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Report on the 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 period, 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 7,021,000. 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 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
0 Cuddapah	12,432	578	4.6
1 Madras	Nil.	Nil.	Nil.
2 Nellore	20,232	1,060	5.2
3 Chingleput	26,076	1,051	4.0
4 Chittoor	26,424	1,310	5.0
5 North Arcot	24,216	596	2.5
6 South Arcot	27,204	2,960	10.9
7 Tanjore	29,496	447	1.5
8 Tiruchirappalli	18,132	295	1.6
9 Madurai	12,852	268	2.1
10 Ramanathapuram	18,336	1,164	6.3
11 Tirunelveli	13,080	17	0.1
12 Salem	21,408	973	4.5
13 Coimbatore	14,340	128	0.9
14 Nilgiris	1,236	22	1.8
15 Malabar	10,104	Nil.	Nil.
16 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 ($Y = 21.87 - 0.98 X$ with 1946 as origin) shows a greater rate of decline than in the period 1931-1941 (the equation to straight line fitted being $Y = 22.8 - 0.05 X$ 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		
May	78,902	227,113	24.53
June	76,230		
July	77,087		
August	78,815		
September	74,118	230,020	24.84
October	72,030		
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
Fever	247,196	211,023	4.54	3.69
Dysentery and diarrhoea. ..	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 decrease in birth-rate from 30.72 in 1950 to 27.55 in 1951.
- An appreciable fall in the death-rate from 19.58 in 1950 to 16.20 in 1951 a reduction of 17 per cent.
- 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 diarrhoea 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 diarrhoea.

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 DIARRHOEA.

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 diarrhoea 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 diarrhoea 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 'diarrhoea' 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 diarrhoea 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 Arcot 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), Sathyanarayanaipet (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 Special 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. Ootacamund 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 Inspector 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. fluviatilis*, (b) Epidemic and Srikakulam district spread by *A. culicifacies*, (c) some coastal malaria in the tion 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 exhibited malariology and for the furtherance of research work. Laboratory-bred flies are being maintained for studies of malaria, filariasis infections and of carrying out toxicity and comparative tests with different insecticides and for 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 Pattukottai), 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 periodically 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.	Krishna-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 Sankaranarayana-puram 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, Gandamanayakanur Zamin and Nadumandalam in Madurai district, Pottiyam and Mayambadi in South Arcot district. Papanasam Lower Camp has now been declared to be "HEALTHY". A comparative statement of

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

Place.	Before control.	After control with DDT.
(a) <i>Spleen rates.</i>		
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) <i>Malaria morbidity.</i>		
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) <i>Parasite rates.</i>		
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 Kannaram-pattu 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 Avacut 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. undatus* 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. sundaeu* 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 Kantamansugunda 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. PER CENT.	Parasite rate. PER CENT.	Spleen rate. PER CENT.	Parasite rate. PER CENT.	Spleen rate. PER CENT.	Parasite rate. PER CENT.	Spleen rate. PER CENT.	Parasite rate. PER CENT.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Two villages control started in 1945.	33.3	6.0	..	0.8	6.8	0.0	1.6	0.0
Two villages control started in 1946.	43.4	..	22.0	1.0	8.0	1.0	8.1	1.0
Twenty-two villages control started in 1947.	48.6	6.8	20.1	1.3	10.3	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. PER CENT.	1949. PER CENT.	1950. PER CENT.	1951. PER CENT.
(1) <i>Paderu Unit area</i> —				
(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) <i>Hukumpeta Unit area</i> —				
(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) <i>Kinchumunda Unit area</i> —				
(a) Group of 33 villages ..	48.6	45.3	35.2	27.2
(b) Group of 32 villages ..	..	..	..	82.3 *
(4) <i>Minamalur Unit area</i> —				
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) <i>Paderu Unit area</i> —				
(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) <i>Hukumpeta Unit area</i> —				
(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) <i>Kinchumunda Unit area</i> —				
(a) Group of 32 villages ..	12.4	5.7	4.6	5.0
(b) Group of 32 villages ..	..	..	..	27.8
(4) <i>Minamalur Unit area</i> —				
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 Gogonda 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. (1)	1950.		1951.	
	Spleen rate.	Parasite rate.	Spleen rate.	Parasite rate.
	PER CENT. (2)	PER CENT. (3)	PER CENT. (4)	PER CENT. (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 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 Ramachodavaram. 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 to 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 headquarters 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—Tirupattur 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 Tirupattur Javadi Hills. The area of operations of the scheme now extends over the two taluks of Tirupattur and Chengam with headquarters at Tirupattur. 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.	Hill villages.
	PER CENT.	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. PER CENT.	1949. PER CENT.	1950. PER CENT.	1951. 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. PER CENT.	Parasite rate. 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.			Total.
		Infants and children.	Antenatals.	Nursing mothers.	
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 aquatic 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.		Filarial disease rate.		Mosquito infection rate.	
	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.
Visakhapatnam—						
Chodavaram Panchayat	..	..	..	..	..	..
Cheepurupalli	..	..	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—						
Kumbbla 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 cyclop-seidal 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 Tade-palligudem 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.
<i>Madras State.</i>					
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
<i>North Madras.</i>					
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.
<i>Madras-Deccan.</i>					
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
<i>South Madras.</i>					
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
<i>West Madras.</i>					
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 $2\frac{1}{2}$ 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.	Population.	Number of cases detected.		
		Open.	Others.	Total.
Chittoor	80,132	386	290	676
Madurai	51,500	135	263	398
North Arcot	13,972	79	62	141
Salem	8,000	13	12	25
Tiruchirappalli	9,000	31	28	59
South Arcot	48,659	711	366	1,077
Chingleput	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	237	18	6.4
March	368	13	3.5
April	333	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. Papatasi* (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.				Total number of maternity homes and centres.
	Number.	Number of beds.	Number of centres with beds.	Number of centres with no beds.			
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, Bodinayakanur, 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	35.16	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-natal 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 Medical 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 work.—(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 m. w. ves.	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 counsellors 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 N lgiris. 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 magnificent 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 anaemia 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 Gam-mexane 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.
	RS.	RS.	RS.	RS.
1951.				
January	16.90	10.75	11.98	11.35
February	16.75	12.22	13.49	12.61
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	13.03
September	19.90	14.03	15.11	13.70
October	19.73	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 were 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 predominantly 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	0.23	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 2,935.	.. .. .
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 2,780.	.. .. .

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 under-weight 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 mal-nutrition among the 4,552 children examined in the three nutrition units:—

Deficiency signs.	Poonamallee Health Unit.		Anantapur Unit.		Tiruchirappalli Unit.	
	Total number of children examined, 1,392.		Total number of children examined, 1,659.		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.
I. Eyes—	(2)	(3)	(4)	(5)	(6)	(7)
(a) Conjunctiva Xerosis	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 conjunctivitis	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	0.05	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	529	38.08	550	33.00	1,118	74.91
Deficient	..	..	..	..	..	..

Deficiency signs.	Poonamallee Health Unit.		Anantapur Unit.		Tiruchirappalli Unit.	
	Total number of children examined 1,392.		Total number of children examined 1,659.		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 (diarrhoeal) ..	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 supply of mid-day meals to the children of eligible communities attending the labour schools under Government has been continued during this year. The children attending in about 1,200 schools were benefited by this scheme. The Madras Corporation has continued its own schemes for the free supply of mid-day meals to the under-nourished children attending the Corporation Elementary Schools. About 8,000 pupils received mid-day meals under this scheme on all school-working days.

The UNICEF supplied free of cost 505 tons of rice directly to the following institutions in Madras State: Guild of Service (308 tons), Archdiocese of Madras (144 tons), Ramakrishna Mission (16 tons) and Indian Red Cross Society (37 tons) for feeding the under-nourished children in the orphanages and institutions in the State through their branches and affiliated institutions. A good number of mal-nourished children in several institutions were fed with the above UNICEF gift rice. The money saved on the purchase of rice was utilized to improve the daily diet of inmates of the institutions by the addition 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 distribution 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 anaemia 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 anaemia. 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 dhal 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 centres where compost was prepared and made necessary suggestions for impro-

vement 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 quantities 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 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 the festival centres were in the jurisdiction of the Panchayat Boards though 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 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 fluorosis 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 Committee 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 Malariaologists, 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 division 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 Rockefeller 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.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 :—

(1)	Urban areas.			Rural areas.	
	Madras Corporation.	Other municipalities.	Total excluding major panchayats.	District boards.	Total for local bodies excluding major panchayats.
	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	2,52,89,603	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	27,94,209	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, diarrhoea 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 philanthropy 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.

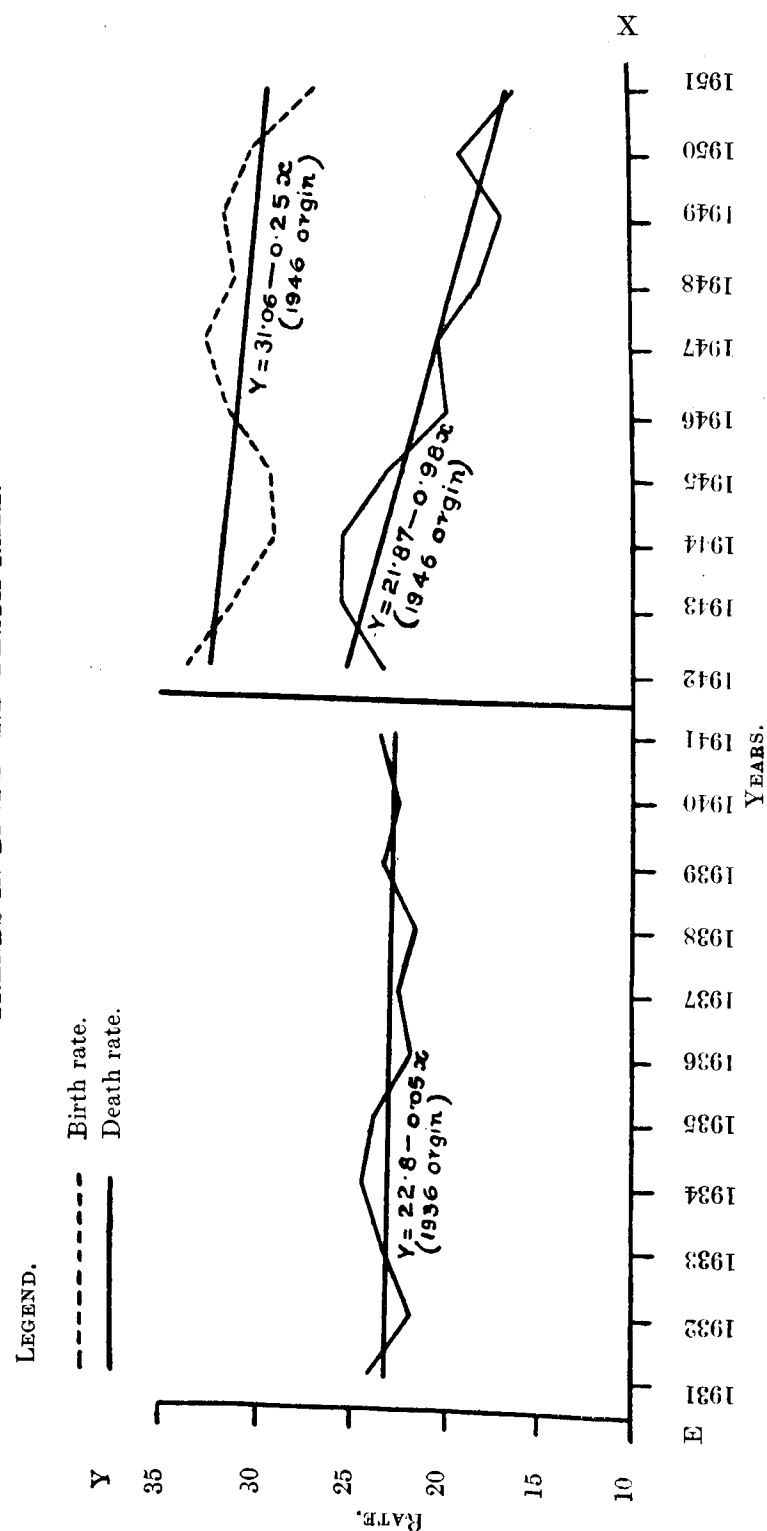
The Primary Health Centres inaugurated in 1949 have not been able to register the expected progress, excepting in the case of a few centres. With the proposed inauguration of the six Community Development Projects in the six selected areas of the State, where other Development departments like Agriculture, 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.

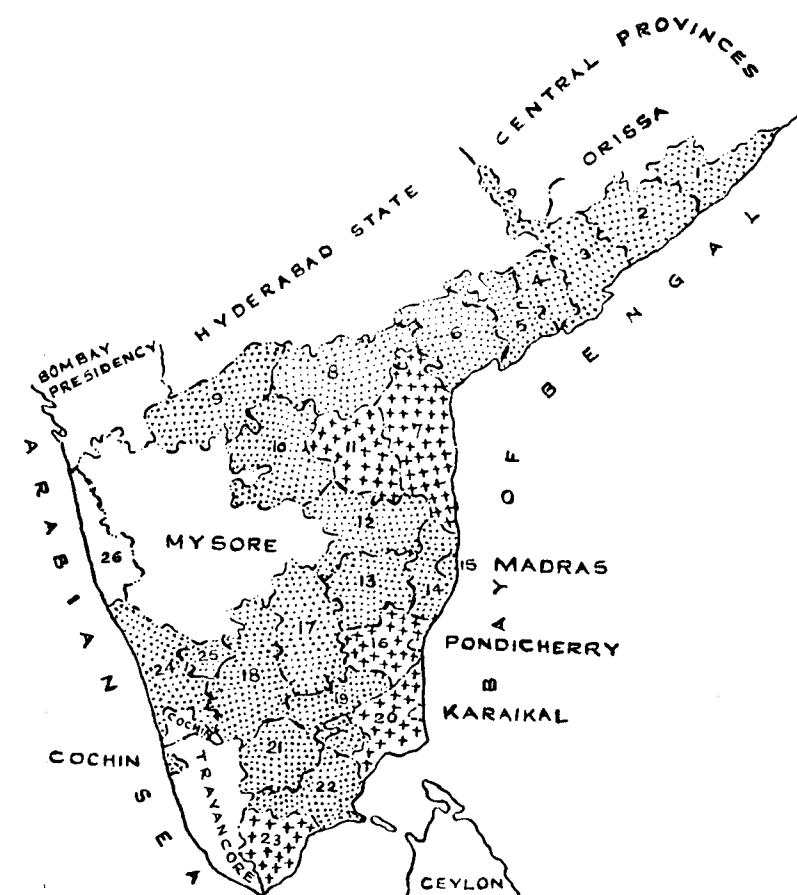
MADRAS,
21st July 1952.

