...	2.4	0.9	0.2	85.3	...	...	...	...	...	...	...	...	...	...	...		
			1903	23.1	...	0.6	6.0	10.9	1.3	81.2	...	...	...	...	...	...	...	...	...	...	...		
			1904	71.3	...	...	2.8	2.6	0.2	94.4	...	...	...	...	...	...	...	...	...	...	...		
Cannada	...	July 1903.	1905	31.1	0.3	17.2	5.7	11.3	0.1	65.4	...	...	...	...	...	...	...	...	...	...			
			1906	39.8	13.4	0.4	5.1	16.8	1.6	62.7	...	...	...	...	...	...	...	...	...	...	...		
			1907	24.2	0.3	1.2	3.8	13.2	2.2	79.3	...	...	...	...	...	...	...	...	...	...	...		
			1908	26.3	6.6	...	10.9	10.4	0.5	71.6	...	...	...	...	...	...	...	...	...	...	...	...	
			1903	20.4	1.0	...	19.9	12.2	1.1	65.8	1898	20.5	...	...	...	...	15.7	6.3	0.5	77.5			
			1904	25.8	...	...	23.9	13.3	1.8	61.0	1899	23.1	...	...	...	...	19.2	9.1	1.2	69.2			
			1905	28.8	2.3	...	18.8	11.3	0.9	68.7	1900	26.1	9.6	...	...	...	18.8	10.1	1.3	59.4			
			1906	37.5	11.0	...	12.6	12.5	0.2	82.6	1901	23.8	2.1	...	...	...	18.9	10.5	0.7	62.4			
			1907	29.9	1.3	0.1	10.5	16.3	0.5	71.3	1902	21.8	...	...	...	...	22.6	12.5	0.5	64.3			
			1908	30.6	2.2	1.8	12.9	13.7	0.5	68.9	...	...	...	...	...	...	...	...	...	...	...		
Conjeevaram	...	July 1897.	1897	28.3	6.6	0.4	21.3	10.7	1.3	59.7	1892	32.5	2.7	...	...	24.1	12.2	1.0	58.5				
			1898	29.4	1.1	...	13.5	13.0	1.4	70.4	1893	33.0	1.3	...	...	26.0	13.0	1.8	55.7				
			1899	29.8	1.9	0.7	2.1	16.5	1.7	77.1	1894	30.6	4.5	...	...	26.8	10.5	1.5	56.2				
			1900	31.2	2.0	1.6	4.5	14.2	1.1	76.6	1895	33.6	5.3	...	...	25.2	11.7	0.3	56.7				
			1901	35.5	2.8	1.0	10.8	17.7	1.0	66.7	1896	33.3	9.6	...	...	23.8	10.6	1.1	54.8				
			1902	32.8	3.1	1.0	11.6	25.9	1.5	59.9	...	...	...	...	...	...	...	...	...	...	...		
			1903	32.4	...	0.7	11.0	19.7	0.8	67.8	...	...	...	...	...	...	...	...	...	...	...	...	
			1903	32.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			1903	32.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			1903	32.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(Comparative table showing percentage of mortality to total mortality from year to year under each head of death causation)—cont.

1	2	3	4				5	6								
Name of municipality.	Date of completion of works of	Average annual death-rate since the introduction of drainage system or water-supply.	Percentage of deaths to total mortality under each head of death causation.					Average annual death-rate for the five-year period preceding the introduction of drainage system or water-supply.	Percentage of deaths to total mortality under each head of death causation.							
			Cholera.	Small-pox.	Fevers.	Dysentery and Diar.	Injuries.		All other causes.	Cholera.	Small-pox.	Fevers.	Dysentery and Diar.	Injuries.	All other causes.	
																Years.
Conjeeveram—cont.	...	July 1897.	1904	32.0	0.1	6.3	19.7	1.0	70.5	1888	...	...	...	...	...	...
			1905	28.8	0.3	5.8	18.3	1.1	68.5	1889	...	...	...	...	...	...
			1906	34.3	5.3	5.1	18.2	0.6	64.2	1890	...	...	...	...	...	...
			1907	26.8	...	8.8	17.5	1.9	70.7	1891	...	...	...	...	...	...
			1908	28.5	0.1	4.0	13.8	0.8	72.0	1892	...	...	...	...	...	...
			1893	31.9	...	30.6	17.6	0.5	49.7	1888	...	...	...	...	...	...
			1894	31.9	...	28.0	19.7	0.5	49.2	1889	...	...	...	...	...	...
			1895	27.9	...	21.9	13.6	1.2	63.3	1890	...	...	...	...	...	...
			1896	41.3	...	22.4	17.6	1.2	55.6	1891	...	...	...	...	...	...
			1897	43.8	0.4	20.8	15.5	1.9	55.8	1892	...	...	...	...	...	...
Coonoor	...	Jan. 1893 ..	1898	34.6	...	14.8	17.2	2.9	65.1	...	...	...	...	...	...	...
			1899	28.6	...	9.4	22.9	1.8	65.9	...	...	...	...	...	...	...
			1900	36.5	...	20.4	19.4	1.8	57.0	...	...	...	...	...	...	...
			1901	24.4	...	20.2	14.9	0.9	63.0	...	...	...	...	...	...	...
			1902	29.0	...	25.1	19.0	0.8	55.1	...	...	...	...	...	...	...
			1903	46.0	...	8.2	16.3	1.5	74.0	...	...	...	...	...	...	...
			1904	27.6	...	3.0	23.4	1.7	71.9	...	...	...	...	...	...	...
			1905	37.0	...	1.6	19.7	3.2	75.5	...	...	...	...	...	...	...
			1906	44.4	...	1.1	22.4	2.1	57.0	...	...	...	...	...	...	...
			1907	31.4	...	1.1	17.2	1.9	79.8	...	...	...	...	...	...	...
Cuddayah	...	July 1893.	1908	26.6	...	4.8	20.3	0.9	73.6	...	...	...	...	...	...	...
			1893	46.9	...	68.0	2.0	0.9	27.6	1888	...	...	...	...	...	...
			1894	33.9	...	49.9	4.4	2.9	40.9	1889	...	...	...	...	...	...
			1895	32.9	...	54.9	5.2	1.9	37.7	1890	...	...	...	...	...	...
			1896	21.7	...	46.6	3.7	2.4	41.2	1891	...	...	...	...	...	...
			1897	28.5	...	42.0	2.6	2.2	48.7	1892	...	...	...	...	...	...
			1898	29.7	...	49.4	2.1	0.8	45.7	1893	...	...	...	...	...	...
			1899	29.0	...	47.2	5.4	0.6	45.6	...	...	...	...	...	...	...
			1893	48.5	...	26.6	5.8	1.2	48.5	...	...	...	...	...	...	...
			1894	45.7	...	30.2	8.3	1.2	45.7	...	...	...	...	...	...	...
1895	36.0	...	50.1	3.0	0.6	36.0	...	...	...	...	...	...	...			
1896	34.2	...	49.4	6.2	0.8	34.2	...	...	...	...	...	...	...			
1897	40.2	...	43.8	3.4	1.7	40.2	...	...	...	...	...	...	...			

APPENDIX.

