Report on health conditions
in Madras State.
1951

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REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1951

CHAPTER I—VITAL STATISTICS.

POPULATION.

The census of population was taken on 1st March 1951. The final figures for the State as a whole and for urban and rural areas have since been made available. The populations of the State as per census of 1951 and the previous censuses are extracted below :—

Year.	Population as per census.	Percentage of increase over previous census.
1891	34,152,644	..
1901	36,682,859	7·4
1911	39,593,867	7·9
1921	40,601,682	2·5
1931	44,658,738	10·0
1941	49,840,564	11·6
1951	57,016,002	14·4

The largest decennial increase of 14·4 per cent in population has been recorded in the decade 1941–1951. During this per iod, the urban population of municipal and rural towns with a population of 5,000 and above has increased by 34·5 per cent and the rural population by only 10·7 per cent. The natural increase, viz., excess of births over deaths in the decade 1941–1951 being 10·7 per cent in rural areas and 12·4 per cent in urban areas, the comparatively large increase of population in towns shows that there has been a large scale migration from rural to urban areas of the State.

The vital statistics relating to the Agency in Srikakulam and Visakhapatnam districts are not compiled, as there is no proper system of registration of births and deaths in these areas. The estimated mid-year population for 1951 in respect of the area for which vital statistics are consolidated is 57,021,000. The estimated mid-year population of urban areas comprising municipal and rural towns with a population of 5,000 and above is 10,643,000 and that of rural areas is 46,377,000. The urban population forms about a fifth of the State population. The estimated mid-year populations stated above have been adopted in calculating vital statistics rates in this report.

REGISTRATION OF BIRTHS AND DEATHS.

Registration of births and deaths is compulsory in all municipal areas under the provisions of the Madras District Municipalities Act. Rules have also been framed under the Act to enforce registration. In all municipalities

Health Assistants who are qualified Sanitary Inspectors are appointed as Birth and Death Registrars. As they are solely appointed for registration work and as they are comparatively more qualified than the village munsifs doing registration work in rural areas, the vital statistics recorded in municipal areas are better both with regard to completeness and correctness than those in rural areas.

In non-municipal areas, registration of births and deaths is compulsory in areas where Madras Registration of Births and Deaths Act, 1899 (Act III of 1899), is in force. The Act has been extended to the whole State excepting large tracts in the Agency areas and in some backward villages in a few districts. The births and deaths that occur in non-compulsory areas are however registered under the executive instructions of the Revenue Department. In many villages in Srikakulam and Visakhapatnam Agencies births and deaths are however not registered as there is no proper agency to record vital events and hence vital statistics for this area are not compiled.

Although registration of births and deaths is compulsory in areas where Act III of 1899 is in force, a number of births and deaths go unregistered. During 1951, the health staff during their routine visits to villages detected 32,761 births and 13,685 deaths which were not registered. This indicates that people are still not alive to their responsibilities. As most of the people are illiterate, one way of educating them regarding registration of births and deaths is to do intensive propaganda. The duties of parents to register births and deaths should be periodically made known by tom-tom in the villages.

Under the provisions of the Madras Registration of Births and Deaths Act, 1899, sign boards showing the offices of the Registrars of Births and Deaths indicating the hours when the office will be kept open should be put up conspicuously. This statutory obligation is not generally observed. The putting up of sign boards is itself a method of propaganda for registration of births and deaths and should be insisted upon.

At present, births and deaths are registered for the sake of registration and there is no inducement for people to register vital events. Under these conditions it is difficult to improve registration. In the United States of America certificates of births and deaths are insisted upon, especially after World War II for purposes of claiming citizenship, employment, security purposes, succession to property, etc., with the result that the completeness of birth registration has increased from 92·5 per cent in 1941 to 98·5 per cent in 1951. While it is recognized that it is difficult to adopt this all of a sudden, a beginning should be made by insisting upon production of birth certificate in case of students admitted into schools and in securing employment.

Compilation of Vital Statistics.

The vital statistics for the whole State have been compiled in my office since 1931. The Tahsildars collect the monthly returns of births and deaths for the villages in their jurisdiction and forward them to this office. The Commissioners of Municipalities send monthly returns of births and deaths in respect of municipal areas. The figures of births and deaths for each month and year in respect of the whole State are consolidated from these monthly returns.

The following statement shows the number of birth and death returns that were not received from each district for the year 1951 on the date of compilation of the annual report :—

District.	Number of returns due for 1951.	Number of returns not received for 1951.	Percentage of returns not received.
1 Srikakulam	32,568	2,947	9·0
2 Visakhapatnam	15,300	193	1·3
3 East Godavari (Plains)	10,068	756	7·5
East Godavari (Agency)	11,604	2,290	19·7
4 West Godavari (Plains)	8,904	248	2·8
West Godavari (Agency)	1,572	Nil.	Nil.
5 Krishna	11,800	291	2·5
6 Guntur	13,680	747	5·5
7 Bellary	11,928	141	1·2
8 Anantapur	10,368	50	0·5
9 Kurnool	10,668	193	1·8
10 Cuddapah	12,432	578	4·6
11 Madras	Nil.	Nil.	Nil.
12 Nellore	20,232	1,060	5·2
13 Chingleput	26,076	1,051	4·0
14 Chittoor	26,424	1,310	5·0
15 North Arcot	24,216	596	2·5
16 South Arcot	27,204	2,960	10·9
17 Tanjore	29,496	447	1·5
18 Tiruchirappalli	18,132	295	1·6
19 Madurai	12,852	268	2·1
20 Ramanathapuram	18,336	1,164	6·3
21 Tirunelveli	13,080	17	0·1
22 Salem	21,408	973	4·5
23 Coimbatore	14,340	128	0·9
24 Nilgiris	1,236	22	1·8
25 Malabar	10,104	Nil.	Nil.
26 South Kanara	9,780	11	0·1
Total	423,804	18,736	4·4

It will be seen from the above statement that the percentage of monthly birth and death returns not received was 4·4 in 1951 as against 1·4 in 1950. The districts with large percentage of arrear returns were East Godavari (Agency) (19·7), South Arcot (10·9), Srikakulam (9·0), East Godavari (Plains) (7·5), Ramanathapuram (6·3), Guntur (5·5), Nellore (5·2) and Chittoor (5·0). In accordance with this departmental circular, the Tahsildars were requested to forward all birth and death returns due for the villages under their jurisdiction by the 8th of the succeeding month. If returns for some of the villages are not received in time, they were required to send them in a second batch by 18th of the succeeding month. Thus the birth and death returns due from all villages in a taluk should be received by about the 20th of the succeeding month. But this schedule is not invariably observed. Generally, only about 70 to 75 per cent of birth and death returns due for the State are received by the end of succeeding month. There have been instances where not even a single return was received from some taluks even after the end of succeeding month. Some of the arrears are received in subsequent months.

The following statement shows the number of birth and death returns not received for each month in 1951 even at the time of compilation of annual statement, viz., May 1952 :—

Month.	Number of birth and death returns not received.	Month.	Number of birth and death returns not received.
January	587	July	1,453
February	798	August	1,827
March	978	September	1,328
April	1,087	October	2,329
May	1,231	November	2,549
June	1,418	December	3,151
		Total ..	18,736

It will be apparent from the above statement that many returns for each month have not been received even after a lapse of over four months and in some cases even after a year. It is difficult and not reliable to study the health conditions in each district from the vital statistics based on only 70–75 per cent of village birth and death returns by the end of succeeding month. If the study is to be of any value to the Department, it should be done as quickly as possible and based on complete returns. As per rule 3 of the rules issued under Act III of 1899, it is one of the statutory duties of the Registrar of Births and Deaths to submit the monthly birth and death returns to the Tahsildar by the 3rd of the following month. If the Registrars fail to discharge this statutory provision the Collectors are empowered to punish them under the provisions of section 18 (*b*) of Act III of 1899. If these statutory provisions are enforced, improvement in the prompt and complete receipt of monthly birth and death returns from villages is bound to follow. The Board of Revenue has recently been addressed to instruct Collectors to exercise the penal powers in improving registration work.

BIRTHS.

There were 1,570,800 births (810,003 boys and 760,797 girls) recorded during 1951 giving a birth-rate of 27·55 per 1,000 of estimated mid-year population as against 30·72 in 1950. It has been stated above that 4·4 per cent of birth and death returns from the villages have not been received. The birth-rate for 1951 corrected for non-receipt of returns on a pro rata basis is 28·82 as compared with 31·2 for the previous year, thus showing a decrease in the birth-rate. The birth-rates in urban and rural areas were 32·51 and 26·45 respectively, and have decreased as compared with rates of 38·05 and 29·27 in 1950. The proportion of male to female births was 106 : 100.

The recorded birth-rates for the previous 10 years are tabulated below :—

Year.	Birth-rate per 1,000 of population.	Year.	Birth-rate per 1,000 of population.
1942	34·8	1947	34·0
1943	32·7	1948	32·3
1944	30·8	1949	32·3
1945	30·8	1950	31·2
1946	34·0	1951	28·8

An examination of the recorded birth-rates shows a decline up to 1945, a rise during the post-war period 1946–47 and a steady and progressive decline thereafter.

Births in districts.—Statement I of the appendix gives the number of births and birth-rates registered in each district. Compared with the previous year, there has been a decrease in the birth-rates in all districts except Guntur. If rates are corrected for the non-receipt of village birth and death returns the rates show a reduction in all districts except Guntur, Srikakulam and Chittoor. The birth-rate varied from 20·97 in East Godavari district to 35·62 in Anantapur district. The distribution of birth rates in the various districts as compared with the previous year is shown below :—

Birth-rate per 1,000 of population	Number of districts. 1950.	1951.
20 and less than 25	..	8
25 and less than 30	12	12
30 and less than 35	9	2
35 and less than 40	4	3
Total ..	25	25

The birth-rate was in excess of the death-rate in the State as a whole and in all districts. The excess of birth-rate over death-rate was very high in the districts of South Kanara (22·0), Malabar (19·78), Bellary (19·45), Anantapur (18·08), Kurnool (17·29) and Nilgiris (15·59).

Births in municipal towns.—The number of births registered in municipal areas was 262,172 (134,452 males and 127,720 females) giving a birth-rate of 38·10 as compared with 44·94 in 1950. The birth-rate which has been steadily increasing from 33·54 in 1944 to 44·94 in 1950 has shown an appreciable fall to 38·10 in 1951.

The following statement compares the distribution of the municipal towns according to different ranges of birth-rates:—

Birth-rate per 1,000 of population.	Number of municipal towns. 1950.	1951.
20 and less than 30	9	17
30 and less than 40	30	47
40 and less than 50	34	28
50 and above	22	4
Total ..	95	96

The recorded birth-rates in municipalities ranged from 20·37 in Salur to 58·42 in Chingleput town. The municipalities which registered low birth-rates were Salur (20·37), Melapalayam (21·19), Eluru (23·24), Vijayavada (23·68), Bhimavaram (24·44) and Gobichettipalayam (24·84). The municipalities of Bhimavaram and Melapalayam reported low rates in the previous year also and the causes for the same should be investigated. Salur is a newly formed municipality and it is expected that it would improve registration of births. The low rates in Vijayavada and Eluru are probably due to defective registration and need investigation.

Births in rural towns.—The number of births registered in rural towns with a population of 5,000 and above has decreased from 92,721 in 1950 with a rate of 26·96 per 1,000 of population to 84,046 in 1951 representing a rate of 22·34. The decrease is partly due to non-receipt of all the birth and death returns due for the town for the year and partly to non-registration of all

births that occurred in the areas. Out of 6,660 returns due only 6,188 were received in spite of special efforts to obtain them. The birth-rate corrected for non-receipt of returns will be 24·0 per 1,000 of population.

The number of rural towns according to different ranges of birth-rates recorded is shown in the following statement :—

Birth-rate per 1,000 of population.	Number of rural towns.	
	1950.	1951.
Below 15	29	48
15 and less than 20	50	54
20 and less than 30	99	129
30 and less than 40	84	42
40 and above	39	21
Total ..	301	294

The above statement shows that a greater number of towns have recorded low birth-rates than in the previous year.

Still-births.—The number of registered still-births was 17,357 in 1951, representing a rate of 10·93 per 1,000 live and still-births, as compared with 10·50 in 1950. The urban areas recorded 11,243 still-births and the rural areas 6,114, the rates being 31·47 and 4·97 respectively. In view of the fact that the maternity service is poor in rural areas when compared to urban areas, the low still-birth rate is apparently anomalous. It is obviously due to comparatively defective registration of still-births in rural areas. In municipal areas there were 10,201 still-births giving a rate of 37·45 per 1,000 live and still-births.

DEATHS.

There was an appreciable fall in the number of deaths recorded from 1,066,317 in 1950 with a death-rate of 19·58 to 925,981 in 1951 giving a rate of 16·20. The death-rate for 1951 corrected for non-receipt of birth and death returns from villages is 16·86 and represents a decrease of 15 per cent as compared with the corresponding rate of 19·86 for 1950. The death-rates as corrected for non-receipt of returns in the past decade are given below :—

Year.	Death-rate per mille of population.	Year.	Death-rate per mille of population.
1942	23·1	1947	20·9
1943	26·6	1948	18·7
1944	26·6	1949	17·4
1945	23·4	1950	19·9
1946	20·3	1951	16·9

The trend of death-rates during the decade by fitting a straight line ($Y = 21{\cdot}87 - 0{\cdot}98\,X$ with 1946 as origin) shows a greater rate of decline than in the period 1931–1941 (the equation to straight line fitted being $Y = 22{\cdot}8 - {\cdot}05\,X$ with 1936 as origin). The downward trend in death-rate is also greater than that of birth-rate in the decade 1942–1951, indicating a tendency for an overall net increase in population of the State at a faster rate than in the past.

The recorded deaths in urban areas numbered 203,295 and those in rural areas 722,686, the death-rates being 19·10 and 15·61 respectively. The rates have decreased as compared with the rates of 23·41 and 18·83 in urban and rural areas respectively in 1950. As in the past, the death rate in urban areas is greater than that in rural areas.

Deaths in districts.—The number of deaths and the death-rate recorded in each district are given in Statement II of the Appendix. The death-rate varied from 10·82 in the Nilgiris district to 21·40 in Tirunelveli district. The frequency distribution of the number of districts according to death-rates is as follows :—

Death-rate per 1,000 of population.	Number of districts.	
	1950.	1951.
Below 15	1	8
15 and less than 20	11	15
20 and less than 25	13	2
Total ..	25	25

The statement shows that only two districts recorded death-rates of 20 and more as against 13 districts in the previous year. The districts that returned high death-rates were Tirunelveli (21·40) and Srikakulam (20·54).

Deaths in municipal towns.—There were 154,634 deaths (79,423 males, 75,211 females) in municipal areas in 1951 giving a rate of 22·47 as against the rate of 27·87 in 1950. There has been a considerable fall in the death-rate in municipal areas.

The following statement shows the number of municipal towns which have recorded different death-rates :—

Death-rate per 1,000 of population.	Number of municipal towns.	
	1950.	1951.
Below 15	4	16
15 and less than 20	14	36
20 and less than 30	60	42
30 and above	17	2
Total ..	95	96

The two municipalities which recorded high death-rates were Nellore (34·53) and Chingleput (33·98). The high death-rate in Nellore town is partly due to prevalence of cholera.

Deaths in rural towns.—The number of deaths that occurred in all the rural towns decreased from 55,883 in 1950 with a rate of 16·25 to 48,765 in 1951 with a rate of 12·96. The corrected death-rate for non-receipt of birth and death returns was 13·92 in 1951. Fifteen rural towns recorded very low death-rates of less than 5 per mille. This is not real, as in most cases a good many birth and death returns due from each for the year were not received. The distribution of rural towns according to different ranges of death-rates as compared with that of previous year is as follows :—

Death-rate per 1,000 of population.	Number of rural towns.	
	1950.	1951.
Below 15	131	168
15 and less than 20	74	72
20 and less than 30	72	40
30 and less than 40	17	5
40 and above	7	1
Total ..	301	294

The highest death-rate of 42·18 was registered in Baruva town in Srikakulam district.

Seasonal distribution of deaths.—Statement III of the Appendix gives the distribution of deaths by months for each district and the State. The monthly deaths recorded in the State in each month and each quarter of the year are as follows :—

Months.	Number of deaths recorded in the State.	Number of deaths in each quarter.	Percentage of deaths in each quarter to total.
January	88,540	249,453	26·94
February	80,020		
March	80,893		
April	71,981	227,113	24·53
May	78,902		
June	76,230		
July	77,087	230,020	24·84
August	78,815		
September	74,118		
October	72,030	219,395	28·69
November	71,015		
December	76,350		
Total	925,981	925,981	100·00

The first quarter of the year experienced the largest mortality which is partly due to the continuance of epidemic of cholera which started at the end of 1950 and partly to more complete receipt of birth and death returns relating to the first quarter as compared with that of the other quarters.

Deaths by ages.—The number of deaths compiled according to different age groups is given in Statement IV of the Appendix. As the figures of populations as per the age groups have not yet been published for 1951 census, the age specific death-rates have not been calculated and no reliable conclusions can be drawn from the absolute figures of deaths in the different age groups.

Deaths by causes.—The mortality from the principal causes of deaths in 1951 as compared with 1950 is extracted below :—

Causes of deaths.	Number of deaths in		Death-rate per 1,000 of population.	
	1950.	1951.	1950.	1951.
Cholera	33,004	17,113	0·61	0·30
Smallpox	14,269	17,236	0·26	0·30
Plague	38	51	0·001	0·001
Fevers	247,196	211,023	4·54	3·69
Dysentery and diarrhœa.	73,438	65,633	1·35	1·15
Respiratory diseases	97,385	87,231	1·70	1·53
Deaths from child-birth	10,492	9,006	6·21	5·67

There has been a reduction in mortality from all the principal causes except that from smallpox which was slightly greater than that in the previous year.

General features.—The vital statistics recorded during 1951 reveal the following salient features :—

(*a*) A decrease in birth-rate from 30·72 in 1950 to 27·55 in 1951.

(*b*) An appreciable fall in the death-rate from 19·58 in 1950 to 16·20 in 1951 a reduction of 17 per cent.

(*c*) A reduction by nearly half in the mortality from cholera.

(*d*) A slight increase in death-rate from smallpox from 0·26 in 1950 to 0·30 in 1951.

(*e*) A decrease in deaths from fevers, dysentery and diarrhœa and respiratory diseases as compared with 1950.

(*f*) A decrease in infant mortality rate from 130·13 per 1,000 live births in 1950 to 118·59 in 1951.

(*g*) A slight decrease in maternal mortality rate from 6·21 in 1950 to 5·67 in 1951.

(*h*) An appreciable increase in the vital index 169·7 in 1951 as against 156·9 in 1950.

CHAPTER II—COMMUNICABLE DISEASE CONTROL.

CHOLERA.

The number of deaths from cholera during the decade ending 1951 is as follows :—

Year.	Number of deaths from cholera.	Death-rate per mille of population.
1942	52,380	1·05
1943	117,039	2·33
1944	18,318	0·36
1945	8,494	0·16
1946	753	0·01
1947	12,743	0·24
1948	26,171	0·49
1949	13,422	0·25
1950	33,004	0·61
1951	17,113	0·30

The incidence of cholera decreased considerably during 1951 as compared with 1950. The number of deaths from cholera as compiled from the birth and death returns was 17,113 giving a mortality rate of 0·30 per mille as against 33,004 in 1950 with a rate of 0·61. About 4·4 per cent of the total number of birth and death returns due for 1951, were not received. The Health Officers reported 47,161 attacks and 24,334 deaths from cholera. The large difference between these mortality figures may not solely be due to non-receipt of birth and death returns but is more likely to be due to the village headmen having classified mild cases of cholera as diarrhœa.

High mortality from cholera was recorded in the districts of South Arcot (2,366), Tirunelveli (1,742), Tanjore (1,568), Coimbatore (1,465), Tiruchirappalli (1,308) and Madurai (1,155). These districts contributed about 55 per cent of total deaths from the disease. The Nilgiris and South Kanara districts were practically free, while Visakhapatnam, Krishna and Malabar districts returned sporadic cases.

In the municipal areas 1,874 deaths from cholera were recorded in 1951 representing a death-rate of 0·27 per mille as against 2,989 in 1950 with a rate of 0·54. The towns that were severely affected are Madurai (234), Madras (216) and Nellore (120).

Epidemiology.—The autumn winter epidemic incidence of 1950 which reached its peak in October 1950 recording 18,412 cases and 8,644 deaths continued into 1951. However, progressively, the incidence declined through November and December 1950, and the months of January, February, March

recording by April 1951 only 3,285 cases. Though, during the months of May and June 1951, a slight rise in the total incidence was recorded, progressively the cases decreased during the subsequent months till the lowest incidence of 866 cases was recorded in November 1951. The anticipated customary autumn winter epidemic did not show up during the year. Nearly 50 per cent of the total deaths from cholera in the State during the year were recorded in the first quarter itself.

In the second quarter, Cuddapah district alone experienced a severe epidemic of cholera, due to an unprecedented spread from the Brahmagiri Mutt festival at Kandimallipalli (Badvel taluk) where the infection broke out early in May 1951.

During the third quarter, South Arcot district recorded heavy infection through the migrating labour population which visited the adjoining French territory, where over 30 villages reported infection from cholera.

In the last quarter of the year, the incidence of cholera was the lowest of the annual seasonal incidence. The districts which however recorded mild infection during the quarter were Chingleput, Chittoor, North Arcot, Anantapur and East Godavari.

The main cause of the heavy infection of cholera in Srikakulam district (June to August) and the second flare up during the year in South Arcot district can be attributed to the drying up of wells and the consequent scarcity of 'safe' drinking water forcing the public to resort to contaminated sources of supply. In Narasannapeta town (Srikakulam district) a severe outbreak resulted from such a source.

Migration of labour populations from the 'dry' areas in search of work in connection with transplantation and harvest of paddy in the 'wet' and deltaic districts was responsible for the spread of cholera in some districts.

Such movement of labour population had occurred from Chittoor to Nellore and consequently an outbreak occurred in Nellore district in January 1951. The high infection in Ramanathapuram district in March 1951 is due to the movement of labour population from Tirunelveli which suffered a severe epidemic of cholera in January 1951.

Owing to an organized anticipatory anti-cholera work by means of mass inoculation of labourers moving from Madurai and Ramanathapuram districts, into Tanjore and Tiruchirappalli districts, the usual autumn winter epidemic in the latter two districts was successfully averted in 1951, even though such infection persisted in Chingleput, Chittoor and North Arcot districts.

The methods adopted for cholera control are—

(1) Isolation of patients and concurrent disinfection of infective discharges.

(2) Environmental sanitation including protection of water-supplies, disinfection of water sources by chlorination.

(3) Personal prophylaxis by anti-cholera inoculation, mass inoculation campaign.

The difficulties encountered in the implementation of the above well-known procedures in the control of cholera are :—

(1) Want of isolation facilities in rural areas, hospitals for isolation and treatment.

(2) Want of facilities for effective enforcement of environmental sanitation in rural areas. Sanitary excretal disposal (night soil and refuse conservancy) is almost non-existent in rural areas.

In effect therefore the measures adopted in rural areas have been confined to—

(a) Disinfection of water sources—wells—usually by chlorination.
(b) Disinfection of patients' discharges.
(c) Mass immunisation by anti-cholera inoculation.

There is a reserve of 100 Health Inspectors for anti-cholera work and these have been posted to affected districts to re-inforce the range health staff as needed.

In the months of September and October, to carry out anticipatory anti-cholera inoculation of vulnerable groups and disinfect water source at labour camps, etc., Health Inspectors from the Provincial Epidemic Reserve were posted to the districts of Tanjore and Tiruchirappalli. Similar posting of Health Inspectors to the deltaic districts of Krishna and Guntur was made to prevent the customary autumn winter epidemic incidence of cholera. The anticipatory measures taken bore fruit and the customary winter epidemic incidence of cholera did not occur. Two mobile units each provided with a motor van and driver and 10 Health Inspectors and five peons have been organized in October and November 1951 and posted for work in South Arcot and North Arcot districts. The vans are provided with ambulance facilities and the staff; and medicines and disinfectants rushed to the infected areas. Cases in the rural areas wherever feasible were removed, isolated and treated at the nearest government or municipal hospital. Two other epidemic control van units are being equipped and will be available for work by July 1952. But owing to the vastness of rural areas requiring simultaneous attention, there is need at least for six units to serve in the State to be stationed at strategic centres for immediate mobilization to reach different affected districts of the State. An intensive inoculation campaign in infected areas and an anticipatory prophylactic measure in vulnerable areas were carried out and nearly 46 lakhs of persons were inoculated in the State during the year.

Cholera research.—An enquiry under the Indian Council of Medical Research in the Cauvery Delta was conducted by a Research Unit with headquarters at Tiruchirappalli to investigate whether sub-clinical cases of cholera constituted a link between two successive outbreaks. No vibrio cholera was however isolated from the residents during several months of the off-season between two outbreaks and the carrier state also after convalescence was found to be of short duration—a few days in most cases ; therefore no evidence could be adduced by the enquiry that any sub-clinical case of cholera or cholera carriers constituted a possible link between two successive outbreaks of cholera.

Dysentery and Diarrhœa.

The number of deaths registered under these diseases in 1951 is much less than the average mortality in any of the previous three decades as will be evident from the following statement :—

Years.	Average number of deaths.	Rate per 1,000 of population.
1921–30	71,330	1·65
1931–40	86,990	1·85
1941–50	78,760	1·54
1951	65,633	1·15

The mortality from this group of diseases has also decreased from 73,436 in 1950 with a rate of 1·35 to 65,633 in 1951 giving a rate of 1·15. These

diseases account for 7 per cent of total number of deaths. There were 18,467 deaths from this cause in urban areas and 47,166 in rural areas, representing death rates of 1·73 and 1·02 per mille respectively.

The monthly distribution of deaths from dysentery and diarrhœa in each district and in the State is given in Statement VIII of the Appendix. There are two peaks, one in August and another in December. The districts that returned high death rates from these diseases were North Arcot (2·19) and Coimbatore (1·63).

In municipal towns, 14,869 deaths were due to this group of diseases, the death-rate being 2·16 in 1951 as against 13,842 in 1950 with a rate of 2·50. The municipalities that reported high rates were Chingleput (6·38), Rajapalayam (4·76), Walajapet (4·35), Madras (3·97), Virudhunagar (3·85), Aruppukottai (3·71), Mettupalayam (3·56) and Coimbatore (3·51).

There were 3,584 deaths from these diseases in rural towns in 1951 representing a mortality rate of 0·95. The towns that returned high rates were Palayampatti (6·75), Harur (4·06), Ulundurpet (3·89), Baruva (3·84), Arni and Ponnadami (3·68 each) and Chinnamanur (3·59).

Details of mortality from dysentery (amoebic and bacillary) and diarrhœa are not separately available for the whole State. However, the hospital statistics furnish the relative prevalence of dysentery in the districts. The number of cases of 'diarrhœa' treated have been included in 1951 in other diseases or digestive system and is not separately available. The number of cases of dysentery treated in hospitals during the year is given in Annexure D.

The incidence was high in Madras, Srikakulam, Visakhapatnam, Tanjore and Coimbatore. It will also be seen from the annexure that the number of cases of amoebic dysentery was higher than that of bacillary type in all districts except five and was comparatively very high in the districts of Kurnool, Cuddapah, Chingleput, North Arcot, Ramanathapuram, Coimbatore and Malabar. In East Godavari and South Arcot districts, however, the number of cases of bacillary dysentery was relatively very high.

Dysentery and diarrhœa are preventable diseases and the morbidity from these diseases could be reduced, if safe water-supply and effective disposal of excreta are ensured.

Enteric Fever.

Figures of mortality from enteric fever for the State as a whole are not available, as the disease is not a registrable cause of death in non-municipal areas. In municipal areas, 1,877 deaths from "Enteric fever" were registered representing a death-rate of 0·27 in 1951 as compared with 2,134 in the previous year with a rate of 0·39. High mortality rates were registered in Udipi (0·93), Tadpatri (0·87), Narasaraopet (0·85), Mettupalayam (0·79), Chirala and Mangalore (0·76 each) and Tellicherry (0·75).

In the absence of registration of 'Enteric fever' as a cause of death, the relative prevalence of enteric fever in the districts of the State may be appraised by the number of cases treated in hospitals in each district. The Annexure E gives the number of cases and deaths that occurred in hospitals during the years 1950 and 1951.

The number of cases treated has decreased from 65,694 in 1950 to 48,796 in 1951. The incidence was high in Madras and in the districts of Coimbatore, Malabar, Srikakulam and Visakhapatnam, these districts being responsible for nearly 50 per cent of the total cases treated in all districts.

Compared with the previous year, the incidence has increased in 8 districts, decreased in 16 and remained the same in one district.

The notification of occurrence of the disease still continues to be defective in municipalities and is practically absent in other urban local areas, although it is a notifiable disease in these areas as per the provisions of the Madras Public Health Act. This is mainly due to ignorance of people and to lack of laboratory facilities for diagnostic tests. In respect of cases notified, the health staff exercised supervision over the cases and carried out disinfection of the infective discharges, and conducted anti-typhoid inoculations among the immediate contacts.

Smallpox and Vaccination.

Smallpox caused 17,236 deaths during the year giving a death rate of 0·30 as against 14,269 with a rate of 0·26 in the previous year. These figures have been compiled from the village birth and death returns sent by Tahsildars. The number of deaths from smallpox registered by Health Officers is, however, 16,206 in 1951. The difference between these figures from the two sources is partly due to wrong classification of some chicken-pox cases as smallpox by village headmen.

All the districts were affected. The districts that returned high mortality from the disease were Guntur (2,026), Srikakulam (1,586), Coimbatore (1,210) and South Arcot (1,145). Sporadic cases were recorded in the districts of the Nilgiris and South Kanara, East and West Godavari Agencies.

In the municipal areas the number of deaths from smallpox was 3,011 in 1951 giving a rate of 0·44 as against 3,043 in 1950 with a rate of 0·55. The municipal towns of Madras (490), Coimbatore (206), Villupuram (184), Mathurai (145), Salur (138), Rajahmundry (102) and Kakinada (100) reported the largest number of deaths from the disease. Thirteen municipalities remained completely free from infection.

As reported by Health Officers there were recorded 71,068 attacks and 16,206 deaths from smallpox during the year as compared with 48,985 attacks and 14,269 deaths reported during the year 1950.

Epidemiology.—The epidemic incidence of 1950 which reached a high figure of 5,982 cases and 1,329 deaths in December 1950, the highest for any month in 1950, continued into 1951 reaching a peak incidence in March 1951 recording 15,999 cases and 3,248 deaths. The incidence of smallpox registered a steady and progressive decline from April 1951 onwards reaching the lowest incidence for any month 1,576 cases and 410 deaths in November. December recorded only a slight increase of 300 cases over the November incidence.

The first quarter of the year in which infection of the previous year continued in a severe form and reached peak incidence in March, recorded 35,137 cases—nearly half of the cases recorded for the whole year. The incidence in the second quarter showed a decline of 15,000 recorded cases, and in the third and fourth quarter infection rapidly declined recording 10,000 and 5,000 cases respectively.

The disease was prevalent in a severe form in the districts of Srikakulam, Krishna, Guntur, South Arcot, Madurai, Salem and Coimbatore. These districts were responsible for over half the total deaths from smallpox recorded in the State. It was moderately severe in Visakhapatnam, East Godavari, West Godavari, Cuddapah, North Arcot and Malabar districts and Madras City and was mild in other districts, except the Nilgiris and South Kanara districts, where it was only sporadic.

The Municipalities that experienced severe outbreaks were Salur, Anakapalle, Kakinada, Rajahmundry, Eluru, Masulipatnam, Vijayavada, Villupuram, Tanjore, Madurai, Salem and Coimbatore.

It was reported by several Health Officers that the village officers in a large number of cases either did not send reports of the onset of infection in villages to the Health Staff or sent very belated reports and that this had been responsible for dissemination and establishment of the infection before preventive steps could be instituted for the control of smallpox. The defaulting village officers were reported to Collectors for taking necessary disciplinary action. The paucity of qualified vaccination staff and their recruitment from emergency trained staff led to the deterioration in the quality of vaccination, detracting from the efficiency of the control measures adopted. The provincial Epidemic Reserve Health Inspectors were posted to heavily affected areas and to improve the quality of vaccination work, the supervisory staff was reinforced by utilising Health Officers of Antimalarial schemes of the neighbouring areas. Wherever motor transport was not available for the District Health Officers, jeeps or motor vans were mobilized from other districts to facilitate prompt visits of the public health staff to the infected villages for adopting control measures.

Vaccination.—The number of primary and re-vaccinations performed during the ten years ending 1951 is tabulated below :—

Year.	Number of operations.		
	Primary and Secondary vaccination.	Re-vaccination.	Total.
1942	1,324,257	3,073,742	4,397,999
1943	1,172,235	3,452,130	4,624,365
1944	1,518,537	6,510,363	8,028,900
1945	1,579,394	10,391,876	11,971,270
1946	1,633,572	6,950,533	8,584,105
1947	1,528,073	3,353,303	4,881,376
1948	1,618,385	3,250,281	4,868,666
1949	1,848,634	6,556,856	8,405,490
1950	1,816,966	9,123,679	10,940,645
1951	2,144,255	11,722,423	13,866,678

The number of vaccinal operations done in the year is the highest during the last decade and covers 24·3 per cent of the estimated mid-year population. There has been a substantial increase both under primary and re-vaccinations as compared with the previous year. The large increase is due to the intensive vaccination drive carried out by the staff owing to the continued severity of smallpox incidence in the majority of districts.

In non-municipal areas, the total number of operations performed was 11,203,207 of which 1,857,641 were primary and 9,345,566 re-vaccinations. In the previous year 7,995,224 operations—1,542,394 primary and 6,452,830 re-vaccinations—were done. There has therefore been an increase of 20 per cent in the primary and 45 per cent in re-vaccinations. The number of persons vaccinated was 11,063,972 (6,027,712 males and 5,036,260 females) as compared with 7,919,694 in 1950.

The number of vaccinal operations done in municipal areas was 2,554,428 (278,887 primary and 2,275,541 re-vaccinations) in 1951, as against, 2,814,902 (264,588 primary and 2,550,314 re-vaccinations) in 1950. Although there is an over all decrease of 9 per cent in the total number of operations performed as compared with the previous year, the number of primary and secondary vaccinations has increased by 5 per cent.

The distribution of successful vaccinations performed by several agencies is shown in the following statement :—

Agency.	Number of successful vaccinations.			Percentage of successful cases to cases for which results are known.	
	Primary vaccination.	Re-vaccination.	Total.	Primary vaccination.	Re-vaccination.
Local Boards.	1,229,383	606,199	1,835,582	88·4	11·7
Government (in the Agency areas).	11,813	3,867	15,680	82·2	11·8
Municipalities ..	261,263	245,204	506,467	98·3	12·9
Medical and Port Health Officers ..	972	36,525	37,497	100·0	66·5
Railways ..	2,828	5,513	8,341	98·2	25·4

The success rates in the case of primary vaccinations have been high in respect of vaccinations performed except in the Agencies and Railways. In the case of re-vaccinations, success-rate is low in respect of vaccinations performed in municipalities, local boards and the Agencies.

PLAGUE.

As per the birth and death returns there were 51 deaths from plague in 1951, giving a mortality rate of 0·001 as against 38 in 1950 with a rate of 0·001. From the detailed quarterly reports of Health Officers the total deaths were 62.

Epidemiology.—The disease persists in the districts of the Madras State bordering Mysore and Hyderabad States in a comparatively mild form and the areas which have reported repeated infection in the past years in this State are Harpanahalli, Hadagalli and Kudligi taluks of Bellary district, Hindupur taluk of Anantapur district, Madanapalle, Punganur and Kuppam taluks of Chittoor district, Hosur taluk, of Salem district, Kollegal and Satyamangalam taluks of Coimbatore district and the Nilgiris district. Epidemics generally from these foci spread to other areas.

During the year there were 139 attacks and 62 deaths from plague as compared to 173 attacks and 38 deaths in 1950 and 453 attacks and 150 deaths in 1949. Stray cases were reported from the districts of Salem, Chittoor, South Aroot and Tiruchirappalli, but the majority of cases occurred in Bellary Municipality and Bellary district. The districts of Nilgiris, Coimbatore and Anantapur and the rest of the State were entirely free from plague.

Incidence by Districts and Quarters.

	Attacks.	*Deaths.*
I Quarter—		
Salem district	5	4
Tiruchirappalli district	7	6
Bellary district	50	35
Bellary Municipality	65	12
Total ..	127	57

	Attacks.	Deaths.
II Quarter—		
Chittoor district	5	2
III Quarter—	Nil.	
IV Quarter—		
Chittoor district	3	1
Salem district	1	0
South Arcot district	3	2
Total ..	7	3

Outbreak of plague in Tiruchirappalli district.—During the first quarter of the year, plague occurred suddenly (7 attacks and 6 deaths) in Pasumbalur village of Perambalur taluk of Tiruchirappalli district. Being a " non-endemic " area, the occurrence of the first six cases was missed and it took some time before the actual situation was realised. The source of infection could not be traced, there being no infection in any of the neighbouring endemic areas at that time. The infection was brought quickly under control by the use of D.D.T. and further cases did not occur.

Plague in Bellary Municipality.—Plague broke out in Bellary Municipality on 27th September 1950 and it continued to smoulder till December 1950 when it took a very severe turn. The epidemic began to decline towards the end of February 1951 and the town was free from infection from 7th March 1951. Altogether 156 attacks and 28 deaths occurred in the town during the whole course of the epidemic, of which 65 attacks and 12 deaths occurred during the first quarter of 1951. Cowl Bazaar, which is an isolated part of the town about two miles away from the main town got infected in February and was responsible for 23 attacks and 5 deaths.

Infection was wide-spread throughout the town, but Brahmin Street (Ward No. 3), Sathyanarayanpet (Ward No. 17), Ghandinagar (Ward No. 18) and Fort and Cantonment (Ward No. 25) escaped infection altogether. These are the better class residential areas of the town and isolated from the busy and thickly populated commercial areas. The brunt of the epidemic was in the commercial areas in the thickly populated localities.

It was in Bellary Municipality that D.D.T. was used for the first time in the State to combat an epidemic of plague of any severity. The operations were carried out under the direction of the Special Plague Officer since 26th December 1950. There were no trained staff for D.D.T. work and the existing staff had to be trained and fresh staff had to be recruited and trained and this took time. It was not until the close of December 1950 that sufficient trained staff became available to treat the infected areas. All rat burrows and other enclosed rat harbourages were insufflated with 10 per cent D.D.T. dust while rat runs were dusted with the same product. Infected and adjacent houses were also sprayed with 2½ per cent D.D.T. emulsion besides insufflation of rat burrows. Intensive work on the above lines under the direct supervision of the Speical Plague Officer was carried out since 26th December 1950 only. It must be said that no rat fall or human case occurred in any of the D.D.T. treated houses or premises since the intensive operations were started.

The " cotton " and " groundnut " season in Bellary district was just on, when the epidemic was at its worst. Huge stocks of groundnut and cotton

were pouring into the town and these were being stocked in premises and by the roadside in the infected areas and were being removed without adequate disinfection from the town. There was therefore great potential risk of the spread of infection from Bellary to other places.

One of the most gratifying features of the epidemic was that the bulk of the cases were admitted into the local Headquarters Hospital and treated with Streptomycin with excellent results, the mortality being very low and occurring only in cases which had been admitted into the Hospital in a moribund state.

Plague—Bellary district.—Fifty attacks and 35 deaths from plague were reported from three villages in Hospet taluk and one village from Sandur taluk of Bellary district during the first quarter of the year and the infection was traced to Bellary town in some of these villages. Most of the cases had already occurred before information was received and necessary preventive measures were taken. D.D.T. was used to combat the epidemic and only a few cases occurred after starting D.D.T. treatment.

Plague Eradication Scheme, Nilgiris district.—Plague eradication scheme in the Nilgiris district was continued during the year with a reduced staff. The district was entirely free from plague during the year for the first time in its plague history. Ootcamund and Coonoor towns and nearly 600 village units in the endemic areas of the district were treated with D.D.T. once during the year, and for the second time during the last two years. Monthly rat-flea surveys showed that while the general flea indices in untreated villages were as high as 3 to 4 the indices in the treated villages were comparatively low below 1.

Use of D.D.T. for plague control.—During the year, Cyanogas fumigation as a method of plague control in the State was entirely replaced by D.D.T. as a result of the experience gained during the previous years of experiments and study in the field in the Nilgiris district. The experimental findings which led to the use of D.D.T. in place of cyanogas are summarised as follows :—

(1) D.D.T. is an efficient pulicide. A single application of 10 per cent D.D.T. insufflation in rat burrows and other rat harbourages is generally sufficient to keep the flea index below 1 for over 16 months. During the same period 3 to 4 applications of cyanogas are necessary for the same place, and even then the reduction in the general flea index is not marked or sustained. Consequently the cost of D.D.T. application is only about a third of that of cyanogas fumigation.

(2) D.D.T. retains its potency under the field conditions in the rat burrows for a period of 18 months.

(3) While plague occurred in 45 out of 468 village units regularly fumigated with cyanogas once every 3 to 4 months in 1948, all the 90 village units in a highly endemic zone in the Nilgiris treated with D.D.T. only once, escaped infection for over 16 months.

(4) In villages where human cases had occurred before D.D.T. treatment, no case occurred a week after operations with D.D.T. were started. In villages where D.D.T. treatment was carried out immediately after rat falls, human cases did not occur. No rat falls or human cases occurred in threatened villages after D.D.T. operations.

(5) Rat control is not necessary for immediate plague control.

In view of the experience gained in the use of D.D.T. in the control of plague incidence, it was decided to change over from the previous method of

plague control with cyanogas fumigation to the use of D.D.T. Accordingly detailed departmental instructions were issued to the public health staff for the use of D.D.T. both in the epidemic and non-epidemic periods. It has been the practice hitherto to employ a large staff in the districts and municipalities bordering Mysore State for taking " Off season " measures by the use of cyanogas. After a study of plague incidence in the State during the last 50 years, areas and villages which recorded repeated infection during the last 10 years were tentatively selected for intensive " Off-season " DDT treatment. The object is to reduce the prevailing rat-flea indices to the minimum with D.D.T. treatment during the Off-season for plague and thus prevent any incidence of plague during the customary season—the cold months. With this end in view—plague preventive staff of Health Inspectors with the necessary D.D.T. treatment units, have been sanctioned in September 1951 and posted for work in the areas mentioned above.

The previously existing plague preventive barricades and fumigation stations between Mysore border and this State were closed down, thus effecting considerable economy in the previous annual expenditure on control of plague. The work carried out on the above lines paid good dividends and since the institution of the above anticipatory measures, only 7 attacks and 3 deaths occurred till the close of the year—three attacks and one death in Chittoor, one attack and nil death in Salem, three attacks and two deaths in South Arcot. In the case of Chittoor, one village in Palmaner taluk not D.D.T. treated was infected from a Mysore border village, a stray case of plague was reported from a village in Hosur taluk which had not been taken up for D.D.T. treatment. Intensive D.D.T. treatment was instituted immediately and no further cases occurred. A village in Tirukoilur taluk in South Arcot district reported three cases of suspected plague. Treatment with D.D.T. was not carried out prior to this outbreak as an off-season measure in South Arcot district as this did not have repeated infection in the past years.

Training of Public Health staff.—During the year, the Special Plague Officer made a tour of all " endemic districts " in the State and gave a course of lectures and demonstrations to the public health staff in the use of D.D.T. for control of plague. The Special Plague Officer also gave a course of training to the Entomologists of the Regional Malaria Organizations of Coimbatore and Bellary for undertaking rat flea survey work in their respective areas.

Towards the close of the year Government sanctioned the proposals of the Director of Public Health to move the headquarters of the Special Plague Officer from Coonoor to Madras to co-ordinate the work of the plague staff in the endemic districts and to train up the field and other staff in the proper technique and other details regarding the use of D.D.T. for control of plague. The field staff working under him in the Nilgiris district was allocated for work under District Health Officer, the Nilgiris and the Municipal Health Officers, Coonoor and Ootacamund.

Jointly with the Director of Public Health, Mysore, the Director of Public Health, Madras, toured in May and June 1951 the border villages of the Mysore and Madras States recording repeated plague incidence in the past, and he subsequently met the Director of Public Health, Mysore, in conference in June 1951 and discussed the reciprocal measures and arrangements, based on the use of D.D.T. treatment for the control of plague, that should be carried out by the two States to ultimately control and eradicate plague from the States. The measures suggested at this joint conference are now under further scrutiny, before they are finalised for adoption.

FEVERS.

In 1950 it was proposed to compile mortality from malaria and from fevers other than malaria separately. Necessary instructions were issued to registrars to use revised birth and death returns providing separate columns to show the deaths from malaria and other fevers. In many districts the old forms of monthly birth and death returns are still being used as a measure of paper economy, with the result that the deaths from fevers into the two groups have not been separately furnished. The figures of deaths from malaria and other fevers compiled do not therefore portray the actual position of relative incidence of these two groups of diseases.

Fevers other than malaria.—There was an appreciable reduction in the mortality from " other fevers " from 240,972 in 1950 with a rate of 4·43 to 205,643 representing a rate of 3·60. The deaths from other fevers account for 22·8 per cent of the total number of deaths in the State. The number of deaths from this group registered in urban and rural areas were 24,473 and 181,170 giving rates of 2·30 and 3·91 respectively in 1951 as against 2·86 and 4·73 in 1950. The mortality rates in both urban and rural areas for 1951 are thus less than those for 1950. The incidence in rural areas is higher than that in urban areas.

Statement IX of the appendix gives the monthly mortality from " other fevers " recorded in each district and in the State. The death rates varied from 1·09 in Tanjore district to 8·72 in Srikakulam district. Other districts which returned high rates were West Godavari Agency (7·13), East Godavari Agency (7·03), Visakhapatnam (6·93) and Kurnool (6·74).

There were 13,682 deaths from " other fevers " in municipal areas giving a rate of 1·99 as compared with the rate of 2·27 in the previous year. Salem municipality recorded the highest mortality rate of 5·67.

In the rural towns the deaths from this cause numbered 10,787 representing a rate of 2·87. Compared with this rate for rural town areas, the towns that recorded high rates were Kodumur (13·26), Thirumangalam (12·06), Mandasa (11·23), Baruva (11·15), Viragattam (11·04), Gudur (9·50) and Nayudupet (9·35).

Malaria.—The number of deaths from malaria was 5,380 in 1951 as against 6,224 in 1950, the death rates being 0·09 and 0·11, respectively. The mortality from malaria forms only 2·5 per cent of the total fever deaths. As stated above, this may not represent true facts, mainly due to defective compilation. However, a beginning has been made to compile the figures of deaths from malaria separately. It is hoped that accuracy in compilation in future will increase with the use of revised birth and death returns.

MALARIA CONTROL.

Part I—General.

State-wide antimalarial effort is a salient feature of the Public Health Organization. A considerable measure of success has been achieved during 1951 and the pace of progress accelerated. In the operational areas malaria as an endemic infection has vanished from the scene; " Mop-up " and maintenance operations alone have to be continued. To-day the erstwhile hyper-endemic areas such as Araku are health resorts. Elsewhere many thousands of acres of fertile land that lay fallow on account of malaria have turned into

rich rice-fields and fruit-groves. There is more land for occupation, more work for men and more food for the country. The hill tribes and rural population are receiving a large measure of attention. Control operations conducted in large multi-purpose project areas have, by wiping out malaria, removed the greatest handicap to the progress and execution of these Engineering Works. Expenditure on malaria has yielded and will continue to yield large dividends and has largely contributed to progress and prosperity. It may now be claimed that Madras State has the most broad-based and well organized malaria organization in this country as it is equipped not only for malaria control but for malaria surveillance, prevention and research as well. The Central, Regional and District staff include—

1 Assistant Director of Public Health.
1 Chief Entomologist.
1 Malaria Engineer.
4 Regional Malariologists.
13 Health Officers (Class I).
10 Health Officers (Class II).
5 Senior Entomologists.
30 Entomological Assistants.
116 Health Inspectors.
2 Laboratory Technicians.
47 Laboratory Assistants.
233 Field Assistants.

An organization chart of the Malaria Branch is appended. A classified list of the antimalaria schemes that functioned in the State during 1951 showing the area of operations, number of villages covered, population benefited and the authority financing the scheme is given in the Annexure M. It will be seen therefore that 34 schemes were functioning in the districts in areas aggregating to a total of nearly 10,000 square miles and included over 3,600 villages and hamlets in the zone of operations protecting a population of nearly 2,070,000 not reckoning the collateral benefits derived by a large population in and around the malarial areas consequent on destruction of mosquitoes and other insect disease carriers. The expenditure from State Funds on antimalaria works during the year was approximately Rs. 20 lakhs.

Eleven of these schemes were for assisting in land colonization and development and four for the control of malaria in major engineering projects. Freedom from malaria has been the first and lasting foundation on which these major projects will be built. The other malaria problems in the State have been (*a*) severe foot-hills malaria conveyed by A. fluviatalis, (*b*) Epidemic and post-epidemic malaria carried by A. culicifacies, (*c*) some coastal malaria in the Srikakulam district spread by A. sundaicus with the added risk of infiltration of infection from the adjoining State of Orissa and (*d*) urban problems as in Guntur, Salem and Tuticorin for which A. stephensi is responsible. A malaria map of Madras State brought up-to-date showing the controlled, uncontrolled and health areas is appended.

Central Malaria Laboratory and Museum.—Further substantial improvements have been carried out during the year. Essential equipment and exhibits have been added as additional facilities for the training of officers in advanced malariology and for the furtherance of research work. Laboratory-bred colonies of various species of Anopheles, Culex and Aedes mosquitoes and of flies are being maintained for studies of malaria, filariasis infections and for carrying out toxicity and comparative tests with different insecticides and in different formulations. Strains of animal and bird malaria parasites were

maintained for transmission experiments, and for use in the practical classes, laboratory and field tests with formulations of DDT and BHC have been carried out during the year. Besides this, the Central Malaria Laboratory has undertaken the work of chemical examination of the DDT deposits by Alessandrini's Test to evaluate the amount of DDT present on sprayed surface of dwellings. Cheap and effective stains, such as J.S.B. stain, are prepared in the Central Laboratory and distributed to the various units, reducing thereby import of costly foreign brands.

Regional Malaria Organization.—The four Regional Malaria Organizations, with headquarters at Coimbatore, Tanjore (headquarters shifted from Pattukkottai), Bellary, and Visakhapatnam continued to function during the year. They were engaged in carrying out investigations on malaria and filariasis with a view to formulate schemes of control wherever necessary. Considerable data have been collected so as to have an up-to-date list of endemic and epidemic foci of infection in the State. Besides these investigations, the Regional Organisations, have at the instances of the local bodies concerned undertaken mosquito surveys in a large number of municipal and rural towns to formulate schemes of Culex mosquito control. Working schemes are periodica ly inspected by the Regional Organizations for watching progress and tendering technical advice. The organizations also examine and certify whether State-aided schemes are run satisfactorily and on the approved lines. The Regional Malariologist exercises technical supervision over most antimalarial schemes in his region which are in the charge of Health Officers, Class II, while in a few cases he is in administrative and technical control. It is an important function of the Regional Organizations to control epidemic malaria whenever it occurs in their jurisdiction. Malaria control measures have also been systematically carried out in small isolated endemic areas where independent schemes are not considered necessary. Courses of training for Health and Sanitary Inspectors, Laboratory Assistants and Field Assistants, have been held by the Regional Organisations.

The following table summarises the work connected with the training of personnel in the control of malaria and filariasis under the four Regional Malaria Organisations :—

	Tanjore.	Coimbatore.	Bellary.	Kri hna-devipeta.	Total.
Health Inspectors and Sanitary Inspectors (one month course)	13	13	5	9	40
Laboratory Assistants (three months' course)	7	6	2	2	17
Field Assistants (one month course)	13	28	16	40	97

The other activities of the Regional Organizations which need mention are—

(1) Exhibitions on malaria and mosquito-borne diseases and modern methods of control organized in connection with various conferences and important fairs and festivals. These have been of immense educative value to the general public.

(2) Carrying out of the field and laboratory tests on insecticides and their formulations.

(3) Rat-flea surveys in areas endemic for plague and sand fly surveys in Kala Azar areas.

(4) Periodical check-up-surveys in the schemes in the charge of Health Officers.

A resume of work turned out by the Regional Malaria Organizations during 1951 is given below :—

(*a*) *Coimbatore Region.*—This region was free from any epidemic outbreak of importance. Localised outbreaks in the environs of Sankaranarayanapuram in Coondapur taluk and in two wards of Salem Town were promptly controlled. Control of epidemic malaria in the Government Fruit Research stations at Kallar and Burliar on the eastern slopes of the Nilgiris was also carried out. Thirteen malaria surveys (two taluk-wide in Gudalur and Coondapur), three filariasis surveys, six mosquito surveys in rural and urban towns and twenty-five inspections of the various schemes functioning in the six districts of this region were carried out during the year. Four exhibitions were organised at Kozhikode, Kasaragod, Vellore and Srivilliputtur. The following types of special work were also carried out :—

(1) Rat-flea survey of Coimbatore Town.
(2) Check-up entomological survey in the Wynaad.
(3) Experimental studies with Gammexane, P. 520.

(*b*) *Bellary Region.*—The organisation visited 13 new areas for purposes of malaria survey, six for filariasis and two others for rat flea surveys.

Four Sanitary Inspectors, two Laboratory Assistants, one Field Assistant and 15 maistris were given the prescribed training in malaria and mosquito-control.

Plague control was undertaken in Kanganaband in Chittoor district.

The organization participated in a Health Exhibition as a part of the Cottage Industries, Arts and Agriculture Exhibition at Bellary.

Experiments on Soracide as a larvicide, value of antimosquito cream, and Gammexane in different formulations were conducted.

The Regional Malariologist inspected the working of 10 antimalaria schemes and 7 antimosquito schemes.

(*c*) *Tanjore Region.*—The headquarters of the Regional Organization were shifted from Pattukkottai to Tanjore during August 1951.

Thirty malaria surveys and resurveys were conducted by the mobile units of this organization in the various malarious areas of this region. DDT residual spraying and Pyrethrum adult spraying combined with efficient anti-larval work, were also carried out in the surveyed areas, as and when found necessary, either to prevent an anticipated outbreak of malaria or to bring down the incidence of malaria in known endemic areas. The results achieved in the above activities were very satisfactory.

In Courtallam and Rameswaram, the local bodies concerned carried out antilarval measures as part of the malaria control operations. Antilarval and anti-adult measures were carried out at Papanasam Project Camps by the Health Inspector attached to the Electricity Department.

The schemes for Ennore, Lower Palanis and Nadumandalam carried out malaria control operations like DDT spraying and quinine distribution in their respective areas.

As a result of antimalaria operations carried out during the last 3 years, the high endemicity for malaria was declining in Kani settlements of Ambasamudram Hills, Gandaman yakanur Zamin and Nadumandalam in Madurai district, Pettiyam and Mayanbadi in South Arcot district. Papanasam Lower Camp has now been declared to be "HEALTHY". A comparative statement of

spleen-rates, morbidity rates, parasiste rates, etc., in areas under control for about five years is given below :—

Place.	Before control.	After control with DDT.
	(*a*) *Spleen rates.*	
Papanasam	11·6 and 11·4 (in 1948) ..	Less than 1 per cent in 1950 and onwards.
Courtallam	8 per cent	Nil.
Kani Settlements	64 to 100 per cent in 1948	26 to 57 per cent (in 1951).
Gandamanayakanur area ..	66·2 per cent in 1948 ..	7·8 per cent in 1951.
Pandiyarajapuram	8 per cent in 1949	Nil.
Lower Palanis	26·7 per cent in 1948 ..	22·2 per cent in 1950 and 9·3 per cent in 1951.
Nadumandalam	46·8 per cent in 1948 ..	20·4 per cent in 1950 and 17·3 per cent in 1951.
Pottiyam and Mayambadi ..	82 and 80 per cent (1948).	52 and 64·3 per cent in 1950 and 42 and 47·5 per cent in 1951
Rameswaram	6·7 per cent in 1948 ..	5·5 per cent in 1949, 2·6 per cent in 1950 and less than one per cent in 1951.
Arjunapuram	50 per cent in 1949 ..	17 per cent in 1951
	(*b*) *Malaria morbidity.*	
Papanasam	13·4 per cent and 14 per cent in 1948.	5 and 6·3 per cent in 1949, 2·9 and 4·7 per cent in 1950 and 1·6 per cent in 1951.
Lower Palanis	23·5 per cent in 1948 ..	17 per cent in 1949, 16·3 per cent in 1950, and 13·6 per cent in 1951.
Nadumandalam	7·9 per cent in 1949 ..	4·9 per cent in 1951.
Rameswaram	6·6 per cent in 1948 ..	4·8 per cent in 1949, 1·8 per cent in 1950 and 1·0 per cent in 1951.
	(*c*) *Parasite rates.*	
Papanasam	6 and 15·4 per cent in 1942.	11 and 10 per cent in 1949, Nil in 1951.
Lower Palanis	13 per cent in 1948 ..	11·4 per cent in 1949, 3·7 per cent in 1950 and 1·9 per cent in 1951.
Nadumandalam	45 per cent in 1948 ..	11 per cent in 1949 and 8·3 per cent in 1950.
Rameswaram	6 per cent in 1947 ..	1·9 per cent in 1949, Nil in 1951.

Other activities of this organization—Filariasis.—Twenty-one local areas were surveyed for putting up proposals for the schemes of mosquito control in the respective areas. Twenty-three local areas where antimosquito or antifilariasis schemes were already in operation were inspected for suggesting improvements.

Training in malariology and antimosquito measures.—A total of 33 persons consisting of 13 qualified Sanitary Inspectors, 7 Laboratory Assistants and 13 Field Assistants underwent training according to the prescribed courses for each of the categories mentioned.

General.—The organization took part in exhibitions organized by Tuticorin and Kumbakonam municipalities during the year, by sending suitable exhibits of public interest on malaria and mosquito control.

The museum, insectorium and mosquito colony have been re-arranged and set up afresh at Tanjore and they were of special value to the trainees.

Experimental work on the use of Gammexane and DDT as larvicides in growing paddy fields was undertaken and data recorded for further studies during a second season. The use of an initial round of pyrethrum spraying in

combination with efficient larval control has shown encouraging results on filariasis transmission. The effect of a heavy dosage of DDT about 300 mg. per square foot of surface on sand-flies was under study. The organization took part in the control of plague by DDT spraying in the hamlet of Kannarampattu in South Arcot district with satisfactory results.

(*d*) *Visakhapatnam Region.*—Twenty-seven surveys were carried out during the year to prepare schemes of control of filariasis, malaria and culicine mosquitoes. The Regional Malariologist continued to supervise the malaria control operations carried out in the Agency Tracts of Chodavaram, Chintur, Kunavaram of East Godavari district, and Polavaram taluk in West Godavari and the antimalarial scheme in Guntur district and Simhachalam of Visakhapatnam district, besides inspecting the progress of work of control measures carried out by the local bodies. From April to September 1951 the Regional Malariologist assisted the District Health Establishments in the control of smallpox in their areas.

Methods of malaria control adopted.—The advent of DDT as an insecticide with its prolonged residual toxicity has made the control of malaria in the vast rural areas eminently feasible, where the older and more conventional methods on account of their excessive cost, could make but little headway. Besides being cheap, DDT has become popular on account of its lethal effects on other insects, either disease-carriers or mere pests. DDT has been sprayed as a water emulsion with Aromex and soap or as a wettable powder suspended in water. A dosage of 56 mgms. per square foot was applied.

On an average, about three rounds of sprays were given in most of the areas, spaced at about eight week intervals. Malariometric indices, including infant parasite rates wherever practicable and entomological observations in the scheme areas, generally indicate that active transmission of malaria has virtually ceased in the DDT controlled areas. Stirrup pumps worked by two men continued to be used largely in DDT spray operations. However, knapsack sprayers operated by a single man were used in areas with dwellings scattered far and wide. Almost all the structures in the area of operation were being treated.

In the case of malaria control measures adopted in connection with major irrigation and other engineering projects "all out" methods had necessarily to be taken, so as not to permit any risk of malaria among the labour forces. DDT spraying was done at shorter intervals and was supplemented by anti-larval work in the man-made breeding places usually associated with such engineering works. Malaria and mosquito control methods adopted in urban areas chiefly consisted of antilarval measures, such as oiling works of a minor engineering nature, control with larvivorous fish, etc. In certain large towns, barrier sprayings of a few rows of dwellings, at the out-skirts, alongside the main breeding sources, have been tried. The few observations carried out in this direction have yielded encouraging results. Pyrethrum extract was used to a limited extent only. In certain areas particularly in the Tungabhadra Ayacut area, this insecticide was used in villages with low endemicity and where DDT spraying was not considered necessary. Pyrethrum still has its use in the control of epidemics, in as much as a few rounds of Pyrethrum sprays prior to DDT spray give quick results.

Efforts at economy in antimalaria schemes.—Every effort is being made to make the running-costs of schemes as low as possible. Frequent inspections of the schemes to control the expenditure and to check the technical aspects of the work are done to achieve economy. With the existing supervisory staff

larger and larger areas and population are covered in successive years and the staff has been utilized for other public health work without detriment to their anti-malaria work. The only addition to the expenditure in succeeding years will be the provision for essential field staff, labour and insecticides for new areas to be included in different schemes. The whole position is examined and reviewed once a year and special report is submitted to Government.

Free quinine distribution.—The scheme of free quinine distribution has been functioning in almost all the known malarious tracts of the State on an approximate budget of Rs. 70,000 a year. There were 5,774 authorized agents appointed for the distribution consisting mostly of village headmen and schoolmasters and to some extent social workers and officers of the Co-operative and Firka Development departments. The departmental staff also continued to be actively engaged in this work. In anti-malaria scheme areas, this measure constituted one of the important items of work in the programmes and was being carried out on an intensive scale throughout the year. In every village that is visited by the anti-malaria staff, either for investigation or control work, all fever cases are treated. Real relief and a reduction in malaria morbidity in the areas of operation has been noticed. The following quantities of drugs were distributed during the year :—

Cinchona products	2,850 lb.
Synthetic anti-malarials	231,687 tablets.

The quantities of Cinchona and quinine substitutes found necessary in 1951 were much lower than in 1950 when 3,274 lb. of Cinchona products and 399,757 tablets were distributed.

Extension of the Public Health Act.—The provisions of Chapter IX of the Madras Public Health Act were extended to the following local areas during 1951 :—

(1) Kozhikode Municipality.

(2) Palghat, Ernad and Walluvanad taluks.

(3) Maruturu Panchayat (West Godavari district).

(4) Sulurpet Panchayat (Nellore district).

(5) Six panchayats in Rapur taluk (Nellore district).

(6) Namakkal Panchayat (Salem district).

Part II.—A brief resume of the anti-malaria schemes in operation in the State :

1. *A. sundaicus scheme.*—Sanctioned for another year in G.O.Ms. No. 4306, dated 27th December 1950, the A. sundaicus investigation and control scheme extended over 78 square miles along the North Srikakulam Coast, the area comprising 76 villages and 14 hamlets with a population of nearly one lakh.

Two rounds of D.D.T. residual indoor spraying of over 2,800 structures, anti-larval work directed to isolated persistent pockets with the treatment of 14,270 fever cases were the salient features of the control operations.

The scheme has achieved remarkable success as may be seen from the steep decline in the spleen and parasite rates in successive years as shown below :—

Year.	Spleen rate. PER CENT.	Parasite rate. PER CENT.	Morbidity rate. PER CENT.
1948	22·6	8·5	10·5
1949	13·8	4·7	8·2
1950	5·3	2·3	8·0
1951	1·8	0·4	7·0

The A. sundaicus population is kept down at almost negligible proportions. Adult or larval catches are rare in the scheme areas of Madras State, whereas A. sundaicus is found to breed in the adjoining Orissa border. The latter fact and the potency of A. sundaicus as a vector should it again take a hold within our boundaries emphasize the need for vigilance and continued operations though on a small scale.

A scheme for the control of malaria in Tekkali taluk, south of the A. sundaicus scheme area has been sanctioned by Government.

2. *Anti-malaria scheme, Machkund Hydro-Electric Project.*—A scheme intended to safeguard the health of the large body of labourers working in the Machkund Hydro-Electric Project and to keep the area free from malaria has been in operation from 1947. During 1951, 12 villages and 8 camps with 2,690 structures were treated with D.D.T. residual insecticidal spray. As the local conditions are favourable for transmission of malaria throughout the year 12 rounds were sprayed. Chemical anti-larval measures, canalization, drainage of swamps and filling up of river bed-pools and rock-pools were also carried out as supplement.

The spleen and parasite rates for the operational areas were only 13·6 per cent each against 57·4 per cent and 55·3 per cent respectively in unsprayed contrast areas.

3. *Araku Valley scheme.*—This scheme, which started functioning in 1944 with only anti-larval operations in two villages with a population of 300, has progressively expanded its area of operations to cover 116 villages with a population of 11,880 spread over 120 square miles in 1951. During the year, six rounds of D.D.T. spraying were carried out in 116 villages with a total of 4,016 structures; whereas in the Araku Colony proper, and in Kantamansuguda monthly spraying was done. Four hundred and eleven fever cases were treated by the staff.

Rapid land development was evidenced in recent years in the controlled area. Malaria transmission has been stopped and the area has been rendered quite healthy for further colonization. If the present ban on plains' people developing these areas is lifted, this large salubrious tract is bound to become productive and prosperous in a short time. Data showing the remarkable decline in the scheme area follow :—

Overall spleen and parasite rates.

	1948 on season.		1949 on season.		1950 on season.		1951. on season.	
	Spleen rate.	Parasite rate.	Spleen rate.	Parasite rate.	Spleen rate.	Parasite rate.	Spleen rate.	Parasite rate.
	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Two villages—control started in 1945.	33·3	6·0	..	0·8	6·3	0·0	1·6	0·0
Two villages—control started in 1946.	43·4	..	22·0	1·0	8·0	1·0	3·1	1·0
Twenty-two villages—control started in 1947.	48·6	6·8	20·1	1·3	10·8	3·7	5·8	0·6
Sixty-four villages—control started in 1948.	67·3	14·7	33·4	24·4	20·5	13·0	9·8	2·4
Twenty-eight villages—control started in 1949.	67·3	14·7	92·7	..	47·7	24·2	20·6	3·3

4. *Paderu anti-malaria scheme.*—This scheme was first sanctioned on a restricted basis in 1946 and later expanded, as another step towards land development and colonization in the Agency tracts of Vishakapatnam district.

Forty-five villages with a population of 4,500 were taken up for control in 1947. During 1951, the area of operation has extended over 182 square miles comprising 182 villages and hamlets with a total population of 17,951. This is a fertile valley capable of considerable development but is very difficult of access for want of proper road communications. The transmission of malaria takes place throughout the year. Methods of malaria control adopted were chiefly anti-adult with D.D.T. and anti-parasite measures. Six thousand one hundred and twenty-three structures were sprayed with D.D.T. emulsion at an interval of 8 weeks totalling six rounds in all in the year. Four hundred and sixty-four persons received quinine treatment. The work is being carried out by the staff under most difficult conditions of living. The opening up of roads and provision of quarters for the staff are urgent needs.

Malaria cases treated constituted only 0·59 per cent of the total admissions in the dispensary at Paderu during 1951 against 1·13 per cent in the previous year. The spleen rates furnished below show steady decline and the original hyperendemic picture is gradually changing. More waste areas are now cultivated.

Statement of spleen rates.

	1948.	1949.	1950.	1951.
	PER CENT.	PER CENT.	PER CENT.	PER CENT.
(1) *Paderu Unit area*—				
(*a*) Group of 30 villages ..	30·5	26·9	15·7	13·8
(*b*) Group of 23 villages ..	..	54·6	38·6	32·4
(2) *Hukumpeta Unit area*—				
(*a*) Group of 31 villages ..	48·3	44·9	38·3	31·2
(*b*) Group of 13 villages ..	..	65·5	59·3	49·6
(3) *Kinchumunda Unit area*—				
(*a*) Group of 33 villages ..	48·6	45·3	35·2	27·2
(*b*) Group of 32 villages ..	..	..	..	82·3 *
(4) *Minamalur Unit area*—				
Group of 16 villages ..	..	82·6	62·5	49·0

* Taken up for control work in 1951.

The parasite rates for the different years bear out the same conclusions :—

(1) *Pederu Unit area*—				
(*a*) Group of 30 villages ..	5·8	4·5	2·2	1·7
(*b*) Group of 23 villages ..	..	11·2	6·9	3·6
(2) *Hukumpeta Unit area*—				
(*a*) Group of 31 villages ..	9·3	8·5	5·7	4·9
(*b*) Group of 13 villages ..	..	15·4	9·4	8·7
(3) *Kinchumunda Unit area*—				
(*a*) Group of 32 villages ..	12·4	5·7	4·6	5·0
(*b*) Group of 32 villages ..	..	..	..	27·8
(4) *Minamalur Unit area*—				
Group of 16 villages ..	..	12·9	10·5	5·3

5. *Krishnadevipetta scheme.*—The scheme covers 514 square miles and includes 185 villages and hamlets in Golgonda and Gudem Agencies of Visakhapatnam district with a population of 24,318. Besides the headquarters unit, there are four sub-units. Eight thousand eight hundred and fifty-seven structures were sprayed with D.D.T. and 2,029 cases of fever treated.

Proportion of malaria cases treated to the total admissions in the dispensaries during 1950 has worked out to 6·0 per cent, a low figure for this once hyperendemic area. A steep fall in the spleen and parasite rates was recorded

as seen from the statistics given below for the same set of villages included in the control scheme :—

Names of sub-stations.	1950. Spleen rate.	1950. Parasite rate.	1951. Spleen rate.	1951. Parasite rate.
	PER CENT.	PER CENT.	PER CENT.	PER CENT.
(1)	(2)	(3)	(4)	(5)
1 Krishnadevipetta	20·7	8·2	14·0	5·6
2 Sarabannapalem	46·6	22·1	31·1	16·1
3 Kakkarapadu	46·5	12·9	42·6	7·5
4 Downuru	57·4	9·0	39·7	8·3

The average spleen rate and parasite rate for 35 villages newly included in the scheme during 1951 were 73·2 per cent and 19·9 per cent respectively.

6. *Chintapalli anti-malaria scheme.*—This scheme initially intended to protect the Government colony and its environs has during 1951 been expanded to cover 208 square miles with 52 villages and hamlets with a population of about 4,476. There has been a progressive increase in the area and population covered. Malaria morbidity rate was reduced from 8·2 per cent in 1947 to 6 per cent in 1951. A marked decline in the spleen and parasite rates was also recorded. The spleen rates were 50·3 per cent and 42·8 per cent and the parasite rates were 12·7 per cent and 14·4 per cent in 1950 and 1951, respectively. The surrounding areas have been rendered so healthy that it was proposed to settle refugees from other States in the Chintapalle area.

7. *Nugur anti-malaria scheme.*—This scheme started in 1947 primarily for land development and colonization in the Agency tracts of East Godavari district, has completed four years of its existence. During the first two years of 1947 and 1948, the operations were limited to 6 villages only, but in 1949 the control measures were extended to 123 villages. During the year under report 142 villages with a population of 30,000 distributed over an area of 590 square miles were under control. Five rounds of D.D.T. residual spray were given during the transmission season from August to February. On an average, about 9,700 structures were sprayed during each round in 1951. Intensive anti-parasite measures were also carried out during the year.

The scheme has served its purpose of bringing more and more land under the plough. It has been estimated that over 5,500 acres of wet land and 11,000 acres of dry land have been newly brought under cultivation, since the inception of the scheme. Malaria morbidity rate recorded in the taluk headquarters hospital has come down from 20·0 per cent in 1945 and 9·2 per cent in 1950 to 7·6 per cent in 1951 There has been notable reduction in the total admissions and in malarial incidence in the case of Venkatapuram Hospital. Against 8,347 admissions with 25·9 per cent of malaria cases in 1950, there were only 5,817 admissions of whom only 9·6 per cent were for malaria. The overall spleen rate was 26·1 per cent in 1951. The parasite rate has shown considerable recession. From 27·8 per cent in 1949 and 19·1 per cent in 1950, the rate has fallen to 8·6 per cent in 1951.

8. *Anti-malaria scheme, Polavaram Agency (Koya villages).*—This scheme started as an investigation scheme in 1944 has expanded to function as control unit as well, and serves for the amelioration and uplift of the Koya tribes and hillmen in the Agency. The scheme extends over 770 square miles comprising areas in the three taluks of Polavaram, Bhadrachalam and Rampachodavaram. Forty-four thousand two hundred and eighty-four persons living in 201 villages and hamlets were benefited under the scheme in 1951.

Forty-nine thousand seven hundred and nine structures were sprayed with D.D.T. and 2,412 fever cases treated during the year.

The results achieved show steady progress. The overall spleen rates for the four years 1948 to 1951 are furnished below :—

Year.	Spleen rate per cent. Polavaram taluk.	Bhadrachalam taluk.	R. Chodavaram taluk.
1948	71·6	30·1	82·8
1949	63·4	23·0	37·7 *
1950	55·6	21·1	60·3
1951	31·4	23·0	54·1

* Based on small numbers.

While as many as 8,743 cases of malaria had quinine treatment in 1950, only 2,412 cases required such treatment in 1951.

9. *Anti-malaria scheme, Guntur district.*—This scheme has the twofold object of dealing with the aftermath of a widespread epidemic of malaria of 1943 and 1944 and with the endemic foci of the disease from which large-scale epidemics spread. The area of operations has been contracting during the last few years. In 1951, it was confined to about 100 square miles consisting of 15 villages and 52 hamlets benefiting a population of 40 000 in Repalle and Bapatla taluks. Three rounds of D.D.T. residual spraying were carried out in Repalle taluk during the transmission season from July to December. The population directly benefited by D.D.T. spraying was 41,035. Seventeen thousand nine hundred and seventy-four fever cases were treated in the entire scheme areas. The epidemic cycle of malaria in the area has been prevented. The percentage of malaria cases to total admissions in dispensaries came down from 9·6 per cent in 1947 to 5·3 per cent in 1950 and to 5 per cent in 1951. The overall spleen rate declined from 40 per cent in 1947 to 14·9 per cent in 1951.

10. *Anti-malaria scheme, Nellore district.*—A scheme for the control of epidemic malaria in the coastal villages in Kandukur, Kovur, Nellore and Gudur taluks was first sanctioned in 1944. Up to 1948, anti-larval measures against the potential vector A. culicifacies by Paris-greening casuarina pits, borrow pits, etc., and earth filling of pits were resorted to. Sporadic outbreaks in a few isolated villages were also controlled by spray killing of adult mosquitoes with pyrethrum extract. Towards the end of 1949, the above measures were replaced by D.D.T. residual spraying. Distribution of anti-malarials continued as usual. During 1950 the endemic villages of Sulurpet taluk were included in the scheme area, bringing the total area of operation to 150 square miles comprising 141 villages and hamlets with a population of 43,789. Three rounds of D.D.T. spraying were carried out, treating about 11,500 structures. Seven thousand nine hundred and seventy-five fever cases were treated with quinine.

The characteristic features of malaria in epidemic areas are, that periodic widespread outbreaks of great severity occur, take a heavy toll of life and leave a trail of hyper-endemic conditions. The control operations carried out in the area have been helpful in completely warding off such major outbreak after the last epidemic of 1943–44. This by itself should be considered as an achievement. Considerable and rapid reduction in the malaria incidence was noticed during the inter-epidemic period. The overall spleen rate, which was about 60 per cent before the commencement of control operations, came down to 23 7 per cent in 1951. The parasite rate fell from 6·2 per cent in 1950 to 0·8 per cent in 1951. A scheme of anti-malaria measures for the mica mining

area of Nellore district, financed by the Central Government, has been in operation throughout 1951. Malaria transmission in this area has been effectively stopped.

11. *Anti-malarial scheme, Tirumalai Hills.*—Organized measures were started in 1944 to combat endemic malaria. As a result of continuous and systematic efforts, malaria has ceased to be a hazard on the Tirumalai Hills. The spleen rate of 48·7 per cent in 1947 has been brought down to 1·7 per cent in 1951 after successive D.D.T sprays. The percentage of malaria cases treated in the local dispensary came down from 32 per cent in 1944 o 1·3 per cent in 1951. The area of operation is only one square mile with a resident population of 3,367 and a large floating population. One thousand five hundred structures were given four rounds of D.D.T. spray during the transmission season from April to July. A virtual eradication of A. fluviatilis has been effected from the operational zone. Tirumalai attracts pilgrims from all over the Indian Union and the usefulness of organized anti-malaria measures cannot therefore be overestimated as they prevent dispersal of infection through returning pilgrims.

12. *Kurnool district anti-malarial scheme.*—The scheme extends over three taluks, 148 villages in Kurnool and Pattikonda taluks and Owk sub-taluk have been under control, benefiting a population of 185,398. Three rounds of D.D.T. residual spraying were carried out during the transmission season treating over 24,000 structures. Five thousand nine hundred and eighty-four fever cases were also treated. The overall spleen rates in the scheme area fell from 34·1 in 1950 to 17·4 per cent in 1951. Intensive anti-parasitic measures were also carried out. A total of 5,984 cases of fever were treated.

13. *The Tungabhadra Project anti-malarial scheme.*—This project anti-malaria scheme continued to carry out control measures in far-flung areas in :

(1) dam site headworks camp and four closely adjoining endemic villages,
(2) the entire canal construction area to a distance of 175 miles,
(3) Hospet Municipality, and
(4) Ninety-seven endemic villages in the project ayacut area.

Anti-adult measures by D.D.T. spraying and anti-larval measures such as oiling, Paris-greening, clean-weeding, canalization earth-filling and stocking of wells (about 884) with gambusia fish were carried out throughout the year in the dam site camp while the four closely adjacent endemic villages were subjected to D.D.T. spraying once in two months in the transmission season. The canal camps about 148 in number received D.D.T. residual sprays all through the year. Besides the control work in Hospet Municipality where adult spraying is now confined only to the periphery, operations were continued in 97 endemic villages in the Project area. The villages received D.D.T. residual spraying once in 8 weeks. Fifteen thousand and ninety-two fever cases were treated by the health staff. The health staff also attended to general sanitation and all other items of health work in the project area.

Remarkable freedom from malaria has contributed in no small measure for the rapid execution of the project. The spleen rate in the dam site colony has come down from 43·0 per cent in 1946 to 1·5 per cent in 1951, while in Hospet Municipality the reduction was from 15·7 per cent in 1946 to only 1 per cent in 1951. The parasite rate recorded during 1951 was as low as 2·4 per cent in the dam site area. In the endemic villages of the project area there has been a uniform and marked reduction in the malaria indices.

14. *Malaria control and investigation scheme, Anantapur district.*—A scheme of anti-malaria measures for about 37 hilly malarious villages of Kadiri taluk, Anantapur district, started functioning from the year 1945. Survey results

showed that A. culicifacies was the main vector. A. stephensi was also recorded. The transmission season is from September to March. Anti-larval measures for the control of vector breeding were carried out during the first few years of existence of this scheme. Later, the measures were replaced by D.D.T. residual spraying. Forty-eight villages and seven hamlets in an area of 70 square miles with a population of 41,545 have been under D.D.T. spraying control, during the year. The area of operation now covers the malarious villages of three taluks, viz., Kadiri, Kalyandrug and Gooty. Three rounds of anti-adult spraying were done. Twelve thousand two hundred and thirty structures were sprayed in all. One thousand and sixty six fever cases were treated by the staff by distribution of anti-malarials.

