

THE
ELEVENTH ANNUAL REPORT OF THE SANITARY BOARD,

THE FORTY-THIRD ANNUAL REPORT OF THE
SANITARY COMMISSIONER,

AND THE

SEVENTEENTH ANNUAL REPORT OF THE
SANITARY ENGINEER,

MADRAS.

1906.

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ELEVENTH REPORT OF THE SANITARY BOARD.

ELEVENTH REPORT OF THE SANITARY BOARD

FOR THE YEAR 1906.

The Sanitary Board begs to submit its report of work done during the year 1906, this being the eleventh annual report since the constitution of the Board on its present footing. As explained in previous reports the Sanitary Board of this Presidency is vested with no executive control. Its functions are confined to advising local bodies and Government in regard to sanitary schemes before execution. It thus deals with works of the following classes:—

- (1) Hospitals, dispensaries, markets, slaughter-houses, latrines, incinerators, urinals and cesspools;
- (2) Works connected with water-supply; and
- (3) Works relating to drainage.

2. No work falling within these categories and estimated to cost more than Rs. 1,000 is carried out unless the Sanitary Board has first examined it in all its bearings and accorded formal approval to its execution.

3. The following are among the most important of such schemes reviewed by the Board during the year:—

	Estimated cost.
	RS.
(1) Water-supply, Madras (Improvements)	22,50,000
(2) Hudsoupet market, Conjeeveram (Additions)	7,000
(3) Dhobie-khana at Kotapamund, Ootacamund	3,050
(4) General market at Madura	98,310
(5) Market at Ootacamund (Improvements)	3,082
(6) Sewage drains at Sivakasi	4,340
(7) Drainage of Ootacamund (Revision)	3,83,020
(8) Coimbatore water-supply	4,50,000
(9) Guntur water-works extension	31,920
(10) Infectious diseases hospitals at Madras	1,14,657
(11) Dispensary at Kykalur	7,400
(12) Market sheds at Rajanagarani	5,940
(13) Municipal hospital at Nellore (Additions and improvements)	18,400
(14) Water-works at Cocanada (Improvements)	41,260
(15) Tuticorin water-supply	2,89,190
(16) General Hospital at Coimbatore (Revision)	29,820
(17) Cuddapah water-supply (Improvements)	35,100
(18) General Hospital at Bellary	92,810
(19) Experimental Infiltration Gallery to augment the water-supply of Madura	9,610
(20) Drainage of Madras (Improvements)	5,79,380
(21) Pumping installation at the Arisipalayam Tank, Salem	5,000
(22) Infiltration trench in connection with the Tinnevely water-supply scheme	32,750
(23) Drainage of Madura	13,63,930
(24) New market at Negapatam	19,000
(25) Service reservoir in connection with the Trichinopoly water-works	63,330

4. The aggregate cost of all the schemes submitted to the Board for review was Rs. 60,39,399. Of these, 39 works costing Rs. 59,64,673 were for Municipalities and 27 costing Rs. 74,726 were for Local Fund Boards. Final approval

was accorded to the plans and estimates of 31 works costing Rs. 89,631. Of these, the following four works were carried to completion during the year:—

	RS.
(1) Extending the water-supply pipe line at Vizagapatam ...	1,130
(2) Well at Duppalapudy, Godavari District ...	1,050
(3) Compound wall round the cattle mart at Manappárai, Trichinopoly District ...	1,720
(4) Sewage drains at Virudupatti, Tinnevely District ...	1,885;

and the following 18 works were still under execution when the year closed:—

	RS.
(1) Remodelling Paracherries in Madigapalli, etc., in Guntúr...	1,818
(2) Sewage drains at Sivakási ...	4,340
(3) Tank at Paladugu, Guntúr District (improvements) ...	1,345
(4) Market at Sálúru, Vizagapatam District (improvements) ...	3,233
(5) Dispensary at Kyakalur, Kistna District ...	7,400
(6) Market sheds at Párvatipuram (additions and improvements) ...	2,811
(7) Market sheds at Rajanagaram, Godavari District ...	5,940
(8) Hospital Assistant's quarters, Kumbakónam ...	1,900
(9) Compound wall round the new hospital buildings at Srivilliputtúr ...	1,670
(10) Fencing the cattle mart at Sankaranayinárkóvil ...	2,700
(11) Market at Sonaipatti, Madura District (improvements) ...	1,485
(12) Drains in Tiruvallúr ...	3,500
(13) Operation room in the Municipal Hospital at Palghat ...	2,290
(14) Weekly market at Hindupur (additions and improvements) ...	5,200
(15) Market sheds at Nuzvid, Kistna District ...	2,844
(16) Dispensary and Hospital Assistant's quarters at Kolakombai, Nilgiri District ...	3,000
(17) Contagious diseases ward at Kotagiri ...	1,150
(18) Ward of 8 beds in the Gúdalúr Hospital ...	6,000

Nine works costing Rs. 25,220 had to be deferred by local bodies principally from lack of funds.

5. The only type design issued during the year was one for a Veterinary Hospital estimated to cost Rs. 5,647, but considerable attention was bestowed on the elaboration of the details of the revised designs for hospital buildings which are intended to illustrate the new rules for design and construction.

6. The following were the only changes in the personnel of the Board:—

Mr. J. P. Davidson, the President, having retired from the service in October 1906, his place on the Board was filled by the Hon'ble Mr. F. J. Wilson who succeeded him in the appointment of Chief Engineer and Secretary to Government, Public Works Department. The Medical Member's place was temporarily occupied for six and a-half months by Colonel P. H. Benson, I.M.S., during the absence on leave of Surgeon-General W. R. Browne, C.I.E., I.M.S.

7. To complete the record of sanitary work in the Presidency the reports of the Sanitary Commissioner and the Sanitary Engineer are added. These reports contain full details of the work undertaken by those officers in their respective branches.

R PARSONS,
Secretary, Sanitary Board.

6th May 1907.

PART I.

GENERAL SANITATION.

THE FORTY-THIRD ANNUAL REPORT

OF THE

SANITARY COMMISSIONER WITH THE GOVERNMENT OF MADRAS, 1906.

SECTION V.

GENERAL POPULATION.

RAINFALL.

1. The total average rainfall for the Presidency was 47.45 inches, being greater than that of 1905 by 6.25 inches. In 19 districts there was an increase and a decrease in 4. The increase was most marked in Tanjore (20.86), Gódvári (14.41), Nellore (12.60), Kistna (12.38) and South Arcot (10.08). In the others the excess varied from 9.73 in Guntúr to 3.19 in Tinnevely. Compared with the average, only 2 districts—South Arcot and Tanjore—have registered an excess in two figures (11.66 and 11.19 respectively). Of the 4 districts which showed a decrease, Malabar was lowest with 96.32 inches, having received 13.03 inches less than in 1905 and 23.99 inches below the average for 30 years. South Canara came next with 143.75 inches, a decrease of 2.08 inches below 1905 and 12.48 inches below the average. The fluctuations in the remaining districts (the Nilgiris and Ganjám) were trifling. Considered with reference to the monsoons, we find that all the districts of the Presidency with the solitary exception of Malabar have been benefited by the south-west monsoon to a larger extent than in 1905, the most favoured being the Gódvári, Kistna and Salem districts, in each of which there was an excess of 15.41, 11.89 and 10.09 inches respectively. In 9 districts the increase was from 5 to 10 inches and in the remaining 10 districts inconsiderable. The behaviour of the north-east monsoon was not so favourable as the south-west, for, although there was an increase in 18 districts, the increase was small in 12 of them. Tanjore had an excess of 18.39 inches, South Arcot (8.84), Trichinopoly (7.01), Guntúr (6.09), Ganjám (5.27) and Nellore (5.01). Setting aside the West Coast districts, Malabar and South Canara, which are chiefly served by the south-west monsoon, the decrease in the districts of Madras, the Nilgiris and North Arcot was made up for by the larger fall of the south-west monsoon.

PRICES OF FOOD-GRAINS.

2. The reader of the previous paragraph will naturally expect a favourable account of the prospects of the year concerning the price of food-grains, but he will be disappointed to see that the ruling price of each of the staple food-grains was higher than in the previous year and considerably above the average. In no

district had the staple food-grain shown any tendency to fall in price even after a copious south-west monsoon. On the contrary, the quantities of the chief grains obtainable for the rupee fell below the warning rate and in certain districts they verged on the famine rate. During the year, rice was sold for the rupee at 9.0, ragi 14.7, cholam 14.9 and cumbu 14.3 seers of 80 tolahs against an average of 11.3, 20.5, 19.8 and 24.5 respectively. These figures represent a corresponding rise in the prices by 25.5, 39.5, 32.9 and 71.3 per cent. above the average. Owing to the monsoons of 1905 having in parts proved a failure and to the north-east monsoon of 1906 bursting behind time, crops could not be grown in sufficient quantity. There was, therefore, scarcity of food-grains, in consequence of which prices continued to rise.

GENERAL POPULATION.

3. The last census enumeration (1901) showed that the population of the Presidency was 38,212,712, exclusive of Europeans and Eurasians. Registration of vital statistics does not, however, extend to the whole of this population, the hill tribes of the Ganjām and Vizagapatam districts, the inhabitants of the Laccadive and the Amindivi Isles and of the Banganapalle estate in Kurnool being omitted, as it is impossible to enforce registration in these areas. The population for which statistics were furnished for the year under report was 36,484,486. The average estimated population for 1906 amounts to 39,800,165 and its natural growth as deduced by adding to the census figure of 1901 the difference between births and deaths registered since then up to end of December last is 39,800,640. It is interesting to note that the estimate and the actual almost coincided.

4. There has been no change in the agency employed for the collection and tabulation of vital statistics nor in the method adopted. At the close of 1905 the provisions of Act III of 1899 were in force in 635 towns and villages, to which were added during 1906 sixty-eight. The results of registration described in the succeeding paragraphs show that the work has been fulfilled unsatisfactorily without the skill and attention the subject demands. Both in numbers and in terminology they are far from accurate and this must be so, seeing that the machinery employed is ill adapted for the purpose. Even in areas administered under Municipal Law where one would suppose that registration would be well conducted, inaccuracy and incompleteness are the rule and not the exception. It goes without saying what the work will be in areas where it is left in the hands of illiterate and irresponsible officials. Until a sufficiently educated agency is employed and registration is made compulsory and rigidly enforced in rural areas, the record of vital statistics must continue defective and untrustworthy.

5. Omitting the Municipal towns of Palni and Periyakulam which have not furnished the required information and also Anakapalle, Bezwada, Cuddapah, Gudiyāttam, Kurnool, Palamcottah and Vaniyambādi which have not reported the amount of fines imposed by the Magistracy, a total of 1,516 convictions were made in the remaining towns for failure to report occurrences, the fines imposed on the delinquents and brought to credit having amounted to Rs. 978-9-0.

BIRTHS IN DISTRICTS.

6. The birth-rate for the Presidency was 30.9 per mille, being 1.1 below that of the previous year and 1.3 above the decennial average. Individually considered, there was an increase in 7 districts, Anantapur and Bellary showing an excess of 6.1 and 3.8 respectively, which may have been due to the recovery of the districts from the effects of the prevalence of plague in previous years and the consequent dispersion of the populations concerned. In the remaining 5 districts the increase was less than 3.5 per mille and was ascribable in part to improved registration. Among the districts, 16 in number, which returned diminished birth-rates in comparison with the previous year, Madras takes the lead with a deficit of 9.4

followed by the Nilgiris (4.8), Chingleput (4.6), Nellore (4.0) and Coimbatore (3.8). In the remaining districts the falling off varied from 3.4 in Tinnevely to 0.1 in Ganjām. The dearthness of food-grains must be regarded as having been in operation to bring about this result, ignoring the standing factor of defective registration.

7. The highest birth-rate (37.6) was returned by South Canara and the lowest (20.4) by Nellore. In 13 districts it was between 30 and 37 per mille.

8. Considered with reference to sex, the proportion of male to female births was 104.4 to 100. Classified according to race, the birth-rates were as follows:—

Muhammadans	...	...	...	...	...	...	...	34.0
Hindus	...	...	...	...	...	...	...	30.8
Native Christians	...	...	...	...	...	...	...	29.2

DEATHS IN DISTRICTS.

9. The total death-rate was 27.4 or 6.0 and 5.6 more than the previous year and the decennial average respectively, the large increase being caused by the prevalence of cholera and small-pox during the year. Anantapur, Bellary, Chingleput and Madras excepted, the other districts showed a rise in mortality which was most marked in Kistna (14.3), Gódvāri and Kurnool (12.2 each) and Vizagapatam (11.0). In 8 others it was between 10 and 5. Excluding Madras which recorded a death-rate of 46.9, the highest rate was returned by the Nilgiris 34.3. Kistna (34.2), Kurnool (34.1), Gódvāri (32.6), Tinnevely (30.6) and Bellary (30.5) came next, Nellore bringing up the rear with a rate of (22.0). The proportion of male to female deaths was 103.5 to 100.

10. Racially regarded, the death-rate among Muhammadans was 28.1, Hindus 27.5 and Native Christians 23.6.

11. The mortality among children under one year averaged 191.2 against 172.9 in 1905, male infants having died at the rate of 200.0 against 182.1, the rate for female infants. Proportionally put, these figures would represent 53.4 male and 46.6 female deaths for every 100 deaths. The incidence of mortality was very heavy in the Nilgiris (324.7 per mille) showing an excess of 135.6 over the rate for 1905. This is doubtless due to the conditions affecting infant life having exceptionally been unfavourable during the year, as evidenced by the high mortality registered under small-pox, fevers, dysentery and diarrhoea, respiratory diseases and all other causes. Out of a total of 3,696 deaths in the district, 655 were among children under one year of age. In North Arcot, Coimbatore, Guntūr, Kurnool, South Canara and Vizagapatam the rate obtained was far in advance of 1905, the difference having varied from 31.0 to 42.3. In 10 others the increase was from 10.1 to 26.6. The excess was mainly due to the prevalence of cholera, small-pox and fevers. Compared with 1905, there was a decrease in Anantapur, Chingleput and Cuddapah, in the first of which it amounted to 12.5 per mille.

BIRTHS IN MUNICIPALITIES.

12. The Municipal birth-rate was 36.4 against 39.8 of the previous year and 35.3, the quinquennial average. The highest rate was registered as in the previous year in Vaniyambādi (61.7). Dindigul came next with a rate of 50.5. In Kodai-kānal, Guntūr, Palamcottah, Periyakulam, Bezwada, Coimbatore, Srivilliputtūr, Cannanore, Rajahmundry, Cochin, Ootacamund, Tanjore, Anantapur, Salem, Palghat and Gudiyāttam the rate varied from 50 to 40. In 37 others it was between 40 and 30. In the remaining towns it was less than 30, the lowest 24.9 being returned by Nellore. Compared with the previous year, there was an increase in 15 towns which was most marked in Anantapur, Tirupattūr and Adóni, the excess amounting to 18.1, 8.0 and 6.3 respectively. In the absence of any explanation to the contrary, the improvement can only be ascribed to the freedom from plague which the towns enjoyed during the year.

13. The decrease in the birth-rate observable in the remaining 46 towns was largest in Tiruvannamalai (15.1), followed by Chingleput 14.6, Madras 9.4, Coonoor 9.1, Nellore 7.7 and Ongole 7.0. The evacuation of the town in consequence of the outbreak of plague accounts for the large falling off in Tiruvannamalai, whilst in the case of the other towns mentioned the cause should be sought for in the dearness of food-grains.

DEATHS IN MUNICIPALITIES.

14. The death-rate for municipalities stood at 35.8 against 35.8 for the previous year and 33.9, the five-year average, the increase occurring chiefly under "cholera," "fevers" and "all other causes." In contrast with the previous year, the death-rate showed an increase in all the towns except Chingleput, Madras, Dindigul, Tirupattur, Tiruvannamalai, Mangalore and Trichinopoly. In 20 towns the excess varied from 24.1 to 10.8. In 19 others it was between 10 and 5. In every case the rise in mortality was due to the prevalence of cholera or small-pox or both and of fevers and also to a larger number of deaths returned under unspecified causes. Of the towns which showed a decrease, Madras comes first with 12.6, followed by Tiruvannamalai 8.0, Mangalore 7.9 and Tirupattur 5.1. In Madras the decrease occurs under cholera, dysentery and diarrhoea and all other causes; in Tiruvannamalai under fevers and all other causes; in Mangalore and Tirupattur under plague.

15. The total infantile death-rate for the municipalities averaged 260.0 per mille against 240.7 in 1905. With reference to sex, the mortality among male infants was 274.8 and among females 244.5 or in the ratio of 54.1 male and 45.9 female deaths for every 100 deaths. The mortality was very heavy in Coonoor (324.9), being 105.2 more than in 1905. This unusual mortality occurred chiefly under small-pox and respiratory diseases. Similarly, there was a large excess amounting to 50 and over in Conjeevaram, Coimbatore, Cuddapah, Chittoor, Parlakimedi, Masulipatam, Kodaikanal, Nellore, Ootacamund, Vellore, Gudiyattam, Tirupati, Salem, Tiruvannamalai and Mayavaram. This was the result of the prevalence of cholera, small-pox, fevers, etc., in a more intensified form than in 1905.

SECTION VI.

GENERAL HISTORY OF CHIEF DISEASES.

CHOLERA.

16. The Presidency was overrun during the year by a widespread epidemic of cholera which caused 142,811 deaths against 16,888 in 1905. In 7 districts Chingleput, Ganjam, Guntur, Kistna, Nellore, North Arcot and Tanjore, it was but a continuation of the epidemic that broke out in 1905. During 1906 it visited every district and caused a heavy mortality in the districts of Kistna, Godavari, Kurnool, Ganjam and Tinnevely, in which the recorded death-rate from this cause ranged from 8.9 to 6.2 per mille. It was also severe in 9 other districts where the rate varied from 3 to 5 per mille. Madras was the only district in which the disease did not make any headway.

17. In municipalities the mortality was about 50 per cent. greater than in 1905, the number of deaths being 8,894 against 4,119 in 1905. The only towns which were free from the disease were Kodaikanal, Cannanore and Mangalore, and those in which the incidence of mortality was very light were Cuddapah, Ongole, Tellicherry, Ootacamund, Coonoor, Tiruvannamalai, Tanjore, Trichinopoly, Srirangam, Vizagapatam and Bimlipatam. Among the towns in which cholera largely prevailed, Ellore, Nandyal, Palni, Periyakulam, Palamcottah and Tinnevely suffered most.

18. By the timely warnings given by this office to the local authorities and by constantly urging them to adopt adequate measures for grappling with the epidemic, its spread was in a great measure arrested. In Municipal towns in which the rules published by Government with G.O., No. 1536 M., dated 9th September 1896, for combating cholera were in force, the Chairmen concerned were written to, pointing out where the measures adopted by them for the repression of the disease were defective and needed greater attention. Similarly, in the case of towns to which the rules are not applicable, the Chairmen were advised to employ the extra staff enjoined by the rules in the interests of public health and such advice, I am glad to say, was readily acted on. Out of 43,148 towns and villages existing in the Presidency, cases of cholera were reported from 11,212.

19. For the purification of polluted sources of water-supply, e.g., tanks and wells, permanganate of potash was largely employed. As usual, it has been reported to yield good results. It was largely used in the areas invaded by cholera.