SANITARY CONDITION OF WORKS.																
Name of municipality.	Date of completion of works of Drainage.	Water-supply.	Percentage of deaths to total mortality under each head of death causation.				Average annual death-rate for the five-year period preceding the introduction of drainage system or water-supply.	Years.	Death-rate.	Cholera.	Small-pox.	Fevers.	Dysentery and Diarrhoea.	Injuries.	All other causes.	Percentage of deaths to total mortality under each head of death causation.
			Cholera.	Small-pox.	Fevers.	Dysentery and Diarrhoea.										
Dindignl	...	...	1900	31.7	4.0	2.4	31.2	7.6	1.4	53.4	...	...	...	...	...	...
Gudiyattam	...	...	1901	29.5	5.8	3.3	32.0	2.7	1.2	55.0	...	...	...	...	...	...
			1902	27.8	0.3	1.2	31.0	5.5	1.4	60.6	...	...	...	...	...	...
			1903	27.8	...	0.7	26.6	5.6	2.9	64.2	...	...	...	...	...	...
			1904	25.3	...	0.2	26.9	5.8	1.9	65.2	...	...	...	...	...	...
			1905	28.4	...	...	28.3	5.8	1.9	64.0	...	...	...	...	...	...
			1906	34.5	...	...	35.3	7.4	2.6	53.8	...	...	...	...	...	...
			1907	37.1	0.3	...	25.9	10.8	0.5	62.3	...	...	...	...	...	...
			1908	50.4	19.6	2.8	21.7	5.5	0.4	50.6	...	...	...	...	...	...
			1896	23.1	9.0	1.1	25.4	11.3	4.5	48.7	1891	29.1	2.6	3.1	1.7	2.0
			1897	22.1	47.3	2.2	14.8	7.0	1.3	27.4	1892	20.5	0.5	7.7	1.5	3.6
			1898	18.9	15.7	1.1	22.3	13.6	2.1	45.2	1893	30.5	0.2	5.4	5.9	1.5
			1899	18.9	...	10.7	22.0	11.5	2.6	53.2	1894	23.7	4.8	14.6	8.8	2.9
			1900	25.6	...	...	15.6	16.0	0.8	38.0	1895	21.7	0.9	19.2	12.3	2.3
			1901	16.6	11.9	0.2	20.3	18.4	1.7	46.5	...	...	...	...	...	...
			1902	17.5	...	...	11.1	20.0	1.8	66.9	...	...	...	...	...	...
			1903	25.5	...	...	18.3	21.5	0.8	59.2	...	...	...	...	...	...
Guntūr	...	...	1904	33.1	0.8	...	15.4	16.9	1.2	64.9	...	...	...	...	...	...
			1905	39.9	0.1	19.9	15.0	14.7	0.6	49.7	...	...	...	...	...	...
			1906	39.6	15.3	2.1	17.3	12.7	0.6	52.0	...	...	...	...	...	...
			1907	37.1	0.8	...	22.7	16.0	1.4	59.1	...	...	...	...	...	...
Kumbakonam	...	...	1908	38.9	10.7	...	22.1	13.8	0.7	52.7	...	...	...	...	...	...
			1894	37.5	17.3	...	18.9	10.0	0.5	52.8	1889	34.8	6.9	9.7	14.8	16.2
			1895	31.2	3.2	...	21.9	11.4	0.7	62.1	1890	31.6	8.1	10.2	17.2	13.4
			1896	34.2	9.3	...	20.0	11.6	0.6	58.5	1891	30.5	11.3	1.6	20.2	13.0
			1897	39.9	26.2	...	16.2	11.5	0.4	45.7	1892	29.1	9.2	1.3	20.1	13.4
			1898	30.0	11.8	...	15.1	10.3	0.7	62.1	1893	36.2	19.8	1.3	14.5	11.6
			1899	36.4	13.0	...	14.7	9.3	1.1	61.9	...	...	...	...	...	...
			1900	30.3	3.4	...	14.6	6.9	0.8	74.3	...	...	...	...	...	...
			1901	31.9	10.2	...	15.9	7.4	1.2	65.2	...	...	...	...	...	...
			1902	29.1	6.7	...	9.6	6.8	0.8	77.2	...	...	...	...	...	...
			1903	31.2	6.7	...	10.0	5.9	0.6	76.8	...	...	...	...	...	...
			1904	31.6	11.2	...	8.5	9.0	1.1	70.2	...	...	...	...	...	...
			1905	27.3	...	...	11.0	9.5	0.2	79.3	...	...	...	...	...	...
			1906	38.8	13.4	...	9.6	9.0	0.9	58.9	...	...	...	...	...	...
			1907	31.9	7.1	...	14.4	9.0	1.2	65.6	...	...	...	...	...	...
			1908	29.9	9.8	...	14.5	7.3	0.8	67.5	...	...	...	...	...	...

APPENDIX.

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(Comparative table showing percentage of mortality to total mortality from year to year under each head of death causation)—cont.

APPENDIX.

1	2	3	4			5	6											
Name of municipality.	Date of completion of works of	Average annual death-rate since the introduction of drainage system or water-supply.			Percentage of deaths to total mortality under each head of death causation.			Average annual death-rate for the five-year period preceding the introduction of drainage system or water-supply.			Percentage of deaths to total mortality under each head of death causation.							
		Drainage.	Water-supply.	Years.	Death-rate.	Cholera.	Small-pox.	Fever.	Dysentery and Diar.	Injuries.	All other causes.	Cholera.	Small-pox.	Fever.	Dysentery and Diar.	Injuries.	All other causes.	
Tanjore	Oct. 1895.	1895	25.5	5.8	0.0	22.1	21.2	0.8	49.3	18.00	28.2	11.1	0.3	22.9	20.0	0.0	39.1	
		1896	27.0	3.7	2.0	23.5	25.4	0.9	44.5	18.91	29.4	3.8	4.4	21.2	23.3	0.6	46.7	
		1897	25.2	12.2	0.6	20.4	22.4	0.7	43.6	18.92	29.2	12.7	0.9	19.1	28.4	0.8	38.1	
		1898	25.5	16.3	0.3	13.1	18.2	0.1	52.0	18.93	35.7	28.8	2.2	17.6	22.0	0.3	29.1	
		1899	26.0	6.2	3.1	19.2	16.4	1.1	54.0	18.94	26.9	15.2	0.9	16.5	26.3	1.2	39.9	
		1900	27.0	4.8	2.5	22.2	19.8	0.2	50.5	...	...	...	...	...	...	...	...	
		1901	26.0	5.2	0.1	18.2	25.7	0.8	50.0	...	...	...	...	...	...	...	...	
		1902	29.2	3.5	0.6	9.7	18.0	0.6	67.6	...	...	...	...	...	...	...	...	
		1903	29.1	1.7	0.1	10.0	14.0	0.9	73.3	...	...	...	...	...	...	...	...	
		1904	30.3	2.9	2.2	12.3	15.0	0.8	60.8	...	...	...	...	...	...	...	...	
Tirupati	1899	1905	30.3	0.1	10.3	13.4	12.4	0.9	62.9	...	...	...	...	...	...	...	...	
		1906	33.6	2.5	5.6	15.5	13.6	1.2	61.6	...	...	...	...	...	...	...	...	
		1907	35.1	4.7	1.9	15.4	13.3	1.0	63.7	...	...	...	...	...	...	...	...	
		1908	33.3	4.3	1.2	12.2	14.4	0.4	67.5	...	...	...	...	...	...	...	...	
		1899	31.5	9.4	...	33.4	7.1	1.5	48.6	18.94	31.6	3.8	1.8	31.8	8.0	2.6	52.0	
		1900	33.9	6.0	...	19.5	9.9	2.5	62.1	18.95	29.0	1.2	...	39.7	10.9	1.5	46.7	
		1901	30.8	3.1	...	22.7	11.1	0.6	62.5	18.96	36.2	5.1	0.2	45.5	5.8	1.2	42.2	
		1902	35.3	...	4.2	27.4	13.7	1.5	53.2	18.97	34.2	2.7	0.4	36.5	10.0	2.3	48.1	
		1903	30.5	...	0.2	20.9	20.1	1.3	57.5	18.98	29.6	2.6	0.5	37.7	5.0	1.4	52.8	
		1904	28.6	0.2	...	17.6	12.6	1.6	68.0	...	...	...	...	...	...	...	...	
Tirupati	1899	1905	35.3	4.2	...	14.3	22.7	2.0	56.8	...	...	...	...	...	...	...	...	
		1906	41.7	4.8	...	21.9	20.1	0.8	51.6	...	...	...	...	...	...	...	...	
		1907	36.8	...	...	18.1	21.9	1.8	58.2	...	...	...	...	...	...	...	...	
		1908	46.0	3.4	0.1	20.4	19.7	1.0	55.4	...	...	...	...	...	...	...	...	
		1896	30.4	19.2	0.8	22.4	11.9	1.1	44.6	18.91	29.5	17.1	3.8	19.9	11.4	0.6	47.2	
		1897	23.1	10.6	1.4	19.6	9.2	1.0	58.2	18.92	25.6	13.0	5.9	26.6	13.7	1.3	39.5	
		1898	30.4	24.1	1.4	14.1	6.7	0.9	52.8	18.93	36.6	36.8	3.9	20.8	9.9	0.8	27.8	
		1899	26.6	15.3	0.6	5.9	9.0	1.1	68.1	18.94	24.4	12.6	1.6	29.4	14.0	1.1	41.3	