K. S. VISWANATHAN,
Director of Public Health.

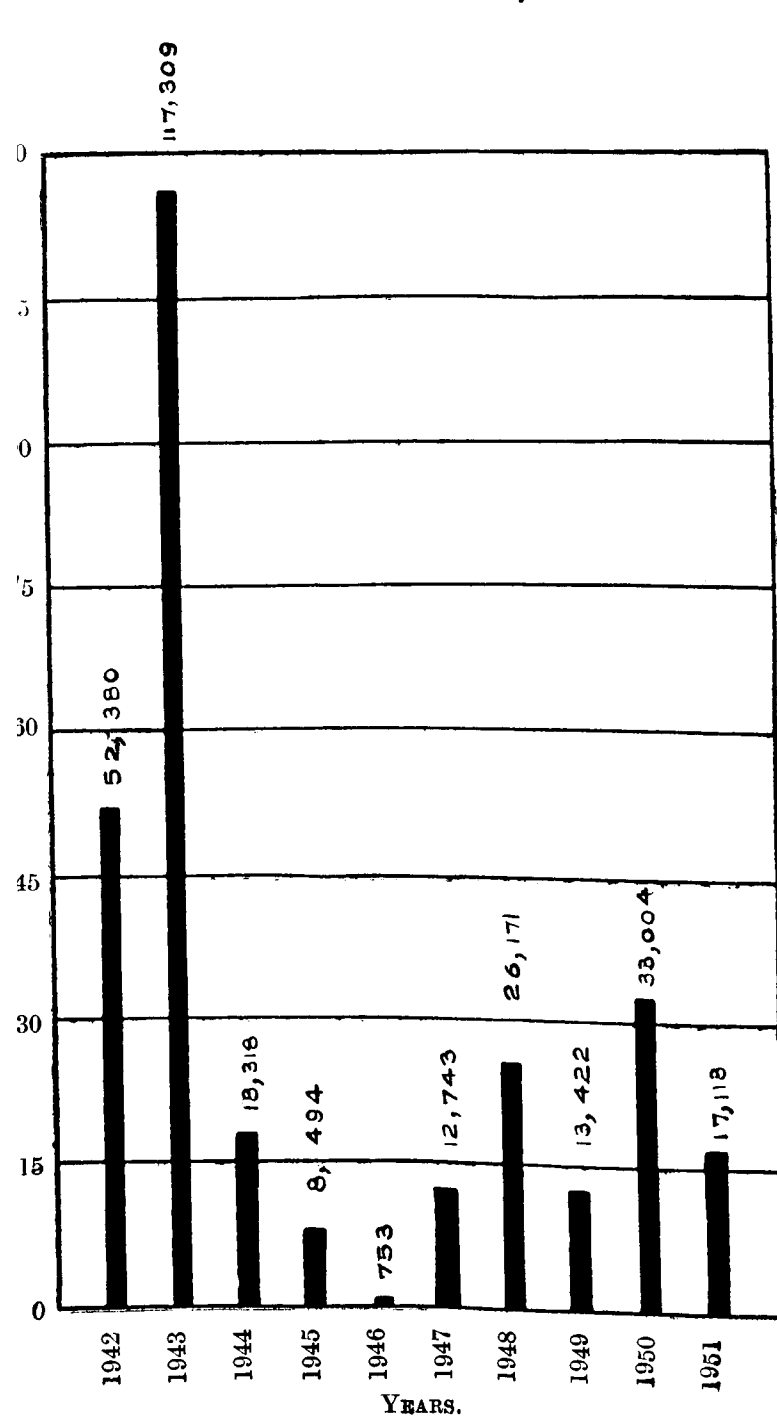
TRENDS IN BIRTH AND DEATH RATE.



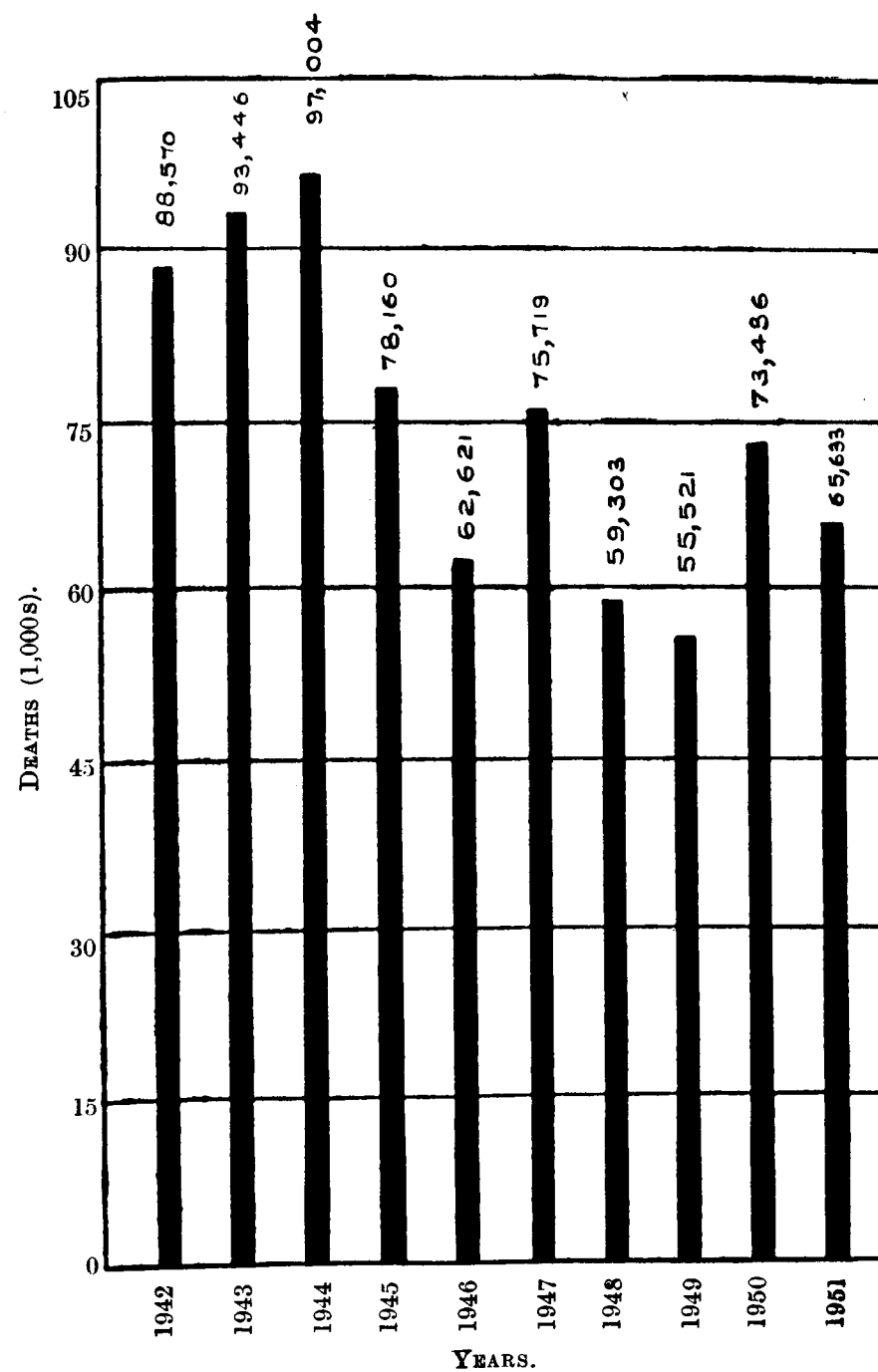
MAP OF CHOLERA MORTALITY, 1951.



DEATHS FROM CHOLERA, 1942-51.

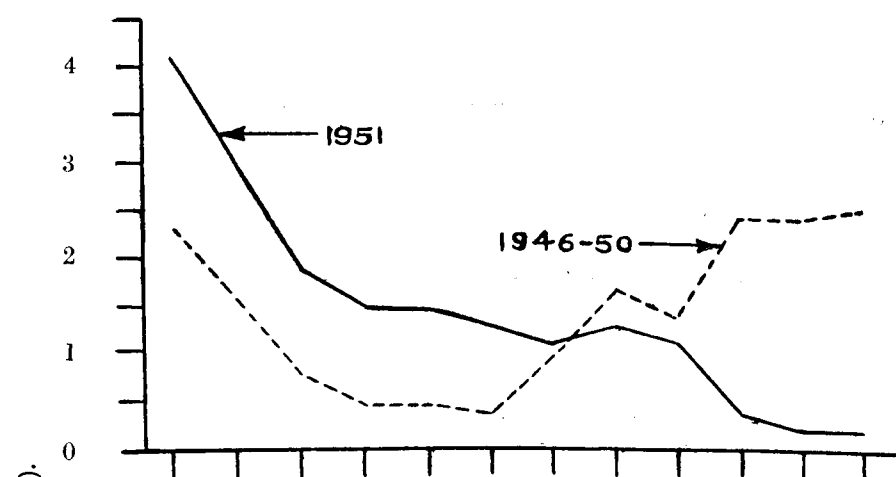


DEATHS FROM DYSENTERY AND DIARRHŒA, 1942-51.

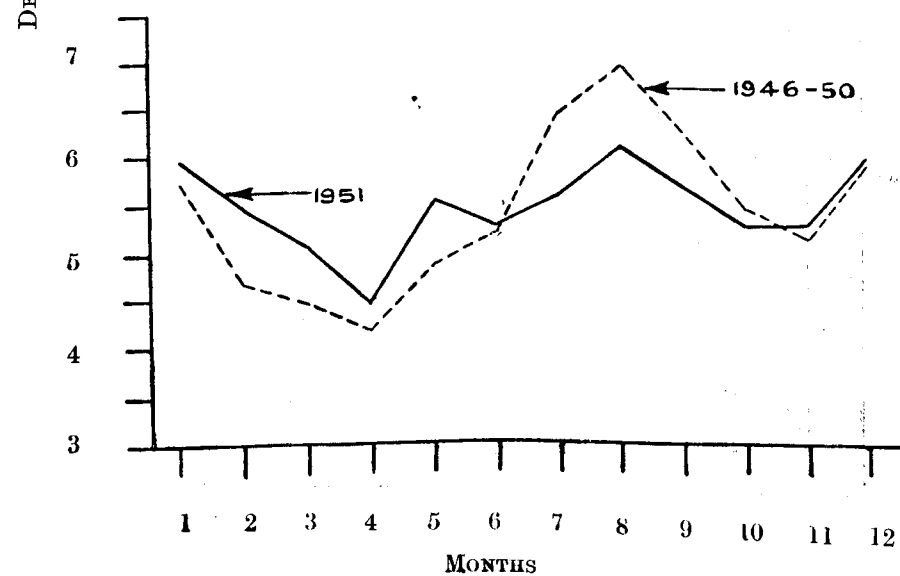


MEAN MONTHLY MORTALITY, CHOLERA, DYSENTERY AND DIARRHŒA.

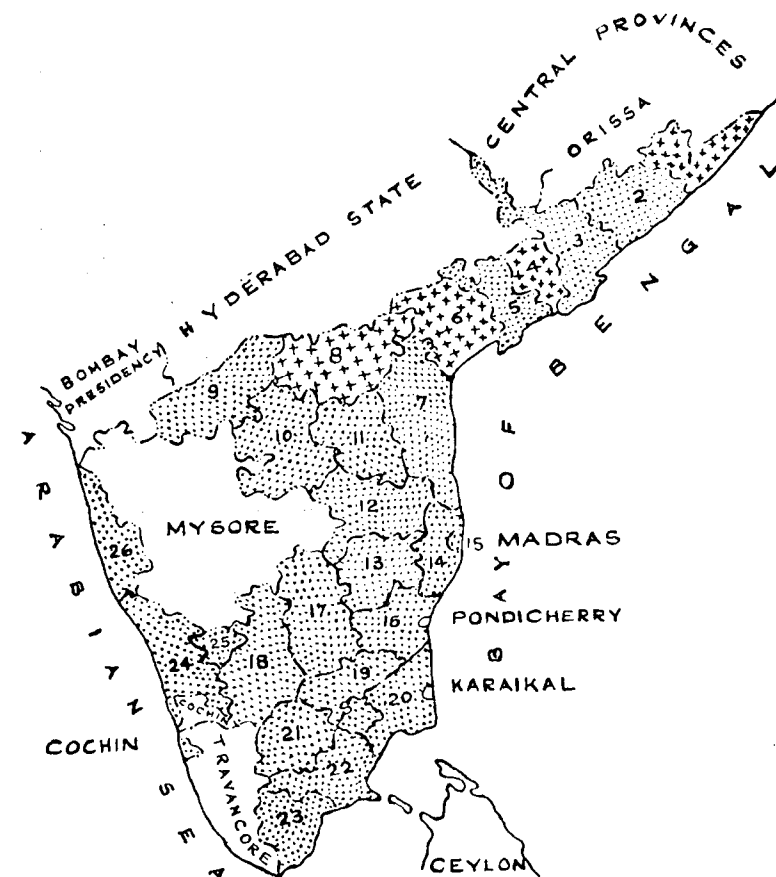
CHOLERA.



DYSENTERY AND DIARRHŒA.