SMALL-POX.

20. The epidemic which prevailed in 21 districts towards the close of 1905 continued unabated during the year under report. The total mortality from this cause was 29,840 against 18,546 in 1905. Deaths were reported from every district of the Presidency, the disease having been perennial in no less than 19 districts. In Bellary, North Arcot and the Nilgiris the death-rate exceeded 2 per mille, while in 5 others it ranged between 2 and 1. Of the deaths registered, 11,121 were under 1 year and 10,824 under 10 years of age, or 37.3 and 36.3 per cent. respectively of the total deaths.

21. Among Municipal towns, it is observed that 10 towns were unaffected and that in 23 others the number of deaths reported did not exceed 10. The incidence of mortality was heavy in Coimbatore (12.1), Vellore (10.5), Coonoor (10.0) and Gudiyattam (5.1).

22. Cases of small-pox were reported from 5,941 towns and villages during the year.

23. Comparing the incidence of mortality in urban areas with that in rural tracts, we find that the former exceeded the latter by 0.6 per mille. Having regard to the measure of protection conferred by vaccination on the populations (urban and rural) concerned in consequence of the law regulating vaccination being compulsory in towns and optional in rural areas, one would expect to find the excess on the side of the rural population. The diminished rate obtained for this latter population can only be set down to defective registration.

PLAGUE.

24. Plague caused 898 deaths against 5,788 in the previous year. Indigenous cases of plague were reported from the districts of Anantapur, Bellary, Coimbatore, Madras, Malabar, the Nilgiris, North Arcot, Salem, South Arcot and South Canara. In Anantapur only 3 deaths were registered—one in January, one in February and one in May. Out of 30 cases registered in Coimbatore, 25 occurred in January and February. In Madras 55 deaths occurred in the first quarter of the year and thereafter the disease disappeared. Twenty-four deaths occurred in North Arcot, of which 20 were registered in the first two months. In South Arcot which returned 37 deaths, the disease disappeared in June. Deaths were reported from the districts of Bellary and South Canara in every month of the year. Malabar commenced to report deaths from March. There was a lull in the Nilgiris from June to August and in Salem in March and July. The highest death-rates (0.4 and 0.3) were recorded in the Nilgiris and Bellary respectively.

25. Of the 60 Mufussal municipalities, 48 showed a clean bill, 5 (Chicacole, Cocanada, Coimbatore, Gudiyattam and Walajapet) recorded one imported death each and the remaining 7 produced a total of 280 deaths, of which 143 occurred in Mangalore, 92 in Tellicherry, 17 in Ootacamund, 9 in Coonoor, 8 in Tiruvannamalai, 6 in Bellary and 5 in Tirupattur.

26. Plague has diminished very largely during the year and but for its presence in Bellary, South Canara, Salem and Malabar, the disease might be regarded as practically absent.

27. As usual the precautionary and preventive measures adopted to combat the disease consisted in the employment of observation and preventive staffs, segregation of patients and contacts, disinfection of infected houses and of persons and their effects, evacuation of infected areas, passporting persons arriving from infected places and keeping them under surveillance for a period of 10 days, and destroying rats either by poisoning or trapping or by both processes.

28. No deaths from plague among persons who have been previously inoculated with anti-plague serum have been reported during the year under review.

FEVERS.

29. Fevers contributed 304,926 deaths against 265,044 in 1905, the rates being 8.4 and 7.2 respectively. They were largely prevalent in Vizagapatam (21.2), Ganjam (17.2), Guntur (14.2), Kurnool (13.9), Cuddapah (12.7), Giddavari (11.9), Kistna (11.7), the Nilgiris (11.4) and Madras (10.8). In eight other districts the rate varied from 5 to 10. Compared with the previous year, there was a decrease in mortality in Anantapur, Bellary, Madras, Malabar and South Arcot. From July onwards the deaths from this cause began to increase, indicating that the causative agent was a rise in the sub-soil water level.

30. A total of 15,069 deaths was registered in the Municipal towns against 13,844 in the previous year. These figures represent annual rates of 6.3 and 5.7 respectively. Omitting Madras which has already been referred to under districts, in Anakapalle, Nandyal, Tuticorin, Kurnool, Cuddapah, Nellore, Rajahmundry

and Periyakulam, the registered rate exceeded 10 per mille. In 21 others it varied from 10 to 5. There was a decrease in 15 towns as compared with the previous year. It is remarkable that all the towns in Malabar have shown a fall under this head, notably Tellicherry and Calicut. Seeing that the condition of the towns from a sanitary standpoint has not appreciably improved since, to justify this diminution, the figures recorded should be regarded as suspicious. Putting out of consideration altogether the common factor of defective terminology in the classification of diseases, it is more than probable that many deaths falling under this head have been registered under unspecified causes in consequence of the presence of plague in the district. This suspicion is further accentuated by the fact that the deaths returned under all other causes have been far more numerous than in 1905, Palghat excepted. It is noteworthy that fever mortality in Cuddapah has advanced during the year by 4.2, although wet cultivation in and around the town has been kept in abeyance since July 1904. It is possible, however, that the rise was the result of the abundant rainfall of the south-west monsoon.

31. No information has been furnished regarding the steps taken by local bodies to carry out the suggestions contained in G.O., No. 917 L., dated 2nd August 1904, for the suppression of malaria in areas infested with mosquitoes. It is apprehended that the subject has not engaged their attention, although the importance of the measure in its bearing on the public health cannot be overdrawn.

DYSENTERY AND DIARRHOEA.

32. Bowel complications account for 61,588 deaths against 51,298 in the previous year and caused considerable mortality in Madras, the rate being 8.9. The Nilgiris came next with a death roll of 6.8 per mille. In six other districts the death-rate varied from 2.2 to 3.7. As compared with 1905 there was an increase in 18 districts and a decrease in 5. It is significant to note that like fever the mortality from this cause increases from and after July, thus indicating that diseases connected with the digestive system have their origin in contaminated water. With the onset of the monsoon the sources of supply, which are protected only in a very few towns, are polluted by surface drainage. The consumption of such unwholesome water coupled with the insanitary environments amidst which the major portion of the people live is the chief, if not the only, cause of this disease. It is also possible that many cases of cholera have been returned under this head to avoid disinfection of the infected houses and its attendant worry.

33. A total of 18,756 deaths was registered in the Municipal towns, which is 95 less than in 1905. The death-rate exceeded 10 per mille in Palamcottah, Periyakulam and Vellore and was between 10 and 5 in 25 others. In 15 towns there was a decrease and in 44 towns an increase as compared with the previous year. In contrast with the rate obtained for rural areas, the urban rate shows an increase of 4 per mille which can only be accounted for, as explained in previous years, by the inaccurate classification of diseases. The overcrowded state of dwellings in municipalities and the insanitary conditions surrounding them, i.e., crowded houses, defective conservancy and polluted water, are more than sufficient to account for the increased mortality.

RESPIRATORY DISEASES.

34. The casualties under this head amounted to 23,378 against 19,687 in 1905. In the Nilgiris the mortality rate was 3.8 and in Madras 2.4 per mille. Elsewhere it did not exceed 1.2. Further comment on the statistics furnished under this head is out of the question owing to registration being so unreliable and defective.

35. In municipalities a total of 4,373 deaths was traced to this cause which is an increase of 223 as compared with 1905. Coonoor and Ootacamund yielded the highest rates 11·8 and 10·3, respectively, being in each case largely in excess of the recorded rate of the previous year. Tellicherry and Parlákimedi came next with 6·3 and 6·0 and in 19 other towns the rate varied from 4·4 to 2·0. No deaths were reported from this cause in 9 towns. The monthly distribution of the deaths exhibited in Form XI shows that these diseases are influenced by the seasons of the year, cold and wet weather being favourable to them.

INJURIES.

36. The fatalities under this head amounted to 11,434, being 478 less than in 1905. With the exception of 7 districts in which the mortality rate fluctuated slightly, no variation is observable in the other districts. In the case of municipalities slight variations are noticeable.

37. Suicides occurred more frequently among females than among males.

ALL OTHER CAUSES.

38. Under this comprehensive head 423,516 deaths were returned against 396,966 in 1905, the corresponding rates being 11·6 and 10·8 per mille of the population. There was an increase in 18 districts and a decrease in 5—the former being very small and the latter only worthy of note in the case of Anantapur and Madras with decreases of 3·6 and 4·5 respectively. The rate exceeded 10 in 16 districts and fell below it in 7. Comparatively fewer deaths were recorded in Cuddapah (5·3), Ganjám (3·3) and Vizagapatam (2·2). In these districts, however, the fever rate was proportionately large. It is probable, therefore, that these districts having earned the notoriety of being malarious, deaths have been freely registered under “fevers” without any enquiry and attempt at a correct classification.

39. The rate obtained in Municipal towns exceeded 20 in 24 towns and was between 10 and 20 in 36 others. The highest rate (30·7) was recorded in Guntúr and the lowest (9·8) in Bimlipatam.

SECTION IX.

SANITARY WORKS—CIVIL.

MUNICIPALITIES.

40. The absence of a protected water-supply and an efficient drainage system in most of the municipal towns is a serious want and, in the interest of the public health, the supplying of these wants should receive a prominent place in budget estimates. The refusal of the Government of India to make a free grant for major works has crippled efforts in these important directions, so that the introduction of water-supply and drainage schemes is indefinitely postponed, much to the detriment of the health of the towns. In these circumstances, the wonder is not that the mortality from preventible diseases is so heavy but that it is not even worse. If a few municipalities have carried out water-supply schemes, it has been so at the expense of other necessary sanitary reforms for which the ordinary resources of the municipalities are hardly sufficient. Except where a protected water-supply has been provided, the drinking water sources in most municipalities are unsatisfactory, being open to gross contamination both by soil impurity and human agency. The sources usually relied on are wells, tanks, rivers and irrigation channels. In the majority of cases little or no effort is made to conserve these. Irrigation channels passing through or adjacent to inhabited areas should be diverted to some distance, say, at least 200 yards. Instances—Walajabad, Chingleput, Arnipalayam, North Arcot, Dhárápúram, Coimbatore, Tinnevely and Kumbakonam. These channels are death traps during a cholera epidemic and at other times are the cause for such diseases as dysentery, diarrhoea, worms, etc. They are the receptacle for all kinds of refuse and, being near dwellings, are constantly used for drinking and domestic purposes.

41. Cremation and burial-grounds on the banks and bed of rivers and tanks. This is a widespread practice throughout the Presidency and is a fertile source of infectious diseases, such as, Cholera, Typhoid, Dysentery. The water from these rivers is depended on by those residing in innumerable villages miles away from the point of pollution and it is impossible with the utmost care to safeguard the people during epidemics whilst wholesale pollution is permitted. This is well shown in the case of the large incidence of cholera in the districts of Kistna, Gódvári, Kurnool, Tinnevely and South Arcot where cholera assumes very large dimensions as compared with other districts. In the two first the large irrigation canals from the rivers Gódvári and Kistna and in Tinnevely the irrigation channels from the Tambraparni river which the people largely depend on for their drinking water-supply are the chief sources of infection.

42. Every effort should be made by District Boards to provide a conserved water-supply for the larger villages and unions where the natural features of the locality would permit, and municipalities should be urged to provide a protected water-supply. I have drawn attention to the unsatisfactory condition of water-supply in my inspection reports on the towns visited by me.

43. Madras is the only town in the Presidency with anything approaching a complete drainage system. A drainage scheme for Madras has been drawn up and will be commenced soon. A few towns have provided drainage for particularly bad localities. With these exceptions there is practically no system of drains anywhere. Surface drainage is got rid of by side cuttings permitting of soakage or through the centre of roads, streets and lanes which constitute the drain. Where masonry drains have been constructed they are usually defective, being either of a bad pattern or laid without due regard for levels and unconnected with

other drains. A drainage system is the natural sequence of a piped water-supply; but financial difficulties stand in the way of providing such a system. In the Municipalities of Adóni, Conjeeveram, Dindigul, Kurnool, Tanjore and Trichinopoly where a water-supply has been in existence for over 10 years funds have not been available to introduce a drainage system.

44. The question of soil cleanliness is an important one, and it is satisfactory to note that steady, although slow, attention is being paid to night-soil and rubbish conservancy as seen by the increased staff and plant employed during 1906 as compared with the previous year, but it is evident that a considerable amount of the town refuse and night-soil still remains *in situ*, as the increase in the menial staff and plant has not kept pace with the population or the area served.

45. The questionable practice of obtaining rubbish carts, bullocks and drivers on the contract system prevails to a very large extent. The contract system impairs efficiency and I believe is a financial loss to the municipality; for I have been assured by the experience of municipalities where this system is not in force that under the departmental system work is not only better accomplished, but that it is also cheaper in the long run. The fear of speculation which is urged as a reason for not adopting it is a small matter that could be easily overcome by strict supervision. At any rate the municipalities of Tuticorin, Palamcottah, Tinnevely, Chicacole, Tanjore and Adóni where this system is in force have no reason to complain on this score.

46. The sanitation of backyards and private premises is a matter that, I regret to observe, is very much neglected. Except in the houses of the well-to-do which are generally of a good class, there is practically no attempt at sanitation and the people live under most evil conditions. There is generally no arrangement for light or ventilation; backyards where they exist are full of rubbish and manure heaps and soaked with sewage owing to the absence of drainage. There is no latrine accommodation or if a shelter exists its position is objectionable, being usually in the vicinity of and polluting the house well. The houses in many cases are so constructed that access to them for sanitary supervision is impossible. Municipalities have the remedy in their own hands, but they seldom or never exercise the powers given them under the Municipal Act. There was a decrease of 26 public latrines during the year. There are very few latrines built on sanitary principles, the majority of them being mere enclosures. These are very insanitary as it is difficult to keep them clean and odourless. This is probably one of the chief reasons why public latrines are so little used and people resort to lanes and open places. If latrines are to be popular, the pattern must be improved and they must be kept clean. In 30 towns, notably Bellary (27), Coimbatore (23), Rajahmundry (24), Masulipatam (23), Madura (87), Calicut (62), Palghat (28), Tellicherry (18), Cuddalore (25), Mangalore (26), Kumbakonam (31), and Srivilliputtur (16), the latrine accommodation was much below the requirements of the population. The figures denote the number of latrines deficient.

47. Private latrines have increased by 20,600 with an increase of 6,500 scavenged by the municipality. I am convinced that sufficient attention is not being paid to the extension of the service or to make it self-supporting. A type design of a cheap latrine can be obtained from this office. In some towns, as for instance, Cuddapah, Ongole, Nandyal, Tellicherry, Cuddalore and Mayavaram, the number of private latrines is not even known.

48. Municipalities are very backward in the matter of food inspection and the licensing of dangerous and offensive trades. This duty devolves on the Sanitary Inspector and, as many towns employ one Inspector, I find that this important part of his work is very perfunctorily performed. The result is that very unwholesome articles of food, and drink manufactured under most insanitary conditions are offered for sale. Very little care is bestowed on the licensing of places for the manufacture of articles of food and drink and I am led to the conclusion that these places are licensed without previous inspection as to their suitability, or being licensed, are seldom or never inspected. Unless a separate Sanitary Inspector is detailed for this duty, little improvement can be expected. There has been an increase of eight Sanitary Inspectors employed during the year. Several

towns with large populations require to have the number of Sanitary Inspectors increased and the number of maistries and peons reduced. These low-paid servants are untrained and are employed in place of trained men. This is very evident in Vizianagram, Trichinopoly, Salem, Cuddalore, Tanjore and Vizagapatam.

49. The care and supervision of eating-houses and native hotels is of considerable importance. At present little or no consideration is bestowed on them. They are not licensed and are never inspected. I consider that all houses of this nature should be licensed and placed under municipal control as they are instrumental or helpful in spreading disease.

50. No restriction is placed on the location of dangerous and offensive trades, such as the storage of raw hides, paddy husking, cotton ginning, oil pressing, pottery kilns. They are carried on within or in the midst of dwellings in the heart of towns which is not only a great nuisance, but a source of danger to the people living in the neighbourhood. There is no reason why the general public should be thus inconvenienced for the sake of benefiting a few; they should only be permitted on the outskirts of the town.

51. There can be no doubt that in many towns considerable congestion and overcrowding prevail. Municipal Councils generally are alive to this and efforts are being made to relieve congestion by opening roads through congested quarters, acquiring and demolishing houses and retaining the area secured as open spaces. In Bellary the opening up of congested parts awaits the survey by the Sanitary Engineer ordered in G.O., No. 926 M., dated 15th May 1906. In Adóni the opening of two roads with the object of relieving congestion is pending the completion of certain preliminaries. In Mangalore very extensive measures are engaging the attention of the Collector and in Rajahmundry the opening up of the Wadi block bids fair to be commenced soon, though not on the extensive scale originally proposed. During the year proposals for town extension were made by the Municipal Councils of Coimbatore, Anantapur, Karur, Guntur, Ellore, Ootacamund, Kumbakonam, Mangalore and Rajahmundry.

52. A smaller assignment was made for sanitation during 1906 than in the previous year, although a larger percentage thereof was spent. With the exception of Bimlipatam where the expenditure exceeded the allotment, in none of the municipalities was the allotment fully utilized. In the Municipalities of Rajahmundry, Guntur, Ongole, Nandyal, Calicut, Gudiyattam, Tirupati and Tuticorin the expenditure was below 50 per cent. of the sanctioned amount. The Municipalities of Kurnool and Tanjore made a good effort in the direction of sanitary expenditure; they utilized 99.5 and 90.9 per cent., respectively, of the amounts provided in their budgets.

SEWERAGE.

53. The method of disposing of household sullage water is by allowing it to flow into street drains, leaky and defective cesspools, or into the public street.

54. *Street Drains and Cesspools* are usually badly designed and leaky. Where they are of good design they are often indifferently looked after and consequently become a nuisance. This is mainly due to the inadequate staff and plant employed by the municipalities. The disposal of the contents of these drains and cesspools is most objectionable—conveyed, by cart to any open space or roadside, by drain into adjoining fields or river which may be the drinking water source of the town, no attempt being made to filter the sewage at the point of discharge or to otherwise turn it to profitable account.