APPENDIX.

Trichinopoly	Dec. 1896, but water supplied from April 1898.	1900	30.3	7.7	0.6	10.5	7.9	0.7	72.6	1895	23.6	14.0	0.4	31.2	15.7	1.5	37.2
		1901	24.8	11.9	0.5	12.8	10.6	1.0	63.2								
		1902	21.2	2.8	0.6	18.3	10.0	0.9	67.4								
		1903	25.7	12.9	0.7	12.2	10.8	0.4	63.0								
		1904	20.8	3.9	0.2	2.0	11.7	1.5	80.7								
		1905	23.5		20.7	4.7	9.7	0.7	64.2								
		1906	21.8	1.1	2.9	10.5	15.4	0.7	68.4								
		1907	23.1	1.7	0.1	15.6	14.4	1.0	67.2								
		1908	29.7	7.7	0.3	10.7	13.9	0.4	67.0								
Vellore	1908	1900	31.3	8.6	1.1	4.3	26.1	1.6	60.3	1903	33.3	1.9	1.1	3.1	19.6	1.7	72.6
		1901								1904	44.8	16.0	0.8	1.3	18.7	1.3	81.9
		1902								1905	24.5	0.3	0.7	1.4	31.0	1.9	64.7
		1903								1906	41.2	7.0	25.5	0.9	24.5	0.8	41.3
		1904								1907	25.8	8.4	3.8	3.2	23.2	1.7	59.7
		1905								1908	23.6		0.2	25.2	20.0	0.9	53.7
		1906								1899	31.6		0.1	26.8	24.0	1.7	47.4
		1907								1900	33.1	0.8		21.3	20.8	1.8	56.3
		1908								1901	25.8	0.4		20.8	18.9	1.1	58.8
										1902	26.0			19.8	20.1	1.7	58.4
Vizagapatam	Dec. 1902	1904	32.1			22.9	20.5	0.8	55.8								
		1905	29.8	0.4		20.1	18.9	1.1	59.5								
		1906	33.8	1.8	0.1	25.3	17.3	1.7	53.8								
		1907	25.5	1.4	0.4	32.6	13.1	1.1	51.4								
		1908	36.2	7.1	3.6	27.0	12.6	0.7	49.0								

PART II.

SANITARY ENGINEERING.

26

THE NINETEENTH ANNUAL REPORT

OF THE

SANITARY ENGINEER TO THE GOVERNMENT OF MADRAS.

1908.

I.—INVESTIGATION OF SCHEMES.

THE investigation of the following schemes during 1908 was approved by Government in their Order No. 145-M., dated 24th January 1908 :—

Incomplete schemes in the programme of 1907 to be completed before April 1908.	(1) Mangalore drainage.
	(2) Negapatam do.
	(3) Vaniyambadi water-supply.
Incomplete schemes in the programme of 1907 carried forward to the programme of 1908.	(4) Rajahmundry do.
	(5) Mangalore do.
	(6) Palamcottah do.
	(7) Anakapalle drainage.
New schemes in the programme of 1908.	(8) Ellore water-supply.
	(9) Calicut drainage.
	(10) Vellore do.
	(11) Ongole water-supply.
	(12) Rajahmundry drainage.
Schemes, the preparation of detailed plans and estimates for which were to be undertaken in 1908 after preliminary proposals have been prepared.	(13) Srirangam drainage.
	(14) Negapatam water-supply.
New scheme included in the programme of 1908 as per G.O., No. 624-M., dated 10th April 1908.	(15) Nellore drainage.

(a) Schemes on the Programme for 1908.

(1) *Mangalore drainage*.—Plans and estimates for a scheme for the sewerage of the western part of the town of Mangalore were submitted on the 5th May 1908.

Sullage water will be conveyed by open drains laid in house compounds and in the intercepting sewers to a pump well located on the left bank of the Netravadi river and thence lifted by centrifugal pumps and discharged into the river 200 feet from the bank through a pipe laid on the river bed.

The scheme has been designed for a population of 7,000, the present population being 6,000, and for an ultimate quantity of sullage water of 15 gallons a head.

The maximum flow to be dealt with will be 146 gallons a minute and 2 oil-engines and centrifugal pumps, each capable of lifting 73 gallons per minute to a level of 3 feet above H.F.L. of the river, have been provided. There will be a third engine and pump in reserve. Provision is made for six water carriage public latrines each of six seats.

The estimated cost of the scheme is Rs. 1,87,000.

(2) *Negapatam drainage*.—Detailed plans and estimates for a surface drainage scheme for the town of Negapatam were submitted on the 5th May 1908.

A surface drainage scheme was adopted for two reasons (1) economy and (2) because there was no piped water-supply available for the efficient working of sewers. The general idea of this scheme is to construct oval-shaped open masonry drains in every lane and street of the town. These open drains will have a fall towards the main road which circles the town of Negapatam.

At the end of the open drains there will be drain junctions connecting the open drains to intercepting sewers laid in the main road. The intercepting sewer will discharge into two pump wells whence the sewage will be pumped through

rising mains, treated in septic tanks and on a sewage farm of 24 acres located at Hathaway's Park, the present municipal rubbish depot. There will be two pumping stations provided with oil-engines and centrifugal pumps to suit the discharges of the intercepting sewers.

The septic tanks are designed to be of a combined capacity of $\frac{1}{2}$ the daily flow or 226,500 gallons and there will be three tanks each 30 feet in diameter and 17 feet deep.

This scheme is designed for a population of 45,300 which is the estimated population in 1931, the present population being 34,000. Plans and estimates have been drawn up for a complete drainage scheme, but an additional estimate has also been prepared for the requirements of the present day.