15. *Anti-malarial scheme, North Arcot district—Tiruppattur and Chengam.*—The scheme was first sanctioned for the control of malaria in the plains portion of Chengam taluk. When the malaria abated here, the zone of operations was shifted first to the Chengam Javadi and later to the Tiruppattur Javadi Hills. The area of operations of the scheme now extends over the two taluks of Tiruppattur and Chengam with headquarters at Tiruppattur. A total of 92 villages with a population of 25,800 was under control. Two rounds of D.D.T. spraying were carried out in these villages. The number of structures sprayed during each round was 6,237. Two thousand four hundred and seventy-six fever cases received treatment through the scheme staff.

Reassuring results have been obtained as would be indicated by the following data :—

Year.	Spleen rates. Plains villages. PER CENT.	Spleen rates. Hill villages. PER CENT.
1948	20·8	..
1949	13·2	53·0
1950	10·3	62·0
1951	7·2	22·4

The percentage of malaria cases to total attendance in the hospitals in the control area has steadily declined. The figures for 1948 to 1951 were 15·05 per cent, 13·6 per cent, 9·3 per cent and 8·3 per cent respectively.

16. *Salem district comprehensive scheme.*—The scheme has undergone considerable expansion during the past two years and covers the whole of Harur taluk, Karimangalam, Palacole and Indur firkas of Dharmapuri taluk and Mathur firka of Krishnagiri taluk which are the most malarious tracts of Salem district. The population directly benefited by D.D.T. spray operations was approximately two lakhs distributed in 664 villages and hamlets spread over 852 square miles. One to three rounds of D.D.T. residual spraying depending on the local malaria situation were carried out during the year. The total number of structures sprayed during each round is as follows :—

	Structures.
First round	39,760
Second round	67,631
Third round	38,894

The sprayings were done during the period of October to March which is the transmission season. Intensive anti-parasite measures were also carried out. A total of 11,970 persons received quinine treatment.

The percentage of malaria cases treated in the Dharmapuri and Harur hospitals in the scheme area has come down from 23·3 per cent and 49·6 per cent in 1949 to 7·8 per cent and 5·7 per cent in 1951 respectively. The overall

spleen rates recorded a reduction from 35·2 per cent in 1949 to 23·5 per cent in 1950 and further down to 19·7 per cent in 1951.

17. *Coimbatore district anti-malaria scheme.*—The scheme was first sanctioned in 1947 for the control of malaria in the endemic areas of Anamalai firka of Pollachi taluk and Bhavani taluk and consisted of two units one stationed at Analamai and the other at Bhavani, the headquarters of the Health Officer of the scheme being Coimbatore. The scheme is now functioning in 140 villages and hamlets distributed over eight taluks. Approximately 180 square miles are covered and about 36,000 persons protected. Though the scheme is now operating districtwide, the staff has been reduced as many fresh surveys were not necessary.

The spleen rate in Pollachi, Bhavani and Erode taluks have come down from 31 8 per cent, 13 6 per cent and 30 per cent in 1948 to 22·3 per cent, 3·2 per cent and 3 3 per cent respectively in 1951. Similarly Kollegal, Gobichettipalayam and Avanashi taluks showed a decrease from 52·5 per cent, 53·7 per cent and 35·3 per cent in 1950 to 32·3 per cent, 28·8 per cent and 16·2 per cent respectively in 1951.

The following statement showing the percentage of malaria cases treated to total attendances at several dispensaries in the district bears out the same conclusion :—

Name of dispensary.	1948.	1949.	1950.	1951.
	PER CENT.	PER CENT.	PER CENT.	PER CENT.
V.K. Puthur	15·8	10·6	10·2	8·7
Periapadu	37·0	33·2	32·2	22·0
P.G. Palayam	22·8	15·3	8·7	5·5
Odayarpalayam	30·5	17·0	13·0	7·3

18. *Anti-malaria scheme for Government Cinchona Plantations.*—This scheme was sanctioned for the benefit of the labour and staff employed by Government in the plantations totalling about 15,000. The unit has the additional function of carrying out general health services in the area. During the year under report two rounds D.D.T. sprayings were carried out from February to June. One thousand four hundred and eighty-four fever cases were treated.

Malaria morbidity has been considerably reduced in the plantation area. The percentage of malaria cases treated in the local dispensaries fell from 21·3 in 1947 to only 1·8 in 1950. The spleen and parasite rates were as follows :—

Year.	Spleen rate.	Parasite rate.
	PER CENT.	PER CENT.
1949	5·5	2·4
1950	1·5	1·2
1951	1·5	0·5

19. *Madurai district, Kodaikanal and Palni Hills scheme.*—This scheme started functioning from the beginning of 1949. The area of operations extends over 75 square miles with a population of 21,305 spread over 13 villages and 72 hamlets in the Lower Palni and Kodaikanal Hills. During the year under report a total of about 5,372 structures were sprayed twice with D.D.T., once during the earlier transmission season of May and June again during the later season from August to December. Ninety cases of malaria were treated by the scheme staff.

As a result of the control measures in the past three years there has been a marked reduction in the mosquito densities and practical disappearance of

the local vector, namely, *A. fluviatilis*. The morbidity rate recorded in the Local Fund Dispensary at Pannaikadu in the scheme area has come down from 35·1 per cent in 1946 to 13·6 per cent in 1951. The spleen rate for the area which was 36·7 per cent before control operations were started has come down to 9·3 per cent in 1951. The parasite rate also fell from 9·3 per cent in 1949 to only 0·66 per cent in 1951.

The people are generally enjoying better health. Labour has become cheaper as men from the Plains are offering themselves for work in the plantations.

20. *Anti-malaria scheme—Lower Bhavani Project.*—This scheme for anti-malaria and general health measures in the Headworks area of the Lower Bhavani Project was first sanctioned in 1948. The area of operations of the scheme extended over Bhavanisagar proper of the Headworks Division and villages in the vicinity of the dam site. A population of about 40,000 has been served by the anti-malaria measures. D.D.T. residual spray operations were started towards the end of 1949 and the dam-site colonies and the surrounding villages have been sprayed once every four weeks regularly. Anti-larval measures and paludrine treatment were useful supplements to the adult spraying programme. Despite its high malaria potential the project area has been kept free from malaria outbreaks and the morbidity rates kept low, viz., 1·6 per cent in 1951 against 2·9 per cent in 1949 and 2·3 per cent in 1950.

21. *Malampuzha Project Anti-malaria scheme.*—A comprehensive scheme of anti-malaria and general health measures in connexion with this irrigation project in South Malabar district was sanctioned towards the end of 1950. Anti-malarial operations were carried out in the dam site area as it is located in an area of high malaria potential. Ten rounds of D.D.T. spraying were carried out. The spleen rate which was as high as 50 per cent in 1949 has come down to only 2·7 per cent during 1951. Preventive measures have given such good results that the execution of the project could go on unhampered and according to schedule.

22. *World Health Organization Malaria Control Demonstration Team, Nilambur.*—The Madras Government Parallel Indian Team, with the assistance of the W.H.O. Team consisting of a team leader and a public health nurse started work from January 1950. During the second year of operations the scheme worked with the same set up until 20th November 1951 when the foreign personnel was withdrawn and the work is now carried on by the Indian Team. While only 16 villages, four in Ernad taluk and 12 in Walluvanad taluk of Malabar district with an area of 142 square miles and a population of 63,372 were included in the first year's programme, during 1951 work was extended to 37 villages lying in Ernad, Walluvanad and Palghat taluks covering an area of 900 square miles and benefiting 115,553 persons. The hyper-endemic area of Attappady was also included. One round of D.D.T. spraying (D.D.T. Xylene emulsion or wettable powder 200 mgm. per square foot dosage) was sprayed on 24,082 structures at the commencement of the transmission season in the area in February-March 1951. Six hundred and thirty-four structures were resprayed in May in the wake of a cyclone as a measure of abundant caution. Anti-parasitic measures by the distribution of paludrine were carried out in the scheme area.

The overall spleen rate of 33 5 per cent in 1950 fell to 16·1 per cent in 1951. From figures supplied by the Revenue Department it was noticed that in nine villages included in the control programme 53·8 acres of land were

newly brought under cultivation with an increase in food production of 12,480 maunds.

Public Health Nursing was associated with the malaria control work—a unique feature of this scheme. Clinics held for treatment of minor ailments, pre-natal work, etc., increased in popularity as the subjoined statement will show :—

Year.	Number of clinics.	Attendance.			
		Infants and children.	Antenatals.	Nursing mothers.	Total.
1950	42	1,551	17	..	1,568
1951	119	5,451	148	265	5,864

The Health Visitors rendered minor medical aid in remote villages and conducted clinics at Nilambur and Edakara.

23. *New Settlers Colony scheme, Malabar district.*—Malaria used to take a heavy toll of new settlers in the foot-hill regions of the Western Ghats in Malabar and defeated many a colonization enterprise. Thanks to this scheme the picture has completely changed. Food crops as tapioca and rice and commercial crops of rubber and pepper are now raised in ever increasing quantities as healthy conditions have been established.

Anti-malarial operations are carried on along a continuous belt along the Western slopes of the Ghats in the four taluks from Chirakkal in the north to Kozhikode in the south.

The scheme was further extended in 1951 to cover a population of over 56,000 living in 52 villages spread over 226 square miles. Two rounds of spraying over 12,000 structures were carried out and 4,505 fever cases treated. The spleen and parasite rates are rapidly declining. The morbidity statistics of Tamarassery hospital fell from 24·8 per cent in 1950 to 19·5 per cent in 1951.

24. *Wynaad Colonization scheme.*—A land colonization project for the re-settlement of ex-servicemen in 60 square miles in the most hyper-endemic area of the Wynaad taluk specially acquired for the purpose was sanctioned in 1943 and depended for its success on efficient and rapid control of malaria. The challenge was ably met. Rapid increase in the population from 11,272 in 1947 to nearly 20,000 in 1951, the virtual disappearance of the vector *A. fluviatilis*, complete cessation of malaria transmission and the bringing in of nearly 9,500 acres of land under cultivation indicate the measures of final success achieved. Spleen and parasite rates are furnished below :—

Year.	Spleen rate.	Parasite rate.
	PER CENT.	PER CENT.
1947	52	16
1948	39	5
1949	18	3
1950	10	0·4
1951	4	0·0

25. *Wynaad Taluk Anti-malaria scheme.*—As a sequel to the Wynaad Colonization Scheme, as much on account of its success as on the need for preventing reinfestation from uncontrolled areas, a taluk wide scheme extending over nearly 1,000 square miles was sanctioned in 1948. After carrying out preliminary investigations, actual control measures were instituted from the beginning of 1949. The population benefited now by this

scheme is 124,055. D.D.T. spraying (four rounds) during the transmission season and the distribution of anti-malarials to fever cases were the measures carried out.

The results of control for three seasons are eminently satisfactory. The vector has almost disappeared. Infant parasite rate which was 5 per cent in 1950 was nil during 1951. Hospital attendances for malaria have rapidly declined. The population has increased from 100,891 in 1948 to 124,055 in 1951 on account of both immigration and fall in death-rate. It has been estimated that about 13,000 acres of land have newly been brought under paddy cultivation—no mean effort in resolving the food problem. Rapid rise in the price of land has been reported. This erstwhile hyper-endemic area, a seed-bed for setting up epidemics in the neighbouring country has already ceased to be a menace.

Morbidity statistics.

Year.	Vayitiri L.F. Hospital, percentage of malaria cases.	Government Hospital, Manantody, percentage of malaria cases.	Rural Dispensaries, Panamaram, percentage of malaria cases.
1947	34	32	52
1948	27	37	45
1949	23	29	31
1950	11	8	16

Spleen and parasite rate per cent.

Name of circle.	Spleen rate.			Parasite rate.		
	1949.	1950.	1951.	1949.	1950.	1951
Meppadi	26	16	13	1	1	1
Kariambadi	42	17	6	7	2	1
Kuppadi	79	39	28	27	7	2
Vayitiri	27	6	7	1	0	0·3
Panamaram	24	9	8	1	0	0
Mangalasseri	14	1	0·6	2	0	0
Kattukulam	58	40	20	12	3	1
Talapoya	10	12	5	2	0	0

26. *Puttur and Karkal Taluks Anti-malaria Scheme, South Kanara district.*—A scheme of control of malaria for the development of the fertile Malnad in South Kanara district has expanded considerably since its inception in 1948 and now covers about 1,000 square miles in Puttur and Karkal taluks, comprising 153 villages with a population of 140,000. The primary vector is *A. fluviatilis*. *A. culicifacies* has also been incriminated in certain areas. The measures adopted consisted of D.D.T. residual spraying and anti-parasite measures. Three rounds of D.D.T. spraying during the transmission season, extending from December to June were given. Approximately 77,000 structures in all averaging about 25,000 structures per round were sprayed. A total of 3,021 fever cases received quinine treatments.

The results achieved during the brief period of control in an extensive stretch of ghat and sub-ghat areas of the district have been remarkable as

the statistics furnished below would indicate. Percentage of malaria cases treated in the dispensaries within the area of operation :—

Name of dispensary.	Percentage of malaria cases.				
	1947.	1948.	1949.	1950.	1951.
Kadaba Local Fund Dispensary	59·6	59·4	46·0	26·5	23·4
Rural Dispensary at Uppinangady ..	43·4	37·1	31·9	26·0	19·1
Local Fund Hospital, Belthangadi	44·1	55·1	36·3	27·5	24·1
Local Fund Hospital, Sulgia	35·8	32·7	29·9	17·7	13·8
Overall spleen and parasite rate per cent.					
Spleen rates		45·9	39·8	23·5	9·45
Parasite rates		8·3	3·0	1·0	0·55

27. *Other anti-malaria scheme in operation in the State.*—Schemes for the control of malaria in Cuddapah, Kurnool, Guntur, Salem and Anantapur Municipalities, Simhachalam in Visakhapatnam district, Kollur and Kambadaji villages of South Kanara district and in some villages of Chittoor district and Ennore coastal area in Chingleput district continued to function during the year. New schemes have been sanctioned for the control of malaria in Tekkali taluk and in the Sriharikota island in the Nellore district. The control measures carried out are progressing satisfactorily.

Proposed expansion of anti-malaria work in the State.—Plans for anti-malaria work in connexion with the ten-year plan of Agency Development are under consideration of Government, as also a plan for co-ordinated malaria control work in the Malnad area of Madras and the adjoining State of Mysore. The development of these areas will go far in increasing the food production in the State and will therefore justify any outlay that may be necessary to afford relief to the stricken population of these areas.

FILARIASIS.

Extensive and detailed surveys carried out by the Regional Malaria Organizations during the year in many panchayats and municipalities have revealed the prevalence of filariasis in many areas in varying degrees of endemicity. Besides the areas on the East and West Coast where the disease is widespread, many inland towns in the southern and western districts are affected. Filariasis surveys were carried out by the Regional Organizations during the year as shown below :—

Regional Malaria Organization.	Number of filariasis survey.
Tanjore	21
Coimbatore	3
Bellary	6
Visakhapatnam	14

The following tabular statement gives the results of filariasis surveys conducted during the year in typical localities. D.D.T. anti-larval work has been instituted in all these localities. Experiments have been conducted using Gammexane as the larvicide of choice. Satisfactory results were obtained and the use of this larvicide will considerably reduce the costs of schemes and has been recommended to local bodies. Eighteen anti-filariasis schemes and 10 anti-mosquito schemes have been sanctioned by local bodies. Eighteen schemes are awaiting approval of Government. Certain other local bodies are preparing control schemes at the instance of the Regional

Malariologists. There are two distinct types of filarial problem in the State. The one is caused by filaria bancrofti transmitted by culex fatigans which is by far the commonest problem in the majority of the towns. The favourite habitat of C. fatigans is the highly polluted sullage water. The sheet-anchor of control is proper drainage, failing which systematic application of larvicidal oil fortified with about one per cent D.D.T. is an effective measure widely adopted in the scheme areas. The other problem is due to filaria malayi transmitted by Mansonoides mosquitoes. These mosquitoes have a peculiar ecology of their own. They invariably breed in association with Pistia stratiotes, an acquatic plant. Removal of Pistia plant from ponds and pits is a simple method of dealing effectively with the breeding of this type of mosquitoes. Surveys have given us necessary information as to the nature and extent of the problem and the type of control measures suitable.

Tabular statement showing the results of some of the filariasis surveys conducted in the State by the Malaria Bureau during 1951.

NOTE.—Anti-filariasis schemes have been prepared in most of these localities, some of which are awaiting approval of Government.

District locality.	Filarial infection rate. PER CENT.	Filarial disease rate. PER CEET.	Mosquito infection rate. PER CENT.
Visakhapatnam—			
Chodavaram Panchayat	..	..	..
Cheepuruppalli	14.1	2.9	11·2
Bobbili Panchayat (Korni village)	..	..	..
Madugula	9·5	1·5	6·4
West Godavari—			
Eluru Municipality	5.4	0.6	5·6
Polavaram Panchayat	..	..	..
Penukonda Panchayat	11·4	8·3	11·4
Undi Panchayat	1·1	..	..
Palacole Municipality	..	..	..
Maruteru Panchayat	..	..	..
East Godavari—			
Draksharama Panchayat	..	..	..
Guntur—			
Narasaraopet Municipality	0·3	..*	..
Sattenapalli Panchayat	0.1	..†	..
Mangalagiri	..	..	..
Krishna—			
Jaggayyapeta Panchayat	..	..	..
Masulipatnam Municipality	10·9	1·5	11·3
Srikakulam—			
Amadalavalasa Panchayat	..	..	‡
Chittoor—			
Pakala	6	1.75	1·9
Puttur	5.7	6·03	11.73
Nagari	3·07	5.01	8·08
Malabar—			
Badagara Panchayat	10·8	9·8	12·2
Baliapatam Panchayat	22·1	20·5	25·0
South Kanara—			
Kumbla Panchayat	2·3	2·6	4·8

* Less than 0·03 per cent. † Less than 0·04 per cent. ‡ Varies 10 to 25 per cent.

Guineaworm Disease.

Dracontiasis is a major problem in some of the districts of the State, especially in rural areas where protected water-supply or protected draw-wells do not exist. The districts endemic for the disease are Chingleput, East Godavari, West Godavari, Anantapur, Bellary, Guntur, North and South Arcot and Srikakulam. Control operations such as super-chlorination, excess lime sterilization and biological method of control by introduction of cyclopscidal fishes in tanks, ponds and wells are being carried out in many of the endemic areas.

In the taluks of Alur, Bellary, Harpanahalli and Rayadrug, super-chlorination of all infected water-supplies continued to be carried out by a special staff of one maistri and two mazdoors for each taluk. In 14 villages in Peddapuram and Rajahmundry taluks in East Godavari district, in Tadepalligudem and Kovvur taluks in West Godavari district and in Tiruvannamalai and Wandiwash taluks in North Arcot district, chemical and biological methods of control were continued. In Bobbili taluk in Srikakulam district, the biological method of control was adopted.

The eradication of this disease is only possible with the abolition of step-wells and their conversion into draw-wells.

Respiratory Diseases.

The mortality from this group of diseases also decreased from 97,385 giving a rate of 1·79 per mille in 1950 to 87,231 with a rate of 1·53 in 1951. Respiratory diseases accounted for 9·4 per cent of total deaths in the State. As in the previous years, the mortality rate in urban areas was higher than that in rural areas. There were 33,915 deaths registered under this group in urban areas giving a rate of 3·18, while in rural areas there were 53,316 representing a rate of 1·15. The higher incidence from the diseases in urban areas would appear to be due mainly to overcrowding and bad housing peculiar to urban environment. The distribution of monthly mortality from these diseases in each district and the State is shown in Statement XI of the appendix. The lowest mortality was recorded in April and the maximum in December. The death-rate from this group of diseases varied from 0·80 in Salem district to 3·02 in West Godavari Agency. The districts of Madurai, Nilgiris and Coimbatore registered high death-rates of 2·26, 2·20 and 2·03 respectively.

There were 29,581 deaths from respiratory diseases in municipal areas giving a death-rate of 4·30 as against a rate of 5·57 in the previous year. The municipalities that recorded high death-rates were Palni (10·83) and Madras (7·55). These towns returned high rates in the previous year also and the factors responsible for the same should be investigated.

In rural towns, this group of diseases caused 4,334 deaths in 1951 giving a death rate of 1·15 as compared with 1·40 in 1950. High rates were recorded in Natarasankottai (6·55), Emaneswaram (6·36), Palayampatty (5·47) and Kotagiri (5·11).

Tuberculosis.

The figures of mortality from tuberculosis are not available for non-municipal areas. In municipal areas there were 7,227 deaths from the disease giving a rate of 1·05 per mille in 1951 as against 1·40 per mille in 1950. The mortality from pulmonary tuberculosis accounts for nearly a fourth of the total deaths from respiratory diseases in municipal areas. The number of deaths

and death-rates registered under this cause in the municipal areas during the past decade are shown below :—

Year.	Number of deaths.	Death-rate per mille.	Year.	Number of deaths.	Death-rate per mille.
1942	6,090	1·34	1947 ..	6,964	1·40
1943	4,113	0·89	1948 ..	6,995	1·31
1944	7,246	1·55	1949 ..	7,146	1·31
1945	6,977	1·47	1950 ..	7,768	1·40
1946	6,766	1·38	1951 ..	7,227	1·05

The mortality rates were high in the municipalities of Sivakasi (2·84) Palni (2·50), Palayamkottai (2·43), Melapalayam (2·38), Tuticorin (2·36), Villupuram (2·12), Udipi (2·10), Bellary and Tindivanam (2·03 each).

The following statement shows the number of cases of pulmonary and non-pulmonary tuberculosis treated in hospitals in the State.

Year.	Pulmonary tuberculosis.	Non-pulmonary tuberculosis.	Total.
1947	61,611	27,086	88,697
1948	72,961	27,094	100,055
1949	79,934	40,075	120,009
1950	106,498	64,736	171,234
1951	94,708	72,788	167,496

The above figures reveal that the non-pulmonary tuberculosis as registered shows a steady increase over the quinquennium and the proportion of non-pulmonary to pulmonary tuberculosis also registered a corresponding increase possibly due to increased recognition of this group by better diagnosis.

From the above review of pulmonary tuberculosis incidence in municipal areas it may be noted that the mortality prevailing in municipalities is very high, needing urgent measures for its control. The number of beds (2,035) provided in medical institutions for isolation and treatment of open cases are too inadequate to meet the needs of the situation. Provision of sanatoria and increase of bed accommodation are urgently necessary to effectively meet this problem. In several districts local organizations are taking interest in collecting funds for opening sanatoria.

With a view to providing protection to the vulnerable groups B.C.G. vaccination campaign in the State inaugurated during the previous years has been intensified during the year, under the direction of the Director of Tuberculosis Institute, Egmore, Madras. Three B.C.G. vaccination teams, one of the Madras Corporation and two of Government, continued to carry out B.C.G. vaccination work in 1951. Children of primary schools both Corporation and private aided schools, and the High schools in the City, were Mantoux-tested. Industrial labour employed in the Aluminium Workshops, Strathie Co-operative Workshops, and Chrome Leather Company, and technical training groups as the Instrument Mechanic Training Centre, Central Polytechnic and Defence Service Personnel, the Indian Air Force, Tambaram, were also taken up for tuberculin testing during this year. Medical students and pupil nurses of the City State hospitals belonging to the vulnerable groups were also Mantoux-tested. All told 41,032 persons have been so tested during the year. Fourteen thousand four hundred and two persons, who were non-reactors, were vaccinated with B.C.G. vaccine during the year as compared with 11,147 vaccinated during the two years 1949 and 1950. No severe reactions or untoward complications due to the B.C.G. vaccination among the above have been reported.

The "Mass Radiograph Unit" was used and the workers in B. & C. Mills and the men of the Government Transport, were X-rayed. During the Stanley Medical Exhibition and the Y.M.C.A. Boys Town Carnival, the public resorting to the Exhibition were also X-rayed. A total of 14,538 persons were thus X-rayed with the above unit of which 2,328 persons showed in the skiagrams, abnormal shadows. One thousand one hundred and seventy-four of these were further investigated and 176 cases among them were found to be active tuberculosis cases.

On the recommendation of the second conference of B.C.G. workers Medical and Public Health administrators of different States, etc., held at New Delhi in April 1951, that B.C.G. vaccination may be made a part of the activities of the Public Health Department imparting necessary technical training to the staff, the Government ordered in G.O. Ms. No. 701, dated 4th March 1952, that the B.C.G. vaccination work should continue to remain in the Medical Department for the present. The extent to which the Public Health Department can participate in the follow up of the B.C.G. vaccinated in their normal home environment, is under examination of the Government. Proposals in this regard for active participation of the Public Health Department have already been submitted.

LEPROSY.

Statistics regarding the prevalence of leprosy are not available. To assess the incidence, advantage of the census of population in 1951 was taken. In the questionnaire used for the census, a question as to whether the person enumerated was suffering from leprosy was included. The figures of leprosy incidence have been compiled by census authorities. They are however, subject to certain limitations, such as, the inability of enumerators who were non-medical men to diagnose the disease, the condition of all inmates in this regard is reported only by the respondents and is not personally verified by enumerators, etc. The figures furnished by the census authorities according to the four zones into which the State was divided were examined. The following table shows the incidence of the disease in the zones and the State and in rural and urban areas :—

LEPROSY INCIDENCE PER 1,000 OF POPULATION (CENSUS).

Leprosy Incidence.

Particulars.	Males.	Females.	Total.	Rural.	Urban.
		Madras State.			
Number of leprosy cases.	51,677	20,445	72,122	62,469	9,653
Population	28,419,003	28,596,999	57,016,002	45,832,268	11,183,734
Rate per 1,000 of population.	1·82	0·71	1·26	1·36	0·86
		North Madras.			
Number of leprosy cases.	10,319	4,074	14,393	12,235	2,158
Population	7,211,986	7,221,495	14,433,481	12,070,771	2,362,710
Rate per 1,000 of population.	1·43	0·56	1·00	1·01	0·91

Leprosy Incidence—*cont.*

Particulars.	Males.	Females.	Total.	Rural.	Urban.
		Madras-Deccan.			
Number of leprosy cases.	994	336	1,330	1,135	195
Population	2,572,181	2,465,474	5,037,655	4,212,297	825,358
Rate per 1,000 of population.	0·39	0·14	0.26	0·27	0·24
		South Madras.			
Number of leprosy cases.	36,428	14,256	50,684	44,122	6,562
Population	15,315,463	15,410,341	30,725,804	23,569,295	7,156,509
Rate per 1,000 of population.	2·38	0·93	1·65	1·87	0·92
		West Madras.			
Number of leprosy cases.	1,664	601	2,265	1,598	667
Population	3,319,373	3,499,689	6,819,062	5,979,905	839,157
Rate per 1,000 of population.	1·19	0·51	0·84	0·83	0·88

It will be seen that the disease was least prevalent in the Deccan and most in South Madras Zones. The relative prevalence of the disease in rural and urban areas varies from region to region. The incidence among males was more than that among females, the rate among males being 2½ times that among females. It is not possible to say whether this large variation in incidence among the sexes, can be partly explained by difficulties in examining and detecting leprosy among women.

An idea of the prevalence of leprosy in the districts can also be gathered from the number of leprosy cases treated in hospitals. The number of leprosy cases treated in hospitals in each district and in the State in 1951 as compared with those for 1949 and 1950 is given in Annexure G. The persons treated for this disease numbered 85,262 in the year under report as against 101,359 in the previous year. While there was a large reduction in the number of persons treated in North Arcot and Tanjore districts as compared with the previous year, there was a large increase in the districts of Krishna and Coimbatore.

The Provincial Leprosy Survey Unit at Vellore and the District Leprosy Survey Unit at Cuddalore consisting of one Health Officer (Class I), one Health Inspector and one clerk in each unit continued to function during the year under report. A survey of leprosy was conducted in the districts of Chittoor, Madurai, North Arcot, Tiruchirappalli, Salem, South Arcot, and Chingleput. The results of the survey are summarized below :—

District.	Number of villages where survey was conducted.	Population.	Number of cases detected.		
			Open.	Others.	Total.
Chittoor	69	80,132	386	290	676
Madurai	23	51,500	135	263	398
North Arcot	11	13,972	79	62	141
Salem	1	8,000	13	12	25
Tiruchirappalli	5	9,000	31	28	59
South Arcot..	45	48,659	711	366	1,077
Chingleput	2	3,750	29	66	95

The scheme for starting a treatment centre for Government servants at the Leprosy Colony at Bapatla was examined during the year. Another

scheme for the establishment of a mobile unit for treatment-*cum*-survey work in West Godavari district was prepared by the Provincial Leprosy Survey Officer.

The units worked in Firka Development areas in close collaboration with the Honorary Adviser to Government for Leprosy Control.

A scheme for survey of leprosy in Shirva town and neighbouring villages was sanctioned in 1950. The survey was conducted from the end of December 1950 to April 1952, by a Health Inspector who was specially trained for the purpose. The work of Health Inspector was supervised by the Health Officer, State Leprosy Survey Unit, Vellore. The survey was extended to further villages—making a total of 24 villages surveyed. The total population covered by the survey was 54,562. The number of cases of leprosy traced was 185, the incidence rate being 3·4 per 1,000 of population. Out of 185 cases, 68 were lepromatous and 117 neural type, representing open case rate of 37 per cent. The number of children under 15 years who were found to suffer from the disease was only 22 out of 185 detected in the survey and represents 11·9 per cent of the total cases. The survey thus indicates that leprosy was not widespread in the area.

There is one local fund dispensary at Shirva Town with an out-patient leprosy clinic. The average attendance at clinics is poor, mainly due to long distance to be travelled by patients. Necessary suggestions for prevention and control of disease in the area surveyed have been made and are under consideration.

Venereal Diseases.

The occurrence of venereal diseases is not notifiable and it is therefore not possible to compile statistics of the incidence of the disease. However, as treatment for these diseases has been provided for in the hospitals of the State, the number of cases treated in hospitals affords a measure of relative prevalence of these diseases. The number of cases of syphilis, gonorrhoea and other types of venereal diseases treated in Hospitals in the State is shown below :—

Year.	Syphilis.	Gonorrhoea.	Others.	Total.
1947	141,967	115,342	98,965	356,774
1948	142,430	130,137	78,443	351,010
1949	151,637	142,596	90,618	384,851
1950	135,343	150,643	169,129	446,115
1951	152,382	181,006	122,235	455,623

The number of cases of venereal diseases treated in hospitals has steadily increased. Cases of gonorrhoea have not only increased, but more people were treated for gonorrhoea than for syphilis during the last two years. Annexure H gives the number of persons treated in hospitals in each district. The largest number of cases treated was in the districts of Madurai, Srikakulam, Visakhapatnam, Ramanathapuram and Guntur.

The large number of persons seeking relief in hospitals in the past few years as reflected in the above statistics would appear in part due to the efficient methods of modern treatment of syphilis and gonorrhoea with the recently developed anti-biotics and chemotherapeutic agents.

The cities of Madurai and Madras established Venereal Disease clinics for the control of venereal diseases. In Madurai City, the Venereal Disease Control Team consisting of a Medical Serologist, Technician and a Health Visitor after undergoing the training in Venereal Disease at Simla in 1950

under the auspices of the World Health Organization commenced work from 6th January 1951. As the expected equipment and penicillin promised by the World Health Organization was not received in time to start the clinic and the laboratory, the municipality sanctioned a sum of Rs. 5,000 towards initial expenses and the minimum equipment necessary to start the clinic was proposed and the work commenced. In the existing Public Health Laboratory attached to the Municipal Health office, serological tests were carried out as a routine on the samples of blood collected from pregnant women at the Ante-natal clinics. Venereal Diseases R.L. slide test is also proposed to be carried out once the equipment and the antigen promised by the World Health Organization are received. By the close of August 1951, the trained Medical Serologist left and one Honorary Venereal Disease clinician recruited locally carried out the work during the rest of the year. Proposals to train one Venereal Disease clinician and one technician selected by the Madurai Municipal Council at the Venereal Disease department, General Hospital, Madras, and the Corporation Pathology Laboratory, Madras, are under the consideration of the Municipal Council. The following is the record of cases new and old treated for the venereal disease during the year :—

—	Number of new cases treated.	Number of old cases treated.	Total number of attendance.
Men	645	2,955	3,609
Women	308	1,506	1,815
Children	17	59	76
Total ..	970	4,530	5,500

In Madras City during the year the UNICEF donated a field survey unit equipment for serological examination for syphilis. The Pathologist of the Public Health Laboratory, Madras Corporation, received training during 1950 in Serological Laboratory work at Simla. Since September 1951 the blood samples from ante-natal cases attending four of the largest maternity and child welfare centres in Madras City were examined as a routine and the following results were recorded :—

	Number of blood samples.	Positive.	Percentage positive.
1951.			
September	28	1	3·5
October	169	7	4
November	160	8	5
December	201	12	5·9
1952.			
January	171	8	4·8
February	287	18	6·4
March	368	13	3·5
April	338	12	3·5
May	363	15	4·0

Positive cases were treated at the respective maternity and child-welfare centres and treatment was also given to all positive cases attending the Venereal clinic run by the Madras Corporation at Otteri. The penicillin required for treatment of the above cases was donated by the UNICEF.

It is proposed to extend the venereal disease control services from the four existing centres to include the remaining 26 maternity and child-welfare centres in the Madras Corporation.

The Public Health Laboratory of the Madras Corporation examined blood samples for Kahn and Menicke's tests for diagnosis of syphilis and also examined routine smears for Gonococci. During 1951, 1,826 such blood samples received from the private medical practitioners have been examined for Kahn and reported on.

Public Health Department has an important role to play in tracing sources of infection in venereal diseases, help in case-holding and treatment. To prevent congenital syphilis, the detection of syphilis in the expectant mother, which under ante-natal health supervision at the Ante-natal clinics conducted by the maternity and child health welfare centres is an urgent need.

Research.

The Research Branch of the department, kept in abeyance, was revived in 1951 on a reorganized basis. It is manned by one Research Health Officer (I Class Health Officer), one Entomological Assistant, two Health Inspectors, one Laboratory Assistant and two laboratory attenders. The function of the Branch is to conduct research on all public health problems that arise from time to time.

The Research Health Officer and the Entomological Assistant were deputed for two months to the All-India Institute of Hygiene and Public Health, Calcutta, for training in field and laboratory work in kala-azar and typhus. After the completion of their training, the Branch commenced functioning since the second week of September 1951. A laboratory has been fitted up with some important equipments to start with.

Kala-azar.—The study of prevalence, treatment and control of kala-azar has not so far been taken up seriously in this State. Data of cases treated in medical institutions indicate that the disease continues to be endemic in the district of Ramanathapuram and in Madras City. An entomological unit has been established with headquarters at Ramanathapuram for carrying out comprehensive investigation and instituting control measures by residual D.D.T. spraying in some selected endemic villages. A mobile medical unit of the Medical department is collaborating with the field unit by treating kala-azar cases in the district.

A comprehensive sand-fly survey in Madras City was also taken up. The objects of the survey are—

(i) to collect wild sandflies for determining the species,

(ii) to find out the relationship between the occurrence of kala-azar cases and the prevalence of Phlebotomous argentipes,

(iii) to find out whether sand-flies caught are infected with Leishmania, and

(iv) to breed in the laboratory the different species of sand-flies caught in the survey.

The species of Phlebotomous obtained were P. argentipes (Ann and Brun), P. Papatasii (Scop) P. Minutus (Rand and P. bailyi var compester). Specimens of the first two species were dissected to ascertain whether sand-flies could be found infected naturally with Leishmania. No infection was traced. The survey also revealed that more kala-azar cases were reported from areas where P. argentipes are more prevalent, except in the case of Nungambakkam and Saidapet areas.

Infectious Diseases Hospitals.

In the control of communicable diseases isolation of the source of infection is the most important measure. Isolation of the patients removes the individual from insanitary home environment, prevents contact with the healthy relatives and neighbours, and thereby minimises the chances of the spread of infection in the community.

In this State the major diseases which occur in epidemic form are cholera and smallpox and the facilities provided for isolation of patients are very inadequate and unsatisfactory.

Cholera.—The Public Health Board recommended that all municipalities with a population of 50,000 and over and which employ first-class Health Officers should establish separate hospitals for isolation and treatment of infectious diseases, that cases from other local areas in the neighbourhood may also be admitted in these hospitals and proportionate charges recovered from the local authorities concerned. Only Ootacamund, Tellicherry, Kozhikode and Nagapattinam municipalities maintain hospitals exclusively for cases of infectious diseases. But advantage was taken of the recommendation of the Public Health Board and all cholera cases occurring in the rural areas of the district within easy reach have been removed by motor ambulances, isolated and treated at the nearest Municipal or Government Hospital, wherever ambulance facilities existed. During the severe epidemic of cholera in 1950 in Madurai district, two ambulance vans had been acquired by the District Board and cases from rural areas even far removed from Madurai were transported and admitted into the Erskine Hospital at Madurai and were treated. Each local area is in need of similar ambulance facilities for the removal, isolation and treatment of infectious disease cases in the nearest hospital.

Under G.O. No. 2770, P.H., dated 8th August 1951, construction of isolation hospitals common to two or three contiguous local authorities was encouraged and recommended, in cases where this was found feasible. It is gratifying to record, that due to intensive efforts made the following local authorities have agreed to construct and maintain infectious diseases hospitals common to the respective neighbouring local authorities—sharing the capital and recurring expenditure among themselves.

Location of infectious diseases hospitals.	Local authorities benefited.
Palayamkottai town	Palayamkottai M.T., Tirunelveli M.T., Melapalayam M.T. and Tirunelveli District Board.
Tanjore town	Tanjore M.T. and Tanjore District Board.
Tirupati town	Tirupati M.T., Tirupati-Tirumalai Devasthanam and Chittoor District Board.

The construction of the hospitals in the abovementioned towns is awaiting implementation. By setting up a common infectious diseases hospital, well equipped and adequately staffed at a central place, cases from all the adjoining areas within easy reach can be removed, isolated and treated at low cost. It is expected that further progress will be made in this direction and local authorities will in the coming years participate in increasing numbers in the provision of such hospitals.

In the absence of facilities for the isolation and treatment of cholera cases in the villages themselves, under the present conditions there is a great need

to provide motor ambulance transport with a view to remove as many cases from the rural areas as possible, for isolation and treatment at the nearest well-equipped and adequately staffed hospital.

Isolation facilities for smallpox.—In view of the modern trends and opinion regarding isolation of cases of communicable diseases, the location of the infectious diseases hospitals or wards for isolation and treatment of smallpox cases can be in close proximity to the general hospitals in separate and detached pavilions, so that adequate and competent medical care and supervision exercised in general hospitals can be made available to those isolated and treated for smallpox. The buildings and the services and the staff can then be most economically utilized.

In G.O. No. 2007, P.H., dated 15th July 1944, it has been ordered that it is necessary to make some arrangements by which additional accommodation would be provided in the compound of Government Hospital, or nearby for the treatment of cases in excess of the capacity of the hospital and that this can be done by constructing a permanent raised platform within the premises of the hospital or outside on which temporary structures could be put up wherever necessary.

This provision is however restricted and confined to the treatment of infectious diseases other than smallpox and chicken-pox. In the case of the latter diseases, it is still enjoined that the wards should be outside the premises of general hospitals at distance varying from 50 to 100 yards. This resulted in the construction of temporary or permanent sheds in certain local areas—far removed from the general hospital premises with little facilities for adequate medical and nursing care, with consequent unpopularity of these "Smallpox isolation sheds." However, in certain major hospitals like the Erskine Hospital, Madurai, and the King George Hospital, Visakhapatnam, smallpox and chicken-pox cases are being admitted and treated at present in separate isolation wards provided inside the hospital premises itself. No spread of small pox by cross infection has been reported nor is it likely to occur in view of our present knowledge of the mode of spread of these diseases which are not air-borne as was supposed.

In conformity with modern trends in the provision of isolation facilities in detached wards, built on the "pavilion" system, and based on "cubicle isolation" system, it would lead to economy, efficiency and provision of adequate nursing medical care, if all communicable diseases including cholera and smallpox—the major epidemic diseases in this State are isolated and treated in detached wards inside the compound of general hospitals.

Beds in the hospitals of the State were reserved for treatment of infectious diseases and beds were provided in temporary sheds.

CHAPTER III—HEALTH SERVICES.

MATERNITY AND CHILD WELFARE.

Introduction.—The provision of maternal and child welfare service has yielded very tangible results during the past decade, as there has been a definite decline in the infant and maternal mortality rates. The usefulness and importance of these services as an integral part of preventive medicine have therefore been increasingly realized by local bodies. During the year maternity and child health services have been consequently further extended.

Thirty-two new maternity and child welfare centres were opened, 5 additional posts of Women Medical Officers, 7 health visitors and 80 maternity assistants were sanctioned in 1951. Chittoor District Board took advantage of the offer made by the Provincial Welfare Fund and opened 14 maternal and child welfare centres in 1951. The work of maternal and child welfare has so much impressed the public that many philanthropic minded persons have contributed liberally towards these schemes.

The Village Panchayat Act of 1950 has now enabled panchayat boards to inaugurate maternal and child health schemes in their areas and to incur expenditure thereon independent of the support of the district boards. Many of them could not start maternal and child health schemes on account of paucity of funds. The panchayat boards of Kalahasti and Kuppam in Chittoor district, and Tadepallegudem and Narasapur in West Godavari district have initiated new schemes. The Village Panchayat Act does not provide for the over-all control and supervision of the work by the maternal and child welfare staff of the district board, so that the work may be carried out efficiently. The question whether there should be complete or partial control of the work in the panchayat areas by the Woman Medical Officer of the District Board, is still under consideration.

There are in all 511 maternal and child health centres and maternity homes in the whole State. The following statement shows the number of maternity homes and centres provided by the local bodies and Government.

	Maternity homes.		Child Welfare Centres.			
	Number.	Number of beds.	Number of centres with beds.	Number of beds.	Number of centres with no beds.	Total number of maternity homes and centres.
District Boards	2	12	43	82	232	277
Municipalities	29	133	16	36	119	164
Government Health Unit—P.H. Centre.	6	27	30	60	4	40
Corporation	17	30	13	138	Nil	30
Total ..	54	202	102	316	355	511

During the year five maternity homes were opened in Mayuram, Bodinayakkanur, Tiruppur, Palni and Kozhikode with a total bed strength of 46. In the State there are in all 54 maternity homes. Excluding the maternity homes provided by the Corporation of Madras, 16 are located in buildings which belong to local bodies and 15 in buildings donated by philanthropists and the remaining in rented buildings.

Out of 44 maternal and child health centres sanctioned for 1951–52, thirty-two (17 under district boards and 15 under municipalities) were opened during 1951. At the end of the year, there were 275 maternal and child

health centres under district boards, 135 under municipalities, 34 under Government and 13 under the Corporation of Madras giving a grand total of 457 for the State.

There are 94 beds in the maternal and child health centres and maternity homes of district boards and 169 in those of municipalities. These beds are provided for normal labour. The provision of beds in maternal and child health centres is necessary particularly in rural areas where insanitary conditions and inadequate facilities exist at homes and has been greatly appreciated by the public.

Much difficulty has been experienced in finding suitable buildings for the location of maternal and child welfare centres. Local bodies have therefore been advised to initiate the simplest scheme of maternity and child health work, viz., provision of domiciliary midwifery service by maternity assistants in rural areas.

STAFF.

Women Medical Officers (Maternity and Child Health).—Every district board except those of South Kanara, Cuddapah, Kurnool, Nellore and the Nilgiris has sanctioned at least one post of a Woman Medical Officer for its maternal and child health programme. The district boards of Salem, Chingleput, Tanjore, Coimbatore and West Godavari have each sanctioned 2 posts of Women Medical Officers as the number of centres is unwieldy (more than twenty). The appointment of two Women Medical Officers in these districts has increased the efficiency and supervision of maternal and child welfare work. Five new posts were sanctioned in 1951, bringing the total to 87 (85 under local bodies and 2 under Government). Of these 87 posts, 27 are Grade I and 60 are Grade II. Out of the sanctioned posts of 87, only 65 have been filled up. As qualified and suitable candidates for Women Medical Officers (Grade II) were not available, 12 posts of Grade II were upgraded to those of Grade I. The post of Woman Medical Officer still continues to be unattractive to medical women owing to difficult living conditions and lack of transport facilities in rural areas. As many posts remain unfilled, it has not been possible to implement the policy of placing one Woman Medical Officer in charge of only 8 maternal and child health centres for efficient supervision and guidance of maternal and child welfare work.

In order to improve the service conditions of the Women Medical Officers (Grade II) who have rendered satisfactory service, Government approved the proposal of promoting them as Women Medical Officers (Grade I). As a consequence, 3 Women Medical Officers (Grade II) who had served for over 10 years under local bodies were promoted to Grade I in 1951.

Health Visitors.—During the year under report 7 posts of health visitors were sanctioned one in Madurai district and 6 in municipalities thus bringing the total number of posts to 133 in the State including provincial staff. Twelve of these posts have been filled up by candidates with general nursing qualifications, who have been exempted by the Government from Health Visitors' training on account of their nursing qualifications. Four health visitors have been deputed to work in Malaria Demonstration team of the World Health Organization at Nilambur; two of them received special training for co-ordinating malaria work and maternal and child welfare work under the Foreign Public Health Nurse for 2 years. It is proposed to utilize their services in other Malaria Control units of the State where such organizations are working.

Maternity Assistants.—The total number of maternity assistants employed in local bodies, institutions and those practising privately is 1,617. During the year 80 posts of maternity assistants were sanctioned.

Maternity assistants at present are trained under the Medical department and a large number of them are absorbed in the maternity schemes of local bodies. Maternity assistants under local bodies are appointed in consultation with this department.

Maternity assistants employed in dispensaries under Government and local bodies are now recruited under maternal and child health schemes. In order to enable them to take up the posts under these schemes, they are given training in domiciliary midwifery. Proposals have been submitted to Government to train them in the Poonamallee Health Unit area.

Resident Matrons.—The posts of resident matrons in maternity homes have been formed into a new cadre, as there was necessity for the special supervision and management of maternity homes with six beds and over. At the end of the calendar year there were 8 posts of resident matrons under the municipalities. Candidates with general nursing qualifications trained either in vernacular or in English, have been appointed to those posts. Resident matrons are responsible for the general maintenance of the maternity homes. They are entrusted with duties relating to the care of linen, sterilization, diet and supervision of work of subordinate staff. Rules regulating the duties of resident matrons have been defined and drawn up. In a few instances, residential accommodation in the premises of maternity homes has been provided for these matrons.

Compounders.—The municipalities of Mayuram, Tirupati, Karaikudi and Madurai have employed eight compounders, one in each of their maternity homes.

INFANT MORTALITY.

There has been a very appreciable reduction in the infant mortality rate in 1951 as compared with the average rates in the three previous decades 1921–30, 1931–40 and 1941–50, as will be evident from the following statement:—

Period.	Infant mortality rate per 1,000 live births.
1921–30	177·5
1931–40	177·0
1941–50	153·6
1951	118·6

The infant mortality rate is a sensitive measure of the health of a community. The fall in the infant mortality rate during the last decade, despite adverse conditions due to World War II, indicates the progress achieved by the public health services.

The number of infant deaths during 1951 was 186,286 representing an infant mortality rate of 118·60 per 1,000 live births, as against a rate of 128·78 in 1950. As in the previous year, infant deaths accounted for nearly a fifth of the total deaths that occurred in 1951. In urban areas, 43,020 infant deaths were registered giving a rate of 124·34 per 1,000 live births, while in rural areas there were 143,266 infant deaths giving a rate of 116·98. These rates for urban and rural areas are also less than those (135·37 for urban and 128·78 for rural in 1951) for the previous year.

The infant death rates in the age groups under one month, 1 to 6 months and 6 to 12 months in urban and rural areas during the past decade and in 1951 are tabulated below :—

Madras State—Infant deaths.

Year.	Under one month.			1–6 months.		
	Rural.	Urban.	Total.	Rural.	Urban.	Total.
1941	88·78	77·90	87·10	40·20	52·20	42·05
1942	85·10	74·75	83.53	36·86	43·69	37·89
1943	87·02	78·73	85·70	42·29	54·04	44·17
1944	87·87	81·59	86·81	52·17	60·31	53·53
1945	86·43	76·93	84·84	39·80	52·24	41·89
1946	78·48	70·04	76·93	33·05	41·88	34·69
1947	74·99	67·37	73·62	35·15	41·27	36·25
1948	66·24	57·38	64·50	27·77	35·57	28·49
1949	63·66	54·51	61·77	23·94	33·19	25·85
1950	63·92	56.59	62·41	27·33	39.11	29·73
Average rate for 1941–50.	78·25	69·58	76·72	35·76	45·35	37·45
1951	60·74	53·70	59·19	21·73	35·16	24·68

Year.	6–12 months.			Under one year.		
	Rural.	Urban.	Total.	Rural.	Urban.	Total.
1941	41·21	44·73	41·76	170·19	174·83	170.91
1942	38·14	38·87	38·25	160·09	157·32	159·67
1943	41·57	49·95	42·42	170·88	179·72	172·28
1944	51·78	53·74	52·11	191·81	195·64	192·44
1945	42·89	41·81	42·71	169·12	170·98	169·44
1946	35·87	32·55	35·26	147·41	144·47	146·88
1947	37·11	35·89	36·89	147·25	144·43	146·76
1948	35·78	32·46	35·14	128·79	125·41	128.13
1949	32·14	32·38	32·19	119·74	120·08	119·81
1950	37·54	39·66	37·97	128·78	135·37	130.13
Average rate for 1941–50.	39·40	40·20	39·47	153·41	154·83	153·65
1951	34·52	35·48	34·73	116·98	124·34	118·60

An examination of the above figures shows that the neo-natal mortality (deaths under one month) accounts for nearly 50 per cent of the total infant deaths. Nevertheless, there is a definite decline in the neo-natal mortality rate both in rural and urban areas during the decade 1941–50. Secondly, while the neo-natal mortality rate in urban areas is less than that in rural areas, the rates in urban areas in the age groups 1 to 6 months and 6 to 12 months are higher than those in rural areas. As the neo-natal mortality is mostly due to pre-natal causes operating on the foetus, the lower neo-mortality rate in urban areas shows the effect of better ante-natal care and maternity services available in urban areas than in rural areas.

The infant mortality rate is calculated on the basis of number of infant deaths and the number of live-births registered in a year. As registration of births and deaths is not quite complete in the State, the infant mortality rates based on the registered vital events is subject to correction. Secondly, although infant deaths account for a large proportion of total deaths, the detailed causes of infant mortality in rural areas have not been investigated.

A scheme for assessing the correct infant mortality rate and investigating the detailed and correct causes of infant deaths in the Poonamallee Health Unit area, was proposed to the Indian Council of Medical Research. The scheme of research under the charge of a special Woman Medical Officer was approved and a sum of Rs. 8,800 for 1951–52 was sanctioned by the Indian Council of Medical Research. The research study was started in May 1951 and will be continued for two years and work is now in progress.

Maternal Mortality.

The number of deaths from child birth has decreased from 10,492 giving a rate of 6·21 per 1,000 births (live and still) in 1950 to 9,006 with a rate of 5·67 in 1951. This rate is the lowest during the past two decades for which figures of maternal deaths were separately compiled. In urban and rural areas there were 2,501 and 6,505 maternal deaths representing rates of 7·00 and 5·29 respectively.

Although the maternity services in rural areas are poor as compared with those in urban areas, the maternal mortality rate in rural areas is less than that in urban areas. This may not be real but may be partly due to comparatively defective registration of maternal deaths in rural areas.

In municipal areas, 1,922 mothers died as a result of child birth in 1951 giving a mortality rate of 7·06 as against 7·78 in 1951.

The maternal mortality rates recorded in the decade 1942–51 are shown in the bar-diagram appended and show a definite downward trend.

Statistics regarding the details of the causes of maternal deaths in rural areas are not available. Enquiry regarding cause of maternal deaths—as part of the research enquiry into the cause of infant mortality in Poonamallee Health Unit areas—is now in progress. Though the number of maternal deaths, thus investigated will be small in view of the restricted area under investigation, it will give some indication of the causes of maternal deaths in rural areas.

In 32 municipal towns with a population of 50,000 and above, detailed birth and death returns showing more details of causes of deaths than the routine monthly return, were received. In these municipalities 1,221 maternal deaths were recorded, of which 347 (28·4 per cent) were from puerperal sepsis, 147 (8·5 per cent) from abortion and 770 (63·1 per cent) were from other accidents from child birth.

The municipalities of Tiruchirappalli and Salem have taken up an investigation into the causes of maternal mortality and have constituted committees for the same as requested by the Indian Council of Medical Research.

Training of Personnel.

Woman Medicel Officers (Maternity and Child Health).—During the year, 13 Women Medical Officers took the course for the diploma in Maternity and Child Health and appeared for the examination.

Health Visitors.—Sixteen candidates appeared for the final examination for health visitors in December 1951 and fifteen of them have qualified successfully. Thirteen of these were recruited from among those who successfully completed their high school course and who had no previous training in midwifery. They underwent a course in both midwifery and health visiting for 2½ years organized by this department. As they had comparatively higher general educational qualification, their standard of efficiency was high.

Maternity assistants.—Forty-five maternity assistants were deputed by the local bodies for refresher course during 1951.

Outturn of worh—(*a*) *Maternity assistants.*—The maternal and child health work in rural areas is mainly carried out by maternity assistants. It is satisfactory and properly supervised, wherever supervisory staff of either a Health Visitor or a Woman Medical Officer (Maternity and Child Health) is provided. In several areas, however, there is no supervisory staff and the maternal and child health schemes have largely depended on the initiative, intelligence and integrity on maternity assistants who are posted to these maternity and child health centres. The efficiency of work of the maternity assistants every month is assessed by their bringing as many of expectant mothers under the care of maternity and child welfare centres, thus reducing the number of labour cases conducted by untrained dhais in their areas. The follow up work of all expectant cases who left the village or referred to hospitals for treatment is also being undertaken—wherever feasible.

During the year, 297,845 mothers, 250,597 pre-natal and 145,970 labour cases, 161,587 infants and 60,785 pre-school children were brought under care of the maternity and child health staff. Compared with the previous year, there has been an increase under all these activities except on pre-natal care. The number of home visits paid by maternity assistants in connexion with pre-natal, post-natal and infant care were 903,240, 975,496 and 285,331 respectively.

During the year 251,758 labour cases received skilled attention representing a rate of 15·85 per cent of total births in the State. The cases attended by qualified midwives in municipal and non-municipal areas were 160,614 and 91,144 representing 58·97 and 6·92 per cent of total births respectively.

In Coonoor Municipality the maintenance of a creche which was originally managed by a Voluntary Association was taken over by the municipality. Eighteen children aged 3 months to 5 years were taken care of in this institution.

A large number of municipalities and a few district boards distributed milk obtained from co-operative societies to expectant mothers and children. In addition, shark liver oil and multi-vitamin tablets are also given to combat malnutrition.

(*b*) *Health Visitors.*—Health education was carried out by Health Visitors by organizing mothers' classes at the maternity and child health centres and by talks at schools. This work was supervised periodically by Women Medical Officers. The Health Visitors were required to visit children in elementary schools and introduce all health talks in the form of plays, dramas, songs and pictorial illustrations. One thousand five hundred and twelve schools were visited and 2,101 talks were given and 72,319 children attended these talks.

During the year, home visits were made by Health Visitors for the care of 110,897 pre-natal cases, 84,100 post-natal cases and 238,040 infants.

(*c*) *Women Medical Officers* (*Maternity and Child Health*).—With the available facilities, Medical Officers (Maternity and Child Health) have conducted 2,627 abnormal cases and 3,479 cases have been referred to hospitals for treatment, 104,293 home visits were paid by the Women Medical Officers during the year as against 88,842 in the previous year. Ten thousand five hundred and forty-five mothers' classes were held and the attendance was 200,490 as compared with 9,344 classes with an attendance of 157,767 in 1950. The number of clinics held for pre-natal mothers and infants has

increased from 16,504 in 1950 to 20,770 in 1951. Three lakhs fifty-eight thousand and one hundred ten expectant mothers, 358,113 nursing mothers, 448,271 infants and 171,249 pre-school children attended the clinics in 1951 as compared with 406,051 expectant mothers, 366,359 nursing mothers, 359,200 infants and 171,577 pre-school children in 1950. One thousand and one hundred ninety-nine schools were visited, 1,599 talks were given and the attendance at these was 108,350.

Grants.—A sum of Rs. 3,28,521–5–0 was sanctioned by Government as maintenance grant on maternity and child welfare schemes during the year 1950–51, payable before the closure of the financial year (1951–52). Ninety-three municipalities and 22 district boards and 18 panchayat boards received 25 per cent grant.

Voluntary Organization

Voluntary Organizations have continued to sustain their interest in the working of maternity and child health schemes. They have whole-heartedly given their fullest co-operation and support to local bodies. Such of those private and voluntary organizations which deserved financial help and support, were granted contributions from the funds of the local bodies and Government. During 1951 the members of the Guild of Service supplied linen and equipment to the maternity home at Kozhikode and similarly the members of the Guild of Service at Masulipatnam to the child welfare centre at Masulipatnam. Members of the district branches of the Indian Red Cross Society in the various parts of the State and other women's organizations, such as, the Bhagini Samaj of Mangalore and the Tuticorin Ladies' Association, have contributed generously towards maintaining maternity and child welfare centres, homes and creches, run under their own auspices.

Finance.—Local bodies spent a total sum of Rs. 22,93,750 of which a sum of Rs. 5,28,190 was spent by district boards and a sum of Rs. 10,25,617 by municipalities as compared with Rs. 20,31,320 spent by local authorities during 1950.

Corporation of Madras.—The maternity and child welfare scheme in the Corporation of Madras has extended its activities during 1951 by opening a ward in Kothawal Bazaar Child Welfare Centre, another at Rayapuram and the third at Chetput Maternity and Child Welfare Centre. Much attention was paid to pre-natal clinics, infants and pre-school children. Expectant and nursing mothers were examined, advised and treated for minor ailments. Abnormal cases were sent to hospitals by the maternity and child health scheme ambulance vans for treatment.

Cow's milk was distributed free of cost to priority consumers at 4 measures a day per centre, skim milk supplies by the UNICEF allotted by the Director of Public Health were distributed till July 1951 and from August 1951 the Indian Red Cross Society helped the scheme with their quota of supply of milk powder. This supply of milk has improved the health of the recipients. The normal work of the scheme was continued during the year. The poor and the middle class people mostly, are benefited by this scheme of the Corporation of Madras.

There are 26 child welfare centres and one maternity home with sixteen maternity wards and three creches functioning in the city. The staff consists 28 Women Medical Officers, 32 health visitors and 3 sick nurses, 27 compounders and 230 maternity assistants.

Forty-one thousand one hundred and seventy-four nursing mothers, 40,639 pre-natal cases, 29,931 labour cases, 29,122 infants and 20,440 pre-school children were brought under care of the maternity and child welfare staff.

Thirty thousand seven hundred and thirty-four house visits were paid by Women Medical Officers (Maternity and Child Health); 12,726 pre-natal, 5,827 post-natal and 81,712 infants, 21,482 toddlers were visited by Health Visitors.

Fifty thousand six hundred and fifty-seven ante-natal, 200,873 postnatal visits were paid by maternity assistants. Four thousand and three hundred and ninety-seven clinics were held at which 139,612 ante-natal, 212,716 infants, 85,088 pre-school children and 228,075 nursing mothers attended.

The maternal mortality and infantile mortality rates among the labour cases conducted by the Corporation Maternity and Child Health staff were 1·90 and 123·16 respectively, as against 2·00 and 95·52 in 1950. There were 57 maternal deaths and 2,871 infant deaths during the year 1951.

Maternal and Child Health Services in the State have greatly expanded during the last twenty years as will be evident from the following statement:—

Year.	Under local bodies (exclusive of Government).			
	Number of maternity and child health centres.	Number of midwives.	Number of health visitors.	Number of Women Medical Officers.
1931	127	263	4	4
1951	439	1,015	125	113

Appreciable as has been the increase in the staff and service during the last two decades, it is still far from adequate to meet the needs of the far flung villages and even the urban areas. There is urgent need for extension and upgrading of these services in the State in the interests of the mother and the child.

Industrial Hygiene.

In their capacity as Additional Inspectors of Factories, Health Officers inspected the factories in their jurisdiction and forwarded their reports to the Inspectors of Factories concerned. Defects in respect of ventilation, lighting, over-crowding, latrine accommodation, water-supply, etc., were brought to their notice for rectification. The Health Officers also inspected all the sugar confectionery factories in order to weed out those which were working under unhygienic conditions.

As indiscriminate cropping up of factories in panchayat areas will affect the public health of the community, necessary proposals have been submitted to Government.

The Health Officers inspected the mines situated in their jurisdiction to ensure the safety and health of the workers.

Residential and Industrial Areas.

Under section 89 of the Madras Public Health Act, 1939, every urban local authority should, within one year from the commencement of the Act, notify areas set apart for residential purposes. Several municipalities and other urban local authorities have not yet notified residential areas. Delay in notification of residential areas allows scope for the installation of new factories, workshops and work places and offensive trades, in areas which should be reserved for residential purposes. It is hoped that all defaulting municipalities and other urban local authorities will notify residential areas without delay.

Proposals for setting apart residential areas were approved for three municipalities and two panchayat boards. Proposals received from 48 Municipalities and 39 Panchayat Boards, were scrutinized and returned for revision and re-submission, giving suitable suggestions.

Proposals submitted by one municipality and six panchayat boards for demarcating industrial zones were approved and those from 24 municipalities were returned with suitable instructions for revision and re-submission.

Health Propaganda and Publicity.

Propaganda on health subjects was conducted by the Health staff with the help of leaflets, pamphlets, pictures, posters, magic lantern slides, cinema films and talks. A summary of the work done by health staff during the year under report is as follows:—

Lectures with magic lanterns	5,106
Lectures without magic lanterns	12,048
Short talks	64,937
Cinema shows	368
Health dramas	13
Exhibitions	396
Total audience	4,164,424

This department conducted cinema shows in the exhibitions arranged by Andhra Provincial Medical Conference, Rajahmundry, Provincial Medical Conference, Kozhikode and during fairs and festivals at Srivilliputtur, Karthikaideepam festival at Tiruvannamalai and in Poonamallee Health Unit area. It also organized exhibitions on Health and Nutrition in the Park Fair and Exhibition in Madras City and in connexion with Provincial Medical Conferences at Rajahmundry and Kozhikode.

Four 16 mm. Walt Disney Cartoon sound films on "Environmental Sanitation", "What is disease", "Cleanliness brings Health" and "Planning for Good Eating" were purchased for circulation to local bodies and health staff on hire. Two copies of 35 mm. films "Defeat T.B." (one in Tamil and the other in Telugu) were printed from the negatives which were kindly lent by the British Information Services, Madras.

The "World Health Day" was celebrated in this State by the health staff in collaboration with the District Medical Officers and the Medical Department in July 1951 with "Health for your child and the World's Children" as the central theme for public health education and publicity. Talks on health subjects were broadcast from the All-India Radio stations at Madras, Tiruchirappalli, Vijayavada and Kozhikode.

The purchase of equipment for the propaganda vans and appointment of staff for the vans are kept in abeyance pending orders of Government.

In view of the importance of health education in public health organization of the State, proposals have been submitted to Government for reorganizing the propaganda section under the direction of an Assistant Director of Public Health. The proposals include provision for expansion of the film library, a mobile propaganda unit and a propaganda technician with necessary clerical staff.

Activities of the Voluntary Organizations.

1. The Women's Welfare Department, Madras, gave adequate training to Field Workers, i.e., the Welfare Organizer and the Maternity Assistant, to render effective services to the villagers where the department's branch functions.

This Department functions only in villages where there are no such facilities and induces the women to avail themselves of the services of maternity assistants in place of barber-midwife. The Department gives advice and guidance to nursing and expectant mothers and treats post-natal and ante-natal cases. Multivitamin tablets, UNICEF milk powder, etc., were distributed to children, expectant and nursing mothers and individuals. Free basic classes were held for small children and they were washed and cleaned and were taught good health habits. The Women's Welfare Officer and Maternity Assistants rendered first-aid and treated minor ailments of those who came to the clinic of the model centre. When there was an outbreak of epidemic disease, the organizers arranged for mass inoculation and vaccination and taught preventive measures to the women. The rural branches of the Department with the help of the local bodies and health authorities provided dust bins in the roads and taught the villagers to set apart different sources of water supply for drinking and washing purposes separately so that drinking water may not be polluted and infected. The fundamental principles of health, etc., were taught to the women who attended the centres by means of talks and lectures, etc. Demonstrations were also held to give practical ideas regarding health measures, child health, first-aid, preparation of diets, etc.

2. The Guild of Service with the help of volunteer workers visited various hospitals in the City, distributed sweets, and fruits to the patients and sent books and magazines which were collected for the use of the hospital patients. Besides these, cinema shows were arranged at the hospitals through the United States and British Information Services, Madras. The Guild also conducted Nursery School classes. It provided a foam and Electric bath at a cost of Rs. 5,000 met from the Infantile Paralysis Fund for children for the treatment for children suffering from Infantile Paralysis at the Stanley Hospital. Caliper boots were supplied to these children on the recommendation of the hospital authorities. Srimathi Srinivasa Rao ran a thrift shop. With the profits accruing, the poor patients were helped to purchase medicines, etc., and the patients were assisted in various ways. The Guild of Service assisted the Madras and City Tuberculosis Association in their collection by flag days, etc. It also carried out health publicity on health problems, Maternity and Welfare, etc. Creches were run in the slums for the benefit of the children living there. UNICEF milk, rice and vitamin tablets received through the Public Health Department were distributed to the orphanages, creches and nursery schools. The Guild of Service visited many hospitals and raised funds not only for hospital work but for other amenities in the hospitals.

3. The Indian Red Cross Society, Madras, has deputed a representative to attend the General Assembly of the World Assembly of Youths in New York. He travelled in some parts of United States of America and Canada and met members of Junior Red Cross in those countries and those who were helping them in their work. He also exchanged copies of literature of the respective places and discussed problems relating to the working of the Red Cross groups. Two American School gift chests costing about Rs. 425 each were received and distributed among the Town High School, Kumbakonam, Tanjore district and the Board Elementary School, Nyameddallee, Anantapur district. Training courses were conducted for the counsellers under the supervision of several district sub-committees. The Silver Jubilee of the Indian Red Cross Society was celebrated in October 1951, in conjunction with the Red Cross week. A junior Red Cross Rally was held. The Maternity and Child Welfare Centres of the Indian Red Cross Society showed an appreciable improvement in their work.

The diversional therapy workers taught the patients occupations such as knitting, sewing, making knitted bags, etc., and the articles made by them were exhibited for sale at the Red Cross Buildings.

The Red Cross participated in the propaganda work carried on in the Blood Bank stall put up in Y.M.C.A. grounds in collaboration with Assistant Director Provincial Transfusion Service and in the stalls put up in the S.I.A.A. grounds in December 1951.

Propaganda was carried out and voluntary blood donations were collected from the donors in the exhibition grounds by the Blood Bank Officers of both the General and Stanley Hospitals.

In view of the acute famine conditions in the State, gifts of milk powder, multivitamin tablets, food packets containing butter, cheese, peas and beans, wheat, etc., received from the United States of America, Canada, Australia and Sweden were distributed to the poor and under-nourished people including children, nursing and expectant mothers in various centres throughout the State. Many requests for propaganda literature, posters and loan of exhibit box were received and complied with.

Public Health Activities in the Primary Health Centres under the Post-war Reconstruction Scheme.

Extension of the combined medical and public health services to the villages situated within five miles from the nearest rural dispensary is the objective of this scheme. This has been included as Scheme No. 92 under the Post-war Development Scheme of this State. Out of 150 combined Medical and Public Health Primary Centres contemplated to be opened during the first quinquennium, 30 centres were opened in 1948, at the rate of 5 centres each district in the districts of Guntur, Kurnool, South Malabar, North Arcot and Coimbatore with a staff of one Health Inspector, one peon, one midwife and one ayah per centre in addition to one Medical Officer, one compounder and midwife and ayah on the medical side. Owing to financial stringency the further expansion of the scheme was deferred. The Primary Centre at Somasipadi in the North Arcot district having been closed down, 28 centres function during 1951, as against 29, centres in the previous year. About 300 villages were served by all the Primary Centres benefiting a total population of about 6 lakhs.

The progress of the public health work carried out in the centres during the year is detailed below :—

Vital Statistics.—Eight hundred and eighty-two unregistered births and 461 unregistered deaths as well as 6,166 unprotected children were detected and registered.

Communicable disease control.—Seventeen thousand, eight hundred and fifty-five primary vaccination and 106,518 re-vaccinations were done and 37,197 anti-cholera inoculations were performed.

Water-supply.—Eighteen new wells were constructed, 11 were deepened, 9 were under construction, 62 well sites were selected. One thousand eight hundred and thirty-five wells both private and public were inspected by the public health staff and defects noticed, rectified. Two thousand two hundred and eighty-four wells were chlorinated.

Soil sanitation.—Propaganda was done to encourage the use of latrines and construction of private latrines. Constant advice given by the health

staff was effective though the progress was slow and 96 private latrines (manual conservancy type) and 59 private septic tank latrines were constructed during the year. One hundred and forty-three water seal squatting slabs were distributed to house owners at concessional rates. Five public latrines of ordinary type and one septic tank latrine were also constructed.

Maternity and Child Welfare.—Two thousand one hundred and fifty labour cases were conducted and 10,708 pre-natal and 4,541 post-natal cases were attended to by the Maternity Staff. Further, regular domiciliary visits were made by the Maternity Assistants, both for pre-natal and post-natal care.

Environmental hygiene.—Hotels and restaurants, mills and schools (in the Primary Health Centre areas) were inspected by the health staff. In addition, several house surveys were carried out and action was taken for remedying the defects and abating nuisances detected. This process involved among other measures, the issue of 924 notices under various sections of the Madras Public Health Act and launching of 151 prosecutions, 603 persons complied with the notices.

Public health education.—Health education in all the branches of public health was carried out in the areas served by the Primary Centres. In all, seven lectures with magic lantern, 1,515 lectures without magic lantern and 5,941 talks were given, supplemented by the distribution of several thousands of pamphlets on health subjects.

Anti-malaria and anti-mosquito work.—A malaria survey was conducted in the area of Vadakkancherry Primary Health Centre and free distribution of quinine was made. In the Chittodu Primary Centre area which reported a mild epidemic of malaria, anti-larval measures were continued, besides D.D.T. spraying of the houses. The mobile malaria unit from Visakhapatnam carried out a survey of the villages in three of the Primary Centres in Guntur district in connexion with the mosquito nuisance prevailing and recorded the incidence of filariasis in Singaranjigarlumedu Primary Health Centre.

Rural Reconstruction Scheme.

Fostering self-sufficiency in villages by reviving village economy and re-suscitating village life under the Gandhian Model is the aim of this scheme. The scheme has been in operation in about 25 selected firkas spread throughout the State. Intensive work of rural reconstruction has been carried out with the co-ordinated activities of all the Departments. The public health activities of the scheme were carried out by this Department.

Public Health activities carried out in the firkas and centres were as follows :—

Water-supply.—Two hundred and one well sites were selected, 124 new wells were sunk and 132 wells were under construction. Three hundred and forty-five old wells were either repaired or improved. In addition, 124 other drinking water sources were repaired, while 34 sources were under repair.

Conservancy.—Nine hundred and fifty latrines of the Wardha and other types, 69 septic tank latrines were constructed, and 104 were under construction. Seventy-six latrines were repaired.

Sanitation.—Two thousands nine hundred and nineteen rubbish heaps were cleared, 7,067 in sanitary pits were filled up, 256 dust bins were provided and 520 cess-pools constructed. Drainage channels 7,454 feet long for the outflow of sullage water were also constructed.

Environmental hygiene.—Cleansing campaigns were conducted in 16 slum areas. Eight hundred and eighteen premises of private houses and 908 premises of business houses were got cleaned up; 219 premises were equipped with garbage and ash pits. The tea shops and restaurants that were inspected by the health staff numbered 1,027. Two hundred and thirty-five display cases were got provided with glass panels to protect the food articles from dust and flies. Two hundred sixty-seven copper vessels were also got tinned.

Maternity and Child Welfare.—One Maternity Centre in the district of Krishna and two in Guntur district were opened during the year. Besides these, three maternity homes were established in West Godavari district. Three hundred and twenty-four labour cases were conducted by the Maternity and Child Welfare staff and 2,479 pre-natal cases and post-natal cases were visited.

Public health education.—Propaganda on all aspects of public health were carried out. This comprised 204 demonstrations with magic lanterns, 911 lectures and 3,824 talks. This was also followed by the distribution of several thousands of leaflets containing health literature.

General.—Two rural dispensaries were opened, 49 first aid centres were added and 268 seva sanghams have newly sprung up in these areas during the year. A health exhibition was organized by the Public Health Department in Singapuram along with the Red Cross Branch, while three of the Centres in Chingleput district celebrated the World Health Day. Four hundred and seven compost pits were dug in the district of the Nilgiris. A primary Centre for the purpose of doing intensive rural reconstruction work has been opened in Dendalar with a staff consisting of one Civil Assistant Surgeon (Class I,) one compounder, one Maternity Assistant, one Nursing orderly Grade II, one cook-cum-water man and one toti on the medical side, one Health Inspector, two maternity assistants, one peon, two ayahs, five maistries, 20 sweepers and 20 scavengers on the public health side. A free magnificient gift of a house costing Rs. 60,000 and a plot of land about one acre in extent for accommodating the hospital and housing the primary centre were donated by a philanthropist and social worker of Dandalur, West Godavari. The work of the Centre has progressed well during the year.

Poonamallee Health Unit.

The Unit at present consists of four main Health Centres and serves a population of about 60,000 in 36 revenue villages spread over an area of 35 square miles. The chief aim in starting this Unit in 1935 was to demonstrate what an organized public health administration could do to improve the health of the rural population. Pending the sanction of the reorganized scheme the Unit was continued and manned by the following staff during the year under review; One Health Officer (Class I), one Woman Medical Officer (Maternity and Child Health), four Health Inspectors, four Health Visitors, ten Maternity Assistants, four Public Health Maistries, two fitters, ten ayahs, 11 peons, 24 menials and two anti-mosquito coolies. In addition to the above mentioned staff, four vaccinators were sanctioned for six months as an experimental measure for affording adequate protection to the population against smallpox in the Health Unit area and these worked only for two months, November and December during this year.

Vital statistics.—One thousand nine hundred and fifty-five births and 1,452 deaths were reported during the year giving rates of 32·6 and 24·2 per mille

respectively. Two hundred and nine unregistered births and 108 unregistered deaths were detected. In addition to 162 infant deaths and six maternal deaths, 944 other deaths were investigated and the correct cause of death recorded.

Epidemics.—There were 98 attacks and 38 deaths from cholera during the year under report. Thirteen thousand eight hundred and eleven anti-cholera inoculations were conducted. Eighty-four attacks and eight deaths from small-pox occurred in the year. Two thousands one hundred and thirty-six primary vaccinations, 123 secondary and 14,634 re-vaccinations were done in the Unit area.

Hygiene.—Two hundred and fourteen houses were surveyed and 958 houses were revisited for rectification of defects. One thousand, four hundred and sixty-eight back-yards of houses were cleaned. One thousand eight hundred and thirty-seven fly breeding places and 8,561 mosquito breeding places were attended to and treated. One hundred and twenty three soakage pits for disposal of waste water were provided. In all 915 wells, private and public, were chlorinated.

Public health education.—Seven hundred and one leaflets were distributed. Sixty-six lecturers with magic lanterns, 492 without magic lanterns and 1,177 talks were given.

Food and nutrition.—Twelve additional centres for distribution of milk were opened during the year bringing the total number to 22. The number of beneficiaries who received a daily feed of milk was 2,100.

An economic and diet survey was conducted in Chembrambakkam village by the health staff consequent on the detection of 'night blindness' (a nutritional deficiency condition) among a number of Harijans of this village. Two Research Officers from Coonoor Nutrition Research Laboratory also investigated the health status of these Harijans with special reference to prevalence of anæmia and Hookworm infestation, and assessment of their Dark adaptation. The ten bags of rice-gift from the UNICEF were utilized in feeding the cases of night blindness and others in Chembrambakkam.

Under Madras Prevention of Adulteration Act, 48 samples were taken and sent for analysis at the King Institute, Guindy. Of these, 24 were certified to be adulterated. Twenty-three prosecutions were launched. A fine of Rs. 300 was realized during the year under report. Skim milk and multi-vitamin tablets and shark liver oil, were distributed among pregnant women, nursing mothers and children under 12 years of age to combat mal-nutrition.

A gruel centre was opened at Chembrambakkam in June 1951. Ten measures of cholam flour were made into gruel along with salt, chillies, tamarind and onion and distributed daily to 175 persons.

Compost manufacture.—Compost manure was manufactured in 20 trenches by the Bangalore process. Two hundred and twenty drains were dug for flow of stagnant water, cement drains already constructed were kept in good repair.

Maternity and Child Welfare.—A maternity home with six beds was opened at Nazarathpet in November 1951, bringing the total number of maternity homes in the Unit to six and increasing the total bed strength for maternity cases in the Unit to 27. The prominent villagers of Nazarathpet and Meppur contributed to the equipment and maintenance of the newly opened maternity home. The Panchayat Boards of Kunrathur and Kovur agreed to contribute Rs. 250 and Rs. 120 respectively per annum for the maintenance of the maternity homes in these areas. The Sriperumbudur Producers-cum-Co-operative

Society, Nazarathpet, have also donated five beds with equipment. A private donation of Rs. 1,000 was also received for the maternity home. The Voluntary Health Committees continue their contributions. The District Provincial Welfare Fund, Chingleput Branch, has donated Rs. 2,500 for purchase of equipment for all the maternity homes in the Unit area. It will be seen from the above that the health staff could secure during the year the active co-operation and participation of the philanthropists and the well-to-do of the Unit area in the provision of maternal and child health services and amenities by liberal and substantial contributions.

There were 516 admissions in all the maternity homes during the year. One thousand seven hundred and three labour cases were conducted by the Unit maternity assistants giving a percentage of 83·6 of the total births in the Unit. The percentage of labour cases which received skilled attention was 87·1. Five thousand four hundred and twenty-five pre-natal cases were supervised. The total attendance at clinics was 36,152. For the first time in the State the care of the "Well-Baby" has been taken up on specially organized lines. Dr. S. T. Achar of Pediatrics Department, General Hospital, Madras, with his assistant Dr. B. Hamayathi were requested to visit the Unit twice a month for three months and organize the "Well-Baby clinics". The first clinic was organized in November 1951. Since then, healthy babies have been attending clinics regularly although the number attending clinics is not yet very encouraging. Skim milk, multi-vitamin tablets and shark liver oil received as a free supply from the UNICEF is being distributed among expectant and nursing mothers and children under 12 years of age. In addition a free gift of an obstetrical bag and other equipment and drugs have also been received from the UNICEF. The scheme of supply of "sterile maternity packs" and "dressings" to mothers is being continued in this area.

Water-supply and conservancy.—Eight bore-wells were constructed during the year and three cleaned up and brought into use for the public.

One hundred and five private latrines with water seal squatting slabs were constructed during the year bringing the total to 481 such 'closed' type of latrines put up since the reorganization of the Unit.

Anti-mosquito work.—In the panchayat areas of Kunrathur, Tirumushi and Poonamallee, the water stagnation breeding mosquitoes were treated with one per cent DDT in Diesel oil or Malariol. Since November 1951 Gammexane is being tried out as a larvicide in the Poonamallee Panchayat area.

General.—The ambulance van attached to the Unit removed 23 maternity cases and 22 other cases such as cholera, smallpox, etc., for treatment in the Madras City State and Corporation hospitals. A telephone was installed for the office of the Health Officer in November 1951 and this added to the administrative efficiency.

The Harijan Day was celebrated at Mangadu in September 1951. Advantage was taken of the celebrations in conducting an intensive conservancy campaign in the slum area and cleansing the villages.