55. In the absence of a sewerage system the town sewage drains could be arranged to discharge on sewage filters; where however there are no drains, filtration of sewage could be effected at the house by the use of filters permitting the filtrate to irrigate gardens and backyards. This would be an infinitely better method of disposing of the sewage than contaminating the sub-soil through the medium of

leaky cesspools and sink pits. In 44 out of the 60 municipalities no effort was made to dispose of the town sewage profitably by utilizing it for irrigating crops. Government House sewage farm worked very imperfectly owing to the low levels of the filter and imperfect drainage. A scheme for sub-soil drainage and Septic Tank has been drawn up by the Sanitary Engineer and will be carried out soon. In Chitacole and Mannargudi sewage farm sites have been selected but await acquisition; in Gudiyattam a site has not yet been chosen. In Ootacamund a very extensive sewage farm has been opened; but it has not yet been handed over to the municipality pending the completion of the drainage works. In Coonoor and Tinnevely filtration of sewage is attempted, in the former by means of Vizianagram filters at the public latrines and in the latter by means of eight bacterial filters. In both cases the effluent is allowed to run to waste and is reported to be non-offensive and odourless. In Kumbakonam and Vizagapatam the bacterial filters are out of order and not working. In Cochin a private gentleman has constructed a large household filter on the model of the Vizianagram filter for disposing of his household sullage. The Sanitary Inspector looks after it and it is reported to be giving satisfaction. In 16 towns, viz., Anakapalle, Berhampur, Bezwada, Chingleput, Conjeeveram, Guntur, Karur, Kurnool, Negapatam, Periyakulam, Rajahmundry, Salem, Tanjore, Tuticorin, Vizagapatam and Vizianagram, sewage farming is undertaken but necessarily on very crude and imperfect lines. In Kurnool, as stated in the report for 1905, the Municipal Council still continues to give the sewage free of cost to private individuals for irrigating their gardens. During my recent inspection of the town, I advised the Chairman to acquire land for sewage farms and utilize the sewage on them instead of the present unprofitable method. In Berhampur the position of the sewage farm is objectionable owing to its proximity to an irrigation water canal and it is in contemplation to abandon the present farm and acquire land elsewhere for the purpose. The financial aspect of the attempts at sewage farming is most disappointing with the exception of Tanjore and Vizagapatam. In the city of Madras sewage farming is carried on on a very large and profitable scale.

56. No advance was made during the past year in the growing of crops on land trenched with night-soil. In most towns the night-soil was buried in trenches, the contents of which were sold as manure to ryots. In a few instances there was no demand for the night-soil. In Bellary, Cocanada, Guntur, Rajahmundry and Vizianagram crops of sorts were raised on the night-soil trenching ground.

DISTRICT BOARDS.

57. There was no change in the constitution of District Boards, their number remaining the same as in 1905. There is practically no sanitary organization in District Board areas. Certificated Sanitary Inspectors are employed by the District Boards of Anantapur, Chingleput, Ganjam, Godavari, Guntur, Kistna, Madura, Tanjore, Tinnevely and Vizagapatam, and there can be no doubt that they have been useful in rectifying sanitary errors as far as funds at disposal would permit. With the appointment of Sanitary Assistants it is hoped that a greater impetus will be given to the introduction of sanitary measures in rural areas. At present such officers have been appointed to the districts of Chingleput, Godavari, Guntur, Madura, North Arcot, South Arcot and Tanjore.

SANITARY WORKS.

58. Beyond petty improvements to water-supply, such as the construction and repairs of wells and tanks, the construction and repair of markets, slaughter-houses, latrines, etc., and the improvement of village sites, no sanitary work of any magnitude was undertaken during the year. Information as to sanitary allotment and expenditure has been received from all districts. The total amount sanctioned was Rs. 8,21,521 and the expenditure Rs. 4,04,777 which represents only 49.2 per cent.

of the allotment. The unexpended allotment is most noticeable under conservancy and water-supply. This shows how little interest is given to sanitary advance in areas outside Municipal limits although this office has not been wanting in urging its necessity upon the authorities.

WATER-SUPPLY, DRAINAGE AND CONSERVANCY.

59. Conditions as to water-supply and drainage were the same as in previous years. The drinking water was obtained from rivers, tanks, wells and irrigation channels and was in no way satisfactory, being subject to much pollution. In some instances the drinking water sources were guarded by watchmen, but this doubtful method of conservancy is in my opinion a waste of money especially in rural areas where efficient supervision cannot be exercised. Drainage was effected by the usual method of side cuttings with all its attendant disadvantages. During the year 549 villages were conserved; this shows an increase of 31 over that of 1905; of these villages 382 were unions.

MAINTENANCE OF THE VILLAGE SANITARY INSPECTION BOOKS.

60. The Village Sanitary Inspection Books are reported to be duly maintained in all the districts except Malabar, the Nilgiris and South Canara. In Tanjore they do not exist in one union and in Madura in 10 unions; this omission will be remedied soon. The District Medical and Sanitary officer, Nellore, reports that the books are not made much use of by inspecting officers.

MECCA PILGRIMAGE.

61. During the year no pilgrims embarked for Mecca from any of the ports in the Presidency.

SECTION X.

PERSONAL PROCEEDINGS AND GENERAL REMARKS.

62. The office of Inspector of Vaccination and Deputy Sanitary Commissioner was held by Captain J. W. Cornwall, I.M.S., up to 15th April. During this period his Medical College duties prevented his making any inspections. He was succeeded by Captain W. A. Justice, I.M.S., who took charge on the 16th April and held office to the end of the year. Medical College duties prevented him from leaving head-quarters until the College recess when he inspected the districts of Coimbatore, Anantapur and Bellary and submitted reports on sanitation and vaccination in the villages visited. During the Christmas recess he inspected vaccination in the Tinnevely district. G.O., No. 655, Public, dated 6th September 1906, directed that he should be relieved of all Medical College work. This order was given effect to on the 8th February 1907.

63. I held office as Sanitary Commissioner throughout the year and carried out the following inspections. On the 3rd January I inspected the Plague Camp and Hospital at Kāssimode, Kuppam and Kāyapuram with reference to the prevalence of plague in Madras. In January I inspected and reported on the Municipal towns of Cocanada, Ellore, Bezvada and Guntur. Questions relating to the closure of certain burial-grounds in Cocanada, the improvement of water-supply in Ellore and house and Municipal extensions in Guntur also occupied my attention during this tour. In February I visited Anantapur with reference to town extension and Cuddāpah in connection with the influence of wet cultivation on malaria. (G.O., No. 208 M., dated 2nd August 1904.) I also reported on the sanitary condition of these towns. The scheme for the water-supply of Coimbatore next received my attention and was reported on. I also visited Coimbatore Municipality and reported on the more pressing sanitary defects noticed by me. Returning from Coimbatore, the proposals for the improvement of the water-supply of Madras engaged my attention which necessitated an inspection of the catchment area of the Red Hills tank. I undertook this from the 19th to 27th February when the Red Hills and the neighbouring villages of Mothur, Mirkambedu, Kallikuppam, Oragadam, Timmala-vayal, Arkombedu, Puttur, Kanadyenpoliem, Upparpoliem, Naravarikuppam, Tamilcherry, Sholaveram, Nallur and Damarakuppam were each inspected. Plague having appeared in Tiruvannāmalai, I inspected the measures adopted to check the disease there in March. The town had been evacuated at the date of my inspection and disinfection work was in progress. I also inspected the adjoining villages of Adayur and Kannukurkai where plague cases were reported. Thence I proceeded to inspect the town of Chidambaram. I visited Mangalore and reported on the plague measures adopted there. I also made a sanitary inspection of the municipality. I visited the Tinnevely district, and inspected the Municipalities of Tuticorin, Palamcottah, Tinnevely and Srivilliputtūr. While at Tuticorin, I made a special inspection of the water-supply of the town and reported upon the proposals submitted by the Sanitary Engineer for its improvement. Negapatam Municipality was next inspected and from there I visited the village of Vēlānganni, about six miles distant, where an important Roman Catholic festival which attracts a large number of pilgrims from all parts of the Presidency was approaching. I inspected the festival arrangements which I found inadequate and advised the Collector of Tanjore as to sanitary measures with special reference to cholera which was then present not only in Negapatam, but in other parts of the Tanjore district and the Presidency generally. Further inspection work of this district was postponed as I was directed by Government to visit Ootacamund and Coonoor in connection with the extension of the Kandal site and Railway extension and the choice of a burial-ground at Coonoor. The prevalence of fever at Periyār having attracted attention, I was requested by Government to investigate and report the cause of the ill-health in the neighbourhood of the Periyār works. On

the way to Periyār I inspected the Municipality of Periyakulam both with reference to sanitation and a scheme for a water-supply which is now under consideration. I then inspected Periyār, Tekkadi and Kumili. I inspected the villages of Kuruva-nuth, Cumbum, Gūdalūr and Uttamapālaiyam with special reference to sanitation and malaria, a detailed report on which was submitted to Government. The Municipalities of Tanjore and Kumbakōnam were inspected in October, whilst in November I proceeded to Chingleput in accordance with G.O., No. 614, Educational, dated 19th September 1906. I took the opportunity of making a sanitary inspection of this municipality. Ootacamund was inspected in December with reference to the proposed extension of the Municipal limits. On the 23rd December I left Madras for Berhampur for inspection both with reference to sanitation and a water scheme drawn up by the Sanitary Engineer. In addition to the above inspections various matters at head-quarters had to be attended to, viz., the proposed site for the Infectious Disease Hospital, Madras, the Muhammadan burial-grounds at Barbers' Bridge, the Secretariat Urinal, the Madras Drainage works, the drainage of the Maternity Hospital, Madras, the quarters of the Deputy Conservator of Ports, Madras, with reference to G.O., No. 371, Marine, dated 16th July 1906, and at the request of the Surgeon to His Excellency the Governor I inspected the sewage farm and the water-supply arrangements at Government House, Guindy.

64. I attended a meeting of the Committee appointed for the administration of the Pasteur Institute, Coonoor. The King Institute of Preventive Medicine, Guindy, demanded my constant attention and I paid numerous visits to it from time to time. During the year I travelled 8,512 miles by road, rail and boat.

65. During my inspection of municipalities I made it an invariable rule to interview the Chairmen concerned and to discuss with them the various defects noticed by me and the measures for remedying them. Whilst in most cases the need for sanitary reform was recognized and a laudable willingness was shown to carry out the recommendations made, the plea "want of funds" was prominently urged as a reason for deferring action. This excuse I can understand in the case of measures where a large expenditure was necessary, but numerous instances occur where improvements could be effected by judicious economy. It is not expected that all the measures recommended by an inspecting officer should be carried out *en bloc*, but that they should be carefully held in mind when the annual budgets are being framed and that suitable provision should be made as funds become available to give effect to such of them as are most pressing. If in this way one or two of the larger measures were taken up each year, a great deal of improvement could be effected in the sanitary condition of most municipalities. But this is rarely done. Reports and recommendations are shelved and it is not unusual to find that in spite of promises made at the time of consideration of the reports little has been done to give effect to them. Consequently, recommendations made years ago have remained unattended to.

66. A written report was submitted on the result of each inspection made. In addition to this and routine sanitary and vaccination correspondence, special references for sanitary opinion from Government, local authorities, etc., were frequent and exceptionally large in number.

67. The Sanitary Board was advised as to the sanitary aspects of major and minor sanitary engineering works in a total of 108 references made to it by local authorities through this office. Three hundred and ninety-seven reports on the state of towns and villages and the hygienic condition of schools were received from District Medical and Sanitary officers and Sanitary Assistants. Of these 289 were specially referred by this office to the local authority as to the nature of action taken upon the report. The attention of local authorities was also drawn to defective arrangements made at the various fairs and festivals.

68. A total of 14 men qualified as Assistant Sanitary Inspectors and 3 obtained the higher qualification of Sanitary Inspector during the year. Thus, up to date, there are 583 qualified men on the list, of whom 102 are Sanitary Inspectors and 481 Assistant Sanitary Inspectors. One hundred and sixty of these are in the permanent employ of Municipalities; 38 are employed under District Boards; 46 are Deputy

Inspectors of Vaccination; 47 are on temporary plague duty; and 14 employed in other provinces.

69. In regard to the training of special Sanitary Inspectors required for plague duty, the arrangement ordered in G.O., No. 1010 P., dated 15th September 1905, having been found to be impracticable, the duty of training such men was entrusted to the Deputy Sanitary Commissioner with a view to securing uniformity in training. Under this system men possessing the prescribed qualifications are selected by Collectors of districts and sent to Madras for training, the course extending to a period of six weeks. Thirty-two men were trained by the Deputy Sanitary Commissioner at the King Institute of Preventive Medicine, Guindy, during the year.

70. There has been no change in the plague policy pursued by Government. There can be no doubt that, with the advance of time and a better knowledge of the intentions of Government, much of the opposition that characterised the carrying out of the Regulations in the earlier stages of the plague operations is dying out and greater willingness to submit to measures calculated to check its spread is observable. The destruction of rats is receiving attention. It is generally found that trapping is more effective than the use of poisons which are not only expensive, but require a nicety in handling to secure success. In regard to disinfection Government have ordered that cyllin in suitable solutions in addition to perchloride of mercury should be used in this Presidency.

71. The King Institute of Preventive Medicine continues to do good work and each year shows an increase. The necessity for aid being given to the Superintendent is very pressing and, although this was recommended in last year's report, no sanction for the services of a Commissioned officer has yet been accorded by Government.

72. The Trial Scheme for the re-organization of the Vaccine Establishment sanctioned in G.O., No. 1005 L., dated 13th September 1905, was introduced during the year in the Chingleput district generally and in selected areas of the North Arcot, South Arcot and Madura districts.

73. Thirty-five men were trained at the King Institute for the post of Vaccinators under the re-organization scheme.

74. The checking of stores and the maintenance of the Service Registers of my office establishment were duly attended to.

H. THOMSON, LL.-COL., I.M.S.,
Sanitary Commissioner for Madras.

OFFICE OF SANITARY COMM., CHETPUT,
MADRAS, 26th April 1907.

APPENDIX.

VITAL STATISTICS OF THE GENERAL POPULATION.
No. I.—Showing the Births registered in the districts of the Madras Presidency during the year 1906.

NO. 1.—Continued the Districts registered in the districts of one district and one district.																				
Number.	2			3	4			5			6			7	8	9	10			
	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.						Mean ratio of births per 1,000 during previous five years.			
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Deaths per 1,000 of population.	Deaths per 1,000 of population.	Deaths per 1,000 of population.		
1	403,000	384,032	787,032	403,000	384,032	787,032	13,214	12,638	25,852	16.8	16.0	32.9	105.0	6.0	...	...	...	138	157	27.5
2	485,642	471,425	957,067	485,642	471,425	957,067	16,033	15,302	31,335	16.7	16.0	32.7	101.8	2.2	...	...	...	153	147	30.0
3	659,902	649,468	1,309,370	659,902	649,468	1,309,370	19,734	18,717	38,451	18.1	14.3	29.4	105.4	3.2	...	...	...	171	164	33.6
4	1,082,628	1,118,145	2,200,773	1,082,628	1,118,145	2,200,773	30,238	29,148	59,386	13.7	13.3	27.0	103.7	0.2	...	...	...	145	140	28.5
5	655,730	635,395	1,291,125	655,730	635,395	1,291,125	17,476	17,132	34,608	13.6	13.3	26.9	101.7	1.7	...	...	...	127	123	25.0
6	861,706	1,048,243	1,910,000	861,706	1,048,243	1,910,000	21,803	20,501	42,304	18.6	17.4	36.0	103.5	7.4	...	...	...	146	138	28.1
7	710,907	734,635	1,445,542	710,907	734,635	1,445,542	21,888	21,300	43,188	18.5	18.2	36.7	102.0	8.8	...	...	...	118	113	29.1
8	752,727	737,908	1,490,635	752,727	737,908	1,490,635	27,636	27,107	54,743	17.8	17.0	34.8	104.6	0.6	...	...	...	...	...	31.3
9	859,611	878,754	1,738,365	859,611	878,754	1,738,365	30,985	29,636	60,621	14.3	14.8	29.7	101.3	...	...	...	14.8	14.1	39.2	
10	456,779	447,426	904,205	456,779	447,426	904,205	13,033	12,867	25,900	18.8	17.8	33.6	105.0	1.3	...	...	...	20.1	19.3	39.4
11	248,742	244,938	493,680	248,742	244,938	493,680	9,268	8,825	18,093	11.4	11.4	23.4	105.2	...	...	...	11.7	11.1	29.8	
12	1,353,693	1,473,951	2,827,644	1,353,693	1,473,951	2,827,644	33,905	32,237	66,142	12.0	11.8	23.6	105.2	...	...	...	15.2	14.5	29.7	
13	1,381,300	1,414,251	2,795,551	1,381,300	1,414,251	2,795,551	48,304	45,733	94,037	17.4	16.4	32.6	101.7	6.8	...	...	...	13.0	12.7	28.7
14	640,023	632,315	1,272,338	640,023	632,315	1,272,338	13,263	12,673	25,936	10.4	10.0	20.4	101.7	...	...	...	14.8	14.1	28.9	
15	1,100,354	1,106,463	2,206,817	1,100,354	1,106,463	2,206,817	1,508	1,442	2,950	14.7	14.2	28.9	104.6	...	...	...	12.6	12.0	24.6	
16	1,085,080	1,118,943	2,204,023	1,085,080	1,118,943	2,204,023	32,500	31,196	63,696	15.2	15.2	31.0	104.1	6.6	...	...	...	15.6	14.9	30.4
17	1,187,748	1,181,429	2,369,177	1,187,748	1,181,429	2,369,177	34,860	33,487	68,347	17.2	16.5	33.7	103.9	6.8	...	...	...	16.4	15.7	32.1
18	548,345	586,011	1,134,356	548,345	586,011	1,134,356	40,355	38,830	79,185	19.1	18.5	37.6	103.4	14.2	...	...	...	15.7	15.2	30.9
19	1,065,791	1,178,158	2,243,949	1,065,791	1,178,158	2,243,949	21,619	20,805	42,424	16.7	16.7	33.4	103.2	6.1	...	...	...	16.8	16.1	32.9
20	1,001,578	1,057,625	2,059,203	1,001,578	1,057,625	2,059,203	31,360	30,727	62,087	16.7	15.9	32.6	105.0	2.0	...	...	...	17.5	16.9	34.4
21	699,274	744,421	1,443,695	699,274	744,421	1,443,695	23,448	22,416	45,864	16.2	15.6	31.8	104.6	6.6	...	...	...	16.3	15.6	31.3
22	1,443,695	1,452,590	2,896,285	1,443,695	1,452,590	2,896,285	23,817	23,538	47,355	14.3	13.7	28.0	101.5	...	...	...	14.6	14.2	28.8	
23	18,841,708	19,371,004	38,212,712	17,975,730	18,508,755	36,484,486	575,074	550,904	1,125,978	15.8	15.1	30.9	104.4	3.5	...	...	...	15.0	14.4	29.4
24	2,085,342	2,164,807	4,250,149	2,085,242	2,164,807	4,250,049	70,501	67,057	137,558	16.6	15.8	32.4	105.3	...	...	...	16.3	15.4	31.7	
25	16,750,468	17,206,197	33,956,665	15,890,488	16,343,949	32,234,437	504,483	483,847	988,330	15.7	15.0	30.7	104.3	4.1	...	...	...	14.9	14.3	29.2

• Including the Hill Tracts.

VITAL STATISTICS OF THE GENERAL POPULATION.

No. 111 — Deaths registered in the districts of the Madras Presidency during each month of the year 1905.