The estimated cost of the complete scheme is Rs. 3,77,500 and that of the partial scheme is Rs. 3,45,200.

(3) *Vaniyambadi water-supply*.—Plans and estimates for the water-supply of the town of Vaniyambadi, Salem district, were submitted on the 5th May 1908.

Vaniyambadi is an island town in the Palár river and is liable to damage by floods. The site selected for the head works is at the head of the island which is 3 feet higher than the maximum flood level. At this site it is proposed to construct an infiltration gallery, 25 feet deep and 400 feet long, in the sandy sub-soil. At the end of the gallery there will be a collecting well from which the water will be led to a pump well and the water raised by Hornsby oil-engines of 28 B.H.P. and triplex Deane pumps to a service reservoir of 8 hours capacity located above the town.

The scheme has been designed for a population of 25,000 at 15 gallons per head per day. The present population is 12,005. The estimated cost of the scheme is Rs. 1,84,610. A trial well has been sunk in a cocoanut tope at the head of the island with the intention of testing the supply of water. Government requested the Sanitary Engineer to report on the quality and quantity of water, and inflow tests have accordingly been made and a report will be submitted in January 1909. The water has been reported on as "usable" by the Chemical Examiner, but the bacteriological examination showed recent pollution, the cause of which is under investigation by the Sanitary Commissioner.

(4) *Rajahmundry water-supply*.—Plans and estimates for the water-supply of Rajahmundry were submitted on the 5th May 1908. In this scheme it is proposed to construct an infiltration gallery, 800 feet long and 30 feet below ground level, in the *lanka* on the left bank of the river, $2\frac{1}{2}$ miles above the town. From this gallery it is proposed to lead the water by a steel pipe through the flood bank to a pumping station, the supply to be lifted by deep well pumps driven by Diesel oil-engines of 40 B.H.P., through a steel main to a service reservoir of 8 hours' capacity, to be situated at the highest point in the town.

The population of the town at the last census (1901) was 36,408 and the ultimate population for which provision is made is 71,000. The engines and pumps are, however, designed to supply 15 gallons per head for 60,000 persons.

The cost of the scheme excluding compensation for land for head works and service reservoir, not yet ascertained, is estimated at Rs. 4,32,190, with annual working charges of Rs. 13,287.

The chemical and bacteriological analyses of the samples of water taken at the site of the infiltration gallery were unsatisfactory, but as the contamination was attributed to accidental causes, further samples have been taken; the report on the chemical analysis was again unfavourable, the report on the bacteriological examination is awaited. Borings put down for the purpose of obtaining samples of water for analysis showed that modifications would be required in the design of the gallery and further investigation is now in progress.

(5) *Mangalore water-supply*.—Government in 1907 approved of the proposal to investigate the Kadiri Valley as a source of water-supply to the western portion of Mangalore. The investigation was taken up in 1908 and plans and estimates for Rs. 24,600 were submitted for an experimental gallery in the valley; it was, however, stated that the success of the scheme was doubtful and further investigation was recommended. A scheme was subsequently proposed for investigation, the proposal being to construct large wells at different points in the town, the supply to be raised by electric motors and centrifugal pumps to a service reservoir which would command the brackish area to be supplied.

A second scheme from a valley distant 3 miles from the town has also been recommended to be investigated by the Sanitary Commissioner and a report on the proposal will be submitted in 1909.

(6) *Palamcottah water-supply*.—Out-door work has been completed. Plans and estimates are under preparation. The scheme will be submitted early in 1909.

(7) *Anakápalie drainage*.—Plans and estimates for this scheme were submitted in October 1908.

Detail plans and estimates for an open drainage scheme have been drawn up providing for the sullage being dealt with separately in five blocks. The drainage of the main block will be led by intercepting pipe sewers to the east of the town and be treated in a septic tank from which it will pass into an irrigation channel.

The open drains of the second block will be led to the existing sewage farm and of the remaining 3 blocks to irrigation channels.

The estimated cost of the scheme is Rs. 1,56,575 and it is designed for a population of 17,500, the present population being 10,875.

(8) *Ellore water-supply*.—The proposal of the Sanitary Engineer to prepare a 15 gallons scheme with the Tammileru as the source was approved by Government and plans and estimates submitted in November 1908. Owing to the investigation indicating that the supply from the Tammileru would probably not meet the future needs of the town, an alternative scheme was submitted with the Ellore canal as the source.

(a) *Tammileru scheme*.—It is proposed to construct an infiltration gallery in the sandy bed of the Tammileru one mile above the town and to pump the supply to a service reservoir situated in the town from which distribution will be made in the usual manner. The ultimate daily supply for which the scheme is designed is 750,000 gallons, being at the rate of 15 gallons per head for a population of 50,000 or 16,500 in excess of the present population. The estimated cost of the scheme is Rs. 2,94,570, the annual maintenance charges 5,633.

(b) *Ellore canal scheme*.—The main details of this scheme are the same as in the original scheme (of 1905), the supply to be given has, however, been increased to 750,000 gallons a day.

The scheme as now revised provides for an off-take from the canal, storage tank and 4 filter beds to be constructed about $\frac{1}{4}$ of a mile to the south of the town. The tank will be capable of storing the supply required during the two months' closure of the canal and for eight months will act as a settling tank, when the supply to the filter-beds will be by gravitation. The closure supply will be pumped in sixty days by a Roterbo pump driven by a 13 B.H.P. suction gas engine. A second pumping station with duplicate sets of suction gas engines and centrifugal pumps has been provided for raising the filtered water to the service reservoir referred to in the Tammileru scheme.

The estimated cost of the revised canal scheme is Rs. 3,16,570 and annual charges Rs. 7,523.

(9) *Calicut drainage*.—A preliminary report recommending that a water-supply scheme should precede a drainage scheme has been submitted and the orders of Government are awaited.

(10) *Vellore drainage*.—Field work was completed and the scheme is under preparation.

(11) *Ongole water-supply*.—Field work completed. An interim report will be submitted early in 1909.

(12) *Rajahmundry drainage*.—Field work in progress. Scheme will be drawn up in 1909.

(13) *Srirangam drainage*.—Scheme will be submitted early in January 1909.

(14) *Negapatam water-supply*.—This scheme could not be investigated owing to wet cultivation this year and field work will start as soon as the crops have been harvested.

(15) *Nellore drainage*.—Field work in progress.

(b) *Plans and Estimates prepared for Works not included in the Programme.*

(1) *Tuticorin water-supply.*—An estimate amounting to Rs. 11,250 was submitted to Government for constructing an experimental trench outside the reserve portion of the Korampallam tank.

(2) *Coimbatore water-supply.*—Revised plans and estimates amounting to Rs. 5,94,804 were prepared, the source of supply being the Noyel river. Owing to conflicting irrigation interests Government ordered that the scheme be abandoned and requested the Sanitary Engineer to report on other possible schemes for the supply of Coimbatore.

(3) *Ootacamund drainage works.*—A revised estimate amounting to Rupees 4,11,007 for the drainage of Ootacamund and one for Rs. 48,400 for extensions were submitted to the Chief Engineer, Public Works Department.

(4) *Ootacamund dhobikhana.*—A revised design for a dhobikhana estimated to cost Rs. 20,914 was submitted to Government through the Sanitary Board.