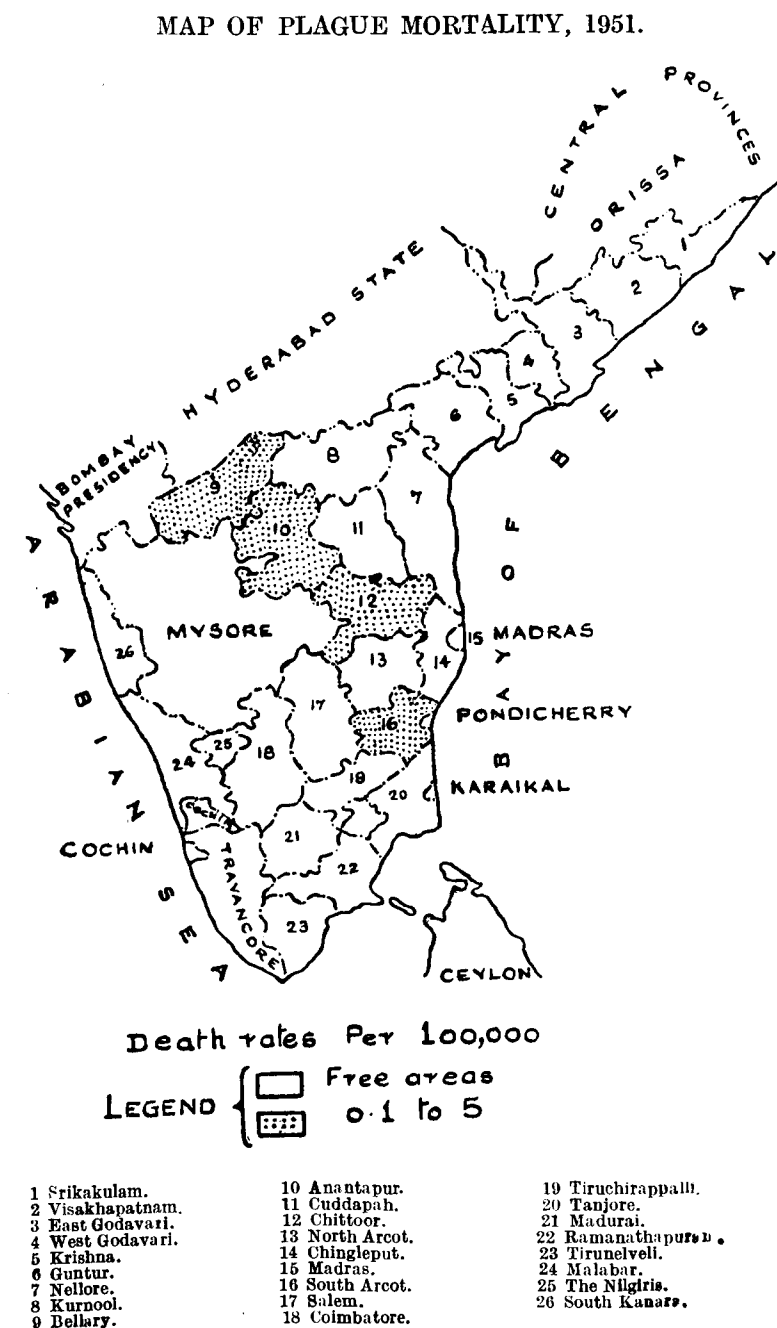
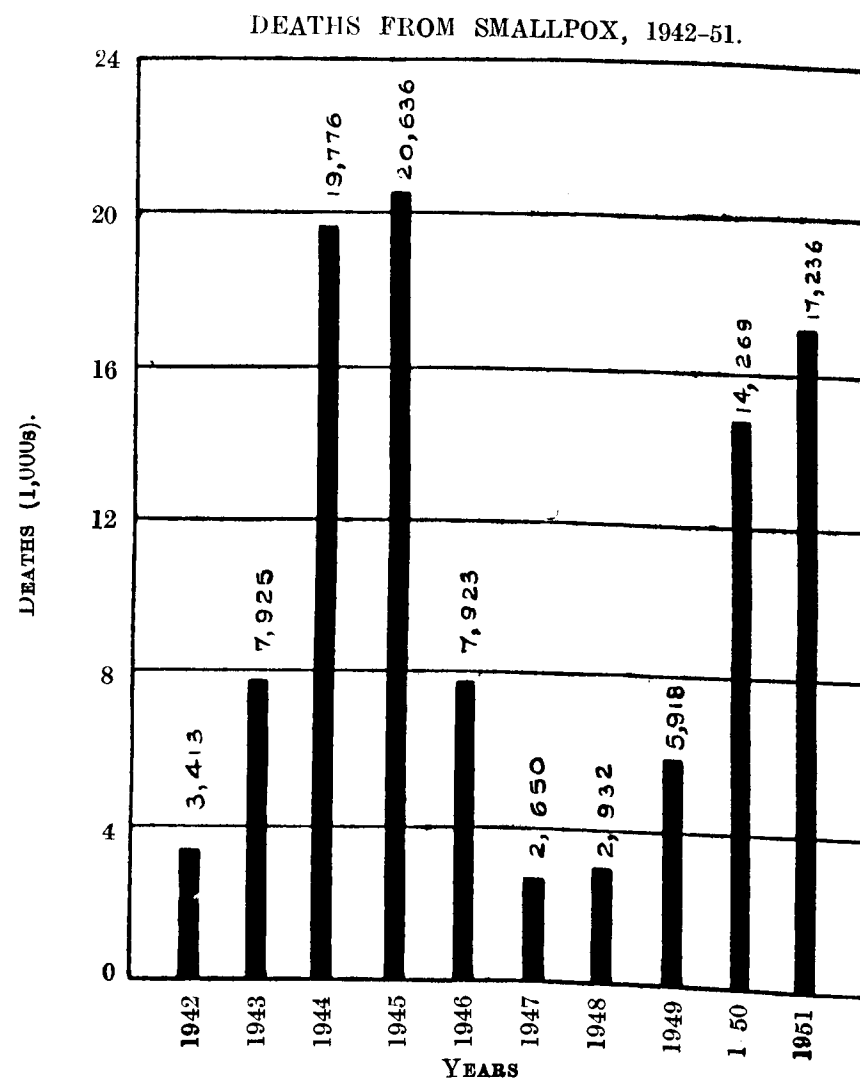
MAP OF SMALLPOX MORTALITY, 1951.



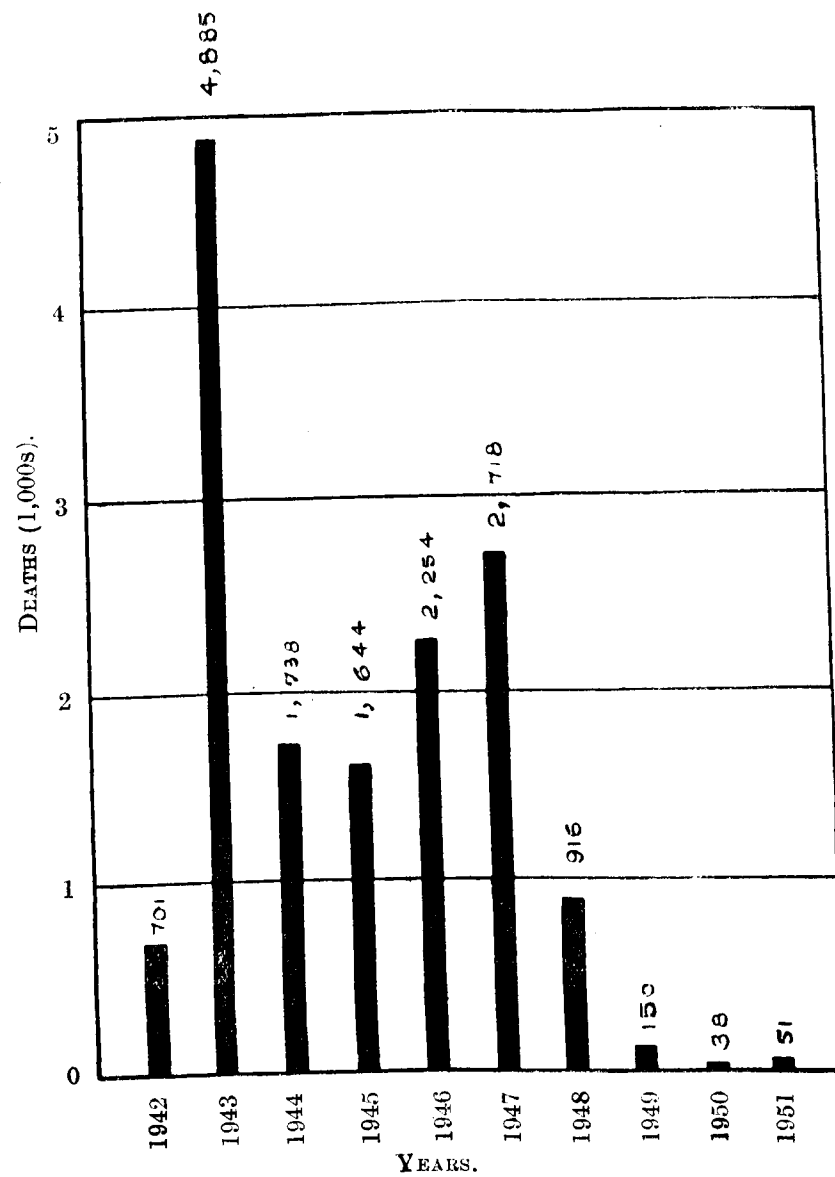
Death rates Per 100,000

LEGEND {
 [Dotted pattern] 1 to 50
 [Cross-hatched pattern] 50 to 100

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

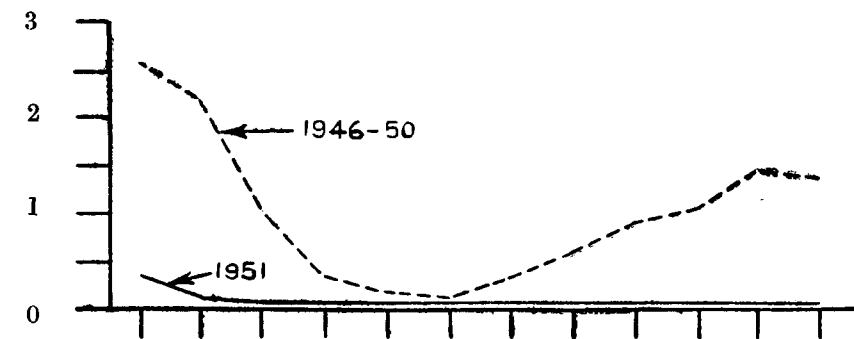


DEATHS FROM PLAGUE, 1942-51.

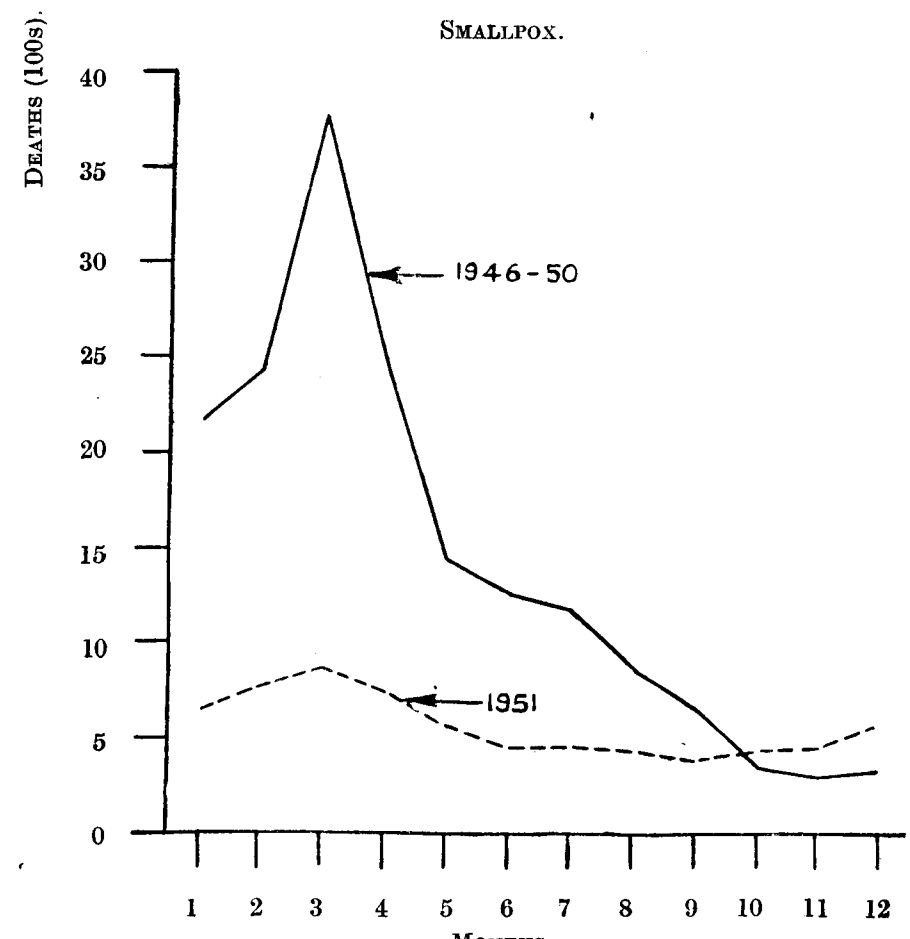


MEAN MONTHLY MORTALITY, PLAGUE AND SMALLPOX.