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

Number	Districts.	Year.												Total deaths registered during the year.
		January	February	March	April	May	June	July	August	September	October	November	December	
1	Anantapur	1,344	1,124	1,197	1,168	1,434	1,485	2,200	2,207	2,549	2,122	1,663	1,548	21,154
2	Bellary	1,941	1,639	2,027	2,100	2,583	3,101	3,186	3,546	2,726	2,134	1,883	1,607	26,474
3	Chingleput	8,546	8,614	2,712	2,116	2,202	2,512	2,573	3,155	3,104	3,023	2,691	3,627	34,294
4	Coimbatore	3,806	3,391	3,500	4,252	3,271	3,130	3,474	5,756	8,716	8,061	6,250	5,416	58,274
5	Cuddapah	2,208	1,578	3,052	2,438	2,349	2,081	1,665	1,105	3,756	3,233	2,746	2,194	32,432
6	Ganjpur	1,966	1,631	2,732	2,542	3,131	3,732	3,500	3,961	2,087	2,138	1,948	2,016	33,728
7	Godavari	2,614	1,668	1,969	1,558	2,321	2,593	3,639	11,363	6,897	4,312	3,064	2,945	47,040
8	Guntur	2,817	2,820	1,953	2,943	4,132	3,133	4,325	3,946	4,448	3,378	3,102	3,320	31,686
9	Kistna	2,981	2,107	2,436	2,660	4,445	3,607	5,716	11,448	6,166	4,120	4,022	4,353	59,691
10	Koranol	1,576	1,283	1,340	1,845	2,179	3,323	3,534	1,473	2,425	1,880	1,971	1,786	20,064
11	Madras	2,389	2,013	2,096	1,757	1,755	1,497	1,965	2,032	2,339	2,478	1,526	1,600	26,166
12	Madras	4,651	3,740	3,784	3,108	3,373	3,085	3,416	3,400	7,022	7,408	6,975	7,163	67,302
13	Malabar	4,460	4,344	4,013	1,016	3,272	7,535	8,767	9,243	9,807	5,765	6,133	8,215	75,276
14	Nellore	2,268	2,068	1,865	1,736	2,180	2,522	2,408	3,006	8,010	2,080	2,130	2,699	28,080
15	Nilgiris, The	153	175	231	285	281	431	475	253	267	343	241	3,696	3,696
16	North Arcot	3,343	3,169	3,131	2,802	3,206	3,746	3,627	3,316	4,190	4,036	4,278	4,877	49,783
17	Salem	5,769	5,117	5,335	3,260	3,445	3,160	1,451	5,742	6,383	6,351	4,907	4,926	59,748
18	South Arcot	4,426	3,857	3,709	3,075	3,523	3,546	3,963	3,307	6,560	3,483	3,807	7,436	69,236
19	South Canara	3,900	3,423	1,893	1,546	1,671	1,847	2,865	2,466	2,316	2,070	2,930	2,930	26,474
20	Tanjore	3,147	4,063	3,807	3,794	4,178	3,380	3,376	8,376	6,672	6,240	5,906	6,139	68,116
21	Tinnevely	4,463	2,718	3,110	2,854	3,138	2,473	1,451	6,802	7,165	7,551	9,012	9,432	62,802
22	Trichinopoly	2,467	2,031	1,971	2,271	2,416	2,504	3,327	4,318	3,329	3,465	3,877	4,306	36,362
23	Vizagapatam	3,133	2,781	3,051	2,636	3,229	4,640	10,006	9,335	6,235	5,001	3,974	5,220	62,044
	Total, Madras Presidency	46,582	39,762	38,386	36,245	66,285	77,626	107,161	130,345	108,405	93,166	56,169	55,260	1,088,301
	Ratio of deaths per 1,000 in each month	1.19	1.15	1.15	1.13	1.36	1.71	2.01	2.15	2.19	2.17	2.14	2.16	27.6

No. IV.—Deaths registered according to Age in the districts of the Madras Presidency during the year 1906.

Number.	Districts.	Age												Total.
		Under 1 year.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	60 and upwards.
1	Anantapur	2,407	2,155	1,329	847	651	798	1,341	819	800	961	743	892	1,707
2	Bellary	3,298	2,650	1,291	1,171	625	601	1,296	1,159	1,000	1,107	829	1,062	2,197
3	Chingleput	4,391	3,508	2,464	1,017	701	1,211	1,545	1,317	1,184	1,090	1,090	1,469	3,053
4	Coimbatore	6,211	5,007	4,183	2,198	1,432	2,026	2,625	2,254	2,334	2,063	1,912	2,312	4,703
5	Cuddapah	2,955	2,625	1,422	894	586	1,060	1,707	1,257	1,173	1,068	1,096	1,762	3,292
6	Ganjam	4,311	3,971	2,014	1,196	1,046	1,574	2,029	1,624	1,575	1,468	1,396	1,629	3,292
7	Godavari	3,075	3,479	3,349	1,778	1,015	1,430	1,931	1,395	1,287	1,312	1,043	1,418	3,107
8	Guntur	6,125	5,109	3,054	1,838	1,063	2,273	3,231	2,224	2,008	2,087	1,751	2,559	5,509
9	Kistna	6,501	5,507	3,436	2,296	1,271	1,871	2,445	1,671	1,290	1,788	1,065	1,929	4,001
10	Kurnool	2,201	2,295	1,268	759	679	985	1,445	1,071	900	766	514	753	2,166
11	Madras	3,318	2,920	1,968	1,063	436	2,714	3,271	2,810	2,445	2,103	2,043	2,485	4,880
12	Madura	6,034	5,313	3,013	1,834	1,063	3,328	4,713	3,277	3,277	3,277	2,637	3,610	7,024
13	Malabar	8,207	6,754	4,066	2,292	1,385	3,288	4,118	3,137	2,405	2,405	1,901	3,139	6,094
14	Nellore	2,354	2,086	1,261	870	648	1,080	1,418	1,137	1,105	1,041	895	1,319	3,107
15	Nilgiris, The	189	179	103	55	78	132	194	135	103	133	106	119	292
16	North Arcot	6,119	5,389	3,225	1,930	1,111	2,136	2,746	1,746	1,672	1,672	1,487	2,472	4,944
17	Salem	7,271	6,400	3,602	2,152	1,062	3,041	4,193	2,810	2,445	2,103	2,043	2,485	4,880
18	South Arcot	7,258	6,290	3,602	2,152	1,062	3,041	4,193	2,810	2,445	2,103	2,043	2,485	4,880
19	South Canara	8,888	7,376	4,066	2,292	1,385	3,288	4,118	3,137	2,405	2,405	1,901	3,139	6,094
20	Tanjore	8,888	7,376	4,066	2,292	1,385	3,288	4,118	3,137	2,405	2,405	1,901	3,139	6,094
21	Tinnevely	7,059	6,182	3,602	2,152	1,062	3,041	4,193	2,810	2,445	2,103	2,043	2,485	4,880
22	Trichinopoly	1,631	1,686	2,925	1,161	659	1,277	1,688	1,479	1,111	1,111	1,111	1,111	4,007
23	Vizagapatnam	5,316	4,307	2,594	1,571	1,284	2,131	3,012	2,351	2,000	2,000	1,672	2,472	5,211
Total, Madras Presidency		113,960	100,325	71,751	44,511	25,305	58,872	87,035	60,259	47,509	62,117	41,709	58,263	124,814
Total, Madras Presidency		113,960	100,325	71,751	44,511	25,305	58,872	87,035	60,259	47,509	62,117	41,709	58,263	124,814
Total, Madras Presidency		113,960	100,325	71,751	44,511	25,305	58,872	87,035	60,259	47,509	62,117	41,709	58,263	124,814
Total, Madras Presidency		113,960	100,325	71,751	44,511	25,305	58,872	87,035	60,259	47,509	62,117	41,709	58,263	124,814

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

No. V.—Deaths registered according to Classes in the districts of the Madras Presidency during the year 1906.

Number.	Districts.	Population for which returns were received.					Number of deaths registered.					Ratio of deaths per 1,000 of population.				
		Native Christians.	Muslimans.	Hindus.	Other classes.	Total.	Native Christians.	Muslimans.	Hindus.	Other classes.	Total.	Native Christians.	Muslimans.	Hindus.	Other classes.	Total.
1	Anantapur	2,173	58,917	718,361	8,301	787,752	40	1,533	16,459	1,092	21,154	18.4	26.4	27.1	12.3	26.8
2	Bellary	3,756	97,474	854,056	1,781	957,067	88	3,253	25,506	232	29,171	23.1	33.4	39.0	130.3	39.6
3	Chingleput	23,714	30,010	1,255,257	389	1,309,370	137	716	33,106	35	34,204	18.4	23.9	26.4	90.0	26.2
4	Coimbatore	17,308	50,748	2,126,068	6,062	2,200,186	408	1,903	56,559	204	58,674	22.9	26.5	26.6	38.7	26.8
5	Cuddapah	18,781	129,537	1,142,454	353	1,301,125	388	3,137	28,716	301	32,236	20.7	24.1	35.1	652.7	25.2
6	Ganjam	2,066	5,928	1,137,546	33,205	1,178,824	47	144	33,481	56	33,728	22.0	24.3	29.4	1.7	25.6
7	Godavari	3,538	24,646	1,111,573	4,245	1,144,902	140	687	46,120	93	47,040	30.9	27.9	32.7	21.9	32.6
8	Guntur	101,225	97,524	1,284,802	7,204	1,490,355	2,240	2,977	36,531	134	41,582	22.2	27.4	38.4	18.4	27.9
9	Kistna	28,813	61,471	1,851,396	2,085	1,943,765	1,002	1,880	56,809	...	59,691	35.0	30.6	34.4	...	34.2
10	Kurnool	33,938	107,626	728,782	1,604	871,948	703	3,647	25,129	155	29,694	22.5	33.9	34.5	96.6	34.1
11	Madras	25,202	57,331	410,648	400	493,581	928	3,004	19,229	4	23,165	36.7	52.4	46.8	9.8	46.9
12	Madura	111,201	108,618	2,550,783	42	2,770,644	1,634	4,435	56,433	...	62,502	14.7	26.3	32.1	...	22.1
13	Malabar	48,519	832,970	1,904,474	1,344	2,786,307	1,528	22,232	51,368	72	73,772	22.2	30.0	22.9	...	22.0
14	Nellore	36,772	74,779	1,157,882	3,905	1,273,238	763	1,562	25,734	...	28,059	22.2	20.0	22.9	...	22.0
15	Nilgiris, The	11,981	5,967	89,868	1,057	107,813	233	218	2,657	268	3,096	31.9	37.2	33.0	66.1	34.3
16	North Arcot	22,069	103,698	2,068,586	13,324	2,208,517	174	2,631	46,741	215	49,753	9.0	25.7	22.6	16.1	22.6
17	Salem	18,701	68,497	2,116,768	67	2,201,033	324	1,750	51,664	...	53,788	21.1	25.3	24.4	...	24.4
18	South Arcot	65,748	64,976	2,212,548	5,905	2,346,177	1,105	1,890	60,130	89	62,236	18.2	26.2	27.2	13.9	23.9
19	South Canara	83,779	129,261	914,147	9,591	1,136,778	1,600	2,682	21,428	204	24,474	19.8	21.8	24.0	21.3	23.4
20	Tanjore	88,890	129,033	2,034,369	308	2,242,599	2,371	3,786	56,801	52	61,160	27.6	30.8	28.0	87.0	28.1
21	Tinnevely	189,309	161,875	1,798,519	23	2,050,203	1,758	2,559	54,975	...	62,992	30.6	34.9	30.4	...	30.6
22	Trichinopoly	75,535	43,319	1,324,768	23	1,443,625	1,656	1,389	33,337	...	36,362	21.9	30.9	26.2	...	26.3
23	Vizagapatnam	2,757	22,476	1,003,926	50,089	1,089,248	19	456	61,216	293	62,064	35.0	20.3	30.6	6.9	29.8
Total, Madras Presidency		979,811	2,463,983	32,596,001	154,786	36,484,486	25,107	69,026	965,756	2,502	1,008,381	23.6	28.1	27.5	16.3	27.4

No. VI.—Births and Deaths registered from different causes in the districts and towns of the Madras Presidency during the year 1906.

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.	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.
A.—Districts.																											
1	Anantapur	676,822	23,777	35.7	2,921	256	3	738	672	695	17	23	114	37	191	13,057	14,308	4.2	0.4	0.004	1.1	1.0	1.0	0.3	10.3	27.8	24.3
2	Bellary	785,872	26,672	33.9	2,919	2,139	334	1,230	1,460	786	24	39	172	57	296	11,523	23,619	3.7	2.7	0.3	1.6	1.9	1.0	0.4	18.5	30.1	30.0
3	Chingleput	1,119,948	35,004	29.5	2,500	783	25	3,440	2,980	842	15	13	316	30	434	18,661	20,068	2.0	0.7	0.1	3.1	2.7	0.5	0.4	16.6	26.0	26.4
4	Coimbatore	2,041,419	54,772	26.8	8,002	2,388	25	9,546	8,618	2,464	53	64	376	119	617	25,030	24,069	4.3	1.1	0.01	4.7	2.7	1.2	0.3	12.3	26.4	20.3
5	Cuddapah	1,172,296	32,573	27.8	5,722	537	5	15,868	945	1,222	27	56	347	132	562	30,843	30,843	4.5	0.5	0.004	13.6	0.8	1.0	0.1	8.1	23.9	21.5
6	Ganjam	1,085,690	30,012	26.6	6,722	266	3	19,810	400	138	7	9	72	28	141	2,057	20,431	0.2	0.2	0.003	18.1	0.8	0.1	0.1	2.5	28.0	13.7
7	Godavari	1,381,418	38,690	27.9	11,002	480	19	15,902	1,434	218	47	50	133	40	280	11,842	31,370	8.7	0.4	0.01	12.5	1.1	0.2	0.2	9.2	22.3	13.9
8	Guntur	1,305,306	50,179	38.3	3,080	300	1	20,005	169	648	10	34	244	75	372	10,321	37,220	2.0	0.2	0.001	14.7	0.7	0.6	0.3	8.0	27.3	...
9	Kistna	1,592,688	55,609	34.9	14,343	400	...	19,468	197	1,308	28	12	237	68	303	16,545	31,661	1.0	0.3	...	12.2	0.6	1.2	0.2	10.4	33.9	19.7
10	Kurnool	824,938	21,369	25.9	6,023	630	3	11,580	537	110	10	29	168	51	264	8,809	27,518	7.8	0.8	0.004	14.0	0.7	...	0.3	10.3	33.4	21.3
11	Madras	2,488,729	54,568	21.9	8,883	2,913	...	16,037	1,465	885	20	20	469	210	731	21,328	52,212	3.8	1.2	...	6.4	0.6	1.0	0.3	6.5	30.9	14.9
12	Malabar	2,567,300	85,601	33.3	3,683	1,201	...	25,004	8,826	2,304	58	20	512	205	708	25,443	67,434	1.4	0.5	...	9.8	3.4	1.0	0.3	9.9	26.3	20.8
13	Nellore	1,178,436	28,897	20.3	4,355	824	...	11,769	836	...	24	64	352	68	308	7,495	25,766	3.7	0.7	...	10.0	0.5	...	0.3	6.7	31.9	26.8
14	Nilgiris, The	80,552	1,919	23.8	10	164	19	1,807	379	111	2	2	20	7	31	548	2,650	0.1	1.9	0.2	15.0	7.2	1.4	0.4	6.8	33.6	26.3
15	North Arcot.	2,037,263	58,300	28.7	4,494	4,671	16	6,920	4,121	1,291	62	63	44	122	941	21,716	46,049	2.2	2.3	0.01	3.4	2.0	0.6	0.5	10.6	21.1	16.2
16	Salem	2,027,607	61,090	30.4	3,985	1,500	23	15,466	2,315	914	36	34	307	121	693	23,703	48,000	1.7	0.7	0.05	7.6	1.2	0.5	0.5	11.7	23.7	23.5
17	South Arcot.	2,177,348	73,312	33.6	9,387	2,071	28	12,477	2,850	806	42	44	518	198	918	29,363	67,983	4.3	1.4	0.01	5.7	1.3	0.4	0.4	18.1	26.6	22.5
18	South Canara.	1,078,632	40,311	37.4	122	236	10	9,356	2,922	735	20	41	32	63	535	11,590	25,155	0.1	0.2	0.01	8.7	2.3	0.7	0.5	10.8	23.3	23.6
19	Tanjore	1,891,703	64,800	34.3	5,413	2,055	...	6,708	1,229	512	26	25	314	133	489	34,832	51,353	2.9	1.1	...	3.5	0.6	0.8	0.3	18.4	37.1	24.8
20	Tinnevely	3,666,624	51,843	32.7	9,396	308	...	7,905	1,358	521	32	59	390	83	464	27,361	67,831	5.9	0.2	...	5.0	0.9	0.3	0.3	17.6	39.1	23.2
21	Triethanipoly	1,289,142	41,166	32.0	3,234	460	...	7,406	682	299	50	37	279	194	661	20,196	32,940	2.5	0.4	...	5.8	0.5	0.3	0.4	15.7	25.6	26.6
22	Vizagapatam	1,687,370	52,364	37.7	9,564	121	...	41,829	1,290	248	4	2	232	66	304	2,561	56,919	4.5	0.1	...	22.2	6.7	0.1	0.2	1.3	29.1	16.3
Total, Rural districts		34,234,497	998,330	30.7	124,662	25,560	463	279,771	44,267	17,506	643	739	6,595	2,196	10,178	233,903	866,282	3.9	0.8	0.01	6.7	1.4	0.5	0.3	11.9	36.6	30.6

No. VI.—Births and Deaths registered from different causes in the districts and towns of the Madras Presidency during the year 1906.

Number	Districts and towns.	Population for which returns were received.	Births.										Deaths.										From all causes.	From all causes.	From all causes.
			Total number.	Birth-rate per 1,000 of population.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Measles.	Scarlet fever and diphtheria.	Injuries.	Total.	All other causes.	Petroleum deaths from all causes.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Injuries.	All other causes.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
A.—Towns.																									
1	Madras	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Chennai	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Coimbatore	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Trichinopoly	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Madurai	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Thanjavur	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Chidambaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Palani	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
22	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
23	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
32	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
33	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
34	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
36	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
37	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
39	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
40	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
41	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
42	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
43	Madhavaram	1,000	2,000	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

No. VI.—Births and Deaths registered from different causes in the districts and towns of the Madras Presidency during the year 1906—cont.