(5) *Kodaikānal water-supply.*—The original scheme for the water-supply of Kodaikānal from a reservoir to be formed by damming the Pambiar river was revised and estimates amounting to Rs. 73,800 and Rs. 73,120 were prepared, the only point of difference in the 2 schemes being the design of the dam, an arch panel concrete dam being proposed in place of the solid masonry one of the usual type provided in the original scheme.

(6) *Waltair water-supply.*—Alternative schemes were prepared for the supply of Waltair from the existing Vizagapatam water-works.

(a) *Scheme A.*—This scheme is estimated to cost Rs. 51,030 and provides for pumping the whole supply required from the existing service reservoir.

(b) *Scheme B.*—The main from the Vizagapatam water-works filter-beds is proposed to be tapped at 8,046 feet from the storage tank and the lower portions of Waltair will be supplied by gravitation, the balance supply being pumped. Estimated cost is Rs. 3,360.

Both schemes have been got out on the assumption that part of the present leakage under the tank bund of the Vizagapatam water-works will be pumped back to the filter-beds.

(7) *Chali drainage scheme.*—An open drainage scheme for the Chali Ward of Tellicherry, estimate Rs. 16,470, was prepared. The population of the area drained is 3,180 and the disposal will be at one sea outfall.

(8) *Chicacole water-supply.*—A pumping scheme for the supply of Chicacole estimated roughly to cost Rs. 1,90,820 has been proposed and the necessary field work completed, the orders of Government are awaited.

(9) *Preliminary proposals for water-supply schemes.*—Preliminary proposals for the supply of the towns, Srirangam, Hosūr, and Chingleput, have been made and the orders of Government are awaited.

(10) *Investigation for supplementing of existing supplies.*—The investigation for supplementing the supplies of the towns of Tirupati and Cuddapah are in progress.

(11) *Conjeeveram water-works.*—An estimate for Rs. 31,500 for improvements and additional plant required for the Conjeeveram water-works was submitted.

(12) *Kodaikānal hospital.*—Plans and estimates for Rs. 36,690 were prepared and sent to the Chairman, Municipal Council, Kodaikānal.

(13) *Guntūr general hospital.*—Plans and estimates amounting to Rs. 1,14,785 were forwarded to the Chairman, Municipal Council, Guntūr.

(14) *Water-supply and drainage to the General hospital, Bellary.*—Plans and estimates for Rs. 16,089 were forwarded to the Chief Engineer, Public Works Department.

(15) *Market at Big Conjeeveram.*—Plans and estimates amounting to Rs. 24,420 were forwarded to the Chairman, Municipal Council, Conjeeveram.

(16) *Medical institutions at Dindigul.*—Plans and estimates for a General Hospital at Dindigul for Rs. 55,587, for a hospital for Women and Children for

Rs. 32,829 and for a general hospital for essential requirements for Rs. 38,907 were prepared and sent to the Chairman, Municipal Council, Dindigul.

II.—EXECUTION OF WORKS.

(a) *Works under Execution by the Public Works Department.*

	RS.
(1) Berhampur water-supply	3,11,000
(2) Bezwada water-supply	3,11,790
(3) Gudiyāttam water-supply extensions	22,000
(4) Salem water-supply	8,10,535
(5) Periyakulam water-supply	1,62,670
(6) Constructing a service reservoir to Trichinopoly water-works.	63,300

These works were under execution by the Public Works Department during the year.

	RS.
(7) Ootacamund Drainage Works	3,85,610

The execution of this work was transferred from the Sanitary Engineer to the Public Works Department in August 1908.

	RS.
(8) Cocanada Water-works Improvements	43,760
(9) Constructing a covered drain to Yelluru	5,260

The execution of these works was also transferred from the Sanitary Engineer to the Public Works Department. Revised estimate for Cocanada Water-works Improvements amounting to Rs. 51,979 was submitted to the Chief Engineer, Public Works Department, during the year.

(b) *Works under Execution by the Sanitary Engineer.*

(1) *Saidapet water-works.*—Orders from the Government of India to exclude the site for the head works from the Cantonment limits were communicated in G.O., No. 1577 L., dated 26th November 1908. The necessary arrangements for the acquisition of the land are being made and a revised estimate will be submitted in January 1909.

(2) *Kódambākkam water-supply.*—The construction of an experimental well 10 feet diameter for the water-supply of Puliur and Kódambākkam villages, Saidapet taluk, was completed during the year. The yield has proved unsatisfactory and other proposals will be made shortly.

(3) *Kumbakōnam boring.*—Boring was resumed on the 7th January 1908 and carried to a depth of 311 feet green clay being met with at 287 feet. The lining tube was subsequently withdrawn into the sand overlying the clay and the yield test proving satisfactory, arrangements are being made for a temporary supply at the forthcoming Mahamakam festival.

(4) *Cuddapah water-works improvements.*—The excavation of the new gallery was completed but owing to slips and the yield proving insufficient work was stopped in June 1908. A revised estimate of Rs. 70,250 was submitted but it was decided that, before undertaking further works at the present site, a hydrological survey of the neighbourhood be made. Further investigation is now in progress.

III.—MAINTENANCE OF WATER-WORKS.

The councils have been advised of defects that were traceable through the weekly statement submitted and complete inspections have been made of 11 of the 17 Municipal water-works and the remainder have been visited for the purpose of advising on certain points. The attention that it is desirable to give to maintenance could not and cannot be given in the present understaffed condition of the Sanitary Engineer's Department and a proposal has been made to appoint a Water-works Maintenance Engineer with a suitable staff. Serious shortages in the supply occurred during the hot weather at Cuddapah, Tirupati, Dindigul, Adóni and Trichinopoly, the supply has been insufficient of recent years during

the dry season to each of the above towns, but in the past year the defect was more serious than hitherto and was mainly due to the lengthy drought. Other factors, apart from the legitimate one of increasing demand, which have contributed to the partial failure of the supplies, are—

- (1) Leakage from pipes.
- (2) Defective taps.
- (3) Increase in number of house connections.
- (4) Avoidable waste.

The loss of water due to the above causes is an ever-increasing quantity and is as much as 33 per cent. of the whole supply in some towns. As a result of the Councils having made no serious attempts to put a check to waste or to exercise the little power that is given them by the Madras District Municipalities Act to prevent the misuse of water, the supplementing of the supplies of several towns has had to come under consideration many years sooner than would have been necessary had the ordinary attention required been given to the distribution systems. Attention has been drawn to the incompetency of the Overseers and Superintendents in charge of Water-works and a proposal made to appoint only men possessing certain qualifications to the posts and to increase the pay so that suitable men may be attracted.

In the present attitude of the Councils to the recommendations of the Sanitary Engineer, very little improvement can be expected in the various water-supplies and unless greater power of control is given to the Sanitary Engineer and unless the sections of the Madras District Municipalities Act dealing with water-supply are revised, avoidable expenditure in supplementing supplies must be entailed.

Complete examinations of the pumping plants were made by the Inspectors of Steam Boilers and Prime Movers and reports on their condition forwarded to the authorities concerned. The report on the condition and working of the various pumping plants is given in the Boiler Inspector's annual report.