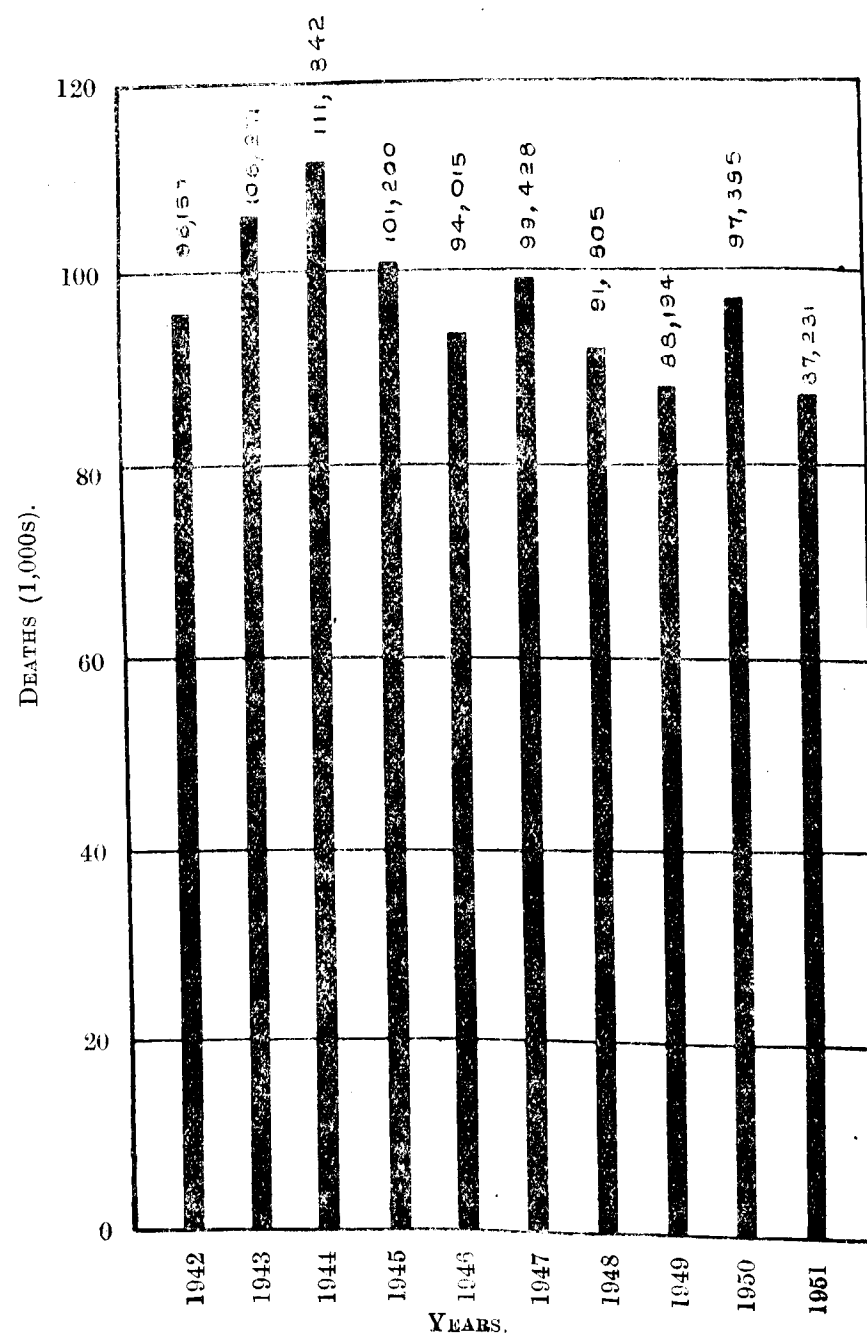
PLAGUE.



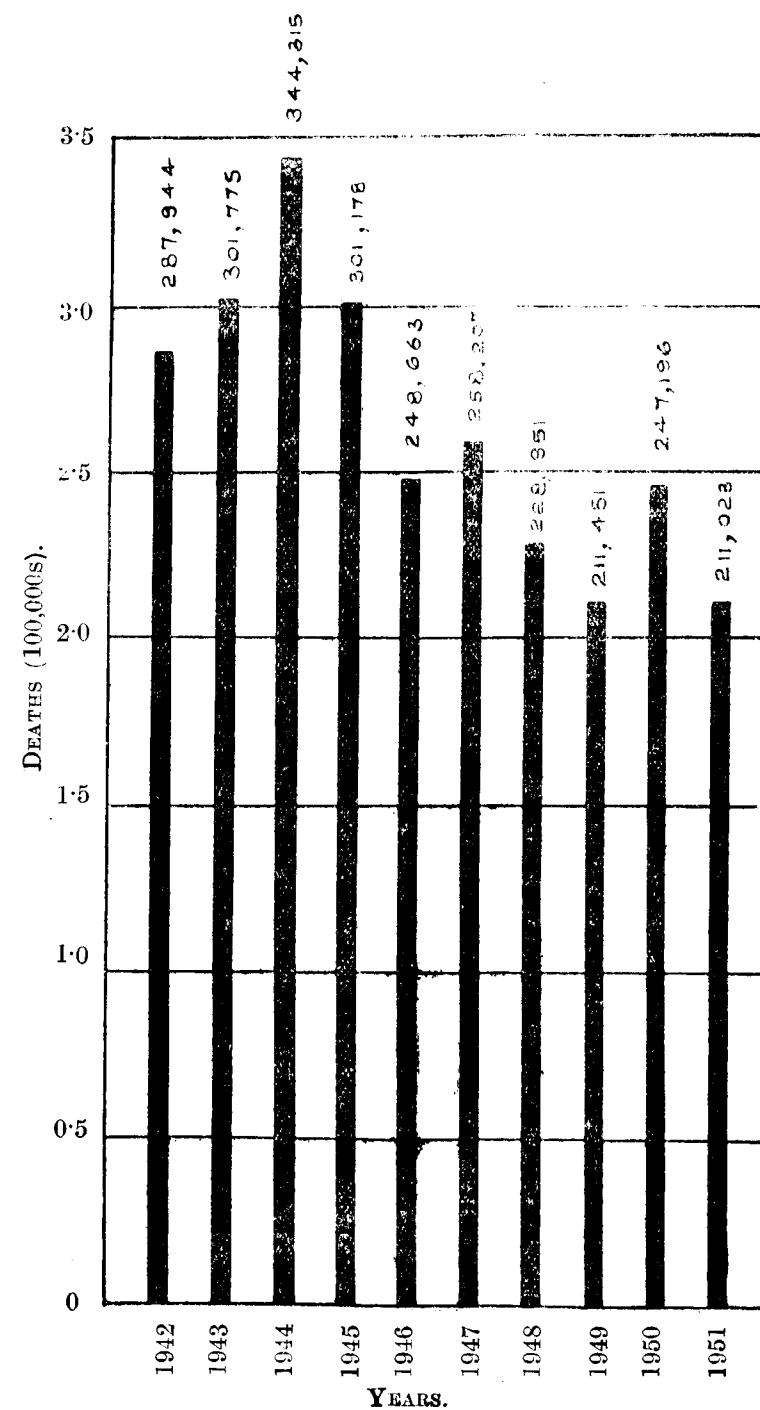
SMALLPOX.



DEATHS FROM RESPIRATORY DISEASES, 1942-51.

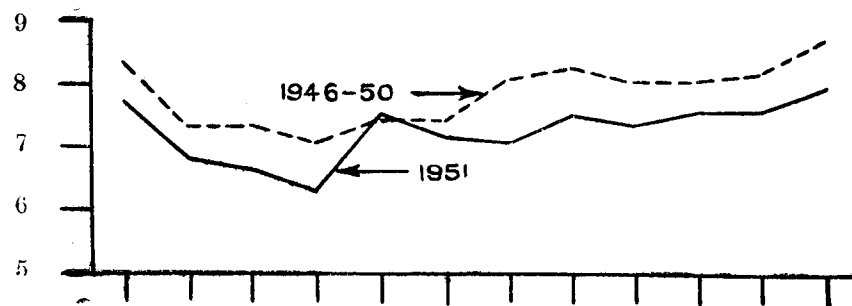


DEATHS FROM FEVERS, 1942-51.

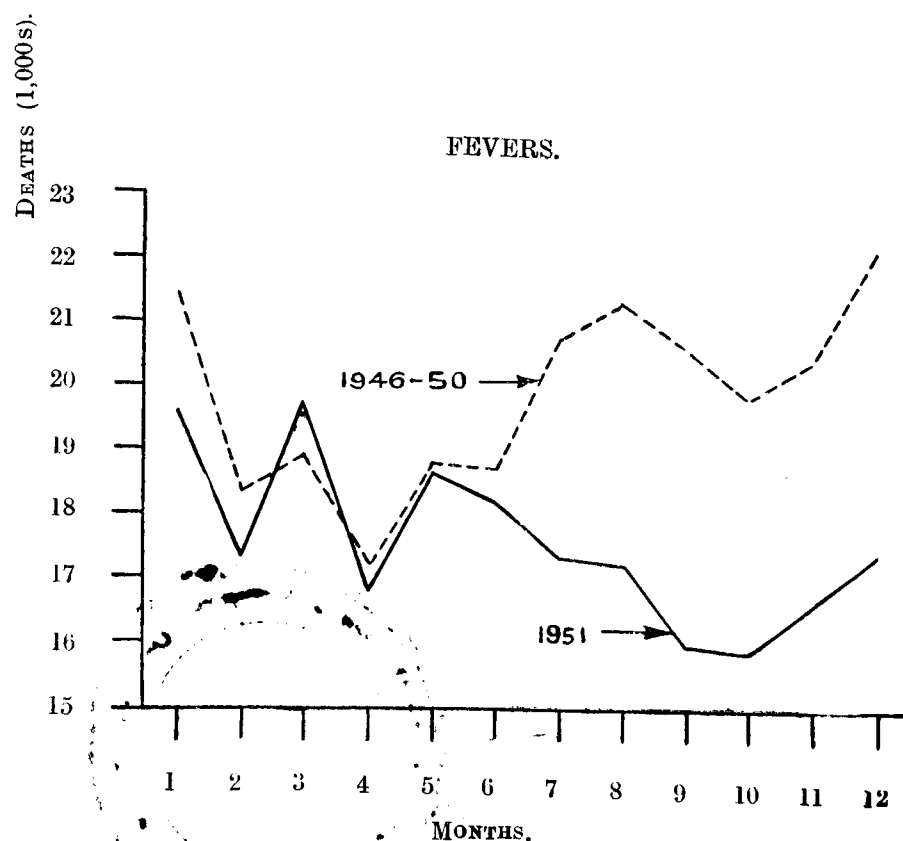


MEAN MONTHLY MORTALITY, RESPIRATORY DISEASES AND
FEVERS.

RESPIRATORY DISEASES.

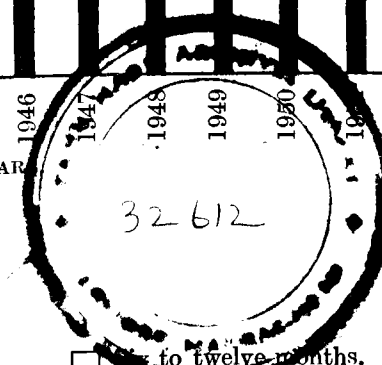
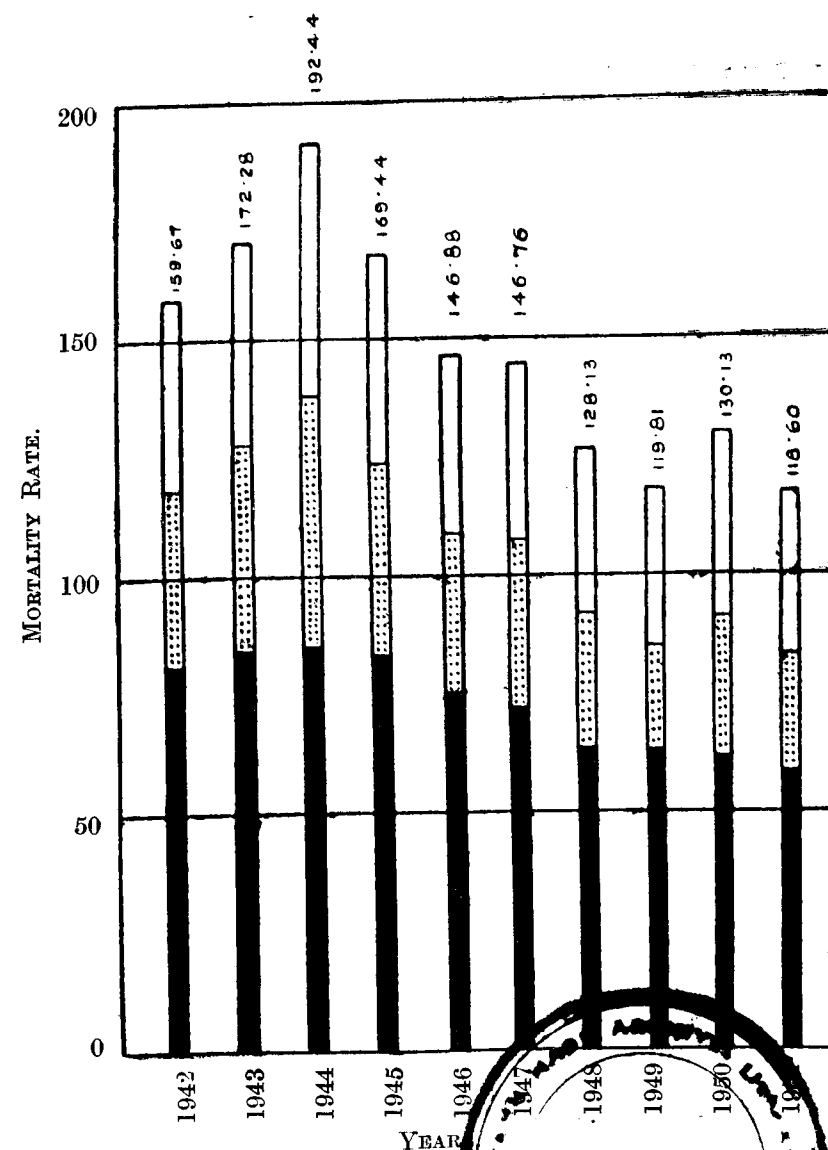


FEVERS.

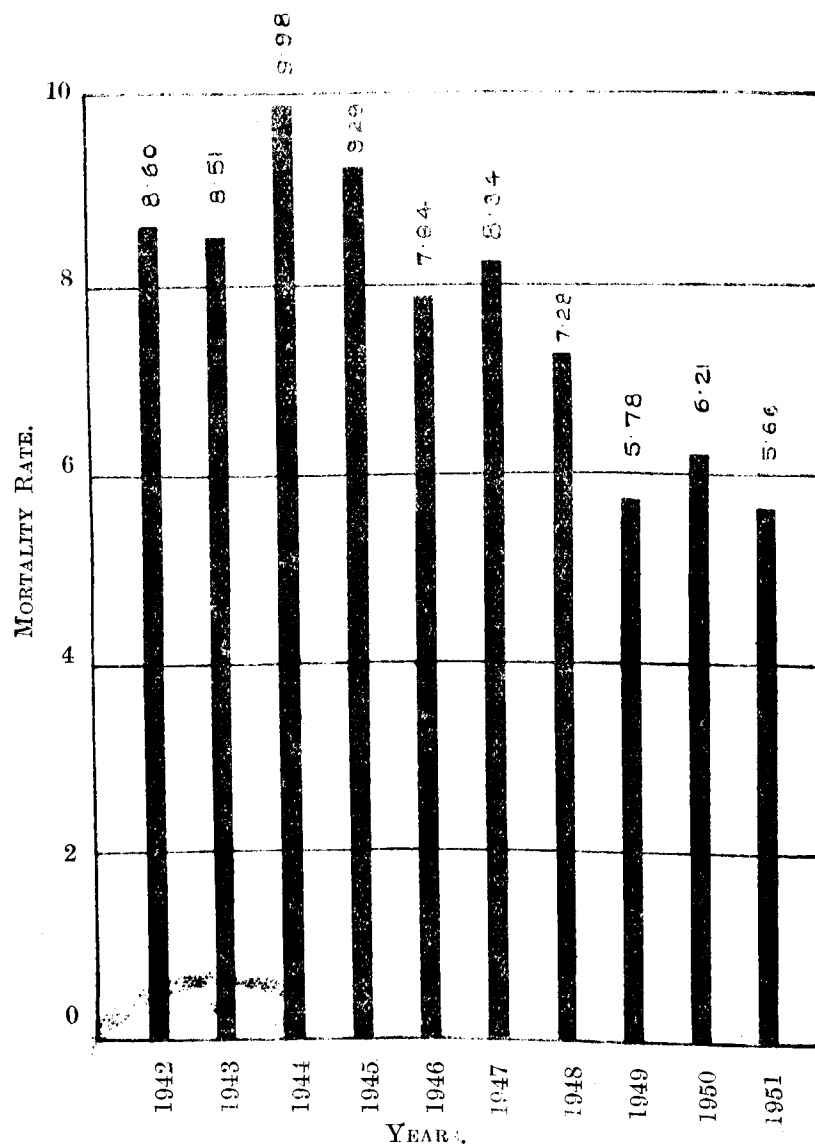


INFANT MORTALITY RATE, 1942-51.