Number	Districts and towns.	Population for which returns were received.	Births.			Deaths.										From all causes.										
			Total number.	Birth-rate per 1,000 of population.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Measles.	Scarlet fever and diphtheria.	Injuries.	Total.	All other causes.		Petroleum deaths from all causes.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Injuries.	All other causes.	From all causes.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
B.—Towns—cont.																										
43	Coimbatore—cont.																									
44	T.T.C. Coimbatore.	10,927	20	4.8	8	5	34	49	6	1	1	14	189	6.9	62	6.3	0.5	—	—	—	—	—	13	61	211	261
45	T.T.C. Erode.	8,656	172	29.6	8	49	16	1	1	1	1	32	161	31	62	3.8	62	—	—	—	—	0.7	0.7	101	211	261
46	T.T.C. Tirupur.	6,660	200	33.0	10	19	15	1	1	1	1	24	244	37	0.3	1.7	0.3	—	—	—	—	8.1	0.6	377	367	367
47	M.T.C. Coimbatore.	16,402	268	35.8	5	340	47	1	47	1	1	25	567	6.3	122	6.3	—	—	—	—	—	0.7	151	315	315	315
48	T.T.C. Coimbatore.	13,287	62	4.1	14	42	2	1	1	1	1	20	105	2.3	122	6.3	—	—	—	—	—	0.7	151	315	315	315
49	T.T.C. Erode.	14,370	184	12.8	100	42	2	1	1	1	1	20	105	2.3	122	6.3	—	—	—	—	—	0.7	151	315	315	315
50	T.T.C. Madhavaram.	14,061	171	12.1	86	42	2	1	1	1	1	20	105	2.3	122	6.3	—	—	—	—	—	0.7	151	315	315	315
51	T.T.C. Madhavaram.	13,552	245	17.7	104	53	3	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
52	T.T.C. Madhavaram.	10,883	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
53	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
54	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
55	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
56	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
57	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
58	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
59	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
60	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
61	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
62	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
63	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
64	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
65	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
66	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
67	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
68	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
69	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
70	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
71	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
72	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
73	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
74	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
75	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
76	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
77	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
78	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
79	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
80	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
81	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
82	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
83	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
84	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
85	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
86	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
87	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
88	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
89	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
90	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
91	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
92	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
93	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
94	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
95	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
96	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
97	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
98	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
99	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315
100	T.T.C. Madhavaram.	10,788	170	15.6	62	3	1	1	1	1	1	136	251	1.1	61	0.1	61	—	—	—	—	0.7	151	315	315	315

No. VI.—Births and Deaths registered from different causes in the districts and towns of the Madras Presidency during the year 1906—contd.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Number.	Districts and towns.	Population for which returns were received.	Births.		Cholera.	Small-pox.	Typhoid.	Fever.	Dysentery and diarrhoea.	Suicides.		Injuries.		Ratio of deaths per 1,000 of population.		From all causes.
			Total number.	Birth-rate per 1,000 of population.						Males.	Females.	Wounds and accidents.	Struck by rail.	Total.	Violence.	
B.—Towns—cont.																
Karnataka																
84	M.T.C. Ellore	33,321	1,662	32.6	95	2	251	251	27	3	3	1,497	44.9	30.1	43.6	30.1
85	M.T.C. Mangalore	39,507	1,334	33.9	280	3	274	274	91	62	62	1,017	25.8	30.2	30.2	30.2
86	M.T.C. Bezwada	21,281	1,090	51.2	120	3	126	126	31	3	3	1,054	49.5	47.6	47.6	47.6
87	T.C. Palskolu	10,814	280	25.9	34	3	46	46	36	3	3	1,054	49.5	47.6	47.6	47.6
88	T.C. Narasapur	10,279	130	12.7	34	3	46	46	36	3	3	1,054	49.5	47.6	47.6	47.6
89	T.C. Nuzvid	9,019	223	24.7	7	1	32	32	20	3	3	1,054	49.5	47.6	47.6	47.6
90	T.C. Jagadavijaya	8,332	280	33.7	7	1	32	32	20	3	3	1,054	49.5	47.6	47.6	47.6
91	T.C. Adilnagar	6,832	280	41.0	7	1	32	32	20	3	3	1,054	49.5	47.6	47.6	47.6
92	T.C. Gudivada	6,719	223	33.2	80	3	32	32	20	3	3	1,054	49.5	47.6	47.6	47.6
Karnataka—cont.																
93	M.T.C. Kurnool	23,376	576	24.7	186	3	323	323	127	3	3	1,054	49.5	47.6	47.6	47.6
94	M.T.C. Nandya	12,187	344	28.2	245	4	137	137	20	3	3	1,054	49.5	47.6	47.6	47.6
95	T.C. Gumbana	6,202	177	28.5	115	3	34	34	3	3	3	1,054	49.5	47.6	47.6	47.6
Madras																
96	M.T.C. Madras	406,080	18,009	44.3	540	37	3,352	3,352	1,386	123	123	1,054	49.5	47.6	47.6	47.6
Madras—cont.																
97	M.T.C. Madras	105,984	4,138	39.0	129	26	636	636	147	4	4	1,054	49.5	47.6	47.6	47.6
98	M.T.C. Tiruchirappalli	95,182	1,252	13.2	150	3	157	157	36	3	3	1,054	49.5	47.6	47.6	47.6
99	M.T.C. Tiruchirappalli	17,000	771	45.3	315	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
100	M.T.C. Palni	12,168	542	44.6	205	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
101	M.T.C. Kodakallu	1,912	93	48.6	40	3	102	102	7	3	3	1,054	49.5	47.6	47.6	47.6
102	T.C. Aruppukottai	23,633	771	32.6	40	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
103	T.C. Bedmarakani	29,206	600	20.5	12	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
104	T.C. Bedmarakani	16,131	341	21.1	42	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
105	T.C. Paramagudi	14,546	470	32.3	66	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
106	T.C. Paramagudi	11,951	190	15.9	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
107	T.C. Kallakudi	11,078	387	34.9	30	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
108	T.C. Kallakudi	10,180	343	33.7	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
109	T.C. Kallakudi	10,180	343	33.7	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
110	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
111	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
112	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
113	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
114	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
115	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
116	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
117	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
118	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
119	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
120	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
121	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
122	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6
123	T.C. Tirumangalam	9,967	330	33.1	3	3	320	320	36	3	3	1,054	49.5	47.6	47.6	47.6

No. VI.—Births and Deaths registered from different causes in the districts and towns of the Madras Presidency during the year 1906—cont.

Number.	District and towns.	Population for which returns were received.	Births.		Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.			Total deaths from all causes.	Ratio of deaths per 1,000 of population.						For the year.				
			Total number.	Birth-rate per mille of population.							Subsides.	Wounds and accidents.	Struck by wild beasts.		Total.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.		Respiratory diseases.	Injuries.		
B.—Towns—cont.																									
South Canara—																									
186	M.T.C. Mangalore	44,108	1,412	32.7	...	...	...	...	...	...	...	...	...	1,412	...	...	...	...	141.2						
187	T.C. Udipi	8,931	271	30.7	...	...	...	...	...	...	...	...	...	271	...	...	...	...	27.1						
Tanjore—																									
188	M.T.C. Tanjore	67,870	2,312	34.1	...	...	...	...	...	...	...	...	...	2,312	...	...	...	...	231.2						
189	M.T.C. Kumbakonam	50,653	1,811	35.8	...	...	...	...	...	...	...	...	...	1,811	...	...	...	...	181.1						
190	M.T.C. Mayavaram	24,575	837	34.1	...	...	...	...	...	...	...	...	...	837	...	...	...	...	83.7						
191	M.T.C. Nagapattinam	57,150	1,751	30.8	...	...	...	...	...	...	...	...	...	1,751	...	...	...	...	175.1						
192	M.T.C. Karaikal	20,448	686	33.6	...	...	...	...	...	...	...	...	...	686	...	...	...	...	68.6						
193	M.T.C. Tiruvarur	15,326	461	30.1	...	...	...	...	...	...	...	...	...	461	...	...	...	...	46.1						
194	M.T.C. Tiruvarur	14,198	372	26.2	...	...	...	...	...	...	...	...	...	372	...	...	...	...	37.2						
195	M.T.C. Tiruvarur	13,112	372	28.3	...	...	...	...	...	...	...	...	...	372	...	...	...	...	37.2						
196	M.T.C. Tiruvarur	10,184	214	21.0	...	...	...	...	...	...	...	...	...	214	...	...	...	...	21.4						
197	M.T.C. Tiruvarur	9,252	256	27.7	...	...	...	...	...	...	...	...	...	256	...	...	...	...	25.6						
198	M.T.C. Tiruvarur	8,454	257	30.4	...	...	...	...	...	...	...	...	...	257	...	...	...	...	25.7						
199	M.T.C. Tiruvarur	7,521	231	30.7	...	...	...	...	...	...	...	...	...	231	...	...	...	...	23.1						
200	M.T.C. Tiruvarur	7,004	244	34.8	...	...	...	...	...	...	...	...	...	244	...	...	...	...	24.4						
201	M.T.C. Tiruvarur	6,757	158	23.4	...	...	...	...	...	...	...	...	...	158	...	...	...	...	15.8						
202	M.T.C. Tiruvarur	5,410	213	39.4	...	...	...	...	...	...	...	...	...	213	...	...	...	...	21.3						
203	M.T.C. Tiruvarur	5,400	213	39.4	...	...	...	...	...	...	...	...	...	213	...	...	...	...	21.3						
Tiruchirappalli—																									
204	M.T.C. Tiruchirappalli	40,487	1,507	37.2	...	...	...	...	...	...	...	...	...	1,507	...	...	...	...	150.7						
205	M.T.C. Tiruchirappalli	35,515	1,246	35.1	...	...	...	...	...	...	...	...	...	1,246	...	...	...	...	124.6						
206	M.T.C. Tiruchirappalli	28,048	1,001	35.7	...	...	...	...	...	...	...	...	...	1,001	...	...	...	...	100.1						
207	M.T.C. Tiruchirappalli	26,881	978	36.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
208	M.T.C. Tiruchirappalli	25,856	978	37.8	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
209	M.T.C. Tiruchirappalli	25,289	978	38.7	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
210	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
211	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
212	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
213	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
214	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
215	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
216	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
217	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
218	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
219	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
220	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
221	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
222	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
223	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
224	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
225	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
226	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
227	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
228	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
229	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						
230	M.T.C. Tiruchirappalli	24,856	978	39.4	...	...	...	...	...	...	...	...	...	978	...	...	...	...	97.8						

No. VI.—Births and Deaths registered from a different cause in the districts and towns of the Madras Presidency during the year 1906—cont.

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.	Ratio of deaths per 1,000 of population.							For the year.
			Total number.	Birth-rate per mille of population.						Male.	Females.	Struck by lightning.		Accidents.	Snake-bite and insect.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Injuries.	
B.—Towns—cont.																					
Tinnevely—cont.																					
209	T.C. Ettimavaram	8,768	125	14.1	10	...	...	...	...	...	...	...	10	...	...	...	...	12.5			
210	T.C. Sattur	7,570	146	19.3	13	...	...	...	...	...	...	...	13	...	...	...	...	14.6			
211	T.C. Sankulam	6,400	229	35.8	36	...	...	...	...	...	...	...	36	...	...	...	...	36.9			
212	T.C. Vellakottai Valliyar	6,908	281	40.7	13	...	...	...	...	...	...	...	13	...	...	...	...	40.7			
213	T.C. Alwar Thinnagiri	8,681	229	26.4	18	...	...	...	...	...	...	...	18	...	...	...	...	26.4			
214	T.C. Nancuneri	6,540	264	40.4	44	...	...	...	...	...	...	...	44	...	...	...	...	40.4			
215	T.C. Sircudimalai	6,499	269	41.4	15	...	...	...	...	...	...	...	15	...	...	...	...	41.4			
Tiruchirappalli—																					
216	T.C. Tiruchirappalli	104,241	3,126	30.0	26	65	...	244	322	187	1	...	1,057	2,263	64	0.6	...	30.0			
217	T.C. Tiruchirappalli	98,080	2,721	27.8	26	65	...	244	322	187	1	...	1,057	2,263	64	0.6	...	27.8			
218	T.C. Tiruchirappalli	12,457	321	25.8	6	17	...	98	78	51	1	...	660	420	0.4	0.4	...	25.8			
219	T.C. Tiruchirappalli	7,558	596	78.9	26	4	...	42	13	16	2	...	48	125	7.4	0.8	...	78.9			
220	T.C. Tiruchirappalli	7,570	213	28.1	7	3	...	62	8	8	...	...	88	125	17.1	0.3	...	28.1			
Vizagapatnam—																					
221	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
222	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	0	1,280	0.1	...	...	25.0			
223	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
224	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
225	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
226	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
227	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
228	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
229	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
230	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
231	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
232	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
233	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
234	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
235	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
236	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
237	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
238	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
239	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
240	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
241	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
242	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
243	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
244	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
245	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
246	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
247	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
248	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
249	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
250	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
251	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
252	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
253	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
254	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
255	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
256	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
257	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
258	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
259	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
260	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
261	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
262	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
263	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
264	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
265	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
266	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
267	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
268	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
269	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
270	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
271	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
272	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
273	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
274	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
275	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
276	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
277	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
278	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
279	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
280	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
281	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
282	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
283	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
284	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
285	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...	...	512	1,204	8.6	0.02	...	25.0			
286	T.C. Vizagapatnam	51,583	1,208	23.4	124	1	...	216	270	27	...	...	512	1,204	8.6	0.02	...	23.4			
287	T.C. Vizagapatnam	16,539	676	40.9	42	...	...	217	135	21	...	...	139	434	2.5	...	...	40.9			
288	T.C. Vizagapatnam	17,807	442	24.8	...	...	...	378	3	1	...	...	264	188	1.3	...	...	24.8			
289	T.C. Vizagapatnam	14,282	268	18.8	105	...	...	125	6	...	...	...	2	1,255	2.9	...	...	18.8			
290	T.C. Vizagapatnam	19,615	179	10.4	...	...	...	21	58	...	...	...	34	390	3.3	...	...	10.4			
291	T.C. Vizagapatnam	40,992	1,414	34.5	23	2	...	350	230	64	1	...	648	7,381	0.7	0.34	...	34.5			
292	T.C. Vizagapatnam	10,212	253	25.0	...	...	...	36	72	45	...										

No. VII.—Deaths registered from Cholera in the districts of the Madras Presidency during each month of the year 1906.

1	2	3	4	5												6				7	8			
Number.	Districts.	Circles of registration.		Villages.												Total.				Ratio of deaths per 1,000 of population.		Mean ratio per 1,000 for previous 5 years.		
		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.	Total.	Males.		Females.	Total.
1	Anantapur	19	15	1965	291	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2	Bellary	19	17	915	213	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
3	Chingleput	21	18	2,271	371	24	166	57	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4	Chittoor	21	21	1,558	374	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
5	Cuddapah	21	21	1,558	374	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
6	Gandur	12	12	1,558	374	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
7	Godavari	17	16	2,050	550	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
8	Guntur	15	15	1,558	374	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9	Kistna	19	19	1,558	374	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
10	Kurnool	11	11	1,558	374	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
11	Madras	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
12	Madura	28	25	4,132	3,662	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
13	Malabar	19	15	673	550	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
14	Nellore	19	19	1,718	412	556	314	42	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15	Nalgonda, Tho.	6	4	51	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16	North Arcot	22	20	3,422	628	364	164	16	2	14	596	1,772	1,056	511	343	89	2,744	2,491	5,004	1,55	224	2,27	1.7	
17	Salem	20	20	3,405	400	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
18	South Arcot	18	18	2,711	1,034	41	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
19	South Canara	7	6	1,284	34	15	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
20	Tanjore	28	26	5,425	1,918	669	212	99	51	2	...	...	...	...	...	...	...	...	...	...	...	...	...	
21	Tinnevely	36	36	1,543	789	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
22	Trichinopoly	11	11	910	910	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
23	Vizagapatnam	27	27	2,756	825	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total, Madras Presidency...		417	392	43,148	11,212	2,774	1,247	836	1,015	3,133	11,531	20,968	26,426	30,147	2,654	8,330	10,450	71.94	67.71	14,814	42	37	39	1.6

No. VIII.—Deaths registered from small-pox in the districts of the Madras Presidency during each month of the year 1906.

1	2	3	4	5												6			7		8		9		
Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.		Number of deaths among children.	Ratio of deaths per 1,000 of population.		Mean ratio per 1,000 for previous 5 years.		
		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.													Males.	Females.		Total.	Males.		Females.	Total.
1	Anantapur	19	12	935	84	14	13	16	57	84	34	21	39	33	23	11	10	1.2	1.2	1.2	0.4	0.4	0.4		
2	Bellary	19	17	915	380	297	240	323	263	165	237	247	212	161	163	111	74	1,780	1,223	1,390	473	210	210		
3	Chingleput	21	17	2,271	847	102	98	175	131	125	67	46	27	51	42	35	27	493	421	1,306	254	077	077		
4	Chittoor	21	19	1,558	374	481	331	452	273	256	178	177	158	142	91	114	103	1,759	1,408	2,568	1,028	134	134		
5	Cuddapah	21	15	1,558	374	481	331	452	273	256	178	177	158	142	91	114	103	1,759	1,408	2,568	1,028	134	134		
6	Gandur	12	12	1,558	374	481	331	452	273	256	178	177	158	142	91	114	103	1,759	1,408	2,568	1,028	134	134		
7	Godavari	17	12	2,050	550	24	78	78	64	37	10	4	35	19	49	7	116	116	242	242	69	04	04		
8	Guntur	15	11	979	31	45	35	23	24	48	24	19	36	2	23	19	141	141	312	178	60	02	02		
9	Kistna	19	14	1,787	152	74	11	27	41	31	21	38	23	35	53	30	28	293	293	415	250	97	03	03	
10	Kurnool	11	9	787	241	39	28	31	35	31	77	120	128	38	18	8	17	822	744	379	250	077	077		
11	Madras	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
12	Madura	28	22	4,172	484	576	462	360	349	189	229	190	121	216	141	203	145	1,533	1,601	3,014	1,587	171	12	12	
13	Malabar	19	15	674	186	216	217	313	223	162	65	25	18	8	24	16	31	617	677	1,294	46	183	07	07	
14	Mallore	19	17	1,718	234	165	166	117	143	199	177	51	66	17	8	33	593	454	997	331	232	04	04		
15	Nalgonda, Tho.	6	6	1,558	374	481	331	452	273	256	178	177	158	142	91	114	103	1,759	1,408	2,568	1,028	134	134	134	
16	North Arcot	22	20	3,307	570	295	237	261	318	541	347	513	401	441	719	549	848	2,639	2,773	2,000	455	224	224	224	
17	Salom	20	16	3,605	408	293	229	268	294	182	109	115	111	122	73	91	86	1,000	1,437	784	676	03	03	03	
18	South Arcot	18	14	1,711	639	293	191	250	238	194	151	204	629	234	278	300	884	1,185	1,511	1,283	1,025	138	138	138	
19	South Canara	7	6	1,288	84	20	34	25	25	13	17	6	12	9	10	26	14	131	2,016	80	19	03	02	02	
20	Tanjore	28	25	1,825	544	272	244	318	321	338	167	210	260	197	144	88	78	1,348	1,311	2,669	636	123	13	13	
21	Tinnevely	36	37	1,224	111	45	19	45	22	35	16	39	31	48	61	39	30	197	231	494	157	126	02	02	
22	Trichinopoly	11	11	1,110	594	142	26	8	42	34	14	12	16	101	51	14	18	394	264	393	178	04	04	04	
23	Vizagapatnam	27	16	2,766	55	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total, Madras Presidency		417	316	43,148	5,941	3,287	3,168	3,636	3,025	2,657	2,240	2,368	2,109	1,996	1,711	1,706	2,030	18,069	14,771	20,840	11,121	10,824	0.8	0.8	0.8

No. IX.—Deaths registered from Fevers in the Districts of the Madras Presidency during each month of the year 1906.