Public Health experts of the World Health Organization and of other countries and several distinguished personages visited the Health Unit and recorded their high appreciation of the work done in the Unit.

Port and Marine Hygiene.

A statement showing the work of minor ports in the State is given in Annexure L.

CHAPTER IV—FOOD AND NUTRITION.

RAINFALL.

The following statement shows the average district rainfall in the monsoon periods during 1951 as compared with 1950 and the normal : —

	Inches.		
	1951.	1950.	Normal.
Inter-monsoon period (January to May)	6·7	4·9	5·8
South-west monsoon period (June to September) ..	24·2	24·6	24·1
North-east monsoon period (October to December) ..	9·1	10·4	14·5
Total ..	40·0	39·9	44·4

The total rainfall was about the same as in the previous year, but was less than the normal due to failure of north-east monsoon. The rainfall in south-west monsoon period was about the average. The districts of Malabar, South Kanara and the Nilgiris recorded heavy rains during this period. The rainfall during north-east monsoon period was below normal in all the districts.

Procurement.—Consequent on the change in food policy for 1951, intensive procurement of paddy and rice was confined to the deltaic areas of surplus districts of East Godavari, West Godavari, Krishna, Guntur, Nellore and Tanjore. In the deltaic areas of South Arcot, Tiruchirappalli, Madurai and Srikakulam and in the entire district of South Kanara, a system of levy procurement of paddy and rice was introduced. In South Arcot district millets were also procured under the levy scheme in limited quantities. Procurement in deficit districts was completely given up. Under the procurement system 962,073 tons of rice and 651 tons of millets were procured in 1951. Foodgrains were freely available in the open market in derationed deficit districts.

Price of foodgrains.—The following statement shows the average retail prices of principal foodgrains [rice (second sort), cholam, cumbu and ragi] during 1951 in terms of rupees per imperial maund of 82-2/7 lb. or 3,200 tolas. It will be seen therefrom that the prices of the staple foodgrains have increased much as compared with the previous year.

Months.	Rice, second sort.	Cholam.	Cumbu.	Ragi.
1951.	RS.	RS.	RS.	RS.
January	16·90	10·75	11·98	11·35
February	16·75	12·22	13·49	12·31
March	18·59	13·06	13·78	13·06
April	18·43	13·70	13·95	13·71
May	19·12	13·79	14·59	15·04
June	18·58	13·91	14·90	13·96
July	19·57	14·56	14·46	13·91
August	19·47	14·00	14·82	13·08
September	19·90	14·03	15·31	13·70
October	19·78	13·74	15·39	14·04
November	19·55	14·09	15·93	13·97
December	19·36	12·60	15·09	14·29
1951 average	18·83	13·37	14·47	13·54
1950 average	15·77	10·15	10·11	9·99
Percentage variation ..	+ 19·40	+ 31·72	+ 43·13	+ 35·54

Distribution.—Rationing of foodgrains was in force in Madras City and suburban areas, in all municipal towns except Salur town and the municipalities in the districts of East and West Godavari, Guntur, Krishna and Nellore and in Mettur township area in Salem district and Koilpatti town in Tirunelveli district. Informal rationing was introduced in the municipal towns of Tanjore, Nellore, Guntur, Vijayavada, Eluru, Kakinada and Rajahmundry during April to July 1951. Rural rationing in all deficit districts except Malabar and the Nilgiris was abolished and Collectors were instructed to make suitable arrangements for distribution of foodgrains to the public. The scale and composition of foodgrains rationed to general consumers underwent changes during the year. The overall ration was reduced from 12 oz. to 9 oz. from 28th January to 23rd June 1951 when it was again increased to 12 oz. The rice content of the overall ration was however more frequently varied according to the stock on hand. The mid-day meal centres continued to get their quota of 2 oz. of rice per day per child and the remaining 2 oz. in the shape of other foodgrains.

Socio-economic conditions.—The higher prices of foodgrains and commercial crops benefited only the section of big landholders while the economic position of others did not, in general, improve owing to high cost of cultivation and maintenance of cattle, short supply of agricultural implements, etc. Agricultural labour was well employed in certain districts despite adverse seasonal conditions, as it was diverted to other occupations, such as, sinking of new wells, road works, construction of new factories and irrigation projects. Wages of labour continued to be high.

DIET SURVEYS.

During the year, 58 preliminary diet surveys were carried out in the three Nutrition Units. The above surveys included 377 families and 9 institutions, students' hostels, orphanages, etc., representing about 2,200 consumption units. The number of surveys and the areas surveyed in each of the three Nutrition Units are given hereunder :—

Poonamallee Health Unit.—Eleven surveys in 8 villages, viz., Varadarajapuram, Sikkarayapuram, Aryamandanallur, Parivakkam, Kattupakkam, Chembarambakkam, Palanjur and Tirumushi.

Tiruchirappalli Unit.—Forty surveys in the villages of Muthampatti, Ayyampalayam, Evur, Vellur, Sundaikai, Pudupatti, Natchipudur, Kodunthurai, Valavandi, Chittalarai, Thumbulam and Perur in Musiri firka and Tiruchirappalli town covering 207 families and 3 students' hostels.

Anantapur Unit.—Six students' hostels in Hindupur, Gooty and Anantapur and in the Sweepers' Colony in Anantapur town.

The families surveyed belonged to different income groups. Their average monthly income ranged from about Rs. 35 to Rs. 100 in Poonamallee Health Unit and Rs. 33 to Rs. 250 in Tiruchirappalli Unit.

Rice formed the staple diet in all the villages surveyed in Poonamallee Health Unit, while ragi, cholam and wheat where also consumed in small quantities. Mixed diet of cereals and millets was the redeeming feature noticeable in most diets consumed in the villages surveyed in Tiruchirappalli Unit. Generally, in the "Dry" villages millets were more consumed than rice and in the "Wet" villages the reverse, and in both areas, millets were more resorted to by the poor and the lower middle class families.

The diets, in general, were grossly ill-balanced in all the villages surveyed. The low consumption of pulses, protective foods—vegetables, leafy vegetables in particular, milk and milk products, animal foods, etc., was conspicuous.

The calorie value of the diet in all the areas was predominently made up of cereals. In certain families, the diets were also defective in quantity, providing low calories.

The following table gives the maximum and minimum composition of foodstuffs per consumption unit in respect of the families surveyed in the Poonamallee Health Unit and the Tiruchirappalli town :—

Foodstuffs.	Poonamallee Health Unit.		Tiruchirappalli Unit.	
	Maximum. oz.	Minimum. oz.	Maximum. oz.	Minimum. oz.
Cereals	25·13	8·0	27·1	24·3
Leafy vegetables	0·5	0·06	1·4	0·09
Non-leafy vegetables ..	2·4	0·28	4·58	0·04
Roots and tubers	2·03	0·46	2·4	0·02
Milk	2·8	0·2	4·2	0·17
Milk products	0·5	0·23	7·86	0·04
Ghee	0·03	0·02	0·36	0 02
Meat, fish and eggs ..	1·5	0·08	0·61	0·03
Fruits	0·11	..	0·66	0·006
Fats and oils	1·5	0·1	1·8	0·07
Sugar	1·6	0·07	1·00	0·07
Nuts	0·15	0·03	1·3	0·001
Condiments	1·95	1·1	1·62	0·14
Salt	1·5	0·9	1·47	0·5

The following table gives the gross calorie value of the diets of the families surveyed in the different areas in the Poonamallee Health Unit and Tiruchirappalli Unit :—

Poonamallee Health Unit, Calories range.	Tiruchirappalli Unit, Calories range.
1 Sikkarayapuram, 2,009 to 2,972	1 Pudupatti, 2,790 to 3,073.
2 Varadarajapuram, 1,744 to 1,917	2 Sundaikai, 2,480 to 2,995.
3 Aryamandanallur, 1,995	3 Natchipudur, 2,897 to 3,171.
4 Parivakkam, 1,949 to 2,681	4 Kodunthurai, 2,322 to 2,554.
5 Kattupakkam, 2,631 to 2,881	5 Valavandi, 1,871 to 2,418.
6 Chembarambakkam, 1,005 to 1,051	6 Chittalarai, 2,355 to 2,664.
7 Palanjur, 904	7 Thumbulam, 2,141 to 2,865.
8 Tirumushi, 1,692 to 1,787	8 Perur, 1,821 to 1,861.
	9 Tiruchirappalli Town, 1,569 to 1,992.
	10 Muthampatti, 1,789 to 2,685.
	11 Ayyampalayam, 2,149 to 2,332.
	12 Vellur, 2,099 to 2,899.
	13 Evur, 2,517 to 2,750.

The diets of the nine institutions surveyed in Anantapur Unit and the Tiruchirappalli Unit were found to be generally deficient in calories, and also in protein, fats and in all the vitamins.

NUTRITION SURVEYS.

Nutrition survey was conducted among 5,009 children up to 16 years. One thousand three hundred and ninety-two children in Poonamallee Health Unit, 2,084 in Anantapur Unit and 1,533 in Tiruchirappalli Unit were examined adopting the Nutritional Assessment Schedule, recommended by the Nutrition Advisory Committee of the Indian Council of Medical Research. The heights and weights of school children were also recorded wherever possible for comparative studies.

There was no widespread mal-nutrition among children in any of the areas surveyed in the nutrition units during the year. Specific deficiencies of Vitamin 'A' and 'B' complex general under development and underweight were, however, present in significant proportions among the children examined among the low economic groups.

In addition, in Chembarambakkam and Palanjur villages in Poonamallee Health Unit, 200 persons were examined for their nutritional status, in connexion with the investigation of the incidence of night blindness in the former village detected during August 1951.

Of these 200 persons, 81 showed up disadaptation of vision to semi-darkness and some of these were selected by random sampling for therapeutic trials. The broad results of the therapeutic trials are discussed under 'Nutrition Research.'

The following table shows the percentage incidence of the signs of malnutrition among the 4,552 children examined in the three nutrition units :—

Deficiency signs.	Poonamallee Health Unit. Total number of children examined, 1,392.		Anantapur Unit. Total number of children examined, 1,659.		Tiruchirappalli Unit. Total number of children examined 1,501.	
	Number of children affected.	Percentage to total number.	Number of children affected.	Percentage to total number.	Number of children affected.	Percentage to total number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. Eyes—						
(a) Conjectiva Xerosie ..	90	6·46	129	7·74	782	52·1
Pigmentation	385	27·66	570	34·2	945	62·96
Discharge	3	0·22	38	2·28	11	0·74
(b) Cornea Xerosis	1	0·07	11	0·66	..	..
Vascularization	3	0·22	51	3·06	..	..
(c) Lids excoriation	8	0·58	1	0·06	3	0·21
Polliculosis	24	1·73	7	0·42	..	..
Angular conjuctivitis ..	26	1·87	51	3·06	..	..
Night blindness	29	2·08	30	1·8	1	0·07
II. Mouth—						
(a) Lips condition	116	8·33	167	10·02	213	14·27
(b) Tongue—						
Colour	98	7·04	69	4·14	814	54·53
Surface	87	6·25	240	14·4	461	30·88
(c) Buccal Mucosa condition ..	4	0·28	15	0·9	3	0·34
(d) Gums condition	27	1·91	15	0·9	4	0·27
(e) Teeth: Fluorosis	11	0·78	81	4·84	19	1·27
Caries	267	19·19	96	5·75	116	7·77
III. Hair—						
Condition	51	3·61	3	0·18	411	27·54
IV. Skin—						
(a) General Appearance ..	245	17·64	..	..	836	56·01
Loss of elasticity	224	16·13	8	0·48	713	47·77
(b) Regional trunk	32	2·31	1	0·06	2	0·13
Face	7	0·50	4	0·24	1	0·07
Perineum	1	0·10	..	..	..	..
Extremities	56	4·03	1	0·06	1	0·07
V. Adipose tissue— .. Quality .. .. Deficient	529	38·08	550	33·00	1,118	74·91

Deficiency signs.	Poonamallee Health Unit. Total number of children examined 1,392.		Anantapur Unit. Total number of children examined 1,659.		Tiruchirappalli Unit. Total number of children examined 1,501.	
	Number of children affected.	Percentage to total number.	Number of children affected.	Percentage to total number.	Number of children affected.	Percentage to total number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
VI. Oedema—						
Distribution	6	0·43	10	0.06	3	0·20
VII. Bones—						
Condition	172	12·38	1	0·06	27	1·81
Stigmata of rickets ..	..	..	..	..	..	..
VIII. Heart—						
Size	2	0·14	..	..	2	0·13
IX. Alimentary system—						
Appetite deficient ..	23	1·66	..	..	..	..
Stools (diarrhœal) ..	14	1·01	..	..	..	..
X. Nervous system—						
Calf tenderness	43	3·09	3	0·06	..	..
Parasthesia..	5	0·37	..	..	..	..
Liver (enlarged)	6	0·43	1	0·06	6	0·41
Spleen (enlarged)	3	0·22	..	..	7	0·47

Measures for combating mal-nutrition.—The Government scheme of free upply of mid-day meals to the children of eligible communities attending he labour schools under Government has been continued during this year. 'he children attending in about 1,200 schools were benefited by this scheme. 'he Madras Corporation has continued its own schemes for the free supply f mid-day meals to the under-nourished children attending the Corporation lementary Schools. About 8,000 pupils received mid-day meals under this cheme on all school-working days.

The UNICEF supplied free of cost 505 tons of rice directly to the following nstitutions in Madras State: Guild of Service (308 tons), Archdiocese f Madras (144 tons), Ramakrishna Mission (16 tons) and Indian Red Cross ociety (37 tons) for feeding the under-nourished children in the orphanages nd institutions in the State through their branches and affiliated institutions. A good number of mal-nourished children in severeal institutions were ed with the above UNICEF gift rice. The money saved on the purchase of ice was utilized to improve the daily diet of inmates of the institutions by the ddition of vegetables, etc., to the diets.

At the instance of this department, the Director-General of Health Services has proposed to release to this State 207 tons UNICEF gift rice for listribution as follows :—

	TONS.
(1) Government Civil Supplies Department for distribution through gruel centres in the famine-affected districts of Chittoor, Cuddapah, Kurnool, Anantapur, Chingleput, North Arcot, Salem, Coimbatore and Visakhapatnam.	160
(2) Archdiocese of Madras	45
(3) Poonamallee Health Unit for feeding the mothers admitted in the Maternity Homes for delivery.	2

(ii) During the year the UNICEF released to the State a quantity of 308,018 lb. of skim milk powder in addition to the previous allotment of 1 104,490 lb. released to this State during 1950. Distribution of milk under this

scheme was arranged by the Nutrition Bureau of this Department through about 75 institutions, comprising Governmental organizations, such as Government Civil Supplies Department, Nutrition Bureau, etc., local bodies, district boards and Municipal Councils and voluntary organizations. In the distribution of milk, the needs of the food deficit and drought-affected areas were specially considered and large quantities of milk powder were placed at the disposal of the Government Civil Supplies Department for distribution through Collectors of the affected districts. The beneficiaries under this scheme were drawn from mal-nourished infants and children under 12 years, and expectant and nursing mothers forming the most vulnerable groups of the population, and each beneficiary was given 1·4 oz. of milk powder reconstituted into 8 oz. of fluid milk for a continuous period ranging from two to eight months.

The following table shows by months the average daily number of beneficiaries fed under different categories and the number of distribution centres working the scheme, up to August 1951 :—

Mean average : Daily recipients by months.

Month.	Number of centres.	Infants under one year.	Children 1 to 12 years.	Mothers.	Total daily ration for all categories.
(1)	(2)	(3)	(4)	(5)	(6)
1951.					
January	201	626	12,288	1,653	14,567
February	286	709	23,365	1,337	27,311
March	390	1,020	38,990	2,910	42,920
April	415	1,320	42,320	3,260	46,900
May	216	1,593	20,427	3,457	25,477
June	260	2,443	24,434	3,894	31,771
July	349	3,608	39,862	4,599	48,069
August	352	5,220	40,998	4,943	51,161

The distribution of milk under this scheme which was commenced in July 1950 came to a close by the end of December 1951 in all the centres of the State except in about 20 centres, in which the distribution was continued during 1952.

Distribution of milk under this scheme was also undertaken in the three Nutrition Units. Twenty-eight thousand four hundred and fifty pounds of skim milk powder in Poonamallee Health Unit, and 19,275 lb. of skim milk powder in each of the Regional Nutrition Units, Tiruchirappalli and Anantapur, were distributed. About 2,300 beneficiaries through 19 schools and five maternity and child-welfare centres in the Poonamallee Health Unit, 1,800 beneficiaries through 13 distribution centres in the Tiruchirappalli Unit, and about 1,400 beneficiaries through schools in the Anantapur Unit were daily fed with the UNICEF gift milk continuously for a period of 12 to 15 months.

Besides milk distribution with the allotment of Rs. 2,500 for each Nutrition Unit for ameliorative measures—food supplements, viz., multi-vitamin-tablets, shark liver oil and food yeast were also distributed in the three Nutrition Units to deserving children in different institutions for combating vitamin deficiencies among them, as revealed by the nutrition surveys conducted. During the year in the Poonamallee Health Unit, about 1,050 children in 19 schools were given multi-vitamin tablets—two tablets per day per pupil and 55 selected children in ten schools were administered with high Potency Vitamin "A" oil. In the Anantapur Unit, 47,500 multi-vitamin

tablets, 2,000 Vitamin 'B' and 'C' tablets, 1,000 tablets of B-1 Vitamin, 500 Nicotinic Acid tablets, 500 Riboflavin tablets, 800 Adamin capsules and 1,000 Vitamin 'A' and 'B' tablets were distributed to school children, hostel boarders, children and expectant mothers in Harijan colonies, etc., after assessing their nutritional status, to combat vitamin mal-nutrition. Similarly, multi-vitamin tablets, shark liver oil and food yeast were distributed to persons needing such supplements in the Tiruchirappalli Unit. As the existing allotment of Rs. 2,500 per year for each unit for ameliorative measures has been found inadequate in the Five-year Plan of Improvement and Extension of Health Services under Nutrition Research,—an increased budget provision of Rs. 10,000 for each unit has been recommended.

In Madras City, poor and ill-nourished children were given shark liver oil and Calcium Lactate. Yeast powder admixed with mid-day meals was also given to children suffering from chronic stomatitis. During the year, a total of 5,245 children were given shark liver oil and 701 children were administered food yeast.

Free distribution of milk, malt extract with shark liver oil and multi-vitamin tablets to needy children and mothers attending the maternity centres was arranged in some districts and municipalities.

There are at present 232 canteens attached to industrial establishments as against 214 canteens reported during 1950. Of these 232 canteens, 82 served cooked foods and refreshments and the rest tea and coffee only. These canteens were periodically inspected by the Health Staff and necessary advice was given to improve the nutritive value of the cooked dishes and menus served, and kitchen and utensil sanitation.

Nutrition Education.

During the year, five Nutrition Exhibitions accompanied by demonstrations were organized respectively at Bellary, along with the Rayalaseema Industrial Exhibition held in February 1951 at Rajahmundry along with the Andhra Provincial Medical Conference held in April 1951, at Anantapur along with the Cottage Industries Exhibition held in May 1951, at Kozhikode along with the Provincial Medical Conference held in October 1951 and at Madras City in the Park Fair Exhibition as part of Government "Food Production" Section put up in the South Indian Athletic Association Grounds during December 1951.

The All-India Radio, Madras, Tiruchirappalli, Vijayavada and Kozhikode broadcast together 59 talks on general matters, pertaining to "Food and Nutrition."

Sound films on Nutrition entitled "Food and Digestion", "Food and Nutrition", Walt Disney animated cartoon pictures entitled "Infant Care", "Planning for Good Eating" and "The Human Body" were exhibited during the year in several places.

Nutrition Education by means of cinema shows, lectures and group talks, was carried out intensively by the Nutrition Units. During these talks and lectures, results of observations in the areas surveyed for diet and the appropriate remedial measures were explained besides educating the general public on other nutritional matters.

Three sets of cinema equipments—16 mm. projector, generator, etc.,—for the three Nutrition Units have been purchased and installed on the propaganda vans attached to these units for undertaking audio-visual education on health and nutrition in the units.

Cooking demonstrations were also arranged in the Nutrition Units with a view to educate the people on the correct methods of cooking, minimizing loss of nutrients and to popularize unaccustomed and locally grown supplementary foodstuffs.

The Central Nutrition Bureau and the Regional Nutrition Units participated in the "Compost Week" and "Vanamahotsava Week" celebrated, and popularized the manufacture and use of compost manure from rural and urban wastes for growing vegetable and other food crops.

In the Anantapur Regional Nutrition Unit, two big poultry farms have been started in Hindupur Veterinary Hospital and Manepalli to supply "quality eggs" to the villagers. Private individuals interested in poultry farming were supplied with "quality eggs" for hatching in their farms, with a view to popularize poultry farming and to improve the local poultry breeds. Fish seedlings have been introduced in a few wells in Hindupur firka after a preliminary examination of the wells by the Fisheries Department. The Nutrition Unit has been co-operating with the Fisheries Department to popularize and encourage consumption of fish in view of its nutritive value and cheapness.

A summary of the activities of the Tiruchirappalli Unit was reported from time to time to the Rural Welfare Committee, Tiruchirappalli, through the Collector. The Regional Nutrition Health Officer participated in seven of the monthly Rural Welfare Committee meetings and reviewed the work carried out—co-ordinating the Nutrition Department's activities with those of the other Development Departments in Rural Welfare work.

Nutrition Research.

(i) *Nutrition Laboratory.*—The Nutrition Laboratory attached to the Central Nutrition Bureau has been fully equipped for carrying out routine analysis of foods, and for work on problems of applied nutrition. The assay of the nutritive value of the common South Indian food preparations and studies on the losses in nutrients in the customary cooking of foods have been continued in the Laboratory. During the year 24 random samples of the food preparations and four samples of meals served in hotels at different cost levels were analysed for total calorie value and for common nutrients. The extent of loss of Vitamin 'C' in the different methods of cooking adopted in South India was appraised in the case of cabbage, radish, amaranth, drumstick leaves and carrot.

A statement showing the details of the analysis of the food preparations is appended (Annexure N).

An animal colony has been started for nutrition research in one of the out-houses adjoining the Nutrition Laboratory, with 12 Albino stock-breeding rats purchased from the Nutrition Research Laboratories, Coonoor. Necessary synthetic vitamin preparations for undertaking feeding experiments have been purchased at a cost of Rs. 500. Studies on the comparative growth of the experimental rat, fed with the average South Indian rice diet, wheat and meat diet, Milo and "Rice diet," and well balanced diet have been carried out for nutrition publicity and demonstration. Other feeding experiments to assess the nutritive value of commonly used South Indian foods have been planned.

(ii) *Investigation on the prevalence of Beri Beri in Northern Circars.*—The Research Corporation of the Williams Waterman Fund, New York, has approved the scheme of research on Beri Beri prevalence and its control in

Northern Circars, submitted by this Department. The Research Corporation is taking speedy action for the purchase in the United States of America of special scientific equipments required towards the implementation of this scheme. The scheme of research will be taken up on receipt from United States of America of the equipments being donated by the Williams Waterman Fund.

(iii) *Nutrition Clinics.*—Studies on diseases of nutritional origin have been programmed for by the Central Nutrition Bureau and the Regional Nutrition Units in collaboration with one of the City State Hospitals and the District Headquarters Hospitals at Tiruchirappalli and Anantapur, respectively. Government in their Order No. 3132, Health, dated 11th September 1951, sanctioned the starting of Nutrition Clinics at the Headquarters Hospitals at Anantapur and Tiruchirappalli under the Regional Nutrition Health Officers, Anantapur and Tiruchirappalli, respectively.

In the Nutrition Clinic at Tiruchirappalli, patients admitted to the Headquarters Hospital for various preliminary ailments showing also conspicuous nutritional deficiencies are being grouped together and offered special treatment.

Owing to pressing demand for beds, it is however, not found possible to keep the patients sufficiently long to discharge them fully cured of their nutritional disorders. Attempts are, however, being made to follow up such cases in their houses or institutions. In the Nutrition Clinic at Anantapur, patients attending the Headquarters Hospital are examined for their nutritional status on three days a week and treated both as out-patients and in-patients. About 60 cases as out-patients and 10 cases as in-patients are treated per month in Anantapur Clinic.

The laboratory facilities now available in the Headquarters Hospitals, Anantapur and Tiruchirappalli, where the nutrition clinics are run, are reported to be inadequate for undertaking bio-chemical investigations, viz., examination of blood for assay of vitamins, calcium, plasma, protein, etc., estimation of the level of excretion of Thiamine, Riboflavin, etc., in urine, appraisal of nutritional status by the combined clinical and laboratory methods, etc., required for the proper investigation and treatment of cases of nutritional disorders in the nutrition clinics. It is therefore proposed to submit to Government separate proposals for the provision of laboratory and other required facilities to the Regional Nutrition Units for undertaking the above bio-chemical investigations.

Regarding the study of diseases of nutritional origin by the Central Nutrition Bureau in collaboration with one of the City State Hospitals in Madras, proposals put up to Government are awaiting sanction.

(iv) *Investigation of the incidence of night-blindness in Chembarambakkam village in Poonamallee Health Unit area.*—The existence of an outbreak of the night-blindness involving about 25 persons was detected by the Health Officer, Poonamallee Health Unit, in the first week of August 1951 in the Harijan chery of Chembarambakkam village about 16 miles from Madras City. The hamlet has a Harijan population of about 400, all engaged as casual labour in agricultural operations. In view of the drought prevailing in the area for a series of years, having been deprived of their customary labour, they have been eking out a precarious livelihood by resorting to casual labour. Cases of night-blindness of varying duration—ranging from a few days to several months—were reported. Jointly with Nutrition Research Laboratories, Coonoor, the outbreak of night-blindness was investigated in

detail. To serve as a control another Harijan hamlet close by—Palanjur—with similar socio-economic status was taken up for a possible incidence of night-blindness. Detailed investigations revealed that the diets consumed in Chembarambakkam village and the control village Palanjur yielded a *per capita* consumption per day of about 1,000 calories (gross) in Chembarambakkam and 900 calories (gross) in Palanjur; that the diets were grossly inadequate in all essential nutrients in both the villages and that hookworm infestation was very high in the two hamlets, about 75 per cent in Chembarambakkam and 85 per cent in Palanjur.

However, 38 per cent in Chembarambakkam showed up impaired dark adaptation against 6 per cent only in the control village, secondary anæmia with Haemoglobin at 10 gms. per cent and below was present in about 34 per cent of residents in Chembarambakkam village as against 14·8 per cent in Palanjur. Further detailed study by the Stoll's "Egg Count" technique, revealed that the Hookworm infestation was very much heavier in Chembarambakkam village accounting for the higher incidence of anæmia. On completion of the detailed study, 81 cases which showed up impaired dark adaptation in Chembarambakkam were divided into three groups and all were given a diet of 8 oz. of rice with a side dish, sambar (soup), yielding about 900 calories (gross). One of the groups, a random sample was put on iron (fersolate), the second group on Vitamin 'A' (shark liver oil) preparation of known potency and the third group on a placebo (glucose water). After a therapeutic trial covering a period of three to four weeks the nutritional status of all the groups, their dark adaptation, Haemoglobin, Hookworm load were reassessed. The group on Vitamin 'A' (12,000 I.U.) per day showed the maximum improvement with regard to dark adaptation. Only 2 out of 20 showed impaired dark adaptation, whereas the group on iron 6 out of 20 and in the placebo group 9 out of 26 continued to show up impaired dark adaptation.

The above results indicate an interesting finding that combating of calorie deficiency prevailing by the supply of about 900 calories additionally by a mid-day meal by itself alone contributed to the regression of impaired dark adaptation in over 60 per cent of cases.

(v) In the Poonamallee Health Unit in respect of 552 school children receiving one or more of the following food supplements UNICEF gift milk, multi-vitamin tablets, shark liver oil and mid-day cereal meal, the improvement in their growth and development has been statistically assessed. For the purpose of this experimental study, the recipient children were divided into five groups, receiving the following supplementary feeds :—

(1) One group received only multi-vitamin tablets as a supplement.

(2) One group received only skim milk.

(3) One group received skim milk and multi-vitamin tablets.

(4) One group received skim milk in addition to a supplementary mid-day meal of cooked cereal and a vegetable side dish.

(5) One group received multi-vitamin tablets in addition to the supplements under group (4).

As the experimental feeding of supplements varied in duration, slightly from group to group owing to absentees and holidays, the height and weight increases recorded during a period of 60 days were appraised and tabulated. The difference in increases in height and weight of different experimental groups, were statistically tested for significance. It was found that the improvement in growth and development as evidenced by the increase in

weight during an estimated 60 days' period was recorded in descending order, in the following "Supplementary feed" groups :—

(1) Group receiving mid-day cereal meal (400 calories *plus* skim milk *plus* multi-vitamin tablets).

(2) Group receiving mid-day meal *plus* skim milk.

(3) Group receiving skim milk and multi-vitamin tablets.

(4) Group receiving skim milk only.

(5) Group receiving multi-vitamin tablets only.

(6) Group receiving no supplementary feed of any kind (a small control group).

The children under this demonstration project study in the various experimental groups were all of comparable socio-economic status. The above study, though it deals with only small numbers for a limited period of supplementary feedings, reveals that the nutrition prevailing in these low economic groups can be effectively combated only by increasing their calorie intake by a cereal mid-day meal supplying first-class protein and calcium of 8 oz., reconstituted skim milk and multi-vitamin tablets to combat gross vitamin deficiencies prevailing for ensuring the optimum growth and health.

A statistical summary record of the increases in height and weight of various experimental groups is appended to this report (vide statements).

(vi) A scheme of investigation on the anæmias of pregnancy and the inter-relationship between nutrition and anæmias of pregnancy in consultation with the Nutrition Research Laboratories, Coonoor, and the Director of Medical Services, Madras, was drawn up and submitted to the Indian Council of Medical Research, New Delhi, for consideration by the Nutrition Advisory Committee of the Indian Council of Medical Research for partly financing the scheme, at its meeting held in November 1951 at Hyderabad, Deccan. This scheme was deferred at the above meeting, and it is, however, expected to be taken up for consideration by the Nutrition Advisory Committee of the Indian Council of Medical Research at its forthcoming meeting in November-December 1952.

Training of Personnel.

Proposals for the conduct of training courses in Nutrition for wardens of hostels, lay personnel in charge of orphanages, and residential boarding schools, etc., and of Health Inspectors and Sanitary Inspectors, the auxiliary public health personnel, by the Central Nutrition Bureau have been submitted and are now under active consideration of Government.

The Nutrition Officer served as Joint Secretary of the Hotel Sanitation Committee specially appointed by Government for improvement of the hygiene of food catering establishments and the Committee's report was submitted to Government. The imperative need for instituting training of hotel employees in the hygiene of food catering establishments, was strongly stressed by the Committee in the above cited report which is awaiting implementation.

During the year, three First-class Health Officers took the special course in Practical Nutrition organized under the auspices of WHO/UNICEF at the All-India Institute of Hygiene, Calcutta.

Implementation of the Reorganized Nutrition Research Scheme.—All the items of the scheme of the Reorganized Nutrition Research, except the clinical study of the diseases of nutritional origin, to be undertaken by the Central Nutrition Bureau in conjunction with one of the City State Hospitals, have been fully implemented. Proposals for the above study have already been submitted to Government and their orders are awaited.

Details of work carried out under this scheme, in the three Nutrition Units, regarding preliminary diet and nutrition surveys intensive nutrition education, and institution of supplementary feeding programmes, under the short-term plan for correcting the food deficiency signs, as revealed in the diet and nutrition surveys are reviewed in the preceding paragraphs.

As, in the ultimate analysis, improvement of nutrition of the populations in the Units' areas can be effected only by the production and consumption locally of quality foods as a long-term plan, attempts have been made to secure the collaboration and active participation of other development departments engaged in rural welfare work, in the implementation of this long-term plan. Due to acute water scarcity prevailing in the Poonamallee Health Unit, and the Regional Units, consequent on the failure of monsoon, work in this regard could not be pushed through adequately during the year.

Prevention of Food Adulteration.

During the year, the Madras Prevention of Adulteration Act was enforced in all the 98 municipalities and 141 panchayats making a total of 239 local bodies. The Act is applicable to Sriperumbudur during the festival season and to Kanniseri during the cattle fair. In view of the extensive adulteration of food articles prevailing and the necessity for augmenting the number of samples taken from areas in which the Madras Prevention of Adulteration Act is in force and the imperative need to extend it to other areas demanding it, it is urgently necessary to strengthen the Government Analyst's laboratory at the King Institute of Preventive Medicine and open regional laboratories early.

The number of food samples analysed during the year was 18,651 of which 8,814 (47·2 per cent) were adulterated. The corresponding figures for the previous year were 18,524 and 8,637 (46·6 per cent), respectively. The percentage of adulterated samples is the highest ever recorded since the Act had been brought into force in 1929. The chief contributory causes for the high degree of adulteration are the limited number of samples taken and the low fines imposed by the magistrates for food adulteration offences. The average fine for the year for all the local bodies was only Rs. 43 as against Rs. 48 for the previous year.

An increase in the adulteration in respect of milk, gingelly oil and a marked increase in the case of tea were noticed during the year. Though there is a small decrease in the adulteration of butter, hydrogenated vegetable product is more widely used to adulterate butter, contrary to the prevalent popular view that preparing ghee from butter ensures unadulterated ghee. Constant watch is now being kept by the Health Officers and public health staff in the districts to prevent the importation and sale of Lak Dhall (or Kesari Dhall) and its products prohibited by Government and prosecutions are instituted in all cases of importation or sale of these articles. Kesari Dhall (Lathyrus Sativus) and Kesari Dhall flour are still being used to adulterate other types of dhalls like Bengalgram, redgram, etc., although Government have passed a new rule prohibiting the sale or possession for the sale of Kesari Dhall and Kesari dhall flour in admixture with other dhalls or flours.

Hotel Sanitation Committee.

The Hotel Sanitation Committee constituted by Government in 1950 to consider the state of cleanliness and sanitation in hotels, canteens and catering establishments and to make recommendations for the removal of defects and deficiencies and for the effective sanitary control of these establishments, concluded its work during the year and submitted its report to Government.

The Committee met on ten occasions for discussing details of the problem, examining witnesses and deciding on the recommendations to be made. The Committee made several visits of inspection to various types of catering establishments in the City. The touring officers of the Committee inspected similar establishments in mufassal while on tour. A comprehensive questionnaire to cover all aspects of hygiene and health problems of the catering industry was drawn up and issued to several individuals and institutions connected with the catering trade. Replies received were considered by the Committee.

The Director, King Institute, examined bacteriologically samples of wash-water and utensils before and after their cleansing and reported his findings. He also conducted a bacteriological examination of samples of Ice Cream collected from City hotels. The Nutrition Officer examined at random a few hotel employees, medically with a view to ascertain the degree of prevalence of illness likely to lead to food infections. Samples of customary food preparations sold in hotels were analysed for their nutritive value at the Nutrition Laboratory of the Public Health Department, Madras. The Consulting Architect to Government furnished type designs of model canteens based on the suggestions of the Committee. The Committee also interviewed selected witnesses representing the public, catering industry, etc., for tendering evidence.

The important defects noticed in the existing hotels, canteen, etc., are the following :—

(1) Unsuitability of the building ;

(2) unhygienic practices in the storage, preparation and cooking and service of food ;

(3) defective sterilization facilities for utensils and equipment used in catering ;

(4) absence of facilities for ensuring the personal hygiene of the food-handlers and their supervision by frequent medical examinations ;

(5) lack of adequate supply of drinking water and water for cleansing ;

(6) lack of suitable arrangements for collection and disposal of sullage and garbage ;

(7) inadequacy in the present legal provisions for effective enforcement of adequate standards of hygiene and sanitation.

The Committee has gone into all aspects of the problems in detail and made its comprehensive recommendations for the removal of the above defects and for the effective sanitary control of all catering establishments.

The main recommendations of the Committee are—

(i) The catering establishments should be licensed under the Madras Public Health Act. Appropriate and comprehensive amendments to the existing Chapter XII—Food Control—and rules thereunder have been suggested.

(ii) Model restaurants in each town should be built by municipal councils and farmed out to catering establishments. This will have considerable educative value in stimulating private enterprise entering this field.

(iii) Constitution of permanent standing committees has been recommended for—

(*a*) Evolving designs of model restaurants, standards of accommodation, equipment, lighting, ventilation in particular the lay-out of kitchens and the designing of suitable cooking ranges and sterilizing and dish-washing equipment ;

(*b*) working out desirable standards for appraisal of the sterilization of equipment and utensils by bacteriological examination and

(*c*) suggesting bacteriological standards for certain foods like ice-cream, ice-cream salads, etc.

(iv) The licensing of catering establishments employing ten or more employees per day should be primarily the responsibility of local authorities with a view to safeguarding public health.

(v) Scale of licence fees should be based on gross sales.

(vi) For education of the food handlers and the management in the hygienic upkeep of catering establishments, a course of training has been suggested.

(vii) Inauguration of "Information Centres" by municipal councils and City Corporation in association with the catering trade.

CHAPTER V—ENVIRONMENTAL HYGIENE.

Water-supply and Drainage.

The Water-supply and Drainage Committee constituted in 1947 suggested a list of priority for water-supply and drainage schemes and Government have approved the first five-year plan for these schemes to be executed during the five years commencing from 1949–50 in accordance with the priority. If local authorities are able to raise funds to meet the entire cost without Government grant, their schemes will be taken up out of their turn. The Government also decided that the provision of the water-supply and drainage should continue to be the responsibility of the local bodies concerned.

The execution of all water-supply and drainage schemes in the State continued to be executed by the Sanitary Engineering Department. Twelve water-supply schemes were under various stages of investigation and investigation of one scheme was completed. Plans and estimates for eleven water-supply schemes were also submitted for preliminary approval of the Chief Engineer. Designs for sixteen water-supply schemes have been undertaken.

Eight drainage schemes were being investigated and investigation of Tiruchirappalli drainage scheme was completed. Plans and estimates for two other schemes were submitted for approval. Designs for four drainage schemes are under progress.

During the year under report, 41 municipal and other urban water-supply schemes and eleven drainage schemes were under execution and provisions of Rs. 72·26 lakhs and Rs. 5·30 lakhs have been respectively made for these schemes.

As regards the rural water-supply, the five-year plan commenced in 1948–49. Proposals, plans and estimates were prepared by the Revenue Department. Suitable sites for the execution of the water-supply schemes were selected by the health staff. Protected water wherever such provision has been made is supplied to the rural population by means of closed or open built wells, with or without overhead tanks, bore-wells and pumps, pipe supply from or connected with mains from reservoir and natural springs and artesian wells. During the year 1951, the number of wells constructed and thrown open to public is 2,908. A total sum of Rs. 76,63,723 was incurred in 1950–51 for this purpose by the Board of Revenue under whom the rural water-supply scheme functions.

Rural and Urban Sanitation.

The provision of satisfactory types of sanitary conveniences in rural and urban areas will go a long way in controlling bowel diseases like cholera, typhoid, etc., and intestinal parasitic diseases. The campaign for provision of sanitary convenience has been intensified during the year as will be evident from the following statement showing the number of seats constructed :—

	Number of seats constructed in			
	Private latrines.		Public latrines.	
	1951.	1950.	1951.	1950.
(1)	(2)	(3)	(4)	(5)
Bore-hole latrine	2,939	1,448	357	274
Septic tank latrine	2,569	1,428	245	333
Other types	16,819	8,296	1,202	249

The progress has however been slow due to the objection in some areas to septic tank type of latrines and to the difficulty of the health staff in executing the approved types without engineering help. The progress is tried to be stepped up by (1) transferring the work of constructing septic tank latrines to the Sanitary Engineering Department, (2) devising simple types for construction by health staff in rural areas and where engineering help is not available, (3) devising types to suit the needs of the public in dry areas where latrines with water-seal do not find favour, (4) by insisting that all public institutions construct septic tank latrines of approved types, (5) by permitting the provision of bore-hole type latrines for public use, (6) by making the staff take a more active interest in this work by insisting upon their showing a fixed outturn of work on latrine construction each month and (7) by the Government permitting local bodies to sell latrine seat slabs at concessional rates (two-third cost) to the deserving public. In this connection proposals have been made to start a Public Health engineering organization nucleus under the Director of Public Health, to advise on cheap and simple types of latrines, and to tour rural areas and advise the Health Officers, Health Inspectors and Sanitary Inspectors on their construction and popularization.

Conservancy and Manure Production.

The Provincial Compost Development Officer working under the Inspector of Local Boards and Municipal Councils, Madras, visited periodically the contres where compost was prepared and made necessary suggestions for improvement in the methods of production and distribution of compost wherever these were found defective. The number of municipalities and panchayats preparing compost has increased from 91 and 110 at the beginning of the year to 94 and 322 respectively by the close of the year. The approximate total quantites of compost manufactured and sold by the local bodies were 132·4 lakhs cubic feet and 82·6 lakhs of cubic feet, respectively.

One meeting of the State Compost Development Committee was held in February 1951. Action as outlined below was taken on the recommendations of the Committee :—

(1) On the recommendations of the Committee Government directed that the further continuance of uniform price of annas 10 per 25 cubic feet manure be stopped and that local committees be formed for fixing the fair price for the sale of compost for each local body. Instructions were issued to local bodies to sell the compost to bona fide cultivators and furnish the particulars of compost sold to the cultivators to the Tahsildars, so that the latter may assess the increased production of the land for which the compost manure was purchased, and applied.

(2) The compost week was celebrated in October 1951 in all municipalities and in notified panchayats. Lectures on and practical demonstrations of compost preparation out of urban and rural wastes and night-soil, etc., were conducted throughout the week.

Local Advisory committees formed worked satisfactorily during the year.

During the year, seven Sanitary Inspectors and seven Maistries were trained in compost manufacture in the neighbouring local bodies where facilities for such training existed.

Target figures for compost manufacture for the local bodies were fixed for the year 1951–52 and the authorities concerned asked to bestow their personal attention to this branch of work and that efforts should be made to reach the target fixed. Special appraisal of the difficulties encountered in local bodies in reaching the target production figures was carried out and necessary action has been taken to remedy the defects and the local authorities have been exhorted to make good the deficiencies in transport equipment and staff necessary to step up production of compost manure during the ensuing year.

Fairs and Festivals.

In Madras State there are a number of famous and ancient temples and shrines at which festivals are celebrated annually, which attract large congregations of pilgrims from all over the State and even beyond. Besides these important festivals, there are a number of small festivals conducted in various places which draw pilgrims from the surrounding local areas. There are more than a thousand such festivals of varying magnitude and 260 of them are notified ones. In view of the supreme importance of such festival gatherings, large or small, in the spread of communicable diseases especially cholera, sanitary supervision over these festival celebrations is exercised by the health staff. The main measures undertaken are preservation of safe drinking water and protection of existing sources by disinfection with chlorine, supervision of environmental sanitation including night-soil and refuse conservancy, food sanitation including sanitation of catering establishments and provision of temporary accommodation and lighting at festival centres. Protection of pilgrims is carried out by mass prophylaxis with anti-cholera

inoculations. Close watch is kept for on outbreak of communicable diseases, and temporary isolation accommodation is kept ready for prompt isolation and treatment of the first cases to prevent spread of infection.

The sanitary needs of each festival celebration are carefully scrutinized through preliminary Form I Reports and instructions issued from the Central Office for carrying out specific sanitary arrangements.

The officers at headquarters personally supervised the sanitary arrangements of some of the important festivals during the year. The following festivals were thus supervised :—

Kartheeka Deepam—Tiruvannamalai.
Vaikunta Ekadasi—Srirangam.
Adikrithigai—Tiruttani.
Arokiamatha—Velanganni.
Brahmotsavam—Tirupathi.
Ennaikappu—Srivilliputtur.
Bhavaniamman—Periyapalayam.

Except at two festival celebrations there was no epidemic outbreak of cholera. The Sri Ramanavami festival at Bhadrachalam and the Aradhana festival at Kandimallayapalli (Cuddapah district) were the cause of outbreaks of cholera and necessary control measures were taken and the spread of the disease was brought under control promptly. The outbreaks were traceable to the inadequacy of protected water-supply arrangements made, on the plea of paucity of funds. For a festival centre of the importance of Bhadrachalam, it is immediately necessary to provide a permanent water-supply and before this scheme matures, at least, adequate protection of the Godavari river supply may be provided by pumping arrangements, chlorination and distribution by public stand pipes from overhead reservoir, temporarily for the ensuing festivals. The matter is being taken up again with the Agency District Board in charge of the festival arrangements.

Funds for making sanitary arrangements were provided by the local bodies concerned. In certain cases contributions were obtained from the temple authorities. Generally the expenditure on sanitary arrangements in respect of major festivals were being borne by the District Boards though the festival centres were in the jurisdiction of the Panchayat Boards. With the coming into force of the Madras Village Panchayat Act of 1951, some district boards expressed unwillingness to bear the cost of sanitary arrangements of festivals occurring in panchayat board limits. Many of these festivals are of more than local importance and pilgrims not only from all over the district but also from the neighbouring districts of the State attend these festivals. Hence it is most essential, that the expenditure on sanitary arrangements of festivals occurring in panchayat limits and which are of more than local importance, should be met by the district boards concerned collecting proportionate contributions from panchayat boards and temple authorities concerned and this question is under the consideration of Government.

In notified festivals the working of Chapter XIII of the Madras Public Health Act was satisfactory.

Housing and Town-Planning.

The Madras Town-Planning Act continued to be in force in 98 municipalities including the Corporation of Madras and in 295 panchayats. The provisions of the Town-Planning Act were extended to 13 panchayats during

the year. The provisions of the Madras District Municipalities Act relating to regulation of private and public streets and buildings were in force in 267 panchayats during the year as against 197 in the previous year.

General town-planning scheme.—The Corporation of Madras and the municipalities of Coimbatore, Madurai, Mangalore and Tiruchirappalli made substantial progress during the year in the preparation of preliminary statistics and correction of maps for the preparation of master plans or general town-planning schemes. Four hundred and fifty-one detailed town-planning schemes were under various stages of preparation, publication and submission and 117 sanctioned schemes were under various stages of execution. The municipalities of Kumbakonam, Mangalore, Erode, Tuticorin, Tiruchirappalli took active steps to finalize certain pending schemes and to take up new schemes.

Building regulations.—The enforcement of the building regulations showed great improvement as far as municipalities are concerned. The Town-Planning department received 1,400 cases of appeals for exemption from one or other requirement of the Building Rules.

Remarks and suggestions on the draft Building Code submitted by the Corporation of Madras were submitted to Government. The Code is very comprehensive and aims at securing better living conditions and housing standards in the City of Madras. The provisions of the Code could, with advantage, be introduced in all municipalities.

The Building Rules of 1942, as amended, were made applicable to the Mettur Township Area during 1951.

Harijan colonies—Co-operative building schemes.—A large number of layouts of Harijan colonies, co-operative housing, municipal and private land development schemes, were prepared by the Town-Planning department and furnished to the concerned authorities. Forty-eight private land development schemes received from municipalities, 367 revenue layouts and 32 co-operative housing and house construction society schemes were furnished. Five new village development schemes for rehabilitating the villagers evicted from the submergible areas in the Tungabhadra Project were planned and designed. A large number of type-designs of houses to be built by co-operative housing and house construction societies were approved during the year.

Water and Sewage Purification Committee.

The Water and Sewage Purification Committee met four times during the year. An experiment on breakpoint chlorination of the raw water derived from the lake as a method of pre-conditioning the water prior to sand filtration, has been in progress at the Government Experimental Filter Station for over a year. The Committee resolved to continue the experiment on breakpoint chlorination for a further period, so that the working of the filter may be observed under the varying seasonal conditions of raw water quality. The Committee felt that it would be advisable to install an automatic chlorinating apparatus using liquid chlorine. The Sanitary Engineer to Government would try to secure for experimentation a suitable apparatus for this purpose.

The Committee discussed the question of the presence of fluorides in drinking water in the various parts of the State and it was resolved that waters containing up to 1·5 ppm. of fluorine may normally be accepted for drinking

purposes. Amounts in excess of this figure should not ordinarily be allowed in drinking water-supplies, unless based on a survey carried out by the Department of Public Health regarding the prevalence of dental fluorisis among the vulnerable section of the population.

Regarding the Analytical wing of the Water-supply Inspectorate proposed by the Sanitary Engineer to the Government, it was resolved that this matter should be reconsidered by the Committee at a later stage, when sufficient details regarding the functions and scope of the contemplated Research Unit are available to the Committee.

The Committee also discussed the question of the free examination of water samples from unprotected water-supplies from local bodies, etc., and it was resolved that such analysis of water samples should be charged for at the usual rates, unless the examination is required for specific purposes in connexion with public health problems or investigations relating to the development of new water-supplies and other similar purposes.

The question of the levy of fees for the collection and the analysis of the water samples carried out at present on behalf of the railways is under the consideration of Government.

The Committee also discussed the subject of occurrence of iron in the supply derived from the infiltration wells of the Kozhikode Water-supply Scheme and the Committee felt that it would be advisable that a field unit of the King Institute carried out quality tests on the spot and furnished the results.

The Committee inspected the Head Water Works, Kozhikode, on 17th and 18th of September 1951 and studied the scheme on the spot. After a careful examination of the problem, the Conmmittee resolved that the supply as obtained from the infiltration works requires treatment for the removal of iron and correction for acidity (low ph) before the water could be supplied to the consumers.

The Committee recommended lime and alum treatment followed by settlement and filtration to be provided in this scheme.

CHAPTER VI—GENERAL ADMINISTRATION.

STAFF AND PERSONNEL.

The strength of the Public Health establishment on 31st December 1951 was as follows :—

1	Director of Public Health	1
2	Deputy Director of Public Health	1
3	Assistant Directors of Public Health	3
4	Professors of Hygiene in the two Medical Colleges at Madras and at Visakhapatnam.	3
5	Health Officers, Class I	85 *
6	Health Officers, Class II	99 †

* These include the 4 posts of Regional Malariologists, 11 posts of Health Officers in anti-malaria schemes, 2 posts of Regional Nutrition Health Officers, 4 posts of Assistants to the Professors of Hygiene, one post of Nutrition Officer, one post of Research Health Officer, one post of Special Plague Officer, one post of Health Officer, Health Unit, Poonamallee, and one post of Health Officer, State Leprosy Survey Unit.

† Out of these, 2 posts of Assistant District Health Officers are kept in abeyance. The remaining 97 include 11 posts of Health Officers in anti-malaria schemes, one in Rameswaram Panchayat Board, one in Tirumalai Hills, one post of Health Officer, District Leprosy Survey Unit, South Arcot, and 3 posts of Assistant Municipal Health Officers.

7	Chief Entomologist	1
8	Senior Entomologists	6 *
9	Statistician	1
10	Malaria Engineer	1
11	Entomological Assistants	34
12	Chemical Assistant	1
13	Statistical Assistants	2
14	Medical Officers (Maternity and Child Health)	2
15	Health Inspectors	605
16	Health Visitors	8
17	Maternity Assistants	45
18	Health Assistants	4
19	Vaccinators (Agency)	18
20	Laboratory Technician	1
21	Draftsman	1
22	Artist and Photographer	1
23	Propaganda Technician	1
24	Laboratory Assistants	49
25	Field Assistants	260
26	Laboratory attenders	5
27	Trained attenders	2
28	Drivers	54
29	Mechanics	2
30	Cleaners	14
31	Cook-*cum*-cleaners	3
32	Fumigation Inspectors	2
33	Fumigation maistris	24
34	Fumigation mazdoors	48
35	Peons	511
36	Superintendent	1
37	Senior Office Assistant	1
38	Office Assistants	9
39	Upper division clerks	27
40	Lower division clerks	41
41	Steno-typists	6
42	Typists	6

During the year under report, a post of Librarian was sanctioned temporarily. One post of Office Assistant, two posts of upper division clerks, two posts of lower divison clerks and one post of typist were made permanent.

During the year under report, Dr. T. Lakshminarayana, Director of Public Health and Dr. R. Anantham Pillai, Deputy Director of Public Health, retired from service. Dr. K. S. Viswanathan and T. R. Rangaswami took charge as Director of Public Health and Deputy Director of Public Health, respectively, from 1st September 1951.

Two Health Officers (Class I) retired from service and one Health Officer (Class I) died under tragic circumstances in a drowning accident while returning from the inspection of a ship in Nagapattinam Port.

One post of Statistical Assistant was converted into that of Statistician of gazetted rank. The post of Research Health Officer which was kept in abeyance has been revived during the year. The status of the post of Professor of Hygiene, Andhra Medical College, Visakhapatnam, has been raised to that of Assistant Director of Public Health.

* Includes one post of Senior Entomologist in the Madras Medical College.

Owing to dearth of qualified candidates, a large number of posts in the cadre of Health Officers (Class II) had to be kept vacant and consequently the public health administration of many municipalities and districts suffered.

Local fund personnel.—The following is the approximate strength of the public health staff under the local authorities in the State :—

(1) Lady Superintendents in charge of Maternity and Child Welfare.	2
(2) Medical Officers (Maternity and Child Health)	115
(3) Health Visitors	129
(4) Maternity Assistants (Maternity and Child Health) ..	1,021
(5) Resident Matrons in charge of maternity homes	10
(6) Compounders (Maternity and Child Health)	7
(7) Sanitary Inspectors	640
(8) Health Assistants	1,135

Besides the above, a large number of inferior personnel is employed for conservancy and other work.

Due to dearth of qualified candidates, many posts of Health Assistants, Health Visitors and Maternity Assistants (Maternity and Child Health) have been kept vacant.

Local board staff were continued to be detailed for work during epidemics and festivals.

Training.

During the year under report, 2 Health Officers (Class I), one Health Officer (Class II) and a Senior Entomologist underwent training at the Malaria Institute of India, Delhi. One Health Officer (Class I), 2 Health Officers (Class II) and a Senior Entomologist underwent training given at a six weeks' course at the Central Malaria Laboratory, Madras. Three Health Officers (Class II) were deputed for the Regional Nutrition Course conducted under the auspices of World Health Organization, UNICEF at the All-India Institute of Hygiene and Public Health, Calcutta. One Health Officer (Class I), one Senior Entomologist and an Entomological Assistant underwent training in special studies on Sand-flies and Trombicula mites at the All-India Institute of Hygiene and Public Health, Calcutta, for a period of two months. One Health Officer (Class I) has been deputed on a Rockfeller Foundation Fellowship to U.S.A. for higher studies in Malariology. The Statistician was deputed to the United States of America for a period of four months on a U.N. Fellowship for higher studies in 'Theory of Sampling'. The services of the Chief Entomologist were lent to World Health Organization for service in Afganistan for a period of six months. Four Health Officers of this department were admitted to the B.S.Sc. course for 1951–52 at the Madras Medical College.

The Sanitary Inspector's Course in the Andhra Medical College, Visakhapatnam, was instituted during the year. Two hundred and ninety-seven students have been admitted into the Sanitary Inspector's Course for 1951–52 in the three institutions.

Public Health Board.

The Public Health Board did not meet in May as there was no subject to be referred to it. The meeting in November was postponed owing to unavoidable circumstances.

Finance.

The actual expenditure incurred by the State on Public Health during 1950–51 is summarized below :—

	RS.	RS.
Under the Director of Public Health :—		
(a) Staff—		
Pay of officers	4,20,144	26,28,034
Pay of establishments	11,62,520	
Dearness Allowance	5,29,785	
Travelling allowance and other Compensatory allowances.	5,15,585	
(b) Other charges	*19,25,284	*19,25,284
(c) Contribution to East Godavari Agency District Board.	3,503	3,503
Total ..		45,56,821
Total excluding grants ..		41,47,790
Under others—		
(a) Director of King Institute	13,35,233	
(b) Board of Revenue	43,28,864	
(c) Sanitary Engineer	— 6,55,394	
(d) Director of Industries	76,621	
(e) Director of Town-Planning	55,844	
(f) Charges in England	50,247	
		51,91,415
Grants for public health purposes		† 10,66,592
Grand total under "39. Public Health"		1,04,05,797

Besides the sum of Rs. 45,56,821 (including "grants") controlled by the Director of Public Health, a sum of Rs. 23,870 was also spent on Vital Statistics establishment during 1950–51.

The expenditure on medical relief by the State is Rs. 314·87 lakhs.

The total receipts under revenue for 1950–51 is Rs. 5,016·34 lakhs.

* Includes Rs. 4,09,031 grants to local bodies.

† Out of this sum of Rs. 10,66,592 a sum of Rs. 4,13,123 relates to this department. The balance represents grants to local bodies and municipalities including the Corporation of Madras for water-supply and drainage grants.

The expenditure on medical relief and preventive medicine incurred by the local bodies excluding major panchayats for which figures were not available is as follows :—

	Urban areas.			Rural areas.	
	Madras Corporation.	Other municipalities.	Total excluding major panchayats.	District boards.	Total for local bodies excluding major panchayats.
(1)	(2)	(3)	(4)	(5)	(6)
	RS.	RS.	RS.	RS.	RS.
A. Receipts excluding grants—					
1. Medical Relief	43,921	23,843	67,764	77,215	1,44,979
2. Public Health	4,15,305	34,40,442	38,55,747	2,75,749	41,31,496
3. Town-planning	1,68,253	4,27,650	5,95,903	12,113	6,08,016
4. Water-supply and drainage.	30,12,820	60,77,101	90,89,921	..	90,89,921
5. Lighting	10,60,216	13,88,711	24,48,927	..	24,48,927
6. Education	84,251	29,10,891	29,95,142	2,09,76,880	2,39,72,022
7. Other general	1,41,74,611	2,52,89,663	3,94,64,274	3,00,84,931	6,95,49,205
8. Railways	..	..	..	12,42,148	12,42,148
Total ..	1,89,59,377	3,95,58,301	5,85,17,678	5,26,61,036	11,11,86,714
B. Expenditure—					
1. Medical relief	10,05,615	11,98,980	22,04,595	45,10,526	67,15,121
2. Public Health	46,61,631	1,36,45,525	1,83,07,156	27,86,565	2,10,93,721
3. Town-planning	3,11,671	4,80,319	7,91,990	7,635	7,99,625
4. Water-supply and drainage.	42,70,985	57,16,732	99,87,717	..	99,87,717
Total ..	1,02,49,902	2,10,41,556	3,12,91,458	73,04,726	3,85,96,184
Percentage of B to A	54·1	53·2	53·47	13·9	34·71
C. Expenditure on preventive medicine only.	92,44,287	1,98,42,576	2,90,86,863	27,94,200	3,18,81,063
Percentage of C to A	48·8	50·2	49·71	5·3	28·67
D. Expenditure on medical relief.	10,05,615	11,98,980	22,04,595	45,10,526	67,15,121
Percentage of D to A	5·3	3·0	3·77	8·6	6·04

The expenditure incurred by the State on Public Health was Rs. 104·05 lakhs and that on medical relief was Rs. 314·87, the percentage of expenditure on public health to total sum spent on public health and medical relief was 25 per cent. Out of the sum spent on " Public Health " about 40 per cent was controlled by the Director of Public Health.

It is provided in the Madras Public Health Act that every municipality should earmark 30 per cent of its income for expenditure on public health and medical relief and every district board and panchayat 12½ per cent. The statement extracted above will show that while the municipalities have spent on public health much more than statutorily provided for, the district boards on the whole have spent only a little above the prescribed minimum limit.

CHAPTER VII—CONCLUDING REMARKS.

The year has been one of appreciable progress in the Public Health of the State as reflected in the Vital Statistics recorded. The 1951 census has revealed on over-all increase of 14·4 per cent in the population of the State, with 34·5 per cent increase in urban population and 10·7 per cent increase in rural population, reflecting the large migration of rural population to urban areas during the decade for employment and trade. The birth rate has shown a welcome and steady decline since the post-war 1946 rate of 34·0 per 1,000 of population to

28·6 in 1951 a decline of 16 per cent. The death rate since 1945 has shown an appreciable fall from 23·4 per 1,000 population to 16·2 in 1951, recording a fall of 23·5 per cent. The infant mortality rate, as compared with the average of 177·0 per 1,000 live births recorded for the decennium 1931–40 when Maternity and Child Health Schemes were inaugurated and initiated in the State, recorded 118·6 in 1951, registering a fall of 33 per cent. The maternal mortality rate of 5·7 per 1,000 total births registered for 1951 is the lowest on record for the past two decades. Of the communicable diseases which occur in widespread epidemics-cholera, during the year, recorded only half of the mortality in 1950 ; plague showed further reduction in its erstwhile low incidence and only smallpox showed a slight increase due to the continuance of the epidemic incidence of the winter months of 1950 into the first quarter of 1951. With regard to other causes of deaths—fevers, dysentery, diarrhœa and respiratory diseases, all showed decline.

The high-lights of the public health activities of the department during 1951 are briefly reviewed hereunder.

The malaria control organization, one of the best organized in the Indian Union, extended and intensified its activities and recorded further appreciable progress in the control of malaria in the endemic areas. For effective control and eradication of plague from the State in the immediate future, areas of the State subject to repeated epidemics based on last ten years' experience, have been selected as possible " endemic foci " after epidemiological studies and staff and necessary equipments have been put into the field to carry through treatment of the areas with D.D.T. as a preventive measure with very good results. The feasibility of instituting co-ordinated measures in the border districts of the two States, has been examined by the two Directors of Public Health of the Madras and Mysore States in conference and the reciprocal measures for control which have to be instituted are under the immediate consideration of the two Directorates of Public Health. The Research branch in the department that was closed down temporarily as a measure of retrenchment in 1949, has been revived ; the Research Health Officer and an Entomologist received training at the School of Tropical Medicine and Hygiene, Calcutta, in the bionomics and control of the Sandfly and the Trombicula mite—which transmits Kala-azar and Scrub Typhus and started work on the bionomics and prevalence of the Sandfly in the endemic areas for Kala-azar in the Ramanathapuram district and Madras City. It is immediately programmed to institute control of the Sandfly in the area by D.D.T. treatment, supplementing the curative treatment being given by the mobile medical unit in Ramanathapuram district. Research on biological method of control of guineaworm infection in rural water supplies in Bellary district is programmed and studies on chemical treatment of Cyclops infested water both in the laboratory and in the field are in progress. The scheme of research on the incidence and control of Beri-beri in Northern Circars in collaboration with the Medical department and the Nutrition Research Laboratories, Coonoor, is ready for implementation in the coming year, as the Williams-Waterman Foundations and Research Corporation, New York, have agreed to donate the necessary scientific equipment for the investigations and the supplies are expected shortly. The scheme of research enquiry into chronic endemic fluorosis prevailing in large tracts of the Nellore district, submitted by the special committee is still awaiting sanction and implementation. The study of " diseases of nutritional origin " has already been instituted, by opening two nutrition clinics at Tiruchirappalli and Anantapur under the charge of the two regional Nutrition Health Officers in the two Headquarters hospitals. Such

studies in a nutrition clinic to be opened in one of the State City hospitals are awaiting sanction.

Among the personal health services provided the maternal and child health services recorded steady progress. Appreciable as has been the progress in the development of maternal and child health centres and the services during the past two decades since the initiation of organized maternal and child health work in this State in 1931, considerable lee-way has yet to be made in meeting the needs of the widely dispersed and remote rural villages and even those of many urban areas. There has been a very welcome awareness among the public of the supreme role which the maternal and child welfare centre and the maternity home, play in the protection of the health of the mother and the child and it is gratifying to record that private philanthrophy is increasingly contributing to the inauguration of new centres in a number of areas of the State.

The Vital Statistics department has been strengthened, the Statistician having been raised to gazetted rank and given opportunity for higher training abroad in Statistical Theory of Sampling and Bio-statistics under United Nations Fellowship. With the mechanisation of compilation of Vital Statistics proposed and awaiting sanction, the work carried out by the bureau can be extended and improved.

In view of the importance of the hygiene of the food catering establishments in the spread of food-borne infection, the Director of Public Health and Deputy Director of Public Health and the Nutrition Officer participated actively during the year as members of the " Hotel Sanitation Committee " and drew up comprehensive proposals for improving the hygiene of the food-catering establishments. The proposals are awaiting implementation.

An epidemiological study of the outbreak of cholera in General Hospital, Madras, was undertaken along with the expert members of a special committee. The study revealed the role of " missed " cases and " Cross infection " in the spread of the outbreak and remedial measures to ward off future outbreaks were suggested.

The immediate needs for extension of the public health activities are many; of these the most urgent need is the opening of Regional Combined Laboratories for analysis of foods, water supplies, bacteriological and serological examinations in at least three or four regional centres of the State. In view of the high incidence of pulmonary tuberculosis (mortality rate 1·0 and over per 1,000 in municipal towns) revealed by the vital statistics recorded during the past few years, there is immediate need to extend B.C.G. vaccination campaign to the municipal towns. Given necessary facilities the Municipal public health establishments can play a vital role in case-finding, case holding, in the surveillance of the B.C.G. vaccinated, in their home surroundings. They can also make a similar contribution in the control of venereal diseases.

In the ultimate analysis, no schemes for improvement of public health can bear fruit and succeed, unless the community to be benefited, intelligently understands, appreciates and participates in the public health measures adopted. Towards this end, knowledge of modern methods of prevention of disease and of the newer concepts of nutrition for building up " positive health " should be brought home to the public utilizing all the known methods of effective publicity. It is therefore necessary to organize a central health education and publicity organization under the guidance of an Assistant Director of Public Health who will not only produce simple booklets in all the languages

of the State but also arrange for production of materials for audio visual education suitable for the school children and for the adult population, so that an intense health education drive can be initiated in the State.

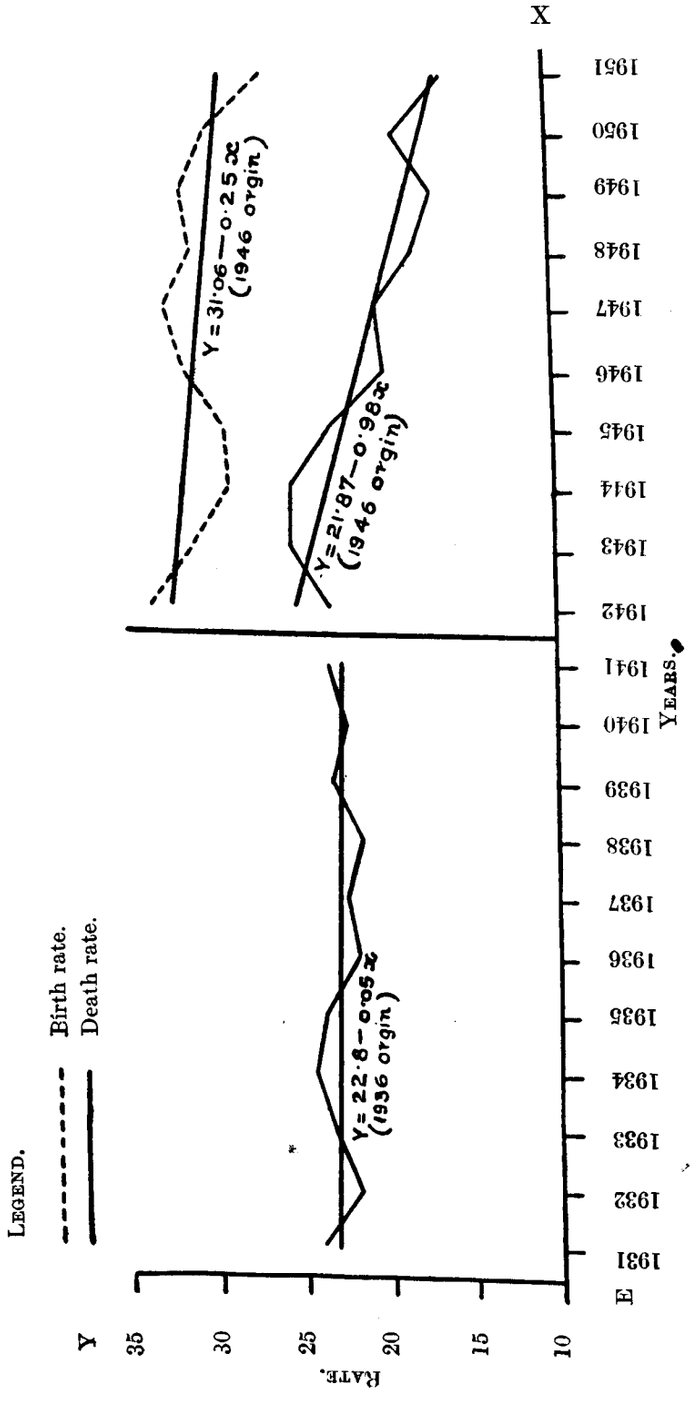
The Primary Health Centres inaugurated in 1949 have not been able to register the expected progress, excepting in the case of a few centres. With the proposed inauguration of the six Community Development Projects in the six selected areas of the State, where other Development departments like Agriculture, Co-operative, Animal Husbandry have a predominant role in addition to the Medical and Health departments—the activities of primary health centres, will expand and an all-round development of rural reconstruction with improvement in rural health can be confidently visualized.

The officers and staff of the department have carried out their duties conscientiously and well.

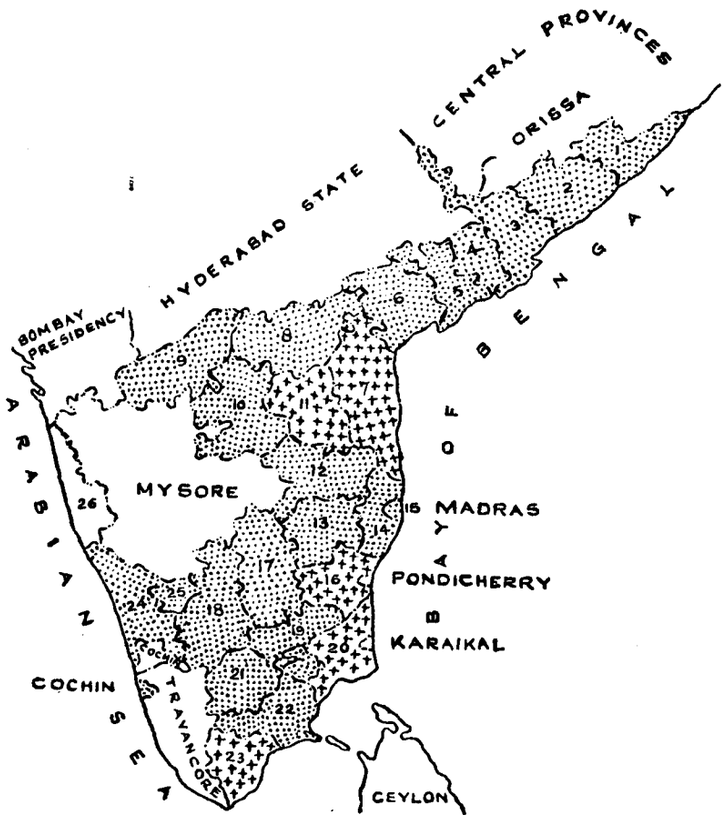
MADRAS,
21*st July* 1952.

K. S. VISWANATHAN,
Director of Public Health.

TRENDS IN BIRTH AND DEATH RATE.



MAP OF CHOLERA MORTALITY, 1951.

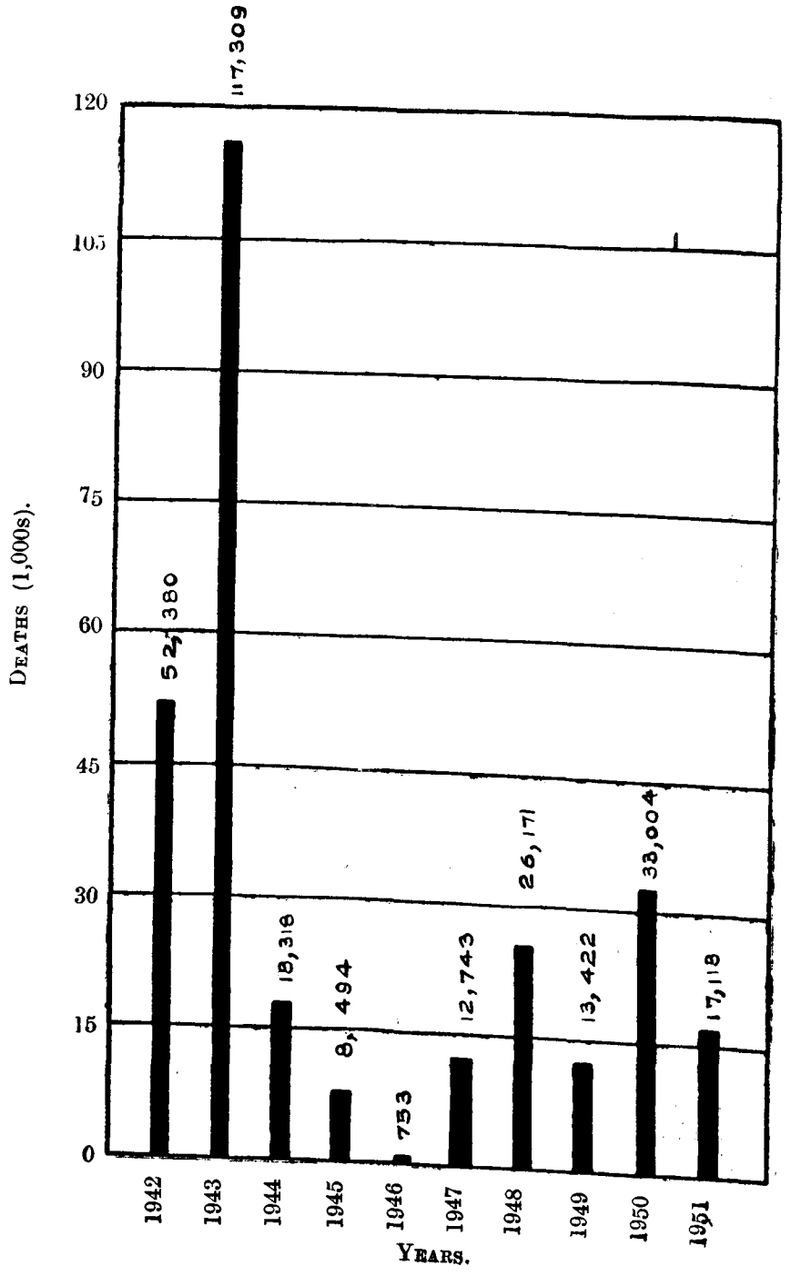


Death rates per 100,000 of population.

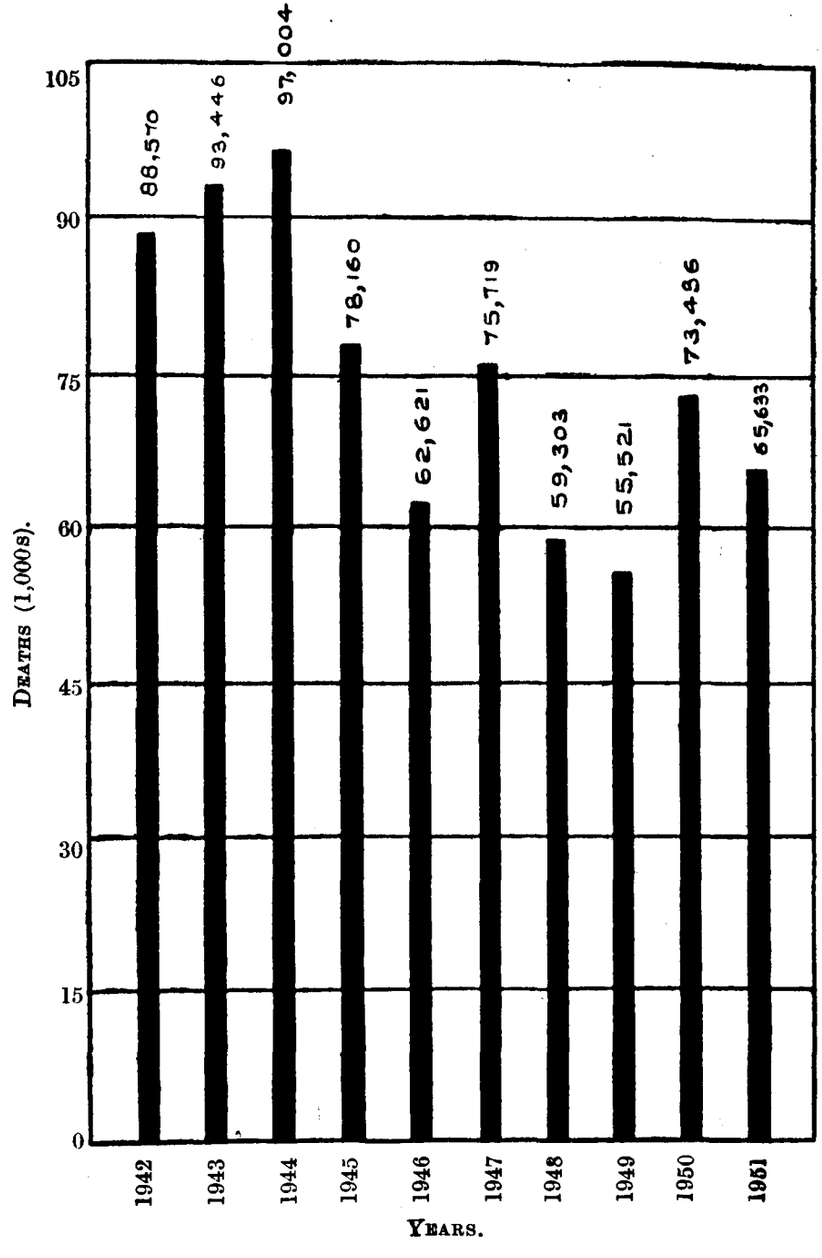
LEGEND
- Free areas.
- 1 and under 50.
- 50 and under 100.

1 Srikakulam.
2 Visakhapatnam.
3 East Godavari.
4 West Godavari.
5 Krishna.
6 Guntur.
7 Nellore.
8 Kurnool.
9 Bellary.
10 Anantapur.
11 Cuddapah.
12 Chittoor.
13 North Arcot.
14 Chingleput.
15 Madras.
16 South Arcot.
17 Salem.
18 Coimbatore.
19 Tiruchirappalli.
20 Tanjore.
21 Madurai.
22 Ramanathapuram.
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara.

DEATHS FROM CHOLERA, 1942-51.

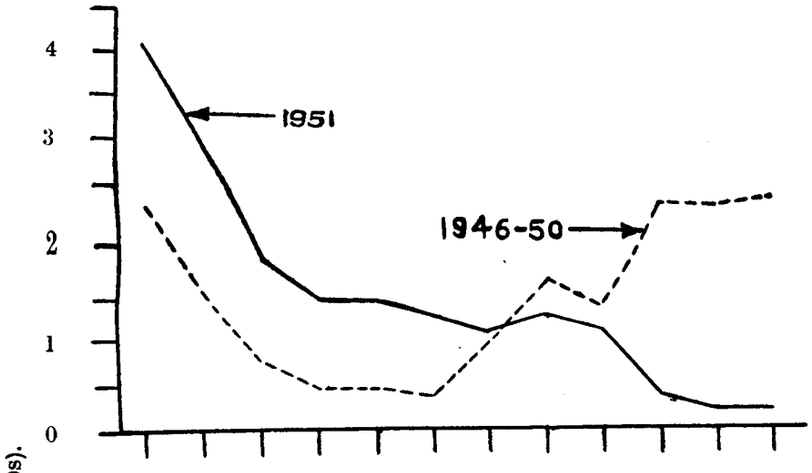


DEATHS FROM DYSENTERY AND DIARRHŒA, 1942-51.