PER 1,000 LIVE BIRTHS.

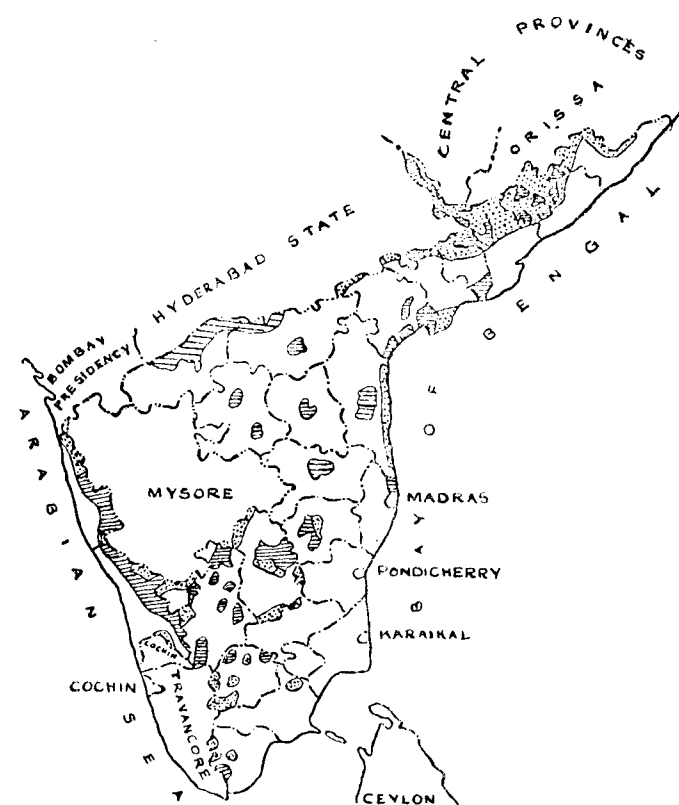


MATERNAL MORTALITY RATE, 1942-51.
(PER 1,000 BIRTHS.)



MAP SHOWING MALARIA CONTROLLED UNCONTROLLED
AND HEALTHY AREAS IN MADRAS STATE

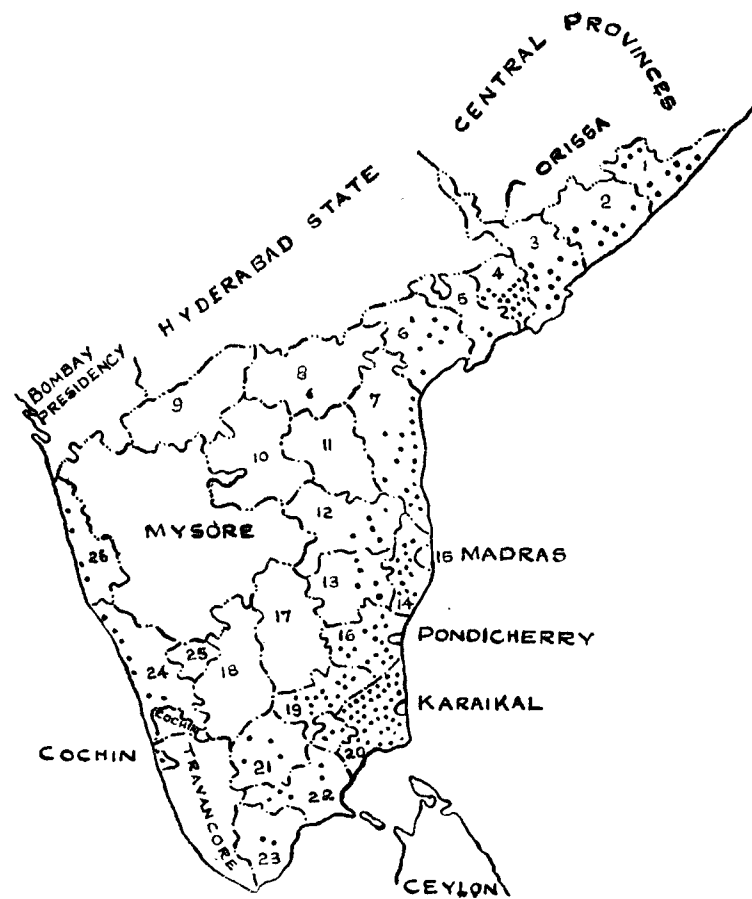
1951.



LEGEND

- UNCONTROLLED AREA
- CONTROLLED AREA (9,963 SQ MILES)
- HEALTHY AREA

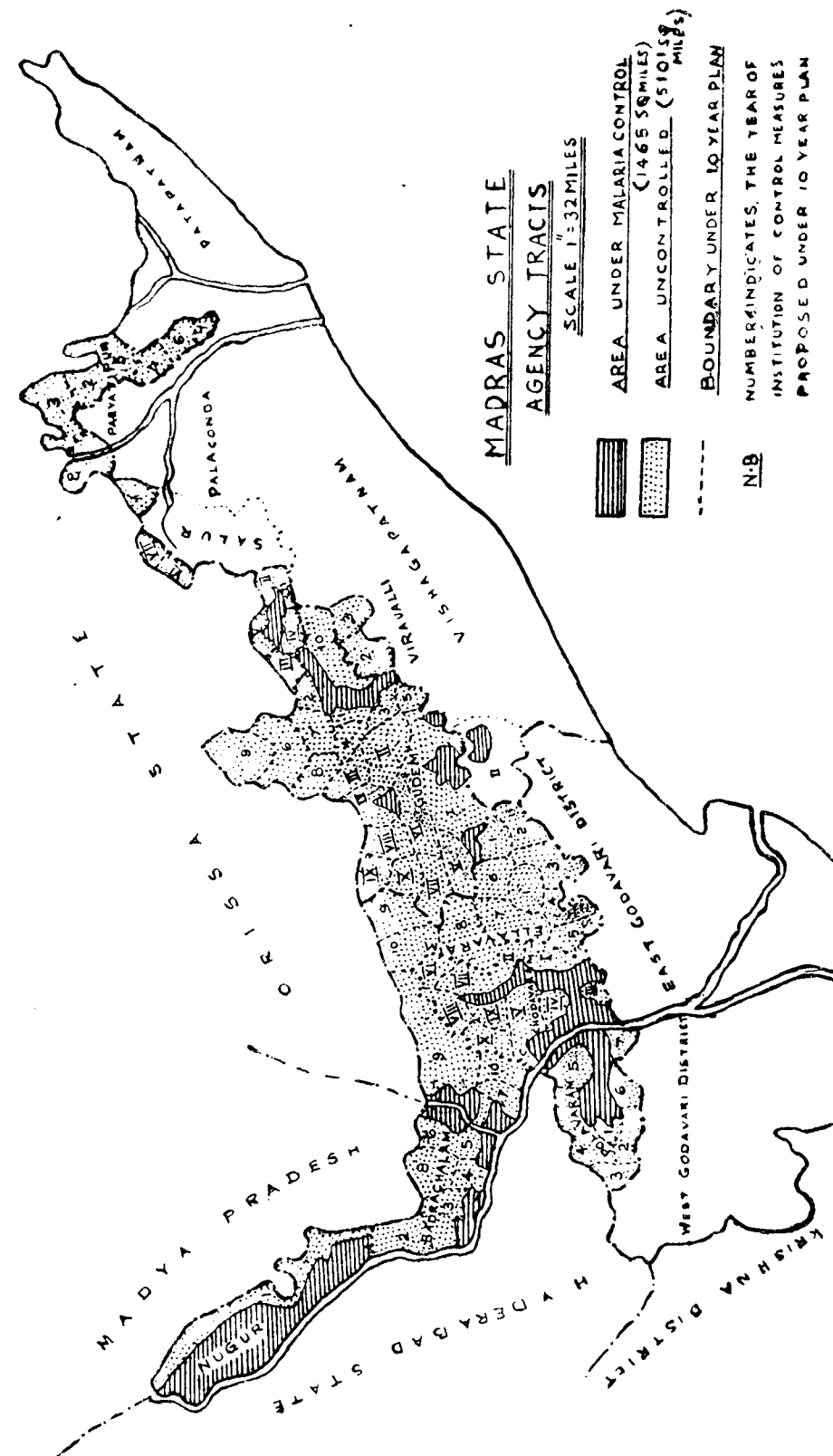
MAP OF FILARIA INVESTIGATIONS.



LEGEND

• FILARIAL ENDEMIC VILLAGES.

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



ANNEXURE A.

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

(Municipalities selected: Visakhapatnam, Vizianagaram, Kakinada, Rajahmundry, Eluru, Vijayawada, 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.	Infectious diseases.										Fevers.				Respiratory diseases.			
	Cholera.	Plague.	Smallpox.	Measles.	Chicken-pox.	Typhoid.	Diphtheria.	Others.	Malaria.	Influenza.	Relapsing fever.	Kala Azar.	Rheumatic fever.	Other fevers.	Tuberculosis of lungs.	Pneumonia.	Others.	
(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
Under one year.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under one month.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over one month and not exceeding six months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over six months and not exceeding 12 months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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 ..	183	3	175	12	3	132	22	3	43	5	..	..	..	501	28	582	137	..
10 and under 15 years ..	173	8	153	3	..	131	27	..	34	2	..	1	1	246	89	327	49	..
15 and under 20 years ..	143	8	170	..	..	170	..	..	34	2	..	1	3	205	385	220	39	..
20 and under 25 years ..	173	8	178	..	..	205	..	..	63	5	..	1	5	401	1,380	434	156	..
25 and under 30 years ..	207	1	119	3	1	180	..	..	62	4	..	..	3	361	1,186	315	157	..
30 and under 35 years ..	141	..	185	..	..	180	..	..	32	4	1	..	6	332	854	329	228	..
35 and under 40 years ..	80	1	91	..	..	88	..	..	42	3	..	..	3	381	516	248	346	..
40 and under 45 years ..	62	..	23	..	..	24	..	..	35	1	..	..	7	347	175	196	319	..
45 and under 50 years ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
50 and under 55 years ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
55 and under 60 years ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
60 years and upwards ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total of all ages ..	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	0.23	0.04	0.004	0.12	0.01	0.002	0.001	0.008	1.27	1.33	1.48	0.76	..

Age at the time of death.	Alimentary diseases.				Diseases of the liver.				Circulatory system.				Genito-urinary diseases.				Venereal diseases.			
	Dysentery.	Diarrhoea.	Others.	Cirrhosis.	Others.	Heart disease.	Arterio-sclerosis.	Others.	Bright's disease.	Others.	Syphilis.	Gonorrhoea.	Others.							
(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
Under one year.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under one month.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over one month and not exceeding six months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over six months and not exceeding 12 months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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 ..	335	153	40	292	94	22	..	47	44	17	1	..	..	..	..	..	..	..	..	..
10 and under 15 years ..	77	24	56	26	30	54	..	37	18	12	..	..	..	..	..	..	..	..	..	..
15 and under 20 years ..	86	134	213	51	28	85	..	60	22	9	..	..	..	..	..	..	..	..	..	..
20 and under 25 years ..	144	184	218	51	43	206	..	248	90	83	10	..	..	..	..	..	..	..	..	..
25 and under 30 years ..	167	183	241	76	861	361	..	245	87	43	9	..	..	..	..	..	..	..	..	..
30 and under 35 years ..	142	153	236	97	568	454	..	286	159	64	3	..	..	..	..	..	..	..	..	..
35 and under 40 years ..	178	192	210	47	50	470	..	332	286	60	3	..	..	..	..	..	..	..	..	..
40 and under 45 years ..	178	192	210	47	50	470	..	332	286	60	3	..	..	..	..	..	..	..	..	..
45 and under 50 years ..	178	192	210	47	50	470	..	332	286	60	3	..	..	..	..	..	..	..	..	..
50 and under 55 years ..	218	133	149	41	46	544	..	249	127	41	3	..	..	..	..	..	..	..	..	..
55 and under 60 years ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
60 years and upwards ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total of all ages ..	3,062	2,485	1,878	1,210	881	2,331	15	1,597	779	336	82	8	..	..	..	..	..	..	..	..
Rate per 1,000 of estimated population ..	0.89	0.72	0.54	0.35	0.26	0.68	0.004	0.46	0.23	0.10	0.02	0.002	..	..	..	..	..	..	..	..

ANNEXURE A—cont.