1	2	3		4		5												6		7		8		
Number.	Districts.	Circles of registration.		Villages.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of population.		Mean ratio per 1,000 for previous 5 years.	
		Number in each district.	Number from which deaths from fevers were reported.	Number in each district.	Number from which deaths from fevers were reported.													Males.	Females.	Total.	Males.	Females.		Total.
1	Anantapur	19	17	905	57	34	55	79	119	108	82	83	111	91	89	69	74	496	488	974	1.2	1.3	1.2	2.6
2	Bellary	19	18	915	58	36	78	78	142	164	121	131	164	126	122	118	118	743	743	1,566	1.6	1.6	1.6	3.5
3	Chingleput	21	21	2,371	384	389	290	322	296	304	275	312	334	375	441	416	443	2,170	1,996	4,106	3.7	3.1	3.2	4.3
4	Chittoor	21	21	1,558	517	624	564	647	682	684	628	718	658	1,147	1,148	1,165	1,147	5,071	4,880	9,951	4.7	4.4	4.5	5.2
5	Cuddapah	21	21	1,338	1,338	1,318	975	1,281	1,520	1,425	1,905	1,137	1,311	1,590	1,730	1,714	1,309	8,333	8,052	16,385	12.7	12.7	12.7	15.4
6	Gandur	12	12	4,587	4,056	4,468	1,248	1,353	1,554	1,591	1,884	1,808	2,321	2,212	1,593	1,411	1,664	10,251	10,045	20,297	18.5	18.0	17.2	22.6
7	Godavari	17	17	2,050	1,108	1,246	774	860	876	1,205	976	875	2,047	2,392	2,351	1,844	1,907	8,595	8,600	17,225	12.0	12.8	11.9	9.4
8	Guntur	15	15	979	809	1,318	1,072	949	1,128	2,221	1,846	1,793	2,891	2,658	2,227	1,843	1,480	10,812	10,424	21,286	14.4	14.1	14.2	...
9	Kistna	19	19	1,787	1,047	1,071	864	963	903	1,567	1,595	1,719	2,607	1,891	2,182	2,182	2,620	10,116	10,291	20,410	11.6	11.8	11.7	10.1
10	Kurnool	11	11	787	712	824	652	794	1,011	1,164	885	983	1,238	1,219	1,007	1,176	1,077	6,205	5,896	12,101	13.1	13.7	13.0	13.3
11	Madras	1	1	1	1	575	419	449	547	525	381	454	578	513	380	366	366	2,630	2,716	5,382	10.6	11.0	10.8	13.3
12	Madura	28	28	4,132	1,965	1,494	1,230	1,243	1,877	1,165	1,263	1,416	1,555	1,664	1,864	2,048	2,280	9,326	8,825	18,151	6.0	6.0	6.0	4.9
13	Malabar	19	18	673	689	1,715	1,696	1,808	1,973	1,748	2,418	2,804	2,977	2,424	2,103	2,015	2,367	11,289	12,709	25,998	9.7	9.0	9.3	8.3
14	Mallore	19	19	1,718	967	1,069	1,081	742	910	988	973	892	928	1,170	1,314	1,154	1,408	6,627	5,925	12,727	11.2	11.2	11.2	...
15	Nalgonda, Tho.	6	6	51	61	62	47	73	90	116	162	100	140	163	95	85	85	637	570	1,227	3.4	3.2	3.3	5.1
16	North Arcot	30	22	3,427	960	629	534	532	409	502	478	562	634	727	745	677	772	3,710	3,311	7,271	3.4	3.2	3.3	5.1
17	North Arcot	30	22	3,415	1,028	1,174	1,057	1,083	1,052	1,079	1,192	1,318	1,568	1,551	1,887	1,623	1,547	8,235	8,128	16,363	7.0	7.3	7.4	7.9
18	Salem	18	18	2,825	1,437	1,327	964	910	882	742	715	977	1,112	1,271	1,351	1,389	1,447	6,292	6,628	12,920	5.4	5.6	5.5	6.5
19	South Arcot	7	7	1,284	1,021	810	689	665	529	529	608	1,062	1,124	980	795	704	1,010	4,325	4,690	9,515	8.8	8.0	8.4	9.8
20	South Canara	23	23	2,825	1,391	656	599	638	584	635	577	641	792	837	908	880	863	4,090	4,478	8,568	3.8	3.8	3.8	3.9
21	Tanjore	36	36	1,624	1,042	969	661	651	677	690	626	887	890	1,062	1,021	1,151	1,305	5,320	5,282	10,602	6.3	5.0	5.1	5.1
22	Tinnevely	11	11	640	940	589	416	451	586	615	539	655	761	652	714	891	873	3,566	4,015	7,781	5.5	5.4	5.5	5.4
23	Trichinopoly.	27	27	2,264	1,193	2,595	2,366	2,540	2,358	2,968	3,163	1,284	1,210	5,130	4,883	3,478	4,660	21,881	22,294	44,145	21.5	20.9	21.2	14.3
Total, Madras Presidency		417	413	43,145	24,719	22,131	18,176	19,313	19,163	22,457	21,850	20,047	33,053	32,777	31,454	23,445	31,062	153,526	151,401	304,926	8.5	8.2	8.4	7.9

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

1.	2.	3.	4.	5.												6.		7.		8.					
Number.	Districts.	Circles of registration.		Villages.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.		Ratio of deaths per 1,000 of population.		Mean ratio per 1,000 for previous 5 years.			
		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.													Males.	Females.	Total.	Males.		Females.	Total.	
1	Anantapur	19	17	985	65	56	57	43	91	77	73	97	81	75	80	82	72	474	401	875	1.2	1.0	1.1	0.6	
2	Bellary	19	18	915	262	82	56	100	95	88	58	72	108	98	82	81	80	577	474	1,051	1.2	1.0	1.1	0.6	
3	Chingleput	21	17	2,271	236	59	36	44	30	56	41	75	73	98	60	45	86	378	292	670	0.8	0.4	0.5	0.4	
4	Coimbatore	21	19	1,558	169	186	177	142	198	227	212	194	826	284	223	201	289	1,302	1,300	2,602	1.3	1.2	1.2	0.7	
5	Cuddalore	21	19	1,384	914	121	77	115	135	120	103	108	136	110	118	110	108	752	613	1,365	1.1	1.0	1.1	0.6	
6	Ganjam	12	11	4,357	221	34	22	21	23	32	23	30	30	18	20	18	23	156	133	289	0.3	0.3	0.3	0.1	
7	Godavari	17	13	2,059	74	24	17	31	35	27	11	37	25	57	50	15	21	206	147	353	0.3	0.2	0.2	0.2	
8	Guntur	13	12	1,757	164	49	42	45	92	92	69	71	94	97	76	95	84	482	379	861	0.8	0.5	0.6	0.2	
9	Kistna	19	17	1,787	445	119	98	156	107	153	180	286	294	280	231	179	167	1,089	1,009	2,098	1.2	1.2	1.2	0.4	
10	Kurnool	11	10	1,787	445	119	98	156	107	153	180	286	294	280	231	179	167	1,089	1,009	2,098	1.2	1.2	1.2	0.4	
11	Madras	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
12	Madura	28	24	4,132	225	75	78	76	75	82	90	90	95	153	116	142	130	700	539	1,239	0.5	0.4	0.4	0.3	
13	Malabar	19	15	673	365	187	177	219	207	241	278	308	310	286	296	218	228	1,633	1,288	2,921	1.2	0.9	1.1	0.8	
14	Nellore	19	17	1,718	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15	Nikara, The	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
16	North Arcot	22	17	5,427	248	124	108	103	112	108	108	127	129	173	163	145	153	1,546	1,546	3,092	0.7	0.5	0.7	0.3	
17	Salem	20	19	3,895	314	97	83	71	97	74	79	91	93	89	108	110	108	686	514	1,200	0.5	0.5	0.5	0.4	
18	South Arcot	18	14	2,711	316	81	65	82	72	86	86	88	75	73	88	100	89	581	431	1,012	0.4	0.4	0.4	0.2	
19	South Canara	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
20	Tanjore	28	27	1,238	476	104	81	78	80	81	81	89	89	77	73	65	54	490	378	868	0.6	0.5	0.6	0.3	
21	Tinnevely	36	30	2,425	246	88	73	77	69	84	80	99	81	81	81	78	111	96	446	392	838	0.5	0.4	0.5	0.3
22	Tiruchinopoly	11	11	940	181	88	65	55	70	61	61	69	78	78	91	115	137	545	437	982	0.6	0.4	0.6	0.3	
23	Vizagapatnam	27	24	2,768	130	26	32	37	31	35	25	44	63	66	39	28	28	284	213	497	0.3	0.2	0.2	0.2	
Total, Madras Presidency		417	326	42,144	6,376	1,726	1,480	1,641	1,780	1,868	1,735	2,027	2,416	2,403	2,159	2,082	2,153	12,761	10,617	23,378	0.7	0.6	0.7	0.4	

Average of 4 years.

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

1	2	3	4	5												6		7		8				
Number.	Districts.	Circles of registration.		Villages.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 for previous 5 years.
		Number in each district.	Number from which deaths from plague were reported.	Number in each district.	Number from which deaths from plague were reported.													Males.	Females.	Total.	Males.	Females.	Total.	
1	Anantapur	10	1	985	3	1				1								174	151	325	0.008	0.008	0.004	0.7
2	Bellary	19	9	915	50	137	49	39	16	4		1						1	1	2	0.4	0.3	0.3	0.0
3	Chingleput	21	1	2,371	1													1	1	2	0.002	0.002	0.003	0.005
4	Coimbatore	21	4	1,558	4	18	9	2	1			1						15	15	30	0.01	0.01	0.01	0.6
5	Cuddapah	21	4	1,384	2	2												4	1	5	0.008	0.002	0.004	0.04
6	Ganjam	12	2	4,357	4					1								1	3	4	0.008	0.008	0.008	0.005
7	Godavari	17	5	2,059	11			1							19			9	11	20	0.1	0.01	0.01	0.008
8	Guntur	13		979		1												1		1	0.001		0.001	0.005
9	Kistna	11		1,787																				
10	Kurnool	11	3	787	3												3	1	2		0.005	0.005	1.003	0.3
11	Madras	1	1		1	16	34											24	32	56	0.1	0.01	0.1	0.0
12	Madura	28		4,132	1										1			24	32	56	0.005	0.005	0.005	0.005
13	Malabar	19		673				3	39	2	9	11	19		6		2	53	54	107	0.03	0.04	0.06	0.003
14	Nellore	19		1,718														53	54	107	0.005	0.005	0.005	0.000
15	Nikara, The	6	5	1	14	15	5	4	4	2				4	5	1	25	29	54	0.4	0.4	0.4	1.6	
16	North Arcot	22	4	5,427	14	10	10											15	11	26	0.01	0.01	0.01	0.3
17	Salem	20	4	3,895	14	8	4	17	4	3	1							35	36	71	0.1	0.09	0.01	0.7
18	South Arcot	18	7	2,711	6	1	6	17	12	1				1	7	32	8	13	74	37	0.01	0.02	0.02	0.001
19	South Canara	1		1	10	6	13	27	36	6	1	4	5		12	18	14	13	13	26	0.2	0.1	0.1	0.4
20	Tanjore	28		2,822																				0.000
21	Tinnevely	36		1,624																				0.005
22	Tiruchinopoly	11		940																				0.005
23	Vizagapatnam	27		2,768																				0.005
Total, Madras Presidency		417	58	43,146	140	207	132	113	88	82	18	31	26	77	64	56	74	664	484	1,148	0.003	0.003	0.003	0.3

No. XIII.—Statement prescribed by the Government of India in Letter No. 10—336, dated 8th December 1891, Home Department (Sanitary), communicated with G.O., No. 2654 L, M., 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.	Cholera.	Small-pox.	Fever.		Dysentery and Diar.	Injuries.	All other causes.	Cholera.	Small-pox.	Fever.	Dysentery and Diar.	Injuries.	All other causes.	
																		Years.
Adoni	September 1895.	1895	23.6	0.3	...	38.1	0.8	0.8	60.5	1890	19.2	...	...	51.6	...	...	2.1	46.3
		1896	26.4	1.0	0.1	31.2	0.9	0.6	66.2	1891	38.1	41.9	...	31.0	0.4	...	0.5	26.2
		1897	37.9	9.3	...	31.7	3.9	0.7	54.4	1892	22.7	13.1	...	38.1	3.0	...	1.0	44.8
		1898	26.5	...	0.3	28.7	5.3	2.7	62.0	1893	34.2	...	...	51.7	0.3	...	1.4	46.6
		1899	24.1	0.1	...	28.1	2.4	1.3	74.1	1894	24.3	0.3	...	37.0	...	...	1.4	61.3
		1900	24.4	...	...	34.3	5.3	0.5	59.3	...	...	...	...	...	...	...	...	...
		1901	20.1	0.8	...	30.0	2.9	0.7	66.1	...	...	...	...	...	...	...	...	...
		1902	56.5	11.2	...	3.4	0.8	1.3	85.3	...	...	...	...	...	...	...	...	...
		1903	23.1	...	0.6	6.0	10.3	0.2	81.2	...	...	...	...	...	...	...	...	...
		1904	71.3	...	...	2.8	2.6	0.2	94.4	...	...	...	...	...	...	...	...	...
Ootacanda	July 1903.	1905	31.1	0.3	17.2	5.7	11.3	0.1	65.4	...	...	...	...	...	...	...	...	...
		1906	33.8	13.4	0.4	5.1	16.8	1.6	62.7	...	...	...	...	...	...	...	...	...
		1903	20.4	1.0	...	13.2	13.2	1.1	65.8	1898	20.5	...	...	15.7	6.3	...	0.6	77.5
		1904	25.8	...	...	23.2	13.4	1.8	61.0	1899	28.1	...	1.3	19.2	9.1	...	1.2	69.2
Conjeevaram	July 1897.	1905	28.6	2.3	...	18.8	11.3	0.3	66.7	1900	23.8	9.6	0.8	18.8	10.1	...	1.3	59.4
		1906	37.5	11.0	1.1	12.6	12.5	0.2	62.6	1901	21.8	2.1	5.4	18.9	10.6	...	0.7	62.4
		1897	23.3	5.6	0.4	21.3	10.7	1.3	59.7	1902	...	...	0.1	22.6	12.5	...	0.5	64.3
		1898	29.4	1.1	0.6	13.5	13.0	1.4	70.4	1892	32.5	...	1.5	24.1	12.2	...	1.0	58.5
		1899	29.8	1.9	0.7	2.1	16.5	1.7	77.1	1893	30.6	2.7	2.2	26.0	13.0	...	1.8	55.7
		1900	31.2	2.0	1.6	4.5	14.2	1.1	76.5	1894	30.6	4.5	0.5	26.8	10.5	...	1.3	56.2
		1901	35.5	2.8	1.0	10.5	17.7	1.0	63.7	1895	33.6	5.3	0.8	22.2	11.7	...	0.3	56.7
		1902	32.8	3.1	1.0	11.6	26.9	1.5	59.9	1896	33.8	9.6	0.1	23.8	10.6	...	1.1	54.8
		1903	32.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		1904	32.0	1.2	0.1	11.0	19.7	1.6	67.8	...	...	...	...	...	...	...	...	...
		1905	28.8	0.3	6.0	5.8	13.3	1.1	65.5	...	...	...	...	...	...	...	...	...
		1906	34.3	5.6	5.3	5.1	18.2	0.6	54.2	...	...	...	...	...	...	...	...	...

(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.							
		Drainage.	Water-supply.	Cholera.	Small-pox.	Fever.	Dysentery and Diar.		Injuries.	All other causes.	Cholera.	Small-pox.	Fever.	Dysentery and Diar.	Injuries.	All other causes.
Ootacamund	Jan. 1893.	1893	31.9	1.6	...	30.6	17.3	0.5	49.7	1885	28.1	1.5	34.0	17.0	2.9	33.4
		1894	31.9	2.6	...	28.0	19.7	0.5	49.2	1886	28.1	...	27.1	14.7	...	32.6
		1895	27.9	...	...	21.3	13.6	1.2	63.3	1887	42.7	1.5	36.2	18.7	0.5	49.6
		1896	41.3	2.8	0.1	22.4	17.6	1.2	55.6	1888	33.1	2.8	22.3	14.1	1.1	37.9
		1897	43.8	5.6	0.4	20.8	15.5	1.9	55.8	1889	37.0	1.3	44.2	13.2	0.4	38.4
		1898	34.6	...	...	14.8	17.2	2.9	65.1	1892	...	...	...	...	...	...
		1899	28.0	...	...	9.4	22.9	1.8	65.9	...	...	...	...	...	...	...
		1900	36.5	...	1.4	20.1	19.4	1.8	57.0	...	...	...	...	...	...	...
		1901	23.4	1.0	...	20.2	14.9	0.3	63.0	...	...	...	...	...	...	...
		1902	29.0	...	...	25.1	19.0	0.8	55.1	...	...	...	...	...	...	...
Ootacamund	July 1893	1903	46.0	...	...	6.2	16.3	1.5	74.0	...	...	...	...	...	...	...
		1904	27.8	...	...	3.0	23.4	1.7	71.9	...	...	...	...	...	...	...
		1905	37.0	1.6	...	1.6	19.7	3.2	76.8	...	...	...	...	...	...	...
		1906	44.4	1.1	22.4	0.8	19.2	2.1	57.0	...	...	...	...	...	...	...
		1893	46.9	...	1.5	65.0	2.0	0.3	27.6	1888	31.7	2.5	25.6	5.5	1.2	48.6
		1894	38.9	...	1.9	49.9	4.4	2.0	40.9	1889	30.5	1.0	30.2	8.3	1.2	45.7
		1895	33.9	...	0.3	54.9	5.2	1.9	37.7	1890	43.0	0.9	50.1	5.0	0.6	36.9
		1896	21.7	0.5	5.6	40.6	3.7	2.4	41.2	1891	29.3	7.8	48.4	6.2	0.8	34.2
		1897	28.5	4.3	0.2	42.0	2.6	2.2	48.7	1892	35.3	1.0	43.8	3.1	1.7	40.2
		1898	24.7	0.2	1.8	49.4	3.1	0.8	45.7	...	...	0.3	...	...	...	...