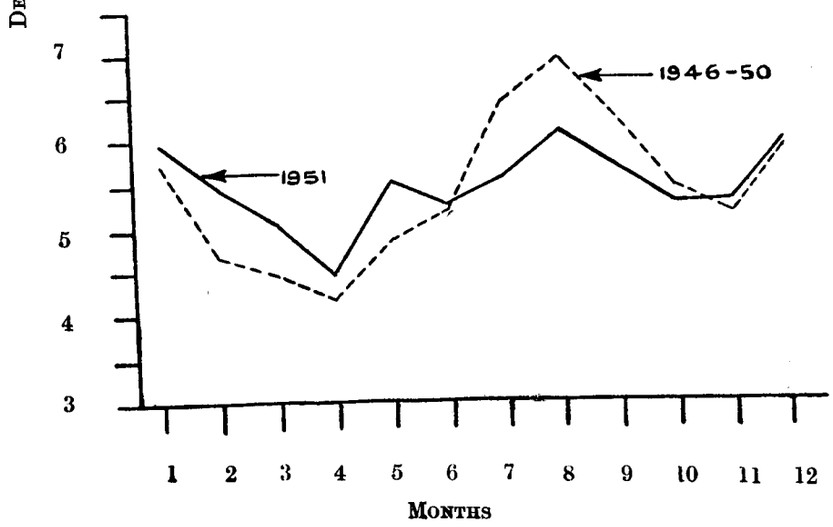


MEAN MONTHLY MORTALITY, CHOLERA, DYSENTERY AND DIARRHŒA.

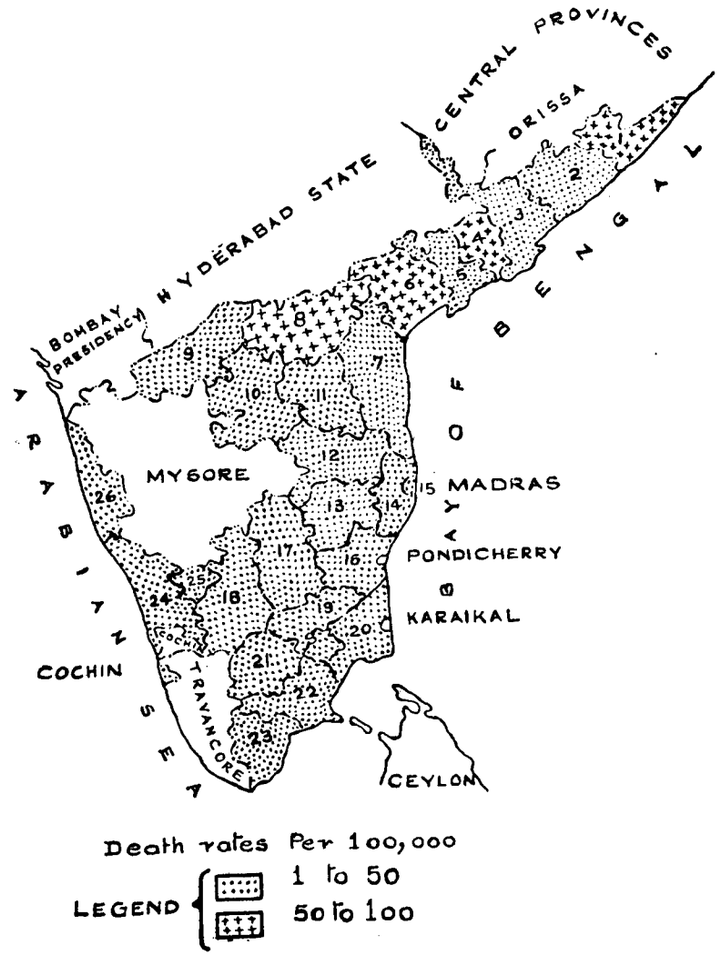
CHOLERA.



DYSENTERY AND DIARRHŒA.

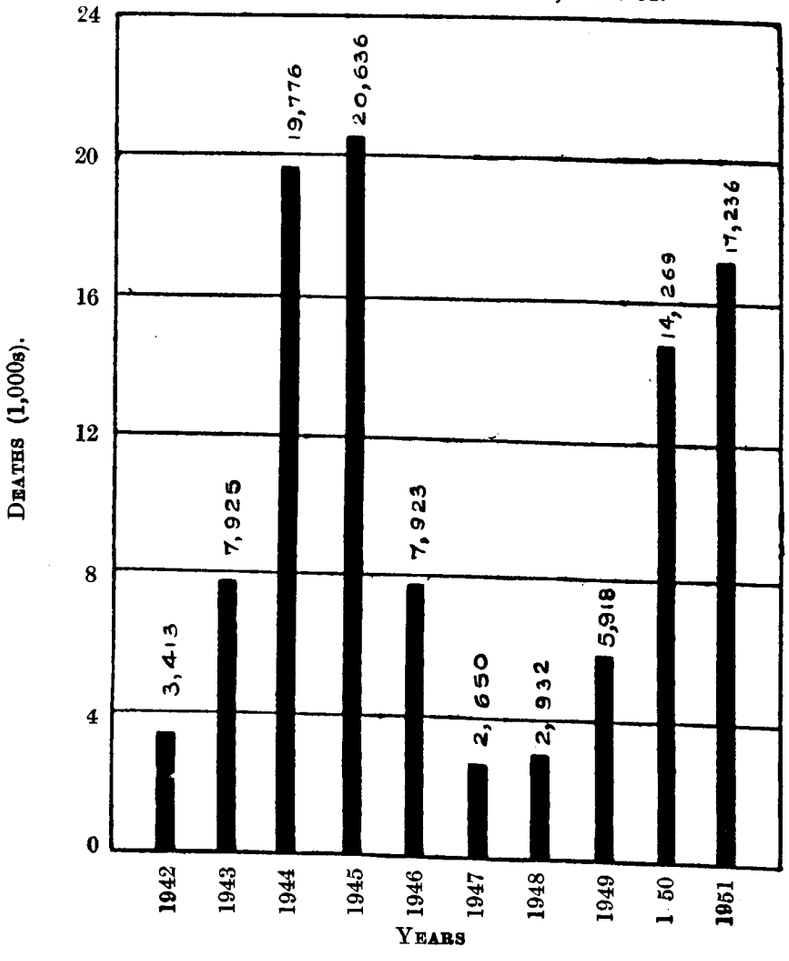


MAP OF SMALLPOX MORTALITY, 1951.

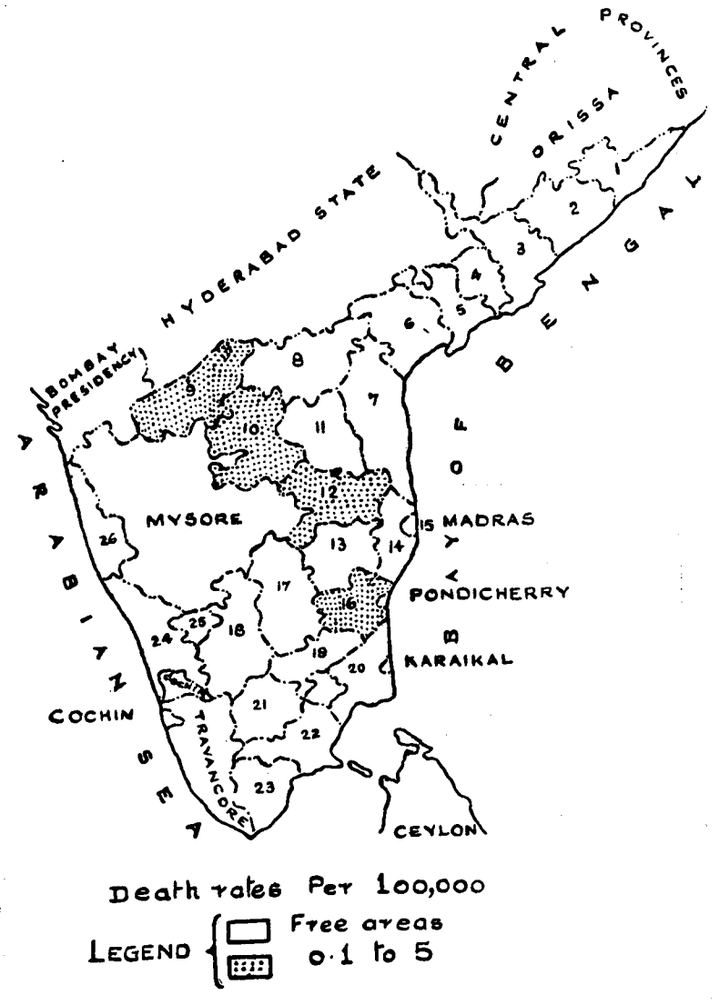


1 Srikakulam.
2 Visakhapatnam.
3 East Godavari.
4 West Godavari.
5 Krishna.
6 Guntur.
7 Nellore.
8 Kurnool.
9 Bellary.
10 Anantapur.
11 Cuddapah.
12 Chittoor.
13 North Arcot.
14 Chingleput.
15 Madras.
16 South Arcot.
17 Salem.
18 Coimbator.
19 Tiruchirappalli.
20 Tanjore.
21 Madurai.
22 Ramanathapuram.
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara.

DEATHS FROM SMALLPOX, 1942-51.

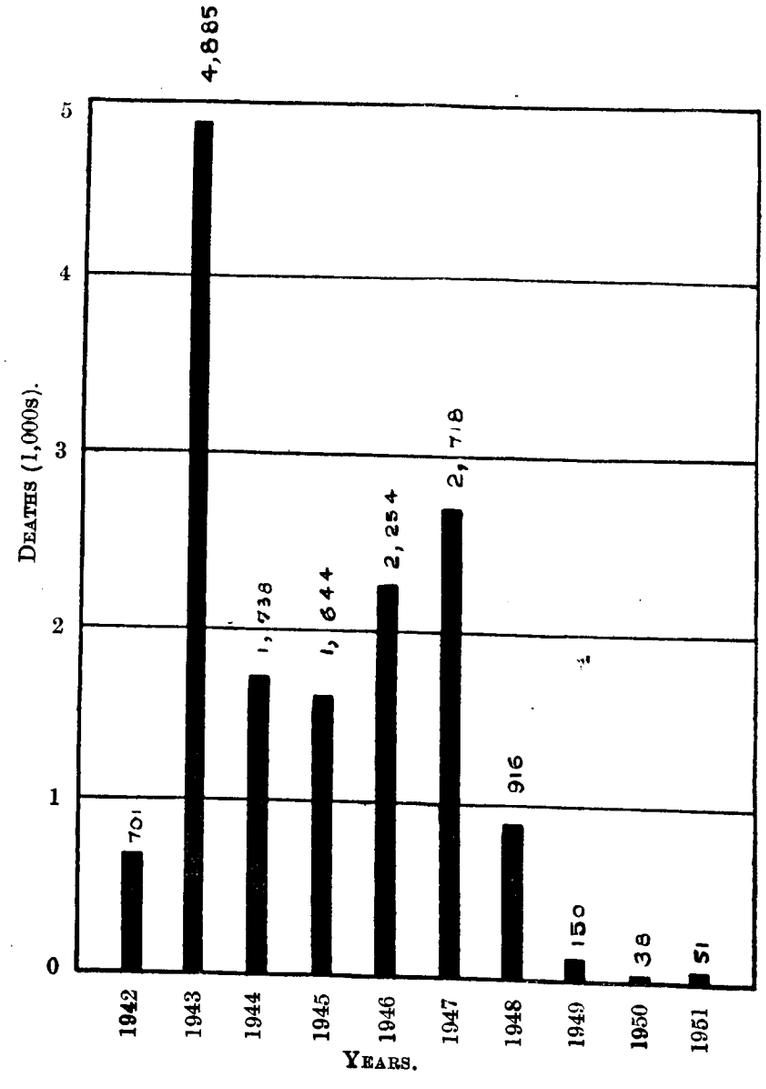


MAP OF PLAGUE MORTALITY, 1951.



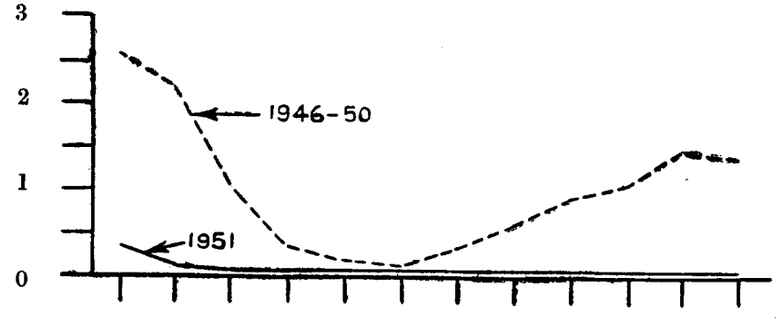
1 Srikakulam.
2 Visakhapatnam.
3 East Godavari.
4 West Godavari.
5 Krishna.
6 Guntur.
7 Nellore.
8 Kurnool.
9 Bellary.
10 Anantapur.
11 Cuddapah.
12 Chittoor.
13 North Arcot.
14 Chingleput.
15 Madras.
16 South Arcot.
17 Salem.
18 Coimbatore.
19 Tiruchirappalli.
20 Tanjore.
21 Madurai.
22 Ramanathapuram.
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara.

DEATHS FROM PLAGUE, 1942-51.

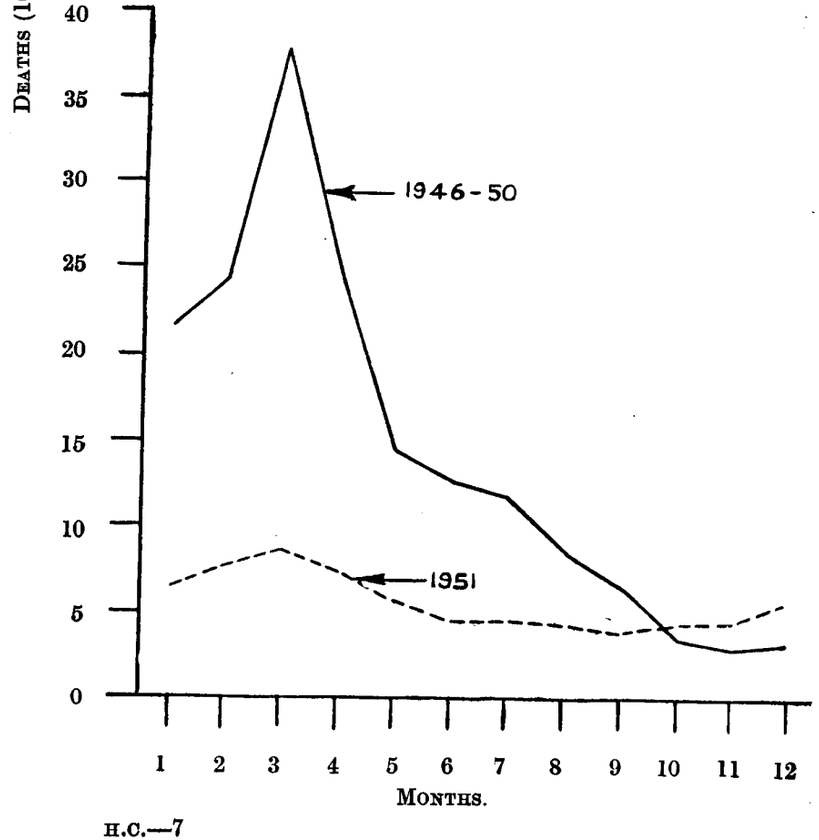


MEAN MONTHLY MORTALITY, PLAGUE AND SMALLPOX.

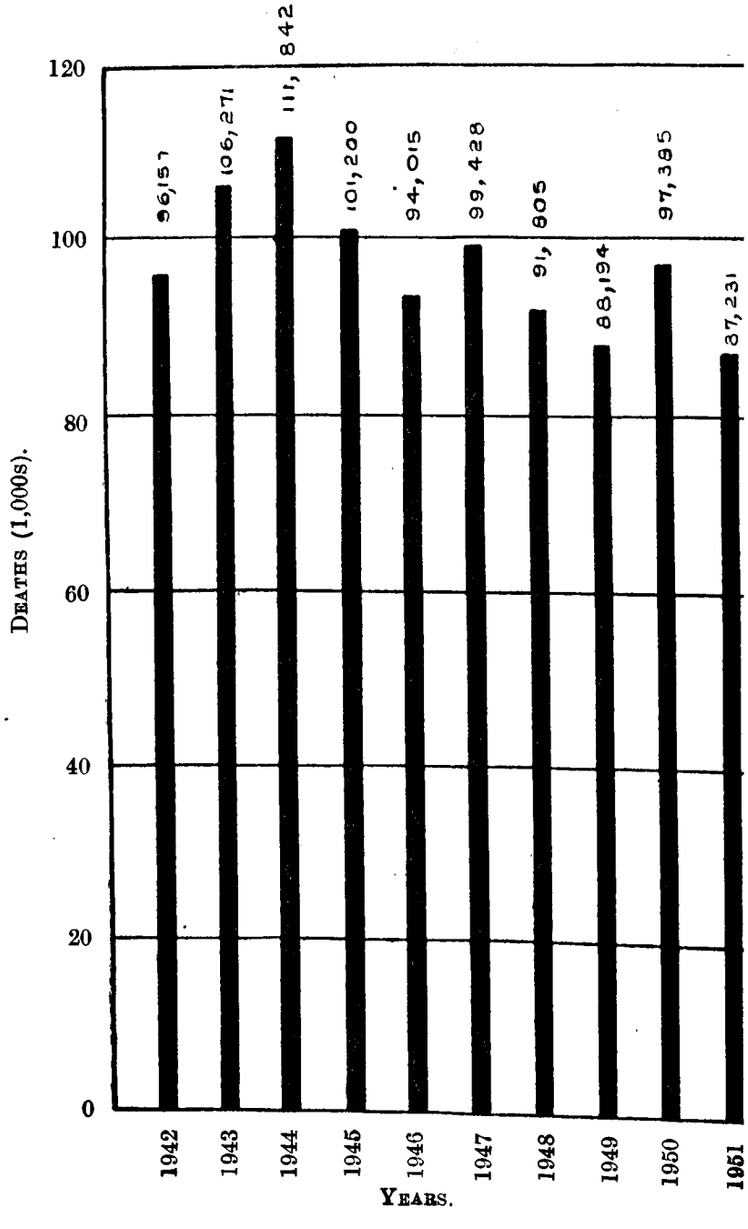
PLAGUE.



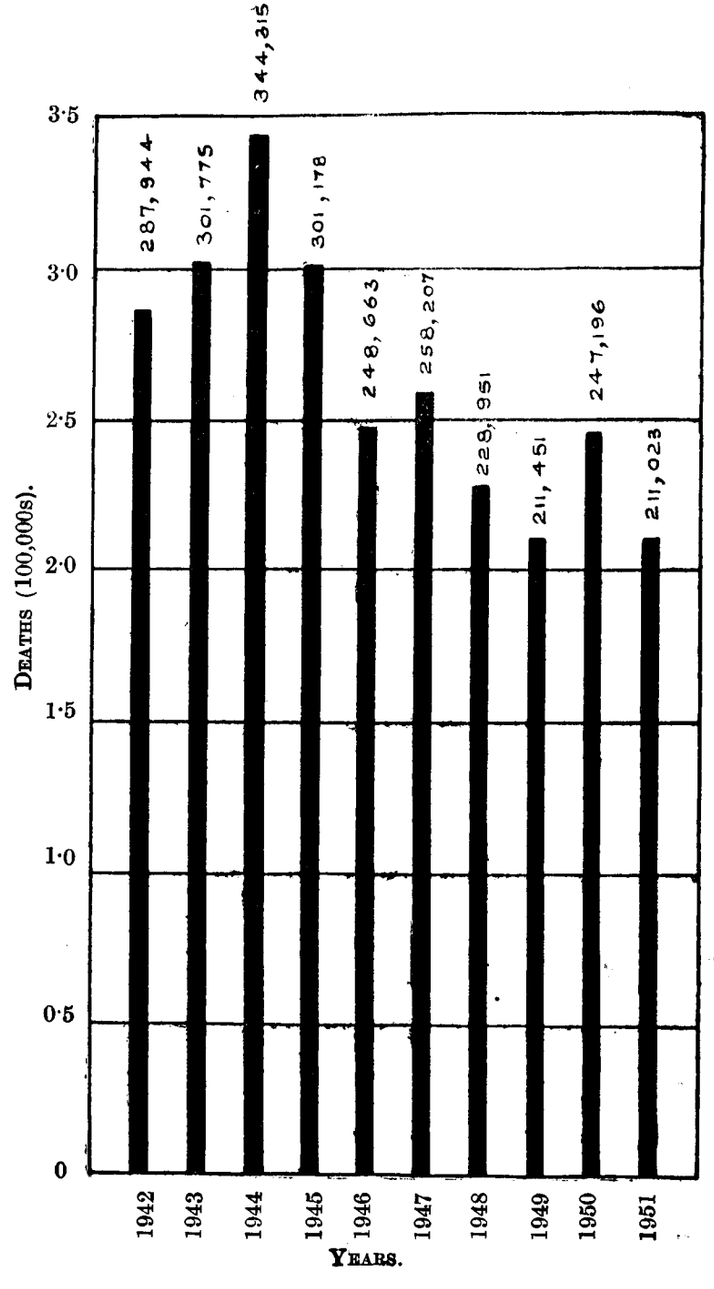
SMALLPOX.



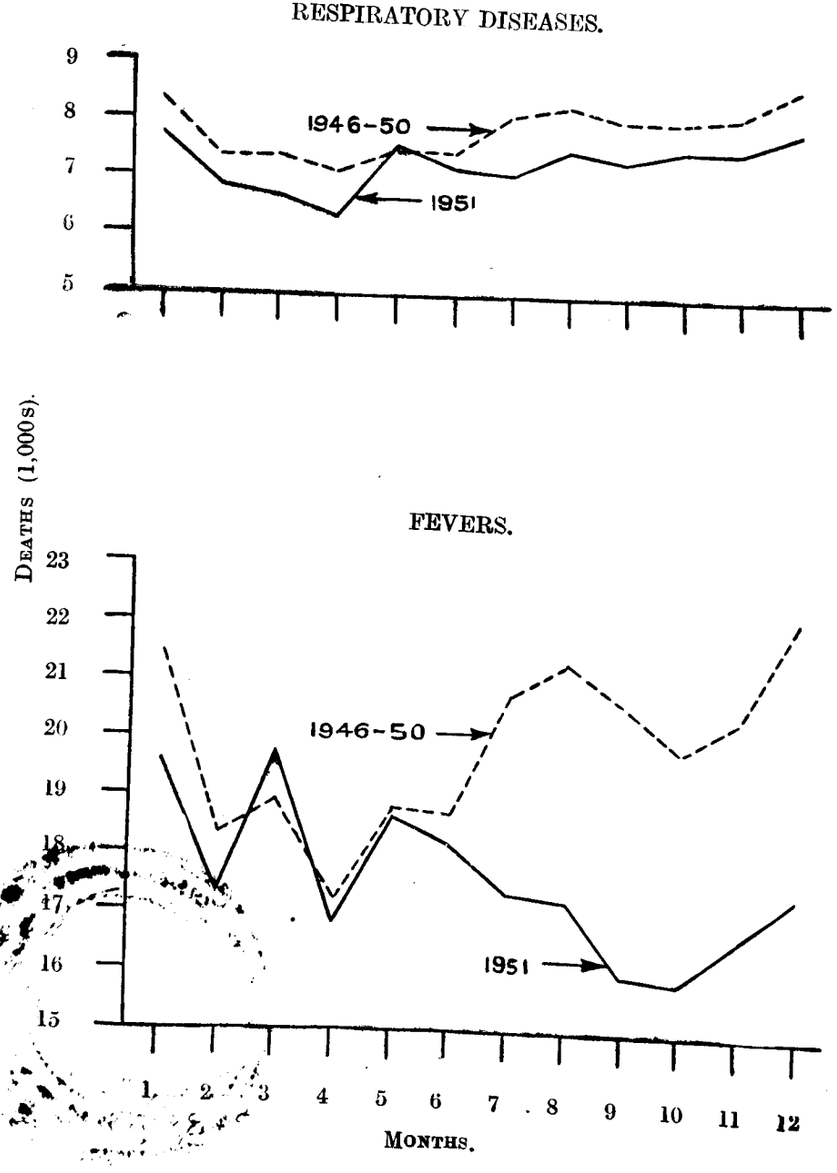
DEATHS FROM RESPIRATORY DISEASES, 1942–51.



DEATHS FROM FEVERS, 1942–51.

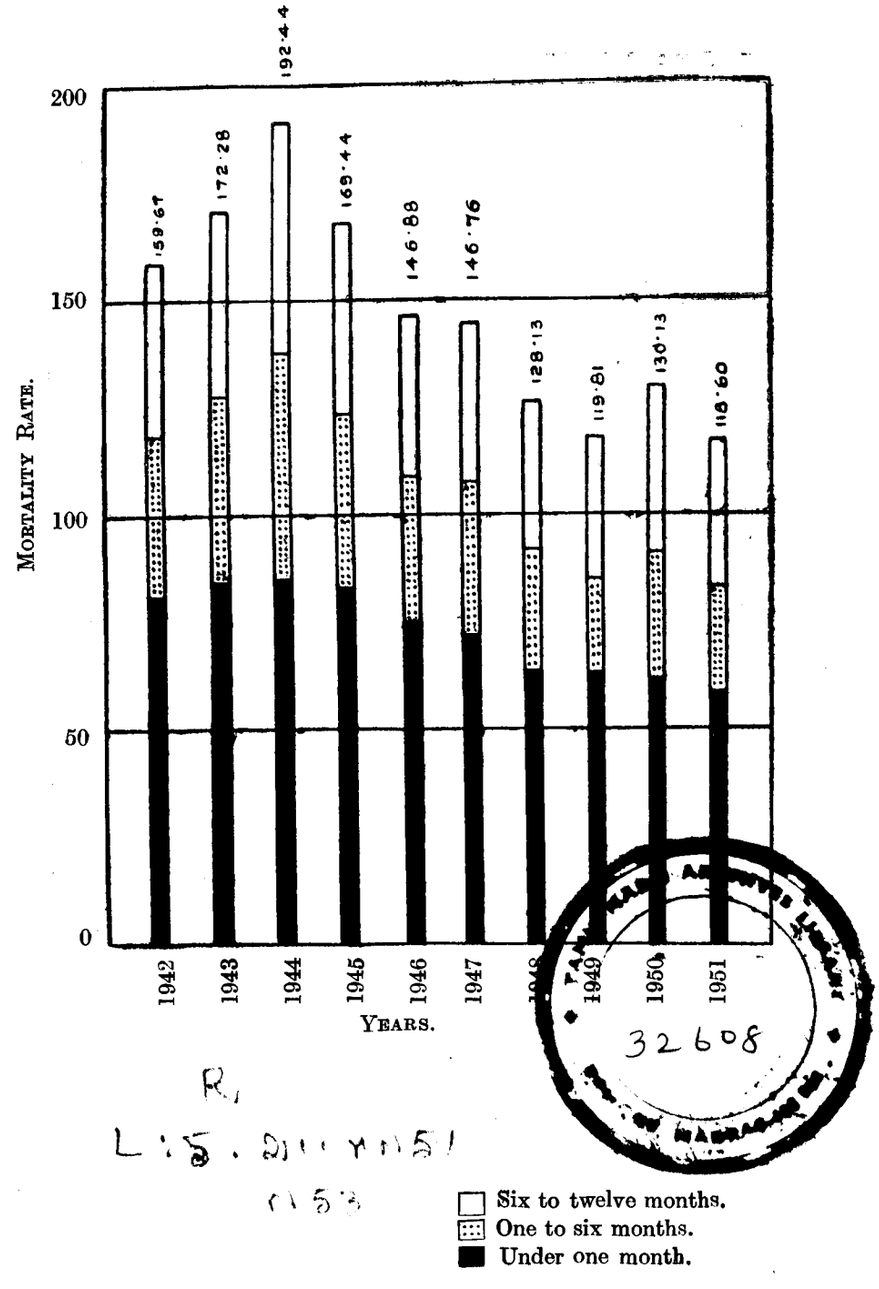


MEAN MONTHLY MORTALITY, RESPIRATORY DISEASES AND FEVERS.



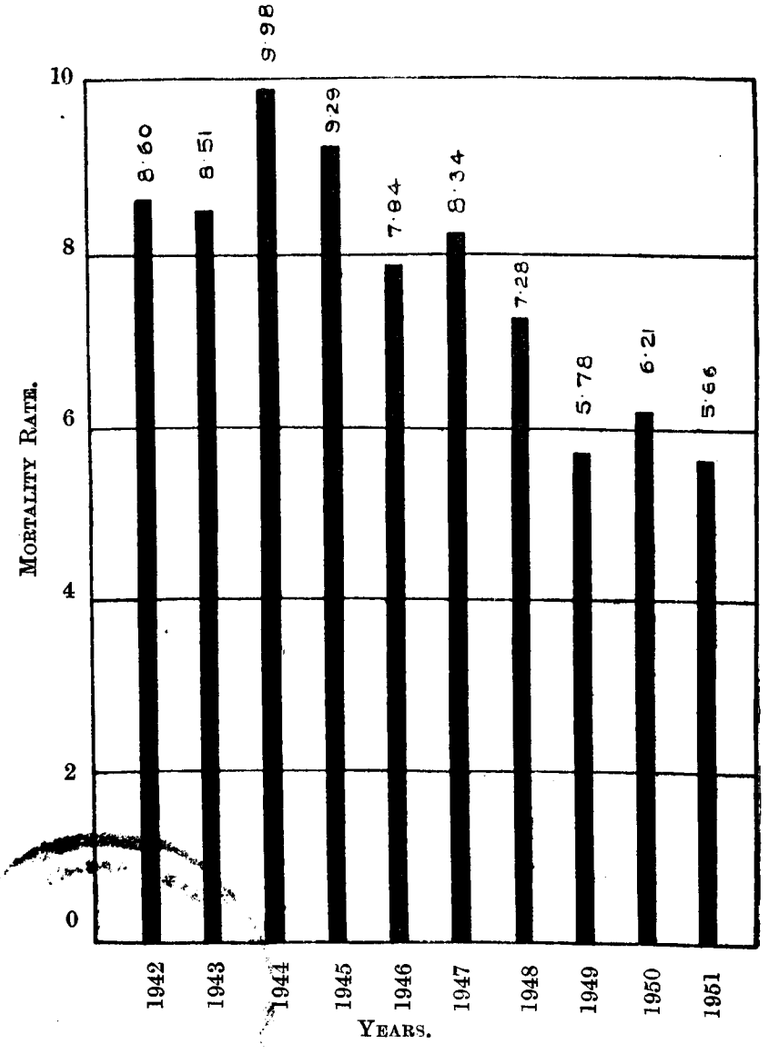
INFANT MORTALITY RATE, 1942–51.

PER 1,000 LIVE BIRTHS.



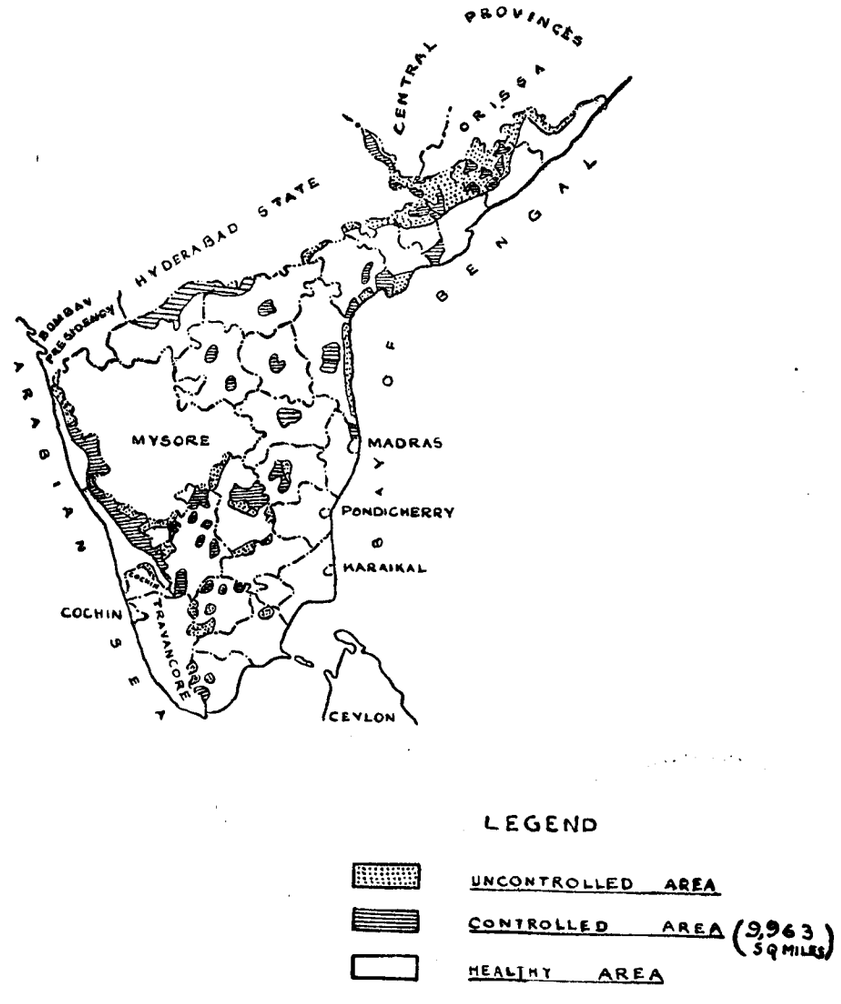
32608

MATERNAL MORTALITY RATE, 1942-51.
(PER 1,000 BIRTHS.)

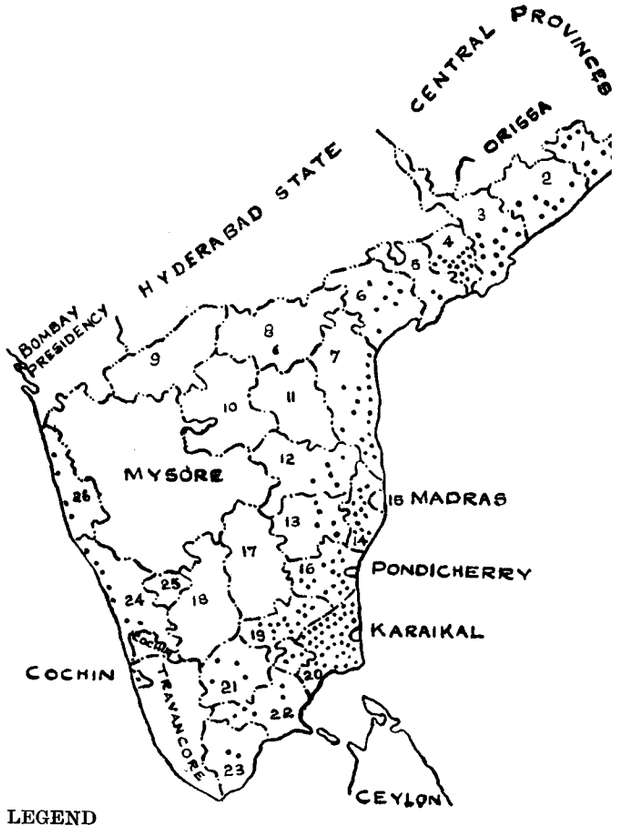


MAP SHOWING MALARIA CONTROLLED UNCONTROLLED AND HEALTHY AREAS IN MADRAS STATE

1951.



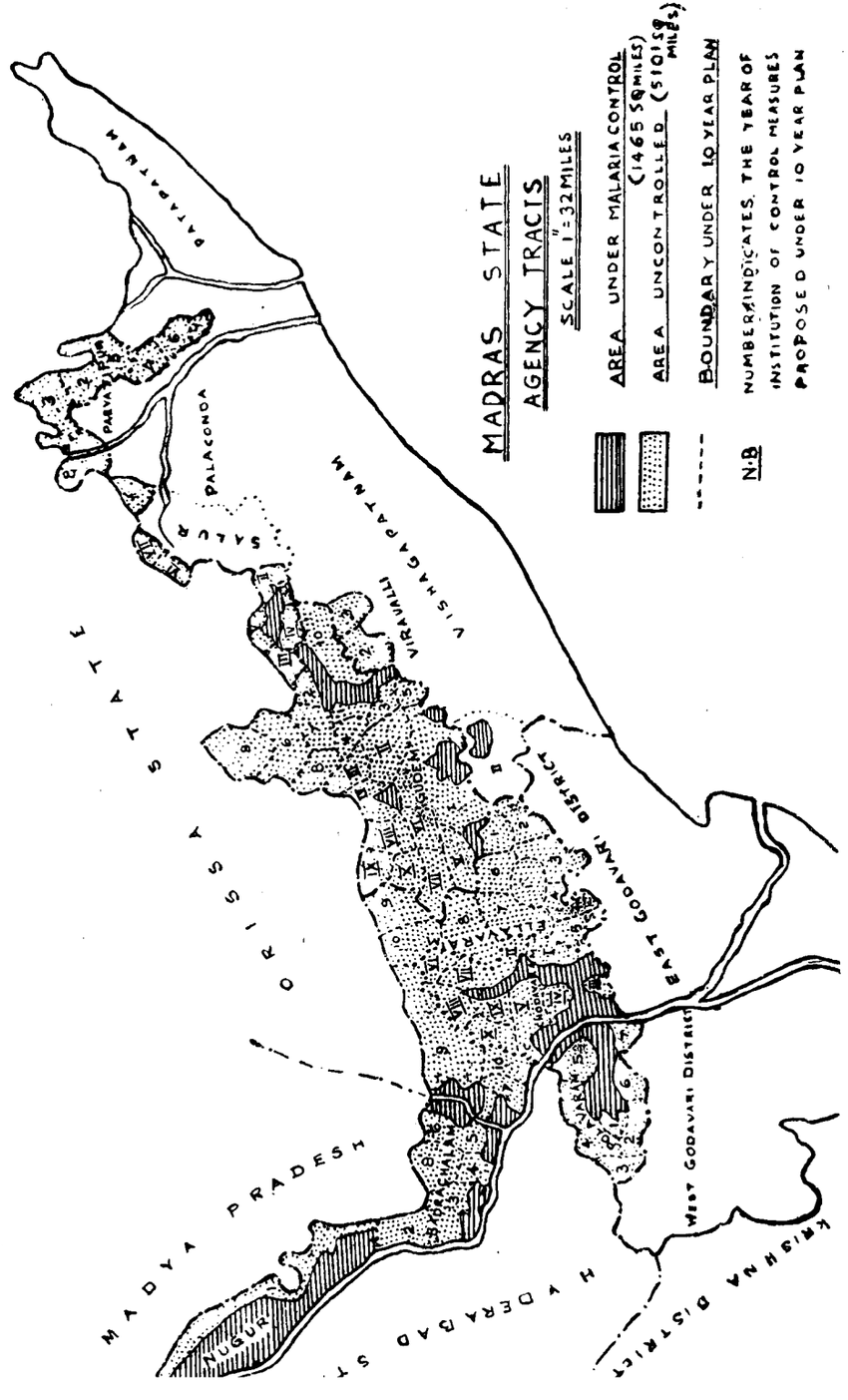
MAP OF FILARIA INVESTIGATIONS.



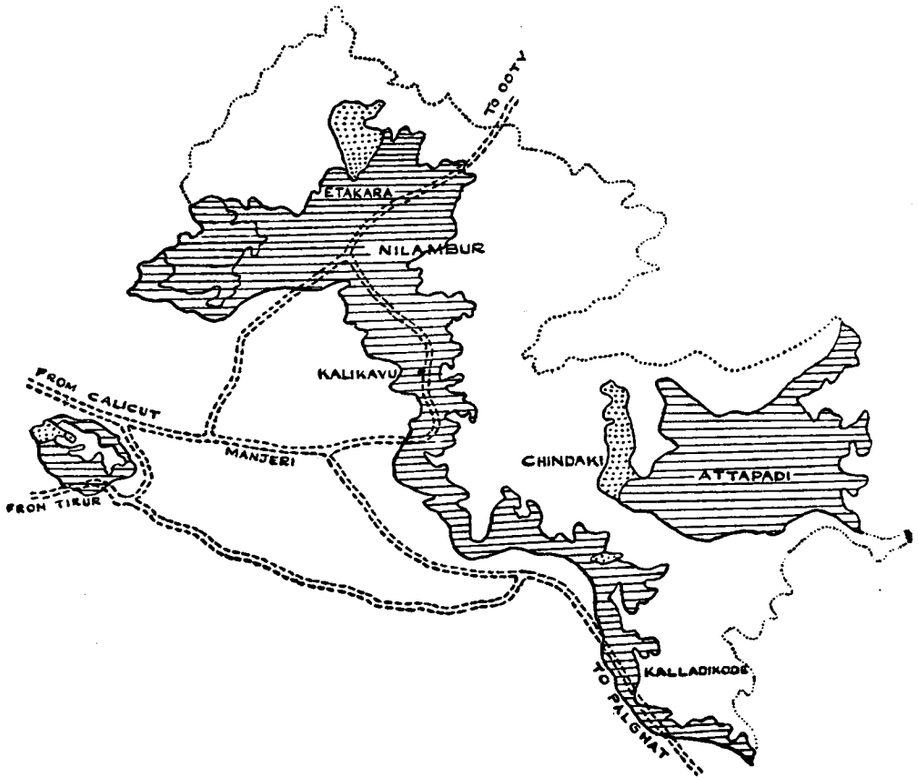
LEGEND

· FILARIAL ENDEMIC VILLAGES.

1 Srikakulam.
2 Visakhapatnam.
3 East Godavari.
4 West Godavari.
5 Krishna.
6 Guntur.
7 Nellore.
8 Kurnool.
9 Bellary.
10 Anantapur.
11 Cuddapah.
12 Chittoor.
13 North Arcot.
14 Chingleput.
15 Madras.
16 South Arcot.
17 Salem.
18 Coimbatore.
19 Tiruchirappalli
20 Tanjore.
21 Madurai.
22 Ramanathapu
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara



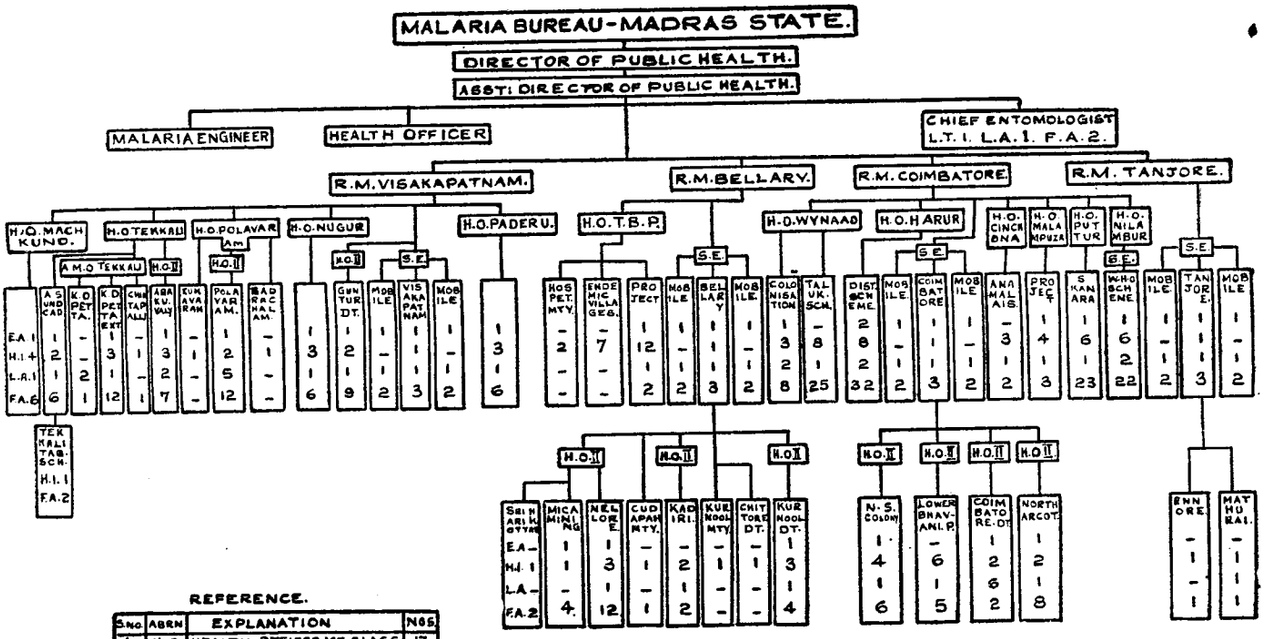
MAP OF THE W. H. O. PROJECT AREA, ERNAD IN 1951, SCALE 1" = 8 MILES.



LEGEND 1951.

CONTROLLED AREA.

ORGANIZATION CHART, 1951.



REFERENCE.

S.No.	ABRN	EXPLANATION	NOS.
1.	H.O.	HEALTH OFFICER 1ST. CLASS	17
2.	H.O. II	DO. 2ND. CLASS.	10
3.	S.E.	SENIOR ENTOMOLOGIST.	5
4.	A.M.O.	ASST. MALARIA OFFICER.	1
5.	E.A.	ENTOMOLOGICAL ASST.	33
6.	H.I.	HEALTH INSPECTOR.	118
7.	L.T.	LABORATORY TECHNICIAN.	1
8.	L.A.	LABORATORY ASST.	52
9.	F.A.	FIELD ASSISTANT.	263

ANNEXURE A.

Detailed return—Births and deaths—Selected municipalities, 1951.

(*Municipalities selected : Visakhapatnam, Vizianagaram, Kakinada, Rajahmundry, Eluru, Vijayavada, Masulipatnam, Guntur, Tenali, Bellary, Adoni, Kurnool, Nellore, Kancheepuram, Vellore, Cuddalore, Tanjore, Kumbakonam, Nagapattinam, Tiruchirappalli, Madurai, Dindigul, Rajapalayam, Tuticorin, Tirunelveli, Salem, Coimbatore, Erode, Tiruppur, Kozhikode, Palghat, Mangalore.*)

Age at the time of death.	Estimated mid-year population for 1951.	Infectious diseases.								Fevers.						Respiratory diseases.		
		Cholera.	Plague.	Smallpox.	Measles.	Chicken-pox.	Typhoid.	Diptheria.	Others.	Malaria.	Influenza.	Relapsing fever.	Kala Azar.	Rheumatic fever.	Other fevers.	Tuberculosis of lungs.	Pneumonia.	Others.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Under one year. — Under one month. — Under one week	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	1	22	54
Under one year. — Under one month. — Over one week	..	..	..	11	2	1	..	..	1	..	1	1	..	..	45	..	64	23
Under one year. — Over one month and not exceeding six months.	..	1	..	90	15	4	1	1	1	1	..	..	..	..	191	1	407	170
Under one year. — Over six months and not exceeding 12 months.	..	..	..	138	25	5	7	13	1	2	5	3	..	..	278	1	453	209
Total under one year ..	..	1	..	239	42	10	8	14	3	3	6	4	..	..	526	3	946	456
1 and under 5 years	..	65	..	416	80	17	71	100	3	39	6	2	1	1	1,072	18	2,188	720
5 and under 10 years	..	135	3	175	12	3	132	22	3	43	5	..	..	..	501	28	582	137
10 and under 15 years	..	73	2	53	3	..	131	7	..	34	2	..	1	1	245	89	327	49
15 and under 20 years	..	49	3	79	..	..	170	..	1	34	2	..	1	3	205	385	220	39
20 and under 30 years	..	175	3	176	1	7	205	3	..	61	5	..	1	5	401	1,389	454	156
30 and under 40 years	..	207	1	119	3	1	130	1	3	62	4	1	..	3	361	1,186	315	157
40 and under 50 years	..	141	..	85	..	3	65	1	1	52	4	1	..	6	332	854	329	228
50 and under 60 years	..	90	1	31	..	1	38	2	..	42	3	..	..	3	381	516	248	346
60 years and upwards	..	62	..	23	..	..	24	..	..	35	1	..	..	7	347	175	196	319
Total of all ages ..	3,446,400	998	13	1,396	141	42	974	150	14	405	38	8	4	29	4,371	4,598	5,805	2,607
Rate per 1,000 of estimated population ..	..	0·29	0·004	0·41	0·04	0·01	0·28	0·04	0·004	0·12	0·01	0·002	0·001	0·008	1·27	1·33	1·68	0·76

Age at the time of death.	Alimentary diseases.			Diseases of the liver.		Circulatory system.			Genito-urinary diseases.		Venereal diseases.		
	Dysentery.	Diarrhœa.	Others.	Cirrhosis.	Others.	Heart disease.	Arterio-sclerosis.	Others.	Bright's disease.	Others.	Syphilis.	Gonorrhœa.	Others.
	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
Under one year. — Under one month. — Under one week	1	43	28	6	3	3	..	8	1	..	26	..	..
Under one year. — Under one month. — Over one week	5	44	68	5	7	3	..	7	..	2	5	..	..
Under one year. — Over one month and not exceeding six months.	91	198	197	57	21	3	..	8	1	4	3	..	..
Under one year. — Over six months and not exceeding 12 months.	235	360	153	72	43	6	..	5	2	5	4	..	..
Total under one year ..	332	645	446	140	74	15	..	28	4	11	38	..	..
1 and under 5 years	1,380	891	227	619	396	30	..	65	76	46	8	..	..
5 and under 10 years	388	153	49	92	94	22	1	47	44	17	1	..	..
10 and under 15 years	77	34	37	26	30	54	..	37	18	12	..	..	..
15 and under 20 years	86	54	56	21	28	85	1	60	22	9	5	1	2
20 and under 30 years	144	134	218	51	48	296	1	248	90	33	10	3	2
30 and under 40 years	167	163	241	76	56	361	..	245	87	43	9	1	3
40 and under 50 years	142	152	236	97	59	454	5	286	159	64	3	3	7
50 and under 60 years	178	126	219	47	50	470	4	332	152	60	5	..	1
60 years and upwards	218	133	149	41	46	544	3	249	127	41	3	..	2
Total of all ages ..	3,062	2,485	1,878	1,210	881	2,331	15	1,597	779	336	82	8	17
Rate per 1,000 of estimated population ..	0·89	0·72	0·54	0·35	0·26	0·68	0·004	0·46	0·28	0·10	0·02	0·002	0·005

Detailed return—Births and deaths—Selected municipalities, 1951—cont.

(*Municipalities selected: Visakhapatnam, Vizianagaram, Kakinada, Rajahmundry, Eluru, Vijayavada, Masulipatnam, Guntur, Tenali, Bellary, Adoni, Kurnool, Nellore, Kancheepuram, Vellore, Cuddalore, Tanjore, Kumbakonam, Nagapattinam, Tiruchirappalli, Madurai, Dindigul, Rajapalayam, Tuticorin, Tirunelveli, Salem, Coimbatore, Erode, Tiruppur, Kozhikode, Palghat and Mangalore*) —cont.

Age at the time of death.	Diseases of the nervous system.					Accidents of pregnancy and child-birth.			Deficiency diseases.			Malignant diseases.					
	Convulsions.	Cerebral hæmorrhage.	Tetanus.	Epilepsy.	Others.	Puerperal sepsis.	Abortion.	Other accidents and diseases of pregnancy and parturition.	Beri-Beri.	Rickets.	Others.	Alimentary tract.	Genito-urinary.	Breast.	Other regions.	Ankylostomiasis.	Diabetes.
	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)
Under one year. — Under one month. — Under one week	534	3	8	..	1	..	..	..	..	..	2	..	1	..	..	..	1
Under one year. — Under one month. — Over one week	841	..	7	1	1	..	..	2	4	5	4	..	..	..	..	..	..
Under one year. — Over one month and not exceeding six months.	1,632	..	5	..	3	..	..	1	10	35	31	..	..	..	1	..	..
Under one year. — Over six months and not exceeding 12 months.	1,486	..	2	..	11	..	..	..	14	45	18	..	..	..	..	..	..
Total under one year	4,493	3	22	1	16	..	..	3	28	85	55	..	1	..	1	..	1
1 and under 5 years	2,812	2	49	7	46	..	..	..	43	243	90	4	1	..	12	8	..
5 and under 10 years	202	..	48	17	30	..	2	..	11	62	21	..	..	1	5	10	..
10 and under 15 years	24	..	41	14	26	5	14	9	11	5	6	..	2	..	3	3	1
15 and under 20 years	5	..	35	12	36	62	47	126	8	..	13	4	..	..	5	1	3
20 and under 30 years	6	9	86	20	72	190	31	370	45	1	45	7	2	1	16	12	6
30 and under 40 years	5	12	76	12	117	88	9	232	48	..	66	11	7	2	34	14	26
40 and under 50 years	4	18	37	12	161	15	5	45	54	..	82	17	9	4	43	29	31
50 and under 60 years	2	28	31	6	261	3	1	6	90	..	88	16	6	5	53	27	77
60 years and upwards	4	22	18	7	467	..	..	..	157	..	58	12	6	1	46	15	81
Total of all ages	7,557	94	443	108	1,232	363	109	791	495	396	524	71	34	14	218	119	226
Rate per 1,000 of estimated population	2·19	0·03	0·13	0·03	0·36	0·11	0·03	0·23	0·14	0·11	0·15	0·02	0·01	0·004	0·06	0·03	0·07

Age at the time of death.	Leprosy.	Alcoholism.	Congenital debility and malformation, premature birth.	Rabies.	Wounds and accidents.	Snake-bite, and scorpion-sting, etc.	Killed by wild beasts.	Suicides.	Poisons.	Old age.	All other causes.	Total deaths from all causes.	Rate per 1,000 of estimated mid-year population.
	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)
Under one year. — Under one month. — Under one week	..	..	3,493	..	3	..	..	..	..	..	211	4,465	*34·44
Under one year. — Under one month. — Over one week	..	..	1,144	..	1	..	..	..	..	..	161	2,466	*19·02
Under one year. — Over one month and not exceeding six months.	1	..	643	..	7	..	..	..	..	..	258	4,093	*31·57
Under one year. — Over six months and not exceeding 12 months.	..	..	220	..	12	4	..	..	1	..	240	4,078	*31·46
Total under one year	1	..	5,500	..	23	4	..	..	1	..	870	15,102	*116·49
1 and under 5 years	..	..	167	13	104	7	..	..	5	..	910	13,060	..
5 and under 10 years	1	..	14	22	100	12	..	..	..	..	281	3,478	..
10 and under 15 years	6	..	2	19	102	12	..	2	1	..	187	1,837	..
15 and under 20 years	4	..	2	3	103	7	..	19	9	..	219	2,344	..
20 and under 30 years	43	..	3	12	170	6	..	49	23	..	727	6,222	..
30 and under 40 years	61	..	7	19	126	6	..	17	4	..	722	5,727	..
40 and under 50 years	61	..	3	6	123	6	..	15	5	2	827	5,383	..
50 and under 60 years	46	..	8	4	88	4	..	9	4	104	1,054	5,367	..
60 years and upwards	22	..	17	6	99	..	..	17	..	10,089	1,034	14,923	..
Total of all ages	245	..	5,723	104	1,038	64	..	128	52	10,195	6,831	73,443	..
Rate per 1,000 of estimated population	0·07	..	1·66	0·03	0·30	0·02	..	0·04	0·02	2·96	1·98	21·31	..

* Rate per 1,000 live-births.

Remarks.

	Males.	Females.	Total.
† Births (Live).	66,483	63,160	129,643
† Deaths ..	37,727	35,668	73,395
Still-births.	2,899	2,479	5,378
Birth-rate.	19·29	18·33	37·62
Death-rate.	..	..	21·31

† Total births and deaths exclude still-births.

ANNEXURE B.

Statement showing live-births by months, sex and area in Madras State for 1951.

Serial number and months.	Rural.			Urban.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1 January ..	48,523	45,979	94,502	12,558	11,824	24,382	61,081	57,803	118,884
2 February ..	43,765	40,809	84,574	11,625	10,969	22,594	55,390	51,778	107,168
3 March ..	45,240	42,044	87,284	13,009	12,318	25,327	58,249	54,362	112,611
4 April	44,353	40,842	85,195	13,015	12,223	25,238	57,368	53,065	110,433
5 May	48,278	45,061	93,339	13,961	13,079	27,040	62,239	58,140	120,379
6 June	51,392	47,574	98,966	14,564	13,717	28,281	65,956	61,291	127,247
7 July	58,670	54,262	112,932	15,537	14,272	29,809	74,207	68,534	142,741
8 August ..	63,122	59,276	122,398	16,606	15,857	32,463	79,728	75,133	154,861
9 September ..	62,123	58,564	120,687	16,547	15,654	32,201	78,670	74,218	152,888
10 October ..	59,596	56,620	116,216	17,046	16,314	33,360	76,642	72,934	149,576
11 November ..	56,035	52,762	108,797	17,185	16,267	33,452	73,220	69,029	142,249
12 December ..	50,823	48,869	99,692	16,430	15,641	32,071	67,253	64,510	131,763
Total ..	631,920	592,662	1,224,582	178,083	168,135	346,218	810,003	760,797	1,570,800

ANNEXURE C.

Statement showing deaths by months, sex and area in Madras State for 1951.

Serial number and months.	Rural.			Urban.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1 January ..	36,365	34,405	70,770	9,261	8,509	17,770	45,626	42,914	88,540
2 February ..	32,412	30,920	63,332	8,617	8,071	16,688	41,029	38,991	80,020
3 March	32,416	30,461	62,877	9,324	8,704	18,028	41,738	39,155	80,893
4 April	28,589	27,407	55,996	8,168	7,807	15,975	36,757	35,224	71,981
5 May	31,118	29,839	60,957	9,218	8,727	17,945	40,336	38,566	78,902
6 June	30,121	29,669	59,790	8,464	7,976	16,440	38,585	37,645	76,230
7 July	30,829	29,893	60,722	8,277	8,088	16,365	39,106	37,981	77,087
8 August ..	31,593	30,502	62,095	8,462	8,248	16,710	40,055	38,750	78,815
9 September ..	29,411	29,070	58,481	7,932	7,705	15,637	37,343	36,785	74,118
10 October ..	28,223	27,570	55,793	8,371	7,866	16,237	36,594	35,436	72,030
11 November ..	27,341	26,618	53,959	8,766	8,290	17,056	36,107	34,908	71,015
12 December ..	29,487	28,323	57,810	9,554	8,986	18,540	39,041	37,309	76,350
Total ..	367,905	354,677	722,582	104,412	98,987	203,399	472,317	453,664	925,981

ANNEXURE D.

Number of cases of dysentery treated in hospitals in 1951.

District.	Amœbic dysentery.	Bacillary dysentery.	Others.	Total.
Srikakulam .. .. } Visakhapatnam	24,847	18,084	22,276	65,207
East Godavari	2,402	13,901	5,882	22,185
West Godavari	7,572	4,054	1,721	13,347
Krishna	6,105	4,942	2,476	13,523
Guntur	18,138	3,515	73	21,726
Bellary	5,467	5,705	4,271	15,443
Anantapur	6,617	6,567	5,168	18,352
Kurnool	11,164	1,827	3,371	16,362
Cuddapah	8,843	970	12,618	22,431
Madras	44,945	32,887	12,861	90,693
Nellore	5,455	5,713	5,665	16,833
Chingleput	19,507	1,039	..	20,546
Chittoor	7,374	5,958	2,921	16,253
North Arcot	15,785	8,204	15,328	39,317
South Arcot	3,843	12,611	19,627	36,081
Tanjore	24,885	18,451	7,934	51,270
Tiruchirappalli	15,958	9,294	1,402	26,654
Madurai	11,195	11,961	6,007	29,163
Ramanathapuram	14,147	7,093	6,069	27,309
Tirunelveli	16,860	10,661	4,277	31,798
Salem	6,176	6,397	1,992	14,565
Coimbatore	21,050	11,450	13,227	45,727
The Nilgiris	3,457	3,086	3,663	10,206
Malabar	19,289	6,960	5,520	31,769
South Kanara	4,630	3,921	1,614	10,165
Total ..	325,711	215,251	165,963	706,925

ANNEXURE E.

Number of cases of enteric fever treated in hospitals in 1950–51.

Districts.	Number of cases.		Number of deaths.	
	1950.	1951.	1950.	1951.
(1)	(2)	(3)	(4)	(5)
Srikakulam .. .. } Visakhapatnam	2,261	3,265	43	53
East Godavari	1,465	888	26	22
West Godavari	1,158	670	7	21
Krishna	1,020	1,020	17	12
Guntur	2,457	1,686	59	30
Bellary	520	471	21	17
Anantapur	1,081	1,360	6	20
Kurnool	1,632	599	12	12
Cuddapah	911	870	14	3
Madras	6,397	9,100	213	427
Nellore	1,058	873	39	28
Chingleput	12,021	690	31	36
Chittoor	1,047	1,461	38	33
North Arcot	4,859	1,982	72	61
South Arcot	3,222	956	64	29
Tanjore	1,042	1,841	46	63
Tiruchirappalli	1,611	1,490	67	37
Madurai	1,950	1,629	171	38
Ramanathapuram	2,017	1,395	80	14
Tirunelveli	1,743	2,022	47	39
Salem	4,598	1,509	..	59
Coimbatore	3,129	6,022	43	91
Nilgiris, The	249	275	20	37
Malabar	6,672	5,586	283	190
South Kanara	1,574	1,136	80	55
Total ..	65,694	48,796	1,499	1,427

ANNEXURE F.

Number of cases of tuberculosis treated in hospitals, 1950–51.

Serial number and districts.	1950. Pulmonary tuberculosis.	1950. Other forms of tuberculosis.	1950. Total.	1951. Pulmonary tuberculosis.	1951. Other forms of tuberculosis.	1951. Total.
1 Srikakulam .. .. } 2 Visakhapatnam .. }	9,048	4,251	13,299	4,448	1,711	6,159
3 East Godavari ..	1,793	1,361	3,154	1,935	2,486	4,421
4 West Godavari ..	2,556	2,229	4,785	863	1,212	2,075
5 Krishna	2,874	3,265	6,139	3,288	1,386	4,674
6 Guntur	3,818	1,676	5,494	4,463	1,513	5,976
7 Bellary	1,738	2,668	4,406	1,570	1,029	2,599
8 Anantapur	1,662	1,236	2,898	5,153	5,026	1,179
9 Kurnool	1,548	784	2,332	3,272	542	3,814
10 Cuddapah	1,471	1,024	2,495	1,558	407	1,965
11 Madras	14,694	11,067	25,761	17,000	8,146	25,146
12 Nellore	3,717	1,454	5,171	2,190	534	2,724
13 Chingleput	981	667	1,648	922	249	1,171
14 Chittoor	1,702	798	2,500	589	462	1,051
15 North Arcot ..	2,117	1,373	3,490	4,731	5,172	9,903
16 South Arcot	1,317	1,224	2,541	1,795	1,401	3,196
17 Tanjore	4,020	3,866	7,886	4,657	2,580	7,237
18 Tiruchirappalli ..	4,016	8,036	12,052	2,192	1,117	3,309
19 Madurai	7,599	9,478	17,077	8,786	6,554	15,340
20 Ramanathapuram ..	1,856	5,243	7,099	1,308	3,783	5,091
21 Tirunelveli	2,588	1,667	4,255	3,367	1,383	4,750
22 Salem	3,404	1,257	4,661	11,037	6,217	17,254
23 Coimbatore	5,763	4,139	9,902	5,712	6,172	11,884
24 Nilgiris, The ..	193	169	362	166	117	283
25 Malabar	12,043	3,393	15,436	13,364	5,216	18,580
26 South Kanara ..	2,190	463	2,653	2,132	321	2,453
Total ..	94,708	72,788	167,496	106,498	64,736	171,234

ANNEXURE G.

The number of leprosy cases treated in hospitals, 1949—51.

Serial number and districts.	The number of leprosy cases treated in hospital. 1951.	1950.	1949.
1 Srikakulam .. .. } 2 Visakhapatnam .. .. }	5,686	5,103	3,518
3 East Godavari	1,706	2,933	3,305
4 West Godavari	1,227	1,101	1,885
5 Krishna	4,237	658	358
6 Guntur	990	883	824
7 Bellary	133	144	58
8 Anantapur	78	127	224
9 Kurnool	399	213	224
10 Cuddapah	369	241	606
11 Madras	8,673	6,507	5,632
12 Nellore	1,259	1,159	713
13 Chingleput	1,562	1,448	5,307
14 Chittoor	1,358	1,404	1,720
15 North Arcot	6,950	27,339	3,269
16 South Arcot	10,757	9,262	10,591
17 Tanjore	6,961	16,767	6,101
18 Tiruchirappalli	1,478	1,493	1,391
19 Madurai	8,076	8,418	7,820
20 Ramanathapuram	3,423	2,016	1,141
21 Tirunelveli	1,366	1,553	1,126
22 Salem	8,305	9,139	5,868
23 Coimbatore	6,784	1,150	966
24 Nilgiris, The	30	112	642
25 Malabar	2,976	2,144	2,541
26 South Kanara	479	245	642
Total ..	85,262	101,359	66,370

ANNEXURE H.

Number of cases of venereal disease treated in hospitals in 1951.

Serial number and district.	Syphilis.	Gonorrhœa.	Other venereal diseases.	Total.
1 Srikakulam .. .. .. } 2 Visakhapatnam .. .. }	14,763	15,898	11,560	42,221
3 East Godavari	8,526	7,400	3,847	19,773
4 West Godavari	5,232	6,462	5,521	17,215
5 Krishna	8,488	5,140	5,146	18,774
6 Guntur	10,872	13,980	5,762	30,614
7 Bellary	3,114	2,648	952	6,714
8 Anantapur	3,821	3,627	1,271	8,719
9 Kurnool	2,114	2,709	975	5,798
10 Cuddapah	2,945	2,799	1,595	7,339
11 Madras	11,165	10,643	3,068	24,876
12 Nellore	3,828	8,677	5,681	18,186
13 Chingleput	2,114	2,655	1,828	6,597
14 Chittoor	2,896	3,433	3,296	9,625
15 North Arcot	3,172	6,747	5,375	15,294
16 South Arcot	4,228	8,277	6,678	19,183
17 Tanjore	7,899	10,381	11,123	29,403
18 Tiruchirappalli	7,246	7,461	8,084	22,791
19 Madurai	20,210	13,362	12,201	45,773
20 Ramanathapuram	8,855	15,965	9,745	34,565
21 Tirunelveli	4,061	6,321	4,065	14,447
22 Salem	3,904	7,773	1,541	13,218
23 Coimbatore	6,552	9,634	7,124	23,310
24 Nilgiris, The	518	891	591	2,000
25 Malabar	4,740	7,057	4,416	16,213
26 South Kanara	999	966	790	2,855
Total ..	152,382	181,006	122,235	455,623

ANNEXURE I.

Maternal and Child Health Facilities, 1951.

	Districts (exclusive of municipalities).	Municipalities.	Total.
1 Area	94,424	389	94,813
2 Finance—			
(a) Income of local bodies	Rs. 5,37,63,932	Rs. 8,74,09,885	Rs. 14,11,73,817
(b) Amount spent on maternal and child health.	Rs. 5,28,190	Rs. 10,25,617	Rs. 15,53,807
(c) Proportion	..	..	..
3 Institutions—			
(a) Centres—			
Local bodies	304	207	511
Private and aided	19	26	45
(b) Hospitals aided—			
Beds—Maternity	1,366	2,501	3,867
4 Personnel—			
(a) Medical women—			
Maternal and child health schemes	25	90	115
Hospitals	75	141	216
Private practice	51	132	183
(b) Health visitors—			
Local bodies	35	98	133
Private	1	1	2
(c) Midwives—			
Domiciliary			
Local fund	50	25	75
Paid from	342	717	1,059
Private	50	25	75
Private practice	109	378	437
Institutional	1,025	552	1,577
5 Adequacy—			
Total births—			
Live	1,308,628	262,172	1,570,800
Still	7,156	1,020	1,736
	1,315,784	272,373	1,588,157
Population per 1,000 births—			
Medical women	0·119	1·33	0·32
Midwives	1·16	6·14	2·01
Maternity beds	10·051	10·68	2·5
Births receiving skilled attention	91,144	160,614	251,75
Proportion to total	6·92	58·97	15·8
Infant mortality rate	118·59	126·4	113·6
Maternal mortality rate	5·4	7·06	5·6

ANNEXURE J.

Maternal and Child Health Services Outturn, 1951.

	Districts (exclusive of municipalities).	Municipalities.	Total.
I. Brought under care—			
Total number of mothers	88,852	208,993	297,845
Pre-natal	73,552	178,841	250,597
Labour	40,498	99,472	145,970
Infants	62,504	99,083	161,587
Pre-school	11,966	48,799	60,765
II. Home visits—			
(a) Women Medical Officers	25,231	79,062	104,293
(b) Health visitors—			
Pre-natal	26,636	84,261	110,897
Post-natal	36,311	47,789	84,100
Infants	36,319	201,721	238,040
(c) Maternity assistants (midwives)—			
Pre-natal	289,008	614,232	903,240
Post-natal	285,071	690,425	975,496
Infants	100,953	184,378	285,331
III. Clinics—			
Number held	3,035	17,735	20,770
Pre-natal	31,481	326,629	358,110
Infants	18,577	429,694	448,271
Pre-school	17,654	153,585	171,249
Nursing mothers	25,270	332,833	358,113
IV. Other activities—			
Mothers' classes—			
Number held	4,942	5,603	10,545
Attendance	66,949	133,541	200,490
V. Lantern lectures—			
Number	388	667	1,055
Attendance	16,794	43,613	60,407
VI. Schools visited for health education—			
Number of schools visited	910	1,802	2,712
Number of health talks given	1,647	2,053	3,700
Attendance	55,640	152,029	180,669

ANNEXURE K.

Maternal and Child Health Staff, 1951.

District.	Centres maintained by: Government. R	Centres maintained by: Government. U	Centres maintained by: Local bodies. R	Centres maintained by: Local bodies. U	Women Medical Officers: Government. R	Women Medical Officers: Government. U	Women Medical Officers: Local bodies. R	Women Medical Officers: Local bodies. U	Health visitors: Government. R	Health visitors: Government. U	Health visitors: Local bodies. R	Health visitors: Local bodies. U	Midwives: Government. R	Midwives: Government. U	Midwives: Local bodies. R	Midwives: Local bodies. U
Visakhapatnam ..	..	..	5	6	..	..	1	2	..	..	..	4	..	..	5	22
East Godavari ..	..	..	6	10	..	..	1	4	..	..	1	2	..	..	6	20
West Godavari ..	1	..	21	4	..	..	2	2	..	..	2	1	2	..	23	12
Krishna	..	..	9	8	..	..	1	3	..	..	2	5	..	..	9	19
Guntur		..	9	5	..	..	1	2	..	..	..	2	6	..	9	17
Nellore	..	..	4	1	..	..	..	..	..	..	..	1	..	..	3	5
Kurnool	6	..	2	2	..	..	..	1	..	..	2	1	6	..	4	7
Bellary	..	..	3	5	..	..	1	2	.	..	..	4	..	..	4	11
Anantapur	..	..	8	4	..	..	1	2	..	..	2	2	..	..	8	11
Cuddapah	..	..	5	2	..	..	..	1	..	..	1	1	..	..	5	5
Chittoor	..	..	20	3	..	..	1	2	..	..	1	2	..	..	20	9
North Arcot	4	..	15	6	..	..	1	1	..	..	1	2	4	..	15	21
Chingleput	7	..	21	6	1	..	2	1	4	..	..	1	10	..	21	12
Madras	..	..	..	31	..	1	..	28	..	..	..	32	..	..	..	230
South Arcot	..	..	10	9	..	..	1	3	..	..	1	..	..	..	10	16
Salem	..	..	22	6	..	..	2	2	..	..	..	4	..	..	24	22
Coimbatore	6	..	13	15	..	..	2	6	..	..	2	9	6	..	13	50
Tiruchirappalli ..	..	..	12	8	..	..	1	3	..	..	..	5	..	..	14	28
Tanjore	..	..	23	8	..	..	2	3	.	.	4	2	..	..	15	24
Madural	..	..	7	12	..	..	1	9	..	..	3	7	..	..	15	64
Ramanathapuram ..	..	..	15	14	..	..	1	4	..	..	2	3	..	..	16	31
Tirunelveli	..	..	13	11	..	..	1	3	..	..	1	2	..	..	13	28
Malabar	6	..	7	13	..	..	1	2	4	..	..	2	6	..	14	28
The Nilgiris	..	..	6	4	..	..	..	2	..	..	..	2	..	..	6	10
South Kanara ..	..	..	20	5	..	..	..	1	..	..	2	2	..	..	20	15
Total ..	36	..	277	198	1	1	24	89	8	..	27	98	40	..	302	717

R = Rural. U = Urban.

ANNEXURE L.

Statement showing particulars in regard to health administration of minor ports of Madras State for the year 1951.

Serial number and names of ports. (1)	Incoming vessels. Number of vessels arriving from foreign ports. Cargo. (2)	Number of vessels arriving from foreign ports. Passenger. (3)	Number of vessels arriving from coastal ports. Cargo. (4)	Number of vessels arriving from coastal ports. Passenger. (5)	From foreign ports. Cargo Vessels. (6)	From foreign ports. Number of passengers inspected. (7)	From foreign ports. Number of crew inspected. (8)	From coastal ports. Number of vessels inspected. Passenger Vessels. (9)	From coastal ports. Number of vessels inspected. Number of passengers inspected. (10)	From coastal ports. Number of vessels inspected. Number of crew inspected. (11)	From coastal ports. Number of vessels inspected. Cargo Vessels. (12)	From coastal ports. Number of passengers inspected. (13)	From coastal ports. Number of crew inspected. (14)	From coastal ports. Passenger Vessels. (15)	From coastal ports. Number of passengers inspected. (16)	From coastal ports. Number of crew inspected. (17)	Infectious diseases on such vessels. Cases. (18)	Infectious diseases on such vessels. Deaths. (19)
1 Pamban	:	:	189	:	:	:	:	:	:	:	181	:	147	:	:	:	:	:
2 Tuticorin	209	68	101	:	:	:	:	:	:	:	:	7	704	:	:	:	:	:
3 Tondi	:	:	98	:	5	:	:	:	:	:	98	:	:	:	:	:	:	:
4 Beypoor and Shirur	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
5 Mooloy port	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
6 Mangalore	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
7 Krishnarajapatnam.	:	:	971	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
8 Ammupatnam	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
9 Coondapoor	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
0 Beypore	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
1 Adirampatnam	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
2 Baruva	:	:	141	:	29	:	:	:	:	:	141	:	:	:	:	:	:	:
3 Devipatnam	:	:	365	:	:	:	:	:	:	:	:	:	:	352	:	:	:	:
4 Kilakarai	:	:	266	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
5 Ponnani	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
6 Tellicherry	:	:	154	:	161	:	:	:	:	:	6	:	66	:	:	:	:	:
7 Nagapattinam	:	:	518	70	:	:	:	:	:	:	:	:	:	:	:	:	:	:
8 Angarkottah	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
9 Malpe	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
0 Kulasekharapatnam	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
1 Kakinada	:	:	276	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
2 Cuddalore	46	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
3 Kozhikode	:	:	18	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4 Cannanore	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
5 Mulki	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
6 Dhanushkodi	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
7 Gangolly	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
8 Masulipatnam	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
9 Porto Novo	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Statement showing particulars in regard to health administration of minor ports of Madras State for the year 1951—cont.

Serial number and names of ports.	Incoming vessels—*cont.* Deaths from non-infectious diseases in these vessels. (20)	Vaccination and inoculation. (21)	Disinfection. Part of ship. (22)	Disinfection. Passengers and crews effect. (23)	Isolation, observation and service. (24)	Outgoing vessels. Departing for Foreign ports. Cargo. (25)	Foreign ports. Passenger (26)	Coastal ports. Cargo. (27)	Coastal ports. Passengers. (28)	Number of vessels inspected. Cargo. (29)	Passengers. (30)	Passengers inspected. (31)	Crew inspected. (32)	Number of passengers and number of crews prevented from sailing on account of infectious diseases. (33)	Disinfection. Part of ship. (34)	Passengers and crews effected. (35)
1 Pamban	..	..	..	..	..	..	..	181	..	..	..	..	..	..	..	..
2 Topputhurai and Point Calimere	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Tuticorin	..	45	..	..	..	209	68	100	..	5	..	..	..	..	..	..
4 Tondi	..	..	..	..	..	..	..	98	..	..	..	7	697	..	..	..
5 Beyndoor and Shirur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Moolky port	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Mangalore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Ammupatinam Krishnaraja-patnam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Coondapoor	..	..	..	..	..	..	..	965	..	..	..	..	..	..	..	..
10 Beypore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Adirampatnam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Baruva	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Devipatnam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Kilakarai	..	..	..	..	..	16	..	159	..	..	16	..	166	..	..	..
15 Ponnani	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Tellicherry	..	..	..	..	..	..	..	262	..	..	..	..	..	..	..	..
17 Nagapattinam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Angarkottah	..	..	..	..	..	..	..	160	..	..	..	..	..	..	..	..
19 Malpe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20 Kulasekharapatnam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21 Kakinada	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22 Cuddalore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23 Kozhikode	1	..	..	..	..	46	..	276	..	..	..	..	..	..	..	..
24 Cannanore	..	..	..	..	..	..	..	18	..	..	..	..	..	..	..	..
25 Mulki	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26 Dhanushkodi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27 Gangolly	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28 Masulipatnam	..	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..
29 Porto Novo	..	..	..	..	..	..	..	104	..	..	..	..	..	..	..	..

ANNEXURE M.

Malaria Control Scheme, 1951.

Scheme.	Area in square miles.	Villages.	Population.	Financed by
1 A. Sundaicus	78	76 village.	100,000	State.
2 Machkund	20	1 hamlet. 12 village camps.	8,600	Do.
3 Araku Valley	120	16 Do.	11,880	Do.
Ananthagiri-Visakhapatnam.	..	9 Do.	3,137	Do.
Araku Road Works Scheme.	36	25 Do.		
4 Paderu	182	182	17,951	Do.
5 Krishnadevipeta	514	185	24,318	Do.
6 Chintapalli	208	52	4,476	Do.
7 Nugur	590	142	30,000	Do.
8 Polavaram Agency (Koya villages).	770	201	44,284	Do.
9 Guntur district	100	15 villages. 52 hamlets.	40,000	State and District Board.
10 Nellore district	150	141	43,789	State.
11 Tirumalai Hills	1	1	3,367	Local authority.
12 Kurnool district	1,649	148	185,398	State and District Board.
13 Tungabhadra	250	103 camps. 97 villages. 1 municipality.	160,000	State.
14 Anantapur district ..	70	48 villages. 7 hamlets.	41,545	State and District Board.
15 North Arcot district Tirupattur and Chengam taluks.	1,192	92 villages.	25,800	Do.
16 Salem district	852	664	20,000	Do.
17 Coimbatore district ..	180	140	8,600	Do.
18 Government Cinchona Plantations.	15	10	15,000	State.
19 Madurai district—Kodaikanal and Palni Hills.	75	13 villages. 72 hamlets.	21,305	State and Distri Board.
20 Lower Bhavani	10	10	40,000	State.
21 Malampuzha Project ..	15*	..	20,000	Do.
22 WHO Parallel Indian Team.	900	37	115,553	State and WH (UNICEF).
23 New Settlors Colony ..	226	52	56,000	State.
24 Wynaad Colonization ..	60	4	20,000	Do.
25 Wynaad taluk	1,000	8	124,005	Do.
26 Puttur and Karkal taluks.	1,000	153	140,000	State and District Board.
27 Ennore area	40	10 villages. 32 hamlets.	13,000	State.
28 Simhachalam	4	8	2,684	District Board.
29 Guntur Municipality ..	5	1	123,800	State and Municipalities.
30 Cuddapah Municipality ..	4	1	28,346	Do.
31 Kurnool Municipality ..	6	1	60,000	Do.
32 Chittoor district	9	6 groups. 39 hamlets.	6,464	State and District Board.
33 Anantapur Municipality ..	27	1	1,000	Do.
34 Sriharikota Island ..	50	11	5,652	State.

ANNEXURE N.