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

(Municipalities selected: Visakhapatnam, Vizianagaram, Kakinda, Rajahmundry, Eluru, Vijayawada, Masulipatnam, Guntur, Tenali, Bellary, Adoni, Karnool, Nellore, Kancheepuram, Vellore, Cuddalore, Tanjore, Kumbakonam, Nagapattinam, Tiruchirappalli, Madurai, Dindigul, Rajapalayam, Tuticorin, Tirunelveli, Salem, Coimbatore, Erud, 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.				
	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)
Under one year.	534	5	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Under one month.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over one month and not exceeding six months.	841	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Over six months and not exceeding 12 months.	1,632	..	5	..	8	..	..	..	..	..	..	..	..	..	..	..	..
Total under one year.	1,456	..	2	..	11	..	..	..	..	..	..	..	..	..	..	..	..
1 and under 5 years	4,490	8	22	1	16	..	..	8	28	50	55	..	1	..	1	..	1
5 and under 10 years	2,812	2	43	7	46	..	..	..	48	243	80	4	1	..	12	8	..
10 and under 15 years	2,021	..	45	17	80	..	..	..	11	62	21	..	..	..	3	10	..
15 and under 20 years	24	..	41	14	35	..	..	..	9	5	13	..	..	..	3	8	..
20 and under 25 years	3	..	35	12	28	..	..	..	11	..	13	..	..	..	3	1	..
25 and under 30 years	3	..	30	20	30	..	..	..	45	..	17	..	..	..	10	1	..
30 and under 35 years	3	..	20	12	117	..	..	..	370	..	66	11	..	..	34	14	..
35 and under 40 years	3	..	20	12	117	..	..	..	370	..	66	11	..	..	34	14	..
40 and under 45 years	4	..	37	12	161	..	..	..	45	..	52	17	9	4	43	29	..
45 and under 50 years	2	..	37	12	161	..	..	..	45	..	52	17	9	4	43	29	..
50 and under 55 years	2	..	37	12	161	..	..	..	45	..	52	17	9	4	43	29	..
55 and under 60 years	2	..	37	12	161	..	..	..	45	..	52	17	9	4	43	29	..
60 years and upwards	4	..	1	7	467	..	..	..	137	..	55	12	6	1	49	15	..
Total of all ages	7,557	94	443	105	1,232	803	103	701	495	396	524	71	84	14	218	119	520
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

Rate per 1,000 of estimated population

Age at the time of death.	Total deaths from all causes.													Rate per 1,000 of estimated population.		Remarks.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Under one year.	Under one month.	Under one week.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

* Total births and deaths exclude still-births.

* Rate per 1,000 live-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	78,070	74,218	152,888
10 October ..	59,596	56,620	116,216	17,046	16,314	33,360	76,042	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	29,803	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.	Amoebic dysentery.	Bacillary dysentery.	Others.	Total.
Srikakulam	24,847	18,084	22,276	65,207
Visakhapatnam	2,402	13,901	5,882	22,185
East Godavari	7,572	4,054	1,721	13,347
West Godavari	6,105	4,942	2,476	13,523
Krishna	18,138	3,515	73	21,726
Guntur	5,467	5,705	4,271	15,443
Bellary	6,617	6,567	5,168	18,352
Anantapur	11,164	1,827	3,371	16,362
Kurnool	8,843	970	12,618	22,431
Cuddapah	44,945	32,887	12,861	90,693
Madras	5,455	5,713	5,665	16,833
Nellore	19,507	1,039	..	20,546
Chingleput	7,374	5,958	2,921	16,253
Chittoor	15,785	8,204	15,328	39,317
North Arcot	3,843	12,611	19,627	36,081
South Arcot	24,885	18,451	7,934	51,270
Tanjore	15,958	9,294	1,402	26,654
Tiruchirappalli	11,195	11,961	6,007	29,163
Madurai	14,147	7,093	6,069	27,309
Ramanathapuram	16,860	10,661	4,277	31,798
Tirunelveli	6,176	6,397	1,992	14,565
Salem	21,050	11,450	13,227	45,727
Coimbatore	3,457	3,086	3,663	10,206
The Nilgiris	19,289	6,960	5,520	31,769
Malabar	4,630	3,921	1,614	10,165
South Kanara	..	..	..	..
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	2,261	3,265	43	53
Visakhapatnam	1,465	888	26	22
East Godavari	1,158	670	7	21
West Godavari	1,020	1,020	17	12
Krishna	2,457	1,686	59	30
Guntur	520	471	21	17
Bellary	1,081	1,360	6	20
Anantapur	1,632	599	12	12
Kurnool	911	870	14	3
Cuddapah	6,397	9,100	213	427
Madras	1,058	873	39	28
Nellore	12,021	690	31	36
Chingleput	1,047	1,461	38	33
Chittoor	4,859	1,982	72	61
North Arcot	3,222	956	64	29
South Arcot	1,042	1,841	46	63
Tanjore	1,611	1,490	67	37
Tiruchirappalli	1,950	1,629	171	38
Madurai	2,017	1,395	80	14
Ramanathapuram	1,743	2,022	47	39
Tirunelveli	4,598	1,509	..	59
Salem	3,129	6,022	43	91
Coimbatore	249	275	20	37
Nilgiris, The	6,672	5,586	283	190
Malabar	1,574	1,136	80	55
South Kanara	..	..	..	..
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.			1951.		
	Pulmonary tuberculosis.	Other forms of tuberculosis.	Total.	Pulmonary tuberculosis.	Other forms of tuberculosis.	Total.
1 Srikakulam }	9,048	4,251	13,299	4,448	1,711	6,159
2 Visakhapatnam }	1,793	1,361	3,154	1,935	2,486	4,421
3 East Godavari }	2,556	2,229	4,785	863	1,212	2,075
4 West Godavari }	2,874	3,265	6,139	3,288	1,386	4,674
5 Krishna }	3,818	1,676	5,494	4,463	1,513	5,976
6 Guntur }	1,738	2,668	4,406	1,570	1,029	2,599
7 Bellary }	1,662	1,236	2,898	5,153	5,026	1,179
8 Anantapur }	1,548	784	2,332	3,272	542	3,814
9 Kurnool }	1,471	1,024	2,495	1,558	407	1,965
10 Cuddapah }	14,694	11,067	25,761	17,000	8,146	25,146
11 Madras }	3,717	1,454	5,171	2,190	534	2,724
12 Nellore }	981	667	1,648	922	249	1,171
13 Chingleput }	1,702	798	2,500	589	462	1,051
14 Chittoor }	2,117	1,373	3,490	4,731	5,172	9,903
15 North Arcot }	1,317	1,224	2,541	1,795	1,401	3,196
16 South Arcot }	4,020	3,866	7,886	4,657	2,580	7,237
17 Tanjore }	4,016	8,036	12,052	2,192	1,117	3,309
18 Tiruchirappalli }	7,599	9,478	17,077	8,786	6,554	15,340
19 Madurai }	1,856	5,243	7,099	1,308	3,783	5,091
20 Ramanathapuram }	2,588	1,667	4,255	3,367	1,383	4,750
21 Tirunelveli }	3,404	1,257	4,661	11,037	6,217	17,254
22 Salem }	5,763	4,139	9,902	5,712	6,172	11,884
23 Coimbatore }	193	169	362	166	117	283
24 Nilgiris, The }	12,043	3,393	15,436	13,364	5,216	18,580
25 Malabar }	2,190	463	2,653	2,132	321	2,453
26 South Kanara }						
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 }	5,686	5,103	3,518
2 Visakhapatnam }	1,706	2,933	3,305
3 East Godavari }	1,227	1,101	1,885
4 West Godavari }	4,237	658	358
5 Krishna }	990	883	824
6 Guntur }	133	144	58
7 Bellary }	78	127	224
8 Anantapur }	399	213	224
9 Kurnool }	369	241	606
10 Cuddapah }	8,673	6,507	5,632
11 Madras }	1,259	1,159	713
12 Nellore }	1,562	1,448	5,307
13 Chingleput }	1,358	1,404	1,720
14 Chittoor }	6,950	27,339	3,269
15 North Arcot }	10,757	9,262	10,591
16 South Arcot }	6,961	16,767	6,101
17 Tanjore }	1,478	1,493	1,391
18 Tiruchirappalli }	8,076	8,418	7,820
19 Madurai }	3,423	2,016	1,141
20 Ramanathapuram }	1,366	1,553	1,126
21 Tirunelveli }	8,305	9,139	5,868
22 Salem }	6,784	1,150	966
23 Coimbatore }	30	112	642
24 Nilgiris, The }	2,976	2,144	2,541
25 Malabar }	479	245	642
26 South Kanara }			
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.	Gonorrhoea.	Other venereal diseases.	Total.
1 Srikakulam }	14,763	15,898	11,560	42,221
2 Visakhapatnam }				
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	272,378	1,588,162
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	2.52
Births receiving skilled attention	91,144	160,614	251,758
Proportion to total	6.92	58.97	15.85
Infant mortality rate	118.59	126.4	118.60
Maternal mortality rate	5.4	7.06	6.67

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
Pro-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				Women Medical Officers.				Health visitors.				Midwives.			
	Government.		Local bodies.		Government.		Local bodies.		Government.		Local bodies.		Government.		Local bodies.	
	R	U	R	U	R	U	R	U	R	U	R	U	R	U	R	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	..	..	12	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	..	..	1	..	..	..	21	12
Madras	..	..	..	31	..	1	23	..	..	..	32	..	10	..	21	12
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
Madurai	..	..	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.

R = Rural.

U = Urban.

ANNEXURE L.

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

[illegible]

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

Statement showing particulars in regard to health administration of minor ports of India.																		
Serial number and names of ports.	Incoming vessels—cont.				Outgoing vessels.				Disinfection.				Number of passengers and number of crews prevented from sailing on account of infectious diseases.	Part of ship.	Passengers and crews effected.			
	Deaths from non-infectious diseases in these vessels.	Vaccination and inoculation.	Disinfection.		Isolation, observation and service.	Departing for				Number of vessels inspected.								
			Part of ship.	Passengers and crews effected.		Cargo.	Passenger.	Cargo.	Passengers.	Passengers inspected.	Crew inspected.							
	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)		
1 Pamban	..	..	..	..	..	..	..	181	..	..	..	..	..	..	..	..		
2 Toputhurai and Point Calimere	..	..	..	..	..	209	68	100	..	..	..	..	..	..	..	..		
3 Tuticorin	..	45	..	..	..	..	..	98	..	7	..	..	97	..	..	..		
4 Tondi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
5 Beydoor and Shirur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
6 Moolky port	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
7 Mangalore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
8 Annappattinam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
9 Coondapoor	..	..	..	..	..	..	..	965	..	..	..	..	..	..	..	..		
10 Deypore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
11 Adirampattinam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
12 Baruva	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
13 Devipattinam	..	..	..	..	..	16	..	159	..	..	16	..	166	..	..	..		
14 Kilakarai	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
15 Ponnani	..	..	..	..	..	..	..	262	..	..	..	..	..	..	..	..		
16 Tellicherry	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
17 Nagapattinam	..	..	..	..	..	..	..	160	..	..	..	..	..	..	..	..		
18 Angarkottah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
19 Malpe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
20 Kuleskharapattinam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
21 Kannada	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
22 Oudalore	..	..	..	..	..	46	..	276	..	..	..	..	..	..	..	..		
23 Kozhikode	1	..	..	..	..	..	..	18	..	..	..	..	..	..	..	..		
24 Cannanore	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
25 Mulki	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
26 Dhanushkodi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
27 Gangully	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
28 Masulipattinam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
29 Porto Novo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		

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.	8,600	Do.
		12 village camps.		
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 District 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 Settlers 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.	In weight	Food constituents.				Percentage.		Calories per 100 Gms.		
					Moisture.	Protein.	Fat.	Carbohydrate.	Ash.	Calcium.		Phosphorus.	
(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	0.03	23.87	1.38	0.024	0.055	6.5	128
3 Medu Vadal ..	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 Vadal ..	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 Vadal ..	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 Onapudi ..	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 Karabondi ..	Mean of 4 hotels ..	0 1 6 per serving ..	One serving ..	47.5	3.90	8.70	49.64	34.70	2.38	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	53.6	3.86	6.13	23.36	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. ..	38.73	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) ..	Mean of 4 hotels ..	0 3 0 each ..	D. 5 cm., Th. 5 cm. ..	30.84	16.0	2.91	18.92	61.8	0.37	0.029	0.076	8.0	429
21 Mampurak (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 Bonda 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	402
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

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

cm. = centimetre.

Th. = Thickness.

D. = Diameter.

Nutritive value of hotel meals.

Serial number and source.	Cost of one meal.	Total dry weight in grams.	Total Protein.	Total Fat.	Total Cho.	Food constituents.			Total Iron M.Gms.	Total Fibra.	Total Calories.	Remarks.
						Total Ash.	Total Cal- cium.	Total Phos- phorus.				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
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 Bazar, Georgetown, Madras ..	0 8 0	203	22.13	9.78	147.8	18.25	0.8658	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	0.8187	46.62	18.50	1,617	"A" class.
4 Hotel Almasa, Royapetta ..	1 0 6	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 increase 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.		Midday cereal meal plus skim milk (8 oz.) Reconstituted milk.		Midday meal plus skim milk plus multi-vitamin tablets.		Midday meal plus milk.	
	Increase in		Increase in		Increase in		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.

APPEN

VITAL STATISTICS OF THE

No. 1.—Births registered in districts

Serial number.	Estimated mid-year population for 1951.			Districts.	Estimated mid-year population for which birth and death returns were received.		
	Males.	Females.	Total.		Males.	Females.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	1,009,000	1,084,000	2,073,000	Srikakulam	1,009,000	1,084,000	2,073,000
2	936,000	964,000	2,081,000	Visakhapatnam	936,000	964,000	2,081,000
3	1,107,000	1,110,000	2,218,000	Godavari, Plains	1,107,000	1,110,000	2,218,000
3 (a)	105,000	104,000	209,000	Godavari, East, Agency	105,000	104,000	209,000
4	804,000	804,000	1,608,000	Godavari, Plains	804,000	804,000	1,608,000
4 (a)	49,000	49,000	98,000	Godavari, West, Agency	49,000	49,000	98,000
5	910,000	881,000	1,791,000	Krishna	910,000	881,000	1,791,000
6	1,226,000	1,283,000	2,559,000	Guntur	1,226,000	1,283,000	2,559,000
7	635,000	614,000	1,249,000	Bellary	635,000	614,000	1,249,000
8	704,000	663,000	1,368,000	Anantapur	704,000	663,000	1,368,000
9	645,000	629,000	1,274,000	Kurnool	645,000	629,000	1,274,000
10	597,000	568,000	1,165,000	Cuddapah	597,000	568,000	1,165,000
11	746,000	688,000	1,434,000	Madras	746,000	688,000	1,434,000
12	906,000	896,000	1,802,000	Nellore	906,000	896,000	1,802,000
13	943,000	915,000	1,858,000	Chingleput	943,000	915,000	1,858,000
14	928,000	889,000	1,816,000	Chittoor	928,000	889,000	1,816,000
15	1,432,000	1,436,000	2,869,000	North Arcot	1,432,000	1,436,000	2,869,000
16	1,393,000	1,389,000	2,782,000	South Arcot	1,393,000	1,389,000	2,782,000
17	1,475,000	1,522,000	2,997,000	Tanjore	1,475,000	1,522,000	2,997,000
18	1,465,000	1,489,000	2,954,000	Tiruchirappalli	1,465,000	1,489,000	2,954,000
19	1,447,000	1,460,000	2,907,000	Madurai	1,447,000	1,460,000	2,907,000
20	997,000	1,087,000	2,084,000	Ramanathapuram	997,000	1,087,000	2,084,000
21	1,192,000	1,261,000	2,453,000	Tirunelveli	1,192,000	1,261,000	2,453,000
22	1,699,000	1,689,000	3,389,000	Salem	1,699,000	1,689,000	3,389,000
23	1,662,000	1,648,000	3,309,000	Coimbatore	1,662,000	1,648,000	3,309,000
24	166,000	150,000	315,000	Nilgiris, The	166,000	150,000	315,000
25	2,328,000	2,458,000	4,786,000	Malabar	2,328,000	2,458,000	4,786,000
26	815,000	912,000	1,757,000	South Kanara	815,000	912,000	1,757,000
	28,000	26,000	51,000	* Srikakulam			
	92,000	89,000	181,000	* Visakhapatnam			
	23,539,000	23,715,000	57,256,000	Total	23,539,000	23,715,000	57,256,000
				† Urban areas			10,643,000
				‡ Rural areas			46,377,000

* No proper system of registration.