The following statement shows the quantity of water pumped and cost of maintenance for 1907-1908 in all towns having pumped supplies:—

Number.	Town.	Population.	Quantity of water pumped.	Consumption per head per diem.	Average working head.	Head for which scheme was designed.	Cost of maintenance.					Cost of 1,000,000 gallons raised 1 foot high.	Type of engine.	Type of boiler.
							Fuel.	Oil and sundries.	Establishment.	Repairs.	Total.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Cocanada ...	48,096	GALS. 119,714,163	GALS. 6'8	FT. 47'16	FT. 50	RS. 3,789	RS. 1,335	RS. 2,062	RS. ...	RS. 7,186	RS. 1'27	Worthington horizontal compound surface condensing.	Locomotive.
2	Conjeevaram.	46,164	199,173,283	11'8	43'71	55	4,722	761	1,233	1,496	8,212	'94	Worthington horizontal compound direct acting non-condensing.	Do.
3	Kurnool † ...	25,376	103,835,090	11'2	45'50	48	2,835	1,521	1,977	1,144	7,477	1'58	Invincible vertical twin series centrifugal pumping engine.	Do.
4	Madura ...	105,984	476,687,353	12'3	30'62	54	13,484	762	3,137	9,055	26,438	1'81	Diesel oil-engine.	Do.
5	Tanjore ...	57,870	323,570,260	15'3	78'90	108	14,211	1,016	3,493	2,307	21,027	'82	Worthington triple expansion horizontal surface condensing.	Do.
6	Trichinopoly (Main).	104,721	686,368,727	19'7	90'96	103	18,364	8,314	5,307	3,010	34,995	'57	Worthington vertical triple expansion surface condensing.	Babcock and Wilcox patent water tube.
7	Trichinopoly (Sub).		89,004,945	...	66'03	50	4,735	500	1,104	127	6,466	1'10	Worthington vertical triple expansion surface condensing.	Do.
													Worthington horizontal triple expansion surface condensing.	Locomotive.

* Including cost of working a centrifugal pump for two months.

† During the year the 15 brake horse-power Diesel oil-engine worked 2,319 hours, while the steam plant worked 2,761 hours.

Owing to the absence of meters, or suitable means of measuring the quantities pumped, deductions for slip have not been made and the only return that can be accepted as correct is that of Kurnool. All the Councils with pumped supplies have been advised to meter the pumping mains but only one Council has made

provision for a meter to be installed in the coming year. In the case of Tanjore and Trichinopoly the Councils have been recommended to replace their present plants by suction gas engines and triplex pumps.

IV.—MINOR SANITARY WORKS.

The following statement shows the major and minor sanitary works dealt with by the Sanitary Engineer during the year:—

	Medical Institutions.		Latrines.		Slaughter houses.		Markets.		Wells.		Minor water-supply.		Minor drainage.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		RS.		RS.		RS.		RS.		RS.		RS.		RS.
Estimates below Rs. 1,000, sanctioned by the Sanitary Engineer.	6	4,920	3	2,725	9	6,922	3	6,140	18	13,561	24	7,284	2	1,170
Estimates above Rs. 1,000, and below Rs. 10,000.	70	2,76,011	...	...	3	10,430	53	1,37,015	32	51,271	40	1,14,424	11	23,182
Estimates above Rs. 10,000	7	3,11,198	...	...	...	...	6	2,01,955	...	...	13	8,18,269	5	1,16,833
Total	83	5,92,129	3	2,725	12	17,352	67	3,45,110	50	64,772	86	9,39,977	18	1,41,18

Total Rs. 21,03,250 for 319 estimates.

The following type designs were prepared and forwarded:—

- (1) For central and small markets,
- (2) A sheep slaughter house and
- (3) Rat proof model houses and rat proof granaries.

V.—CONCLUDING REMARKS.

During the year Mr. W. Hutton, Sanitary Engineer to Government, having been granted combined leave for 11 months, the undersigned assumed charge of the office of the Sanitary Engineer from Mr. J. R. Thuraisingham, Acting Assistant Sanitary Engineer, on 9th May 1908, who was in temporary charge of the office from 5th to 8th May 1908.

Mr. J. R. Thuraisingham continued as Acting Assistant Sanitary Engineer vice Mr. H. Nowroji who held the office of the assistant to the Special Engineer in the Madras Corporation. M.R.Ry. V. S. Gnanaprakasam Pillai Avergal was appointed as additional Assistant Sanitary Engineer and joined duty on the 18th November 1908.

Owing to the size of the programme of schemes to be prepared during the year and the large amount of extraneous work it has not been possible to carry out the investigations or prepare schemes in such detail as is desirable, the cost of establishment being about one per cent. of the estimated cost of schemes which have been investigated and for which detailed estimates and plans have been prepared.

The work of the staff continued to be satisfactory during the year.

F. E. MORGAN,
Ag. Sanitary Engineer to Government.

OFFICE OF SANITARY ENGINEER TO GOVERNMENT,
KENSINGTON HOUSE, POONAMALLEE ROAD,
CHETPET, MADRAS, 25th March 1909.

Government of Madras.

LOCAL AND MUNICIPAL DEPARTMENT.

Recd.

Regd.

} 1909.

Enclosures

Spare copies

G.O., etc., Nos. 796, 797 L., 29th June 1909.

Sanitation

Reviewing the reports on — for 1908.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper:—

Proceedings of the Sanitary Board, No. 233-S., dated 9th June 1909.

Read—the following papers:—

Report of the Sanitary Board for 1908.

“ “ *Sanitary Engineer for 1908.*

“ “ *Sanitary Commissioner for 1908.*

Resolution—No. 233-S., dated 9th June 1909.

Submitted to Government with reference to rule 23 of the rules relating to the constitution and functions of the Sanitary Board issued with G.O., No. 1081 L., dated 2nd September 1903.

2. The submission of the reports has been delayed owing to the late receipt of the report of the Sanitary Commissioner which only reached the Sanitary Board on the 29th May.

(True Extract.)

R. PARSONS,
Secretary, Sanitary Board.

To the Secretary to Government, Local and Municipal Department
(with three reports).
Copy to the Sanitary Commissioner.
“ Sanitary Engineer.

Order—No. 796 L., dated 29th June 1909.

The reports of the Sanitary Board, the Sanitary Commissioner and the Sanitary Engineer, submitted with the Proceedings of the Sanitary Board, No. 233-S., dated 9th June 1909, deal with the sanitary history of the year 1908. The reports, which were due on the 15th May 1909, were received in the Government office only on 9th June 1909. The delay was due to the late submission of the report of the Sanitary Commissioner which did not reach the Sanitary Board till the 29th May 1909. The Sanitary Commissioner's attention will be drawn to rule 23 of the Sanitary Board Rules under which he should submit his report to the Sanitary Board not later than 1st April of each year.

2. The total average rainfall of the year was slightly below that of the previous year and the decennial average; and there was an increase in the prices of the staple food-grains.