Analysis of Common South Indian Food Preparations from Hostels, 1951.

Serial number and item.	Number of samples analysed.	Cost of one serving.	Average size, etc.	Average weight in grams.	Moisture.	Protein.	Fat.	Food constituents. Carbohydrate.	Ash.	Calcium.	Percentage. Phosphorus.	Iron Mg./100 G.	Calories per 100 Gms.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
		RS. A. P.											
1 Puri (wheat)	Mean of 4 hotels ..	0 0 9 each ..	D. 10 cm., Th. 0·5 cm. ..	21·33	20·61	6·30	11·20	61·77	1·20	0·045	0·201	16·4	373
2 Idly (rice)	Mean of 6 hotels ..	0 1 0 each ..	D. 8·5 cm., Th. 1·8 cm. ..	61·54	66·7	3·00	0·08	28·87	1·38	0·024	0·055	6·5	128
3 Medu Vadai	Mean of 3 hotels ..	0 1 0 each ..	D. 6·5 cm., Th. 2 cm. ..	25·6	40·8	10·62	13·73	33·05	2·60	0·053	0·150	12·0	298
4 Onion Vadai	Mean of 2 hotels ..	0 1 0 each ..	D. 7 cm., Th. 1·5 cm. ..	42·5	41·7	9·16	9·28	37·36	2·20	0·080	0·120	13·6	270
5 Masal Vadai	Mean of 4 hotels ..	0 1 0 each ..	D. 6 cm., Th. 2 cm. ..	35·5	35·9	10·41	12·48	38·45	2·66	0·065	0·141	9·5	307
6 Pagoda (Garam) ..	Mean of 4 hotels ..	0 1 6 per serving ..	D. 1 to 2 cm. (5 Pagodas).	37·56	8·35	10·12	32·6	46·35	2·58	0·072	0·184	13·35	509
7 Dosai	Mean of 3 hotels ..	0 2 0 each ..	D. 15·5 cm., Th. 0·5 cm.	64·33	47·75	5·98	4·65	39·3	2·038	0·037	0·164	9·0	223
8 Uthappam	Mean of 4 hotels ..	0 2 0 each ..	D. 11 cm., Th. 1 cm. ..	70·44	50·4	6·77	7·45	33·45	2·33	0·055	0·140	13·2	227
9 Omapudi	Mean of 4 hotels ..	0 1 6 per serving ..	One serving	24·0	3·5	12·88	23·87	56·27	2·98	0·085	0·192	22·0	491
10 Plantain Bajji ..	Mean of 2 hotels ..	0 1 6 per serving ..	D. 4 cm. each (4 Bajjis) ..	47·18	32·5	6·59	19·00	40·0	2·05	0·059	0·135	10·8	357
11 Onion Bajji	Mean of 2 hotels ..	0 1 6 per serving ..	D. 4 cm. each (4 Bajjis) ..	46·3	50·3	6·89	12·94	27·5	2·69	0·050	0·100	8·0	255
12 Mysore Bonda ..	Mean of 4 hotels ..	0 1 6 per serving ..	2 cm. each (2 bondas) ..	45·0	49·6	8·4	12·92	26·63	2·05	0·056	0·167	12·5	256
13 Karaboondi	Mean of 4 hotels ..	0 1 6 per serving ..	One sreving	47·5	3·90	8·70	49·64	34·70	2·88	0·071	0·192	14·4	620
14 Potato Chips (fried) ..	Mean of 3 hotels ..	0 3 0 per serving ..	Do.	14·6	5·95	3·57	37·93	49·83	2·67	0·042	0·123	4·5	555
15 Semia Kichidi ..	Mean of 4 hotels ..	0 3 0 per serving ..	Do.	81·56	59·23	3·34	6·58	28·02	2·056	0·033	0·065	9·0	184
16 Uppuma	Mean of 4 hotels ..	0 3 0 per serving ..	Do.	90·23	58·6	3·86	6·13	28·36	1·65	0·039	0·093	8·5	183
17 Pongal	Mean of 4 hotels ..	0 3 0 per serving ..	Do.	105·4	66·9	3·3	5·87	22·78	1·35	0·026	0·056	9·5	157
18 Murukku	Mean of 4 hotels ..	0 2 0 per serving ..	Do.	33·73	6·12	14·1	26·5	50·0	3·37	0·126	0·181	10·0	495
19 Rava Idly	Mean of 4 hotels ..	0 2 0 each ..	D. 10 cm., Th. 2 cm. ..	78·34	51·6	5·9	10·4	31·41	2·295	0·060	0·125	10·0	242
20 Jangri (sweet) ..	Mran of 4 hotels ..	0 3 0 each ..	D. 5 cm., Th. 5 cm. ..	30·34	16·0	2·91	18·92	61·8	0·37	0·029	0·076	8·0	429
21 Mesurpak (sweet) ..	Mean of 4 hotels ..	0 3 0 each ..	3·5 cm. SQ., Th. 2 cm. ..	39·18	4·65	3·96	39·79	52·72	0·532	0·022	0·090	10·0	565
22 Boondi Laddu (sweet).	Mean of 4 hotels ..	0 3 0 each ..	D. 4·5 cm. (round) ..	53·5	12·5	6·37	23·0	57·37	0·76	0·050	0·077	7·8	462
23 Potato Bonda ..	Mean of 3 hotels ..	0 1 6 each	D. 4 cm. each	34·8	53·4	6·85	13·23	24·35	2·172	0·052	0·124	8·9	244

D. = Diameter. Th. = Thickness. cm. = centimetre.

Nutritive value of hotel meals.

Serial number and source.	Cost of one meal.	Total dry weight in grains.	Total Protein.	Total Fat.	Total Cho.	Food contituents. Total Ash.	Total Calcium.	Total Phosphorus.	Total iron MGms.	Total Fibras.	Total Calories.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	RS. A. P.											
1 Andhra Lodge, Triplicane	0 11 0	218	20·80	12·95	166·3	13·85	0·350	0·331	21·80	4·98	883	"C" class.
2 Mysore Cafe, China Bazaar, Georgetown, Madras ..	0 8 0	203	22·13	9·78	147·8	18·25	0·3858	0·320	30·45	6·25	786	"D" class.
3 Woodlands Hotel, Royapetta	1 8 0	373	42·64	52·97	231·5	23·50	0·8654	0·8167	46·62	18·50	1,617	"A" class.
4 Hotel Ajanta, Royapetta	1 0 0	324	39·55	37·79	259·7	20·50	0·662	0·898	32·4	15·32	1,358	"B" class.

ANNEXURE O.

Males.—Average increese in height due to supplementary feeding for 60 days under different treatments (given in inches).

Age groups.	Control group (with no supplementary feed).	Group with Multi-vitamin tablets only as supplementary feed.	Group with skim milk only as a supplementary feed.	Group with milk plus multi-vitamin tablets as supplementary feed.
1 Six	0·119 (3)	0·34 (2)	0·38 (14)	0·51 (19)
2 Seven	0·278 (3)	0·59 (3)	0·62 (17)	0·64 (12)
3 Eight	0·227 (11)	0·43 (2)	0·44 (28)	0·62 (27)
4 Nine	0·28 (17)	0·29 (3)	0·33 (17)	0·39 (19)
5 Ten	0·29 (8)	..	0·33 (21)	0·38 (15)
6 Eleven	..	0·47 (3)	0·63 (11)	0·74 (5)
7 Twelve	0·257 (4)	..	1·28 (11)	..

Numbers put in brackets denote the number of children examined. Total number of children examined : *Males* 275.

Females.—Average increase height due to supplementary feeding for 60 days under different treatments (given in inches).

1 Six	0·278 (7)	0·25 (3)	0·3 (10)	0·53 (19)
2 Seven	0·413 (5)	0·44 (4)	0·48 (11)	0·58 (14)
3 Eight	0·23 (11)	..	0·39 (9)	0·35 (15)
4 Nine	0·3 (3)	..	0·33 (18)	0·45 (19)
5 Ten	0·34 (1)	..	0·41 (9)	0·42 (9)
6 Eleven	..	0·4 (1)	..	0·42 (9)
7 Twelve	0·48 (2)	..	..	0·6 (1)

Numbers put in brackets denote the number of children examined. Total number of children examined : *Females* 183.

Males.—Average increase in weight due to supplementary feeding for 60 days under different treatments (given in lb.).

1 Six	0·28 (3)	0·66 (2)	1·09 (14)	1·14 (19)
2 Seven	0·77 (3)	1·28 (3)	1·34 (17)	1·37 (12)
3 Eight	0·83 (11)	0·85 (2)	0·93 (28)	1·07 (27)
4 Nine	0·98 (17)	1·13 (3)	1·28 (17)	1·48 (19)
5 Ten	0·96 (8)	..	1·01(21)	1·09 (15)
6 Eleven	..	0·56 (3)	0·88 (11)	1·14 (5)
7 Twelve	0·565 (4)	..	1·45 (11)	..

Numbers put in brackets denote the number of children examined. Total number of children examined : *Males* 275.

Females.—Average increase in weight due to the supplementary feeding for 60 days under different treatment (given in lb.).

1 Six	0·28 (7)	0·5 (3)	0·66 (10)	1·3 (19)
2 Seven	0·46 (5)	0·55 (4)	0·58 (11)	1·02 (14)
3 Eight	0·84 (11)	..	1·05 (9)	1·28 (15)
4 Nine	0·86 (3)	..	1·12 (18)	1·14 (12)
5 Ten	0·94 (1)	..	1·09 (9)	1·11 (19)
6 Eleven	..	1·0 (1)	..	1·68 (9)
7 Twelve	1·08 (2)	..	..	1·36 (1)

Numbers put in brackets denote the number of children examined. Total number of children examined : *Females* 183.

Boys 54 Girls 41

Age in years.	Midday cereal meal plus skim milk and multi-vitamin tablets. Increase in		Midday cereal meal plus skim milk (8 oz.) Reconstituted milk. Increase in		Midday meal plus skim milk plus multi-vitamin tablets. Increase in		Midday meal plus milk. Increase in	
	Height in inches.	Weight in pounds.	Height in inches.	Weight in pounds.	Height in inches.	Weight in pounds.	Height in inches.	Weight in pounds.
5	0·65 (1)	3·5	0·60 (1)	2·00	0·71 (1)	3·00	0·58 (3)	2·62
6	0·46 (6)	3·03	0·35 (6)	2·49	0·38 (7)	3·16	0·37 (3)	1·60
7	0·46 (4)	3·0	0·23 (4)	1·93	0·59 (4)	3·26	0·42 (6)	2·40
8	0·67 (3)	5·0	0·47 (3)	4·65	0·98 (3)	5·13	0·33 (3)	2·80
9	0·47 (2)	3·80	0·35 (4)	2·00	0·63 (6)	3·38	0·34 (1)	1·36
10	1·01 (8)	6·60	0·45 (8)	2·64	0·56 (1)	5·40	0·47 (3)	2·70
11	0·52 (2)	4·10	0·44 (2)	3·6	..	..	..	..

N.B.—Numbers in brackets denote the number of children examined.

APPENDICES.

VITAL STATISTICS OF THE GENERAL POPULATION.

No. 1.—Births registered in districts and in the State during the year 1951.

Serial number.	Estimated mid-year population for 1951.			Districts.	Estimated mid-year population for which birth and death returns were received.			Number of births registered (excluding still-births).			Ratio of deaths per 1,000 of estimated mid-year population.			Average of the rates published for the previous five years.		
	Males.	Females.	Total.		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1	1,009,000	1,064,000	2,073,000	Srikakulam	1,009,000	1,064,000	2,073,000	30,704	28,849	59,553	14·81	13·91	28·70	16·56	15·62	32·18
2	936,000	964,000	2,081,000	Visakhapatnam	936,000	964,000	2,081,000	28,348	27,034	55,382	14·92	14·23	29·15	..	..	..
3	1,107,000	1,110,000	2,218,000	Godavari, East. Plains ..	1,107,000	1,110,000	2,218,000	24,317	22,175	46,492	10·96	10·00	20·97	14·85	13·88	28·73
3 (a)	105,000	104,000	209,000	Godavari, East. Agency ..	105,000	104,000	209,000	2,971	2,474	5,445	14·25	11·87	26·12	14·51	14·05	28·57
4	804,000	804,000	1,608,000	Godavari, West. Plains ..	804,000	804,000	1,608,000	21,268	20,290	41,558	13·23	12·62	25·85	15·65	14·74	30·39
4 (a)	49,000	49,000	98,000	Godavari, West. Agency ..	49,000	49,000	98,000	1,451	1,374	2,825	14·85	14·06	28·83	16·49	15·49	31·97
5	910,000	881,000	1,791,000	Krishna	910,000	881,000	1,791,000	26,776	24,638	51,414	14·95	13·76	28·69	17·26	16·21	33·47
6	1,296,000	1,263,000	2,559,000	Guntur	1,296,000	1,263,000	2,559,000	39,701	36,951	76,652	15·51	14·44	29·97	16·33	15·28	31·61
7	635,000	614,000	1,249,000	Bellary	635,000	614,000	1,249,000	22,645	21,433	44,078	18·13	17·16	35·31	18·25	17·31	35·56
8	704,000	663,000	1,368,000	Anantapur	704,000	663,000	1,368,000	25,343	23,384	48,729	18·53	17·09	35·62	19·37	18·37	37·74
9	645,000	629,000	1,274,000	Kurnool	645,000	629,000	1,274,000	23,268	21,891	45,159	18·26	17·18	35·45	16·49	15·69	31·97
10	597,000	568,000	1,165,000	Cuddapah	597,000	568,000	1,165,000	16,076	14,660	30,736	13·30	12·58	26·37	14·52	13·70	28·22
11	746,000	688,000	1,434,000	Madras	746,000	688,000	1,434,000	30,080	28,881	58,961	20·98	20·14	41·10	24·73	23·56	48·30
12	906,000	896,000	1,802,000	Nellore	906,000	896,000	1,802,000	24,935	23,342	48,277	13·84	12·95	26·79	14·29	13·45	27·74
13	943,000	915,000	1,858,000	Chingleput	943,000	915,000	1,858,000	21,345	20,526	41,871	11·49	11·05	22·53	15·83	14·84	30·67
14	928,000	889,000	1,816,000	Chittoor	928,000	889,000	1,816,000	24,738	23,169	47,907	13·62	12·76	26·40	14·77	13·88	28·65
15	1,432,000	1,436,000	2,869,000	North Arcot	1,432,000	1,436,000	2,869,000	42,601	40,150	82,751	14·85	13·99	28·88	17·06	16·17	33·23
16	1,393,000	1,389,000	2,782,000	South Arcot	1,393,000	1,389,000	2,782,000	35,632	32,991	68,623	12·81	11·96	24·64	15·42	14·32	29·73
17	1,475,000	1,522,000	2,997,000	Tanjore	1,475,000	1,522,000	2,997,000	41,405	39,081	80,486	13·82	13·54	26·88	14·39	13·58	27·97
18	1,465,000	1,489,000	2,954,000	Tiruchirappalli	1,465,000	1,489,000	2,954,000	37,256	34,625	71,881	12·61	11·72	24·37	14·35	13·69	28·04
19	1,447,000	1,460,000	2,907,000	Madurai	1,447,000	1,460,000	2,907,000	37,466	34,168	71,634	12·89	11·75	24·64	16·25	15·27	31·52
20	997,000	1,087,000	2,084,000	Ramanathapuram ..	997,000	1,087,000	2,084,000	25,415	23,833	49,248	12·20	11·44	23·64	15·65	14·91	30·56
21	1,192,000	1,261,000	2,453,000	Tirunelveli	1,192,000	1,261,000	2,453,000	37,774	35,644	73,418	15·40	14·53	29·95	17·32	16·40	33·71
22	1,699,000	1,689,000	3,389,000	Salem	1,699,000	1,689,000	3,389,000	37,344	35,611	72,955	11·02	10·50	21·52	13·59	13·60	26·19
23	1,662,000	1,648,000	3,309,000	Coimbatore	1,662,000	1,648,000	3,309,000	39,111	36,246	75,357	11·82	10·95	22·76	16·55	15·48	32·03
24	166,000	150,000	315,000	Nilgiris, The	166,000	150,000	315,000	4,187	4,131	8,318	13·29	13·11	26·41	17·88	17·05	34·93
25	2,328,000	2,458,000	4,786,000	Malabar	2,328,000	2,458,000	4,786,000	76,822	73,715	150,537	16·05	15·40	31·46	18·07	17·28	35·35
26	845,000	912,000	1,757,000	South Kanara	845,000	912,000	1,757,000	31,024	29,531	60,555	17·65	16·81	34·46	18·81	17·91	36·72
	28,000	26,000	54,000	* Srikakulam	..	..	..	..	..	..	..	..	..	..	..	..
	92,000	89,000	181,000	* Visakhapatnam	..	..	..	..	..	..	..	..	..	..	..	..
	28,539,000	28,715,000	57,256,000	Total ..	28,420,000	28,600,000	57,021,000	310,003	760,797	1,570,800	14·21	13·34	27·55	16·26	15·35	31·61
	..	..	..	† Urban areas ..	..	..	10,643,000	178,083	168,135	346,218	16·72	15.79	32·51	19·30	18·23	37·53
	..	..	..	‡ Rural areas ..	..	..	46,377,000	631,920	592,662	1,224,582	13 65	12·80	26·45	15·67	14·77	30·44

* No proper system of registration.

† Municipalities and rural towns.

‡ Districts exclusive of municipalities and rural towns.

No. 1-A.—Still-births registered according to classes and sex in the municipalities in the State, 1951.

Municipalities.	Still-births.												
	Hindus.		Muslims.		Christians.		Other classes.		Total.				
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.	Percentage of total to live-births.
Total of all municipalities ..	4,662	3,931	553	449	319	276	5	6	5,539	4,662	10,201	33·9

No. II.—Statement showing deaths registered in the districts in the State of Madras during the year 1951.

Serial number.	Districts.	Area in square miles.	Average estimated mid-year population per square mile.	Number of deaths registered.			Ratio of deaths per 1,000 of estimated mid-year population.			Average of published rates for the previous five years.			Number of maternal deaths.	Maternal death-rate per 1,000 births (live and still).
				Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Srikakulam	3,387	611·97	21,586	21,024	**42,610**	21·39	19·76	20·54	21·41	19·91	20·64	267	4·46
2	Visakhapatnam	2,565	741·08	18,387	17,809	**36,196**	19·64	18·47	17·41	21·36	19·70	20·53	271	4·87
3	Godavari, East { Plains	2,647	837·77	15,398	14,692	**30,090**	13·91	13·24	13·57	18·53	17·91	18·23	265	5·64
	{ Agency	3,132	66·57	2,022	1,781	**3,803**	19·25	17·13	18·20	20·80	19·79	20·29	44	8·07
4	Godavari, West { Plains	2,434	660·57	13,284	13,272	**26,556**	16·40	16·51	16·52	19·24	19·75	19·71	310	7·40
	{ Agency	543	179·84	1,052	903	**1,955**	21·46	18·43	19·95	22·28	21·46	21·88	30	10·56
5	Krishna	3,469	516·19	12,987	12,251	**25,238**	14·27	13·91	14·08	18·80	18·72	18·76	337	6·49
6	Guntur	5,795	441·60	20,277	19 339	**39,616**	15·65	15·31	15·49	18·69	18·13	18·52	373	4·82
7	Bellary	5.872	212·77	10,274	9,521	**19,795**	16·18	15·51	15·86	24·93	22·28	23·66	195	4·39
8	Anantapur	6,734	203·13	12,176	11,823	**23,999**	17·29	17·83	17·54	20·84	21·42	21·12	403	8·23
9	Kurnool	7,893	161·35	11,859	11,280	**23,139**	18·39	17·93	18·16	23·79	22·65	23.23	278	6·09
10	Cuddapah	5,923	196·73	7,877	7,767	**15,644**	13·19	13·67	13·42	16·13	16·14	16·14	224	7·24
11	Madras	50	28,679·72	21,588	20,451	**42,039**	28·93	29·72	29·30	32.45	32·41	32·43	151	2·49
12	Nellore	7,942	226·84	14,485	13,098	**27,583**	15·99	14·62	15·31	17·74	16·78	17·26	316	6·47
13	Chingleput	3,054	608·37	17,801	16,253	**34,054**	18·88	17·76	18·32	20·17	19·37	19·73	258	6·07
14	Chittoor	5,951	305·21	12,582	11,749	**24,331**	13.56	13·22	13·41	15·40	15·09	15·25	256	5·30
15	North Arcot	4,671	614·12	27,651	26,288	**53,939**	19·31	18·31	18·81	19·15	18·48	18·81	378	4·50
16	South Arcot	4,205	661·68	25,319	24,046	**49,365**	18·18	17·31	17·74	18·49	18·08	18·28	524	7·57
17	Tanjore	3,738	801·67	25,189	24,711	**49,900**	17·08	16·24	16·67	20·02	19·35	19·68	784	9·58
18	Tiruchirappalli	5,514	535·77	26,348	25,670	**52,018**	17·99	17·24	17·64	19·56	19·40	19·48	596	8·22
19	Madurai	4,883	595·26	23,067	21,372	**44,439**	15·94	14·64	15·29	19·56	18·37	18·97	341	4·71
20	Ramanathapuram	4,851	429·58	17,399	17,301	**34,700**	17·45	15·92	16·66	19·69	18·19	18·92	235	4·71
21	Tirunelveli	4,342	564·87	26,329	26,111	**52,440**	22·09	20·71	21·40	22·40	20·85	21·72	575	7·75
22	Salem	7,073	479·08	20,859	20,375	**41,234**	12·28	12·06	12·16	14·29	14·01	14·15	388	5·26
23	Coimbatore	7,121	464·73	26,171	24,741	**50,912**	15·75	15·01	15·38	17·01	16·81	16·95	355	4·66
24	Nilgiris, The	989	318·63	1,756	1,654	**3,410**	10·57	11·02	10·82	16·09	17·74	16·85	38	4·46
25	Malabar	5,790	826·59	28,232	27,653	**55,885**	12·13	11·25	11·68	16·41	15·16	15·78	562	3·71
26	South Kanara	4,045	434·24	10,362	10,729	**21,091**	12·26	11·76	12·00	17·69	16·74	17·19	252	4·11
	Total ..	**124,652**	**457·44**	472,317	453,664	**925,981**	16·62	15·86	**16·20**	19·11	18·38	18·75	9,006	5·67
	Rural areas ..	..	..	367,905	354,677	**722,582**	..	..	**15·61**	..	..	18·22	6,505	5·29
	Urban areas ..	..	..	104,412	98,987	**203,399**	..	..	**19·10**	..	..	21·41	2,501	7·00

No. III.—Statement showing the deaths registered in the State of Madras during each month of the year 1951.

Serial number.	Districts inclusive of municipalities.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Srikakulam	4,110	3,490	4,405	3,260	3,476	3,519	3,241	3,626	3,719	3,175	2,965	3,624	42,610
2	Visakhapatnam	3,059	2,469	2,893	2,561	2,679	3,034	3,071	3,362	3,680	3,520	2,902	2,966	36,196
3	Godavari, East — Plains	2,867	2,446	2,188	2,051	2,170	2,204	2,467	2,970	2,801	2,893	2,464	2,535	30,090
	Godavari, East — Agency	276	254	416	206	269	206	160	564	380	313	257	592	3,803
4	Godavari, West — Plains	2,234	2,010	1,988	1,886	1,988	1,916	2,380	2,530	2,632	2,375	2,195	2,422	26,556
	Godavari, West — Agency	149	131	138	162	180	142	190	234	135	161	153	180	1,955
5	Krishna	2,190	1,878	1,927	2,072	2,097	1,916	2,091	2,391	2,364	2,170	1,955	2,187	25,238
6	Guntur	3,658	3,104	3,384	3,419	3,654	3,159	3,383	3,463	3,364	3,199	2,800	3,029	38,616
7	Bellary	1,508	1,546	1,817	1,575	1,575	1,779	2,096	1,871	1,710	1,165	1,536	1,617	19,795
8	Anantapur	1,976	1,885	2,632	2,169	2,027	1,846	2,251	2,162	1,836	1,483	1,674	2,058	23,999
9	Kurnool	1,799	1,905	2,433	1,950	2,031	1,890	2,022	2,031	1,860	1,689	1,[illegible]39	1,890	23,139
10	Cuddapah	1,263	1,196	1,339	1,315	1,735	1,792	1,402	1,155	1,056	1,162	1,036	1,199	15,644
11	Madras	2,779	2,850	3,096	2,930	3,642	3,621	3,331	3,728	3,793	3,900	3,[illegible]60	4,509	42,039
12	Nellore	2,702	2,459	2,291	2,103	2,286	2,124	2,269	2,438	2,203	2,356	2,[illegible]66	2,186	27,583
13	Chingleput	3,980	3,545	3,222	2,721	2,881	2,775	2,758	2,887	2,927	1,822	2,160	2,376	34,054
14	Chittoor	2,115	2,188	2,413	1,898	1,994	2,110	2,176	2,087	1,864	1,683	1,908	1,909	24,331
15	North Arcot	5,511	4,329	4,462	3,930	4,668	4,552	4,473	4,088	4,060	4,417	4,542	4,937	52,939
16	South Arcot	4,757	4,579	4,559	3,839	4,039	3,791	4,148	4,874	4,314	3,479	3,391	3,595	49,365
17	Tanjore	6,009	5,564	4,473	3,897	4,098	3,646	3,690	3,916	3,640	3,861	3,594	3,512	49,900
18	Tiruchirappalli	5,722	5,339	3,718	3,544	4,655	3,945	3,648	4,188	4,379	4,388	4,197	4,295	52,018
19	Madurai	4,681	3,815	3,668	3,366	3,826	3,472	3,762	3,639	2,909	3,556	3,707	4,038	44,439
20	Ramanathapuram	3,480	3,077	3,062	2,914	3,323	3,169	2,816	2,682	2,456	2,646	2,733	2,342	34,700
21	Tirunelveli	5,992	4,809	4,641	3,869	3,998	3,554	3,748	3,627	3,378	4,021	4,969	5,834	52,440
22	Salem	4,054	3,545	3,606	3,147	3,682	3,395	3,487	3,157	3,166	3,277	3,268	3,448	41,234
23	Coimbatore	5,012	5,221	5,614	5,046	4,559	4,420	3,868	3,721	3,145	3,511	3,275	3,520	50,912
24	The Nilgiris	251	240	279	227	385	400	306	249	258	216	290	259	3,410
25	Malabar	4,536	4,192	4,349	4,520	5,592	5,988	5,916	5,153	4,234	3,791	3,781	3,833	55,885
26	South Kanara	1,870	1,959	1,880	1,354	1,384	1,895	1,937	2,020	1,861	1,801	1,593	1,537	21,091
	Total for the State	88,540	80,020	80,893	71,981	78,902	76,230	77,087	78,815	74,118	72,030	71,015	76,350	925,981
	Rate per thousand of estimated population for the State.	18·28	18·29	16·70	15·36	16·29	16·27	15·92	16·28	15·82	14·87	15·15	15·77	16·24
	Total for urban areas	17,770	16,688	18,016	15,985	17,945	16,440	16,365	16,720	15,637	16,237	17,056	18,540	203,399
	Rate per thousand of estimated population	19·65	20·44	19·93	18·27	19·85	18·79	18·10	18·49	17·87	17·96	19·50	20·51	19·10
	Total for rural areas	70,770	63,332	62,877	55,996	60,957	59,790	60,722	62,095	58,481	55,793	53,957	57,810	722,582
	Rate per thousand of estimated population	17·47	17·80	15·96	14·69	15·39	15·68	15·42	15·77	15·34	14·17	14·15	14·68	15·61

No. IV.—Deaths registered according to ages in the State of Madras during the year 1951.

Districts exclusive of municipalities and rural towns.	Not exceeding one month. Males. Under one week.	Over one week.	Total.	Females. Under one week.	Over one week.	Total.	Total of columns (5) and (8).	Over one month and not exceeding six months. Males.	Females.	Total.	Over six months and not exceeding twelve months. Males.	Females.	Total.	Serial number.
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
Srikakulam	810	926	1,736	580	812	1,392	3,128	771	803	1,574	1,446	1,463	2,909	1
Visakhapatnam	642	835	1,477	492	682	1,174	2,651	648	610	1,258	1,079	1,145	2,224	2
Godavari, East — Plains	1,182	599	1,781	847	447	1,294	3,075	452	400	852	692	652	1,344	3
Godavari, East — Agency	113	55	168	82	43	125	293	31	38	69	88	86	174	3
Godavari, West — Plains	805	816	1,621	556	602	1,158	2,779	674	637	1,311	666	664	1,330	4
Godavari, West — Agency	67	41	108	43	33	76	184	66	54	120	61	57	118	4
Krishna	757	848	1,605	589	696	1,285	2,890	675	597	1,272	705	661	1,366	5
Guntur	1,470	957	2,427	1,176	818	1,994	4,421	884	851	1,735	989	903	1,892	6
Bellary	1,111	712	1,823	870	509	1,379	3,202	272	210	482	420	340	760	7
Anantapur	1,207	862	2,069	1,030	698	1,728	3,797	404	309	713	604	557	1,161	8
Kurnool	682	699	1,381	557	620	1,177	2,558	546	498	1,044	562	609	1,171	9
Cuddapah	240	309	549	204	282	486	1,035	318	265	583	420	437	857	10
Nellore	891	663	1,554	724	482	1,206	2,760	446	418	864	602	577	1,179	11
Chingleput	196	621	817	197	482	679	1,496	421	356	777	1,010	908	1,918	12
Chittoor	1,401	908	2,309	1,181	675	1,856	4,165	277	197	474	481	352	833	13
North Arcot	314	1,432	1,746	320	1,334	1,654	3,400	978	847	1,825	1,740	1,674	3,414	14
South Arcot	559	1,221	1,780	407	986	1,393	3,173	886	865	1,751	1,482	1,407	2,889	15
Tanjore	772	1,464	2,236	534	1,161	1,695	3,931	692	635	1,327	968	952	1,920	16
Tiruchirappalli	836	1,315	2,151	727	978	1,705	3,856	540	495	1,035	922	888	1,810	17
Madurai	685	842	1,527	584	590	1,174	2,701	353	311	664	732	670	1,400	18
Ramanathapuram	124	494	618	87	386	473	1,091	282	279	561	656	662	1,318	19
Tirunelveli	851	1,583	2,434	649	1,151	1,800	4,234	736	650	1,386	974	902	1,876	20
Salem	320	1,262	1,582	330	1,167	1,497	3,079	874	754	1,628	1,341	1,223	2,564	21
Coimbatore	742	1,068	1,810	518	926	1,444	3,254	589	581	1,170	1,107	1,123	2,230	22
Nilgiris, The	56	44	100	51	49	100	200	33	34	67	76	82	158	23
Malabar	1,404	1,112	2,516	1,068	987	2,055	4,571	843	744	1,587	1,315	1,216	2,531	24
South Kanara	770	629	1,399	533	526	1,059	2,458	248	228	476	477	454	931	25
Total of districts exclusive of municipalities and rural towns.	19,007	22,317	41,324	14,936	18,122	33,058	74,382	13,939	12,666	26,605	21,615	20,664	42,279	
Rate per 1,000 live births for age period under one year.	30·08	35·31	65·39	25·20	30·57	55·77	60·74	22·06	21·37	21·73	34·20	34·86	34·52	

No. IV.—Deaths registered according to ages in the State of Madras during the year 1951—cont.

Serial number.	Districts exclusive of municipalities and rural towns.	Total under one year. Males. Columns (5), (10) and (13).	Total under one year. Females. Columns (8), (11) and (14).	Total.	One and under five years. Males.	One and under five years. Females.	Five and under ten years. Males.	Five and under ten years. Females.	Ten and under fifteen years. Males.	Ten and under fifteen years. Females.	Fifteen and under twenty years. Males.	Fifteen and under twenty years. Females.	Serial number.
		(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	
1	Srikakulam	3,953	3,658	7,611	3,020	2,814	1,040	948	1,238	1,155	1,650	1,668	1
2	Visakhapatnam	3,204	2,929	6,133	2,139	2,194	686	652	765	741	918	997	2
3	Godavari, East — Plains	2,925	2,346	5,271	1,845	1,709	530	528	385	397	487	450	3
	Godavari, East — Agency	287	249	536	281	221	92	77	90	69	120	117	
4	Godavari, West — Plains	2,961	2,459	5,420	1,599	1,730	489	480	360	305	280	373	4
	Godavari, West — Agency	235	187	422	165	144	37	46	32	26	38	42	
5	Krishna	2,985	2,543	5,528	1,622	1,567	450	460	259	321	257	349	5
6	Guntur	4,300	3,748	8,048	2,855	2,771	707	796	412	416	406	516	6
7	Bellary	2,515	1,929	4,444	1,342	1,253	462	369	412	530	569	556	7
8	Anantapur	3,077	2,594	5,671	1,812	1,827	662	675	523	713	665	737	8
9	Kurnool	2,489	2,284	4,773	2,125	2,102	567	559	347	326	311	368	9
10	Cuddapah	1,287	1,188	2,475	1,255	1,174	345	332	238	217	148	245	10
11	Nellore	2,602	2,201	4,803	1,724	1,706	492	446	386	325	288	341	11
12	Chingleput	2,248	1,943	4,191	2,362	2,110	787	724	753	768	952	1,016	12
13	Chittoor	3,067	2,405	5,472	1,380	1,387	588	499	557	728	778	749	13
14	North Arcot	4,464	4,175	8,639	4,517	4,442	909	981	621	661	544	679	14
15	South Arcot	4,148	3,665	7,813	4,207	4,043	1,078	962	649	605	618	743	15
16	Tanjore	3,896	3,282	7,178	2,504	2,392	532	510	492	638	497	635	16
17	Tiruchirappalli	3,613	3,088	6,701	2,862	2,889	789	775	588	659	743	871	17
18	Madurai	2,612	2,155	4,767	2,419	2,146	666	663	383	495	603	572	18
19	Ramanathapuram	1,556	1,414	2,970	2,069	2,071	652	644	630	629	797	904	19
20	Tirunelveli	4,144	3,352	7,496	3,629	3,576	914	890	459	492	481	603	20
21	Salem	3,797	3,474	7,271	2,599	2,518	572	609	482	529	568	648	21
22	Coimbatore	3,506	3,148	6,654	3,404	3,252	673	679	516	521	504	463	22
23	Nilgiris, The	209	216	425	182	185	39	46	25	36	52	37	23
24	Malabar	4,674	4,015	8,689	4,371	4,600	993	1,090	499	622	851	971	24
25	South Kanara	2,124	1,741	3,865	1,267	1,409	268	251	186	282	435	478	25
	Total of districts exclusive of municipalities and rural towns.	76,878	66,388	143,266	59,556	58,232	16,019	15,691	12,287	13,206	14,560	16,128	
	Rate per 1,000 live births for age period under one year.	121·65	112·00	116·98	(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available.)								

No. IV.—Deaths registered according to ages in the State of Madras during the year 1951—cont.

Serial number.	Districts exclusive of municipalities and rural towns.	Twenty and under thirty years. Males.	Twenty and under thirty years. Females.	Thirty and under forty years. Males.	Thirty and under forty years. Females.	Forty and under fifty years. Males.	Forty and under fifty years. Females.	Fifty and under sixty years. Males.	Fifty and under sixty years. Females.	Sixty years and upwards. Males.	Sixty years and upwards. Females.	Total of all ages. Males.	Total of all ages. Females.	Serial number
		(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	
1	Srikakulam	977	1,133	1,639	1,679	1,774	1,560	1,126	939	3,287	3,689	19,704	19,243	1
2	Visakhapatnam	776	913	1,173	1,094	1,326	1,069	1,014	824	3,306	3,605	15,307	15,018	2
3	Godavari, East — Plains	649	723	724	843	1,225	1,050	856	694	2,952	3,307	12,578	12,047	3
	Godavari, East — Agency	150	142	120	132	280	215	175	148	427	411	2,022	1,781	
4	Godavari, West — Plains	506	768	558	673	745	645	730	642	3,103	3,195	11,331	11,270	4
	Godavari, West — Agency	83	82	77	74	99	60	75	51	211	191	1,052	903	
5	Krishna	486	714	491	623	594	484	634	472	2,806	2,520	10,584	10,053	5
6	Guntur	764	1,081	821	957	959	742	1,041	866	4,390	4,139	16,655	16,032	6
7	Bellary	386	446	506	694	716	618	439	385	1,048	1,081	8,395	7,861	7
8	Anantapur	527	657	605	798	830	698	679	564	1,441	1,370	10,821	10,633	8
9	Kurnool	547	755	584	647	767	611	774	540	1,922	1,797	10,433	9,989	9
10	Cuddapah	354	604	370	516	543	471	618	403	1,599	1,525	6,737	6,675	10
11	Nellore	643	768	697	749	918	732	995	728	3,629	3,178	12,374	11,171	11
12	Chingleput	657	711	1,130	1,143	1,577	1,270	1,136	925	3,377	2,988	14,979	13,598	12
13	Chittoor	533	602	795	958	1,113	909	787	658	1,943	1,868	11,541	10,763	13
14	North Arcot	1,095	1,424	1,256	1,281	1,550	1,331	1,935	1,679	5,764	4,927	22,655	21,589	14
15	South Arcot	1,222	1,658	1,300	1,530	1,784	1,353	1,743	1,388	5,565	5,295	22,314	21,242	15
16	Tanjore	922	1,460	1,092	1,554	1,990	1,633	1,578	1,390	5,826	5,645	19,329	19,139	16
17	Tiruchirappalli	1,185	1,284	1,516	1,697	2,299	2,017	1,878	1,605	5,383	5,455	20,851	20,340	17
18	Madurai	917	891	1,057	1,085	1,685	1,266	1,109	967	3,629	3,688	15,030	13,928	18
19	Ramanathapuram	606	693	1,043	1,035	1,225	1,183	997	874	2,780	2,881	12,355	12,328	19
20	Tirunelveli	1,028	1,463	1,012	1,227	1,330	1,156	1,365	1,070	5,174	5,341	19,536	19,170	20
21	Salem	979	1,190	1,189	1,198	1,508	1,391	1,786	1,705	4,332	4,246	17,812	17,508	21
22	Coimbatore	953	1,121	1,076	1,162	1,761	1,347	1,322	1,181	5,793	5,576	19,508	18,450	22
23	Nilgiris, The	36	25	54	52	87	69	62	44	220	177	966	887	23
24	Malabar	1,282	1,395	1,446	1,598	2,059	1,718	1,677	1,376	6,201	6,396	24,053	23,781	24
25	South Kanara	439	534	543	661	919	848	533	499	2,199	2,581	8,913	9,284	25
	Total of districts exclusive of municipalities and rural towns.	18,702	23,237	22,874	25,660	31,663	26,446	27,059	22,617	88,307	87,072	367,905	354,677	
	Rate per 1,000 live births for age period under one year.	(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available.)												

No. IV.—Deaths registered according to ages in the State of Madras during the year 1951—cont.

Serial number.	Municipalities and rural towns in the districts of	Not exceeding one month. Males. Under one week.	Over one week.	Total.	Females. Under one week.	Over one week.	Total.	Total of columns (5) and (8).	Over one month and not exceeding six months. Males.	Females.	Total.	Over six months and not exceeding twelve months. Males.	Females.	Total.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
1	Srikakulam	91	73	164	60	51	111	275	115	125	240	138	148	286	1
2	Visakhapatnam	174	137	311	125	105	230	541	208	203	411	197	215	412	2
3	East Godavari	157	75	232	138	69	207	439	153	140	293	200	178	378	3
4	West Godavari	128	59	187	81	54	135	322	122	95	217	102	108	210	4
5	Krishna	195	88	283	153	85	238	521	153	122	275	157	142	299	5
6	Guntur	282	156	438	239	123	362	800	190	156	346	221	181	402	6
7	Bellary	148	87	235	110	63	173	408	128	88	216	110	105	215	7
8	Anantapur	69	59	128	55	40	95	223	83	70	153	79	72	151	8
9	Kurnool	115	66	181	86	44	130	311	81	74	155	100	72	172	9
10	Cuddapah	68	38	106	62	36	98	204	55	63	118	57	72	129	10
11	Madras	1,119	711	1,830	880	638	1,518	3,348	1,719	1,685	3,404	1,572	1,497	3,069	11
12	Nellore	142	69	211	111	43	154	365	96	95	191	90	99	189	12
13	Chingleput	135	106	241	109	93	202	443	158	140	298	158	164	322	13
14	Chittoor	82	39	121	62	23	85	206	52	47	99	37	38	75	14
15	North Arcot	246	219	465	189	169	358	823	357	321	678	328	341	669	15
16	South Arcot	149	110	259	104	95	199	458	155	147	302	186	160	346	16
17	Tanjore	346	219	565	277	203	480	1,045	284	215	499	237	249	486	17
18	Tiruchirappalli	218	195	413	179	157	336	749	205	183	388	208	223	431	18
19	Madurai	491	391	882	360	317	677	1,559	451	422	873	388	434	822	19
20	Ramanathapuram	250	285	535	186	178	364	899	253	244	497	295	310	605	20
21	Tirunelveli	452	455	907	325	379	704	1,611	351	351	702	341	393	734	21
22	Salem	138	130	268	158	119	277	545	176	173	349	207	204	411	22
23	Coimbatore	499	312	811	376	212	588	1,399	435	382	817	391	413	804	23
24	Nilgiris, The	67	53	120	62	34	96	216	51	42	93	45	50	95	24
25	Malabar	201	145	346	179	120	299	645	209	204	413	206	216	422	25
26	South Kanara	85	43	128	66	38	104	232	73	68	141	66	65	131	26
	Total for municipalities and rural towns	6,047	4,320	10,367	4,732	3,488	8,220	18,587	6,313	5,855	12,168	6,116	6,149	12,265	
	Rate per 1,000 live births for age periods under one year.	33·96	24·27	58·23	28·15	20·76	48·91	53·70	35·45	34·85	35·16	34·38	36·64	35·48	
	Total for the State	25,054	26,637	51,691	19,668	21,610	41,278	92,969	20,252	18,521	38,773	27,731	26,813	54,544	
	Rate per 1,000 live births for age periods under one year.	30·93	32·89	63·82	25.85	28·41	54·26	59·19	25·03	24·35	24·68	34·24	35·25	34·73	

No. IV.—Deaths registered according to ages in the State of Madras during the year 1951—cont.

Serial number.	Municipalities and rural towns in the districts of	Total under one year. Males. Columns (5), (10) and (13).	Females. Columns (8), (11) and (14).	Total.	One and under five years. Males.	Females.	Five and under ten years. Males.	Females.	Ten and under fifteen years. Males.	Females.	Fifteen and under twenty years. Males.	Females.	Serial number.
		(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	
1	Srikakulam	417	384	801	320	261	99	126	65	50	86	110	1
2	Visakhapatnam	716	648	1,364	493	418	151	137	74	78	71	113	2
3	East Godavari	585	525	1,110	406	412	161	137	82	96	106	103	3
4	West Godavari	411	338	749	264	279	84	92	49	52	67	88	4
5	Krishna	593	502	1,095	332	329	89	87	55	55	55	79	5
6	Guntur	849	699	1,548	512	474	158	144	78	96	98	136	6
7	Bellary	473	366	839	315	308	70	78	51	50	38	70	7
8	Anantapur	290	237	527	264	223	91	84	33	41	31	68	8
9	Kurnool	362	276	638	248	244	60	56	41	27	52	73	9
10	Cuddapah	218	233	451	124	170	75	56	34	36	34	40	10
11	Madras	5,121	4,700	9,821	5,238	5,464	1,116	1,087	368	406	326	527	11
12	Nellore	397	348	745	357	303	122	104	52	61	55	89	12
13	Chingleput	557	506	1,063	429	443	159	144	79	74	97	122	13
14	Chittoor	210	170	380	112	113	51	41	25	29	34	37	14
15	North Arcot	1,150	1,020	2,170	794	798	203	203	143	143	150	196	15
16	South Arcot	600	506	1,106	451	448	171	149	61	89	81	113	16
17	Tanjore	1,086	944	2,030	752	744	241	196	126	126	148	197	17
18	Tiruchirappalli	826	742	1,568	770	826	239	208	132	164	268	272	18
19	Madurai	1,721	1,533	3,254	1,462	1,550	349	349	196	190	195	222	19
20	Ramanathapuarm	1,083	918	2,001	1,020	1,100	261	220	116	121	127	140	20
21	Tirunelveli	1,599	1,448	3,047	1,125	1,196	276	283	114	164	167	245	21
22	Salem	651	654	1,305	475	426	121	137	81	107	93	119	22
23	Coimbatore	1,637	1,383	3,020	1,335	1,274	338	356	152	139	147	190	23
24	Nilgiris, The	216	188	404	157	151	31	29	15	21	16	19	24
25	Malabar	761	719	1,480	806	870	195	216	76	73	93	121	25
26	South Kanara	267	237	504	232	300	49	56	29	39	39	52	26
	Total for municipalities and rural towns.	22,796	20,224	43,020	18,793	19,124	4,960	4,770	2,327	2,530	2,674	3,541	
	Rate per 1,000 live births for age periods under one year.	128·06	120·40	124·34	(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available).								
	Total for the State	39,674	86,612	186,286	78,349	77,356	20,979	20,461	14,614	15,736	17,234	19,669	
	Rate per 1,000 live births for age periods under one year.	123·06	113·85	118·60	(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available).								

No. IV.—Deaths registered according to ages in the State of Madras during the year 1951—cont.

Serial number.	Municipalities and rural towns in the districts of	20 and under 30 years.		30 and under 40 years.		40 and under 50 years.		50 and under 60 years.		60 years and upwards.		Total of all ages.		Serial number.
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
		(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	
1	Srikakulam	131	137	128	142	145	116	143	110	348	345	1,882	1,781	1
2	Visakhapatnam	218	257	233	193	271	137	253	121	600	659	3,080	2,791	2
3	East Godavari	186	254	230	172	251	165	205	158	608	623	2,820	2,646	3
4	West Godavari	122	193	124	153	158	138	173	122	501	542	1,033	2,002	4
5	Krishna	150	218	171	144	192	132	217	113	549	589	2,403	2,138	5
6	Guntur	241	314	243	287	330	217	302	138	811	752	3,622	3,307	6
7	Bellary	129	172	130	129	146	82	158	96	374	309	1,879	1,660	7
8	Anantapur	75	121	65	85	102	74	114	57	290	200	1,355	1,190	8
9	Kurnool	87	160	115	106	104	71	112	48	245	230	1,426	1,291	9
10	Cuddapah	70	110	77	76	101	63	115	67	272	241	1,120	1,092	10
11	Madras	1,303	1,060	1,451	1,244	1,580	968	1,676	1,085	3,409	3,310	21,588	20,451	11
12	Nellore	146	199	176	177	161	140	179	105	466	398	2,111	1,924	12
13	Chingleput	179	276	211	206	221	165	236	169	654	550	2,822	2,655	13
14	Chittoor	54	96	75	95	90	54	79	58	311	293	1,041	936	14
15	North Arcot	314	399	306	362	383	273	453	315	1,100	999	4,996	4,708	15
16	South Arcot	225	304	233	261	277	180	298	200	608	554	3,005	2,804	16
17	Tanjore	380	535	468	481	558	435	606	428	1,435	1,463	5,860	5,572	17
18	Tiruchirappalli	423	583	400	501	555	428	506	376	1,318	1,235	5,497	5,330	18
19	Madurai	551	647	579	502	726	465	751	491	1,327	1,405	7,987	7,444	19
20	Ramanathapuram	262	352	317	335	419	326	417	321	1,022	1,140	5,944	4,973	20
21	Tirunelveli	375	561	413	515	344	386	674	491	1,506	1,652	6,793	6,941	21
22	Salem	207	221	205	189	256	178	274	195	654	641	3,047	2,867	22
23	Coimbatore	399	602	397	452	475	353	538	337	1,245	1,205	6,663	6,291	23
24	Nilgiris, The	46	60	55	37	63	54	57	36	134	172	790	767	24
25	Malabar	345	349	399	297	378	263	365	224	761	740	4,179	3,872	25
26	South Kanara	142	126	116	113	117	87	143	94	315	341	1,449	1,445	26
	Total for municipalities and rural towns.	6,790	8,906	7,377	7,259	8,603	5,970	9,099	6,005	20,993	20,958	104,412	98,957	
	Rate per 1,000 live births for age periods under one year.	(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available.)												
	Total for the State	25,492	32,143	30,251	32,919	40,266	32,416	36,158	28,622	109,300	107,730	472,317	453,664	
	Rate per 1,000 live births for age periods under one year.	(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available.)												

No. IV-A.—Infantile deaths according to communities in the municipalities in the State of Madras during the year 1951.

Municipalities.	Hindus.		Muslims.		Christians.		Others.		Total.	
	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.
Srikakulam district—										
Srikakulam	70	85·78	3	187·5	2	285·7	..	..	75	89·39
Salur	135	274·95	1	125·0	..	..	..	..	136	272·54
Visakhapatnam district—										
Visakhapatnam ..	544	140·11	5	50·51	1	9·80	..	..	550	133·45
Vizianagaram	368	170·76	9	73·33	1	62·50	..	..	378	165·86
Anakapalle	241	190·66	2	105·26	1	250·00	..	..	244	189·58
Bheemunipatnam ..	53	146·41	2	133·33	4	500·00	..	..	59	153·24
East Godavari district—										
Kakinada	302	124·27	34	193·18	26	30·06	..	..	362	134·52
Rajahmundry	407	133·93	18	111·11	5	27·93	..	..	430	127·18
Peddapuram	87	125·90	6	240·00	1	500·00	..	..	94	127·72
Bheemunipatnam ..	60	138·52	3	100·00	2	285·71	..	..	65	115·25
West Godavari district—										
Eluru	203	112·47	5	30·86	9	113·92	..	..	217	106·06
Palacole	104	160·74	1	500·00	5	128·21	..	..	110	155·81
Bhimavaram	36	126·83	3	100·9	4	96·3	..	..	43	56·21
Krishna district—										
Vijayavada	408	131·2	22	61·28	20	49·01	..	..	450	116·10
Masulipatnam ..	273	111·02	29	90·34	2	26·33	..	..	304	106·44
Gudivada	113	101·71	9	89·11	2	16·26	..	..	124	92·88
Guntur district—										
Guntur	292	74·78	69	85·78	49	78·23	..	..	410	74·85
Tenali	183	109·77	16	120·24	20	139·86	..	..	219	100·94
Ongole	145	138·62	17	139·42	9	47·62	3	176·47	174	127·10
Narasaraopet	91	141·74	27	110·32	12	16·26	..	..	130	143·48
Chirala	65	116·96	10	108·37	5	58·52	..	..	80	143·49
Bellary district—										
Bellary	184	120·02	85	115·33	5	74·63	..	..	274	117·19
Adoni	88	73·15	38	63·23	..	..	..	.	126	69·23
Hospet	124	127·17	29	85·80	1	58·82	..	..	154	115·78
Anantapur district—										
Anantapur	36	44·23	12	36·04	..	..	..	..	48	40·88
Hindupur	75	154·00	22	140·10	1	66·67	..	..	98	142·44
Tadpatri	35	89·51	12	120·21	1	71·43	1	..	49	77·53
Guntakal	53	93·47	9	32·37	1	38·46	..	..	63	80·56
Kurnool district—										
Kurnool	143	82·52	110	108·37	6	45·45	..	..	259	89·93
Nandyal	80	116·96	52	110·40	11	82·09	..	..	143	110·94
Cuddapah district—										
Cuddapah	65	89·29	39	61·61	3	56·60	1	142·80	108	76·00
Proddatur	122	132·88	53	131·84	8	106·67	..	..	183	131·18
Madras district—										
Madras	8,481	235.44	997	247.45	343	173.93	..	..	9,821	166.51
Nellore district—										
Nellore	481	155·76	78	147·73	29	125·54	..	..	588	152·81

No. IV-A.—Infantile deaths according to communities in the municipalities in the State of Madras during the year 1951—cont.

Municipalities.	Hindus.		Muslims.		Christians.		Others.		Total.	
	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.
Chingleput district—										
Kancheepuram ..	402	136·50	20	181·82	..	..	..	..	422	137·28
Tiruvallur	90	170·78	4	95·23	1	66·61	..	..	95	162·67
Chingleput	116	114·06	10	192·31	4	85·10	..	..	130	116·49
Chittoor district—										
Chittoor	150	116·01	12	59·41	..	..	..	..	162	106·86
Tirupathi . ..	81	92·46	7	93·33	..	..	..	..	88	91·67
North Arcot district—										
Vellore	471	119·97	120	132·01	9	44·33	..	..	600	118·58
Tiruvannamalai ..	152	138·81	31	139·64	1	31·25	..	..	184	136·40
Gudiyattam	161	125·10	29	140·10	..	..	..	..	190	125·50
Vaniyambadi	52	99·81	94	128·07	3	107·14	..	..	149	116·13
Tiruppattur	50	60·53	37	94·39	..	..	..	..	87	70·45
Walajahpet	63	145·83	8	115·94	1	500·00	..	..	72	143·14
Ambur	75	87·01	48	95·43	2	34·48	..	..	125	87·72
South Arcot district—										
Cuddalore	269	99·04	12	88·24	8	86·96	23	147·44	312	100·65
Chidambaram	139	109·02	12	137·93	1	66·67	..	..	152	110·38
Villupuram	137	112·85	14	88·61	7	73·68	..	..	158	107·70
Tindivanam	93	132·67	7	94·59	1	55·56	15	147·06	116	122·31
Tanjore district—										
Tanjore	383	103·85	29	142·86	30	105·26	..	..	442	105·84
Kumbakonam ..	343	103·59	15	94·34	13	80·65	1	250·00	372	102·31
Nagapattinam ..	149	81·02	91	214·12	6	57·69	..	..	246	103·89
Mayuram	124	72·86	5	119·05	4	108·11	..	..	133	74·68
Mannargudi	134	91·28	9	142·86	3	90·91	1	500,00	147	93·86
Tiruvarur	65	55·89	17	177·08	1	111·11	..	..	83	65·46
Tiruchirappalli district—										
Tiruchirappalli ..	536	101·94	123	126·37	78	75·95	..	..	737	101·32
Karur	136	104·21	11	98·21	2	68·97	..	..	149	103·04
Srirangam	108	95·49	..	..	..	..	..	..	108	93·99
Pudukkottai	82	56·71	6	41·35	1	58·82	..	..	89	55·35
Madurai district—										
Madurai	1,803	123·18	105	96·84	65	66·67	..	..	1,973	118·15
Dindigul	239	121·32	32	92·49	46	111·65	..	..	317	116·20
Bodinayakkanur ..	125	111·31	6	90·91	5	161·29	..	..	136	111·48
Periyakulam	118	117·30	25	128·21	13	118·18	..	..	156	118·99
Palni	153	152·16	24	162·16	7	175·00	..	..	184	154·62
Kodaikanal	21	176·47	6	120·00	19	93·14	3	58·82	49	67·68
Ramanathapuram district—										
Rajapalayam	236	118·71	3	50·00	1	33·33	..	..	240	115·50
Srivilliputtur	206	140·61	7	241·38	8	119·40	..	..	221	141·58
Virudunagar	236	123·04	7	73·68	20	190·48	..	..	263	124·17
Karaikudi	148	125·53	7	60·34	2	54·05	..	..	157	117·87
Devakottai	124	106·26	6	85·71	..	..	..	..	130	99·31
Sivakasi	118	125·13	6	111·11	5	192·31	..	..	129	126·04
Aruppukottai ..	253	141·66	6	64·52	4	137·93	..	..	263	137·84
Tirunelveli district—										
Tuticorin	505	194·38	29	174·70	103	113·94	..	..	637	173·16
Tirunelveli	398	179·27	55	167·68	5	113·84	..	..	458	176·69
Palayamkottai ..	216	142·07	7	53·03	18	86·54	..	..	241	133·89
Melapalayam ..	51	225·16	82	146·17	1	62·50				

No. IV-A.—Infantile deaths according to communities in the municipalities in the State of Madras during the year 1951—cont.

Municipalities.	Hindus.		Muslims.		Christians.		Others.		Total.	
	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.	Number.	Rate per 1,000 live-births.
Salem district—										
Salem	645	97·11	18	35·71	11	70·51	..	..	674	92·30
Rasipuram	66	115·79	4	166·67	..	..	..	..	70	116·67
Coimbatore district—										
Coimbatore	1,216	162·68	124	175·88	97	160·07	..	..	1,437	152·15
Erode	204	100·44	14	58·57	11	94·02	..	..	229	95·86
Tiruppur	229	143·48	24	133·35	5	60·98	..	..	258	138·86
Pollachi	249	156·33	24	173·91	4	111·11	..	..	277	155·88
Dharapuram	49	88·13	10	84·75	3	90·91	..	..	62	86·47
Udamalpet	85	82·21	10	123·46	1	100·0	..	..	96	85·94
Mettupalayam ..	117	154·97	16	115·11	3	103·45	..	..	136	147·35
Gobichettipalayam ..	118	162·31	4	142·86	1	100·0	..	..	123	160·78
The Nilgiris district—										
Ootacamund	130	112·85	35	139·44	42	107·14	1	58·82	208	114·79
Coonoor	92	141 32	13	94·89	36	112·50	1	58·82	142	126·22
Malabar district—										
Kozhikode	283	73·01	310	115·28	22	60·94	..	..	615	88·79
Palghat	227	113·44	59	129·59	4	59·70	..	..	290	114·90
Tellicherry	65	62·98	58	127·19	9	54·22	..	..	132	70·58
Cannanore	37	64·01	61	95·91	5	55·56	..	..	103	78·93
Cochin	21	77·49	32	95·52	46	66·57	..	..	99	76·27
South Kanara district—										
Mangalore	201	65·47	30	62·37	76	64·58	2	89·58	309	67·01
Udipi	62	81·79	4	65·99	6	45·44	..	..	72	74·46
Grand total ..	27,754	126·48	3,861	125·87	1,469	127·35	52	99·23	331,96	126·39

No. V.—Deaths registered according to classes in the State of Madras during the year 1951.

Serial number.	Districts.	Number of deaths registered. Christians. Males.	Christians. Females.	Muslims. Males.	Muslims. Females.	Hindus. Males.	Hindus. Females.	Other Classes. Males.	Other Classes. Females.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1	Srikakulam	54	55	39	34	21,475	20,923	18	12	1
2	Visakhapatnam	36	30	151	125	18,192	17,642	14	12	2
3	East Godavari Plains ..	177	135	285	254	14,921	14,282	15	21	3
	Do. Agency ..	13	11	42	25	1,955	1,725	12	20	
4	West Godavari Plains ..	646	612	206	214	12,367	12,381	65	65	4
	Do. Agency ..	15	13	21	18	1,015	869	1	3	
5	Krishna	1,033	944	711	593	11,190	10,664	53	50	5
6	Guntur	2,335	2,238	1,554	1,607	16,299	15,420	89	74	6
7	Bellary	66	69	909	803	9,276	8,627	23	22	7
8	Anantapur	36	33	983	977	11,055	10,733	102	80	8
9	Kurnool	928	862	1,656	1,530	9,101	8,722	174	166	9
10	Cuddapah	381	371	957	931	6,381	6,316	158	149	10
11	Madras	1,011	972	2,114	1,915	18,462	17,561	1	3	11
12	Nellore	728	674	1,007	924	12,576	11,343	174	157	12
13	Chingleput	281	285	313	300	17,082	15,527	125	141	13
14	Chittoor	58	36	641	588	11,807	11,053	76	72	14
15	North Arcot	328	344	1,415	1,357	25,746	24,428	162	159	15
16	South Arcot	447	446	424	453	24,203	22,922	245	225	16
17	Tanjore	814	824	1,369	1,528	22,927	22,300	79	59	17
18	Tiruchirappalli	1,058	1,182	953	976	24,318	23,493	19	19	18
19	Madurai	718	658	906	953	21,417	19,732	26	29	19
20	Ramanathapuram	580	630	732	825	16,050	15,800	36	46	20
21	Tirunelveli	2,233	2,331	1,193	1,295	22,846	22,431	57	54	21
22	Salem	180	202	459	421	20,116	19,656	104	96	22
23	Coimbatore	388	354	682	714	24,992	23,553	109	120	23
24	Nilgiris, The	221	202	141	172	1,382	1,270	12	10	24
25	Malabar	1,047	932	9,057	8,718	18,118	17,999	10	4	25
26	South Kanara	755	826	1,380	1,364	8,221	8,532	6	7	26
	Total, Madras State ..	16,561	16,271	30,301	29,614	423,490	405,904	1,965	1,875	

Serial number.	District.	Ratio of deaths per 1,000 of estimated population. Christians. Males.	Christians. Females.	Muslims. Males.	Muslims. Females.	Hindus. Males.	Hindus. Females.	Other classes.* Males.	Other classes.* Females.	Serial number.
		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
1	Srikakulam	12·36	12·04	7·37	9·16	21.44	19·78	..	..	1
2	Visakhapatnam	6·05	6·00	11·60	9·21	19·82	18·64	..	..	2
3	East Godavari Plains ..	8·37	6·35	17·74	16·04	13·95	13·31	..	..	3
	Do. Agency ..	4.86	4·17	45·65	29·10	19.29	17·24	..	..	
4	West Godavari Plains ..	14·03	10·00	13·00	13·25	16·67	16·81	..	..	4
	Do. Agency ..	13.08	13.31	17.71	17.14	21.74	21.59	..	..	
5	Krishna	11·30	10·77	14·17	12·22	14·58	14·32	..	..	5
6	Guntur	12·51	12·81	14·70	15·35	16·18	15·68	..	..	6
7	Bellary	9·13	9·88	13·04	11·92	16·64	15·91	..	..	7
8	Anantapur	4·25	6·32	12·72	14·02	17·88	18·25	..	..	8
9	Kurnool	19·34	19·93	18·27	17·09	22·51	21·51	..	..	9
10	Cuddapah	14·14	12·51	12·22	12·02	12·97	13·69	..	..	10
11	Madras	16·79	18·83	27.15	29.99	30.67	30·88	..	..	11
12	Nellore	12·97	13·64	13·51	13·18	16·23	14·62	..	..	12
13	Chingleput	14.04	14·41	14.85	14.55	18.96	17·78	..	..	13
14	Chittoor	6·41	3·74	11·43	10·55	13·69	12·79	..	..	14
15	North Arcot	14·51	13·62	14·00	13·40	19·65	18·71	..	..	15
16	South Arcot	14·84	13·13	13·51	13·18	16·23	14·62	..	..	16
17	Tanjore	16·60	16·57	16·35	14·39	19·30	16·33	..	..	17
18	Tiruchirappalli	15·38	16·52	16·13	16·19	18·10	17·22	..	..	18
19	Madurai	14·03	12·86	15·21	15·78	16·03	14·64	..	..	19
20	Ramanathapuram	11·47	11·68	11·45	9·17	18·19	16·57	..	..	20
21	Tirunelveli	17·36	15·75	16·04	15·19	23·11	21·82	..	..	21
22	Salem	15·31	15·89	9·75	9·27	12·27	12·06	..	..	22
23	Coimbatore	10·25	9·63	15·63	17·63	15·82	15·00	..	..	23
24	Nilgiris, The	10·02	9·36	10·58	15·36	10·55	10·80	..	..	24
25	Malabar	13·20	12·07	11·58	10·64	12·35	11·53	..	..	25
26	South Kanara	10·16	10·17	11·29	10·53	12·76	12·23	..	..	26
	Total, Madras State ..	7·29	6·93	25·70	24·64	16·98	16·98	..	..	

* As the figures are small, the rates for other classes have not been calculated.

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951.

Districts and towns.	Estimated mid-year population for which birth and death returns are to be received.	Births. Males.	Births. Females.	Births. Total.	Birth rate per thousand of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number.
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
A. RURAL DISTRICTS. (*Districts exclusive of municipalities and rural towns.*)											
Srikakulam	1,945,000	28,238	26,602	54,840	28·19	526	1,082	..	164	16,997	1
Visakhapatnam	1,839,000	23,368	22,877	46,745	25·43	35	264	..	106	13,481	2
Godavari, East. Plains	2,046,000	19,921	17,944	37,865	18·52	287	171	..	212	7,865	3
Godavari, East. Agency	207,900	2,971	2,474	5,445	26·19	44	40	..	51	1,469	
Godavari, West Plains	1,484,000	18,073	17,158	35,231	23·74	116	286	..	128	5,541	4
Godavari, West Agency	97,700	1,451	1,374	2,825	28·93	16	38	..	41	609	
Krishna	1,714,000	21,466	19,875	41,341	24·10	43	515	..	124	6,229	5
Guntur	2,352,000	31,620	29,518	61,138	26·19	161	1,808	..	85	10,335	6
Bellary	1,148,000	18,341	17,378	35,719	31·11	136	169	30	167	4,447	7
Anantapur	1,272,000	22,309	20,641	42,950	33·76	225	384	4	167	5,740	8
Kurnool	1,181,000	19,955	18,835	38,790	32·86	227	812	..	384	7,984	9
Cuddapah	1,105,000	13,942	12,487	26,429	23·91	836	625	..	89	5,071	10
Nellore	1,685,000	21,756	20,438	42,194	25·02	710	432	..	411	5,680	11
Chingleput	1,708,000	17,454	16,779	34,233	20·03	760	663	1	42	5,085	12
Chittoor	1,747,000	22,625	21,325	43,950	25·14	418	305	..	97	5,497	13
North Arcot	2,650,000	33,155	31,387	64,542	24·33	807	855	..	73	9,928	14
South Arcot	2,625,000	30,343	28,150	58,493	22·29	2,156	837	3	10	7,006	15
Tanjore	2,805,000	30,587	28,954	59,541	21·35	1,164	303	..	4	2,033	16
Tiruchirappalli	2,780,000	29,386	26,851	56,237	20·41	1,131	261	..	239	8,576	17
Madurai	2,677,000	22,892	20,536	43,428	16·24	811	271	..	211	6,360	18
Ramanathapuram	1,843,000	16,905	15,808	32,713	17·75	523	271	..	14	7,127	19
Tirunelveli	2,013,000	27,742	26,168	53,910	26·79	1,394	430	..	12	6,435	20
Salem	3,167,000	31,365	29,753	61,118	19·31	1,329	769	..	52	8,925	21
Coimbatore	3,156,000	27,756	25,718	53,474	16·95	304	883	..	6	6,308	22
Nilgiris, the	291,000	2,334	2,315	4,649	15·97	3	19	..	..	544	23
Malabar	4,617,000	67,867	65,181	133,048	28·87	..	472	..	33	8,851	24
South Kanara	1,670,000	27,328	26,141	53,469	32·03	..	39	..	818	5,617	25
Total of rural areas ..	46,377,000	631,920	592,662	1,224,582	26·45	14,162	13,010	38	4,157	181,170	

Serial number.	Districts and towns.	Deaths—cont. Dysentery and diarrhœa. (13)	Respiratory diseases. (14)	Injuries. Suicides. Males. (15)	Females. (16)	Wounds and accidents. (17)	Snake bite and killed by wild beasts. (18)	Rabies. (19)	Total. (20)	All other causes. (21)	Total deaths from all causes. (22)	Serial number.
	A. RURAL DISTRICTS—*cont.*											
	***(Districts exclusive of municipalities and rural towns)*—cont.**											
1	Srikakulam	1,776	1,687	56	46	131	20	10	263	16,452	38,947	1
2	Visakhapatnam	1,098	1,159	48	64	138	37	3	290	13,892	30,325	2
3	Godavari, East — Plains	1,517	1,905	36	47	59	21	25	188	12,480	24,625	3
	Godavari, East — Agency	306	364	8	6	2	1	2	19	1,504	3,803	
4	Godavari, West — Plains	1,353	2,160	21	20	69	38	18	166	12,551	22,601	4
	Godavari, West — Agency	85	296	4	2	15	7	..	28	752	1,955	
5	Krishna	992	2,062	30	32	68	49	13	192	10,480	20,637	5
6	Guntur	1,567	2,592	51	89	122	36	7	305	15,834	32,687	6
7	Bellary	1,087	1,295	20	28	47	25	..	120	8,805	16,256	7
8	Anantapur	1,651	1,525	31	64	114	50	1	260	11,498	21,454	8
9	Kurnool	783	998	47	65	103	29	5	249	8,985	20,422	9
10	Cuddapah	483	537	30	42	68	37	4	181	5,610	13,432	10
11	Nellore	1,343	1,244	33	75	89	35	5	237	13,491	28,548	11
12	Chingleput	1,628	1,707	38	33	58	21	8	158	13,534	28,577	12
13	Chittoor	1,866	2,134	67	54	109	28	3	261	11,785	22,304	13
14	North Arcot	5,022	2,499	132	98	214	39	..	483	24,568	44,235	14
15	South Arcot	2,935	2,926	70	68	129	46	2	315	27,368	43,556	15
16	Tanjore	2,764	3,150	99	96	149	24	..	368	28,082	38,468	16
17	Tiruchirappalli	2,623	2,312	64	80	98	21	27	290	25,759	41,191	17
18	Madurai	2,002	2,884	56	40	86	30	4	216	15,753	29,008	18
19	Ramanathapuram	1,447	2,065	24	20	77	26	1	148	13,088	24,683	19
20	Tirunelveli	1,716	2,353	32	28	103	26	4	193	26,173	38,706	20
21	Salem	3,112	1,815	75	114	188	47	..	424	19,805	35,320	21
22	Coimbatore	3,840	4,633	61	51	115	20	..	247	20,826	37,958	22
23	Nilgiris, the	228	278	5	2	8	1	..	16	732	1,853	23
24	Malabar	2,803	5,042	306	219	325	29	..	879	28,969	47,834	24
25	South Kanara	1,139	1,694	85	47	57	..	..	189	9,102	18,197	25
	Total of rural areas	47,166	53,316	1,529	1,530	2,741	743	142	6,685	402,878	722,582	

† "All osher causes" includes deaths of mothers from child birth. The number of deaths and the death rates from this cause per 1,000 (live and still) births are given separately in columns (34) and (35) respectively.