† Municipalities and rural towns.

‡ Districts exclusive of municipalities and rural towns.

DICES.

GENERAL POPULATION.

and in the State during the year 1951.

Number of births registered (excluding still-births).			Ratio of ^(Deaths) 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.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
30,704	28,849	59,553	14.81	13.91	28.70	16.56	15.62	32.18
28,348	27,034	55,382	14.92	14.23	29.15	..	..	..
24,317	22,175	46,492	10.96	10.00	20.97	14.85	13.88	28.73
2,971	2,474	5,445	14.25	11.87	26.12	14.51	14.05	28.57
21,268	20,290	41,558	13.23	12.62	25.85	15.65	14.74	30.39
1,451	1,374	2,825	14.85	14.06	28.83	16.49	15.49	31.97
26,776	24,638	51,414	14.95	13.76	28.69	17.26	16.21	33.47
39,701	36,951	76,652	15.51	14.44	29.97	16.33	15.28	31.61
22,645	21,433	44,078	18.13	17.16	35.31	18.25	17.31	35.56
25,343	23,384	48,729	18.53	17.09	35.62	19.37	18.37	37.74
23,268	21,891	45,159	18.26	17.18	35.45	16.49	15.69	31.97
16,076	14,660	30,736	13.80	12.58	26.37	14.52	13.70	28.22
30,080	28,881	58,961	20.98	20.14	41.10	24.73	23.56	48.30
24,935	23,342	48,277	13.84	12.95	26.79	14.29	13.45	27.74
21,345	20,526	41,871	11.49	11.05	22.53	15.83	14.84	30.67
24,738	23,169	47,907	13.62	12.76	26.40	14.77	13.88	28.65
42,691	40,150	82,751	14.85	13.99	28.85	17.06	16.17	33.23
35,632	32,991	68,623	12.81	11.96	24.64	15.42	14.32	29.73
41,495	39,081	80,486	13.82	13.54	26.88	14.39	13.58	27.97
37,256	34,625	71,881	12.61	11.72	24.37	14.35	13.69	28.04
37,466	34,168	71,634	12.89	11.75	24.64	16.25	15.27	31.52
25,415	23,833	49,248	12.20	11.44	23.64	15.65	14.91	30.56
37,774	35,644	73,418	15.40	14.53	29.95	17.32	16.40	33.71
37,344	35,611	72,955	11.02	10.50	21.52	13.59	13.60	26.19
39,111	36,246	75,357	11.82	10.95	22.76	16.55	15.48	32.03
4,187	4,131	8,318	13.29	13.11	26.41	17.88	17.05	34.93
76,822	73,715	150,537	16.05	15.40	31.46	18.07	17.28	35.35
31,024	29,531	60,555	17.65	16.81	34.46	18.81	17.91	36.72
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
310,003	260,797	570,800	14.21	13.34	27.55	16.26	15.35	31.61
178,083	168,135	346,218	16.72	15.79	32.51	19.80	18.23	37.53
631,920	592,802	1,224,582	13.65	12.80	26.45	15.67	14.77	30.44

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

Municipalities.	Still-births.										Percentage of total to live-births.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
al of all municipalities ..	4,662	8,931	553	449	319	276	5	6	5,539	4,662	10,201
											38.9

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

Districts.	(2)	Area in square miles.	(3)	Average estimated mid-year population per square mile.	(4)	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.	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Srikakulam ..	..	3,887	611.07	21,586	21,024	42,610	21,389	19.76	20.54	21.41	19.91	20.64	267	4.46			
Vizhapatnam ..	..	2,565	711.08	15,387	17,869	36,196	19.64	18.47	17.41	21.36	19.70	20.53	271	4.87			
Godavari, East ..	..	2,617	827.27	15,308	14,062	30,060	13.91	13.24	13.57	18.53	17.91	18.23	265	5.64			
Godavari, West ..	..	2,132	660.57	2,022	1,751	3,803	19.25	17.13	18.20	20.80	19.79	20.29	44	8.07			
Krishna ..	..	2,434	179.84	13,254	13,272	26,526	16.40	16.51	16.52	22.28	19.75	19.71	310	7.40			
Peluru ..	..	543	179.84	1,082	1,003	1,955	21.46	18.43	19.95	22.28	21.46	21.86	30	10.56			
Krishna ..	..	3,463	516.40	12,957	12,251	25,238	14.27	13.91	14.08	18.80	18.72	18.76	337	6.40			
Eluru ..	..	5,792	441.40	20,277	19,339	39,616	15.63	15.31	15.49	18.69	18.13	18.52	373	4.82			
Amalapur ..	..	6,731	203.15	10,274	9,321	19,795	16.18	15.51	15.86	24.93	22.28	23.66	195	4.39			
Kurnoor ..	..	7,893	163.63	12,176	11,823	23,999	17.39	17.83	17.54	20.84	21.42	21.12	403	8.29			
Godavari, West ..	..	5,923	196.73	11,859	11,280	23,139	18.39	17.93	18.16	23.79	22.65	23.23	278	6.09			
Madras ..	..	7,570	28,670.42	7,877	17,707	16,844	13.19	13.67	13.42	16.13	16.14	16.14	224	7.24			
Nellore ..	..	7,942	226.47	21,585	20,451	42,039	25.93	29.72	29.30	32.45	32.41	32.43	151	2.49			
Chingleput ..	..	5,054	606.27	14,459	13,088	27,563	13.99	14.62	15.31	17.74	16.78	17.26	316	6.07			
Chittoor ..	..	5,951	536.21	12,582	11,749	24,331	13.56	13.22	13.41	20.17	19.37	19.75	238	6.47			
North Arcot ..	..	4,671	614.12	27,651	26,046	53,697	19.31	18.81	19.06	15.46	15.09	15.25	256	5.30			
South Arcot ..	..	4,203	601.65	25,319	24,046	49,365	18.18	17.31	17.74	18.49	18.48	18.81	378	7.37			
Tanjore ..	..	8,738	901.67	23,189	22,711	45,900	17.08	16.24	16.67	20.62	19.35	19.68	524	9.38			
Trichirappalli ..	..	5,514	535.77	26,348	25,670	52,018	17.90	17.24	17.64	19.56	19.37	19.48	596	8.22			
Madurai ..	..	4,853	595.26	23,067	21,372	44,439	15.94	14.64	15.29	19.56	18.37	18.97	341	4.71			
Ramanathapuram ..	..	4,851	429.95	17,309	17,801	35,110	17.45	15.92	16.66	19.69	18.19	18.92	235	4.71			
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			
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			
Coimbatore ..	..	7,121	464.73	26,171	24,741	50,912	15.75	15.01	15.38	17.01	16.81	16.95	353	4.66			
Nilgris, The ..	..	989	318.63	1,766	1,654	3,420	10.57	11.02	10.82	16.09	17.74	16.85	38	4.46			
Malabar ..	..	5,790	826.59	28,282	27,653	55,935	12.13	11.25	11.68	16.41	15.16	15.78	562	3.71			
South Kanara ..	..	4,045	434.51	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	15.83	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	7.90			

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

Districts inclusive of municipalities.															
Serial number.															
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	Total
1	Srikakulam	..	4,110	2,490	4,405	3,260	3,476	3,519	3,241	3,626	3,719	3,175	2,965	3,624	49,610
2	Vishakhapatnam	..	3,050	2,460	2,893	2,561	2,674	3,034	3,071	3,362	3,630	3,320	2,902	3,002	36,196
3	Godavari, East	{ Plains	2,867	2,446	2,138	2,051	2,171	2,204	2,160	2,970	2,801	2,503	2,461	2,555	30,090
4	Godavari, West	{ Plains	2,276	2,254	1,988	1,866	1,988	1,916	1,600	2,530	2,620	2,377	2,195	2,422	26,556
5	Godavari, West	{ Agency	1,449	2,016	1,988	1,866	1,988	1,916	2,300	2,530	2,620	2,377	2,195	2,422	26,556
5	Krishna	..	1,131	1,188	1,188	1,021	1,087	1,142	1,190	1,284	1,355	1,153	1,180	1,284	1,955
6	Guntur	..	2,199	1,875	1,927	2,072	2,097	1,916	2,091	2,394	2,364	2,170	1,955	2,157	25,338
7	Bellary	..	3,665	3,104	3,884	3,419	3,654	3,110	3,385	3,461	3,364	3,119	2,800	3,029	3,616
8	Anantapur	..	1,908	1,546	1,817	1,575	1,779	1,779	2,096	1,721	1,710	1,536	1,611	1,795	19,795
9	Kurnool	..	1,976	1,885	2,682	2,169	2,027	1,846	2,051	1,860	1,836	1,634	1,674	2,058	23,993
10	Cuddapah	..	1,789	1,905	2,435	1,950	2,031	1,890	2,032	2,021	1,860	1,622	1,390	1,890	23,136
11	Madras	..	2,770	2,550	3,096	2,940	3,442	3,621	3,331	3,738	3,793	3,000	2,490	1,199	1,644
12	Nellore	..	2,712	2,150	2,921	2,791	2,951	2,715	2,748	2,438	2,203	2,356	2,166	4,509	42,039
13	Chingleput	..	3,980	3,515	3,221	2,791	2,951	2,715	2,748	2,438	2,203	2,356	2,166	2,186	27,783
14	Chittoor	..	2,511	2,183	2,413	1,808	1,994	2,115	2,176	2,087	1,861	1,630	1,160	1,908	24,331
15	North Arcot	..	4,757	4,320	4,452	3,930	4,068	4,552	4,178	4,682	4,060	4,417	4,342	4,037	52,939
16	South Arcot	..	6,000	5,561	4,473	3,897	4,079	3,701	3,680	3,914	3,610	3,361	3,394	3,512	40,365
17	Tanjore	..	5,722	5,339	4,718	3,514	4,655	3,915	3,765	3,745	3,470	3,388	3,107	4,285	52,018
18	Trichirappalli	..	4,681	3,815	3,668	3,366	3,323	3,472	3,765	3,639	3,376	3,356	3,107	4,285	44,439
19	Ramanathapuram	..	3,481	3,077	2,092	2,914	3,323	3,169	3,716	3,639	3,376	3,356	3,107	4,285	44,439
20	Tirunelveli	..	3,972	4,800	4,611	3,600	3,932	3,395	3,487	3,757	3,766	3,021	4,039	3,348	52,410
21	Salem	..	4,051	3,541	3,600	3,147	3,632	3,395	3,487	3,757	3,766	3,021	4,039	3,348	52,410
22	Coimbatore	..	5,012	4,221	5,614	5,046	4,569	4,420	3,868	3,791	3,445	3,511	3,273	3,520	50,912
23	The Nilgiris	..	251	240	227	227	385	400	306	219	358	370	370	370	3,410
24	Malabar	..	4,536	4,192	4,349	4,520	5,592	5,988	5,916	5,133	4,234	3,791	3,781	3,833	56,856
25	South Kanara	..	1,870	1,959	1,850	1,354	1,384	1,895	1,937	2,020	1,861	1,801	1,537	1,537	21,091
Total for the State		..	88,540	80,020	90,893	71,981	78,902	76,230	77,087	78,815	74,118	72,030	71,015	76,850	925,981
Rate per thousand of estimated population for the State.		..	15.28	18.20	16.70	15.36	16.29	16.27	15.92	16.28	15.92	14.87	15.15	15.77	16.24
Total for urban areas		..	17,770	16,988	19,016	15,985	17,945	16,440	16,365	16,790	15,637	16,237	17,056	13,540	203,309
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	63,032	62,877	55,996	60,957	59,790	60,722	62,025	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	15.31	14.17	14.15	14.98	15.61