3. Taking the Presidency as a whole, exclusive of the hill tracts of Ganjám and Vizagapatam districts and the Laccadive and the Amindivi islands for which statistics were not furnished, the recorded birth-rate was 32.4 per mille of the population or 1.6 in excess of that of the previous year and was the highest ever attained. It is interesting to note that the estimated population of 1908 also accords very nearly with the population arrived at by adding to the census figure of 1901 the excess of births over deaths during the succeeding years up to December 1908. The high rate of births is attributed by the Sanitary Commissioner to greater care to register events. The increase in the birth-rate, as compared with the previous year, exceeded 2 per mille in twelve districts, the largest increase being reported from Coimbatore where the rate was 33.3 against 26.2 per mille in 1907. There was, on the other hand, a decrease in the rate recorded in five districts, the fall in Guntúr (15.7) being particularly noticeable. The Sanitary Commissioner is, however, unable to account for this heavy decline. The Collector of Guntúr will be requested to investigate the matter and submit a report to Government. The rates for individual districts varied considerably and ranged from 37.4 per mille in Chingleput to 21.6 in Guntúr. The Government accept the opinion of the Sanitary Commissioner that, other things being equal, the variations indicate the varying degree of attention paid to the subject of registration in the several districts. In G.O., No. 816 L., dated 10th June 1908, the Sanitary Commissioner was requested to watch the working of the Madras Births and Deaths Registration Act, III of 1899, in those places (3,558 towns and villages) where it is in force and to compare in his annual report for 1908 the statistics relating to selected areas in which the Act is and is not in force. The Sanitary Commissioner refers to this subject very briefly in paragraph 8 of his report, but compares the figures for compulsory areas with those for the whole district, instead of with those returned for non-compulsory areas. He will therefore be requested to submit a full report to Government at an early date instituting a comparison, as pointed out above.

4. The recorded death-rate of the Presidency rose from 24.3 to 26.2 per mille and was also in excess of the decennial average by 3.8 per mille, the increase which occurred in all districts except six (excluding Madras) being attributed to the prevalence of cholera during the year.

The increase was large in Kurnool (9.5), Vizagapatam (9) and Ganjám (6.8). As in the case of births, there were considerable variations in the rate of deaths for individual districts (excluding Madras), which varied from 39.0 per mille in Malabar to 15.6 in Guntúr, in the latter of which there was a decrease of 4.8 per mille as compared with the previous year. It is evident that the registration of vital statistics in the district of Guntúr is very defective, and the Collector will be requested to look into the matter.

5. With regard to registration in municipal areas, an increase compared with the previous year was reported in the birth-rate in forty municipal towns, being particularly noticeable in Kodaikáhal, Palni and Anantapur. On the other hand, decreases were recorded in eighteen towns, chiefly in Calicut, Bimlipatam, Tellicherry and Tirupati, which the Sanitary Commissioner sets down to defective registration. In the remaining three towns, the rate was the same as in 1907. The rates for individual municipalities ranged from 62.2 per mille in Kodaikáhal and Vániyambádi to 22.9 in Bellary.

The recorded death-rate in all municipalities rose in the aggregate from 33.4 to 38.2 per mille, the increase which occurred in all but thirteen towns being ascribed mainly to the heavy mortality from cholera and fevers. The increase was particularly large in Calicut, Tellicherry, Bezwada, Cannanore and Nandyal. The decrease in Cochin, Tuticorin and Nellore were noticeable.

The mortality among infants in municipal towns averaged 234.7 per mille against 183.7 in the districts, the higher rates in the former case being apparently due partly to more accurate registration and partly to more insanitary conditions. The

heaviest infantile death-rate (345.4 per mille) was reported from Bezwada, while excesses amounting to 50 per mille and above, as compared with the rate for the previous year, occurred in five other towns. The excessive infantile mortality is ascribed by the Sanitary Commissioner, as in the previous year, to the prevailing scarcity, the ignorance of mothers in rearing their children and the insanitary environments amidst which they are born and brought up.

6. As in previous years, fever continued to be the chief classified cause of death, having accounted for a mortality of 8.0 per mille of the population in rural tracts and 6.7 in municipal towns, but the proportions of deaths, 10.8 per mille in rural areas and 18.4 per mille in towns, ascribed to "all other causes," is still much larger than it should be. The rate of fever mortality in Cuddapah town rose by 1.4, as compared with the previous year; and the Acting Sanitary Commissioner observes that the prohibition of wet cultivation in and around the town since 1st July 1904 seems to have had no effect up to now in reducing the fever rate in the town. The question of deputing a medical officer with the necessary training to investigate the cause of the unhealthiness of the town, as recommended by the permanent Sanitary Commissioner, has been deferred for the present for want of funds.

7. From the statistics furnished in Appendix XIII to the report, it appears that in the twelve municipal towns in which an improved system of water-supply has been in force for more than five years the average mortality from fever was 15.0 per cent. of the total mortality during the last five years against 25.0 per cent. during the five years previous to the date of its introduction, while the deaths from cholera averaged 5.0 and 9.8 per cent. respectively during the same periods.

8. The mortality from cholera was the heaviest* on record during the past ten years, with the exception of the year 1906, amounting to 3.9 per mille of the population in districts against 2.2 per mille in 1907. No district was free from this epidemic and in eighteen districts where it had been prevalent in the previous year it continued all the year round. The heaviest mortality occurred in Malabar (9.9), Anantapur (8.5), Kurnool (7.4) and Ganjam (5.7). None of the sixty district municipal towns escaped this visitation,

but the towns of Kodaikānal and Coonoor returned only one sporadic case each and Ootacamund two during the year. The disease was virulent in Calicut, Tellicherry, Nandyal, Cannanore, Tinnevely, Vaniyambādi, Periyakulam, Bezwada and Berhampur, the mortality being more than 10 per mille in each case. The total mortality in municipalities was 5.1 per mille of the population against 2.3 per mille in 1907. The Government are glad to note that in combating cholera the Municipal Councils concerned acted upon the timely warnings and advice given by the Sanitary Commissioner. The Sanitary Commissioner has not offered any explanation as to the cause of the unusually heavy mortality under this head.

9. Small-pox was also prevalent in every district and accounted for a mortality of 0.6 per mille of the population as in the previous year. The death-rate approached 2 per mille only in the districts of Vizagapatam and South Arcot; the trial scheme of vaccination was during the year under report extended to one more taluk in the South Arcot district. The disease was also virulent in North Arcot and Malabar, though vaccination was compulsory in various parts of these districts. The epidemic prevailed in all municipal towns except eighteen, and the incidence of mortality was heavy in Palghat (6.8), Ellore (3.2), Rajahmundry (2.3) and Guntūr and Tiruvannāmalai (2.2 each). The Councils concerned should enforce strictly the compulsory provisions of the District Municipalities Act relating to vaccination. The fact that more than one-fourth of the total number of deaths from small-pox occurred among children between one and ten years of age indicates either that infantile vaccination was seriously neglected or that the operation was imperfectly performed. Systematic revaccination

should also be kept sedulously in view by all District Boards and Municipal Councils. The value of compulsory vaccination in municipal areas may be indicated by the fact that the death-rate in urban areas was 0.3 as against a rate of 0.6 in rural tracts. The trial scheme for the improvement of vaccination was in force during the year in the Chingleput district generally and in selected areas of the North Arcot, South Arcot and Madura districts. The question of extending it to other areas has been deferred until further experience is gained of the working of the scheme in the areas in which it is already in force.

10. It is a matter for regret that the number of deaths due to plague rose from 898 in 1906 and 2,872 in 1907 to 3,358 in 1908. The disease was indigenous in eight districts and present all the year round in the Nilgiris, Salem and South Canara. The death-rate was high in the Nilgiris (1.3), Bellary (0.6) and Coimbatore (0.5). The total of the deaths in all the other affected districts was less than 1 per mille. Prompt measures continued to be taken for the observation of persons proceeding from infected areas and for the evacuation and disinfection of affected localities. The methods adopted remained the same as in previous years.

11. In paragraph 30 of his report, the Sanitary Commissioner observes that the crowded state of dwellings in certain municipalities and the insanitary environments amidst which the major portion of the people live brought about an increased rate of mortality from dysentery and diarrhoea in these towns. The attention of the Municipal Councils concerned will be drawn to these remarks and also to his observations in paragraph 40 of the report bearing on the question of the opening up of congested areas.