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera. (23)	Smallpox. (24)	Plague. (25)	Malaria. (26)	Fevers. (27)	Dysentery and diarrhœa. (28)	Respiratory diseases. (29)	Injuries. (30)	All other causes. (31)	From all causes. Total deaths. (32)	Average of published ratios for the previous five years. (33)	Number of maternal deaths. (34)	Rate per 1,000 births (live and still). (35)	Serial number.
	A. RURAL DISTRICTS—*cont.*														
	***(Districts exclusive of municipalities and rural towns)*—cont.**														
1	Srikakulam	0·27	0·56	..	0·08	8·74	0·91	0·87	0·14	8·46	20·02	20·46	227	4·12	1
2	Visakhapatnam	0·02	0.14	..	0·06	7·33	0·60	0·68	0·16	7·56	16·50		180	3·83	2
3	Godavari, East — Plains	0·14	0·08	..	0·10	3·85	0·74	0 93	0·09	6·10	12 04	18·24	201	5·29	3
	Godavari, East — Agency	0·21	0·22	..	0·25	7·07	1·47	1·75	0·09	7·23	18·29	21·52	44	8·07	
4	Godavari, West — Plains	0·08	0·19	..	0·09	3·94	0·91	1·46	0·11	8·46	15·23	20·22	235	6·63	4
	Godavari, West — Agency	0·16	0·39	..	0·42	7·16	0·87	3·08	0·29	7·70	20·02	21·87	30	10·56	
5	Krishna	0 03	0·30	..	0·07	3 63	0·58	1·20	0·11	6·11	12·03	18·81	287	6·91	5
6	Guntur	0·07	0·77	..	0·04	4·39	0·67	1·10	0·13	6·73	13·89	18·57	267	4·35	6
7	Bellary	0·11	0·15	0·03	0·15	3·87	0·95	1·13	0·10	7·67	14·15	23·85	151	4·21	7
8	Anantapur	0·18	0·30	0·003	0·13	4·51	1·30	1·20	0·20	9·04	16 86	21·72	352	8·17	8
9	Kurnool	0·19	0·69	..	0·33	6·76	0·66	0·85	0·21	7·61	17·30	23·70	215	5·52	9
10	Cuddapah	0·76	0·57	..	0·08	4·59	0·44	0·49	0·16	5·08	12·16	15·97	184	6·94	10
11	Nellore	0·42	0·26	..	0·24	3·37	0·80	0·74	0·14	8·00	13·96	16·88	210	4·95	11
12	Chingleput	0·44	0·38	..	0·02	2·97	0·95	0·99	0·09	10·84	16·72	18·77	177	5·13	12
13	Chittoor	0·24	0·17	0·001	0·06	3·11	1·07	1·22	0·15	6·74	12·75	15·03	223	5·05	13
14	North Arcot	0·30	0 32	..	0·03	3·74	1·89	0·94	0·18	9·26	16·68	18·80	238	3·66	14
15	South Arcot	0·82	0·32	0·001	0·004	2·67	1·12	1·11	0·12	10·43	16·59	18·46	418	7·12	15
16	Tanjore	0·42	0·11	..	0·001	0·94	0·99	1·12	0·13	10·03	13·73	19·07	550	9·15	16
17	Tiruchirappalli	0·41	0·09	..	0·09	3·11	0·95	0·85	0·11	9·35	14 95	19·18	462	8·19	17
18	Madurai	0·30	0·10	..	0·08	2·57	0·75	1·08	0·08	5·89	10·84	17·30	205	4·71	18
19	Ramanathapuram	0·29	0·15	..	0·01	3 87	0·79	1·12	0·08	7·15	13·46	18·54	136	4·14	19
20	Tirunelveli	0·69	0·21	..	0·01	3·20	0·85	1·17	0·10	13·00	19·24	21·85	364	6·71	20
21	Salem	0·10	0·28	..	0·02	2·82	0·98	0·57	0·13	6·26	11·16	14·21	278	4·52	21
22	Coimbatore	0·42	0·24	..	0·001	2·00	1·21	1·47	0·08	6·60	12·03	15·91	190	3·55	22
23	Nilgiris, the	0·01	0·07	..	0·11	1 87	0·78	0·96	0·05	2·52	6·37	15·71	17	3·58	23
24	Malabar	..	0·10	..	0·18	1·92	0·61	1·09	0·19	6·29	10·38	15·14	436	3·26	24
25	South Kanara	..	0·02	..	0·25	3·36	0·68	1·01	0·11	5·45	10·90	16·95	228	4·22	25
	Total of rural areas	0·31	0·28	0·001	0·09	3·91	1·02	1·15	0·14	8·70	15·61	18·42	6,505	5·29	

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Estimated mid-year population for which birth and death returns are to be received.	Births. Males.	Births. Females.	Births. Total.	Birth-rate per 1,000 of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	B. TOWNS.											
	MUNICIPALITIES AND RURAL TOWNS.											
	Srikakulam.											
1	M.T.C. Srikakulam	24,300	431	408	839	34·52	2	20	..	6	47	1
2	M.T.C. Salur	24,500	273	226	499	20·37	..	138	..	..	139	2
3	T.C. Palakonda	14,600	252	198	450	30·82	10	30	..	..	126	3
4	T.C. Viraghattam	7,790	107	102	209	26·84	..	46	..	13	86	4
5	T.C. Parvatipur	21,200	233	202	435	20·52	4	53	..	2	150	5
6	T.C. Narasannapeta	9,620	121	114	235	24·44	1	15	..	8	77	6
7	T.C. Ichapuram	11,400	124	125	249	21·84	20	8	..	2	45	7
8	T.C. Sompeta	9,610	170	109	279	29·04	..	32	..	..	68	8
9	T.C. Baruva	7,800	137	140	277	35·51	..	91	..	2	87	9
*10	T.C. Mandasa	5,670	94	93	187	32·99	17	5	..	..	64	10
11	T.C. Tekkali	10,100	146	127	273	27·03	14	3	..	..	60	11
12	T.C. Bobbili	23,100	277	302	579	25·06	..	54	..	..	107	12
13	T.C. Rajam	6,550	101	101	202	30·85	11	9	..	..	40	13
	Visakhapatnam.											
14	M.T.C. Visakhapatnam	109,300	1,738	1,589	3,327	30·43	..	71	..	2	364	14
15	M.T.C. Vizianagaram	67,600	1,186	1,093	2,279	33·71	..	29	..	7	166	15
16	M.T.C. Anakapalle	40,500	666	621	1,287	31·77	5	84	..	58	125	16
17	M.T.C. Bheemunipatnam	10,500	203	182	385	36·67	..	2	..	..	8	17
18	T.C. Narasapatnam	17,700	161	179	340	19·21	..	..	..	..	80	18
19	T.C. Yellamanchili	12,100	155	159	314	25·95	..	2	..	..	60	19
20	T.C. Srungavarapukota	8,770	115	104	219	24·97	..	..	..	..	48	20
21	T.C. Chodavaram	14,100	148	123	271	19·22	..	..	..	..	35	21
22	T.C. Madugula	8,400	108	107	215	25·59	..	..	..	..	45	22
	Godavari, East.											
23	M.T.C. Kakinada	100,800	1,352	1,339	2,691	26·70	..	100	..	19	168	23
24	M.T.C. Rajahmundry	106,300	1,737	1,644	3,381	31·81	8	102	..	10	224	24
25	M.T.C. Peddapuram	23,400	371	365	736	31·46		5		2	50	25
26	M.T.C. Amalapuram	21,300	283	281	564	26·48	3	14	..	..	17	26
*27	T.C. Samalkota	28,400	9	17	26	0·91	..	..	..	2	2	27
*28	T.C. Pithapuram	22,200	132	114	246	11·07	..	..	..	..	79	28
*29	T.C. Tuni	18,600	116	106	222	11·93	13	9	..	9	60	29
*30	T.C. Mummidivaram	11,400	52	49	101	8·86	2	..	..	1	12	30
*31	T.C. Mandapeta	15,200	26	21	47	3·09	..	..	..	..	18	31
*32	T.C. Dowlaishwaram	14,100	24	34	58	4·11	..	..	..	..	6	32
*33	T.C. Machavaram	8,980	47	55	102	11·36	..	..	..	..	31	33
*34	T.C. Ramachandrapuram	15,600	70	62	132	8·46	..	3	..	..	20	34
*35	T.C. Biccavolu	12,600	42	24	66	5·24	..	..	..	..	4	35
*36	T.C. Kottapeta	5,900	75	50	125	21·19	..	..	..	..	10	36
*37	T.C. Razole	6,690	42	58	100	14·95	5	1	..	..	8	37
*38	T.C. Yelleswaram	12,100	18	12	30	2·47	..	..	..	..	9	38
	Godavari, West.											
39	M.T.C. Eluru	88,000	1,023	1,023	2,046	23·24	6	74	..	2	196	39
40	M.T.C. Palacole	23,100	373	333	706	30·56	..	65	..	1	40	40
41	M.T.C. Bhimavaram	31,300	381	384	765	34·44	1	13	..	5	149	41
42	T.C. Penugonda	12,300	131	137	268	18·26	..	2	..	..	7	42
43	T.C. Narasapur	21,200	192	185	377	17·78	1	3	..	..	68	43
44	T.C. Attili	11,000	62	82	144	13·09	1	..	..	..	10	44
45	T.C. Tanuku	17,000	329	295	624	36·70	..	3	..	2	32	45
46	T.C. Achanta	9,650	58	57	115	11·91	..	..	..	..	37	46
47	T.C. Velpuru	11,400	122	139	261	28·89	2	1	..	..	41	47
48	T.C. Nidadavole	11,700	173	155	328	28·03	1	10	..	..	22	48
49	T.C. Relangi	9,500	128	132	260	27·38	2	2	..	..	49	49
50	T.C. Kovvur	12,400	124	120	244	19·68	1	..	..	..	23	50
51	T.C. Maruteru	7,160	99	90	189	26·40	..	2	..	..	13	51
	Krishna.											
52	M.T.C. Vijayavada	163,700	2,039	1,837	3,876	23·68	1	39	..	37	264	52
53	M.T.C. Masulipatnam	78,600	1,496	1,360	2,856	36·33	2	52	..	18	134	53
54	M.T.C. Gudivada	32,200	719	616	1,335	41·47	1	21	..	9	94	54
55	T.C. Nuzvid	17,000	176	152	328	19·29	..	..	..	..	47	55
56	T.C. Jaggayyapeta	12,900	134	122	256	19·85	..	1	..	..	25	56
57	T.C. Pamarru	10,200	126	106	232	22·75	..	2	..	..	40	57
58	T.C. Vallivuru	10,500	142	140	282	26·86	..	..	..	17	31	58
59	T.C. Pedana	11,700	158	127	285	24·36	..	..	..	..	37	59
60	T.C. Vuyyuru	14,600	320	303	623	42·67	4	7	..	3	22	60
	Guntur.											
61	M.T.C. Guntur	126,600	2,843	2,634	5,477	43·26	60	44	..	3	349	61
62	M.T.C. Tenali	58,700	1,044	930	1,974	33·64	19	24	..	15	100	62
63	M.T.C. Ongole	28,000	689	680	1,369	48·89	4	8	..	24	28	63
64	M.T.C. Narasaraopet	22,400	477	429	906	40·44	..	25	..	..	78	64
65	M.T.C. Chirala	38,100	494	509	1,003	26·33	..	..	..	21	99	65
66	T.C. Bapatla	28,000	191	173	364	15·83	..	..	..	..	29	66
67	T.C. Vetapalem	14,700	146	130	276	18·77	..	1	..	15	54	67
68	T.C. Ponnur	18,100	240	227	467	25·80	..	10	..	1	43	68
69	T.C. Mangalagiri	17,700	162	139	301	17·01	..	37	..	..	66	69
70	T.C. Chebrolu	14,100	298	276	574	40·71	..	1	..	..	66	70
71	T.C. Addanki	12,100	198	173	366	30·25	1	2	..	..	48	71
72	T.C. Vinukonda	10,100	106	92	198	19·60	1	7	..	..	51	72

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Deaths—*cont.* Dysentery and diarrhœa.	Respiratory diseases.	Injuries. Suicides. Males.	Suicides. Females.	Wounds and accidents.	Snakes and bite and killed by wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all causes.	Serial number.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Srikakulam.											
1	M.T.C. Srikakulam	35	40	..	..	11	..	4	15	216	281	1
2	M.T.C. Salur	37	33	3	1	1	..	..	5	153	505	2
3	T.C. Palkonda	19	23	..	1	..	1	..	2	128	338	3
4	T.C. Viraghattam	2	2	..	..	..	..	..	..	6	155	4
5	T.C. Parvatipur	9	15	1	1	..	1	1	4	133	370	5
6	T.C. Narasannapeta	17	10	3	1	..	..	..	4	98	230	6
7	T.C. Ichchapuram	25	4	..	..	4	..	..	..	104	208	7
8	T.C. Sompeta	17	10	2	..	..	..	..	6	57	190	8
9	T.C. Baruva	30	22	..	1	..	..	2	3	94	329	9
10	T.C. Mandasa	12	17	..	..	..	..	..	..	59	174	10
11	T.C. Tekkali	19	20	..	..	..	..	..	..	87	208	11
12	T.C. Bobbili	41	44	1	2	1	..	..	4	208	458	12
13	T.C. Rajam	7	4	..	..	..	..	..	..	51	122	13
	Visakhapatnam.											
14	M.T.C. Visakhapatnam	141	363	1	..	30	1	7	39	1,284	2,204	14
15	M.T.C. Vizianagram	188	168	1	..	22	..	4	27	1,024	1,600	15
16	M.T.C. Anakapalle	130	133	1	4	8	3	1	17	421	773	16
17	M.T.C. Bheemunipatnam	24	40	..	..	..	..	..	..	140	214	17
18	T.C. Narasapatnam	2	5	..	1	4	1	..	6	96	189	18
19	T.C. Yellamanchili	11	2	..	..	2	1	..	3	101	179	19
20	T.C. Srungavarapukota	5	9	1	2	2	..	..	5	57	124	20
21	T.C. Chodavaram	25	22	1	1	1	..	..	3	105	190	21
22	T.C. Madugula	3	..	5	1	1	..	..	7	74	129	22
	Godavari, East.											
23	M.T.C. Kakinada	77	83	1	1	8	1	2	13	1,111	1,571	23
24	M.T.C. Rajahmundry	172	198	..	1	19	1	1	22	1,470	2,206	24
25	M.T.C. Peddapuram	61	35	1	1	1	..	..	3	252	409	25
26	M.T.C. Amalapuram	17	28	..	..	3	..	..	3	277	379	26
27	T.C. Samalkota	2	5	..	..	..	..	..	..	6	17	27
28	T.C. Pithapuram	3	14	..	..	1	..	..	1	57	154	28
29	T.C. Tuni	22	17	..	..	3	..	..	3	61	194	29
30	T.C. Mummidivaram	9	3	..	..	..	1	..	1	45	73	30
31	T.C. Mandapeta	5	6	..	..	..	..	..	..	12	47	31
32	T.C. Dowlaishwaram	1	7	..	..	..	..	..	..	19	33	32
33	T.C. Machavaram	7	36	..	..	..	..	..	1	17	92	33
34	T.C. Ramachandrapuram	15	36	1	..	3	1	..	4	48	126	34
35	T.C. Biccavolu	4	4	1	..	..	..	..	1	27	40	35
36	T.C. Kottapeta	3	11	..	..	..	..	..	..	39	63	36
37	T.C. Razole	5	12	..	1	1	..	..	2	58	71	37
38	T.C. Yelleswaram	1	..	..	..	..	..	..	..	6	16	38
	Godavari, West.											
39	M.T.C. Eluru	51	143	..	..	37	1	..	38	1,000	1,510	39
40	M.T.C. Palacole	33	52	2	..	1	..	..	3	226	420	40
41	M.T.C. Bhimavaram	41	26	..	..	..	..	..	..	76	311	41
42	T.C. Penugonda	7	15	1	1	2	..	..	4	134	169	42
43	T.C. Narasapur	16	22	2	..	2	..	..	4	119	233	43
44	T.C. Attili	5	11	..	..	..	..	1	1	49	77	44
45	T.C. Tanuku	5	19	..	..	4	..	..	4	228	293	45
46	T.C. Achanta	5	2	..	..	..	..	..	..	44	88	46
47	T.C. Velpuru	..	8	..	..	..	1	..	1	120	168	47
48	T.C. Nidadavole	12	19	..	..	1	..	..	1	102	167	48
49	T.C. Relangi	11	8	1	..	..	..	..	1	132	205	49
50	T.C. Kovvur	2	5	..	..	5	..	..	5	117	153	50
51	T.C. Maruteru	8	5	1	..	1	..	..	2	131	161	51
	Krishna.											
52	M.T.C. Vijayavada	108	251	1	2	25	..	..	28	1,260	1,988	52
53	M.T.C. Masulipatnam	39	125	2	..	18	..	1	21	948	1,839	53
54	M.T.C. Gudivada	28	38	..	..	6	1	1	8	283	477	54
55	T.C. Nuzvid	6	30	..	..	1	..	..	1	72	156	55
56	T.C. Jaggayyapeta	2	6	1	..	..	..	..	1	107	142	56
57	T.C. Pamarru	1	8	..	..	..	..	..	..	55	106	57
58	T.C. Vallivuru	..	6	..	..	2	..	..	2	52	108	58
59	T.C. Pedana	2	16	..	1	2	..	..	3	47	105	59
60	T.C. Vuyyuru	7	14	..	1	..	..	..	1	122	180	60
	Guntur.											
61	M.T.C. Guntur	125	265	3	2	50	3	..	64	1,157	2,067	61
62	M.T.C. Tenali	40	131	..	..	7	..	3	10	521	860	62
63	M.T.C. Ongole	36	97	2	2	13	..	..	17	450	674	63
64	M.T.C. Narasaraopet	9	37	1	..	4	1	..	6	222	377	64
65	M.T.C. Chirala	31	75	..	..	4	..	2	6	302	534	65
66	T.C. Bapatla	11	15	..	..	..	..	..	..	124	179	66
67	T.C. Vetapalem	12	4	1	..	..	..	..	1	105	192	67
68	T.C. Ponnur	8	19	..	..	..	1	..	1	99	181	68
69	T.C. Mangalagiri	2	12	4	2	7	1	..	14	103	234	69
70	T.C. Chebrolu	1	7	..	..	..	1	..	1	142	218	70
71	T.C. Addanki	28	28	..	..	..	..	..	..	98	205	71
72	T.C. Vinukonda	4	14	..	..	..	..	..	..	76	153	72

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera.	Smallpox.	Plague.	Malaria.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. Total deaths.	Average of published ratio for the previous five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).	Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	
	B. TOWNS—*cont.*														
	MUNICIPALITIES AND RURAL TOWNS—*cont.*														
	Srikakulam.														
1	M.T.C. Srikakulam	0·08	0·82	..	0·25	1·93	1·44	1·65	0·62	8·89	15·[illegible]8	14·13	12	13·42	1
2	M.T.C. Salur	..	5·63	..	..	5·67	1·51	1·35	0·20	6·23	20·61	17·31	2	3·97	2
3	T.C. Palkonda	0·68	2·05	..	..	8·63	1·30	1·58	0·14	8·77	23·15	24·35	6	13·16	3
4	T.C. Viraghattam	..	5·91	..	1·66	11·04	0·26	0·26	..	0·77	19·90	17·83	..	..	4
5	T.C. Parvatipur	0·18	2·50	..	0·09	7·08	0·42	0·71	0·18	6·27	17·45	14·36	5	11·44	5
6	T.C. Narasannapeta	0·10	1·56	..	0·83	8·01	1·77	1·04	0·41	10·19	23·92	20·86	2	8·40	6
7	T.C. Ichapuram	1·75	0·70	..	0·17	3·94	2·19	0·35	..	9·12	18·25	13·64	1	3·97	7
8	T.C. Sompeta	..	3·33	..	..	7·08	1·77	1·04	0·62	5·93	19·78	19·23	..	..	8
9	T.C. Baruva	..	11·67	..	0·25	11.15	3·84	2·82	0·38	12·05	42·18	12·59	1	3·57	9
*10	T.C. Mandasa	3·00	0·88	..	..	11·28	2·11	3·00	..	10·41	30·69	12·37	1	5·32	10
11	T.C. Tekkali	1·38	0·29	..	..	5·94	1·88	1·98	..	8·61	20·10	18·40	4	14·65	11
12	T.C. Bobbili	..	2·33	..	..	4·63	1·77	1·90	0·17	9·00	19·83	21·88	5	8·39	12
13	T.C. Rajam	1·67	1·37	..	..	6·11	1·06	0·61	..	7·78	18·63	23·34	1	4·93	13
	Visakhapatnam.														
14	M.T.C. Visakhapatnam	..	0·65	..	0·02	3·33	1·29	3·32	0·36	11·74	20·71	22·22	52	15·44	14
15	M.T.C. Vizianagaram	..	0·43	..	0·10	2·45	2·78	2·48	0·39	15·14	23·80	26·42	17	7·27	15
16	M.T.C. Anakapalle	0·12	2·07	..	1·43	3·09	3·20	3·28	0·42	10·39	24·[illegible]2	23·18	12	8·83	16
17	M.T.C. Bheemunipatnam	..	0·19	..	..	0·76	2·28	3·80	..	13·33	20·38	18·84	1	2·48	17
18	T.C. Narasapatnam	..	..	..	..	4·52	0·11	0·28	0·34	5·42	10·67	10·55	3	8·82	18
19	T.C. Yellamanchili	..	0·16	..	..	4·96	0·91	0·16	0·24	8·34	14·79	24·96	..	..	19
20	T.C. Srungavarapukota	..	..	..	..	5·47	0·57	1·03	0·57	6·49	14·14	19·89	2	9·05	20
21	T.C. Chodavaram	..	..	..	..	2·48	1·77	1·56	0·21	7·44	13·47	17·24	3	10·87	21
22	T.C. Madugula	..	..	..	..	5·35	0·35	..	0·83	8·81	15·55	23·97	1	4·50	22
	Godavari, East.														
23	M.T.C. Kakinada	..	0·99	..	0·18	1·66	0·76	0·82	0·13	11·02	15·58	18·94	22	7·90	23
24	M.T.C. Rajahmundry	0·08	0·46	..	0·09	2·12	1·61	1·86	0·21	13·82	20·75	26·56	21	5·94	24
25	M.T.C. Peddapuram	..	0·21	..	0·13	2·13	2·61	1·50	0·13	10·77	17·48	20·00	2	2·62	25
26	M.T.C. Amalapuram	0·14	0·66	..	..	0·80	0·80	1·31	0·14	13·01	16·86	19·77	5	8·61	26
27	T.C. Samalkota	..	..	..	..	0·07	0·07	0·07	0·18	0·21	0·59	10·46	..	..	27
28	T.C. Pithapuram	..	..	..	..	3·55	0·14	0·63	0·04	2·57	6·93	14·48	2	7·52	28
29	T.C. Tuni	0·69	0·48	..	0·48	3·22	1·18	0·91	0·16	3·28	10·42	15·63	2	9·01	29
30	T.C. Mummidivaram	0·16	..	..	0·09	1·05	0·78	0·26	0·09	3·95	6·40	14·81	2	19·80	30
31	T.C. Mandapeta	..	..	..	..	1·18	0·33	0·39	..	0·79	2·70	[illegible]·13	..	..	31
32	T.C. Dowlaishwaram	..	..	..	..	0·43	0·07	0·50	..	1·34	2·34	10·20	1	17·24	32
33	T.C. Machavaram	..	..	..	..	3·45	0·78	4·01	0·11	1·89	10·24	14·89	..	..	33
34	T.C. Ramachandrapuram	..	0·19	..	..	1·28	0·96	2·31	0·26	3·08	8·08	19·58	2	15·15	34
35	T.C. Biccavolu	..	..	..	..	0·52	0·32	0·32	0·08	2·14	3·17	17·63	1	15·15	35
36	T.C. Kottapeta	..	..	..	..	1·69	0·51	1·86	..	6·61	10·68	17·59	2	16·00	36
37	T.C. Razole	0·75	0·15	..	..	1·19	0·75	1·79	0·29	5·68	10·61	15·80	1	9·90	37
38	T.C. Yelleswaram	..	..	..	..	0·74	0·08	..	..	0·50	1·32	14·33	1	33·33	38
	Godavari, West.														
39	M.T.C. Eluru	0·07	0·84	..	0·02	2·23	0·58	1·62	0·43	11·36	17·15	20·63	31	14·80	39
40	M.T.C. Palacole	..	2·81	..	0·04	1·73	1·43	2·25	0·13	9·78	18·18	19·33	10	13·74	40
41	M.T.C. Bhimavaram	0·03	0·42	..	0·16	4·76	1·31	0·83	..	2·43	9·94	10·03	8	10·14	41
42	T.C. Penugonda	..	0·13	..	..	0·48	0·48	1·02	0·27	9·12	11·51	35·80	1	3·73	42
43	T.C. Narasapur	0·05	0·15	..	..	3·20	0·75	1·03	0·18	5·61	10·99	13·04	4	10·50	43
44	T.C. Attili	0·09	..	..	..	0·90	0·46	1·00	0·09	4·45	7·00	17·53	2	13·89	44
45	T.C. Tanuku	..	0·57	..	0·11	1·88	0·29	1·12	0·24	13·41	17·23	22·18	9	14·15	45
46	T.C. Achanta	..	..	..	..	3·83	0·52	0·21	..	4·56	9·12	10·65	3	26·09	46
47	T.C. Velpuru	0·17	0·09	..	..	3·60	..	0·26	0·09	10·53	14·74	13·77	..	8·80	47
48	T.C. Nidadavole	0·09	0·85	..	..	1·88	1·03	1·62	0·09	8·72	14·27	13·90	3	3.83	48
49	T.C. Relangi	0·21	0·21	..	..	5·16	1·16	0·84	0·11	13·90	21·59	12·33	1	..	49
50	T.C. Kovvur	0·08	..	..	..	1·85	0·16	0·40	0·40	9·44	12·34	5·60	1	4·10	50
51	T.C. Maruteru	..	0·27	..	..	1·82	1·12	0·70	0·28	18·36	22·49	17·59	2	10·36	51
	Krishna.														
52	M.T.C. Vijayavada	0·01	0·24	..	0·23	1·61	0·68	1·50	0·17	7·69	12·14	18·29	17	4·17	52
53	M.T.C. Masulipatnam	0·02	0·66	..	0·22	1·70	0·49	1·59	0·27	12·06	17·03	21·46	9	3·06	53
54	M.T.C. Gudivada	0·03	0·65	..	0·28	2·91	0·71	1·18	0·25	8·79	14·82	25·21	3	2·18	54
55	T.C. Nuzvid	..	..	..	..	2·76	0·35	1·76	0·10	4·23	9·18	12·65	4	12·20	55
56	T.C. Jaggayyapeta	..	0·08	..	..	1·94	0·16	0·46	0·08	8·29	11·01	15·25	3	11·72	56
57	T.C. Pamarru	..	0.19	..	..	3·92	0·10	0·78	..	5·39	10·39	15·90	3	12·88	57
58	T.C. Vallivuru	..	..	..	1·61	2·95	..	0·57	0·19	4·95	10·29	12·35	2	7·09	58
59	T.C. Pedana	..	..	..	..	3·16	0·17	1·36	0·26	4·01	8·17	14·24	3	10·50	59
60	T.C. Vuyyuru	0·27	0·48	..	0·21	1·51	0·48	0·96	0·07	8·35	12·33	16·32	6	9·00	60
	Guntur.														
61	M.T.C. Guntur	0·47	0·35	..	0·02	2·76	0·99	2·09	0·51	9·14	16·33	22·10	37	6·39	61
62	M.T.C. Tenali	0·32	0·41	..	0·26	1·76	0·68	2·23	0·17	8·88	14·65	28·40	14	6·89	62
63	M.T.C. Ongole	0·14	0·29	..	0·86	1·00	1·29	3·46	0·61	16·07	23·71	27·84	14	9·41	63
64	M.T.C. Narasaraopet	..	1·11	..	..	3·48	0·40	1·65	0·27	9·91	16·83	21·23	8	8·39	64
65	M.T.C. Chirala	..	..	..	0·55	2·60	0·81	1·97	0·16	7·77	13·86	17·90	1	0·94	65
66	T.C. Bapatla	..	..	..	..	1·26	0·48	0·65	..	5·39	7·78	9·39	2	5·49	66
67	T.C. Vetapalem	..	0·07	..	1·02	3·67	0·82	0·27	0·07	7·14	13·06	16·57	5	18·12	67
68	T.C. Ponnur	..	0·55	..	0·06	2·38	0·44	1·05	0·06	5·47	10·00	12·35	1	2.11	68
69	T.C. Mangalagiri	..	2·09	..	..	3·73	0·11	0·68	0·79	5·81	13·22	14·34	3	9·93	69
70	T.C. Chebrolu	..	0·07	..	..	4·68	0·07	0·50	0·07	10·07	15·46	18·50	1	1·74	70
71	T.C. Addanki	0·08	0·17	..	..	3·97	2·31	2·31	..	8·10	16·94	12·65	3	8·15	71
72	T.C. Vinukonda	0·10	0·69	..	..	5·05	0·40	1·38	..	7·52	15·14	14·09	4	20·10	72

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Estimated mid-year population for which births and deaths returns are to be received.	Births. Males.	Births. Females.	Births. Total.	Birth-rate per 1,000 of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Guntur—cont.											
73	T.C. Satsenapalle	15,200	168	150	318	20·92	..	7	..	..	51	73
74	T.C. Kolluru	8,580	89	73	162	18·89	..	29	..	..	16	74
75	T.C. Kollipara	8,540	76	64	140	16·39	..	2	..	..	14	75
76	T.C. Allurukothapatnam	9,000	167	138	305	33·89	..	..	..	..	39	76
77	T.C. Repalle	14,100	230	208	438	31·06	..	..	..	..	29	77
78	T.C. Chilakalurpet	11,600	76	77	153	13·19	..	12	..	1	24	78
79	T.C. Gurzala	7,640	82	59	141	18·46	..	4	..	..	19	79
80	T.C. Bhattiprolu	14,500	244	210	454	31·31	..	5	..	1	54	80
81	T.C. Chirangipuram	7,620	66	67	133	17·44	..	..	..	..	41	81
	Bellary.											
82	M.T.C. Bellary	70,800	1,220	1,118	2,338	33·01	..	6	13	13	24	82
83	M.T.C. Adoni	54,200	936	884	1,820	33·58	13	..	..	2	10	83
84	M.T.C. Hospet	39,100	667	663	1,330	34·02	12	..	..	26	74	84
85	T.C. Rayadrug	19,900	329	287	616	30·95	..	..	..	..	16	85
86	T.C. Hadagalli	7,160	152	132	284	42·51	1	..	..	..	27	86
*87	T.C. Yemmiganur	16,000	282	241	523	32·69	..	..	..	17	11	87
*88	T.C. Kosigi	11,000	185	208	393	35·73	1	..	..	..	101	88
*89	T.C. Harpanahalli	14,200	209	182	391	27·53	..	..	..	..	31	89
*90	T.C. Tekkalkota	7,660	100	82	182	23·75	..	3	..	..	24	90
*91	T.C. Kampli	8,430	53	67	120	14·23	..	..	..	..	11	91
*92	T.C. Kotturu	9,970	101	112	213	21·36	..	..	..	..	7	92
*93	T.C. Siruguppa	7,090	70	79	149	21·01	..	10	..	2	5	93
	Anantapur.											
94	M.T.C. Anantapur	32,300	586	588	1,174	36·35	9	2	..	2	39	94
95	M.T.C. Hindupur	24,600	364	324	688	27·97	17	14	..	2	10	95
96	M.T.C. Tadpatri	19,500	327	305	632	32·40	..	..	..	8	73	96
97	M.T.C. Guntakal	31,700	492	380	872	27·51	1	2	..	20	49	97
98	T.C. Uravakonda	16,800	219	213	432	25·71	..	..	..	..	54	98
*99	T.C. Gooty	15,500	72	56	124	8·00	..	..	..	..	23	99
100	T.C. Kadiri	20,600	248	206	454	22·03	..	81	..	9	108	100
101	T.C. Dharmavaram	14,800	243	206	449	30·34	17	2	..	..	114	101
102	T.C. Penukonda	6,910	155	153	308	44·56	..	2	..	..	19	102
103	T.C. Madakasira	6,610	135	136	271	41·00	..	6	..	..	56	103
*104	T.C. Pamidi	6,500	90	69	159	24·47	3	..	..	3	11	104
*105	T.C. Kalyandrug	8,240	103	111	214	25·98	..	1	..	..	28	105
	Kurnool.											
106	M.T.C. Kurnool	60,700	1,516	1,364	2,880	47·43	..	19	..	11	82	106
107	M.T.C. Nandyal	38,600	644	645	1,289	38·36	1	10	..	30	9	107
108	T.C. Cumbum	9,500	62	61	123	12·95	3	4	..	..	12	108
109	T.C. Giddalore	8,200	43	48	91	11·10	9	3	..	..	16	109
110	T.C. Koilkuntla	6,780	104	108	212	31·27	..	..	..	4	51	110
111	T.C. Gudur	7,260	133	116	249	34·29	..	2	..	..	69	111
*112	T.C. Markapur	11,900	113	92	205	17·23	..	14	..	5	41	112
113	T.C. Atmakur	11,000	79	91	170	15·45	..	..	..	..	94	113
114	T.C. Nandikotkur	10,200	122	104	226	22·16	..	..	..	..	41	114
115	T.C. Maddikera	10,000	121	96	217	21·70	4	..	..	..	84	115
116	T.C. Pattikonda	8,350	150	156	306	36·65	..	..	..	..	32	116
117	T.C. Kodumur	9,200	226	175	401	43·58	..	..	..	..	122	117
	Cuddapah.											
118	M.T.C. Cuddapah	37,700	712	709	1,421	37·69	12	18	..	7	73	118
119	M.T.C. Proddatur	37,700	669	726	1,395	37·71	13	29	..	4	61	119
120	T.C. Rajampet	9,320	44	62	106	11·37	..	3	..	..	18	120
121	T.C. Jammalamadugu	12,620	254	253	507	40·17	8	16	..	9	124	121
122	T.C. Rayachoti	10,730	157	151	308	28·70	..	..	..	7	87	122
123	T.C. Vempalle	7,630	95	93	188	24·65	22	4	..	..	19	123
124	T.C. Nandalur	6,380	69	49	118	18·49	4	..	..	..	22	124
125	T.C. Kamalapuram	6,680	65	63	128	19·16	..	..	..	..	12	125
126	T.C. Badvel	7,130	69	67	136	19·08	8	..	..	1	25	126
	Madras.											
127	M.T.C. Madras	1,434,000	30,080	28,881	58,961	41·12	216	490	..	91	3,760	127
	Nellore.											
128	M.T.C. Nellore	82,300	2,044	1,804	3,848	46·75	120	24	..	21	395	128
129	T.C. Gudur	20,300	96	100	196	9·65	1	..	..	..	28	129
130	T.C. Venkatagiri	17,400	124	120	244	14·02	..	..	..	..	28	130
131	T.C. Allur	7,830	95	84	179	22·86	50	2	..	..	17	131
132	T.C. Sulurpet	8,630	86	97	183	21·20	..	..	..	1	7	132
133	T.C. Kavali	15,600	179	149	328	21·02	6	..	..	4	28	133
134	T.C. Buchireddipalem	7,030	62	39	101	14·36	2	..	..	..	4	134
135	T.C. Kovuru	11,600	52	60	112	9·65	10	3	..	..	11	135
136	T.C. Kandukur	12,000	164	170	334	27·83	..	2	..	..	55	136
137	T.C. Nayudupet	7,180	157	155	312	41·71	..	6	..	32	70	137
138	T.C. Kanigiri	8,390	120	126	246	29·32	..	17	..	3	15	138

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Deaths—cont.										Serial number.
		Dysentery and diarrhœa.	Respiratory diseases.	Injuries. Suicides. Male.	Suicides. Females.	Wounds and accidents.	Snake-bites and killed by wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all causes.	
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
	B. TOWNS—cont.											
	MUNICIPALITIES AND RURAL TOWNS—cont.											
	Guntur—cont.											
73	T.C. Sattenapalle	10	16	..	2	6	..	..	8	79	171	73
74	T.C. Kolluru	..	..	..	..	..	..	..	..	63	108	74
75	T.C. Kollipara	1	9	..	..	..	..	..	..	12	38	75
76	T.C. Allurukothapatnam	6	14	..	1	..	..	..	1	79	139	76
77	T.C. Repalle	5	2	1	1	..	..	1	3	116	155	77
78	T.C. Chilakaturpet	1	2	..	..	..	..	..	..	49	89	78
79	T.C. Gurzala	1	6	..	..	..	..	..	..	26	56	79
80	T.C. Bhattiprolu	11	38	..	..	1	..	..	1	128	238	80
81	T.C. Chirangipuram	2	2	..	..	..	..	..	..	26	71	81
	Bellary.											
82	M.T.C. Bellary	79	296	2	..	31	2	4	39	787	1,251	82
83	M.T.C. Adoni	47	175	..	1	8	1	1	11	355	613	83
84	M.T.C. Hospet	56	93	2	..	10	3	..	15	307	583	84
85	T.C. Rayadrug	5	3	..	..	..	..	..	..	178	202	85
86	T.C. Hadagalli	13	10	..	..	1	..	..	1	66	117	86
*87	T.C. Yemmiganur	21	27	..	1	1	..	..	2	73	151	87
*88	T.C. Kosigi	..	..	..	..	..	1	..	1	136	239	88
*89	T.C. Harpanahalli	28	10	..	..	..	..	..	..	71	140	89
*90	T.C. Tekkalakota	10	13	..	..	..	..	..	..	48	98	90
*91	T.C. Kampli	4	3	..	..	..	..	..	..	26	44	91
*92	T.C. Kotturu	5	6	..	..	..	..	..	..	52	70	92
*93	T.C. Siruguppa	1	..	..	..	1	..	..	1	12	31	93
	Anantapur.											
94	M.T.C. Anantapur	19	53	..	..	22	4	1	27	261	412	94
95	M.T.C. Hindupur	37	72	..	2	5	2	..	9	195	356	95
96	M.T.C. Tadpatri	18	49	..	..	8	..	..	8	93	244	96
97	M.T.C. Guntakal	43	54	..	..	6	..	..	6	124	299	97
*98	T.C. Uravakonda	34	22	2	..	1	..	..	3	114	227	98
*99	T.C. Gooty	4	5	1	..	1	..	..	2	22	57	99
100	T.C. Kadiri	21	23	..	4	..	..	..	4	60	208	100
101	T.C. Dharmavaram	25	20	1	..	..	..	..	1	82	261	101
102	T.C. Penukonda	10	2	..	1	2	..	..	3	61	97	102
103	T.C. Madakasira	2	8	..	..	1	..	..	1	58	131	103
*104	T.C. Pamidi	4	8	..	..	..	..	..	..	42	66	104
*105	T.C. Kalyandrug	2	5	1	..	2	..	..	3	50	89	105
	Kurnool.											
106	M.T.C. Kurnool	90	176	4	1	46	4	5	60	664	1,052	106
107	M.T.C. Nandyal	33	152	..	3	14	1	..	18	353	606	107
108	T.C. Cumbum	1	2	..	..	..	..	..	..	35	57	108
109	T.C. Giddalore	..	2	..	..	..	..	1	1	22	53	109
110	T.C. Koilkuntla	..	16	..	..	1	..	..	1	21	93	110
111	T.C. Gudur	7	6	..	..	..	..	..	..	44	128	111
*112	T.C. Markapur	3	8	1	..	1	..	..	2	51	124	112
113	T.C. Atmakur	2	..	..	..	..	..	..	..	..	96	113
114	T.C. Nandikotkur	..	..	..	..	..	1	..	1	68	105	114
115	T.C. Maddikera	1	..	..	1	1	..	..	2	18	104	115
116	T.C. Pattikonda	12	8	..	..	..	..	..	..	48	95	116
117	T.C. Kodumur	5	25	1	..	..	..	..	1	51	204	117
	Cuddapah.											
118	M.T.C. Cuddapah	37	94	1	3	18	7	1	30	370	641	118
119	M.T.C. Proddatur	48	107	..	2	10	4	1	17	404	678	119
120	T.C. Rajampet	16	10	..	..	..	..	..	..	6	53	120
121	T.C. Jammalamadugu	9	21	3	2	..	..	..	5	126	318	121
122	T.C. Rayachoti	22	21	1	2	4	..	..	7	63	227	122
123	T.C. Vempalle	..	10	..	..	..	..	..	..	33	89	123
124	T.C. Kandaloor	2	2	1	..	..	..	..	1	35	66	124
125	T.C. Kamalapuram	6	7	..	..	1	..	..	1	45	71	125
126	T.C. Badvel	..	..	..	..	..	..	..	..	36	70	126
	Madras.											
127	M.T.C. Madras	5,695	10,831	60	32	176	175	..	443	20,513	42,039	127
	Nellore.											
128	M.T.C. Nellore	180	246	5	2	38	16	5	66	1,790	2,842	128
129	T.C. Gudur	4	14	..	..	..	..	..	..	76	123	129
130	T.C. Venkatagiri	11	17	1	..	..	..	..	1	94	151	130
131	T.C. Allur	10	24	..	..	1	..	..	1	41	145	131
132	T.C. Sulurpet	5	7	2	..	2	..	..	4	64	88	132
133	T.C. Kavali	7	10	2	..	..	..	..	2	83	140	133
134	T.C. Buchireddipalem	..	5	..	..	..	1	..	1	24	36	134
135	T.C. Kovur	7	23	..	..	2	..	..	2	17	73	135
136	T.C. Kandukur	..	2	..	..	2	..	..	2	78	139	136
137	T.C. Nayudupet	17	6	1	2	..	2	..	5	29	165	137
138	T.C. Kanigiri	11	25	..	..	7	1	..	8	54	123	138

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera.	Smallpox.	Plague.	Malaria.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. Total deaths.	From all causes. Average of published rates for the last five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).	Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	
	B. TOWNS—*cont.*														
	MUNICIPALITIES AND RURAL TOWNS—*cont.*														
	***Guntur*—cont.**														
73	T.C. Sattenapalle	..	0·46	..	..	3·36	0·65	1·05	0·53	5·19	11·25	12·16	4	12·46	73
74	T.C. Kolluru	..	3·38	..	..	1·87	..	..	..	7·34	12·59	17·18	..	..	74
75	T.C. Kollipara	..	0·23	..	..	1·64	0·11	1·05	..	1·40	4·45	9·76	..	..	75
76	T.C. Allurukothapatnam	..	..	..	..	4·33	0·67	1·56	0·11	8·78	15·44	13·98	1	3·28	76
77	T.C. Repalle	..	..	..	..	2·06	0·35	0·14	0·21	8·23	10·99	14·79	4	3·89	77
78	T.C. Chilakalurpet	..	1·03	..	0·09	2·07	0·09	0·17	..	4·22	7·67	7·80	1	6·37	78
79	T.C. Gurzala	..	0·52	..	..	2·48	0·13	0·79	..	3·40	7·33	8·32	..	..	79
80	T.C. Bhattiprolu	..	0·34	..	0·07	3·72	0·76	2·62	0·07	8·82	16·41	16·72	3	6·58	80
81	T.C. Chirangipuram	..	..	..	..	5·37	0·26	0·26	..	3·41	9·31	13·01	..	..	81
	Bellary.														
82	M.T.C. Bellary	..	0·08	0·18	0·18	0·33	1·03	4·17	0·55	11·11	17·66	24·44	26	10·94	82
83	M.T.C. Adoni	..	0·23	..	0·04	0·18	0·87	3·22	0·20	6·54	11·39	23·49	5	2·63	83
84	M.T.C. Hospet	..	0·31	..	0·67	1·89	1·43	2·88	0·38	7·85	14·91	23·72	6	4·41	84
85	T.C. Rayadrug	..	..	..	..	0·80	0·95	0·15	..	8·94	10·15	15·61	1	1·58	85
86	T.C. Hadagalli	..	0·15	..	..	4·04	1·80	1·50	0·14	9·88	17·51	22·06	..	..	86
*87	T.C. Yemmiganur	..	..	..	1·06	0·69	1·31	1·69	0·12	4·56	9·44	25·56	3	5·71	87
*88	T.C. Kosigi	0·09	..	..	..	9·18	..	..	0·09	12·36	21·73	21·06	..	..	88
*89	T.C. Harpanahalli	..	..	..	..	2·18	1·97	0·70	..	5·00	9·86	18·92	..	..	89
*90	T.C. Tekkalakota	..	0·39	..	..	3·13	1·31	1·70	..	6·26	12·79	17·53	..	..	90
*91	T.C. Kampli	..	..	..	..	1·30	0·47	0·36	..	3·08	5·22	18·93	..	..	91
*92	T.C. Kotturu	..	..	..	..	0·70	0·50	0·60	..	5·21	7·02	23·43	2	9·22	92
*93	T.C. Siruguppa	..	1·41	..	0·28	0·70	0·14	..	0·14	1·69	4·37	14·36	1	6·62	93
	Anantapur.														
94	M.T.C. Anantapur	0·27	0·06	..	0·06	1·21	0·58	1·64	0·84	8·08	12·75	16·63	8	6·66	94
95	M.T.C. Hindupur	0·69	0·57	..	0·08	0·41	1·50	2·92	0·36	7·92	14·47	14·80	10	13·87	95
96	M.T.C. Tadpatri	..	..	..	0·41	3·74	0·67	2·51	0·41	4·77	12·51	22·41	9	13·74	96
97	M.T.C. Guntakal	0·03	0·06	..	0·63	1·55	1·36	1·70	0·19	3·91	9·43	13·99	3	3·39	97
*98	T.C. Uravakonda	..	..	..	..	3·21	2·02	1·31	0·18	6·79	13·51	35·19	4	9·26	98
*99	T.C. Gooty	..	..	..	..	1·48	0·26	0·39	0·13	2·33	5·35	13·67	5	10·99	100
100	T.C. Kadiri	..	3·93	..	0·44	5·24	1·02	1·12	0·19	2·91	14·85	17·59	10	22·27	101
101	T.C. Dharmavaram	1·15	0·14	..	..	7·70	1·69	1·35	0·07	5·54	17·64	12·43	..	..	102
102	T.C. Penukonda	..	0·28	..	..	2·74	1·45	0·28	0·43	8·82	14·03	16·01	1	3·69	103
103	T.C. Madakasira	..	0·90	..	..	8·47	0·30	1·21	0·15	8·77	19·82	14·23	..	..	104
*104	T.C. Pamidi	0·46	..	..	0·46	1·69	0·62	0·46	..	6·46	10·16	18·53	1	4·65	105
*105	T.C. Kalyandrug	..	0·12	..	..	3·40	0·24	0·60	0·36	6·07	10·80				
	Kurnool.														
106	M.T.C. Kurnool	..	0·31	..	0·18	0·52	1·48	2·90	0·99	10·94	17·33	17·53	35	11·33	106
107	M.T.C. Nandyal	0·03	0·30	..	0·90	0·27	0·98	4·52	0·54	10·50	18·03	24·01	17	12·27	107
108	T.C. Cumbum	0·81	0·42	..	..	1·26	0·10	0·27	..	3·68	6·00	9·09	1	8·13	108
109	T.C. Giddalore	1·09	0·37	..	..	1·95	..	0·24	0·12	2·68	6·47	14·95	1	10·99	109
110	T.C. Koilkuntla	..	..	..	0·59	7·52	..	2·36	0·14	3·09	13·71	20·44	3	14·15	110
111	T.C. Gudur	..	0·27	..	..	9·50	0·96	0·83	..	6·05	17·63	25·45	..	..	111
*112	T.C. Markapur	..	1·17	..	0·42	3·44	0·25	0·67	0·17	4·29	10·41	17·48	..	..	112
113	T.C. Atmakur	..	..	..	..	8·54	0·19	..	..	..	8·73	11·77	..	..	113
114	T.C. Nandikotkur	..	..	..	..	4·02	..	..	0·10	6·17	10·29	14·93	..	..	114
115	T.C. Maddikera	0·40	..	..	..	8·40	0·10	..	0·20	1·80	10·40	28·01	3	13·83	115
116	T.C. Pattikonda	..	..	..	..	3·83	1·43	0·96	..	5·15	11·38	35·31	..	..	116
117	T.C. Kodumur	..	..	..	..	13·26	0·54	2·72	0·11	5·54	22·17	35·34	3	7·48	117
	Cuddapah.														
118	M.T.C. Cuddapah	0·31	0·48	..	0·19	1·94	0·98	2·49	0·80	9·82	17·01	18·78	14	9·28	118
119	M.T.C. Proddatur	0·35	0·78	..	0·10	1·65	1·16	2·89	0·46	10·02	18·33	19·15	12	8·41	119
120	T.C. Rajampet	..	0·32	..	..	1·93	1·71	1·67	..	0·64	5·69	4·60	..	..	120
121	T.C. Jammalamadugu	0·63	1·26	..	0·71	9·82	0·71	1·66	0·40	9·98	25·19	43·04	5	9·78	121
122	T.C. Rayachoti	..	..	..	0·65	8·10	2·05	1·96	0·65	7·73	21·15	11·49	5	15·87	122
123	T.C. Vempalle	2·88	0·52	..	..	2·49	..	1·31	..	4·32	11·54	19·94	3	15·96	123
124	T.C. Nandalur	0·62	..	..	..	3·44	0·31	0·31	0·16	5·48	10·31	8·51	1	8·47	124
125	T.C. Kamalapuram	..	..	..	..	1·80	0·90	1·05	0·14	6·73	10·62	15·43	..	..	125
*126	T.C. Badvel	1·12	..	..	0·14	3·51	..	..	..	5·05	9·82	12·70	..	..	126
	Madras.														
127	M.T.C. Madras	0·15	0·34	..	0·06	2·62	3·97	7·55	0·30	14·30	29·32	32·46	151	2·49	127
	Nellore.														
128	M.T.C. Nellore	1·46	0·29	..	0·26	4·79	2·19	2·99	0·80	21·74	34·53	32·99	87	21·01	128
129	T.C. Venkatagiri	0·05	..	..	..	1·88	0·20	0·69	..	3·75	6·06	13·34	3	..	129
130	T.C. Allur	..	..	..	..	1·60	0·63	0·98	0·06	5·40	8·68	12·64	5	10·49	130
131	T.C. Buchireddipalem	6·38	0·25	..	..	2·28	1·27	3·06	0·12	5·23	18·51	9·07	1	5·59	131
132	T.C. Sulurpet	..	..	..	0·12	0·81	0·57	0·81	0·46	7·41	10·20	13·87	..	..	132
133	T.C. Kavali	0·38	..	..	0·26	1·79	0·45	0·64	0·13	5·32	8·97	10·92	1	2·91	133
134	T.C. Gudur	0·28	..	..	..	0·56	..	0·71	0·14	3·41	5·12	10·42	..	..	134
135	T.C. Kovuru	0·86	0·26	..	..	0·94	0·60	1·98	0·17	1·46	6·29	19·13	..	..	135
136	T.C. Kandukur	..	0·16	..	..	4·58	..	0·16	0·16	6·50	11·58	10·47	7	20·47	136
137	T.C. Nayudupet	..	0·80	..	4·27	9·35	2·27	0·80	0·67	3·87	22·06	18·39	..	..	137
138	T.C. Kanigiri	..	2·03	..	0·36	1·79	1·31	2·98	0·95	6·44	15·85	16·29	2	7·91	138

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Estimated mid-year population for which birth and death returns are to be received.	Births. Males.	Births. Females.	Births. Total.	Birth-rate per 1,000 of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Chingleput.											
139	M.T.C. Kancheepuram	85,100	1,550	1,524	3,074	36·12	44	23	..	..	133	139
140	M.T.C. Chingleput	19,100	609	507	1,116	58·42	..	15	..	2	46	140
141	M.T.C. Tiruvallur	22,800	274	310	584	25·61	4	12	..	..	59	141
*142	T. C. Poonamallee	20,600	259	270	529	25·68	..	..	..	7	82	142
*143	T.C. Uttiramerur	12,100	134	161	295	24·38	..	2	..	2	50	143
*144	T.C. Alandur	15,700	161	128	289	18·41	..	1	..	..	36	144
*145	T.C. Pallavaram	12,000	141	127	268	22·33	1	3	..	12	37	145
*146	T.C. Tiruvottiyur	23,700	182	158	340	34·00	..	1	..	..	79	146
*147	T.C. Tirukkalikundram	11,300	109	107	216	19·11	9	9	..	2	39	147
148	T.C. Madurantakam	9,200	129	126	255	27·71	5	25	..	..	67	148
*149	T.C. Walajabad	6,900	93	86	179	25.94	..	..	..	..	25	149
150	T.C. Cheyyur	5,400	78	88	166	30·74	13	..	..	..	17	150
*151	T.C. Arni	6,180	113	86	199	32·20	..	..	..	..	48	151
*152	T.C. St. Thomas' Mount	14,900	37	32	69	4·63	..	..	..	..	11	152
*153	T.C. Villivakkam	11,400	22	37	59	5·18	..	7	..	..	9	153
	Chittoor.											
154	M.T.C. Chittoor	39,300	829	687	1,516	38·58	21	5	..	..	42	154
155	M.T.C. Tirupati	25,400	492	468	960	37·80	12	..	..	11	27	155
*156	T.C. Kalahasti	18,000	259	238	497	27·61	10	1	..	16	14	156
*157	T.C. Madanapalle	16,300	72	51	123	7·55	..	2	..	..	16	157
158	T.C. Punganur	11,300	214	176	390	34·52	3	4	..	..	25	158
*159	T.C. Kuppam	6,550	75	85	160	24·43	..	3	..	2	5	159
160	T.C. Tiruttani	10,000	73	59	132	13·20	..	..	..	2	26	160
*161	T.C. Palmaner	6,940	99	80	179	25·79	..	17	..	..	4	161
	North Arcot.											
162	M.T.C. Vellore	1,07,200	2,610	2,450	5,060	47·20	51	4	..	4	152	162
163	M.T.C. Tiruvannamalai	41,000	707	642	1,349	32·90	6	6	..	3	95	163
164	M.T.C. Gudiyattam	46,100	805	709	1,514	32·84	2	12	..	..	157	164
165	M.T.C. Vaniyambadi	39,000	677	606	1,283	32·89	8	8	..	2	10	165
166	M.T.C. Tiruppattur	27,100	629	606	1,235	45·57	9	1	..	56	19	166
167	M.T.C. Walajapet	12,600	257	246	503	39·92	..	..	..	1	35	167
168	M.T.C. Ambur	40,300	744	681	1,425	35·35	3	..	..	16	94	168
169	T.C. Arni	24,700	513	506	1,019	41·26	4	10	..	..	98	169
170	T.C. Arcot	21,300	307	232	539	25·31	6	3	..	..	103	170
*171	T.C. Arkonam	23,300	227	178	405	17·38	..	5	..	..	39	171
*172	T.C. Tiruvottiyur	14,500	187	208	395	27·24	2	1	..	..	63	172
173	T.C. Polur	16,200	188	198	386	23·83	1	..	..	..	57	173
*174	T.C. Ranipet	19,100	366	304	670	32·32	..	6	..	..	68	174
175	T.C. Visharam	13,500	146	182	328	24·29	3	4	..	..	32	175
176	T.C. Pernambatti	18,400	184	160	344	18·70	..	7	..	..	36	176
177	T.C. Sholinghur	11,000	152	151	303	27·55	..	2	..	..	33	177
*178	T.C. Pallikonda	10,800	158	136	294	27·22	..	..	..	..	28	178
179	T.C. Wandiwash	12,100	138	138	276	22·81	1	11	..	..	84	179
*180	T.C. Kalambur	9,670	124	127	251	25·95	8	3	..	..	22	180
*181	T.C. Chetput	10,700	103	103	206	19·25	..	2	..	..	34	181
*182	T.C. Kaverippakkam	8,600	121	103	224	26·05	..	..	..	..	26	182
*183	T.C. Panappakkam	5,000	103	97	200	44·00	..	..	..	..	20	183
	South Arcot.											
184	M.T.C. Cuddalore	39,400	1,595	1,505	3,100	44 67	42	15	..	1	133	184
185	M.T.C. Chidambaram	35,000	688	689	1,377	39 34	56	70	..	7	53	185
186	M.T.C. Villupuram	35,900	774	693	1,467	40·87	36	184	..	5	77	186
187	M.T.C. Tindivanam	30,000	476	419	395	29·83	13	..	..	..	72	187
*188	T.C. Panruti	14,500	27	46	73	5·03	..	1	..	..	17	188
189	T.C. Porto Novo	15,100	219	159	378	25·20	3	2	..	..	63	189
*190	T.C. Nellikuppam	20.400	44	41	85	4·17	..	2	..	..	4	190
191	T.C. Tirukkoyilur	16.800	388	317	705	41·96	11	11	..	5	57	191
*192	T.C. Ponnadami	6,800	88	95	183	26 92	1	1	..	..	32	192
*193	T.C. Kurinjipadi	9,990	50	34	84	8·40	4	2	..	..	2	193
194	T.C. Mannargudi	10,300	117	116	233	22 62	3	..	..	..	19	194
*195	T.C. Vriddhachalam	11,300	113	113	226	20·00	3	4	..	..	34	195
196	T.C. Bhuvanagiri	10,300	98	92	190	18·45	13	2	..	..	35	196
197	T.C. Kallakurchi	11,100	152	138	290	26·10	..	..	..	..	28	197
198	T.C. Chinna Salem	8,700	135	112	247	28·38	13	3	..	..	31	198
199	T.C. Valavanur	8,340	140	87	227	27·22	12	5	..	..	15	199
200	T.C. Srimushnam	6,730	101	92	193	28·68	..	4	..	..	38	200
201	T.C. Ulundurpet	6,690	84	93	177	26·46	..	2	..	..	37	201
	Tanjore.											
202	M.T.C. Tanjore	1,01,700	2,103	2,073	4,176	41·06	96	66	..	1	142	202
203	M.T.C. Kumbakonam	92,500	1,854	1,782	3,636	39·30	47	43	..	..	44	203
204	M.T.C. Nagapattinam	58,000	1,198	1,170	2,368	51·63	35	3	..	..	108	204
205	M.T.C. Mayuram	43,800	924	857	1,781	40·66	21	15	..	..	26	205
206	M.T.C. Mannargudi	30,100	816	750	1,566	52·02	74	13	..	1	12	206
207	M.T.C. Tiruvarur	27,400	655	613	1,268	46·28	52	23	..	6	57	207
208	T.C. Vedaranniam	17,000	255	254	509	29·94	..	..	..	..	5	208
209	T.C. Sirkali	15,400	421	336	757	49·16	27	7	..	..	34	209
210	T.C. Papanasam	8,790	144	139	283	32·20	2	..	..	..	15	210
211	T.C. Tranquebar	15,100	126	99	225	14 90	4	2	..	..	7	211
212	T.C. Kuttalam	7,740	132	128	260	33·59	4	..	..	..	18	212
213	T.C. Tiruvadamarudur	14,300	161	167	328	22·94	..	..	..	..	9	213
214	T.C. Pattukkottai	18,400	155	183	338	18·37	..	..	..	..	15	214
215	T.C. Adirampatnam	13,200	165	190	355	26·89	2	1	..	..	14	215
216	T.C. Ayyampettai	9,410	194	184	378	40·18	..	3	..	..	20	216

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Deaths—*cont.* Dysentery and diarrhœa.	Respiratory diseases.	Injuries. Suicides. Males.	Suicides. Females.	Wounds and accidents.	Snake bite and killed by wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all other causes.	Serial number.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Chingleput.											
139	M.T.C. Kancheepuram	215	589	5	..	39	1	..	45	1,197	2,246	139
140	M.T.C. Chingleput	122	135	..	..	21	..	3	24	305	649	140
141	M.T.C. Tiruvallur	62	56	..	..	6	..	..	6	217	418	141
*142	T.C. Poonamallee	52	42	1	..	2	..	..	3	152	338	142
*143	T.C. Uttiramerur	44	43	..	..	1	..	..	1	162	304	143
*144	T.C. Alandur	15	14	1	..	..	..	..	1	71	138	144
*145	T.C. Pallavaram	10	16	..	..	..	..	..	..	56	135	145
*146	T.C. Tiruvottiyur	35	23	2	..	..	..	..	2	171	311	146
*147	T.C. Tirukkalikundram	18	19	..	..	..	..	..	..	105	201	147
148	T.C. Madurantakam	33	11	..	1	1	1	..	3	120	264	148
*149	T.C. Walajabad	30	17	1	..	..	..	..	1	54	127	149
150	T.C. Cheyyur	5	3	..	..	..	..	..	..	90	128	150
*151	T.C. Arni	11	16	..	..	..	..	..	..	49	124	151
*152	T.C. St. Thomas' Mount	6	7	..	..	..	..	..	..	18	42	152
*153	T.C. Villivakkam	2	10	..	..	..	..	..	..	24	52	153
	Chittoor.											
154	M.T.C. Chittoor	32	79	1	1	31	..	..	33	674	886	154
155	M.T.C. Tirupati	62	73	..	..	6	3	..	9	298	492	155
*156	T.C. Kalahasti	17	47	1	1	12	1	..	15	104	224	156
*157	T.C. Madanapalle	2	1	..	..	1	..	..	1	19	41	157
158	T.C. Punganur	4	2	1	..	..	..	..	1	120	159	158
*159	T.C. Kuppam	7	9	..	..	1	..	..	1	55	82	159
160	T.C. Tiruttani	15	13	..	..	1	..	..	1	41	98	160
*161	T.C. Palmaner	1	2	..	1	..	..	..	1	20	45	161
	North Arcot.											
162	M.T.C. Vellore	269	479	3	1	53	..	7	64	1,654	2,077	162
163	M.T.C. Tiruvannamalai	126	165	3	2	5	2	..	12	533	946	163
164	M.T.C. Gudiyattam	121	76	1	1	3	..	..	5	434	807	164
165	M.T.C. Vaniyambadi	53	132	1	1	..	..	..	2	338	548	165
166	M.T.C. Tiruppattur	38	96	..	..	8	1	1	10	249	478	166
167	M.T.C. Walajapet	26	40	..	..	7	1	..	8	168	278	167
168	M.T.C. Ambur	63	78	1	2	6	..	..	9	361	624	168
169	T.C. Arni	91	64	1	..	7	..	..	8	324	599	169
170	T.C. Arcot	42	26	1	..	..	..	..	1	78	259	170
*171	T.C. Arkonam	21	26	1	..	2	..	..	3	120	214	171
*172	T.C. Tiruvottiyur	36	34	1	2	..	..	..	3	119	258	172
173	T.C. Polur	29	10	2	2	..	..	..	4	168	269	173
*174	T.C. Ranipet	36	11	..	1	3	..	..	4	156	281	174
175	T.C. Visharam	9	7	..	1	..	..	..	1	110	166	175
176	T.C. Pernambatti	19	6	..	..	1	..	..	1	77	146	176
177	T.C. Sholinghur	12	3	..	..	..	..	..	..	143	193	177
*178	T.C. Pallikonda	19	13	1	2	..	..	..	3	112	175	178
179	T.C. Wandiwash	20	14	..	..	1	..	..	1	97	237	179
*180	T.C. Kalambur	8	11	1	..	1	..	..	2	118	172	180
*181	T.C. Chetput	17	4	..	..	..	..	..	..	84	141	181
*182	T.C. Kaveripakkam	11	7	..	..	..	..	..	..	77	121	182
*183	T.C. Panappakkam	10	14	..	1	..	..	..	1	70	115	183
	South Arcot.											
184	M.T.C. Cuddalore	122	204	6	1	26	2	2	37	1,003	1,557	184
185	M.T.C. Chidambaram	78	68	..	..	8	..	..	8	560	900	185
186	M.T.C. Villuppuram	112	160	1	1	15	3	..	20	285	879	186
187	M.T.C. Tindivanam	96	121	..	2	10	2	6	19	263	584	187
*188	T.C. Panruti	6	7	..	..	..	..	..	..	21	52	188
189	T.C. Porto Novo	27	26	1	..	..	1	..	2	55	178	189
*190	T.C. Nellikuppam	4	1	1	..	..	..	..	1	25	37	190
191	T.C. Tirukkoyilur	34	67	1	1	4	..	..	6	144	335	191
*192	T.C. Ponnadami	25	9	..	..	..	..	..	..	79	147	192
*193	T.C. Kurinjipadi	1	2	..	..	..	..	..	..	30	41	193
194	T.C. Mannargudi	9	11	..	..	..	..	..	..	105	147	194
*195	T.C. Vriddhachalam	21	11	..	1	1	1	..	3	66	142	195
196	T.C. Bhuvanagiri	7	9	..	..	..	..	..	..	68	134	196
197	T.C. Kallakurchi	4	3	..	..	..	..	..	..	125	160	197
198	T.C. Chinna Salem	8	5	..	..	..	2	..	2	40	102	198
199	T.C. Valavanur	6	7	..	..	..	..	..	..	84	129	199
200	T.C. Srimushnam	12	17	..	..	2	2	..	4	45	120	200
201	T.C. Ulundurpet	26	10	1	..	3	..	..	4	86	165	201
	Tanjore.											
202	M.T.C. Tanjore	153	311	5	..	47	4	16	72	1,951	2,792	202
203	M.T.C. Kumbakonam	160	272	1	1	15	1	6	24	1,411	1,941	203
204	M.T.C. Nagapattinam	130	107	3	..	5	2	1	11	975	1,369	204
205	M.T.C. Mayuram	36	117	2	..	18	2	..	22	609	846	205
206	M.T.C. Mannargudi	53	141	1	..	5	2	..	8	531	833	206
207	M.T.C. Tiruvarur	47	58	..	2	4	..	..	6	273	522	207
208	T.C. Vedaranniyam	5	11	..	1	5	..	..	6	219	246	208
209	T.C. Sirkali	16	20	1	1	4	..	..	6	255	365	209
210	T.C. Papanasam	9	11	..	1	3	1	..	5	136	178	210
211	T.C. Tranquebar	17	15	2	..	1	..	..	3	91	139	211
212	T.C. Kuttalam	15	13	..	1	1	..	..	2	125	177	212
213	T.C. Tiruvadamarudur	22	38	..	..	1	..	..	1	111	181	213
214	T.C. Pattukkottai	32	35	1	..	1	..	..	2	95	179	214
215	T.C. Adirampatnam	9	4	..	2	2	..	..	4	204	238	215
216	T.C. Ayyampettai	25	24	..	2	3	..	..	5	126	203	216

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera.	Smallpox.	Plague.	Malaria.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. Total deaths.	Average of published rates for the last five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).	Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	
	B. TOWNS—*cont.*														
	MUNICIPALITIES AND RURAL TOWNS—*cont.*														
	Chingleput.														
139	M.T.C. Kancheepuram	0·52	0·27	..	..	1·56	2·53	6·92	0·53	14·07	26·39	22·77	46	14·63	139
140	M.T.C. Chingleput	..	0·78	..	0·10	2·40	6·38	7·06	1·26	15·97	33·48	26·11	22	18·60	140
141	M.T.C. Tiruvallur	0·17	0·53	..	..	2·59	2·72	2·54	0·26	9·52	18·33	25·29	1	1·66	141
*142	T.C. Poonamallee	..	..	..	0·34	3·98	2·52	2·04	0·15	7·38	16·41	18·75	..	..	142
*143	T.C. Uttiramerur	..	0·17	..	0·17	4·13	3·64	3·55	0·08	13·38	25·12	22·02	..	..	143
*144	T.C. Alandur	..	0·06	..	..	2·29	0·95	0·89	0·06	4·52	8·78	15·34	..	..	144
*145	T.C. Pallavaram	0·08	0·25	..	1·00	3·08	0·83	1·33	..	4·67	11·25	17·76	..	..	145
*146	T.C. Tiruvottiyur	..	0·04	..	..	3·33	1·47	0·97	0·09	7·21	13·12	15·07	1	2·90	146
*147	T.C. Tirukkalikundram	0·80	0·80	..	0·17	3·45	1·59	1·68	..	9·29	17·79	17·62	5	23·15	147
148	T.C. Madurantakam	0·54	2·71	..	..	7·28	3·59	1·20	0·33	13·04	28·70	22·14	1	3·91	148
*149	T.C. Walajabad	..	..	..	..	3·62	4·35	2·46	0·14	7·82	18·40	21·81	1	5·56	149
150	T.C. Cheyyur	2·41	..	..	..	3·14	0·92	0·56	..	16·67	23·71	23·78	1	5·71	150
*151	T.C. Arni	..	..	..	..	7·76	1·78	2·59	..	7·92	20·06	15·66	1	4·93	151
*152	T.C. St. Thomas' Mount	..	..	..	..	0·73	·40	0·47	..	1·20	2·82	15·02	..	..	152
*153	T.C. Villivakkam	..	0·61	..	..	0·79	0·17	0·88	..	2·10	4·56	6·54	1	..	153
	Chittoor.														
154	M.T.C. Chittoor	0·53	0·13	..	..	1·07	0·81	2·01	0·83	17·15	22·55	22·34	17	11·06	154
155	M.T.C. Tirupati	0·47	..	..	0·43	1·06	2·44	2·87	0·35	11·73	19·37	23·81	6	6·00	155
*156	T.C. Kalahasti	0·56	0·05	..	0·89	0·78	0·94	2·61	0·83	5·78	12·45	17·11	4	7·53	156
*157	T.C. Madanapalle	..	0·12	..	..	0·98	0·12	0·06	0·06	1·16	2·51	9·13	1	8·13	157
158	T.C. Punganur	0·26	0·35	..	..	2·21	0·35	0·18	0·09	10·62	14·07	14·72	2	5·00	158
*159	T.C. Kuppam	..	0·46	..	0·31	0·76	1·07	1·37	0·15	8·40	12·52	16·13	3	18·63	159
160	T.C. Tiruttani	..	..	..	0·20	2·60	1·50	1·30	0·10	4·19	9·80	19·97	..	..	160
*161	T.C. Palmaner	..	2·45	..	..	0·58	0·14	0·28	0·14	2·88	6·48	9·70	..	..	161
	North Arcot.														
162	M.T.C. Vellore	0·48	0·04	..	0·04	1·42	2·51	4·47	0·60	15·43	24·97	27·26	35	6·55	162
163	M.T.C. Tiruvannamalai	0·14	0·14	..	0·07	2·31	3·07	4·02	0·29	13·00	23·07	21·15	7	4·96	163
164	M.T.C. Gudiyattam	0·04	0·26	..	..	3·40	2·62	1·64	0·11	9·41	17·50	20·13	18	11·31	164
165	M.T.C. Vaniyambadi	0·08	0·23	..	0·02	0·26	1·36	3·38	0·51	8·67	14·05	15·83	15	11·36	165
166	M.T.C. Tiruppattur	0·33	0·03	..	2·06	0·70	1·40	3·54	0·36	9·19	17·64	18·47	6	4·50	166
167	M.T.C. Walajapet	..	..	..	0·08	2·78	2·06	3·17	0·03	13·33	22·06	22·93	1	1·92	167
168	M.T.C. Ambur	0·07	..	..	0·39	2·33	1·56	1·94	0·22	8·96	15·48	14·00	14	9·48	168
169	T.C. Arni	0·16	0·40	..	..	3·97	3·68	2·59	0·32	13·12	24·25	19·43	13	12·76	169
170	T.C. Arcot	0·28	0·14	..	..	4·83	1·97	1·22	0·04	3·66	12·16	4·13	5	9·07	170
*171	T.C. Arkonam	..	0·21	..	..	1·67	0·90	1·12	0·13	5·15	9·18	15·34	1	2·40	171
*172	T.C. Tiruvottiyur	0·13	0·06	..	..	4·35	2·48	2·34	0·20	8·21	17·79	23·33	2	4·89	172
173	T.C. Polur	0·06	..	..	..	3·52	1·79	0·61	0·25	10·37	16·61	16·52	3	7·61	173
*174	T.C. Ranipet	..	0·37	..	..	4·20	2·22	0·68	0·24	9·63	17·35	15·01	9	12·68	174
175	T.C. Visharam	0·22	0·29	..	..	2·37	1·67	0·51	0·07	8·14	12·30	12·19	..	..	175
176	T.C. Pernambatti	..	0·38	..	..	1·95	1·03	0·33	0·05	4·18	7·94	9·95	5	14·45	176
177	T.C. Sholinghur	..	0·18	..	..	3·00	0·09	0·27	..	13·00	17·54	14·94	1	3·26	177
*178	T.C. Pallikonda	..	..	..	..	2·59	1·76	1·20	0·28	10·37	16·20	17·29	1	3·32	178
179	T.C. Wandiwash	0·08	0·92	..	..	6·94	2·40	1·16	0·08	8·01	19·59	16·54	1	3·45	179
*180	T.C. Kalambur	0·82	0·31	..	..	2·27	0·82	1·14	0·20	12·20	17·72	19·54	1	3·89	180
*181	T.C. Chetput	..	0·19	..	..	3·18	1·59	0·37	..	7·85	13·18	17·12	..	..	181
*182	T.C. Kaverippakkam	..	..	..	..	3·02	1·30	0·81	..	8·96	14·07	17·19	1	4·37	182
*183	T.C. Panappakkam	..	..	..	..	4·00	2·00	2·80	0·20	14·00	23·00	15·43	1	4·88	183
	South Arcot.														
184	M.T.C. Cuddalore	0·61	0·21	..	0·01	1·91	1·76	2·94	0·53	14·45	22·44	19·90	45	13·78	184
185	M.T.C. Chidambaram	1·59	2·00	..	0·20	1·51	2·23	1·94	0·23	15·99	25·71	22·45	20	13·39	185
186	M.T.C. Villuppuram	1·00	5·12	..	0·14	2·15	3·12	4·46	0·56	7·94	24·49	22·90	16	10·11	186
187	M.T.C. Tindivanam	0·43	..	..	..	2·40	3·20	4·03	0·63	8·77	19·46	13·01	3	3·33	187
*188	T.C. Panruti	..	0·07	..	..	1·17	0·41	0·48	..	1·44	3·59	9·47	..	..	188
189	T.C. Porto Novo	0·20	0·13	..	..	4·20	1·80	1·73	0·13	3·67	11·87	11·06	3	7·94	189
*190	T.C. Nellikuppam	..	0·08	..	..	0·20	0·20	0·05	0·05	1·22	1·81	16·01	..	..	190
191	T.C. Tirukkoyllur	0·65	0·65	..	0·30	3·39	2·02	3·99	0·36	8·57	19·93	12·58	9	12·10	191
*192	T.C. Ponnadami	0·15	0·15	..	..	4·71	3·68	1·32	..	11·62	24·62	16·00	1	5·46	192
*193	T.C. Kurinjipadi	0·40	0·20	..	..	0·20	0·10	0·20	..	3·00	4·10	6·84	..	..	193
194	T.C. Mannargudi	0·29	..	..	..	3·78	0·87	1·07	..	10·19	14·27	16·86	2	8·58	194
*195	T.C. Vriddhachalam	0·26	0·35	..	..	3·61	1·86	0·97	0·26	5·84	12·57	17·47	1	4·41	195
196	T.C. Bhuvanagiri	1·26	0·19	..	..	3·49	0·68	0·87	..	6·60	13·01	21·22	..	..	196
197	T.C. Kallakurichi	..	..	..	..	2·52	0·36	0·27	..	11·25	14·40	15·58	2	6·87	197
198	T.C. Chinna Salem	1·49	0·84	..	..	3·56	0·91	0·57	0·22	4·59	11·71	12·98	..	..	198
199	T.C. Valavanur	1·43	0·60	..	..	1·80	0·72	0·84	..	10·07	15·47	19·16	..	..	199
200	T.C. Srimushnam	..	0·59	..	..	5·64	1·78	2·52	0·59	6·68	17·83	19·32	3	15·46	200
201	T.C. Ulundurpet	..	0·30	..	..	5·53	3·89	1·50	0·60	12·85	24·67	13·16	1	5·65	201
	Tanjore.														
202	M.T.C. Tanjore	0·94	0·65	..	0·01	1·40	1·50	3·06	0·70	19·18	27·45	30·89	74	17·07	202
203	M.T.C. Kumbakonam	0·50	0·46	..	..	0·48	1·08	2·94	0·26	15·25	20·98	23·44	49	12·32	203
204	M.T.C. Nagapattinam	0·60	0·05	..	..	1·86	2·24	1·84	0·19	16·80	25·60	20·28	29	11·49	204
205	M.T.C. Mayuram	0·47	0·34	..	..	0·59	0·82	2·67	0·50	13·90	19·31	25·40	13	6·96	205
206	M.T.C. Mannargudi	2·46	0·43	..	0·03	0·40	1·76	4·68	0·26	17.63	27·67	27·50	17	9·99	206
207	M.T.C. Tiruvarur	1·89	0·84	..	0·21	2·08	1·72	2·11	0·21	9·96	19·05	21·52	9	6·72	207
208	T.C. Vedaranniyam	..	..	..	..	0·29	0·29	3·64	0·35	12·88	14·47	21·91	5	9·80	208
209	T.C. Sirkali	1·75	0·45	..	..	2·20	1·03	1·30	0·39	11·56	23·70	23·88	4	5·02	209
210	T.C. Papanasam	0·22	..	..	..	1·70	1·02	1·25	0·57	15·48	29·26	17·74	1	3·45	210
211	T.C. Tranquebar	0·26	0·13	..	..	0·46	1·13	0·99	0·20	6·02	9·20	18·34	..	..	211
212	T.C. Kuttalam	0·51	..	..	..	2·32	1·94	1·68	0·26	16·15	22·87	19·39	2	7·55	212
213	T.C. Tiruvadamarudur	..	..	..	..	0·63	1·54	2·66	0·07	7·77	12·66	15·82	2	5·09	213
214	T.C. Pattukkottai	..	..	..	..	0·81	1·74	1·90	0·11	5·16	9·72	11·03	2	5·92	214
215	T.C. Adirampatnam	0·15	0·08	..	..	1·06	0·68	0·30	0·30	15·45	18·03	20·51	5	13·89	215
216	T.C. Ayyampettai	..	0·31	..	..	2·13	2·66	2·55	0·53	13·39	21·58	30·40	1	2·62	216

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Estimated mid-year population for which birth and death returns are to be received.	Births. Males.	Births. Females.	Births. Total.	Birth-rate per 1,000 of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	***Tanjore*—cont.**											
217	T.C. Vallam	8,740	69	88	157	17·96	..	..	..	..	3	217
218	T.C. Tiruvadi	11,400	127	134	261	22·89	..	..	..	..	4	218
219	T.C. Tirutturaipundi	11,200	293	286	579	51·69	2	7	..	..	30	219
220	T.C. Muthupet	9,800	112	98	210	21·43	7	..	..	..	18	220
221	T.C. Tirukkattupalli	6,980	226	231	457	65·47	9	2	..	..	5	221
222	T.C. Kuttanallur	12,000	179	177	356	29·67	11	..	..	..	13	222
223	T.C. Tirumalaivasal	5,910	132	98	230	38·92	11	1	..	..	12	223
224	T.C. Valangiman	6,050	107	90	197	32·56	..	..	..	..	9	224
	Tiruchirappalli.											
225	M.T.C. Tiruchirappalli	220,900	3,568	3,706	7,274	32·93	90	59	..	3	43	225
226	M.T.C. Srirangam	37,000	597	552	1,149	31·06	20	4	..	3	53	226
227	M.T.C. Karur	42,600	717	729	1,446	33·94	4	4	..	1	52	227
228	M.T.C. Pudukkottai	44,900	824	784	1,608	35·81	1	1	..	..	152	228
229	T.C. Golden Rock	19,900	377	342	719	36·12	1	2	..	..	76	229
230	T.C. Thathayyangarpettai	9,250	64	65	129	13·94	..	1	..	..	29	230
231	T.C. Turaiyur	14,450	114	112	226	15·64	..	..	..	..	36	231
232	T.C. Lalgudi	12,900	157	135	292	22·64	14	4	..	..	23	232
233	T.C. Thotiam	8,540	121	66	187	21·90	..	..	..	..	31	233
234	T.C. Ariyalur	11,100	132	101	233	20·99	2	..	..	..	23	234
235	T.C. Perambalur	9,450	140	163	303	32·06	5	..	..	..	70	235
236	T.C. Palapatti	9,490	116	95	211	22·24	..	1	..	..	20	236
237	T.C. Kulittalai	11,880	179	196	375	31·57	28	3	..	..	53	237
238	T.C. Udayarpalaiyam	7,260	119	131	250	34·43	3	..	..	..	46	238
239	T.C. Marupatti	7,240	107	100	207	28·59	..	..	..	..	54	239
240	T.C. Musiri	10,700	118	109	227	21·21	..	..	..	..	18	240
241	T.C. Jayankondasholapuram	11,900	152	156	308	25·88	7	..	..	1	35	241
242	T.C. Mannachanallur	7,490	71	69	140	18·69	2	2	..	..	32	242
243	T.C. Manapparai	8,890	76	66	142	15·98	..	1	..	..	29	243
244	T.C. Varpattu	5,590	68	60	128	22·90	..	..	..	..	23	244
245	T.C. Ponnamaravathi	7,910	53	37	90	11·38	..	..	..	..	25	245
	Madurai.											
246	M.T.C. Madurai	365,900	8,513	8,186	16,699	45·64	234	145	..	5	739	246
247	M.T.C. Dindigul	79,100	1,365	1,363	2,728	29·98	8	11	..	8	158	247
248	M.T.C. Bodinayakanur	36,200	655	565	1,220	33·70	..	1	..	20	99	248
249	M.T.C. Periyakulam	31,200	697	614	1,311	42·02	3	8	..	19	17	249
250	M.T.C. Palani	34,800	628	562	1,190	34·20	18	25	..	2	8	250
251	M.T.C. Kodaikanal	11,000	224	200	424	38·55	..	..	..	1	3	251
252	T.C. Cumbum	27,100	189	205	394	14·53	8	6	..	..	51	252
253	T.C. Gudalur	20,000	268	246	514	25·70	24	8	..	17	93	253
254	T.C. Thevaram	10,500	169	104	273	26·50	7	2	..	..	43	254
255	T.C. Chinnamanur	14,480	232	185	417	28·73	..	..	..	..	85	255
256	T.C. Tirumangalam	11,100	154	148	302	27·18	..	..	..	..	134	256
257	T.C. Uttamapalaiyam	12,500	191	200	391	31·28	13	4	..	..	41	257
258	T.C. Allinagaram	18,900	148	126	274	14·50	10	..	..	..	34	258
259	T.C. Solavandan	13,200	142	96	238	18·03	..	3	..	..	39	259
260	T.C. Usilampatti	14,100	86	72	158	11·21	..	..	..	..	28	260
261	T.C. Andipatti	8,920	53	40	93	10·43	..	..	..	..	17	261
262	T.C. Kombai	10,700	226	174	400	37·38	2	..	..	..	71	262
263	T.C. Batlagundu	10,300	96	96	192	18·64	..	..	..	..	11	263
264	T.C. Melur	14,200	139	109	248	17·46	17	2	..	..	56	264
265	T.C. Nattam	10,500	127	102	229	21·80	..	1	..	..	23	265
266	T.C. Tirupparankunram	9,100	107	85	192	21·10	..	..	..	5	59	266
267	T.C. Ayakudi	14,700	165	154	319	21·70	..	4	..	..	44	267
	Ramanathapuram.											
268	M.T.C. Rajapalaiyam	61,300	1,109	969	2,078	33·89	27	18	..	14	165	268
269	M.T.C. Virudhunagar	46,700	1,041	1,077	2,118	45·35	54	32	..	..	186	269
270	M.T.C. Srivilliputtur	40,600	792	769	1,561	38·45	1	..	..	2	146	270
271	M.T.C. Karaikudi	38,800	673	659	1,332	34·33	5	22	..	..	71	271
272	M.T.C. Devakkottai	26,000	661	648	1,309	50·34	1	15	..	1	14	272
273	M.T.C. Sivakasi	22,900	586	493	1,079	47·11	6	..	..	..	173	273
274	M.T.C. Aruppukkottai	49,000	973	935	1,908	38·94	42	7	..	3	251	274
*275	T.C. Ramanathapuram	24,300	283	249	532	21·89	..	..	..	..	35	275
276	T.C. Paramagudi	22,400	224	224	448	18·37	22	1	..	..	69	276
*277	T.C. Ilayangudi	14,800	183	153	336	22·67	36	1	..	2	50	277
*278	T.C. Sivaganga	14,400	196	142	338	23·47	3	13	..	..	52	278
279	T.C. Tiruppattur	15,600	213	197	410	26·28	1	1	..	2	31	279
280	T.C. Abiraman	10,600	94	84	178	16·79	15	..	..	..	26	280
*281	T.C. Kamudi	9,500	87	92	179	18·85	13	9	..	..	19	281
*282	T.C. Watrap	9,600	115	92	207	21·57	..	11	..	..	40	282
283	T.C. Seithur	10,500	116	121	237	22·57	..	..	..	..	34	283
*284	T.C. Rameswaram	5,430	86	100	186	34·26	..	3	..	..	23	284
285	T.C. Sattur	13,500	114	97	211	15·63	12	4	..	..	34	285
*286	T.C. Manamadurai	9,170	56	80	136	14·84	..	1	..	..	8	286
*287	T.C. Tiruppuvanam	9,730	73	69	142	14·60	4	2	..	..	25	287
*288	T.C. Tondi	12,130	78	82	160	13·19	3	2	..	..	4	288
289	T.C. Kondanur	6,630	83	66	149	22·47	..	..	..	..	11	289
290	T.C. Pallattur	5,450	55	68	123	22·57	..	1	..	..	10	290
*291	T.C. Kilakarai	16,250	107	81	188	11·57	..	..	..	3	15	291
*292	T.C. Emaneswaram	7,850	78	82	160	20·38	7	6	..	..	13	292
*293	T.C. Palayampatti	6,220	97	106	203	32·63	12	1	..	..	50	293
*294	T.C. Nattarasankottai	5,800	181	138	319	54·99	1	..	..	..	12	294
*295	T.C. Kottaiyur	5,830	63	61	124	21·26	..	2	..	..	15	295
296	T.C. Mallankinar	5,840	93	91	184	31·51	4	..	..	..	20	296