Dindigul ...	...	Aug. 1896.	1893	23.1	9.0	1.1	25.4	11.3	4.5	48.7	1891	29.1	25.8	9.6	3.1	1.7	2.0	64.8	
			1897	22.1	47.3	2.2	1.3	7.0	1.3	37.4	1892	20.5	4.3	0.5	2.7	1.5	3.6	82.4	
			1898	18.9	15.7	1.1	22.3	13.6	2.1	45.2	1893	23.5	10.8	0.2	5.4	5.9	1.5	76.3	
			1899	18.9	...	10.7	22.0	11.5	2.6	53.2	1894	23.7	4.8	...	14.6	8.8	2.9	68.9	
			1900	25.6	25.2	4.4	15.3	16.0	0.8	38.0	1895	21.7	0.9	...	19.2	12.3	2.3	65.3	
			1901	16.6	11.9	1.2	20.3	18.4	1.7	46.5	...	...	...	...	...	...	...	...	
			1902	17.5	...	0.2	11.1	20.0	1.8	66.9	...	...	...	...	...	...	...	...	
			1903	25.5	...	...	18.3	21.5	0.8	69.2	...	...	...	...	...	...	...	...	
			1904	33.1	0.8	...	15.4	18.9	1.2	64.3	...	...	...	...	...	...	...	...	
			1905	80.9	0.1	19.3	15.0	14.7	0.6	49.7	...	...	...	...	...	...	...	...	
1906	39.6	15.3	2.1	17.3	12.7	0.6	52.0	...	...	...	...	...	...	...	...	...			
Kambakonam ...	...	Oct. 1894 ...	1894	37.5	17.3	0.5	18.9	10.0	0.5	52.8	1889	84.8	6.9	9.7	14.8	16.2	0.9	51.5	
			1895	31.2	3.2	0.7	21.9	11.4	0.7	62.1	1890	31.6	8.1	10.2	17.2	13.4	0.6	50.5	
			1896	34.2	9.3	...	20.0	11.6	0.6	58.5	1891	30.5	11.3	1.6	20.2	13.0	0.4	53.5	
			1897	89.9	26.2	...	16.2	11.5	0.4	45.7	1892	29.1	9.2	1.3	20.1	18.4	0.6	56.4	
			1898	30.0	11.8	...	15.1	10.3	0.7	62.1	1893	36.2	19.5	1.3	14.5	11.6	0.7	52.1	
			1899	86.4	13.0	...	14.7	9.3	1.1	61.3	...	...	...	...	...	...	...	...	
			1900	30.3	8.4	...	14.6	6.9	0.8	74.3	...	...	...	...	...	...	...	...	
			1901	31.9	10.2	0.1	15.9	7.4	1.2	65.2	...	...	...	...	...	...	...	...	
			1902	29.1	5.5	0.1	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	8.5	0.2	79.3	...	...	...	...	...	...	...	...	...			
1906	35.8	13.4	7.2	9.6	9.0	0.9	53.9	...	...	...	...	...	...	...	...	...			
Karnool ...	...	Oct. 1897.	1897	53.2	11.3	3.2	40.6	12.7	0.2	32.0	1892	55.2	10.0	...	56.7	3.3	1.5	28.5	
			1898	24.6	...	...	50.8	16.0	1.0	42.2	1893	30.2	...	...	...	4.2	3.0	34.9	
			1899	27.0	...	...	48.2	15.7	2.3	33.5	1894	31.3	3.1	0.1	57.9	4.5	2.1	43.1	
			1900	29.6	...	0.3	45.6	16.8	2.8	34.5	1895	30.5	6.2	0.4	47.0	8.4	0.5	46.5	
			1901	32.0	...	...	49.9	15.8	1.9	32.4	1896	30.4	4.0	1.9	44.1	3.6	0.7	45.7	
			1902	30.0	2.0	...	37.4	13.9	3.3	43.4	...	...	...	...	...	...	...	...	
			1903	20.4	...	0.1	24.8	17.9	2.3	54.9	...	...	...	...	...	...	...	...	
			1904	26.1	...	...	19.9	22.0	2.7	55.4	...	...	...	...	...	...	...	...	
			1905	35.5	...	2.8	26.7	18.7	2.1	50.7	...	...	...	...	...	...	...	...	
			1906	43.5	16.9	1.9	29.3	11.1	0.7	40.1	...	...	...	...	...	...	...	...	
Madras ...	...	April 1872.	1872	35.2	...	...	...	...	...	...	1867	27.2	...	...	...	...	...	...	
			1873	36.7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
			1874	38.6	...	...	...	...	...	...	...	...	1868	23.7	...	...	...	...	...
			1875	38.6	...	...	...	...	...	...	...	...	17.5	...	...	...	...	...	...
			1876	38.6	...	...	...	...	...	...	...	...	1870	26.4	...	...	...	...	...
			1877	38.6	...	...	...	...	...	...	...	...	1871	28.9	...	...	...	...	...
			1877	47.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			1878	47.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			1879	34.7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			1880	37.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

[illegible]

	1903	25.1	5.1	0.1	20.2	15.3	0.9	53.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..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PART II.

SANITARY ENGINEERING.

25

THE SEVENTEENTH ANNUAL REPORT

OF THE

SANITARY ENGINEER TO THE GOVERNMENT OF MADRAS.

1906.

I.—INVESTIGATION OF SCHEMES.

THE investigation of the following schemes in 1906 was approved by Government:—

- (1) Berhampur water-supply.
- (2) Masulipatam do.
- (3) Trichinopoly drainage.
- (4) Srirangam do.
- (5) Mangalore do.
- (6) Revision of type designs other than those for hospital buildings.
- (7) Negapatam drainage.
- (8) Periyakulam water-supply.
- (9) Anantapur do.

Preparation of plans and estimates for schemes included in the annual programme was delayed by the employment of most of the drawing office in the completion of plans and estimates for the Madura drainage scheme brought forward from the 1905 programme. This scheme estimated to cost Rs. 13,63,930 will be referred to further on.

(a) Schemes on the Programme for 1906.

(1) *Berhampur water-supply.*—The Sanitary Board requested the Sanitary Engineer to draw up in connection with a water-supply for this town, any one of the following schemes which could be carried out for two lakhs of rupees:—

(1) A scheme to supply 15 gallons of water per head of population, filter beds of one day's capacity, 14-inch delivery main, distribution mains up to 10,000 feet, the storage tank to be of five months' capacity and the delivery main to be of stoneware pipes if they would stand the pressure.

(2) The same scheme as above but for a 10-gallon supply only, the delivery main to be suitable however for a 15-gallon supply. Accordingly two schemes were prepared. The first scheme was a complete one and consisted of a storage tank to hold five months' supply plus the usual allowance for evaporation and absorption, filter beds, steel delivery main, service reservoir, and complete distribution mains. This scheme was designed to give 15 gallons per head per day to a population of 30,000, and was estimated to cost Rs. 3,17,500 or Rs. 3,02,900, omitting the pumping arrangements required to permit of the water in the deep bed of the storage tank being pumped out during scarcity of supply in dry years.

The second scheme, a partial one and prepared to meet the Sanitary Board's requirements of a two-lakhs scheme, was on the same lines as the first scheme, but one of the filter beds, a number of branch distribution lines and the pumping arrangements for drawing off water from the deep bed of the tank were omitted.

A service reservoir was however included, although not referred to by the Board. The cost of this second scheme was Rs. 2,36,000. If the service reservoir is omitted in the first instance, the cost of the scheme is reduced to Rs. 2,20,450, or Rs. 20,450 more than the limit laid down by the Sanitary Board. It must however be remembered that the two-lakh limit was based on a storage tank of three months' capacity and a rate of draw off of only 10 gallons per head per day. The capacity having been increased to five months' storage, and a draw off of 15 gallons per head per day, is the reason for the increase in the capital cost of the scheme over the two-lakh limit. The scheme being practically always a gravitation one, the annual working cost is comparatively small.

(2) *Masulipatam water-supply*.—The proposal to provide Masulipatam with a filtered water-supply at an approximate cost of Rs. 2,55,000 referred to in last year's report was endorsed by the Sanitary Board and Government in their order No. 915 M., dated 14th May 1906, requested the Sanitary Engineer to prepare detailed plans and estimates. Surveys and levels were accordingly taken and the preparation of plans and estimates was well advanced at the close of the year.

(3) *Trichinopoly drainage scheme*.—The necessary surveys and levels for

(4) *Srirangam drainage scheme*.—these schemes were completed and the

(5) *Mangalore drainage scheme*.—preparation of plans and estimates was in progress at the end of the year. The schemes will be submitted as early as possible.

(6) *Revision of type designs*.—Preparation of revised plans progressed during the year and the new types will be submitted in 1907.

(7) *Negapatam drainage scheme*.—Plans and estimates are in progress and will be completed as soon as possible.

(8) *Periyakulam water-supply*.—This scheme was ordered to be included in the programme for 1906 and final orders passed in G.O., No. 460 M., dated 12th March 1906. Plans and estimates were prepared and two alternative estimates were submitted during the year.

The first estimate amounted to Rs. 1,80,430 and the second to Rs. 1,46,670 with annual maintenance charges of Rs. 6,877 and Rs. 5,371 respectively. Both schemes provide a supply of 15 gallons per head for a population of 24,000.

The proposals are—To build a small dam across the Varahanadi channel so as to divert the water in the channel into an offtake and screening chamber, to carry the water from the screening chamber by a 10" steel pipe to filter beds thence to a clear water reservoir and to distribute the water by pipes and fountains in the usual manner.

(9) *Anantapur water-supply*.—This scheme could not be taken up in 1906 owing to want of sufficient staff. Surveys and levels are now in progress and the scheme will be submitted in 1907.

(b) Additional Schemes.

As usual a number of additional schemes outside the programme were undertaken by the Sanitary Engineer during 1906—

(1) *Madura drainage scheme*.—This scheme being a large and important one could not be completed in 1906, but was submitted to the Sanitary Board in September 1906 and received their approval and also that of Government during the year.

Owing to the flat nature of the location of Madura, the town has had to be divided into five sections with a pump well in each section. Oil-engines and centrifugal pumps are provided to pump the sewage of each section through a rising main to a sewage farm on the outskirts of the town. Stoneware pipe sewers are proposed to be laid in each street at self-cleansing gradients. The minimum gradients adopted are such as to ensure a velocity of $2\frac{1}{2}$ feet per second as calculated by Kutter's formula or over 3 feet per second if the formula of Santo Crimp is adopted.

House connections are provided with disconnecting traps and ventilating shafts and air inlets are provided to allow of the escape of sewer gas. Manholes are provided at a maximum distance apart of 300 feet and also at all branch junctions and changes of direction.

The sewers gravitate to five pump wells—one for each section of the town. Tank sewers in connection with the pump wells are provided for variation of flow.

Each pumping station is provided with three oil engines and centrifugal pumps suitable for the work to be done up to the year 1921 when the plant will require to be replaced by larger engines and pumps to cope with increased quantities of sewage. One oil engine and pump at each station is capable of pumping all the sewage of its section in 24 hours. A second oil engine and pump can be started to pump the same quantity of sewage or of rainfall as desired.

Both oil engines and pumps are designed suitable for working at the same time and will then pump all the sewage of the section in twelve hours if required.

The third oil engine and pump is in reserve against breakdowns. The extent of sewage farm available is 75 acres and by the growing and sale of hariali grass on this area an income of Rs. 15,000 per annum is expected based on the results of the Madras City Farms.

The total cost of the drainage scheme for the whole town is estimated at Rs. 13,63,930 and the working cost of pumping operations only, excluding interest and sinking fund and omitting any profit from the sewage farm is estimated at Rs. 25,308 per annum.

Plans and estimates for a septic tank for Madura were also submitted, although it was not considered that the construction of the tank was immediately required owing to the tank sewers being available for the partial breaking down of solids in the sewage at any rate for the first few years of working.

The cost of the septic tank was estimated at Rs. 35,050.

(2) *Water-supply of Salem*.—Plans and estimates for the storage tank portion of this scheme were submitted in 1905. The proposals were, to enlarge the existing Panamarathupatti tank and to provide a movable weir across the river supplying the tank and also a new supply channel. These proposals were estimated at Rs. 1,99,745. Government after consideration desired to have the whole scheme including the filter beds, delivery main, service reservoir and distribution mains estimated in detail before passing orders on the proposals.

Accordingly during 1906 this work was undertaken.

The proposals were, to lead a 16-inch outlet pipe from the offtake tower in the tank bund to filter beds below the bund and to convey the water after filtration by a 16-inch steel pipe along the most suitable line to the point where the town begins. From this point the pipe was increased in size to 18 inches so as to serve as a distribution pipe as well and led to a service reservoir located on the high ground at the opposite end of the town. The total length of steel main will be 9 miles, the last $1\frac{1}{2}$ miles being of 18 inches in diameter so as to serve the double purpose of a delivery and a distribution pipe thus saving the cost of a second pipe of $1\frac{1}{2}$ miles in length. During the 8 hours of night supply to service reservoir the main will serve as a delivery main to fill the reservoir. During the day half the draw-off at taps will come from the reservoir and half from the filter beds. These filter beds will however be subjected to a steady and maximum draw-off ensured by regulation of the valves.

Owing to the reported high cost of land to be submerged by the increased waterspread of the tank and the acquisition of a village in the catchment area, the cost of the scheme is somewhat greater than anticipated, but the scheme remains the cheapest (Rs. 7,45,330) yet worked out for the town of Salem. The scheme being a gravitation one has the merit of requiring a low annual expenditure for maintenance.

(3) *Cuddapah water-supply*.—As the existing infiltration trench at the head-works of the water-supply of this town gave an insufficient supply in dry years an investigation was carried out in 1905 to find the most suitable source of underground water. The idea of an artesian supply was abandoned and plans and

estimates were drawn up in 1906 for sinking a large well and forming a gallery on the island near the existing infiltration trench, building a new engine-house and erecting oil engines and deep well pumps. The capital cost of these proposals was Rs. 31,500 and the annual working costs of the present supply were expected to be reduced by Rs. 1,000.

The Sanitary Board having approved of these proposals Government asked the Municipal Council if they accepted the scheme and how they proposed to finance it. The Council having raised the question as to the feasibility of having a gravitation scheme, this question will be settled as soon as fresh levels have been taken.

(4) *Tuticorin water-supply.* Plans and estimates for filter beds and pumping plant which were stated in last year's report to be under preparation were completed in 1906 and forwarded to the Sanitary Board. The Sanitary Board having approved of the complete proposals submitted by the Sanitary Engineer the Council was addressed by Government on the financial point and the plans and estimates were forwarded to the Public Works Department for scrutiny and professional sanction.

(5) *Tanjore water-works extensions.*—Plans and estimates for a service reservoir for the water-works of this town called for in G.O., No. 2396 M., dated 14th November 1905, were prepared and submitted during the year.

The proposal recommended was to construct a reservoir to contain 8 hours' supply to the town and to arrange to pump water from the infiltration gallery to fill this reservoir during the night. The cost of the 8 hours' service reservoir, including the necessary rearrangement of the main pipe line, was estimated at Rs. 83,820. Estimates were also submitted for reservoirs to hold 12 hours' and 24 hours' supply, but the 8 hours' proposal was recommended on financial grounds.

(6) *Trichinopoly water-works extensions.*—During the year the question of increasing the supply to the town of Trichinopoly received attention and it was recommended that the service reservoir on the lower rock, plans and estimates for which had been prepared in 1901 but held over for want of funds, should now be constructed at a cost of Rs. 63,300. It was considered that the provision of this reservoir at Trichinopoly and also the one at Tanjore would not only ensure a constant supply throughout the 24 hours, but would also increase that supply as the engines and pumps could be worked for 24 hours (instead of 16 hours as at present) at an even rate and the variation in the speed of the pumps necessitated by the variable requirements of a direct pumping scheme would be eliminated. This besides helping to extend the life of the pumps would reduce the rate of draw-off from the infiltration works and so result in greater bacterial efficiency than is the case at present during hours of maximum draw-off. The proposals for the Trichinopoly reservoir received the approval of Government and the plans and estimates are now under scrutiny by the Public Works Department.

(7) *Tinnevely water-works.*—Tests were carried out during the year to ascertain the yield of sub-soil water from the Veppankulam springs which had been proposed as a possible source of water-supply for the town of Tinnevely. The Veppankulam well was deepened and two other wells sunk.

The yield from Veppankulam well was found to be 120 gallons per minute and the yield from one of the two new wells 16 gallons per minute with a head of inflow of 4 feet. The third well was not approved on sanitary grounds. It was calculated that 9 wells of equal supply to the Veppankulam well would supply 300,000 gallons per day or 10 gallons per head to a population of 30,000.

Plans and estimates were accordingly drawn up for digging an infiltration trench 2,625 feet long and it was recommended that the excavation of the trench should proceed from the Veppankulam end and the yield should be periodically tested during execution. It was also recommended that the preparation of detailed plans and estimates for the complete water-supply scheme should be deferred until the results of these periodical tests on the trench were available. The cost of the whole trench was estimated at Rs. 32,750, and it was stated that the approximate cost of the complete scheme of water-supply would be Rs. 2,63,000. The Sanitary Board having approved of these proposals, Government called on the Municipal Council to report on the allotment of funds for carrying out the trench work.

(8) *Water-supply to Salem Jail.*—During the year proposals for providing this jail with a complete piped supply were scrutinised and revised plans and estimates amounting to Rs. 13,830 prepared.

(9) *Coimbatore hospital.*—Revised plans and estimates for the administration block and certain other items were prepared and forwarded to the Sanitary Board as ordered in G.O., No. 1774 M., dated 25th August 1905.

(10) *Madras drainage works.*—During the year a report containing proposals for the improvement of the Madras City drainage was forwarded to Government. Approximate estimates were also submitted for the works considered necessary.

The proposals comprised—

(1) The expenditure of Rs. 5,79,000 at once in providing larger engines and pumps at the Georgetown pumping station and the provision of a second pumping station in the same section of the city. Minor improvements in the drainage works were also included.

(2) The redesign of the Tondiarpet section on the principles laid down by the Sanitary Engineer, Rs. 10 lakhs.

(3) The improvement of the five sections of the City drainage works already completed at a cost of 18 lakhs.

It was recommended that the third proposal should be carried out after experience had been gained of the working of the Tondiarpet section on the improved principles.

These proposals received the approval of the Sanitary Board and were accepted by Government, and, in G.O., No. 1671 M., dated 17th September 1906, the President was requested to call upon the Corporation Engineer to prepare plans and estimates for the above works.

The Corporation having discussed the proposals at several meetings adopted the first two. With reference to the third proposal they resolved "that the works done in the old five sections need not be disturbed and the Corporation sees no objection to postpone the continuance of the drainage works in these sections until after the Tondiarpet section is redesigned."

(11) *Ellore water-works.*—Before deciding on the source of supply to this town Government desired to have definite information as to whether a sufficient and pure supply could be obtained from the sandy bed of the Tammilér river which passes round the town.

Samples of water were accordingly taken both from existing wells and from a temporary excavation in the bed of the river at the proposed site of headworks, the bifurcation of two rivers.

The results of the chemical and bacteriological examinations being unsatisfactory further tests were ordered. It is proposed to take new samples from a site 1,800 feet further up the bed. The investigation of the quality and quantity will be carried out in 1907 and, if successful, a scheme of water-supply will be drawn up, the source of supply being an infiltration gallery in the sub-soil and sandy bed of the Tammilér river.

If the tests are unsatisfactory it will be necessary to fall back on the sand filtration scheme, already drawn up with the source of supply, the Ellore canal of the Kistna delta system.

(12) *Government House, Guindy.*—Plans and estimates for improving the water-supply of Government House, Guindy, were prepared during the year. The estimated cost of the works was Rs. 14,850.

(13) *Sanitary improvements of Bellary town.*—Government, in their order No. 926 M. of 15th May 1906, approving the recommendation of the Sanitary Board that a survey of the town should be carried out by the Sanitary Engineer and that detailed proposals and estimates should be drawn up for opening out the congested parts of the municipality, requested the Sanitary Engineer to take up the work as soon as possible and to report cost of the special staff necessary for the purpose. This was done and the required funds having been provided by the Council, the work will be undertaken during 1907.

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II.—EXECUTION OF WORKS.

(a) Works under execution by the Public Works Department.

(1) *Vellare water-works*.—Estimated cost Rs. 3,77,520. Budget allotment 1906-1907 Rs. 21,000.

This work was under execution during the year. The pipe-laying was completed and the construction of the bund of the storage tank, the filter beds and the clear water reservoir made satisfactory progress.

(2) *Gudipattam water-works*.—Estimate Rs. 59,000. Allotment Rs. 28,400 was under execution during the year.