12. Sanitary Assistants to District Medical and Sanitary Officers were, as in the previous year, employed in the districts of Gódvāri, Madura, South Arcot, Tanjore, Guntūr, Chingleput and North Arcot; no new appointments were made in 1908. It would appear that the check exercised by them over vaccination work has had a salutary effect, though the influence exercised upon rural sanitation by their employment has not been apparent to any marked extent. These officers have now been prohibited from undertaking private practice and their allowances have been enhanced so as to compensate them for this loss of income.

The careful attention of all Municipal Councils will be invited to the remarks of the Sanitary Commissioner in paragraph 44 of his report regarding the absence of proper control over the work of Sanitary Inspectors and to G.O., No. 328 M., dated 20th February 1904, under which these officers should not be deputed to duty not connected with sanitation. The remarks and suggestions of the Sanitary Commissioner in paragraphs 45 and 46 of the report as regards the disposal of sewage and night-soil are very valuable and will be commended to all local bodies for adoption as far as possible.

The Sanitary Commissioner should have furnished information as to the measures adopted by local bodies for the suppression of malaria with reference to G.O., No. 917 L., dated 2nd April 1904, and G.O., No. 1814 L., dated 12th December 1907.

A special grant of 3½ lakhs from Provincial funds was for the first time distributed in 1908-1909 among District Boards and Municipal Councils for the improvement of sanitation within their respective limits and this grant will be continued in future years.

13. The King Institute of Preventive Medicine continued to do excellent work. In the course of the year, the pathological work hitherto carried on in the Bacteriological section of this Institute was transferred to the Medical College, and the work in connection with the analysis of water for municipalities which used to be done in the Chemical Examiner's office was transferred to the King Institute. The Sanitary Commissioner instituted a system under which the water supplied to various municipal towns was regularly examined and the results carefully recorded. It is hoped that the results of this work will prove of great value. The appointment of a commissioned Medical Officer as Assistant Superintendent of the Institute has been sanctioned by the Secretary of State, but the Government of India have not yet been able to spare an officer for this duty.

14. The water-works at Berhampur, Bezwada, Salem and Periyakulam, the extension of the water-works at Gudiyattam and the improvements to those at Trichinopoly were under execution by the Public Works Department during the year, while the Ootacamund drainage works, the Cocanada water-works improvements and the construction of a covered drain to Yelluru (in Cocanada Municipality) were transferred in the course of the year to that department from the Sanitary Engineer. The Sanitary Engineer carried to completion the construction of an experimental well for the water-supply of Puliur and Kodambakam in the Chingleput district and the boring operations at Kumbakonam. The construction of an infiltration gallery in connection with the water-supply scheme for Saidapet is still in abeyance pending a reply from the Government of India as to the revision of boundaries of the Cantonment of St. Thomas' Mount so as to exclude the site of the water-works from the cantonment limits. As the Military authorities are agreeable to the proposal if lands of an equal value be made over to them, steps are being taken to acquire the lands required.

15. The Sanitary Engineer also prepared and submitted to the Sanitary Board or other authorities concerned plans and estimates for the works noted in the margin. He gave advice in connection with the existing water-works in some municipalities, and checked and scrutinized plans and estimates for 249 works costing more than Rs. 1,000 each. He also examined and approved plans and estimates for 65 works costing less than Rs. 1,000 each and prepared type-designs for central and small markets, a sheep slaughter-house and rat-proof model houses and granaries. As in the previous year, the cost of pumping a million gallons of water one foot high was cheapest in Trichinopoly, being .57 of a rupee for the consumption of 19.7 gallons of water per head per diem. The cost was heaviest in Madura where the expenditure on maintenance was Rs. 1.81 for an average consumption of 12.3 gallons. The question of reducing the cost of maintenance in this town and also in Kurnool and Cocanada where it was high should engage the attention of the Municipal Councils concerned.

(1) Mangalore drainage.
(2) Negapatam do.
(3) Vaniyambadi water-supply.
(4) Rajahmundry do.
(5) Anakapalle drainage.
(6) Ellore water-supply.
(7) Tuticorin water-supply (experimental trench).
(8) Coimbatore water-supply (revised estimates).
(9) Ootacamund drainage (revised estimate).
(10) Ootacamund dhobikhana (revised estimate).
(11) Kodaikanal water-supply.
(12) Waltair water-supply.
(13) Chali drainage (Tellicherry).
(14) Conjeeveram water-works (improvements).
(15) Kodaikanal hospital.
(16) Guntur General Hospital.
(17) Water-supply and drainage to the Bellary hospital.
(18) Big market at Conjeeveram.
(19) General Hospital at Dindigul.
(20) Women and Children's hospital, Dindigul.

16. Estimates amounting to Rs. 3,89,910 were sanctioned in October 1908 for the erection of the new pumping stations at the Law College and at Rayapuram for constructing an open channel at the sewage farm in connection with that portion of the drainage works of the City of Madras calculated to remove the nuisance caused by the Kelly's drain. The estimates have been slightly revised by the Special Engineer of the Corporation and the revised estimates have also been sanctioned by Government. A drainage scheme for Tondiarpet is being designed by the Special Engineer. Preparations were made during 1908 for starting the new water-works of the City. The scheme for the improvement and extension of the distributary system of the water-supply which has been prepared by Mr. Nowroji is now under revision by the Special Engineer.

17. Plans and estimates relating to 90 sanitary works estimated to cost over 7 lakhs of rupees were scrutinized by the Sanitary Board, and final approval was accorded to those of 77 works costing Rs. 2,16,286. Of the latter, 17 works were completed during the year and 28 others were under execution, while 16 had to be deferred chiefly for want of funds. Sixteen other works estimated to cost Rs. 38,460 were reserved for execution as famine-relief works.

18. The statement submitted by Major Clemesha shows that his inspection work was done very thoroughly and the thanks of the Government are due to him and to the Acting Sanitary Engineer for the satisfactory manner in which the work of their departments was carried out during the year.

(True Extract.)

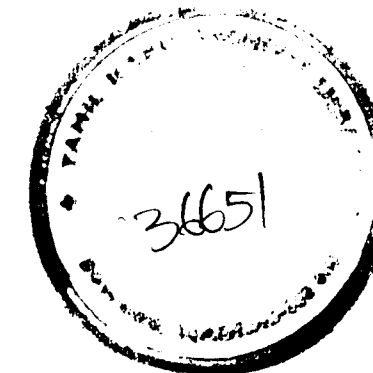
L. M. WYNCH,
Ag. Secretary to Government.

To the Sanitary Board.
,, the Sanitary Commissioner.
,, the Sanitary Engineer.
,, the Surgeon-General.
,, the Public Works Department.
,, the Public Department.
,, the Revenue Department.
,, the Assistant Adjutant-General (with C.L.).
,, the Inspector-General of Police.
,, the Inspector-General of Prisons.
,, the Accountant-General.
,, the Director of Public Instruction.
,, all Collectors.
,, all Presidents of District Boards.
,, all Chairmen of Municipal Councils.
,, the President, Corporation of Madras.
Editors' Table.

Endorsement—No. 797 L., dated 29th June 1909.

Copy to the Government of India, Home Department.

L. M. WYNCH,
Ag. Secretary to Government.



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