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Deaths—*cont.*										
		Dysentery and diarrhœa.	Respiratory diseases.	Injuries.						All other causes. †	Total death from all other causes.	Serial number.
				Suicides.		Wounds and accidents.	Snake-bite and killed by wild beasts.	Rabies.	Total.			
				Males.	Females.							
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Tanjore—cont.											
217	T.C. Vallam	7	12	..	..	..	..	.	..	78	100	217
218	T.C. Tiruvadi	10	16	..	..	..	..	.	..	102	132	218
219	T.C. Tiruturaipundi	21	11	..	..	1	..	..	1	128	200	219
220	T.C. Muthupet	5	8	..	..	1	1	..	2	101	141	220
221	T.C. Tirukkattupalli	22	19	..	..	2	..	..	2	111	170	221
222	T.C. Kattanallur	28	30	1	..	1	..	..	2	130	214	222
223	T.C. Tirumalaivasal	6	7	..	..	..	..	..	..	109	146	223
224	T.C. Valangiman	3	8	1	..	..	..	..	1	99	120	224
	Tiruchirappalli.											
225	M.T.C. Tiruchirappalli	344	1,098	4	1	52	5	1	63	3,872	5,572	225
226	M.T.C. Srirangam	68	81	1	..	11	..	..	12	511	752	226
227	M.T.C. Karur	37	62	..	1	4	2	..	7	599	766	227
228	M.T.C. Pudukkottai	59	136	1	..	..	..	..	1	659	1,009	228
229	T.C. Golden Rock	38	16	3	1	3	..	..	7	188	328	229
230	T.C. Thathayyangarpettai	1	8	..	1	1	..	..	2	43	84	230
231	T.C. Turaiyur	6	21	..	..	2	..	..	2	68	133	231
232	T.C. Lalgudi	6	14	..	..	1	..	..	1	123	185	232
233	T.C. Thottiam	14	14	1	..	..	..	..	1	79	139	233
234	T.C. Ariyalur	19	15	2	..	3	2	1	8	102	169	234
235	T.C. Perambalur	20	8	..	..	..	..	..	..	88	191	235
236	T.C. Palapatti	10	16	..	..	..	..	..	..	62	109	236
237	T.C. Kulittalai	22	19	..	1	1	..	..	2	186	313	237
238	T.C. Udayarpalayam	13	28	1	..	..	..	..	1	85	176	238
239	T.C. Marupatti	..	..	..	..	..	..	..	..	75	129	239
240	T.C. Musiri	13	13	..	..	..	..	..	..	98	142	240
241	T.C. Jayankondasholapuram	22	23	..	..	.	1	..	1	135	224	241
242	T.C. Mannachanallur	12	5	1	..	..	..	..	1	86	140	242
243	T.C. Manapparai	9	14	..	..	..	..	..	..	64	117	243
244	T.C. Varpattu	3	2	..	1	..	..	..	1	43	72	244
245	T.C. Ponnamaravathi	7	12	..	..	..	..	..	..	33	77	245
	Madurai.											
246	M.T.C. Madura	563	2,548	7	6	102	1	7	123	4,489	8,846	246
247	M.T.C. Dindigul	166	237	3	5	54	..	..	62	854	1,499	247
248	M.T.C. Bodinayakkanur	27	28	2	4	2	..	..	8	288	471	248
249	M.T.C. Periyakulam	100	174	2	1	5	1	..	9	395	725	249
250	M.T.C. Palani	85	377	4	2	18	..	..	24	420	959	250
251	M.T.C. Kodaikanal	8	64	..	..	6	..	..	6	72	154	251
252	T.C. Cumbum	8	4	..	..	..	..	..	..	98	175	252
253	T.C. Gudalur	33	12	..	..	..	..	..	..	121	308	253
254	T.C. Thevaram	23	9	..	..	1	1	..	2	52	138	254
255	T.C. Chinnamanur	52	40	1	..	1	..	..	2	135	314	255
256	T.C. Tirumangalam	1	4	..	..	..	..	..	..	97	236	256
257	T.C. Uttamapalaiyam	19	29	..	..	2	..	..	2	82	190	257
258	T.C. Allinagaram	1	17	..	1	..	..	..	1	32	95	258
259	T.C. Solavandan	12	15	..	..	..	..	..	..	100	169	259
260	T.C. Usilampatti	2	3	..	..	1	..	..	1	108	142	260
261	T.C. Andipatti	2	13	..	..	..	..	..	..	23	55	261
262	T.C. Kombai	16	14	1	1	..	..	..	2	65	170	262
263	T.C. Batlagundu	3	4	1	..	..	..	..	1	84	103	263
264	T.C. Melur	22	12	1	..	1	..	..	2	106	217	964
265	T.C. Nattam	4	8	1	..	..	..	..	1	61	98	265
266	T.C. Tirupparankunram	3	5	..	..	..	..	..	..	72	144	266
267	T.C. Ayakudi	28	71	..	..	..	..	..	..	76	223	267
	Ramanathapuram.											
268	M.T.C. Rajapalayam	292	215	..	..	9	1	..	10	735	1,476	268
269	M.T.C. Virudhunagar	180	166	..	..	5	1	..	6	643	1,267	269
270	M.T.C. Srivilliputtur	129	92	..	..	24	..	..	24	673	1,067	270
271	M.T.C. Karaikudi	82	76	5	..	3	..	..	8	455	719	271
272	M.T.C. Devakkottai	43	66	..	..	4	..	..	4	394	538	272
273	M.T.C. Sivakasi	62	100	..	..	2	..	..	2	269	612	273
274	M.T.C. Aruppukkottai	182	110	1	2	14	1	..	18	595	1,208	274
*275	T.C. Ramanathapuram	20	20	1	..	5	1	..	7	139	221	275
276	T.C. Paramagudi	32	19	..	..	21	..	..	21	159	323	276
*277	T.C. Ilayangudi	14	14	..	..	1	..	..	1	46	164	277
*278	T.C. Sivaganga	14	15	..	..	4	..	..	4	97	198	278
279	T.C. Tiruppattur	6	21	..	..	3	..	..	3	106	171	279
280	T.C. Abiraman	2	4	..	..	1	..	..	1	61	109	280
*281	T.C. Kamudi	5	2	..	1	2	2	1	6	119	173	281
*282	T.C. Watrap	15	6	..	..	..	..	1	1	59	132	282
283	T.C. Selthur	5	3	..	..	..	..	1	1	59	102	283
*284	T.C. Rameswaram	18	15	..	..	..	..	..	..	62	121	284
285	T.C. Sattur	5	8	..	..	..	..	..	..	92	155	285
*286	T.C. Manamadurai	3	6	..	..	..	..	3	3	43	64	286
*287	T.C. Tiruppuvanam	11	12	..	..	4	..	..	4	82	140	287
*288	T.C. Tondi	14	2	..	..	..	..	..	..	79	104	288
289	T.C. Kondanoor	8	3	..	..	..	..	..	..	41	63	289
290	T.C. Pallattur	6	7	..	..	..	..	..	..	65	89	290
*291	T.C. Kilakarai	9	11	..	..	1	..	..	1	43	82	291
*292	T.C. Emaneswaram	18	50	1	..	1	..	..	2	29	125	292
*293	T.C. Palayampatti	42	34	1	..	3	2	..	6	64	209	293
*294	T.C. Nattarasankottai	15	38	..	1	1	1	..	3	40	109	294
*295	T.C. Kottaiyur	16	18	..	..	2	1	1	4	41	96	295
296	T.C. Mallankinar	10	8	..	..	..	1	..	1	137	180	[illegible]

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera.	Smallpox.	Plague.	Malaria.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. Total deaths.	Average published ratio of deaths for the last five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).	Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	
	B. TOWNS—*cont.*														
	MUNICIPALITIES AND RURAL TOWNS—*cont.*														
	Tanjore—cont.														
217	T.C. Vallam	..	..	..	..	0·34	0·80	1·37	..	8·92	11·44	22·81	..	..	217
218	T.C. Tiruvadi	..	..	..	..	0·35	0·87	1·40	..	8·94	11·58	20·42	2	7·66	218
219	T.C. Tiruturaipundi	0·17	0·63	..	..	2·67	1·88	0·98	0·09	11·42	17·86	17·96	6	9·51	219
220	T.C. Muthupet	0·71	..	..	..	1·83	0·51	0·82	0·20	10.30	14·58	27·75	4	18·96	220
221	T.C. Tirukkattupalli	1·28	0·28	..	..	0·72	3·15	2·72	0·28	15·90	24·36	16·63	5	10·55	221
222	T.C. Kuttanallur	0·91	..	..	..	1·08	2·33	2·50	0·17	10·83	17·83	12·90	..	..	222
223	T.C. Tirumalaivasal	1·86	0·17	..	..	2·03	1·01	1·18	..	18·44	24·70	19.94	3	12·61	223
224	T.C. Valangiman	..	..	..	..	1·48	0·49	1·32	0·16	16·36	19·84	17·77	1	5·05	224
	Tiruchirappalli.														
225	M.T.C. Tiruchirappalli	0·40	0·27	..	0·001	0·19	1·56	4·97	0·29	17·52	25·22	24·48	66	8·82	225
226	M.T.C. Srirangam	0·54	0·11	..	0·08	1·43	1·84	2·19	0·32	13·81	20·33	24·63	9	7·79	226
227	M.T.C. Karur	0·94	0·94	..	0·02	1·22	0·87	1·46	0·16	14·56	17·98	19·48	10	6·71	227
228	M.T.C. Pudukkottai	0·02	0·02	..	..	3·39	1·31	3·03	0·02	14·68	22·47	..	4	2·35	228
229	T.C. Golden Rock	0·05	0·10	..	..	3·81	1·91	0·80	0·35	9·44	16·48	16·49	8	10·91	229
230	T.C. Thathayyangarpettai	..	0·11	..	..	3·13	0·11	0·86	0·21	4·65	9·08	10·33	1	7·75	230
231	T.C. Turaiyur	..	..	..	..	2·49	0·42	1·45	0·13	4·71	9·20	8·25	2	8·85	231
232	T.C. Lalgudi	1·08	0·31	..	..	1·78	0·47	1·09	0·08	9·53	14·34	35·48	5	16.72	232
233	T.C. Thotiam	..	..	..	..	3·63	1·64	1·64	0·11	9·25	16·28	16·18	1	5·35	233
234	T.C. Ariyalur	0·18	..	..	..	2·07	1·71	1·35	0·72	9·19	15·23	21·60	3	12·88	234
235	T.C. Perambalur	0·52	..	..	..	7·40	2·12	0·85	..	9·31	20·21	26·02	3	9·77	235
236	T.C. Palaiyapatti	..	0·10	..	..	2·10	1·05	1·69	..	6·53	11·49	13·11	1	4·72	236
237	T.C. Kulittalai	2·35	0·25	..	..	4·46	1·85	1·60	0·17	15·66	26 35	26·21	1	2·65	237
238	T.C. Udaiyarpalayam	0·41	..	..	..	6·33	1·79	3·86	0·13	11·70	24·24	25·64	5	19·69	238
239	T.C. Marupatti	..	..	..	..	7·46	..	..	..	10·35	17·81	20·81	6	28·99	239
240	T.C. Musiri	..	..	..	..	1·68	1·21	1·21	..	9·16	13·27	16·30	4	17·62	240
241	T.C. Jayankondasholapuram	0·59	..	..	0·08	2·94	1·85	1·93	0·08	11·34	18·82	12·98	3	9·68	241
242	T.C. Mannachanallur	0·26	0·26	..	..	4·27	1·60	0·67	0·13	11·48	18·69	21·25	1	7·09	242
243	T.C. Manapparai	..	0·11	..	..	3·26	1·01	1·58	..	7·20	13·16	26·81	..	..	243
244	T.C. Varpattu	..	..	..	..	4·11	0·53	0·36	0·18	7·69	12·88	..	..	..	244
245	T.C. Ponnamaravathi	..	..	..	..	3·16	0·88	1·52	..	4·17	9·73	..	..	..	245
	Madurai.														
246	M.T.C. Madurai	0·63	0·39	..	0·01	2·02	1·54	6·96	0·34	12·27	24·18	29·59	84	4·90	246
247	M.T.C. Dindigul	0·09	0·12	..	0·03	1·74	1·82	2·60	0·68	9·39	16·47	19·81	16	5·65	247
248	M.T.C. Bodinayakkanur	..	0·03	..	0·55	2·73	0·75	0·77	0·22	7·95	13·01	20·10	8	6·51	248
249	M.T.C. Periyakulam	0·10	0·25	..	0·61	0·54	3·20	5·58	0·28	12·65	23·23	25 74	9	6·57	249
250	M.T.C. Palani	0·51	0·72	..	0·06	0·23	2·44	10·83	0·68	12·07	27·56	26·96	8	6·65	250
251	M.T.C. Kodaikanal	..	..	..	0·09	0·27	0·72	5·82	0·54	6·54	14·00	14·87	1	2·28	251
252	T.C. Cumbum	0·29	0·22	..	..	1·88	0·29	0·15	..	3·61	6·45	14·00	..	..	252
253	T.C. Gudalur	1·20	0·40	..	0 85	4·65	1·65	0·60	..	6·05	15·40	19·48	..	..	253
254	T.C. Thevaram	0·66	0·19	..	..	4·09	2·19	0·85	0·19	4·95	13·14	29·73	..	..	254
255	T.C. Chinnamanur	..	..	..	..	5·86	3·59	2·76	0·14	9·30	21·63	21·86	..	..	255
256	T.C. Tirumangalam	..	..	..	..	12·06	0·09	0·36	..	8·73	21·24	18·11	..	..	256
257	T.C. Uttamapalaiyam	1·04	0·32	..	..	3·28	1·52	2·32	0·16	6·53	15·20	21·21	1	2·54	257
258	T.C. Allinagaram	0.52	..	..	..	1·80	0·05	0·90	0·05	1·69	5·03	10·36	..	..	258
259	T.C. Solavandan	..	0·23	..	..	2·95	0·91	1·14	..	7·58	12·80	15·28	..	..	259
260	T.C. Usilampatti	..	..	..	..	1·99	0·14	0·21	0·07	7·66	10·07	10·16	1	6·33	260
261	T.C. Andipatti	..	..	..	..	1·90	0·22	1·46	..	2·57	6·17	9·09	..	..	261
262	T.C. Kombai	0·19	..	..	..	6·64	1·50	1·31	0·19	6·07	15·89	24·82	1	2·49	262
263	T.C. Batlagundu	..	..	..	..	1·06	0·29	0·39	0·09	9·13	10·00	17·77	..	..	263
264	T.C. Melur	1·20	0·14	..	..	3·94	1·55	0·85	0·14	7·46	15·28	20·41	2	7·75	264
265	T.C. Nattam	..	0·10	..	..	2·19	0·38	0·76	0·10	5·80	9·33	17·81	..	..	265
266	T.C. Tirupparankunram	..	..	..	0·55	6·48	0·32	0·55	..	7·91	15·83	33·91	2	10·42	266
267	T.C. Ayakudi	..	0·27	..	..	2·99	1·90	4·83	..	5·17	15·17	16·64	3	9·40	267
	Ramanathapuram.														
268	M.T.C. Rajapalaiyam	0·44	0·29	..	0·23	2·69	4·76	3·51	0·16	11·99	24·07	22·51	15	7·12	268
269	M.T.C. Virudhunagar	1·15	0·69	..	..	3·98	3·85	3·55	0·13	13·76	27·13	24·59	10	4·54	269
270	M.T.C. Srivilliputtur	0·02	..	..	0·05	3·60	3·18	2·27	0·59	16·58	26·28	26·91	5	3·13	270
271	M.T.C. Karaikudi	0·12	0·56	..	..	1·83	2·11	1·96	0·21	11·73	18·53	10·75	6	4·33	271
272	M.T.C. Devakottai	0·04	0·57	..	0·04	0·54	1·65	2·54	0·15	15·15	20·69	17·84	13	9·17	272
273	M.T.C. Sivakasi	0·26	..	..	..	7·55	2·70	4·36	0·09	11·74	26·73	25·52	4	3·62	273
274	M.T.C. Aruppukkottai	0·86	0·14	..	0·06	5·12	3·71	2·25	0·37	12·14	24·66	26·63	12	6·10	274
*275	T.C. Ramanathapuram	..	..	..	..	1·44	0·82	0·82	0·28	5·72	9·09	32 45	8	14·95	275
276	T.C. Paramagudi	0·90	0·04	..	..	2·84	1·31	0·78	0·86	6·54	13·29	18·86	4	8·85	276
*277	T.C. Ilayangudi	2·42	0·07	..	0·13	3·37	0·94	0·94	0·07	3·10	11·06	18·88	2	5·60	277
*278	T.C. Sivaganga	0·20	0·90	..	..	3·61	0·97	1·04	0·27	6·74	13·75	22·19	3	8·60	278
279	T.C. Tiruppattur	0·06	0·06	..	0·13	1·99	0·38	1·35	0·19	6·79	10·96	14;41	5	11·74	279
280	T.C. Abiraman	1·41	..	..	..	2·45	0·18	0·38	0·09	5·75	10·28	8·14	1	5·62	280
*281	T.C. Kamudi	1·36	0·95	..	..	2·00	0·53	0·21	0·63	12·53	18·22	12·51	1	5·59	281
*282	T.C. Watrap	..	1·15	..	..	4·16	1·56	0·62	0·10	6·15	13·75	20·06	..	..	282
283	T.C. Seithur	..	..	..	..	3·23	0·48	0·29	0·10	5·62	9·71	10·72	..	..	283
*284	T.C. Rameswaram	..	0·55	..	..	4·24	3·32	2·76	..	11·42	22·29	47·06	1	5·88	284
285	T.C. Sattur	0·89	0·30	..	..	2·52	0·37	0·59	..	6·81	11·48	13·30	2	9·48	285
*286	T.C. Manamadurai	..	0·11	..	..	0·87	0·33	0·65	0·33	4·69	6·98	14·81	1	7·35	286
*287	T.C. Tiruppuvanam	0·41	0·21	..	..	2·57	1·13	1·23	0·41	8·43	14·39	25·50	..	..	287
*288	T.C. Tondi	0·25	0·16	..	..	0·33	1·15	0·16	..	6·51	8·56	13·35	1	..	288
289	T.C. Kondanoor	..	..	..	..	1·66	1·20	0·45	..	6·18	9·50	12·99	2	12·99	289
290	T.C. Pallathur	..	0·18	..	..	1·83	1·10	1·28	..	11·92	16·33	13·77	..	..	290
*291	T.C. Kilakarai	..	..	..	0·18	0·92	0·55	0·68	0·06	2·64	5·05	6·18	2	10·64	291
*292	T.C. Emaneswaram	0·89	0·76	..	..	1·66	2·29	6·36	0·25	3·69	15·92	19·66	..	..	292
*293	T.C. Palayampatti	1·93	0·06	..	..	..	6·75	5·47	0·96	10·29	33·60	35·11	..	..	293
*294	T.C. Nattarasankottai	0·17	..	..	..	2·07	2·59	6·55	0·51	6·90	18·79	21·60	..	..	294
*295	T.C. Kottaiyur	..	..	..	..	2·57	2·74	3·09	0·68	7·03	16·47	12·38	..	..	295
296	T.C. Mallankinar	0·68	..	..	..	3·42	1·71	1·37	0·17	23·46	30·82	31·16	1	5·41	296

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Estimated mid-year population for which birth and death returns are received.	Births. Males.	Births. Females.	Births. Total.	Birth-rate per 1,000 of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Tirunelveli.											
297	M.T.C. Tuticorin	99,700	1,915	1,753	3,668	36·79	16	9	..	14	176	297
298	M.T.C. Tirunelveli	73,900	1,292	1,300	2,592	35·07	25	7	..	1	12	298
299	M.T.C. Palayamkottai	40,300	957	843	1,800	33·57	22	2	..	1	60	299
300	M.T.C. Melapalayam	37,900	409	394	803	21·19	4	1	..	..	85	300
301	T.C. Tenkasi	31,300	293	236	529	16·90	9	..	..	..	82	301
302	T.C. Kadayanallur	38,300	243	225	468	12·22	15	53	..	..	77	302
303	T.C. Pulivangudi	27,800	224	190	414	9·39	2	..	..	..	66	303
304	T.C. Kallidaikurchi	20,200	253	230	483	23·91	23	1	..	..	12	304
305	T.C. Viravanallur	18,000	338	343	681	37·84	63	4	..	..	97	305
306	T.C. Sermadevi	10,100	139	140	279	27·62	2	2	..	..	18	306
307	T.C. Ambasamudram	20,500	198	173	371	18·10	..	24	..	..	12	307
308	T.C. Tiruchendur	13,300	269	244	513	38·57	8	13	..	..	58	308
309	T.C. Sivagiri	16,700	181	175	356	21·32	..	..	..	..	137	309
310	T.C. Udangudi	13,500	208	173	381	28·22	..	..	..	..	70	310
311	T.C. Vasudevanallur	12,900	121	144	265	20·54	..	..	..	..	4	311
312	T.C. Surandai	14,500	227	204	431	29·73	41	1	..	..	54	312
313	T.C. Kulasekharapatnam	10,000	136	109	245	24·50	..	..	..	..	28	313
314	T.C. Kovilpatti	26,400	301	309	610	23·11	2	2	..	..	84	314
315	T.C. Srivaikuntam	11,600	164	156	320	27·59	11	8	..	..	45	315
316	T.C. Nanguneri	9,530	225	215	440	46·17	4	2	..	..	50	316
317	T.C. Sankarankoil	22,100	259	219	478	21·62	3	16	..	..	66	317
318	T.C. Tachanallur	9,820	131	128	259	26·37	3	..	..	..	46	318
319	T.C. Ettaiyapuram	9,480	117	116	233	24·58	..	11	..	..	55	319
320	T.C. Kavalpatnam	11,400	151	173	324	28·42	18	..	..	..	67	320
321	T.C. Vikramasingapuram	29,700	281	320	601	20·24	44	5	..	..	57	321
322	T.C. Vadakkuvalliyur	9,160	144	134	278	30·35	..	..	..	..	26	322
323	T.C. Sattankulam	9,320	200	215	415	44·53	2	1	..	..	26	323
324	T.C. Pattamadai	8,820	87	73	160	18·14	6	3	..	..	14	324
325	T.C. Alwartirunagari	6,670	87	89	176	26·39	9	2	..	..	20	325
326	T.C. Tisayanvilai	11,870	233	202	435	36·65	1	..	..	..	24	326
327	T.C. Kalugumalai	6,200	73	77	150	24·20	..	..	..	..	26	327
328	T.C. Kayattar	5,500	83	82	165	30·00	..	..	..	..	12	328
329	T.C. Eral	5,500	93	92	185	33·63	15	..	..	..	39	329
	Salem.											
330	M.T.C. Salem	204,800	3,647	3,655	7,302	35·66	30	66	..	96	116	330
331	M.T.C. Rasipuram	23,300	309	291	600	25·75	..	4	..	4	115	331
332	T.C. Eddapadi	23,600	159	145	304	12·88	..	2	..	..	57	332
333	T.C. Dharmapuri	24,300	174	172	346	14·24	..	1	..	..	44	333
334	T.C. Komarapalayam	9,990	125	118	243	24·32	..	5	..	..	34	334
335	T.C. Tiruchengode	19,400	155	147	302	15·56	..	..	..	..	34	335
336	T.C. Mettur Township	27,600	138	130	268	9·71	..	..	..	..	24	336
337	T.C. Taramangalam	9,340	95	92	187	20·02	..	1	..	..	10	337
338	T.C. Attur	23,090	195	177	372	16·11	..	..	..	..	53	338
*339	T.C. Kaveripatnam	8,190	103	82	185	22·59	..	..	..	..	15	339
340	T.C. Sendamangalam	15,500	132	135	267	17·23	..	..	..	..	17	340
*341	T.C. Harur	6,400	143	123	266	41·56	..	..	..	..	45	341
*342	T.C. Namakkal	17,000	149	141	290	17·06	..	..	..	..	20	342
*343	T.C. Hosur	8,790	169	187	356	40·50	..	..	..	..	41	343
*344	T.C. Jalakantapuram	8,550	105	97	202	23·62	..	..	..	..	19	344
*345	T.C. Krishnagiri	19,900	181	166	347	17·44	..	..	..	..	46	345
	Coimbatore.											
346	M.T.C. Coimbatore	200,000	4,556	4,231	8,787	43·94	1	206	..	32	150	346
347	M.T.C. Erode	58,200	1,252	1,137	2,389	41·84	1	43	..	42	33	347
348	M.T.C. Pollachi	42,300	921	856	1,777	42·01	3	15	..	2	299	348
349	M.T.C. Dharapuram	24,300	367	350	717	29·50	18	1	..	5	76	349
350	M.T.C. Tiruppur	53,100	937	921	1,858	29·08	8	19	..	10	138	350
351	M.T.C. Udamalpet	23,500	569	548	1,117	47·53	..	5	..	1	21	351
352	M.T.C. Mettupalayam	27,800	476	447	923	33·20	12	65	..	34	35	352
353	M.T.C. Gobichettipalayam	30,800	389	376	765	24·84	41	30	..	6	78	353
354	T.C. Kollegal	19,000	302	267	569	29·95	21	2	..	..	29	354
355	T.C. Kurichi	20,800	215	182	397	19·09	..	2	..	..	30	355
356	T.C. Kottur	14,500	147	100	247	17·04	..	..	..	1	30	356
357	T.C. Palladam	9,290	129	121	250	26·91	..	..	..	..	15	357
358	T.C. Bhavani	12,230	179	159	338	27·63	..	2	..	..	43	358
359	T.C. Avanashi	8,000	112	89	201	25·12	31	1	..	..	4	359
360	T.C. Vellalore	11,760	167	158	325	27·63	..	45	..	..	3	360
361	T.C. Singanallur	20,100	224	193	417	20·75	..	5	..	..	47	361
362	T.C. Satyamangalam	14,200	225	189	414	29·15	..	..	..	..	30	362
363	T.C. Sullur	8,520	80	91	176	20·66	..	..	..	..	5	363
364	T.C. Kunniamuthur	15,300	108	108	216	14·11	..	..	..	..	7	364
	The Nilgiris.											
365	M.T.C. Ootacamund	41,800	906	906	1,812	43·34	1	16	..	5	13	365
366	M.T.C. Coonoor	24,100	542	583	1,125	46·68	..	5	..	6	14	366
367	T.C. Kotagiri	13,100	222	162	384	29·31	..	1	..	..	50	367
368	T.C. Wellington	10,800	183	165	348	32·22	..	2	..	..	6	368
	Malabar.											
369	M.T.C. Kozhikode	159,800	3,517	3,409	6,926	43·34	..	31	..	5	350	369
370	M.T.C. Palghat	69,900	1,313	1,211	2,524	36·12	25	35	..	6	66	370
371	M.T.C. Cannanore	42,700	659	646	1,305	30·56	..	..	..	1	144	371
372	M.T.C. Tellicherry	40,200	959	911	1,870	46·53	..	10	..	3	39	372
373	M.T.C. Cochin	30,000	678	620	1,298	43·26	..	..	..	..	42	373
374	T.C. Ponnani	23,800	358	344	702	29·50	..	7	..	..	38	374

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Deaths—*cont.* Dysentery and diarrhœa.	Respiratory diseases.	Injuries. Suicides. Males.	Suicides. Females.	Wounds and accidents.	Snake-bite and by killed wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all other causes.	Serial number.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	Tirunelveli.											
297	M.T.C. Tuticorin	198	603	6	..	15	..	1	22	1,663	2,701	297
298	M.T.C. Tirunelveli	155	402	1	2	3	..	..	6	1,192	1,800	298
299	M.T.C. Palayamkottai	75	152	..	1	17	..	1	19	650	981	299
300	M.T.C. Melapalaiyam	63	128	..	..	1	..	..	1	388	670	300
301	T.C. Tenkasi	9	43	2	..	4	..	..	6	207	356	301
302	T.C. Kadayanallur	16	22	..	1	1	1	..	3	212	398	302
303	T.C. Puliyangudi	7	4	..	..	..	..	1	1	158	238	303
304	T.C. Kallidaikurchi	4	89	..	..	..	..	..	..	255	384	304
305	T.C. Viravanallur	31	83	..	..	..	1	..	1	357	636	305
306	T.C. Sermadevi	10	21	2	1	1	..	..	4	192	249	306
307	T.C. Ambasamudram	9	8	..	..	1	..	..	1	264	318	307
308	T.C. Tiruchendur	14	15	3	1	..	2	..	6	212	326	308
309	T.C. Sivagiri	24	55	..	..	..	..	..	..	78	294	309
310	T.C. Udangudi	..	24	1	..	1	..	..	2	100	196	310
311	T.C. Vasudevanallur	..	..	..	..	..	..	..	..	145	149	311
312	T.C. Surandai	15	15	1	..	6	..	..	7	146	279	312
313	T.C. Kulasekharapatnam	2	..	..	1	2	..	..	3	166	199	313
314	T.C. Kovilpatti	5	43	..	2	9	..	..	11	244	391	314
315	T.C. Srivaikuntam	7	11	1	..	1	..	..	2	172	256	315
316	T.C. Nanguneri	6	16	..	1	4	..	..	5	240	323	316
317	T.C. Sankarankoil	11	7	2	..	..	..	..	2	232	337	317
318	T.C. Tachanallur	21	20	..	..	2	..	..	2	175	267	318
319	T.C. Ettalyapuram	31	30	1	1	1	..	..	3	80	210	319
320	T.C. Kayalpatnam	6	20	..	..	..	..	..	..	105	216	320
321	T.C. Vikramasingapuram	1	26	1	..	..	..	..	1	259	393	321
322	T.C. Vadakkuvalliyur	1	7	..	..	..	..	..	..	107	141	322
323	T.C. Sattankulam	..	19	1	..	.	..	..	1	129	178	323
324	T.C. Pattamadai	1	17	..	..	..	..	..	..	98	139	324
325	T.C. Alwartirunagari	1	..	..	..	2	..	..	2	115	149	325
326	T.C. Tisayanvilai	..	15	..	..	5	..	..	5	134	179	326
327	T.C. Kalugumalai	13	25	1	..	1	1	..	3	77	144	327
328	T.C. Kayattar	4	7	..	..	1	..	..	1	62	86	328
329	T.C. Eral	3	7	..	..	..	..	..	..	87	151	329
	Salem.											
330	M.T.C. Salem	170	721	3	6	67	2	4	82	2,055	3,336	330
331	M.T.C. Rasipuram	19	30	1	2	11	2	..	16	186	374	331
*332	T.C. Eddapadi	25	15	1	1	2	..	..	4	86	189	332
*333	T.C. Dharmapuri	23	18	2	2	..	..	..	4	105	195	333
*334	T.C. Kumarapalayam	14	9	1	1	..	..	..	2	74	138	334
*335	T.C. Tiruchengode	18	14	1	2	2	..	..	3	81	150	335
*336	T.C. Mettur Township	11	9	1	1	..	..	..	4	94	142	336
337	T.C. Taramangalam	7	5	1	1	..	..	..	2	66	91	337
338	T.C. Attur	17	3	..	..	..	..	..	..	112	185	338
*339	T.C. Kaveripatnam	11	4	..	1	4	..	..	5	70	105	339
340	T.C. Sendamangalam	12	7	1	1	..	..	..	2	89	127	340
*341	T.C. Harur	26	15	..	2	2	..	..	4	92	182	341
*342	T.C. Namakkal	6	12	..	..	2	..	1	3	108	149	342
*343	T.C. Hosur	18	13	1	1	1	..	..	3	119	194	343
*344	T.C. Jalakantapuram	6	8	1	1	..	..	..	2	64	99	344
*345	T.C. Krishnagiri	29	13	2	1	..	..	..	3	167	258	345
	Coimbatore.											
346	M.T.C. Coimbatore	701	1,048	10	4	79	1	6	100	2,904	5,142	346
347	M.T.C. Erode	99	252	1	2	10	1	..	14	729	1,213	347
348	M.T.C. Pollachi	109	106	1	1	13	1	..	16	579	1,129	348
349	M.T.C. Dharapuram	56	25	3	2	4	..	..	9	264	454	349
350	M.T.C. Tiruppur	143	149	1	..	15	..	..	16	712	1,195	350
351	M.T.C. Udamalpet	31	87	..	..	1	1	..	2	326	473	351
352	M.T.C. Mettupalaiyam	99	109	1	..	10	2	..	13	257	624	352
353	M.T.C. Gobichettipalaiyam	51	51	1	2	11	..	..	14	392	663	353
354	T.C. Kollegal	16	42	..	2	4	..	..	6	189	255	354
355	T.C. Kurichi	20	54	1	..	1	..	..	2	96	204	355
356	T.C. Kottur	31	24	3	..	..	..	..	3	103	192	356
357	T.C. Palladam	24	24	..	..	1	..	..	1	68	132	357
358	T.C. Bhavani	32	34	..	..	1	..	..	1	92	204	358
359	T.C. Avanashi	4	4	..	..	..	..	..	..	107	151	359
360	T.C. Vellalore	34	12	..	..	1	..	..	1	119	214	360
361	T.C. Singanallur	44	27	1	1	4	..	..	6	180	309	361
362	T.C. Satyamangalam	27	24	1	..	1	..	..	2	127	210	362
363	T.C. Sulur	12	5	..	..	1	..	..	1	72	95	363
364	T.C. Kunniamuthur	15	7	..	..	..	..	..	..	66	95	364
	The Nilgiris.											
365	M.T.C. Ootacamund	59	215	5	3	21	..	..	29	412	750	365
366	M.T.C. Coonoor	58	114	..	..	4	..	4	8	291	496	366
367	T.C. Kotagiri	19	67	1	..	3	1	1	6	86	220	367
368	T.C. Wellington	23	18	1	..	..	..	..	1	41	91	368
	Malabar.											
369	M.T.C. Kozhikode	134	522	1	2	36	1	..	40	2,436	3,518	369
370	M.T.C. Palghat	70	231	1	1	21	..	..	23	872	1,328	370
371	M.T.C. Cannanore	17	42	..	..	4	..	..	4	345	553	371
372	M.T.C. Tellicherry	39	111	1	..	9	..	2	12	518	732	372
373	M.T.C. Cochin	59	129	1	..	9	..	2	12	308	550	373
374	T.C. Ponnani	12	25	1	1	..	..	..	2	293	377	374

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera.	Smallpox.	Plague.	Malaria.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. Total deaths.	Average of published ratios for the last five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).	Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	
	B. TOWNS—*cont.*														
	MUNICIPALITIES AND RURAL TOWNS—*cont.*														
	Tirunelveli.														
297	M.T.C. Tuticorin	0·16	0·09	..	0·14	1·77	1·99	6·04	0·22	16·68	27·09	24·20	38	10·08	297
298	M.T.C. Tirunelveli	0·33	0·09	..	0·01	0·16	2·09	5·44	0·08	16·13	24·35	28·05	21	7·83	298
299	M.T.C. Palayamkottai	0·29	0·03	..	0·02	0·81	1·01	2·06	0·26	8·79	13·27	29·03	41	20·68	299
300	M.T.C. Melapalaiyam	0·10	0·02	..	..	2·24	1·66	3·38	0·03	10·23	17·68	19·20	3	3·71	300
301	T.C. Tenkasi	0·28	..	..	..	2·62	0·28	1·37	0·19	6·61	11·37	17·36	4	7·56	301
302	T.C. Kadayanallur	0·39	1·38	..	..	2·91	0·42	0·57	0·08	5·54	10·39	10·98	9	19·07	302
303	T.C. Puliyangudi	0·07	..	..	..	1·72	0·18	0·10	0·04	4·13	6·21	17·67	3	7·23	303
304	T.C. Kallidaikurchi	1·13	0·05	..	..	0·59	0·20	4·41	..	12·62	19·01	21·02	7	14·40	304
305	T.C. Viravanallur	3·50	0·22	..	..	5·39	1·72	4·61	0·06	19·83	35·34	33·54	14	20·50	305
306	T.C. Sermadevi	0·20	0·20	..	..	1·78	0·99	2·08	0·40	19·01	24·65	30·13	2	6·92	306
307	T.C. Ambasamudram	..	1·17	..	..	0·59	0·44	0·39	0·05	12·88	15·51	15·70	5	13·48	307
308	T.C. Tiruchendur	0·60	0·98	..	..	4·36	1·05	1·13	0·45	15·94	24·51	39·08	3	5·75	308
309	T.C. Sivagiri	..	..	..	..	8·20	1·44	3·29	..	4·67	17·60	20·13	..	..	309
310	T.C. Udangudi	..	..	..	..	5·18	..	1·78	0·15	7·40	14·52	17·60	7	18·18	310
311	T.C. Vasudevanallur	..	..	..	..	0·31	..	..	..	11·24	11·55	18·16	1	3·77	311
312	T.C. Surandai	2·83	0·07	..	..	3·72	1·03	1·03	0·48	10·07	19·21	21·38	3	6·96	312
313	T.C. Kulasekharapatnam	..	..	..	..	2·80	0·20	..	0·30	16·60	19·90	14·24	..	8·16	313
314	T.C. Kovilpatti	0·08	0·08	..	..	3·18	0·19	1·63	0·42	9·24	14·81	14·79	7	11·42	314
315	T.C. Srivaikuntam	0·94	0·68	..	..	3·88	0·60	0·95	0·17	14·82	22·07	26·99	5	15·58	315
316	T.C. Nanguneri	0·42	0·20	..	..	5·25	0·63	1·68	0·52	25·18	33·89	36·43	2	4·45	316
317	T.C. Sankarankoil	0·13	0·72	..	..	2·99	0·50	0·32	0·09	10·49	15·25	15·99	..	..	317
318	T.C. Tachanallur	0·30	..	..	..	4·68	2·14	2·04	0·20	17·82	27·19	28·83	4	15·27	318
319	T.C. Ettaiyapuram	..	1·16	..	..	5·80	3·27	3·16	0·32	8·44	22·15	22·41	2	8·51	319
320	T.C. Kayalpatnam	1·57	..	..	..	5·88	0·53	1·75	..	9·21	18·95	18·22	3	9·21	320
321	T.C. Vikramasingapuram	1·48	0·16	..	..	1·92	0·03	0·88	0·03	8·72	13·23	14·21	4	6·64	321
322	T.C. Vadakkuvalliyur	..	..	..	..	2·84	0·11	0·76	..	11·68	15·39	15·74	2	7·17	322
323	T.C. Sattankulam	0·21	0·11	..	..	2·79	..	2·04	0·11	13.84	19·10	21·66	4	9·64	323
324	T.C. Pattamadai	0·68	0·34	..	..	1·59	0·11	1·93	..	11·11	15·76	16·76	4	24·69	324
325	T.C. Alwartirunagari	1·35	0·29	..	..	3·00	0·15	..	0·30	17·24	22·34	20·81	2	1·24	325
326	T.C. Tisayanvilai	0·08	..	..	..	2·02	..	1·26	0·42	11·29	15·08	10·68	2	4·47	326
327	T.C. Kalugumalai	..	..	..	..	4·19	2·09	4·03	0·48	12·42	23·23	26·66	4	26·67	327
328	T.C. Kayattar	..	..	..	..	2·18	0·73	1·27	0·18	11·27	15·64	22·71	1	6·02	328
329	T.C. Eral	2·73	..	..	..	7·09	0·54	1·27	..	15·82	27·45	25·77	2	10·70	329
	Salem.														
330	M.T.C. Salem	0·14	0·32	..	0·47	0·57	0·83	3·52	0·40	10·03	16·29	18.01	82	10·59	330
331	M.T.C. Rasipuram	..	0·17	..	0·17	4·94	0·81	1·29	0·69	7·98	16·05	15·73	5	8·26	331
* 332	T.C. Eddapadi	..	0·08	..	..	2·41	1·06	0·64	0·17	3·64	8·01	4·30	2	6·47	332
* 333	T.C. Dharmapuri	..	0·08	..	..	1·81	0·95	0·74	0·16	4·32	8·02	7·44	1	2·85	333
* 334	T.C. Kumarapalayam	..	0·50	..	..	3·40	1·40	0·90	0·20	7·41	13·81	8·14	1	4·05	334
* 335	T.C. Tiruchengode	..	..	..	..	1·75	0·93	0·72	0·15	4·18	7·73	7·70	1	3·27	335
* 336	T.C. Mettur-Township	..	..	..	..	0·87	0·40	0·33	0·14	3.41	5·14	10·[illegible]3	1	3·68	336
337	T.C. Taramangalam	..	0·10	..	..	1·07	0·75	0·54	0·21	7·07	9·74	11·36	1	5·29	337
338	T.C. Attur	..	..	..	..	2·30	0·74	0·13	..	4·85	8·01	10·13	7	18·52	338
* 339	T.C. Kaveripatnam	..	..	..	..	1·83	1·34	0·49	0·61	8·55	12·82	16·88	1	5·41	339
340	T.C. Sendamangalam	..	..	..	..	1·10	0·77	0·45	0·13	5·74	8·19	8·71	1	3·69	340
* 341	T.C. Karur	..	..	..	..	7·03	4·06	2·34	0.63	14·38	28·44	17·37	2	7·41	341
* 342	T.C. Namakkal	..	..	..	..	1·17	0·35	0·71	0·18	6·35	8·76	10·31	2	6·71	342
* 343	T.C. Hosur	..	..	..	..	4·66	2·05	1·47	0·34	13·54	22·07	20·38	1	2·77	343
* 344	T.C. Jalakantapuram	..	..	..	..	2·22	0·70	0·94	0·23	7·48	11·58	12·65	1	4·90	344
* 345	T.C. Krishnagiri	..	..	..	..	2·31	1·46	0·65	0·15	8·39	12·96	10·03	1	2·85	345
	Coimbatore.														
346	M.T.C. Coimbatore	0·01	1·03	..	0·16	0·75	3 51	5·24	0·50	14·52	25·71	24·90	70	7·61	346
347	M.T.C. Erode	0·02	0·74	..	0·72	0 57	1·70	4·33	0·24	12·52	20·84	21·52	25	9·98	347
348	M.T.C. Pollachi	0·07	0·35	..	0·05	7·06	2·58	2 51	0·38	13·69	26·69	31·67	11	5·95	348
349	M.T.C. Dharapuram	0·74	0·04	..	0·20	3·13	2·30	1·03	0·37	10·86	18·68	20·82	7	9·62	349
350	M.T.C. Tiruppur	0·13	0·30	..	0·16	2·16	2·24	2·33	0·25	11·14	18·70	18·68	14	7·35	350
351	M.T.C. Udamalpet	..	0·21	..	0·04	0·89	1·31	3·70	0·09	13 87	20·13	20·87	2	1·75	351
352	M.T.C. Mettupalaiyam	0·43	2·34	..	1·29	1·26	3·56	3·92	0·46	9 24	22 44	16·29	16	16 74	352
353	M.T.C. Gobichettipalaiyam	1·33	0·97	..	0·19	2 53	1·66	1 66	0·45	12·73	21 53	24 36	9	11 38	353
354	T.C. Kollegal	1·11	0·10	..	..	1·52	0 84	2·21	0·31	7·32	13 42	17·49	..	..	354
355	T.C. Kurichi	..	0 09	..	..	1·44	0·96	2 60	0·09	4·62	9 80	13·01	..	..	355
356	T.C. Kottur	..	..	..	0·07	2·07	2·13	1·66	0·20	7·10	13·24	20·94	1	4·05	356
357	T.C. Palladam	..	..	..	..	1·61	2 58	2·38	0·11	7·32	14·20	10·83	2	7·97	357
358	T.C. Bhavani	..	0·16	..	..	3 52	2·62	2·78	0·08	7·52	16 88	25·65	2	5·92	358
359	T.C. Avanashi	3·87	0·13	..	..	0·50	0·50	0·50	..	3·37	18·88	19·86	1	4·98	359
360	T.C. Vellalore	..	3·82	..	..	0·26	2·89	1 02	0·08	10·12	18·20	15·80	..	..	360
361	T.C. Singanallur	..	0·24	..	..	2·34	2 19	1·34	0·29	8·96	15·37	16·66	..	..	361
362	T.C. Satyamangalam	..	..	..	..	2·11	1·90	1·69	0·14	8·94	14 79	16·10	3	7·23	362
363	T.C. Sulur	..	..	..	..	0 59	1·41	0 59	0·12	8·45	11·15	14 04	..		363
364	T.C. Kunniamuthur	..	..	..	..	0·45	0·98	0·45	..	4·31	6·21	11·25	2	9·26	364
	The Nilgiris.														
365	M.T.C. Ootacamund	0·02	0·38	..	0·11	0·31	1·41	5·14	0·69	9·86	17·94	21·90	15	7·98	365
366	M.T.C. Coonoor	..	0·20	..	0·25	0·58	2·41	4·73	0·33	12·07	20·58	18·77	1	0·86	366
367	T.C. Kotagiri	..	0·08	..	..	3·82	0·76	5·11	0·46	6·57	16·79	19·81	5	12·82	367
368	T.C. Wellington	..	0·18	..	..	0·56	2·12	1·67	0·09	3·80	8·43	10·63	..	..	368
	Malabar.														
369	M.T.C. Kozhikode	..	0·19	..	0·03	2·19	0·84	3·27	0·25	15·24	22·62	23·72	61	8·58	369
370	M.T.C. Palghat	0·36	0·50	..	0·09	0·94	1·00	3·31	0·32	12·47	19·00	24·93	29	11·39	370
371	M.T.C. Cannanore	..	..	..	0·02	3·37	0·40	0·98	0·09	8·07	12·95	20·62	4	3·02	371
372	M.T.C. Tellicherry	..	0·25	..	0·07	0·97	0·97	2·76	0·30	12·89	18·21	19·45	19	9·64	372
373	M.T.C. Cochin	..	..	..	..	1·40	1·97	4·30	0·40	10·27	18·33	23·44	5	3·76	373
374	T.C. Ponnani	..	0·29	..	..	1·60	0·50	1·05	0·08	12·31	15·84	23·81	3	4·24	374

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Estimated mid-year population for which birth and death returns are received.	Births. Males.	Births. Females.	Births. Total.	Birth-rate per 1,000 of estimated mid-year population.	Deaths. Cholera.	Deaths. Smallpox.	Deaths. Plague.	Deaths. Malaria.	Deaths. Fevers.	Serial number
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	***Malabar*—cont.**											
375	T.C. Panthalayini	29,500	260	273	533	18·07	..	2	..	..	6	375
376	T.C. Badagara	21,100	196	164	360	17·06	..	2	..	2	25	376
377	T.C. Feroke	19,900	318	311	629	31·61	..	..	..	..	23	377
378	T.C. Tirukkandiyur	11,900	182	163	345	28·99	..	..	..	..	7	378
379	T.C. Tanur	18,200	155	155	310	17·03	..	1	..	..	10	379
380	T.C. Shoranur	11,700	136	116	252	21·54	..	..	..	3	4	380
381	T.C. Ottapalam	22,200	119	122	241	10·86	..	1	..	1	10	381
382	T.C. Manjeri	10,500	105	89	194	18·48	..	..	..	2	35	382
	***South Kanara*.**											
383	M.T.C. Mangalore	118,300	2,415	2,196	4,611	38·98	..	26	..	2	190	383
384	M.T.C. Udipi	20,500	508	464	967	47·17	..	1	..	1	59	384
385	T.C. Kasaragod	23,100	121	92	213	9·22	..	..	..	8	25	385
386	T.C. Coondapoor	16,400	147	152	299	18·23	..	..	..	2	13	386
387	T.C. Puttur	11,300	111	102	213	24·07	..	..	..	1	11	387
388	T.C. Karkal	14,000	124	125	249	17·79	..	..	..	1	24	388
389	T.C. Mulki	6,284	173	193	366	58·24	..	..	..	..	25	389
390	T.C. Bantwal	5,807	102	66	168	28·93	..	..	..	1	18	390
	Total for Urban areas	10,643,000	178,083	168,135	346,218	32·51	2,951	4,226	13	1,223	24,473	
	Total for Rural areas	46,377,000	631,920	592,662	1,224,582	26·45	14,162	13,010	38	4,157	181,170	
	Total for the State	57,021,000	810,003	760,797	1,570,800	27·55	17,113	17,236	51	5,380	205,643	

Serial number.	Districts and towns.	Deaths—*cont.* Dysentery and diarrhœa.	Respiratory diseases.	Injuries. Suicides. Males.	Injuries. Suicides. Females.	Injuries. Wounds and accidents.	Injuries. Snake-bites and killed by wild beasts.	Injuries. Rabies.	Injuries. Total.	All other causes. †	Total deaths from all causes.	Serial number.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
	B. TOWNS—*cont.*											
	MUNICIPALITIES AND RURAL TOWNS—*cont.*											
	***Malabar*—cont.**											
375	T.C. Panthalayini	6	24	..	..	..	..	..	..	110	148	375
376	T.C. Badagara	10	22	1	1	..	..	..	2	71	134	376
377	T.C. Feroke	24	14	..	..	2	..	..	2	86	149	377
378	T.C. Tirukkandiyur	8	16	..	..	1	..	..	1	99	131	378
379	T.C. Tanur	9	17	..	..	..	..	..	..	91	128	379
380	T.C. Shoranur	5	11	..	..	1	..	..	1	76	100	380
381	T.C. Ottapalam	3	14	..	..	4	1	..	5	55	89	381
382	T.C. Manjeri	9	14	2	2	1	..	..	5	49	114	382
	***South Kanara*.**											
383	M.T.C. Mangalore	110	347	1	3	32	1	..	37	1,303	2,015	383
384	M.T.C. Udipi	23	63	..	..	7	..	..	7	217	371	384
385	T.C. Kasaragod	7	5	..	..	..	..	..	..	31	76	385
386	T.C. Coondapoor	2	11	2	..	1	..	..	3	53	84	386
387	T.C. Puttur	..	4	..	..	..	..	..	..	53	69	387
388	T.C. Karkal	4	7	..	..	..	..	..	..	50	86	388
389	T.C. Mulki	5	12	..	1	1	..	..	2	78	122	389
390	T.C. Bantwal	2	13	..	..	..	..	..	..	37	71	390
	Total for Urban areas	18,467	33,915	325	223	2,021	325	137	3,031	115,100	203,399	
	Total for Rural areas	47,166	53,316	1,529	1,530	2,741	743	142	6,685	402,878	722,582	
	Total for the State	65,633	87,231	1,854	1,753	4,762	1,068	279	9,716	517,978	925,981	

* Birth and death returns for some of the months in the year have not been received

† "All other causes" includes deaths of mothers from child birth. The number of deaths and death rates from this cause per 1000 (live and still) births are given separately in columns (34) and (35) respectively.

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1951—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population. Cholera.	Smallpox.	Plague.	Malaria.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. Total deaths.	Average of published ratios for the previous five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).	Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	
	B. TOWNS—*cont.*														
	MUNICIPALITIES AND RURAL TOWNS—*cont.*														
	Malabar—cont.														
375	T.C. Panthalayini	..	0·07	..	..	0·20	0·20	0·81	..	3·72	5·01	12·52	..	..	375
376	T.C. Badagara	..	0·09	..	0·09	1·18	0·47	1·04	0·09	3·36	6·35	8·46	1	2·78	376
377	T.C. Feroke	..	..	..	..	1·15	1·20	0·70	0·10	4·32	7·49	32·48	1	1·58	377
378	T.C. Tirukkandiyur	..	..	..	..	0·58	0·72	1·34	0·08	8·32	11·01	13·42	1	2·90	378
379	T.C. Tanur	..	0·05	..	..	0·55	0·49	0·93	..	5·00	7·03	19·19	1	3·20	379
380	T.C. Shoranur	..	..	..	0·25	2·34	0·43	0·94	0·09	6·50	8·[illegible]4	13·10	..	..	380
381	T.C. Ottapalam	..	0·05	..	0·05	0·45	0·13	0·63	0·23	2·48	4·01	12·48	..	..	381
382	T.C. Manjeri	..	..	..	0·19	3·33	0·86	1·33	0·48	4·67	10·26	30.33	1	5·16	382
	South Kanara.														
383	M.T.C. Mangalore	..	0·21	..	0·02	1·61	0·93	2·03	0·31	11·01	17·03	22·63	14	2·95	383
384	M.T.C. Udipi	..	0·05	..	0·05	2·67	1·12	3·07	0·34	10·58	18·10	22·52	4	3·92	384
* 385	T.C. Kasaragod	..	..	..	0·32	1·08	0·30	0·22	..	1·34	3·29	17 60	1	4·69	385
386	T.C. Coondapoor	..	..	..	0·12	0·79	0·12	0·67	0·18	3·23	5·12	10·62	..	..	386
387	T.C. Puttur	..	..	..	0·09	1·24		0·45	..	5·98	7·30	15·[illegible]8	1	4·69	387
388	T.C. Karkal	..	..	..	0·07	1·71	0·28	0·50	..	3·57	6·14	10·10	1	3·97	388
389	T.C. Mulki	..	..	..	..	3·98	0·79	1·90	0·31	12·41	19·41	18·52	..	..	389
390	T.C. Bantwal	..	..	..	0·17	3·09	0·34	2·23	..	6·37	12·23	11·40	3	16·85	390
	Total for Urban areas ..	0·28	0·40	0·001	0·11	2·30	1·73	3·18	0·28	10·80	19·10	21·41	2,501	7·0[illegible]	
	Total for Rural areas ..	0·31	0·28	0·001	0·09	3·91	1·02	1·15	0·14	8·70	15·61	18·22	6,505	5·29	
	Total for the State ..	0·30	0·30	0·001	0·09	3·60	1·15	1·53	0·17	9·06	16·20	18·75	9,006	5·67	

No. VI-A—(Optional).—Deaths registered from certain causes in municipalities of the State of Madras during the year 1951.

No. VI-A—(Optional).—Deaths registered from certain causes in municipalities of the State o Madras during the year 1951.

Serial number and municipalities.	Malaria.		Enteric fever.		Measles.		Relapsing fever.		Kala-Azar.		Influenza.		Other fevers.		Dysentery.		Diarrhœa.	
	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.
(1)	(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	
Srikakulam District—																		
1 Srikakulam	6	0·25	9	0·37	..	..	..	..	..	..	1	0·04	37	1·52	19	0·79	16	0·66
2 Salur	..	..	8	0·33	..	..	..	..	..	..	..	..	131	5·59	21	0·86	16	0·65
Visakhapatnam District—																		
3 Visakhapatnam	2	0·02	22	0·20	..	..	..	..	..	..	..	..	342	3·13	62	0·57	79	0·72
4 Vizianagaram	7	0·10	16	0·24	..	..	..	..	..	..	..	..	150	2·22	84	1·24	104	1·54
5 Anakkapalle	58	0·94	15	0·37	..	..	..	..	..	..	..	..	110	2·72	29	0·72	101	2·49
6 Bheemunipatnam	..	..	4	0·38	..	..	..	..	..	..	..	..	4	0·38	12	1·14	128	1·14
East Godavari District—																		
7 Kakinada	19	0·19	29	0·29	10	0·09	..	..	..	..	..	..	139	1·38	51	0·51	26	0·26
8 Rajahmundry	10	0·09	16	0·15	3	0·03	..	..	..	..	1	0·01	207	1·95	87	0·82	85	0·80
9 Peddapuram	3	0·13	3	0·13	..	..	..	..	..	..	..	..	47	2·01	23	0·98	38	1·62
10 Amalapuram	..	..	9	0·42	1	0·05	..	..	..	..	..	..	8	0·38	2	0·09	15	0·70
West Godavari District—																		
11 Eluru	2	0·02	9	0·10	..	..	..	..	..	..	..	..	187	2·12	40	0·45	11	0·12
12 Palacole	1	0·04	12	0·52	1	0·04	..	..	..	..	..	..	28	1·21	9	0·39	24	1·04
13 Bheemavaram	5	0·16	9	0·29	3	0·10	..	..	..	..	..	..	140	4·47	17	0·54	24	0·77
Krishna District—																		
14 Vijayavada	37	0·23	55	0·34	..	..	..	..	..	..	1	0·01	208	1·27	37	0·23	75	0·46
15 Masulipatnam	18	0·23	26	0·33	3	0·04	..	..	..	..	..	..	108	1·37	15	0·19	24	0·31
16 Gudivada	9	0·28	17	0·53	..	..	..	..	..	..	..	..	77	2·39	9	0·28	14	0·43
Guntur District—																		
17 Guntur	3	0·02	62	0·49	8	0·06	5	0·04	..	..	7	0·06	275	2·17	39	0·31	86	0·68
18 Tenali	15	0·26	43	0·73	..	..	..	..	..	..	..	..	57	0·97	10	0·17	30	0·51
19 Ongole	24	0·86	10	0·35	..	..	..	..	..	..	..	..	18	0·64	17	0·61	19	0·68
20 Narasaraopet	..	..	19	0·85	1	0·04	..	..	..	..	1	0·04	58	2·59	..	..	9	0·40
21 Chirala	21	0·55	29	0·76	..	..	..	..	..	..	..	..	70	1·84	6	0·16	25	0·66
Bellary District—																		
22 Bellary	13	0·18	14	0·20	6	0·09	..	..	..	..	..	..	9	0·13	12	0·17	61	0·86
23 Adoni	2	0·04	5	0·09	..	..	..	..	..	..	..	..	5	0·09	33	0·61	14	0·26
24 Hospet	26	0·67	12	0·31	8	0·20	..	..	..	..	..	..	62	1·59	5	0·13	51	1·30
Anantapur District—																		
25 Anantapur	2	0·06	5	0·15	3	0·09	..	..	..	..	1	0·03	33	1·02	4	0·12	15	0·46
26 Hindupur	2	0·12	8	0·51	20	1·28	..	..	..	..	1	0·06	1	0·06	7	0·45	30	1·92
27 Tadpatri	8	0·41	17	0·87	2	0·10	..	..	..	..	..	..	56	2·87	5	0·26	8	0·41
28 Guntakal	20	0·63	6	0·19	..	..	..	..	..	..	..	..	43	1·36	12	0·38	31	0·98
Kurnool District—																		
29 Kurnool	11	0·18	20	0·33	28	0·46	..	..	..	..	..	..	12	0·20	21	0·35	69	1·14
30 Nandyal	30	0·89	9	0·27	15	0·45	..	..	..	..	..	..	..	..	8	0·24	25	0·74
Cuddapah District—																		
31 Cuddapah	7	0·19	4	0·11	3	0·08	..	..	..	..	..	..	69	1·83	10	0·26	27	0·72
32 Proddattur	4	0·11	8	0·22	2	0·05	..	..	..	..	2	0·05	51	1·38	22	0·59	21	0·57
Madras District—																		
33 Madras	91	0·06	256	0·18	..	..	..	..	..	..	..	..	3,504	2·44	3,461	2·41	2,234	1·56
Nellore District—																		
34 Nellore	21	0·25	35	0·43	2	0·02	..	..	1	0·01	1	0·01	358	4·35	55	0·67	125	1·52
Chingleput District—																		
35 Kancheepuram	..	..	10	0·12	..	..	..	..	..	..	..	..	123	1·45	149	1·75	66	0·78
36 Tiruvallur	..	..	9	0·47	22	1·15	..	..	..	..	10	0·52	40	2·09	31	1·62	31	1·62
37 Chingleput	2	0·08	9	0·39	7	0·31	..	..	..	..	2	0·09	35	1·54	47	2·06	75	3·29
Chittoor District—																		
38 Chittoor	..	..	16	0·40	..	..	..	..	1	0·03	..	..	25	0·64	14	0·36	18	0·46
39 Tirupati	11	0·43	3	0·12	13	0·51	..	..	..	..	..	..	24	0·94	14	0·55	48	1·89
North Arcot District—																		
40 Vellore	4	0·04	38	0·35	..	..	..	..	2	0·02	..	..	112	1·04	132	1·23	137	1·28
41 Tiruvannamalai	3	0·07	9	0·21	..	..	..	..	..	..	1	0·02	85	2·07	104	2·54	22	0·54
42 Gudiyattam	..	..	20	0·43	68	1·47	..	..	..	..	..	..	137	2·97	57	1·24	64	1·39
43 Vaniyambadi	2	0·05	7	0·18	..	..	..	..	..	..	..	..	3	0·08	41	1·05	12	0·30
44 Tirupattur	56	2·06	16	0·59	1	0·04	..	..	..	..	3	0·11	..	..	21	0·77	17	0·63
45 Walajapet	1	0·08	1	0·08	..	..	..	..	..	..	..	..	34	1·25	22	0·81	4	0·15
46 Ambur	16	0·40	10	0·25	..	..	..	..	..	..	..	..	84	2·08	42	1·04	21	0·52
South Arcot District—																		
47 Cuddalore	1	0·01	15	0·22	1	0·01	..	..	..	..	2	0·03	116	1·67	72	1·04	50	0·72
48 Chidambaram	7	0·20	22	0·63	..	..	..	..	..	..	..	..	31	0·89	52	1·49	26	0·74
49 Villupuram	5	0·14	12	0·33	..	..	..	..	..	..	..	..	65	1·81	33	0·92	79	2·20
50 Tindivanam	..	..	1	0·03	..	..	17	0·57	..	..	..	..	54	1·80	82	2·73	14	0·47
Tanjore district—																		
51 Tanjore	1	0·01	52	0·51	3	0·03	..	..	..	..	..	..	90	0·88	63	0·62	90	0·88
52 Kumbakonam	..	..	8	0·09	17	0·18	..	..	..	..	2	0·02	34	0·37	32	0·35	68	0·74
53 Nagapattinam	..	..	18	0·31	..	..	..	..	..	..	..	..	90	1·55	78	1·34	52	0·90
54 Mayuram	..	..	6	0·14	..	..	..	..	..	..	..	..	20	0·46	21	0·48	15	0·34
55 Mannargudi	1	0·03	8	0·27	..	..	..	..	..	..	..	..	4	0·13	27	0·90	26	0·86
56 Tiruvarur	6	0·22	3	0·11	6	0·22	..	..	..	..	1	0·04	53	1·93	40	1·46	7	0·26
Tiruchirappalli District—																		
57 Tiruchirappalli	3	0·01	34	0·15	5	0·02	..	..	..	..	2	0·01	7	0·03	214	0·97	130	0·59
58 Karur	1	0·03	..	..	..	..	..	..	..	..	..	..	52	1·41	33	0·09	4	0·11
59 Srirangam	3	0·07	4	0·09	..	..	..	..	..	..	..	..	49	1·15	24	0·56	44	1·03
60 Pudukkottai	..	..	1	0·02	..	..	..	..	..	..	..	..	151	3·36	3	0·07	56	1·25
Madurai District—																		
61 Madurai	5	0·01	75	0·20	7	0·02	..	..	..	..	..	..	664	1·81	417	1·14	146	0·40
62 Dindigul	3	0·03	10	0·10	..	..	..	..	..	..	1	0·03	147	1·62	94	1·03	72	0·79
63 Bodinayakanur	20	0·55	10	0·27	..	..	..	..	..	..	..	..	89	2·46	25	0·69	2	0·06
64 Periakulam	19	0·61	11	0·35	4	0·13	..	..	..	..	1	0,03	5	0·16	53	1·70	47	1·51
65 Palni	2	0·06	7	0·20	..	..	..	..	..	..	..	..	1	0·03	77	2·21	8	0·23
66 Kodaikanal	1	0·09	2	0·18	..	..	..	..	..	..	1	0·09	..	..	3	0·27	5	0·45
Ramanathapuram District—																		
67 Rajapalayam	14	0·23	6	0·10	1	0·02	..	..	..	..	..	..	159	2·59	172	2·81	120	1·96
68 Srivilliputtur	2	0·04	3	0·06	..	..	..	..	..	..	..	..	143	3·06	77	1·65	52	1·11
69 Virudhunagar	..	..	13	0·32	16	0·39	..	..	..	..	..	..	173	4.26	136	3·33	45	1·11
70 Karaikudi	..	..	1	0·03	..	..	..	..	..	..	..	..	70	1·80	36	0·93	46	1·19
71 Devakkottai	1	0·04	1	0·04	4	0·15	..	..	..	..	..	..	4	0·15	22	0·85	21	0·81
72 Sivakasi	..	..	10	0·43	..	..	..	..	..	..	..	..	163	7·11	14	0·61	48	2·10
73 Arappukkottai	8	0·06	10	0·20	4	0·08	..	..	..	..	6	0·12	235	4·90	115	2·34	67	1·37

No. VI-A—(Optional).—Deaths registered from certain causes in municipalities of the State of Madras during the year 1951—cont.

Serial number and municipalities.	Pneumonia. Deaths. (11)	Pneumonia. Rate per mille.	Other respiratory diseases. Deaths. (12)	Other respiratory diseases. Rate per mille.	Pulmonary Tuberculosis. Deaths. (13)	Pulmonary Tuberculosis. Rate per mille.	Diptheria. Deaths. (14)	Diptheria. Rate per mille.	Cerebro Spinal fever. Deaths. (15)	Cerebro Spinal fever. Rate per mille.	Child Deaths from birth. (16)	Deaths under one year. Males. (17)	Deaths under one year. Females. (17)	Deaths under one year. Total. (17)	Infant mortality rate per 1,000 live-births. (18)
Srikakulam—															
1 Srikakulam	8	0·33	10	0·41	22	0·91	..	..	1	0·94	12	44	31	75	183·82
2 Salur	..	..	19	0·78	14	0·57	..	..	1	0·04	2	76	60	136	272·54
Visakhapatnam—															
3 Visakhapatnam	111	1·02	142	1·30	110	1·00	2	0·02	..	..	52	308	242	550	165·31
4 Vizianagaram	45	0·67	32	0·47	91	1·35	..	..	..	..	17	190	188	378	165 86
5 Anakkapalle	24	0·59	70	1·73	39	0·96	..	..	2	0·05	12	115	129	244	189·59
6 Bheemunipatnam	22	2·10	1	0·09	17	1·62	..	..	..	..	1	36	23	59	153·25
East Godavari—															
7 Kakinada	12	0·12	24	0·24	47	0·47	1	0·01	4	0·04	22	173	189	362	98·08
8 Rajahmundry	72	0·68	20	0·19	106	1·00	2	0·02	..	..	21	234	196	430	127·18
9 Peddapuram	2	0·08	23	0·98	10	0·43	..	..	..	..	2	49	45	94	127·72
10 Amalapuram	3	0·14	23	1·08	2	0·09	..	..	..	..	5	39	26	65	115.25
West Godavari—															
11 Eluru	35	0·40	46	0·52	62	0·70	4	0·05	..	..	31	119	98	217	106·06
12 Palacole	13	0·56	30	1·30	9	0·39	..	..	..	..	10	62	48	110	155·81
13 Bheemavaram	7	0·22	10	0·32	9	0·29	..	..	..	..	8	24	19	43	56·21
Krishna—															
14 Vijayavada	114	0·70	27	0·16	106	0·65	1	0·01	..	..	17	247	203	450	116·10
15 Masulipatnam	48	0·61	14	0·18	63	0·80	..	..	..	..	9	157	147	304	1 6·44
16 Gudivada	3	0·09	32	0·99	3	0·09	..	..	..	..	3	72	52	124	92·88
Guntur—															
17 Guntur	94	0·75	65	0·52	106	0·85	7	0·07	..	..	37	225	185	410	74·86
18 Tenali	68	1·16	7	0·12	56	0·95	2	0·03	..	..	14	126	93	219	110·94
19 Ongole	46	1·64	8	0·29	43	1·54	1	0·04	..	..	14	89	85	174	127·20
20 Narasaraopet	9	0·40	12	0·54	16	0·71	..	..	1	0·04	8	75	55	130	143·49
21 Chirala	25	0·66	10	0·26	40	1·05	..	..	..	..	1	47	33	80	79·76
Bellary—															
22 Bellary	64	0·60	88	1·24	144	2·03	7	0·10	..	..	26	163	111	274	117·19
23 Adoni	48	0·89	60	1·11	67	1·24	..	..	..	..	5	71	55	126	69·23
24 Hospet	32	0·82	35	0·90	26	0·67	..	..	..	..	6	85	69	154	115·79
Anantapur—															
25 Anantapur	19	0·59	31	0·96	3	0·09	3	0·09	..	..	8	27	21	48	40·89
26 Hindupur	29	1·86	23	2·11	20	1·28	..	..	..	..	10	58	40	98	142 44
27 Tadipatri	1	0·05	38	1·95	10	0·51	..	..	..	..	9	32	17	49	77·53
28 Guntakal	8	0·25	26	0·82	20	0·63	10	0·32	..	..	3	37	26	63	72·25
Kurnool—															
29 Kurnool	85	1·40	25	0·41	66	1·09	4	0·07	..	..	35	156	103	259	89·93
30 Nandyal	54	1·61	38	1·13	60	1·79	..	..	..	..	17	74	69	143	110·92
Cuddapah—															
31 Cuddapah	12	0·32	15	0·40	67	1·77	4	0·11	..	..	14	58	50	108	76·00
32 Proddatur	37	1·00	25	0·68	45	1·22	..	..	3	0·08	12	79	104	183	131·18
Madras—															
33 Madras	..	..	9,933	6·92	898	0·63	..	..	..	..	151	5,121	4,700	9,821	166·57
Nellore—															
34 Nellore	132	1·60	32	0·39	82	1·00	4	0·05	1	0·01	87	319	269	588	152·81
Chingleput—															
35 Kancheepuram	321	3·77	183	2·15	85	1·00	..	..	2	0·02	48	224	198	422	137·28
36 Tiruvallur	14	0·73	43	2·25	1	0·05	..	..	..	..	1	42	53	95	85·13
37 Chingleput	76	3·33	18	0·79	41	1·80	..	..	..	..	22	74	56	130	222·60
Chittoor—															
38 Chittoor	27	0·69	14	0·36	38	0·97	..	..	..	..	17	91	71	162	106·86
39 Tirupati	19	0·75	20	0·79	34	1·34	..	..	..	..	6	47	41	88	91·67
North Arcot—															
40 Vellore	206	1·92	115	1·07	158	1·47	5	0·05	..	..	35	325	275	600	118·58
41 Tiruvannamalai	97	2·37	32	0·78	36	0·88	..	..	..	..	7	100	84	184	136·40
42 Gudiyattam	13	0·23	..	..	63	1·37	..	..	..	..	18	90	100	190	125·50
43 Vaniyambadi	43	1·10	60	1·54	29	0·74	..	..	..	..	15	82	67	149	116 13
44 Tiruppattur	70	2·58	3	0·11	23	0·85	2	0·07	..	..	6	45	42	87	70·45
45 Walajapet	30	1·10	3	0·11	7	0·26	..	..	1	0·08	1	37	35	72	143·14
46 Ambur	4	0·10	48	1·19	26	0·65	..	..	..	..	14	59	66	125	87.72
South Arcot—															
47 Cuddalore	32	0·46	77	1·10	95	1·37	3	0·04	2	0·03	45	176	136	312	1 0·65
48 Chidambaram	18	0·51	..	..	50	1·43	..	..	..	..	20	78	74	152	110·38
49 Villupuram	52	1·44	32	0·89	76	2·12	..	..	..	..	16	81	77	158	107 70
50 Tindivanam	14	0·47	46	1·53	61	2·03	..	..	..	..	3	66	50	116	129·61
Tanjore—															
51 Tanjore	117	1·15	50	0·49	144	1·42	10	0·09	..	..	74	238	204	442	105·84
52 Kumbakonam	120	1·60	35	0·38	117	1·26	1	0·01	..	..	49	196	176	372	102·31
53 Nagapattinam	18	0·31	46	0·79	43	0·74	1	0·02	1	0·02	29	132	114	246	103·89
54 Mayuram	70	1·60	28	0·64	19	0·43	..	..	..	..	13	67	66	133	74 68
55 Mannargudi	62	2·06	52	1·73	27	0·90	..	..	..	..	17	80	67	147	93 87
56 Tiruvarur	35	1·28	2	0·07	21	0·77	..	..	..	..	9	52	31	83	65·46
Tiruchirappalli—															
57 Tiruchirappalli	558	2·52	441	2·00	99	0·45	16	0·07	..	..	66	378	359	737	101·32
58 Karur	22	0·59	6	0·16	34	0·92	..	..	..	..	10	72	77	149	129·68
59 Srirangam	23	0·54	39	0·92	19	0·45	..	..	..	..	9	61	47	108	74·69
60 Pudukkottai	58	1·29	28	0·62	50	1·11	1	0·02	..	..	4	51	38	89	55·35
Madurai—															
61 Madurai	1,727	4·72	230	0·62	591	1·62	19	0·05	4	0·01	84	1,025	948	1,973	118·15
62 Dindigul	98	1·08	77	0·85	62	0·68	7	0·07	11	0·12	16	149	168	317	116·20
63 Bodinayakanur	6	0·17	11	0·30	11	0·30	..	..	..	..	8	88	48	136	111·48
64 Perivakulam	80	2·56	36	1·15	58	1·86	1	0·03	2	0·06	9	82	74	156	118 99
65 Palni	44	1·26	246	7·07	87	2·50	1	0·03	..	..	8	96	88	184	154·62
66 Kodaikanal	49	4·45	9	0·82	6	0·55	1	0·90	2	0·18	1	25	24	49	43·59
Ramanathapuram—															
67 Rajapalayam	140	2·28	26	0·42	49	0·80	..	..	..	..	15	134	106	240	115·50
68 Srivilliputtur	3	0·06	4	0·09	85	1·82	..	..	..	..	5	125	96	221	104·34
69 Virudhunagar	65	1·60	32	0·79	69	1·70	..	..	..	..	10	128	135	263	168 48
70 Karaikudi	15	0·39	12	0·30	49	1·26	..	..	..	..	6	93	64	157	117 87
71 Devakottai	18	0·69	48	1·85	..	..	1	0·04	..	..	13	84	46	130	99· 1
72 Sivakasi	8	0·35	27	1·18	65	2·84	..	..	..	..	4	68	61	129	119·56
73 Aruppukkottai	19	0·39	11	0·22	80	1·63	2	0·04	2	0·04	12	126	137	263	137·84

No. VI-A—(Optional).—Deaths registered from certain causes in municipalities of the State of Madras during the year 1951—cont.

Serial number and municipalities.	Malaria.		Enteric fever.		Measles.		Relapsing fever.		Kala-Azar.		Influenza.		Other fevers.		Dysentery.		Diarrhœa.	
	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.
(1)	(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	
Tirunelveli—																		
74 Tuticorin	14	0·14	11	0·11	..	..	..	..	1	0·01	..	..	164	1·64	145	1·45	53	0·53
75 Tirunelveli	1	0·01	1	0·01	..	..	..	..	..	..	1	0·01	10	0·43	77	1·04	78	1·06
76 Palayamkottai	1	0·02	12	0·30	..	..	..	..	..	..	..	..	48	1·19	32	0·79	43	1·07
77 Melapalayam	..	..	..	..	..	..	..	..	..	..	..	..	85	2.24	17	0·45	46	1·21
Salem—																		
78 Salem	96	0·46	58	0·28	..	..	..	..	..	..	..	..	58	0·28	91	0·44	79	0·38
79 Rasipuram	4	0·17	2	0·08	..	..	..	..	..	..	..	..	113	4·85	12	0·52	7	0·30
Coimbatore—																		
80 Coimbatore	32	0·16	51	0·26	20	0·10	..	..	..	..	14	0·07	85	0·43	381	1·91	320	1·60
81 Erode	42	0·72	21	0·36	4	0·07	..	..	..	..	2	0·03	10	0·17	83	1·43	16	0·27
82 Tiruppur	10	0·16	10	0·16	5	0·08	..	..	..	..	..	..	128	2·00	129	2·01	14	0·22
83 Pollachi	2	0·05	9	0·21	..	..	..	..	..	..	..	..	290	6·86	99	2·34	10	0·24
84 Dharapuram	5	0·21	9	0·37	7	0·29	..	..	..	..	..	..	67	2·76	35	1·44	21	8·64
85 Udamalpet	1	0·04	14	0·60	..	..	..	..	..	..	1	0·04	6	0·26	17	0·72	14	0·60
86 Metupalayam	34	1·22	22	0·79	..	..	..	..	..	..	2	0·07	11	0·40	63	2·27	36	1·29
87 Gobichettipalayam	6	0·19	15	0·49	..	..	1	0·03	..	..	4	0·13	58	1·88	28	0·91	23	0·75
The Nilgiris—																		
88 Ootacamund	5	0·12	8	0·19	..	..	..	..	..	..	3	0·07	2	0·05	25	1·60	34	0·81
89 Coonoor	6	0·25	10	0·41	..	..	..	..	1	0·04	1	0·04	2	0·08	28	1·16	30	1·24
Malabar—																		
90 Kozhikode	5	0·03	106	0·66	..	..	..	..	..	..	..	..	244	1·53	65	0·41	69	0·43
91 Palghat	6	0·09	28	0·40	..	..	..	..	..	..	4	0·06	34	0·49	39	0·56	31	0·44
92 Tellicherry	3	0·07	30	1·75	..	..	..	..	..	..	1	0·02	8	0·20	9	0·22	30	0·75
93 Cannanore	1	0·02	6	0·14	..	..	..	..	..	..	..	..	138	3·23	10	0·23	7	0·16
94 Cochin	..	..	33	1·10	..	..	..	..	..	..	..	..	9	0·30	43	1·43	16	0·53
South Kanara—																		
95 Mangalore	2	0·02	90	0·76	9	0·08	..	..	..	..	..	..	100	0·85	75	0·63	35	0·30
96 Udipi	1	0·05	19	0·93	..	..	..	..	..	..	..	..	40	1·95	12	0·59	11	0·54
Total for the State ..	947	0·14	1,877	0·27	343	0·05	23	0·003	6	0·001	81	0·01	11,685	1·70	8,447	1·23	6,422	0·93

Serial number and municipalities.	Pneumonia.		Other respiratory diseases.		Pulmonary Tuberculosis.		Diptheria.		Cerebro Spinal fever.		Deaths from child birth.	Deaths under one year.			Infant mortality rate per 1,000 live births.
	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.		Males.	Females.	Total.	
	(11)		(12)		(13)		(14)		(15)		(16)	(17)			(18)
Tirunelveli—															
74 Tuticorin	129	1·29	239	2·40	235	2·36	2	0·02	..	..	38	325	312	637	173·66
75 Tirunelveli	214	2·89	55	0·74	133	1·80	..	..	..	..	21	241	217	458	176·70
76 Palayamkottai	49	1·22	5	0·12	98	2·43	3	0·07	..	..	41	142	99	241	133·89
77 Melapalayam	18	0·34	25	0·66	90	2·38	..	..	..	..	3	73	61	134	166·87
Salem—															
78 Salem	346	1·67	94	0·45	281	0·87	11	0·05	..	..	82	343	331	674	92·30
79 Rasipuram	4	0·17	24	1·03	2	0·09	..	..	..	..	5	39	31	70	116·64
Coimbatore—															
80 Coimbatore	412	2·06	412	2·60	224	1·12	18	0·09	..	..	70	786	651	1,437	163·54
81 Erode	152	2·61	40	0·69	60	1·03	11	0·19	..	..	25	118	111	229	95·86
82 Tiruppur	34	0·53	61	0·95	54	0·85	2	0·03	..	..	14	143	115	258	138·36
83 Pollachi	48	1·13	31	0·73	27	0·64	..	..	1	0·02	11	160	117	277	155·01
84 Dharapuram	5	0·21	..	..	20	0·82	..	..	..	..	7	34	28	62	86·47
85 Udamalpet	46	1·96	41	1·74	..	..	..	..	..	..	2	60	36	96	85·94
86 Metupalayam	72	2·59	32	1·15	5	0·18	1	0·04	..	..	16	69	67	136	147·35
87 Gobichettipalayam	19	0·62	32	1·04	..	..	..	..	..	..	9	70	53	123	160·78
The Nilgiris—															
88 Ootacamund	164	3·92	41	0·98	10	0·23	..	..	..	..	15	107	101	208	114·79
89 Coonoor	83	3·44	28	1·16	3	0·12	4	0·17	..	..	1	82	60	142	126·22
Malabar—															
90 Kozhikode	67	0·42	62	0·39	393	2·46	4	0·03	1	0·01	61	304	311	615	88·80
91 Palghat	91	1·30	49	0·70	91	1·30	2	0·03	..	..	29	156	134	290	114·90
92 Tellicherry	28	0·70	9	0·22	74	1·84	1	0·02	..	..	19	71	61	132	70·59
93 Cannanore	5	0·11	..	..	37	0·87	..	..	..	..	4	60	43	103	78·93
94 Cochin	33	1·10	38	1·27	58	1·93	..	..	..	..	5	48	51	99	76·27
South Kanara—															
95 Mangalore	90	0·76	55	0·46	202	1·71	2	0·02	..	..	14	158	151	309	67·01
96 Udipi	9	0·44	11	0·54	43	2·10	2	0·10	2	0·10	4	43	29	72	74·46
Total for the State ..	7,786	1·13	14,578	2·11	7,227	1·05	189	0·03	44	0·01	1,922	17,586	15,550	33,136	..

No. VII.—Deaths from **Cholera** *registered in the districts in the State of Madras during each month of the year* 1951.