The Council having now stated their opinion that the part of the town which lies to the south of the river should also be provided with water-mains, which mains had been left out of the original estimates on financial grounds, the Sanitary Engineer was requested by Government to submit plans and estimates for the extensions. The estimate will be prepared in 1907.

(3) *Nellore water-supply*.—Estimated cost Rs. 1,77,200. The estimate for this scheme was revised in 1906, the cost being reduced from Rs. 1,81,000 to Rs. 1,77,200 and finally approved by Government. An indent for the necessary engines, pumps and cast-iron pipes was prepared by the Sanitary Engineer and forwarded to the Director-General of Stores.

The work is under execution by the Nellore Division, Public Works Department.

(b) Works under execution by the Sanitary Engineer to Government.

(1) *Saidapet water-works*.—The execution of the headworks of this scheme with the view of testing the yield of water progressed.

The site of the headworks is about $1\frac{1}{2}$ miles from the Cantonment of St. Thomas' Mount and on the extreme boundary of the land forming the Cantonment.

The site which was shown as poramboke in the revenue register was claimed by the Cantonment Authorities after work had been progressing for eight months. As the land in dispute does not appear to be essentially required for Cantonment purposes, the Government of India has been addressed by the local Government to exclude the site in question from the Cantonment limits.

(2) *Guntur water-works*.—The proposed improvements to the headworks to protect them from possible contamination and also with the object of obtaining an additional supply at an estimated cost of Rs. 31,700 were started at the end of the year.

(3) *Coonor water-works*.—The extensions of these works at an estimated cost of Rs. 49,828 were completed in the early part of the year.

(4) *Arisipalyam water-supply, Salem*.—A severe drought prevailed in Salem during the year under report and on this fact being brought to the notice of Government, the Sanitary Engineer was directed to take immediate steps to deepen the Arisipalyam tank and to erect an oil-engine and pump and a reservoir with taps in order to prevent the contamination of the available supply.

The Arisipalyam tank is a square tank 150 feet long and 106 feet wide at top, 37 feet deep, the bottom being reached by two broad flights of stone steps, one on each side of the tank. The other two sides have vertical masonry walls. In times of scarcity when the water falls to a low level it is customary for the people to actually enter the water in the operation of withdrawing it with the result that the dust from their feet is deposited in the water and so contaminates it.

In accordance with the orders received, the tank was deepened 6 feet in the portion which showed the best springs and an oil-engine pumping plant erected to pump the water into a masonry reservoir, on the road level, of 5,775 gallons capacity provided with a large number of taps. The work was begun on the 11th May 1906, and the pump started on the 15th June, supplying the water to the reservoir. As there was a great variation between the water level in the tank in

the dry weather and that during two months of the rainy season a second high level pump was also erected to be driven by the same oil-engine. The supply of water has been much appreciated by the towns people.

The total cost of the work was Rs. 5,600, which amount owing to the generosity of Government and in view of the state of the municipal finances was entirely borne by Government.

(5) *Ootacamund drainage works*.—Estimated cost Rs. 3,83,020.

These works were in progress throughout the year. The expenditure for 1906-1907 being Rs. 1,58,000, of which Rs. 82,000 was for pipes and fittings and Rs. 76,000 for local expenditure. The improvements to main sewer, the sewage farm and drainage of three blocks in the bazaar were completed, while four other blocks, the septic tank and flushing arrangements to the main sewer were in progress. Work was delayed among other reasons by an abnormal wet season. The works are expected to be completed by December 1908.

III.—MAINTENANCE OF WATER-WORKS.

The Municipal Councils have from time to time been advised of the defects and deficiencies observed in the maintenance of their water-works. The weekly statements issued to each Council have been continued and a check has been maintained on the consumption of fuel and stores.

The machinery at each pumping station was as usual inspected and the reports on the state of the plant and working of the various stations will be found in the Boiler Inspector's annual report.

The following statement shows the quantity of water pumped and cost of maintenance in all towns having a water-supply by means of pumping during 1905-1906:—

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	Coimbatore	48,000	107,437,191	6'1	45'10	50	8,680	471	1,518	20	6,909	1'23	Worthington horizontal compound surface condensing.	Locomotive.
2	Conjeevaram.	46,164	188,188,081	9'9	42'11	55	8,897	502	1,367	631	6,397	0'90	Worthington horizontal compound direct acting non-condensing.	Do.
3	Kurnool	25,878	98,870,373	10'6	45'50	48	3,001	1,170	2,004	452	6,728	1'40	Invincible vertical twin series centrifugal pumping engine.	Do.
4	Madurai	105,064	512,670,911	12'3	32'45	54	11,206	708	2,388	1,039	16,463	0'98	Worthington triple expansion horizontal surface condensing.	Do.
5	Tanjore	67,870	308,135,638	18'5	80'74	108	9,015	1,442	2,232	6,935	20,624	0'52	Worthington vertical triple expansion surface condensing.	Babcock and Wilcox patent water tube.
6	Trichinopoly (Main).	104,721	656,101,091	19'8	86'19	103	15,074	3,354	5,455	3,372	27,297	1'47	Worthington vertical triple expansion surface condensing.	Do.
7	Trichinopoly (Sub).		91,855,005	...	55'44	50	3,375	286	1,121	33	4,778	0'88	Worthington horizontal triple expansion surface condensing.	Locomotive.

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

† During the year the new 15 brake horse-power Diesel oil-engine worked 1,082 hours, while the steam plant worked 1,800 hours. The cost of liquid fuel for the Diesel engine was found to be 9'12 pice per pump horse, while the corresponding cost of working the steam engine was 3'1 annas.

During the year the water-supply of all towns was analysed both chemically and bacteriologically, before and after the supply had undergone the process of filtration.

Steps will be taken during the ensuing year to rectify the defects brought to light by the analyses.

IV.—MINOR SANITARY WORKS AND TYPE DESIGNS.

Plans and estimates for works estimated to cost more than Rs. 1,000 for 4 minor drainage works, 22 minor water-works, 16 hospitals, 19 markets and 4 miscellaneous works were checked and scrutinised. In addition to the above, plans and estimates for works costing between Rs. 500 and 1,000 for 1 minor drainage work, 14 minor water-works, 2 hospitals, 11 markets, 6 slaughter-houses, 2 latrines and 1 miscellaneous were also examined and approved. Professional sanction was also given for 3 minor drainage works, 7 minor water-works, 7 hospitals, 15 markets and 1 miscellaneous. The total sanitary works dealt with during the year amounted to 135.

Type designs for

(1) Hospital with terraced roof, and
(2) Veterinary hospital with tiled roof,
were prepared and submitted and were issued by the Sanitary Board as type designs Nos. 1/1906 to 46/1906 and 100, respectively.

V.—CONCLUDING REMARKS.

The staff has worked satisfactorily during the year, the only regrettable event being the death of M.R.Ry. M. Rama Rao Naidu, the Manager, who filled this post with great ability for seven years and whose death is a loss to this office.

W. HUTTON, A.M.I.C.E.,
Sanitary Engineer to Government.

OFFICE OF SANITARY ENGINEER TO GOVERNMENT,
KENSINGTON HOUSE, POONAMALLER ROAD,
CHETPUT, MADRAS, 25th March 1907.

Nos. 901, 902 L., 27th June 1907.

GOVERNMENT OF MADRAS.
LOCAL AND MUNICIPAL DEPARTMENT.

Read—the following paper :—

Proceedings of the Sanitary Board, No. 164-S., dated 17th May 1907.

Read—the following papers :—

Report of the Sanitary Board for 1906.
Report of the Sanitary Engineer for 1906.
Report of the Sanitary Commissioner for 1906.

Resolution—No. 164-S., dated 17th May 1907.

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.

(True Extract.)

R. PARSONS,
Secretary, Sanitary Board.

To the Secretary to Government, Local and Municipal Department,
Copy to the Sanitary Commissioner,
" " Sanitary Engineer.
with enclosures.

Order—No. 901 L., dated 27th June 1907.

The reports of the Sanitary Board, the Sanitary Commissioner and the Sanitary Engineer, submitted with the Proceedings of the Sanitary Board read above, deal with the sanitary history of the year 1906.

2. Notwithstanding the fact that the total average rainfall of the year exceeded that of the previous year, the price of each class of food-grains was considerably above the average.

3. Taking the Presidency as a whole, exclusive of the hill tracts of Ganjam and Vizagapatam and certain * trifling areas in the districts of Malabar and South Canara in which vital statistics continue to be

unregistered, the recorded birth-rate was 30.9 per mille of the population or 1.1 below that of the previous year notwithstanding the fact that the provisions of Act III of 1899 were extended to 68 towns and villages in addition to the 635 places in which it was already in force. This result is attributed by the Sanitary Commissioner partly to defective registration and partly to the dearth of food-grains referred to in the preceding paragraph. The decrease in the birth-rate, as compared with the previous year, exceeded 3 per mille in five districts excluding Madras, the largest decrease being reported from the Nilgiris where the rate was 27.4 against 32.2 per mille in 1905. There was, on the other hand, an increase in the rate recorded in seven districts, the excess in Anantapur (6.1) and Bellary (3.8) being particularly noticeable. The rates for individual districts varied considerably and ranged from 37.6 per mille in South Canara to 20.4 in Nellore. These figures doubtless afford some indication as to the varying degree of attention paid to the subject of registration in the several districts.

4. The recorded death-rate for the Presidency rose from 21.4 to 27.4 per mille and was also in excess of the decennial average by 5.6 per mille, the increase which occurred in all districts except three (excluding Madras) being attributed to the heavy mortality from cholera and small-pox. Increases in excess of 10 per mille occurred in

Kistna (14.3), Gódvári (12.2), Kurnool (12.2) and Vizagapatam (11.0). As in the case of births, there were considerable variations in the rate of deaths for individual districts, which varied from 34.3 in the Nilgiris to 22.0 in Nellore. It is evident that the registration of vital statistics in the district of Nellore is very defective, and the attention of the Collector is invited to the subject.

5. As in previous years, the registration of vital statistics within railway limits outside Municipalities was attended to by the stationmasters to whom was entrusted the duty of reporting to the local registrars the births and deaths occurring within these limits.

6. With regard to registration in municipal areas a decrease compared with the previous year was reported in the birth-rate in all except 15 municipal towns being particularly noticeable in Tiruvannamalai, Chingleput, Madras, Coonoor, Nellore and Ongole. The large decline (15.1), in the case of Tiruvannamalai, is attributed to the evacuation of the town on the outbreak of plague. On the other hand, large increases were recorded in Amritapur, Tirupattūr and Adoni which may be ascribed to the return to the normal population consequent on the absence of plague. The rates for individual Municipalities ranged from 61.7 per mille in Vaniyambadi to 24.9 in Nellore.

The recorded death-rate in all Municipalities rose in the aggregate from 35.8 to 38.3 per mille, the increase, which occurred in all but seven towns, being ascribed to the heavy mortality from cholera, small-pox and fevers. The increase was particularly large in Periyakulam, Guntūr, Amritapur, Rajahmundry, Nandyal, Vellore and Coimbatore; the death-rate in each of these towns being in excess of 40 per mille. The decreases in Madras, Tiruvannamalai and Mangalore were noticeable. The mortality among infants in municipal towns averaged 260 per mille against 191.2 in the districts, the higher rate in the former case being apparently due to more accurate registration. The heaviest infantile death-rate (324.9 per mille) was reported from Coonoor, while excesses amounting to 50 per mille and above, as compared with the rate for the previous year, occurred in 15 other towns. The excessive infantile mortality in the Nilgiri district and in both the Municipalities (Coonoor and Ootacamund) in that district is probably attributable largely to the rigour of the climate.

7. As in previous years, fever continued to be the chief classified cause of death, having accounted for a mortality of 8.7 per mille of the population in rural tracts and 5.9 in urban areas, but the proportion of deaths 11.6 per mille in rural areas and 16.3 per mille in municipal towns ascribed to "all other causes" is still much larger than it should be. The attention of the Local Boards is drawn to the remarks of the Sanitary Commissioner in paragraph 31 of his report that no information has been furnished to him as to the steps taken by them on the lines indicated in G.O., No. 917 L., dated 2nd August 1904, towards the suppression of malaria in areas infested with mosquitoes. The Presidents of District Boards are requested to supply the required information to the Sanitary Commissioner, who will then submit to Government a special report on the subject.

8. From the statistics furnished in Appendix XIII to the report, it appears that in the ten District Municipalities in which an improved system of water-supply has been in force for more than five years, the average mortality from fever was 14.9 per cent. of the total mortality during the last five years against 29.4 per cent. during the five years previous to the date of its introduction, while the deaths from cholera averaged 2.7 and 3.5 per cent. respectively during these periods.

9. Cholera was responsible for a mortality of 3.9 per mille of the population in districts against 0.5 per mille in 1905 and was the heaviest recorded since 1897.*

1897	4.4 per mille.	No district was free from this epidemic
1898	2.0 "	and the heaviest mortality occurred in
1899	0.9 "	Kistna (8.9), Gódvári (8.3), Kurnool
1900	1.8 "	(7.6), Ganjam (6.4) and Tinnevely (6.2).
1901	2.2 "	It was prevalent in all the municipal towns
1902	0.8 "	except Kodaikānal, Coimbatore and Manga-
1903	0.7 "	lore and was virulent in Ellore, Nandyal,
1904	0.6 "	Palmi, Periyakulam, Palaniottai and
1905	0.5 "	Tinnevely, the mortality being more

than 10 per mille in each case. The total mortality in Municipalities was 3.7 per mille of the population against 1.8 per mille in 1905.

10. Small-pox was also prevalent in every district and accounted for a mortality of 0.8 per mille of the population against 0.5 per mille in the previous year. The death-rate exceeded 2 per mille in Bellary, North Arcot and the Nilgiris. Vaccination was made compulsory during the year in four taluks of the North Arcot district, and a reduction in the mortality may be looked for in this district in the current year. As regards the remaining taluks in the district and the areas comprised in Bellary and the Nilgiris, the District Boards should consider to what extent it may be desirable to take steps for the extension of the compulsory provisions of the Local Boards Act in this respect to localities in which they are not now in force. The epidemic prevailed in all municipal towns except 10, and the incidence of mortality was heavy in Coimbatore (12.1), Vellore (10.5), Coonoor (10.0) and Gudiyattam (5.1) and evidences the neglect of the Councils concerned to enforce strictly the compulsory provisions of the District Municipalities Act. The fact that more than a third of the total number of deaths from small-pox occurred among children between one and ten years of age indicates serious neglect of infantile vaccination or that the operation was imperfectly performed. Systematic revaccination should also be kept steadily in view by all District Boards and Municipal Councils. The trial scheme for the improvement of the vaccination establishments which has been introduced during the year in the Chingleput district generally and in selected areas of the North Arcot, South Arcot and Madras districts will, it is hoped, contribute largely to the diminution of the mortality from small-pox.

11. It is gratifying to note that the number of deaths due to plague fell from 20,125 in 1904 and 5,788 in 1905 to 898 in 1906, more than 50 per cent. of the deaths in the last-mentioned year having occurred in Bellary alone. Although indigenous cases of plague were reported from no less than nine districts, the epidemic did not spread. Prompt measures were taken for the observation of persons proceeding from infected areas and for the evacuation and disinfection of affected localities. The methods adopted in this direction continued to be unchanged.

12. Sanitary Assistants to District Medical and Sanitary Officers were employed in the districts of Gódvári, Madras, South Arcot, Tanjore, Guntūr, Chingleput and North Arcot, the appointment having been made in the three last-mentioned districts during the year. It would for the present be premature to form any opinion upon the influence exercised upon rural sanitation by their employment.

13. The King Institute of Preventive Medicine continued to do excellent work, and the orders of the Secretary of State are awaited in regard to the proposed appointment of a Commissioned Medical Officer as Assistant Superintendent of the Institute.

14. The Vellore, Gudiyattam and Nellore water-works were under execution by the Public Works Department during the year, and an indent for the engines and pipes required for the Nellore water-works was forwarded to the India Office. The head works relating to the proposed water-supply scheme for Saidapet, certain improvements to the head works of the Guntūr water-supply system, and the drainage works of Ootacamund were under execution by the Sanitary Engineer, while the extension of the Coonoor water-works and the erection of a pumping installation at the Arisipalaiyam tank in Salem were completed by him. The completion of the water-supply scheme to Saidapet is in abeyance pending a reference to the Government of India as to the revision of the boundaries of the Cantonment of St. Thomas' Mount.

15. The Sanitary Engineer also prepared and submitted plans and estimates for the drainage of Madras, the water-supply of Berhampur, Periyakulam, Tuticorin (filter beds and pumping plant) and Tanjore (extension). He suggested minor improvements in connection with the existing water-works in some municipalities, and checked and scrutinized plans and estimates for 65 works costing more than Rs. 1,000 each. He also examined and approved plans and estimates for 37 works costing between Rs. 500 and Rs. 1,000 each and prepared a revised type-design for a hospital with terraced roof and a new type-design for a veterinary hospital with tiled roof. The type-designs were approved and issued by the Sanitary Board. As in the previous year, the cost of pumping a million gallons of water one foot high was cheapest in Trichinopoly being 47 of a rupee for the consumption of 19.3 gallons of water per diem by each person. The cost was again heavy in Cocanada where the average consumption was 6.1 gallons with an expenditure on maintenance of Rs. 1.23. The question of reducing the cost of maintenance in Cocanada and also in Kurnool should engage the attention of the Municipal Councils concerned.

It is to be regretted that owing mainly to the fact that the details of certain schemes of water-supply demanded further enquiry and elaboration, there was a considerable lapse in the provision made in the Provincial budget in aid of those schemes.

Considerable progress was, however, made in forwarding the water-supply schemes for the two important Municipalities of Salem and Coimbatore.

16. The proposals of the Corporation of the City of Madras for financing the scheme for the improvement of the water-supply were considered by Government during the year and further information called for in regard to some of these proposals. The plans and estimates for the work have since been finally sanctioned. Plans and estimates for remedying the defects noticed by the Sanitary Engineer in the new drainage works of the City which were under execution, and detailed estimates for the drainage of the Tondiarpet section on the lines suggested by the same officer, were called for from the Corporation and are still under preparation. Early steps will be taken for remedying the nuisance known as Kelly's outfall, which has been a fruitful source of complaint from the Military authorities as well as from the public. The plans and estimates amounting to Rs. 1,88,000 are now under technical scrutiny, and it is hoped that this nuisance will be effectively removed before the close of 1907.

17. Plans and estimates relating to 66 sanitary works estimated to cost over 60 lakhs of rupees were scrutinized by the Sanitary Board, and final approval was accorded to those of 31 works costing Rs. 89,831. Of the latter, 4 works were completed during the year and 18 others were under execution, while the remaining 9 had to be deferred chiefly for want of funds.

18. The acknowledgments of the Governor in Council are due to the Sanitary Commissioner, Lieut.-Col. H. Thomson, I.M.S., who toured indefatigably throughout the year, and also to Mr. Hutton, the Sanitary Engineer with the Government, who discharged satisfactorily the heavy duties of his office.

(True Extract.)

H. D. TAYLOR,
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, 9th (Secunderabad) Division (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. 902 L., dated 27th June 1907.

Copy to the Government of India, Home Department.

H. D. TAYLOR,
Ag. Secretary to Government.