Serial number.	Districts.	Number of circles of registration (taluks and municipalities).	Number of villages and towns or groups of villages and towns from each of which a monthly return is received.	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	77	10	20	33	14	253	118	52
2	Visakhapatnam	12	1,279	..	..	..	1	5	2	1	8
3	Godavari, East. Plains	12	843	4	4	29	42	40	10	24	42
	Godavari, East. Agency	4	967	2	..	14	6	..	..	..	..
4	Godavari, West. Plains	10	745	..	2	6	7	2	1	1	17
	Godavari, West. Agency	1	131	..	..	..	2	1	..	..	13
5	Krishna	12	987	2	26	13	3	1	..	..	4
6	Guntur	14	1,145	29	8	28	17	16	15	55	65
7	Bellary	12	997	7	..	1	7	21	22	40	38
8	Anantapur	13	868	..	..	12	26	26	57	69	49
9	Kurnool	12	891	15	16	5	3	90	67	25	2
10	Cuddapah	10	1,034	6	..	..	16	344	401	134	1
11	Madras	1	1	18	6	7	3	21	15	4	15
12	Nellore	14	1,689	209	172	43	38	57	80	105	63
13	Chingleput	10	2,176	228	67	42	36	68	50	47	139
14	Chittoor	11	2,204	3	41	5	34	18	57	33	58
15	North Arcot	18	2,025	219	77	62	51	88	44	92	65
16	South Arcot	12	2,271	370	352	165	173	85	80	175	556
17	Tanjore	17	2,464	778	594	130	8	5	1	9	28
18	Tiruchirappalli	14	1,338	515	408	125	102	65	46	22	8
19	Madurai	14	1,077	252	208	291	199	140	36	13	2
20	Ramanathapuram	16	1,535	147	89	170	135	174	54	8	9
21	Tirunelveli	13	1,094	799	350	360	182	36	..	5	1
22	Salem	13	1,786	109	32	55	68	31	1	14	11
23	Coimbatore	18	1,203	248	532	268	279	95	25	10	7
24	Nilgiris, The	5	105	..	..	..	..	4	..	..	..
25	Malabar	15	847	..	..	..	23	2	..	..	..
26	South Kanara	8	817	..	..	..	..	..	..	..	..
	Total for the State ..	322	35,236	4,037	2,994	1,851	1,494	1,458	1,317	1,004	1,253

Serial number.	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Ratio of deaths per 1,000 of estimated mid-year population. Males.	Females.	Total.	Average of the ratio published for the last five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	Srikakulam	17	..	5	6	291	314	605	0·29	0·30	0·29	0·01
2	Visakhapatnam	10	13	..	..	13	27	40	0·01	0·03	0·02	0·64
3	Godavari, East. Plains	55	57	11	..	174	144	318	0·16	0·13	0·14	0·25
	Godavari, East. Agency	20	1	1	..	26	18	44	0·25	0·17	0·21	0·37
4	Godavari, West. Plains	69	13	..	13	53	78	131	0·06	0·10	0·08	0·22
	Godavari, West. Agency	..	..	..	..	7	9	16	0·14	0·18	0·16	0·32
5	Krishna	2	..	..	..	24	27	51	0·03	0·03	0·03	0·24
6	Guntur	10	..	..	3	141	105	246	0·11	0·08	0·10	0·14
7	Bellary	5	7	11	4	76	87	163	0·12	0·14	0·13	0·12
8	Anantapur	20	12	1	..	154	118	272	0·22	0·18	0·20	0·14
9	Kurnool	..	12	..	..	129	115	244	0·20	0·18	0·19	0·25
10	Cuddapah	1	..	..	..	486	417	903	0·81	0·73	0·77	0·32
11	Madras	71	24	8	24	120	96	216	0·16	0·14	0·15	0·95
12	Nellore	73	36	23	..	504	395	899	0·56	0·44	0·50	0·30
13	Chingleput	153	6	..	..	445	391	836	0·47	0·43	0·45	0·33
14	Chittoor	56	64	46	49	227	237	464	0·24	0·27	0·26	0·16
15	North Arcot	139	22	35	12	476	430	906	0·33	0·30	0·32	0·36
16	South Arcot	325	46	9	30	1,266	1,100	2,366	0·89	0·78	0·84	0·66
17	Tanjore	6	4	1	4	799	769	1,568	0·54	0·51	0·52	0·92
18	Tiruchirappalli	10	5	2	..	699	609	1,308	0·48	0·41	0·44	0·50
19	Madurai	4	..	..	..	624	531	1,155	0·42	0·36	0·39	0·70
20	Ramanathapuram	6	..	..	..	409	383	792	0·41	0·35	0·38	0·53
21	Tirunelveli	1	..	4	4	835	907	1,742	0·70	0·72	0·71	0·51
22	Salem	10	..	3	..	158	176	334	0·09	0·10	0·10	0·26
23	Coimbatore	1	..	..	..	776	689	1,465	0·47	0·42	0·44	0·36
24	Nilgiris, The	..	..	..	..	3	1	4	0·02	0·01	0·01	0·02
25	Malabar	..	..	..	..	14	11	25	0·01	0·004	0·01	0·01
26	South Kanara	..	..	..	..	..	..	..	..	..	..	0·002
	Total for the State ..	1,074	322	160	149	8,929	8,184	17,113	0·31	0·29	0·30	0·32

No. VIII.—Deaths from **Smallpox** *registered in the districts in the State of Madras during each month of the year* 1951.

Serial number.	Districts.	Number of circles of registration (taluks and municipalities).	Number of villages or groups of villages and towns from each of which a monthly birth and death return is received.	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	190	253	418	237	69	152	64	65
2	Visakhapatnam	12	1,279	20	50	65	30	41	57	57	50
3	Godavari, East. Plains	12	843	79	61	64	50	36	20	15	25
	Godavari, East. Agency	4	967	11	15	3	1	..	2	..	..
4	Godavari, West. Plains	10	745	79	71	94	58	49	31	37	20
	Godavari, West. Agency	1	131	2	1	4	7	13	9	2	..
5	Krishna	12	987	81	97	163	123	64	42	26	7
6	Guntur	14	1,145	437	384	445	324	172	65	92	14
7	Bellary	12	997	18	27	56	19	14	15	32	..
8	Anantapur	13	868	34	54	118	92	62	57	35	25
9	Kurnool	12	891	65	116	233	149	88	102	53	17
10	Cuddapah	10	1,034	63	76	119	122	67	74	68	29
11	Madras	1	1	60	50	127	90	57	30	36	17
12	Nellore	14	1,689	57	66	85	62	36	36	42	26
13	Chingleput	10	2,176	145	124	153	124	75	40	23	62
14	Chittoor	11	2,204	22	35	58	30	16	31	45	32
15	North Arcot	18	2,025	158	136	183	79	61	76	108	44
16	South Arcot	12	2,271	85	119	246	141	128	43	101	94
17	Tanjore	17	2,464	24	42	79	62	45	35	43	76
18	Tiruchirappalli	14	1,338	55	66	22	17	15	45	24	31
19	Madurai	14	1,077	89	75	43	43	69	23	31	29
20	Ramanathapuram	16	1,535	63	61	90	80	28	28	14	13
21	Tirunelveli	13	1,094	38	64	152	63	25	42	39	40
22	Salem	13	1,786	97	95	245	89	58	93	108	79
23	Coimbatore	18	1,203	100	206	398	252	93	66	31	28
24	Nilgiris, The	5	105	1	4	10	4	5	8	6	4
25	Malabar	15	847	67	59	123	95	37	28	54	50
26	South Kanara	8	817	10	21	14	1	4	6	6	2
	Total for the State ..	322	35,236	2,150	2,428	3,810	2,444	1,427	1,256	1,192	879

Serial number.	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Number of deaths among children. Under one year.	Number of deaths among children. From one to five years.	Ratio of deaths per 1,000 of estimated mid-year population. Males.	Females.	Total.	Average of ratios published for the previous five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1	Srikakulam	58	11	30	39	748	838	1,583	335	759	0·74	0·79	0·76	0·03
2	Visakhapatnam	40	6	17	19	211	241	452	115	183	0·23	0·25	0·22	0·05
3	Godavari, East. Plains	28	4	19	4	200	205	405	83	180	0·18	0·18	0·18	0·22
	Godavari, East. Agency	13	..	1	..	22	24	46	10	15	0·21	0·23	0·22	0·36
4	Godavari, West. Plains	12	2	2	6	242	219	461	126	184	0·30	0·27	0·29	0·10
	Godavari, West. Agency	..	..	..	..	19	19	38	9	13	0·39	0·39	0·39	0·16
5	Krishna	7	7	7	13	312	325	637	178	271	0·34	0·37	0·36	0·24
6	Guntur	37	19	1	36	1,019	1,007	2,026	422	931	0·79	0·80	0·79	0·33
7	Bellary	..	..	2	5	92	96	188	64	76	0·14	0·16	0·15	0·16
8	Anantapur	2	5	8	2	249	245	494	156	225	0·35	0·37	0·36	0·17
9	Kurnool	11	20	6	4	424	440	864	259	403	0·66	0·70	0·68	0·32
10	Cuddapah	16	16	24	21	342	353	695	151	321	0·57	0·62	0·30	0·19
11	Madras	7	3	3	10	226	264	490	45	50	0·30	0·38	0·34	0·27
12	Nellore	20	17	13	26	246	240	486	98	160	0·27	0·27	0·27	0·13
13	Chingleput	13	2	..	..	394	367	761	102	238	0·42	0·40	0·40	0·20
14	Chittoor	24	5	19	20	182	155	337	107	151	0·20	0·17	0·19	0·18
15	North Arcot	42	26	13	14	474	466	940	282	429	0·33	0·32	0·34	0·12
16	South Arcot	65	44	31	48	554	591	1,145	218	417	0·40	0·43	0·41	0·10
17	Tanjore	53	21	6	3	221	268	489	61	150	0·15	0·18	0·16	0·13
18	Tiruchirappalli	35	21	10	2	164	179	343	55	94	0·11	0·12	0·12	0·16
19	Madurai	32	26	21	10	229	262	491	90	194	0·16	0·18	0·17	0·11
20	Ramanathapuram	13	22	8	3	185	238	423	44	134	0·19	0·22	0·20	0·17
21	Tirunelveli	41	28	37	28	303	294	597	125	200	0·25	0·23	0·24	0·05
22	Salem	56	21	10	11	463	499	962	498	298	0·27	0·30	0·28	0·08
23	Coimbatore	19	5	9	3	609	601	1,210	200	448	0·37	0·36	0·37	0·07
24	Nilgiris, The	..	1	..	..	28	15	43	5	14	0·17	0·10	0·14	0·03
25	Malabar	17	21	7	3	304	257	561	76	133	0·13	0·10	0·12	0·07
26	South Kanara	2	..	..	..	38	28	66	7	23	0·04	0·03	0·04	0·04
	Total for the State ..	663	353	304	330	8,500	8,736	17,236	3,921	6,694	0·30	0·31	0·30	0·13

No. IX.—Deaths from **Fevers** (*excluding* **Malaria**) *registered in the districts in the State of Madras during each month of the year* 1951.

Serial number.	Districts.	Number of circles of registration (taluks and municipalities).	Number of villages or groups of villages and towns from each of which a monthly birth and death return is received.	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	1,865	1,646	2,033	1,305	1,684	1,270	1,365	1,452
2	Visakhapatnam	12	1,279	1,224	1,002	1,267	1,096	1,116	1,158	1,256	1,289
3	Godavari, East. Plains	12	843	808	730	703	628	646	667	649	764
	Godavari, East. Agency	4	967	142	117	154	93	113	88	76	173
4	Godavari, West. Plains	10	745	524	505	533	477	512	478	583	597
	Godavari, West. Agency	1	131	57	49	56	40	69	30	73	86
5	Krishna	12	987	524	496	453	515	597	550	579	672
6	Guntur	14	1,145	1,074	847	960	982	1,127	995	957	994
7	Bellary	12	997	337	381	448	376	357	434	479	426
8	Anantapur	13	868	572	472	839	636	526	436	498	484
9	Kurnool	12	891	650	689	1,026	755	734	661	769	800
10	Cuddapah	10	1,034	470	410	462	463	505	537	494	452
11	Madras	1	1	230	203	312	211	299	319	301	319
12	Nellore	14	1,689	588	532	554	487	559	464	489	531
13	Chingleput	10	2,176	553	551	707	482	495	589	495	406
14	Chittoor	11	2,204	481	515	692	479	474	473	510	454
15	North Arcot	18	2,025	1,055	977	939	791	971	1,054	943	908
16	South Arcot	12	2,271	1,015	548	680	663	662	655	661	653
17	Tanjore	17	2,464	356	374	350	320	353	361	154	177
18	Tiruchirappalli	14	1,338	893	884	821	719	932	817	729	678
19	Madurai	14	1,077	773	657	824	760	752	780	739	582
20	Ramanathapuram	16	1,535	858	778	719	683	792	928	819	719
21	Tirunelveli	13	1,094	970	602	627	625	699	528	593	572
22	Salem	13	1,786	821	846	900	804	930	869	760	787
23	Coimbatore	18	1,203	824	768	995	832	863	967	406	444
24	Nilgiris, The	5	105	42	61	60	61	74	83	69	47
25	Malabar	15	847	838	735	783	737	964	1,006	878	720
26	South Kanara	8	817	591	488	467	377	350	577	532	516
	Total for the State ..	322	35,236	19,135	16,863	19,364	16,397	18,155	17,774	16,856	16,702

Serial	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Rates of deaths per 1,000 of estimated mid-year population. Males.	Females.	Total.	Average of the published rates for the previous five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	Srikakulam	1,454	1,346	1,159	1,514	9,173	8,920	18,093	9·09	8·38	8·72	9·70
2	Visakhapatnam	1,397	1,362	1,096	1,149	7,378	7,034	14,412	7·88	7·30	6·93	9·03
3	Godavari, East. Plains	784	804	646	754	4,390	4,193	8,583	3·97	3·78	3·87	5·43
	Godavari, East. Agency	112	116	48	237	826	643	1,469	7·87	6·18	7·03	9·92
4	Godavari, West. Plains	635	577	511	596	3,196	3,332	6,528	3·95	4·14	4·06	5·15
	Godavari, West. Agency	45	55	55	84	358	341	699	7·30	7·00	7·13	6·77
5	Krishna	686	653	548	650	3,585	3,338	6,923	3·94	3·79	3·86	5·29
6	Guntur	985	938	861	913	5,895	5,738	11,633	4·55	4·54	4·55	5·64
7	Bellary	421	288	433	408	2,520	2,268	4,788	3·97	3·69	3·84	6·86
8	Anantapur	434	383	462	582	3,209	3,115	6,324	4·56	4·70	4·62	5·38
9	Kurnool	704	592	637	570	4,435	4,152	8,587	6·88	6·60	6·74	10·20
10	Cuddapah	409	435	396	479	2,810	2,702	5,512	4·71	4·76	4·73	7·34
11	Madras	309	403	386	468	1,875	1,885	3,760	2·51	2·74	2·62	2·88
12	Nellore	540	541	536	517	3,267	3,071	6,338	3·61	3·43	3·52	4·24
13	Chingleput	392	228	451	474	3,058	2,765	5,823	3·24	3·02	3·13	2·74
14	Chittoor	357	318	398	445	2,892	2,704	5,596	3·11	3·04	3·08	3·48
15	North Arcot	848	927	880	940	5,691	5,542	11,233	3·97	3·86	4·03	4·13
16	South Arcot	604	530	562	520	3,953	3,800	7,753	2·84	2·74	2·59	3·32
17	Tanjore	154	216	244	194	1,679	1,574	3,253	1·14	1·03	1·09	1·72
18	Tiruchirappalli	588	628	946	864	4,944	4,555	9,499	3·37	3·06	3·22	3·59
19	Madurai	436	613	881	916	4,687	4,026	8,713	3·24	2·76	3·00	3·14
20	Ramanathapuram	519	644	675	595	4,368	4,361	8,729	4·38	4·01	4·19	4·93
21	Tirunelveli	491	6[illegible]4	798	1,031	4,065	4,075	8,140	3·41	3·23	3·32	3·86
22	Salem	792	694	646	766	5,003	4,612	9,615	2·94	2·73	2·83	3·71
23	Coimbatore	306	403	295	278	3,850	3,531	7,381	2·32	2·14	2·23	3·17
24	Nilgiris, The	17	26	51	36	333	294	627	2·01	1·96	1·99	4·30
25	Malabar	623	617	1,063	686	4,771	4,879	9,650	2·05	1·98	2·02	2·75
26	South Kanara	464	501	660	459	2,956	3,026	5,982	3·50	3·32	3·40	5·39
	Total for the State ..	15,506	15,442	16,324	17,125	105,167	100,476	205,643	3·70	3·51	3·60	4·48

No. IX-A.—Deaths from **Malaria** *registered in the districts in the State of Madras during each month of the year* 1951.

Serial number.	Districts.	Number of circles of registration (taluks and municipalities).	Number of villages or groups of villages and towns from each of which a monthly death return is received.	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	30	15	25	15	15	21	14	15
2	Visakhapatnam	12	1,279	14	13	9	4	11	16	5	22
3	Godavari, East. Plains	12	843	14	11	11	4	3	7	5	35
	Godavari, East. Agency	4	967	15	1	..	5	1	1	..	6
4	Godavari, West. Plains	10	745	19	7	13	13	7	6	10	7
	Godavari, West. Agency	1	131	1	9	2	..	1	..	6	3
5	Krishna	12	987	45	17	25	25	9	9	8	12
6	Guntur	14	1,145	10	25	17	6	11	16	7	11
7	Bellary	12	997	19	23	19	23	24	12	28	16
8	Anantapur	13	868	13	18	34	23	19	14	33	13
9	Kurnool	12	891	39	30	46	49	34	27	40	36
10	Cuddapah	10	1,034	16	15	7	22	14	11	11	6
11	Madras	1	1	5	8	13	6	10	7	4	7
12	Nellore	14	1,689	55	50	35	23	44	41	51	47
13	Chingleput	10	2,176	6	21	2	5	17	..	1	7
14	Chittoor	11	2,204	8	4	11	8	13	11	5	20
15	North Arcot	18	2,025	9	5	5	14	46	18	16	17
16	South Arcot	12	2,271	10	8	1	2	..	1	3	1
17	Tanjore	17	2,464	1	3	..	2	..	2	..	..
18	Tiruchirappalli	14	1,338	16	25	10	15	14	11	8	81
19	Madurai	14	1,077	9	4	6	7	7	33	35	55
20	Ramanathapuram	16	1,535	3	1	6	4	3	2	1	14
21	Tirunelveli	13	1,094	3	4	..	9	2	..	2	1
22	Salem	13	1,786	10	11	15	6	12	9	13	19
23	Coimbatore	18	1,203	18	17	20	14	10	9	6	7
24	Nilgiris, The	5	105	4	6	1	1	9	10	5	4
25	Malabar	15	847	69	80	77	81	134	75	128	71
26	South Kanara	8	817	60	53	62	26	44	43	30	36
	Total for the State	322	35,236	521	484	472	412	514	412	475	569

Serial number.	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Ratio of deaths per 1,000 of estimated mid-year population. Males.	Ratio. Females.	Ratio. Total.	Average of the published total for the previous five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	Srikakulam	16	10	7	14	106	91	197	0·11	0·09	0·09	..
2	Visakhapatnam	24	21	14	20	90	83	173	0·10	0·09	0·08	..
3	Godavari, East. Plains	24	32	54	56	148	108	256	0·13	0·10	0·12	..
	Godavari, East. Agency	2	3	9	8	33	18	51	0·31	0·17	0·24	..
4	Godavari, West. Plains	8	13	25	10	73	65	138	0·09	0·08	0·09	..
	Godavari, West. Agency	5	5	9	..	24	17	41	0·49	0·34	0·42	..
5	Krishna	23	15	10	10	107	101	208	0·12	0·11	0·12	..
6	Guntur	22	14	10	17	83	83	166	0·06	0·07	0·06	..
7	Bellary	24	7	8	24	96	131	227	0·15	0·21	0·18	..
8	Anantapur	15	8	8	13	107	104	211	0·15	0·16	0·15	..
9	Kurnool	33	46	30	24	210	224	434	0·33	0·36	0·34	..
10	Cuddapah	4	8	1	2	63	54	117	0·11	0·10	0·10	..
11	Madras	6	5	12	8	52	39	91	0·07	0·06	0·06	..
12	Nellore	46	32	28	20	262	210	472	0·29	0·23	0·26	..
13	Chingleput	8	..	..	..	29	38	67	0·03	0·04	0·04	..
14	Chittoor	19	12	8	9	70	58	128	0·08	0·07	0·07	..
15	North Arcot	3	6	6	10	74	81	155	0·05	0·06	0·06	..
16	South Arcot	..	1	1	..	13	15	28	0·01	0·01	0·10	..
17	Tanjore	2	..	1	1	5	7	12	0·003	0·005	0·004	..
18	Tiruchirappalli	..	2	29	36	124	123	247	0·08	0·08	0·08	..
19	Madurai	22	43	32	30	174	109	283	0·12	0·07	0·10	..
20	Ramanathapuram	..	3	3	1	24	17	41	0·02	0·02	0·02	..
21	Tirunelveli	..	1	2	4	16	12	28	0·01	0·01	0·01	..
22	Salem	18	15	6	18	69	83	152	0·04	0·05	0·04	..
23	Coimbatore	5	7	13	13	73	66	139	0·54	0·04	0·04	..
24	Nilgiris, The	1	1	1	1	25	19	44	0·15	0·13	0·14	..
25	Malabar	60	47	18	1	436	405	841	0·19	0·16	0·18	..
26	South Kanara	42	32	5	..	230	203	433	0·27	0·22	0·25	..
	Total for the State	432	389	350	350	2,816	2,564	5,380	0·10	0·09	0·09	..

No. X.—Deaths from **Dysentery and Diarrhœa** *registered in the districts in the State of Madras during each month of the year 1951.*

Serial number	Districts.	Number of circles of registration (taluks and municipalities)	Number of villages or groups of villages and towns from each of which a birth and death return is received	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	132	123	179	69	194	197	193	209
2	Visakhapatnam	12	1,279	113	193	118	79	141	158	152	185
3	Godavari, East. Plains	12	843	119	9	169	132	131	121	128	226
	Godavari, East. Agency	4	967	15	4	27	13	21	6	9	74
4	Godavari, West. Plains	10	745	104	70	86	90	132	110	187	213
	Godavari, West. Agency	1	131	5	3	7	11	9	5	10	17
5	Krishna	12	987	95	88	88	122	83	76	109	167
6	Guntur	14	1,145	165	138	148	187	200	145	158	187
7	Bellary	12	997	77	93	123	104	119	144	182	143
8	Anantapur	13	868	167	146	163	138	149	150	227	222
9	Kurnool	12	891	78	68	74	58	70	68	115	109
10	Cuddapah	10	1,034	42	42	60	29	75	60	69	44
11	Madras	1	1	336	345	336	374	546	482	461	602
12	Nellore	14	1,689	143	133	118	112	136	121	172	164
13	Chingleput	10	2,176	316	227	132	115	167	166	154	237
14	Chittoor	11	2,204	182	185	182	175	190	189	176	173
15	North Arcot	18	2,025	709	526	523	481	453	548	515	437
16	South Arcot	12	2,271	345	465	332	200	267	276	304	375
17	Tanjore	17	2,464	356	291	181	129	155	123	277	273
18	Tiruchirappalli	14	1,338	335	344	279	196	275	170	208	285
19	Madurai	14	1,077	295	244	255	238	277	247	201	308
20	Ramanathapuram	16	1,535	286	251	184	156	253	230	179	215
21	Tirunelveli	13	1,094	409	318	223	154	159	160	151	137
22	Salem	13	1,786	429	345	320	266	218	295	261	219
23	Coimbatore	18	1,203	345	383	385	416	467	358	400	438
24	Nilgiris, The	5	105	18	16	28	33	50	66	29	19
25	Malabar	18	847	187	205	228	331	460	464	434	274
26	South Kanara	8	817	180	158	121	69	78	96	135	136
	Total for the State	322	35,236	5,983	5,468	5,059	4,479	5,506	5,231	5,585	6,088

Serial number.	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Ratio of deaths per 1,000 of estimated mid-year population. Males.	Ratio. Females.	Ratio. Total.	Average of the ratio published for previous five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	Srikakulam	213	195	185	157	1,119	927	2,046	1·10	0·87	0·99	0·98
2	Visakhapatnam	215	144	106	114	875	752	1,627	0·93	0·78	0·78	1·13
3	Godavari, East. Plains	235	234	181	146	986	935	1,921	0·89	0·84	0·87	1·04
	Godavari, East. Agency	37	27	26	42	167	139	306	1·59	1·34	1·46	1·15
4	Godavari, West. Plains	204	147	77	125	781	768	1,549	0·96	0·96	0·96	1·35
	Godavari, West. Agency	6	5	3	4	44	41	85	0·90	0·83	0·87	0·75
5	Krishna	122	82	73	75	654	526	1,180	0·72	0·60	0·66	1·08
6	Guntur	181	133	146	125	996	915	1,911	0·77	0·72	0·75	1·07
7	Bellary	109	74	96	85	699	650	1,349	1·10	1·06	1·08	1·47
8	Anantapur	149	102	114	138	960	908	1,868	1·36	1·27	1·36	1·63
9	Kurnool	92	71	67	67	473	464	937	0·73	0·74	0·74	1·08
10	Cuddapah	52	50	47	57	322	296	618	0·54	0·52	0·53	0·79
11	Madras	512	440	529	702	2,862	2,833	5,695	3·84	4·12	3·97	3·56
12	Nellore	148	131	103	114	894	701	1,595	0·99	0·78	0·89	1·04
13	Chingleput	238	169	152	195	1,198	1,090	2,288	1·27	1·19	1·23	1·36
14	Chittoor	143	125	144	142	1,046	960	2,006	1·13	1·08	1·10	1·34
15	North Arcot	405	458	442	580	3,111	2,996	6,107	2·17	2·09	2·19	1·82
16	South Arcot	274	174	211	310	1,868	1,665	3,533	1·34	1·20	1·27	1·50
17	Tanjore	282	351	502	525	1,779	1,756	3,535	1·21	1·15	1·18	0·69
18	Tiruchirappalli	333	339	279	303	1,641	1,705	3,346	1·12	1·15	1·13	1·26
19	Madurai	241	261	244	269	1,584	1,596	3,180	1·09	1·59	1·09	1·18
20	Ramanathapuram	280	218	208	245	1,314	1,391	2,705	1·32	1·28	1·30	1·21
21	Tirunelveli	114	183	193	278	1,226	1,233	2,459	1·03	0·98	1·00	1·31
22	Salem	318	274	265	313	1,805	1,719	3,524	1·06	1·02	1·04	0·75
23	Coimbatore	436	528	570	662	2,832	2,556	5,388	1·70	1·55	1·63	1·26
24	Nilgiris, The	24	25	37	33	197	181	378	1·19	1·21	1·20	2·00
25	Malabar	187	168	145	73	1,570	1,638	3,208	0·67	0·67	0·67	1·06
26	South Kanara	118	123	65	13	638	654	1,292	0·76	0·72	0·74	1·13
	Total for the State	5,672	5,271	5,300	5,992	33,641	31,992	65,633	1·18	1·12	1·15	1·23

No. XI.—Deaths from **Respiratory diseases** *registered in the districts in the State of Madras during each month of the year* 1951.

Serial number.	Districts.	Number of circles of registration (taluks and municipalities).	Number of villages or groups of villages and towns from each of which a monthly birth and death return is received.	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	145	133	150	119	290	158	160	156
2	Visakhapatnam	12	1,279	146	124	168	120	183	155	141	172
3	Godavari, East. Plains	12	843	302	239	159	73	120	185	212	215
	Godavari, East. Agency	4	967	19	10	14	13	25	29	16	82
4	Godavari West. Plains	10	745	217	184	215	180	177	195	222	248
	Godavari West. Agency	1	131	28	14	26	33	25	34	17	29
5	Krishna	12	987	217	164	147	210	203	191	221	249
6	Guntur	14	1,145	297	243	249	259	265	257	338	312
7	Bellary	12	997	143	185	178	175	152	178	188	164
8	Anantapur	13	868	149	128	194	177	131	128	162	170
9	Kurnool	12	891	125	130	146	117	113	98	111	114
10	Cuddapah	10	1,034	70	71	64	52	79	68	56	72
11	Madras	1	1	668	668	770	758	965	982	840	988
12	Nellore	14	1,689	138	140	122	108	129	149	119	143
13	Chingleput	10	2,176	332	309	206	202	258	200	173	215
14	Chittoor	11	2,204	184	205	229	224	231	194	247	188
15	North Arcot	18	2,025	433	323	288	363	429	289	292	262
16	South Arcot	12	2,271	368	328	315	275	299	314	327	299
17	Tanjore	17	2,464	282	271	245	259	255	251	299	277
18	Tiruchirappalli	14	1,338	412	393	249	176	294	316	301	380
19	Madurai	14	1,077	659	550	382	373	610	577	588	628
20	Ramanathapuram	16	1,535	325	259	223	275	305	253	245	277
21	Tirunelveli	13	1,094	467	378	367	323	337	321	359	312
22	Salem	13	1,786	295	208	209	180	278	221	214	219
23	Coimbatore	18	1,203	510	477	573	570	470	545	374	479
24	Nilgiris, The	5	105	56	53	63	44	74	79	59	46
25	Malabar	15	847	595	521	527	493	614	584	616	598
26	South Kanara	8	817	176	165	197	147	163	216	174	211
	Total for the State ..	322	35,236	7,758	6,873	6,675	6,298	7,474	7,167	7,071	7,505

Serial number.	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Ratio of deaths per 1,000 of estimated mid-year population. Males.	Females.	Total.	Average of the ratio published for the previous five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	Srikakulam	183	137	142	158	1,072	859	1,931	1·06	0·81	0·93	0·79
2	Visakhapatnam	195	151	167	179	1,063	838	1,901	1·14	0·87	0·91	1.04
3	Godavari, East. Plains	217	280	195	203	1,242	1,158	2,400	1·12	1·04	1·08	1.72
	Godavari, East. Agency	34	36	41	45	178	186	364	1·70	1·79	1·74	1·21
4	Godavari West. Plains	223	228	222	179	1,329	1,161	2,490	1·64	1·44	1·55	2.01
	Godavari West. Agency	21	28	23	18	175	121	296	3·57	2·47	3·02	2·61
5	Krishna	253	253	206	242	1,440	1,116	2,556	1·58	1·27	1·42	1·96
6	Guntur	323	308	276	258	1,880	1,505	3,385	1·45	1·19	1·32	1·69
7	Bellary	137	114	163	154	1,024	907	1,931	1·61	1·48	1·55	1·77
8	Anantapur	156	124	136	187	1,018	824	1,842	1·45	1·24	1·35	1·36
9	Kurnool	98	101	96	144	810	583	1,393	1·26	0·93	1·09	1·33
10	Cuddapah	54	86	66	71	469	340	809	0·79	0·60	0·69	0·94
11	Madras	1,048	1,055	972	1,117	5,554	5,277	10,831	7·45	7·67	7·55	7·94
12	Nellore	133	149	141	152	914	709	1,623	1·01	0·79	0·90	1·18
13	Chingleput	261	224	162	168	1,484	1,226	2,710	1·57	1·34	1·46	1·69
14	Chittoor	140	167	207	144	1,275	1,085	2,360	1·37	1·22	1·30	1·21
15	North Arcot	280	277	288	291	2,114	1,701	3,815	1·48	1·18	1·37	1·71
16	South Arcot	298	264	279	298	2,015	1,649	3,664	1·45	1·19	1·32	1·51
17	Tanjore	408	527	662	702	2,381	2,057	4,438	1·61	1·35	1·48	1·00
18	Tiruchirappalli	366	371	310	349	1,946	1,971	3,917	1·33	1·32	1·33	1·56
19	Madurai	448	517	591	649	3,338	3,234	6,572	2·31	2·21	2·26	3·11
20	Ramanathapuram	274	249	273	248	1,739	1,467	3,206	1·74	1·35	1.54	2·23
21	Tirunelveli	300	357	372	394	2,313	1,974	4,287	1·94	1·57	1·75	1·94
22	Salem	205	203	212	267	1,439	1,272	2,711	0·85	0·75	0·80	1·04
23	Coimbatore	522	651	691	855	3,503	3,214	6,717	2·11	1·95	2·03	2·10
24	Nilgiris, The	53	41	72	52	358	334	692	2·16	2·23	2·20	3·56
25	Malabar	543	464	385	294	3,563	2,671	6,234	1·53	1·09	1·30	1·82
26	South Kanara	208	194	197	108	1,108	1,048	2,156	1·31	1·15	1·23	1·81
	Total for the State ..	7,381	7,556	7,547	7,926	46,744	40,487	87,231	1·64	1·42	1·53	1·77

No. XII.—Deaths from **Plague** *registered in the districts in the State of Madras during each month of the year* 1951.

Serial number.	Districts.	Number of circles of registration (taluks and municipalities).	Number of village or groups of villages and towns from each of which a monthly birth and death return is received.	January.	February.	March.	April.	May.	June.	July.	August.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Srikakulam	11	2,717	..	..	..	..	..	..	..	..
2	Visakhapatnam	12	1,279	..	..	..	..	..	..	..	..
3	Godavari, East. Plains	12	843	..	..	..	..	..	..	..	..
	Godavari, East. Agency	4	967	..	..	..	..	..	..	..	..
4	Godavari, West. Plains	10	745	..	..	..	..	..	..	..	..
	Godavari, West. Agency	1	131	..	..	..	..	..	..	..	..
5	Krishna	12	987	..	..	..	..	..	..	..	..
6	Guntur	14	1,145	..	..	..	..	..	..	..	..
7	Bellary	12	997	34	9	..	..	..	..	..	..
8	Anantapur	13	868	..	..	..	..	4	..	..	..
9	Kurnool	12	891	..	..	..	..	..	..	..	..
10	Cuddapah	10	1,024	..	..	..	..	..	..	..	..
11	Madras	1	1	..	..	..	..	..	..	..	..
12	Nellore	14	1,689	..	..	..	..	..	..	..	..
13	Chingleput	10	2,176	..	..	..	..	..	..	..	..
14	Chittoor	11.	2,204	..	..	..	..	1	..	..	..
15	North Arcot	18	2,025	..	..	..	..	..	..	..	..
16	South Arcot	12	2,271	..	..	3	..	..	..	..	..
17	Tanjore	17	2,464	..	..	..	..	..	..	..	..
18	Tiruchirappalli	14	1,338	..	..	..	..	..	..	..	..
19	Madurai	14	1,077	..	..	..	..	..	..	..	..
20	Ramanathapuram	16	1,535	..	..	..	..	..	..	..	..
21	Tirunelveli	13	1,094	..	..	..	..	..	..	..	..
22	Salem	13	1,786	..	..	..	..	..	..	..	..
23	Coimbatore	18	1,203	..	..	..	..	..	..	..	..
24	Nilgiris, The	5	105	..	..	..	..	..	..	..	..
25	Malabar	15	847	..	..	..	..	..	..	..	..
26	South Kanara	8	817	..	..	..	..	..	..	..	..
	Total for the State ..	322	35,236	34	9	3	..	5	..	..	..

Serial number	Districts.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	Ratio of deaths per 1,000 of estimated mid-year population. Males.	Ratio Females.	Ratio Total.	Average of the ratio published for the previous five years.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	Srikakulam	..	..	..	..	..	..	..	..	..	..	..
2	Visakhapatnam	..	..	..	..	..	..	..	..	..	..	0·0006
3	Godavari, East. Plains	..	..	..	..	..	..	..	..	..	..	..
	Godavari, East. Agency	..	..	..	..	..	..	..	..	..	..	..
4	Godavari, West. Plains	..	..	..	..	..	..	..	..	..	..	..
	Godavari, West. Agency	..	..	..	..	..	..	..	..	..	..	..
5	Krishna	..	..	..	..	..	..	..	..	..	..	..
6	Guntur	..	..	..	..	..	..	..	..	..	..	..
7	Bellary	..	..	..	..	..	..	..	..	..	..	..
8	Anantapur	..	..	..	..	25	18	43	0·04	0·03	0·03	0.08
9	Kurnool	..	..	..	..	1	3	4	0·001	0·004	0·002	0·06
10	Cuddapah	..	..	..	..	..	..	..	..	..	..	0·0004
11	Madras	..	..	..	..	..	..	..	..	..	..	0·0006
12	Nellore	..	..	..	..	..	..	..	..	..	..	0·0002
13	Chingleput	..	..	..	..	..	..	..	..	..	..	..
14	Chittoor	..	..	..	..	..	..	..	..	..	..	0·002
15	North Arcot	..	..	..	..	..	1	1	..	0·001	0·001	0·03
16	South Arcot	..	..	..	..	..	..	..	..	..	..	0·04
17	Tanjore	..	..	..	..	2	1	3	0·001	0·001	0·001	0·014
18	Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	0·001
19	Madurai	..	..	..	..	..	..	..	..	..	..	0·003
20	Ramanathapuram	..	..	..	..	..	..	..	..	..	..	0·024
21	Tirunelveli	..	..	..	..	..	..	..	..	..	..	0·0004
22	Salem	..	..	..	..	..	..	..	..	..	..	0·0001
23	Coimbatore	..	..	..	..	..	..	..	..	..	..	0.024
24	Nilgiris, The	..	..	..	..	..	..	..	..	..	..	0·22
25	Malabar	..	..	..	..	..	..	..	..	..	..	0·09
26	South Kanara	..	..	..	..	..	..	..	..	..	..	0·004
	Total for the State ..	..	..	..	..	28	23	51	0·001	0·001	0·001	0·001
												0·023

No. XIII.—Table showing the health services in Rural and Urban areas of the State of Madras during the year 1951.

Serial number.	Districts.	Rural areas.											Urban areas.										Serial number.
		Medical graduates holding public health qualifications.		Medical licentiates holding public health qualifications.		Epidemic staff.	Sanitary Inspectors.	Health Inspectors.	Vaccinators.		Other Health staff.	School Medical Officers.	Other Medical staff.	Medical graduates holding public health qualifications.		Medical licentiates holding public health qualifications.		Sanitary Inspectors.	Health Inspectors.	Vaccinators.		School Medical Officers.	Other Health staff.	
		Whole time.	Part time.	Whole time.	Part time.				Males.	Females.				Whole time.	Part time.	Whole time.	Part time.			Males.	Females.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
1	North Arcot	..	..	3	..	9	8	17	26	2	20	..	..	1	..	2	..	22	..	11	4	..	17	1
2	Salem	1	..	..	..	5	..	14	56	3	24	..	2	1	..	..	..	21	..	6	..	..	36	2
3	Nellore	1	1	1	..	5	5	19	39	1	18	..	..	1	..	..	..	7	..	2	1	..	..	3
4	Srikakulam	..	..	..	..	27	1	14	35	1	5	..	..	..	..	1	..	9	..	1	..	..	2	4
5	Tanjore	2	..	..	..	78	17	19	46	1	52	..	2	1	..	5	..	27	..	26	..	..	50	5
6	Madras	..	..	..	..	..	..	..	..	..	..	..	..	5	..	2	..	66	..	72	8	6	310	6
7	Visakhapatnam	1	..	1	..	..	1	11	35	1	12	..	..	2	..	1	..	22	..	8	2	..	3	7
8	Tirunelveli	1	..	..	..	..	8	10	40	2	14	..	..	1	..	2	..	23	..	7	2	..	39	8
9	Tiruchirappalli	1	..	..	..	10	4	12	42	1	28	..	1	2	..	2	..	27	..	8	3	..	12	9
10	South Arcot	1	..	..	..	..	1	15	40	..	..	..	1	..	..	1	..	19	..	18	..	..	3	10
11	Nilgiris, The	..	1	..	..	53	..	7	7	..	..	..	..	..	..	2	..	7	..	4	..	..	11	11
12	Bellary	..	..	1	..	..	5	11	21	..	..	..	5	1	..	3	..	21	1	6	2	..	17	12
13	South Malabar	1	..	1	..	..	..	15	18	11	12	..	..	..	..	2	..	9	..	3	2	..	3	13
14	Ramanathapuram	..	..	2	..	23	..	9	33	2	49	..	340	1	..	3	..	33	..	13	2	..	891	14
15	Chingleput	1	..	3	..	..	7	8	22	1	..	..	..	..	..	2	..	11	..	5	..	..	1	15
16	Anantapur	1	..	2	..	5	..	11	26	2	..	..	..	..	..	3	..	8	..	5	1	..	..	16
17	Krishna	1	..	1	..	..	1	11	28	1	21	..	..	..	..	2	..	24	..	9	1	1	9	17
18	Guntur	1	..	1	..	..	11	19	33	1	15	..	18	..	..	1	..	12	..	2	..	..	7	18
19	Chittoor	..	..	1	..	21	1	11	20	..	..	20	1	1	..	1	..	5	..	3	..	..	14	19
20	East Godavari	1	..	1	..	1	1	15	50	1	6	..	..	3	..	..	..	25	..	20	..	..	19	20
21	Madurai	..	..	1	..	25	10	13	21	2	3	..	1	..	..	3	..	15	..	7	1	1	3	21
22	Coimbatore	1	..	1	..	5	..	18	44	3	51	..	1	2	..	3	..	43	10	19	5	1	10	22
23	Kurnool	1	..	..	..	6	..	18	25	2	8	..	..	..	..	2	..	8	..	2	3	..	8	23
24	Cuddapah	..	..	1	..	..	1	10	17	2	5	..	..	..	..	2	..	7	1	3	1	..	9	24
25	South Kanara	1	..	..	..	..	..	8	20	3	22	..	..	2	..	1	..	14	..	4	2	..	25	25
26	West Godavari	1	..	2	..	11	2	11	26	3	24	..	..	2	..	2	..	24	..	4	2	..	1	26
27	North Malabar	1	..	1	..	..	2	22	16	7	77	..	2	1	..	2	..	19	..	5	5	..	9	27
	Total ..	19	2	24	..	284	86	348	786	53	466	20	374	27	..	50	..	528	12	273	47	9	1,509	

NOTE.—The statement does not include the posts of Reserve Health Officers and the Provincial staff at headquarters.

No. XIV.—Statement showing the particulars of vaccinations in the Madras State for the calendar year 1951.

No. XIV.—*Statement showing the particulars of vaccinations in the Madras State for the calendar year* 1951.

Number and name of district.	Mid-year estimated population, 1951.	Total number of persons vaccinated.			Primary vaccination.					
						Successful.				
		Males.	Females.	Total.	Total number of operations.	0–1 year.	1–5 years.	5–10 years.	Above 10 years.	Total of all ages.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Agencies.										
1 Godavari (East)	208,500	16,365	13,637	30,002	7,250	1,527	2,383	346	..	4,256
2 Godavari (West)	97,700	7,881	6,922	14,803	2,849	863	1,261	133	20	2,277
3 Srikakulam	54,000	4,126	3,572	7,698	2,088	183	586	103	32	904
4 Visakhapatnam	181,000	8,149	6,486	14,635	5,568	651	2,487	1,159	79	4,376
Total of Agencies ..	541,200	36,521	30,617	67,138	17,755	3,224	6,717	1,741	131	11,813
Districts.										
1 Anantapur	1,259,900	163,097	134,838	297,935	51,086	22,664	15,291	154	5	38,114
2 Bellary	1,084,900	114,499	96,692	211,191	37,940	18,710	8,818	341	..	27,869
3 Chingleput	1,731,000	141,166	112,225	253,391	44,947	17,881	12,937	1,082	102	32,002
4 Chittoor	1,751,300	145,615	120,306	265,921	50,062	23,745	15,325	363	22	39,455
5 Coimbatore	2,849,000	634,603	563,194	1,197,797	117,699	31,217	28,056	5,912	1,120	66,305
6 Cuddapah	1,090,000	152,941	112,303	265,244	38,000	14,069	12,278	663	84	27,094
7 Godavari (East)	1,966,200	190,531	162,261	352,792	54,766	11,678	24,759	2,633	420	39,490
8 Godavari (West)	1,465,600	172,926	153,221	326,147	46,930	13,591	18,019	2,014	233	33,857
9 Guntur	2,285,200	275,293	177,808	453,101	69,924	18,196	26,027	2,376	132	46,731
10 Krishna	1,516,500	210,178	158,133	368,311	53,463	13,458	18,592	2,673	47	34,770
11 Kurnool	1,179,700	200,006	129,890	329,896	47,060	13,739	15,522	1,978	138	31,377
12 Madurai	2,348,800	254,219	220,623	474,842	91,415	36,880	18,029	2,186	149	57,244
13 Malabar (North)	4,443,400	173,559	188,641	362,200	70,080	20,853	22,969	4,257	893	48,972
14 Malabar (South)		273,041	283,628	556,669	89,955	34,678	22,700	6,954	766	65,098
15 Nellore	1,719,700	157,557	105,222	262,779	60,092	16,141	22,495	2,199	88	40,923
16 Nilgiris, The	245,100	32,990	23,271	56,261	7,713	2,975	3,269	243	9	6,496
17 North Arcot	2,562,800	265,446	224,509	490,955	109,219	50,153	28,430	2,864	411	81,858
18 Ramanathapuram	1,798,700	134,468	118,335	252,803	66,122	20,355	20,148	1,511	223	42,237
19 Salem	3,160,900	352,002	303,747	655,749	114,470	33,602	37,800	4,143	460	76,005
20 South Arcot	2,611,200	490,055	401,119	891,174	107,482	36,121	26,787	3,508	1,330	67,746
21 South Kanara	1,618,200	132,994	130,762	263,756	53,365	25,417	13,828	1,768	239	41,252
22 Tanjore	2,643,500	255,996	211,297	467,293	118,145	28,070	32,039	6,543	1,231	67,883
23 Tirunelveli	2,201,200	175,331	143,405	318,736	79,850	28,687	18,829	3,121	341	50,978
24 Tiruchirappalli	2,608,600	230,480	187,562	418,042	106,280	27,982	25,561	8,269	1,207	63,019
25 Srikakulam	2,024,200	430,134	342,292	772,426	89,747	26,348	27,273	1,380	88	55,089
26 Visakhapatnam	1,672,100	232,064	199,359	431,423	63,346	29,106	21,957	2,316	437	44,816
Grand total for the districts ..	50,378,900	6,027,712	5,036,260	11,063,972	1,857,641	610,540	544,455	73,192	10,306	1,238,493

Number and name of district.	Primary vaccination—*cont.*			Revaccination.					Total successful of all ages.
	Unsuccessful.	Unknown.	Percentage of cases successful in which the results known.	Total number of operations.	Successful.	Unsuccessful.	Unknown.	Percentage of cases successful in which the results were known.	
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Agencies.									
1 Godavari (East)	1,589	1,405	72·8	23,484	1,121	15,227	7,136	6·9	5,377
2 Godavari (West)	157	415	93·5	12,236	1,217	6,666	4,353	15·4	3,494
3 Srikakulam	164	1,020	84·6	5,710	539	1,809	3,362	22·9	1,443
4 Visakhapatnam	654	538	87·0	9,232	990	5,467	2,775	15·3	5,366
Total of Agencies ..	2,564	3,378	82·1	50,662	3,867	29,169	17,626	11·7	15,680
Districts.									
1 Anantapur	5,284	7,688	87·8	248,673	18,517	143,800	86,356	11·4	56,631
2 Bellary	3,602	6,469	88·6	175,637	10,211	87,188	78,238	10·5	38,080
3 Chingleput	2,956	9,989	91·5	210,171	15,516	117,890	76,765	11·6	47,518
4 Chittoor	2,130	8,477	94·9	217,012	21,664	110,803	84,545	16·4	61,119
5 Coimbatore	9,190	42,204	87·8	1,085,871	65,400	410,865	609,606	13·7	131,705
6 Cuddapah	5,073	5,833	84·2	228,988	11,594	146,883	70,511	7·3	38,688
7 Godavari (East)	5,863	9,413	87·1	303,447	22,013	168,364	113,070	11·6	61,503
8 Godavari (West)	3,219	9,854	91·3	279,898	20,271	140,666	118,961	12·6	54,128
9 Guntur	8,356	14,837	84·8	387,940	18,439	199,218	170,283	8·5	55,170
10 Krishna	5,901	12,792	85·5	316,549	18,686	161,803	136,060	10·3	53,456
11 Kurnool	8,113	7,570	79·5	285,101	13,149	151,115	120,837	8·0	44,526
12 Madurai	4,696	29,475	92·4	392,010	32,205	188,374	170,931	14·6	89,449
13 Malabar (North)	3,945	17,891	92·5	294,857	22,854	159,070	112,933	12·6	71,826
14 Malabar (South)	4,147	20,710	94·0	468,784	43,440	256,133	169,161	14·5	108,538
15 Nellore	9,337	9,832	81·4	209,128	9,978	118,991	80,159	7·7	50,901
16 Nilgiris, The	146	1,071	97·8	49,131	4,614	30,554	13,963	13·1	11,110
17 North Arcot	8,982	18,379	90·1	391,103	28,428	199,002	163,673	12·5	110,286
18 Ramanathapuram	4,052	19,833	91·2	191,346	10,755	73,034	107,557	12·8	52,992
19 Salem	6,932	31,533	91·6	543,815	26,373	257,354	260,088	9·3	102,378
20 South Arcot	9,350	30,386	87·9	793,231	42,140	366,256	384,835	10·3	109,886
21 South Kanara	1,910	10,203	95·6	212,695	21,147	116,537	75,011	15·4	62,399
22 Tanjore	10,432	39,880	86·7	366,147	22,627	163,542	179,978	12·2	90,510
23 Tirunelveli	7,405	21,467	87·3	252,263	21,998	123,564	106,701	15·1	72,376
24 Tiruchirappalli	7,442	35,819	89·4	316,898	19,071	143,481	154,346	11·7	82,090
25 Srikakulam	15,613	19,045	77·9	699,926	32,827	350,212	316,887	8·6	87,916
26 Visakhapatnam	6,812	11,718	86·8	374,333	28,037	192,966	153,330	12·7	72,853
Grand total for the districts ..	163,452	455,696	88·3	9,345,566	605,821	4,607,334	4,132,411	11·6	1,844,314

No. XIV.—*Statement showing the particulars of vaccinations in the Madras State for the calendar year* 1951—cont.

Number and name of municipality.	Mid-year estimated population for 1950.	Total number of persons vaccinated.			Primary vaccination.						
						Successful.					
		Males.	Females.	Total.	Total number of operations.	0–1 year.	1–5 years.	5–10 years.	Above 10 years.	Total of all ages.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 Adoni ..	54,200	4,036	2,829	6,865	1,782	1,403	143	7	..	1,553
2 Anantapur ..	32,300	1,492	1,012	2,504	775	393	203	48	..	644
3 Amalapuram ..	21,300	10,145	8,261	18,406	2,083	324	1,139	431	..	1,894
4 Ambur ..	40,300	4,863	2,697	7,560	1,298	682	403	22	..	1,107
5 Anakapalle ..	40,500	24,804	15,449	40,253	2,109	881	952	33	..	1,816
6 Aruppukkottai ..	49,000	5,461	2,957	8,418	2,025	1,007	682	12	..	1,701
7 Bellary ..	70,800	15,392	11,280	26,672	3,092	2,163	710	..	..	2,873
8 Bhimavaram ..	31,300	5,622	2,526	8,148	607	125	195	70	..	390
9 Bheemunipatnam ..	10,500	2,017	1,231	3,248	468	166	253	36	..	455
10 Bodinayakkanur ..	36,200	1,703	1,255	2,958	1,387	1,138	141	6	..	1,285
11 Cannanore ..	42,700	2,792	3,183	5,975	1,026	407	446	..	..	853
12 Chidambaram ..	35,000	6,746	3,712	10,458	1,841	967	326	116	62	1,471
13 Chingleput ..	22,800	4,209	3,805	8,014	991	559	378	20	..	957
14 Chirala ..	38,100	2,772	1,588	4,360	535	197	312	1	..	510
15 Chittoor ..	39,300	5,468	4,108	9,576	979	631	253	20	1	905
16 Cochin ..	30,000	2,700	3,076	5,776	1,222	799	317	46	2	1,164
17 Coimbatore ..	200,000	100,992	92,357	193,349	9,616	7,067	2,122	104	2	9,295
18 Coonoor ..	24,100	4,464	5,288	9,752	1,342	895	328	22	3	1,243
19 Cuddapah ..	37,700	4,426	2,946	7,372	1,798	935	731	89	..	1,755
20 Cuddalore ..	69,400	9,136	8,571	17,707	3,195	1,938	1,034	87	4	3,063
21 Devakkottai ..	26,000	7,374	6,603	13,980	976	758	160	13	1	932
22 Dharapuram ..	24,300	2,620	2,943	5,563	1,200	422	618	109	..	1,149
23 Dindigul ..	79,100	11,181	11,125	22,306	3,643	2,456	930	191	21	3,598
24 Eluru ..	88,000	25,619	26,354	51,973	12,353	4,773	5,180	1,092	..	11,005
25 Erode ..	58,200	14,503	8,615	23,118	2,462	1,599	695	97	21	2,412
26 Gobichettipalayam ..	30,800	6,955	9,032	15,987	1,760	1,219	465	5	..	1,680
27 Gudiyattam ..	46,100	7,917	5,012	12,929	1,429	790	434	46	36	1,306
28 Gudivada ..	32,200	13,414	10,983	24,397	1,505	848	399	189	59	1,495
29 Guntakal ..	31,700	4,410	2,161	6,571	971	617	284	15	..	916
30 Guntur ..	126,600	37,932	31,892	69,824	5,264	2,444	2,295	137	19	4,895
31 Hindupur ..	24,600	8,794	6,455	15,249	1,373	961	272	11	7	1,251
32 Hospet ..	39,100	1,793	2,200	3,993	1,432	1,252	160	12	..	1,424
33 Kakinada ..	100,800	32,937	24,511	57,448	5,553	1,389	2,793	443	65	4,690
34 Kancheepuram ..	85,100	16,662	13,496	30,158	3,064	2,182	758	30	..	2,970
35 Karaikudi ..	38,800	5,585	4,186	9,771	2,671	1,073	1,028	276	39	2,416
36 Karur ..	42,600	3,920	3,256	7,176	1,355	966	357	31	..	1,354
37 Kodaikanal ..	11,000	1,804	1,217	3,021	443	382	48	9	..	439
38 Kozhikode ..	159,800	23,316	25,936	49,252	6,941	4,740	1,745	269	11	6,765
39 Kumbakonam ..	92,500	11,280	9,464	20,744	3,562	1,814	1,565	104	26	3,509
40 Kurnool ..	60,700	14,661	12,511	27,172	3,825	2,119	579	38	26	2,762
41 Madras ..	1,434,000	221,427	236,892	458,319	52,027	38,724	12,643	598	27	51,992
42 Madurai ..	365,900	39,462	41,513	80,975	12,589	9,322	2,721	140	..	12,183
43 Mangalore ..	118,300	31,514	27,287	58,801	4,227	2,581	1,552	15	2	4,150
44 Mannargudi ..	30,100	3,691	3,504	7,195	1,512	759	313	128	40	1,240
45 Masulipatnam ..	78,600	45,878	34,238	80,116	2,642	2,475	70	6	2	2,553
46 Mayuram ..	43,800	11,971	12,830	24,801	1,418	986	411	37	9	1,387
47 Melapalayam ..	37,900	1,364	1,305	2,669	533	241	142	7	..	390
48 Mettupalayam ..	27,800	8,102	6,412	14,514	1,247	871	60	22	7	960
49 Nandyal ..	33,600	7,409	7,211	14,620	1,497	1,056	218	..	..	1,274
50 Narasaraopet ..	22,400	4,303	2,509	6,812	734	352	210	22	2	586
51 Nagapattinam ..	58,000	5,972	4,040	10,012	1,697	1,216	415	51	..	1,682
52 Nellore ..	82,300	13,285	10,859	24,144	2,927	1,833	983	61	..	2,877
53 Ongole ..	28,000	6,367	3,990	10,357	922	425	270	5	1	701
54 Ootacamund ..	41,800	12,299	9,903	22,202	1,825	1,545	251	29	..	1,825
55 Palacole ..	23,100	5,308	4,273	9,581	1,088	563	402	40	..	1,005
56 Palayamkottai ..	40,300	3,698	1,794	5,492	1,329	763	515	29	10	1,317
57 Palghat ..	69,900	20,232	17,484	37,716	3,400	1,621	1,096	54	14	2,785
58 Palni ..	34,800	4,319	4,803	9,122	2,158	1,007	896	91	..	1,994
59 Peddapuram ..	23,400	4,273	3,681	7,954	848	312	308	38	4	662
60 Periyakulam ..	31,200	3,411	3,064	6,475	1,054	926	123	3	..	1,052
61 Pollachi ..	42,300	9,059	6,896	15,955	1,951	1,404	512	21	..	1,937
62 Proddatur ..	37,000	10,918	5,526	16,444	1,754	1,218	394	24	..	1,636
63 Pudukkottai ..	44,900	4,078	2,072	6,150	581	55	392	70	13	530
64 Rajahmundry ..	106,300	30,816	28,356	59,172	5,821	2,900	2,138	297	..	5,335
65 Rajapalayam ..	61,300	6,730	5,910	12,640	2,177	1,943	211	5	..	2,159
66 Rasipuram ..	23,300	4,331	3,246	7,577	850	361	421	27	..	809
67 Salur ..	24,500	10,416	7,112	17,528	1,050	229	267	42	..	538
68 Salem ..	204,800	53,206	58,067	117,273	12,365	10,049	2,130	105	26	12,310
69 Sivakasi ..	22,900	1,128	481	1,609	881	704	99	1	..	804
70 Srikakulam ..	24,300	3,270	2,889	6,159	864	315	453	92	..	860
71 Srirangam ..	37,000	2,065	1,400	3,465	1,326	977	280	4	..	1,261
72 Srivilliputtur ..	40,600	3,148	2,684	5,832	1,367	1,156	72	6	..	1,234
73 Tadpatri ..	19,500	2,372	2,480	4,852	533	195	221	37	..	453
74 Tanjore ..	101,700	16,973	17,360	34,333	3,240	1,940	1,060	54	..	3,054
75 Tellicherry ..	40,200	5,832	8,087	13,919	1,533	749	466	79	6	1,300
76 Tenali ..	58,700	7,351	5,288	12,639	2,225	1,072	564	126	..	1,762
77 Tindivanam ..	30,500	4,359	3,755	8,114	869	52	121	26	..	199
78 Tirunelveli ..	73,900	10,686	7,989	18,675	2,770	1,935	488	111	30	2,564
79 Tiruchirappalli ..	220,900	46,706	36,858	83,564	8,137	4,382	2,749	135	23	7,289
80 Tirupati ..	25,400	1,199	1,075	2,274	747	690	56	1	..	747
81 Tiruppattur ..	27,100	2,393	1,939	4,332	1,408	997	260	52	..	1,309
82 Tirupur ..	53,100	16,879	15,439	32,318	2,061	1,400	366	38	..	1,804
83 Tiruvarur ..	27,400	4,582	2,820	7,402	1,209	649	372	161	..	1,182
84 Tiruvallur ..	19,100	2,062	1,540	3,602	267	122	131	10	..	263
85 Tiruvannamalai ..	41,000	7,127	7,546	14,673	1,261	912	319	22	..	1,253
86 Tuticorin ..	99,700	13,822	14,950	28,772	3,357	2,655	368	59	11	3,093
87 Udamalpet ..	23,500	7,804	9,390	17,194	1,174	897	224	..	..	1,121
88 Udipi ..	20,500	2,373	2,418	4,791	856	618	113	53	..	784
89 Vaniyambadi ..	39,000	4,208	2,537	6,745	1,465	915	392	76	..	1,383
90 Vellore ..	107,200	8,206	6,680	14,886	3,118	2,083	611	26	..	2,720
91 Vijayavada ..	163,700	23,137	17,137	40,274	4,416	2,085	1,973	231	14	4,303
92 Villupuram ..	35,900	7,759	5,739	13,498	1,476	458	718	51	..	1,227
93 Virudunagar ..	46,700	12,768	8,534	21,302	2,000	1,493	328	19	..	1,840
94 Visakhapatnam ..	109,300	46,715	29,462	76,177	3,795	1,835	1,710	17	..	3,562
95 Vizianagaram ..	67,600	32,311	31,116	63,427	3,919	1,960	1,735	..	..	3,695
96 Walajapet ..	12,600	1,007	688	1,695	426	391	31	4	..	426
Total for municipalities ..	6,883,100	1,353,998	1,199,144	2,553,142	278,887	174,700	78,172	7,745	646	261,263
Poonamallee Health Unit ..	..	9,669	7,938	17,607	2,348	1,363	510	34	2	1,909
Cauvery-Mettur Project ..	..	2,617	1,807	4,424	1,007	342	406	45	1	794
By medical subordinates and Port Health staff.	..	38,361	3,997	42,358	1,147	490	481	..	1	972
Railways ..	..	17,528	9,768	27,296	3,225	1,131	1,399	243	55	2,828
Grand total ..	57,262,000	7,449,585	6,258,914	13,708,799	2,144,255	788,566	625,423	31,259	11,011	1,506,259

No. XIV.—Statement showing the particulars of vaccinations in the Madras State for calendar year 1951—cont.

Number and name of municipality.	Primary vaccination—*cont.*			Revaccination.					Total successful of all ages.
	Unsuccessful.	Unknown.	Percentage of successful cases in which the results were known.	Total number of operations.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases in which the results were known.	
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1 Adoni	25	204	98·4	5,097	332	2,990	1,775	10·0	1,885
2 Anantapur	73	58	89·8	1,729	668	773	288	46·4	1,312
3 Amalapuram	26	163	98·6	16,323	2,423	9,539	4,361	20·3	4,317
4 Ambur	28	163	97·5	6,262	341	5,215	706	6·1	1,448
5 Anakapalle	196	97	90·2	38,144	4,884	24,174	9,086	16·8	6,700
6 Aruppukkottai	66	258	96·3	6,410	623	3,446	2,341	15·3	2,324
7 Bellary	18	201	99·1	23,596	2,064	19,482	2,050	9·6	4,937
8 Bhimavaram	62	155	86·3	7,541	125	5,328	2,088	2·3	515
9 Bheemunipatnam	10	3	97·8	2,780	1,076	1,245	459	46·4	1,531
10 Bodinayakkanur	28	74	97·9	1,571	390	1,081	100	26·5	1,675
11 Cannanore	..	173	100·0	4,949	111	3,258	1,580	3·3	964
12 Chidambaram	98	272	93·8	8,617	518	7,617	482	6·4	1,989
13 Chingleput	29	13	97·1	7,015	297	5,988	730	4·7	1,254
14 Chirala	1	24	99·8	3,825	522	1,612	1,691	24·5	1,032
15 Chittoor	34	40	96·4	8,597	319	6,514	1,764	4·7	1,224
16 Cochin	46	12	96·2	4,572	223	3,760	584	5·7	1,392
17 Coimbatore	91	224	99·0	183,745	28,884	123,172	31,689	19·0	38,179
18 Coonoor	12	87	99·0	8,422	943	5,991	1,488	13·6	2,186
19 Cuddapah	14	29	99·2	5,574	821	4,046	707	16·9	2,576
20 Cuddalore	95	37	97·0	14,538	2,190	11,269	1,079	16·3	5,253
21 Devakkottai	4	40	99·6	13,010	1,189	9,840	1,981	10·8	2,121
22 Dharapuram	21	30	98·2	4,363	890	2,980	493	23·0	2,039
23 Dindigul	14	31	99·6	18,663	3,239	14,705	719	18·1	6,837
24 Eluru	28	1,320	10·0	39,620	986	35,461	3,173	2·7	11,991
25 Erode	13	37	99·5	20,656	2,106	18,009	541	10·5	4,518
26 Gobichettipalayam	29	51	98·3	14,239	666	12,822	751	4·9	2,346
27 Gudiyattam	46	77	96·6	11,500	864	9,103	1,533	8·7	2,170
28 Gudivada	4	6	99·7	22,892	2,156	8,986	11,750	19·4	3,651
29 Guntakal	47	8	95·1	5,600	548	3,696	1,356	12·9	1,464
30 Guntur	130	239	97·4	64,582	6,656	50,510	7,416	11·6	11,551
31 Hindupur	53	69	95·9	13,944	1,927	11,047	970	14·9	3,178
32 Hospet	1	7	99·93	2,561	292	2,016	253	12·7	1,716
33 Kakinada	17	846	99·6	51,912	4,393	37,202	10,317	10·6	9,083
34 Kancheepuram	10	84	99·7	27,094	3,722	19,974	3,398	15·7	6,692
35 Karaikudi	6	249	99·8	7,100	1,440	4,144	1,516	25·8	3,856
36 Karur	1	..	99·93	5,821	120	5,701	..	2·1	1,474
37 Kodaikanal	..	4	100·0	2,578	617	1,453	508	29·8	1,056
38 Kozhikode	82	94	98·8	42,378	7,388	31,416	3,574	19·0	14,153
39 Kumbakonam	37	16	99·0	17,204	1,573	8,872	6,759	15·1	5,082
40 Kurnool	264	799	91·3	23,347	2,376	15,223	5,748	13·5	5,138
41 Madras	8	27	99·98	406,292	13,021	290,429	102,842	42·9	65,013
42 Madurai	197	209	98·4	68,578	8,656	48,702	11,220	15·1	20,839
43 Mangalore	67	10	98·4	54,574	4,175	46,120	4,279	8·3	8,325
44 Mannargudi	74	198	94·4	5,779	346	4,077	1,356	7·8	1,586
45 Masulipatnam	2	87	99·92	77,476	9,675	58,121	9,680	14·3	12,228
46 Mayuram	..	31	100·0	23,383	1,428	77,994	3,961	7·4	2,815
47 Melapalaiyam	34	109	92·0	2,154	276	1,469	409	15·8	666
48 Mettupalaiyam	..	287	100·0	13,267	3,403	9,111	753	27·2	4,363
49 Nandyal	111	112	92·0	13,191	1,417	10,354	1,420	12·0	2,691
50 Narasaraopet	39	109	93·8	6,090	541	2,751	2,798	16·4	1,127
51 Nagapattinam	..	15	100·0	8,315	1,059	5,172	2,084	17·0	2,741
52 Nellore	2	43	99.93	21,219	2,961	16,805	1,453	15·0	5,838
53 Ongole	118	103	85·6	9,451	1,404	6,750	1,297	17·2	2,105
54 Ootacamund	..	..	100·0	20,377	5,126	13,669	1,582	27·3	6,951
55 Palacole	46	37	95·6	8,493	2,151	4,506	1,836	32·3	3,156
56 Palayamkottai	6	6	99·5	4,165	1,026	2,979	168	25·6	2,343
57 Palghat	47	577	98·3	34,354	5,600	20,901	7,853	21·1	8,385
58 Palni	30	134	98·5	6,976	212	5,442	1,322	3·7	2,206
59 Peddapuram	53	183	92·6	7,116	720	4,934	1,462	12·7	1,382
60 Periyakulam	2	..	99·8	5,421	1,219	2,644	1,558	31·6	2,271
61 Pollachi	4	10	99·8	14,019	2,648	10,553	818	20·1	4,585
62 Proddatur	65	53	96·2	14,708	1,603	6,945	6,160	18·8	3,239
63 Pudukkottai	19	32	96·5	5,569	677	3,177	1,715	17·6	1,207
64 Rajahmundry	342	144	94·0	53,351	5,500	45,841	2,010	10·7	10,335
65 Rajapalaiyam	13	..	99·2	10,463	1,517	7,831	1,115	16·2	3,676
66 Rasipuram	2	39	99·8	6,733	486	5,783	464	7·8	1,295
67 Salur	177	335	75·2	16,503	421	10,398	5,684	3·9	959
68 Salem	17	38	99·9	98,908	25,169	73,634	105	25·5	37,479
69 Sivakasi	77	..	91·3	761	173	588	..	22·7	977
70 Srikakulam	4	..	99·5	5,295	210	4,364	721	4·6	1,070
71 Srirangam	7	58	99·4	2,139	359	1,599	181	18·3	1,620
72 Srivilliputtur	71	62	94·6	4,499	641	3,249	609	16·5	1,875
73 Tadpatri	42	38	91·5	4,329	382	3,150	797	10·8	835
74 Tanjore	..	186	100·0	31,093	5,935	21,052	4,106	22·0	3,989
75 Tellicherry	108	125	92·3	12,415	2,039	8,515	1,861	19·3	3,339
76 Tenali	91	372	95·1	10,454	461	7,301	2,692	5·9	2,223
77 Tindivanam	53	617	79·0	7,350	227	3,985	3,138	5·4	426
78 Tirunelveli	54	152	97·9	15,945	2,107	12,420	1,418	14·5	4,671
79 Tiruchirappalli	123	725	98·3	75,479	10,813	50,333	14,333	17·7	18,102
80 Tirupati	..	..	100·0	1,527	90	935	502	8·8	837
81 Tiruppattur	..	99	100·0	2,955	455	2,454	46	15·6	1,764
82 Tirupur	65	192	96·5	30,257	2,483	22,907	4,867	9·8	4,287
83 Tiruvarur	17	10	98·6	6,193	1,570	3,469	1,154	31·2	2,752
84 Tiruvallur	1	3	99·6	3,335	489	2,818	28	14·8	752
85 Tiruvannamalai	8	..	99·4	13,415	984	12,431	..	7·3	2,237
86 Tuticorin	82	182	97·4	25,446	6,177	15,125	4,144	29·0	9,279
87 Udamalpet	11	42	99·0	16,020	2,154	12,882	984	14·8	3,275
88 Udipi	2	70	99·7	3,935	1,060	2,107	768	33·5	1,844
89 Vaniyambadi	82	..	94·4	5,280	567	3,840	873	12·9	1,950
90 Vellore	30	368	98·9	11,777	1,157	6,942	3,678	14·3	3,877
91 Vijayavada	1	112	99·97	35,858	3,976	28,002	3,880	12·4	8,279
92 Villupuram	119	130	91·2	12,022	726	10,184	1,112	6·7	1,953
93 Virudunagar	5	155	99·7	19,302	4,010	13,232	2,060	23·3	5,850
94 Visakhapatnam	99	134	97·3	72,387	821	69,571	1,995	1·2	4,383
95 Vizianagaram	..	224	100·0	59,508	1,435	49,854	8,219	2·8	5,130
96 Walajapet	..	..	100·0	1,269	359	861	49	29·4	785
Total for municipalities	4,391	13,233	98·3	2,275,541	245,204	1,660,922	369,415	12·9	506,467
Poonamallee Health Unit	199	240	90·6	15,398	4,131	8,132	3,135	33·7	6,040
Cauvery-Mettur Project	69	144	92·0	3,417	114	826	2,477	12·1	908
By medical subordinates and Port Health staff.	..	175	100·0	57,448	36,525	18,424	2,499	66·5	37,497
Railways	53	344	98·2	25,424	5,513	16,171	3,740	25·4	8,341
Grand total	168,164	469,832	90·0	11,722,794	897,308	6,311,809	4,513,677	12·4	2,403,567

Summary of statement.

	Total number of persons vaccinated.		Total number of operations.		Percentage of successful cases in which the results were known.		Number of children successfully vaccinated.			Number of all successful vaccinations performed.
	(2) Primary vaccination.	(3) Revaccination.	(4) Primary vaccination.	(5) Revaccination.	(6) Primary vaccination.	(7) Revaccination.	(8) 0–1 year.	(9) 1–5 years.	(10) 5–10 years.	(11)
(1) By special staff.										
Districts (excluding municipalities)	1,729,107	9,334,965	1,857,611	9,345,566	88·3	11·6	610,540	544,455	73,192	1,844,314
Municipalities	277,604	2,275,538	278,887	2,275,541	98·3	12·9	174,700	78,172	7,745	506,497
Poonamallee Health Unit	2,209	15,398	2,348	15,398	90·6	33·7	1,363	510	34	6,040
Projects	1,007	3,417	1,007	3,417	92·0	12·7	342	406	45	908
By medical subordinates and Port Health staff	8,126	41,280	1,147	57,448	100·0	66·5	490	481		37,497
Railways	2,728	24,568	3,225	25,424	98·2	25·4	1,131	1,399	243	8,341
Grand total	2,020,781	11,695,175	2,144,255	11,722,423	90·0	12·4	788,566	625,423	81,259	2,403,567

HEALTH DEPARTMENT

G.O. No. 3434, 1st November 1952

Public Health—Administration Report—1951—Reviewed.

READ—the following paper :—

From the Director of Public Health, dated 21st July 1952, R. No. 70-1/DPH/52.

Order—No. 3434, Health, dated 1st November 1952.

Recorded.

2. *Vital statistics.*—The registration of births and deaths was compulsory in he State excepting large tracts in the Agency areas and some backward villages in a few districts. During the year the health staff detected a number of births and deaths which were not registered. A number of birth and death returns were not received from each district for the year 1951 on the date of compilation of the annual report. It is hoped that the returns will be sent regularly in future and the authorities concerned will take necessary action in the matter.

The salient features are—

(*a*) a decrease in birth rate from 30·72 in the previous year to 27·55 per thousand of the population ;

(*b*) an appreciable fall in the death rate from 19·58 in the previous year to 16·20 ;

(*c*) a reduction by nearly half in the mortality from cholera as compared with the figures for the previous year ;

(*d*) a slight increase in death rate from smallpox ;

(*e*) a decrease in deaths from fevers, dysentery and diarrhœa and respiratory diseases as compared with 1950 ;

(*f*) a decrease in infant mortality rate from 130·13 per 1,000 births in 1950 to 118·59 in 1951 ;

(*g*) a slight decrease in maternal mortality rate from 6·21 in 1950 to 5·67 in 1951 ; and

(*h*) an appreciable increase in the vital index 169·7 in 1951 as against 156·9 in 1950.

child health centres sanctioned for 1951–52, 32 (17 under district boards and 15 under municipalities) were opened during 1951. The expenditure incurred by local bodies during the year was larger compared to the previous year. The Maternity and Child-welfare Scheme in the Corporation of Madras also extended its activities during 1951. Voluntary organizations have continued to take interest in the working of maternity and child health schemes. There has been a very appreciable reduction in the infant mortality rate in 1951 as compared with the average rates in the three previous decades.

(ii) *Industrial Hygiene.*—The Health Officers in their capacity as Additional Inspectors of Factories visited the factories in their jurisdiction and defects in respect of ventilation, lighting, overcrowding, latrine accommodation, water-supply, etc., were brought to the notice of Inspectors of Factories for rectification. They also inspected all the sugar confectionery factories.

Residential and industrial areas.—Several municipalities and other urban local authorities have not yet notified residential areas. The Government hope that all defaulting local authorities will notify the areas without delay, as delay in notification allows scope for the installation of new factories, workshops, offensive trades, etc., in residential and non-residential areas.

(iii) *Health Propaganda and Publicity.*—Propaganda on health subjects was conducted by the health staff with the help of leaflets, pamphlets, pictures, posters, magic lantern slides, cinema films, and talks. Four Disney cartoon sound films were purchased for circualtion to local bodies and health staff on hire. Two copies of film on tubercluosis were printed from the negatives which were lent by the British Information Services, Madras.

The 'World Health Day' was celebrated by the health staff in collaboration with the District Medical Officers and the Medical Department in July 1951. Talks on health subjects were Broadcast from the All-India Radio Stations at Madras, Tiruchirappalli, Vijayavada and Kozhikode.

(iv) *Activities of voluntary organizations.*—The Women's Welfare Department, Madras, gave training to Field Workers, i.e., the Welfare Organizer and the Maternity Assistant, to render effective service to the villagers, where the department's branch functions. The Guild of Service with the help of volunteer workers visited various hospitals in the City, distributed sweets and fruits to the patients and also books and magazines collected for hospital patients. UNICEF milk, rice and vitamin tablets received through the Public Health Department were distributed to the orphanages, creches and nursery schools. The workers of the Guild of Service visited many hospitals and raised funds not only for hospital work but for other amenities in the hospitals.

The Red Cross participated in the propaganda work carried on in the Blood Bank stall put in Y.M.C.A. grounds in collaboration with the Assistant Director, Provincial Transfusion Service, and in the stalls put up in the S.I.A.A. grounds in December 1951.

(v) *Primary Health Centres.*—Twenty-eight centres functioned during 1951. About 300 villages were served by all the primary centres benefiting a total population of about 6 lakhs.

(vi) *Poonamallee Health Unit.*—The four centres and the two sub-centres of the unit worked satisfactorily during the year. The Government approved during the year a proposal of the Director of Public Health to treat the Unit area as a controlled area for observing the efficacy of vaccination.

Work in this behalf commenced towards the end of the year. In one village of the unit an economic and diet survey was conducted in connection with the detection of night-blindness and a team of research workers of the Nutrition Research Laboratories, Coonoor, also worked in the village with reference to prevalence of anæmia, hookworm infestation, etc.

A maternity home was opened during the year at Nazarathpet bringing the total number of maternity homes to six. There were 516 admissions in the maternity homes during the year. 1,703 labour cases were conducted by the maternity assistants of the unit, i.e. 83 per cent of the total births in the Unit. The first "Well-Baby Clinic" in the unit was organized during the year. The unit received active co-operation and financial assistance from the public in a large measure in equipping and maintaining the institutions.

5. *Food and nutrition.*—The total rainfall was about the same as in the previous year. Diet surveys covering 377 families and 9 institutions and nutrition surveys covering 5,009 children were conducted during the year. There was no widespread malnutrition among children in any of the areas surveyed in the nutrition units during the year but general under-development and underweight were present in significant proportions among the children in low economic groups. The diets, in general, were grossly ill-balanced in all the villages surveyed. The diets of the 9 institutions surveyed were found to be generally dificient in calories and also in protein, fats and in all vitamins.

The Government scheme of free supply of midday meals to the children of eligible communities attending the labour schools under Government has been continued during the year. The Madras Corporation continued its own scheme for the free supply of midday meals to the under-nourished children attending the Corporation elementary schools. The UNICEF supplied free of cost 505 tons of rice for feeding the under-nourished children in the orphanages and institutions in the State. During the year the UNICEF also released to this State a quantity of 308,018 lb. of skim milk-powder. The assay of the nutritive value of the common South Indian food preparations and studies on the losses in nutrients in the customary cooking were continued in the Nutrition Laboratory which has recently been fully equipped for the work. Nutrition Clinics have been started at the Headquarters Hospitals at Anantapur and Tiruchirappalli. The Government have since sanctioned additional staff for giving training in scientific nutrition to Public Health staff and to lay persons such as wardens of hospitals and for undertaking clinical nutrition work at one of the City State hospitals.

The All-India Radio, Madras, Tiruchirappalli, Vijayavada and Kozhikode, broadcast talks on general matters pertaining to 'Food and Nutrition'. Sound films were also exhibited during the year in several places. Cooking demonstrations were also arranged in the Nutrition Units to educate the people.

(ii) *Prevention of food adulteration.*—During the year, the Madras Prevention of Adulteration Act was enforced in all the 98 municipalities and 141 panchayats making a total of 239 local bodies. The number of food samples analysed during the year was 18,651 as against 18,524 in the previous year.

The proposal to open a Regional Laboratory at Visakhapatnam has been deferred to 1953–54. The Government of India are introducting a Central Food Adulteration Bill in the Union Parliament. The Central Act will, if passed, supersede the State Acts on the subject.

Hotel Sanitation Committee.—The Hotel Sanitation Committee, constituted by Government in 1950 to consider the state of cleanliness and sanitation in hotels, has made its recommendations. They are under the consideration of Government.

6. *Environmental Hygiene.*—The execution of all water-supply and drainage schemes in the State continued to be executed by the Sanitary Engineering department. During the year under report, 41 municipal and other urban water-supply schemes and 11 drainage schemes were under execution and provisions of Rs. 72·26 lakhs and Rs. 5·30 lakhs, respectively, have been made for these schemes. A sum of Rs. 76 lakhs and odd was spent in 1950-51 in respect of rural water-supply schemes.

Rural and urban sanitation.—The campaign for provision of sanitary conveniences was intensified during the year.

Conservancy and manure production.—The number of municipalities and panchayats preparing compost increased from 91 and 110 at the beginning of the year to 94 and 322, respectively, by the close of the year.

Fairs and festivals.—As usual the sanitary arrangements of fairs and festivals received considerable attention.

Housing and Town-Planning.—The Madras Town Planning Act continued to be in force in 98 municipalities including the Corporation of Madras and in 295 panchayats. The provisions of the Act were extended to 13 panchayats during the year. The provisions of the Madras District Municipalities Act regarding regulation of private and public streets and buildings were in force in 267 panchayats during the year as against 197 in the previous year. Four hundred and fifty-one detailed town-planning schemes were under various stages of preparation, publication and submission and 117 sanctioned schemes were under various stages of execution.

A large number of layouts of Harijan colonies, co-operative housing, municipal and private land development schemes were prepared by the Town-Planning department and furnished to the departments concerned. A number of type designs of houses to be built by Co-operative Housing and House Construction Societies were approved during the year.

7. *Training.*—During the year, three Health Officers and a Senior Entomologist underwent training at the Malaria Institute of India, Delhi, three Health Offieers and a Senior Entomologist underwent training at the Central Malaria Laboratory, Madras, three Health Officers were deputed for the Regional Nutrition course conducted under the auspices of the World Health Organization, UNICEF at the All-India Institute of Hygiene and Public Health, Calcutta, and one Health Officer, one Senior Entomologist and an Entomological Assistant underwent training in special studies on sand-flies in Trombicula mites at the All-India Institute of Hyglene and Public Health, Calcutta.

One Health Officer was deputed on a Rockefeller Foundation Fellowship to United States of America for higher studies in Malariology. The Statistician was deputed to the United States of America on a United Nations Fellowship for higher studies in "Theory and Sampling". The services of the Chief Entomologist were lent to World Health Organization for service in Afghanistan for a period of six months.

Finance.—The expenditure incurred by the State on public health was Rs. 104·05 lakhs and that on medical relief was Rs. 314·87 lakhs.

The municipalities have spent on public health much more than the statutory minimum and the district boards on the whole have spent a little above the statutory minimum.

(By order of the Governor)

S. R. KAIWAR,
Secretary to Government.

To the Director of Public Health.
" Director of Medical Services.
" Public Department.
" Director-General of Health Services, New Delhi.
" Director of Information and Publicity.
" Consul for the United States of America at Madras.

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