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

Serial number.	Districts exclusive of municipalities and rural towns.	Not exceeding one month.						Over one month and not exceeding six months.						Over six months and not exceeding twelve months.						Serial number.
		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)	(18)	(19)	(20)
1	Srikakulam	810	926	1,736	580	812	1,392	3,12	771	803	1,574	1,446	1,46	1,46	1,46	1,46	1,46	1,46	1	
2	Vishakhapatnam.	642	835	1,477	492	682	1,174	2,651	648	610	1,258	1,079	1,079	1,079	1,079	1,079	1,079	1,079	2	
3	Godavari, East	1,182	598	1,781	847	447	1,294	3,075	482	400	882	692	692	692	692	692	692	692	3	
4	Godavari, West	806	816	1,621	556	602	1,158	2,779	31	38	674	666	666	666	666	666	666	666	4	
5	Krishna	757	848	1,605	589	686	1,285	2,890	675	597	1,272	705	705	705	705	705	705	705	5	
6	Guntur	1,470	957	2,427	1,176	818	1,994	4,421	884	851	1,735	1,386	1,386	1,386	1,386	1,386	1,386	1,386	6	
7	Bellary	1,111	712	1,823	1,030	698	1,728	3,797	272	210	482	420	420	420	420	420	420	420	7	
8	Anantapur	1,207	862	2,069	1,030	698	1,728	3,797	404	309	713	604	604	604	604	604	604	604	8	
9	Kurnool	682	699	1,381	557	620	1,177	2,558	546	498	1,044	563	563	563	563	563	563	563	9	
10	Cuddapah	240	309	549	201	282	486	1,035	318	265	583	583	583	583	583	583	583	583	10	
11	Nellore	891	665	1,554	724	482	1,206	2,760	446	418	864	864	864	864	864	864	864	864	11	
12	Chingleput	1,96	621	1,317	1,181	675	1,856	4,165	277	197	474	474	474	474	474	474	474	474	12	
13	Chittoor	1,401	908	2,309	1,181	675	1,856	4,165	978	847	1,825	1,740	1,740	1,740	1,740	1,740	1,740	1,740	13	
14	North Arcot	314	1,432	1,746	320	1,334	1,654	3,406	3,173	886	1,751	1,482	1,482	1,482	1,482	1,482	1,482	1,482	14	
15	South Arcot	559	1,221	1,780	407	986	1,393	3,173	692	540	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	15	
16	Tanjore	772	1,464	2,236	534	1,161	1,695	3,831	692	540	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	16	
17	Trichirappalli	889	1,016	1,905	727	97	1,705	3,856	311	279	651	651	651	651	651	651	651	651	17	
18	Madurai	685	842	1,527	534	590	1,174	2,701	365	311	676	676	676	676	676	676	676	676	18	
19	Ramanathapuram	124	494	618	87	886	478	1,061	282	279	561	561	561	561	561	561	561	561	19	
20	Tiruchirrelli	851	1,583	2,434	649	1,151	1,890	4,234	786	650	1,386	1,386	1,386	1,386	1,386	1,386	1,386	1,386	20	
21	Salem	320	1,262	1,582	330	1,167	1,497	3,079	874	786	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	21	
22	Coimbatore	742	1,068	1,810	518	926	1,444	3,253	33	34	1,107	1,107	1,107	1,107	1,107	1,107	1,107	1,107	22	
23	Nilgiris, The	..	..	100	51	49	100	200	33	34	1,107	1,107	1,107	1,107	1,107	1,107	1,107	1,107	23	
24	Malabar	1,404	1,112	2,516	1,068	987	2,055	4,571	848	744	1,587	1,587	1,587	1,587	1,587	1,587	1,587	1,587	24	
25	South Kanara	770	629	1,399	533	526	1,059	2,458	248	228	476	476	476	476	476	476	476	476	25	
Total of districts exclusive of municipalities and rural towns.		19,007	22,317	41,324	14,866	15,122	33,058	74,382	13,939	12,866	26,805	21,615	20,664	20,664	20,664	20,664	20,664	20,664	20,664	
Rate per 1,000 live births for age period under one year.		30.06	35.31	65.39	25.20	30.57	55.77	60.74	22.06	21.37	21.78	34.29	34.86	34.86	34.86	34.86	34.86	34.86	34.86	

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.				One and under five years.				Five and under ten years.				Ten and under fifteen years.				Fifteen and under twenty years.					
		Males.		Females.	Total.	Males.		Females.	Total.	Males.		Females.	Total.	Males.		Females.	Total.	Males.		Females.	Total.		
		Columns (8), (10) and (13).	Columns (9), (11) and (14).	Columns (8), (10) and (13).		Columns (9), (11) and (14).	Columns (8), (10) and (13).	Columns (9), (11) and (14).		Columns (8), (10) and (13).	Columns (9), (11) and (14).	Columns (8), (10) and (13).		Columns (9), (11) and (14).	Columns (8), (10) and (13).	Columns (9), (11) and (14).		Columns (8), (10) and (13).	Columns (9), (11) and (14).	Columns (8), (10) and (13).		Columns (9), (11) and (14).	
(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
1	Srikulam	3,953	3,658	7,611	3,020	2,814	1,040	948	1,288	1,155	1,050	1,668	1,918	1,997	1,997	1,997	1,997	1,997	1,997	1,997	1,997	1,997	1,997
2	Vizakham	3,204	2,929	6,133	2,139	2,194	886	662	765	741	385	385	385	385	385	385	385	385	385	385	385	385	385
3	Godavari, East	2,955	2,346	5,371	1,709	1,709	530	528	528	528	528	528	528	528	528	528	528	528	528	528	528	528	528
4	Godavari, West	2,961	2,459	5,420	1,599	1,730	489	480	360	305	280	360	305	280	360	305	280	360	305	280	360	305	280
5	Krishna	2,855	2,548	5,403	1,622	1,667	450	460	259	321	257	349	257	349	257	349	257	349	257	349	257	349	257
6	Guntur	4,800	3,748	8,548	2,771	2,771	707	796	412	416	406	412	416	406	412	416	406	412	416	406	412	416	406
7	Bellary	3,515	1,929	5,444	1,842	1,253	662	675	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525
8	Anantapur	3,077	2,594	5,671	1,812	1,827	662	675	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525
9	Kurnool	2,489	2,284	4,773	1,225	1,174	345	359	567	559	311	567	326	311	567	326	311	567	326	311	567	326	311
10	Cuddapah	1,287	1,188	2,475	1,255	1,174	345	359	567	559	311	567	326	311	567	326	311	567	326	311	567	326	311
11	Nellore	3,602	2,901	6,503	1,724	1,706	492	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446
12	Chingleput	2,248	1,943	4,191	1,362	2,110	787	724	787	724	787	724	787	724	787	724	787	724	787	724	787	724	787
13	Chittoor	3,067	2,405	5,472	1,880	1,887	588	499	588	499	588	499	588	499	588	499	588	499	588	499	588	499	588
14	North Arcot	4,464	4,175	8,639	4,517	4,442	909	951	621	661	544	778	661	544	778	661	544	778	661	544	778	661	544
15	South Arcot	4,148	3,665	7,813	4,207	4,043	1,078	962	649	605	618	743	605	618	743	605	618	743	605	618	743	605	618
16	Tanjore	3,896	3,292	7,188	2,504	2,892	789	775	588	510	497	532	588	510	497	532	588	510	497	532	588	510	497
17	Tiruchirappalli	3,613	3,082	6,695	2,862	2,849	775	775	588	510	497	532	588	510	497	532	588	510	497	532	588	510	497
18	Madurai	2,612	2,145	4,757	2,419	2,145	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666
19	Ramanathapuram	1,556	1,414	2,970	2,069	2,071	652	644	630	629	629	629	629	629	629	629	629	629	629	629	629	629	629
20	Trinnevelly	3,474	3,382	6,856	3,620	3,576	914	890	459	459	459	459	459	459	459	459	459	459	459	459	459	459	459
21	Salem	3,797	3,474	7,271	2,500	2,518	673	679	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
22	Coimbatore	3,506	3,148	6,654	3,404	3,252	673	679	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
23	Nilgiris, The	2,209	2,116	4,325	1,382	1,185	339	46	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
24	Malabar	4,674	4,015	8,689	4,371	4,600	998	1,090	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499
25	South Kanara	2,154	1,741	3,895	1,267	1,409	268	251	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
Total of districts exclusive of municipalities and rural towns.		76,878	60,388	137,266	59,536	53,232	16,019	15,491	12,287	13,206	14,560	16,128	15,491	12,287	13,206	14,560	16,128	15,491	12,287	13,206	14,560	16,128	15,491
Rate per 1,000 live births for age period under one year.		121.65	112.00	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	116.98	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.

Districts exclusive of municipalities and rural towns.	Twenty and under thirty years.		Thirty and under forty years.		Forty and under fifty years.		Fifty and under sixty years.		Sixty years and upwards.		Total of all ages.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
Srikulam	977	1,133	1,639	1,679	1,774	1,560	1,126	939	3,287	3,639	19,704	19,243
Vizianthapuram	776	913	1,173	1,094	1,326	1,069	824	824	3,306	3,605	15,807	15,018
Godavari, East { Plains	649	723	724	843	1,225	1,050	856	694	2,952	3,307	12,578	12,047
Godavari, East { Agency	160	142	120	132	280	215	148	175	427	411	2,022	1,781
Godavari, West { Plains	506	768	558	673	745	645	730	642	3,103	3,195	11,331	11,270
Godavari, West { Agency	83	82	77	74	99	60	75	51	211	191	1,032	1,032
Krishna	486	714	491	623	594	484	634	472	2,806	2,520	10,554	10,053
Guntur	764	1,081	921	959	742	742	634	866	4,390	4,139	16,655	16,032
Bellary	386	446	594	694	716	618	866	866	1,048	1,081	8,395	7,861
Anantapur	527	657	735	798	830	698	679	564	1,441	1,370	10,821	10,433
Kurnool	547	755	584	647	767	611	774	540	1,599	1,525	6,757	6,757
Cuddapah	354	604	516	543	618	471	618	408	3,629	3,178	14,979	13,568
Nellore	643	768	697	749	914	732	995	728	3,377	2,988	12,374	11,171
Chingleput	657	711	1,143	1,143	1,577	1,270	1,787	925	3,377	2,988	14,979	13,568
Chittoor	533	692	958	958	1,113	909	1,035	787	1,679	1,468	11,541	10,763
North Arcot	1,095	1,424	1,251	1,281	1,550	1,381	1,353	1,035	5,764	4,927	22,655	21,349
South Arcot	1,222	1,658	1,550	1,580	1,784	1,633	1,578	1,388	5,295	4,645	22,314	21,242
Tanjore	922	1,460	1,554	1,584	1,990	1,633	1,578	1,390	5,826	5,455	20,851	19,139
Tiruchirappalli	1,135	1,581	1,697	1,697	2,239	2,017	1,878	1,605	5,383	5,455	20,340	19,139
Madurai	917	991	1,067	1,085	1,266	1,266	1,109	967	3,629	3,688	15,080	13,928
Ramanathapuram	606	698	1,077	1,056	1,253	1,183	997	874	2,780	2,881	12,355	12,323
Tirunelveli	1,023	1,488	1,499	1,499	1,830	1,566	1,374	1,365	5,174	5,341	19,536	19,170
Salem	970	1,190	1,159	1,227	1,508	1,391	1,786	1,705	4,246	4,732	17,812	17,508
Coimbatore	963	1,121	1,193	1,193	1,508	1,391	1,786	1,705	4,246	4,732	17,812	17,508
Nilgiris, The	36	25	54	54	1,761	1,322	1,131	44	220	177	966	887
Malabar	1,282	1,395	1,446	52	87	69	62	44	6,201	6,396	24,053	23,781
South Kanara	430	534	543	1,598	2,059	1,718	1,376	1,677	2,199	2,581	8,913	9,284
Total of districts exclusive of municipalities and rural towns.	18,702	23,237	22,874	25,660	31,063	26,446	27,059	22,617	88,307	87,072	367,905	354,677
Rate per 1,000 live births for age (Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available.) period under one year.												

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.				Over one month and not exceeding six months.				Over six months and not exceeding twelve months.				
		Males.		Females.		Males.		Females.		Males.		Females.		
		Under one week.	Over one week.	Total.	Under one week.	Over one week.	Total.	Under one week.	Over one week.	Total.	Under one week.	Over one week.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Srikulam	91	73	164	60	51	111	275	115	125	340	138	148	286
2	Vishakapatnam	174	137	311	125	105	230	541	208	203	411	197	215	412
3	West Godavari	157	75	232	188	69	207	439	153	140	293	200	178	378
4	East Godavari	124	59	183	81	54	135	222	122	95	217	102	108	210
5	Krishna	195	98	293	153	85	238	521	136	122	275	137	142	299
6	Guntur	232	156	388	239	123	362	800	190	186	346	221	181	402
7	Bellary	145	87	232	119	63	173	300	128	88	218	110	105	215
8	Anantapur	69	145	214	125	55	173	223	53	70	158	79	72	161
9	Kurnool	115	66	181	86	44	130	211	85	74	135	100	72	172
10	Chittoor	68	38	106	62	36	98	171	55	63	118	57	72	129
11	Nellore	111	71	182	80	68	151	304	171	168	340	157	149	306
12	Chingleput	142	69	211	111	43	154	365	96	95	191	90	99	189
13	Chittoor	135	106	241	109	93	202	443	138	140	298	138	164	322
14	North Arcot	82	39	121	62	23	85	246	32	47	99	37	38	75
15	South Arcot	246	219	465	189	169	358	823	357	321	678	328	341	669
16	Tanjore	149	110	259	104	95	199	468	155	147	302	186	160	346
17	Tiruchirappalli	346	219	565	277	208	480	1,045	284	215	490	237	249	486
18	Tiruchirappalli	218	195	413	179	157	336	749	245	183	388	208	253	431
19	Madurai	491	391	882	360	317	677	1,559	451	422	873	338	354	822
20	Ramanathapuram	250	245	495	186	178	364	899	371	351	702	341	393	734
21	Tamil Nadu	452	455	907	325	379	704	1,611	371	173	546	207	204	411
22	Tamil Nadu	138	130	268	159	119	277	545	45	382	817	301	413	804
23	Coimbatore	490	312	802	376	212	588	1,399	45	45	93	45	50	95
24	Nilgiris, The	67	53	120	62	34	96	216	20	204	413	206	216	422
25	Malabar	201	145	346	179	120	299	645	73	68	141	66	65	131
26	South Kanara	85	43	128	66	38	104	232	73	68	141	66	65	131
	Total for municipalities and rural towns	6,047	4,320	10,367	4,792	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	59.23	28.15	20.76	48.91	53.70	35.45	34.85	35.16	34.38	36.64	35.48
	Total for the State	23,054	26,087	51,091	19,068	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	24.85	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.				One and under five years.				Five and under ten years.				Ten and under fifteen years.				Fifteen and under twenty years.			
		Males.		Females.		Total.	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	Males.	Females.		
		Columns (5), (10) and (13).	Columns (6), (11) and (14).	Columns (7), (12) and (15).	Columns (8), (13) and (16).																
1	Srikulam ..	417	384	801	320	261	99	126	126	151	137	65	50	86	110	113	74	74	78		
2	Vishakhapatnam ..	585	525	1,110	406	412	161	137	137	161	137	82	78	106	108	108	88	88	88		
3	East Godavari ..	411	338	749	264	279	84	89	89	84	89	55	52	67	67	67	55	55	55		
4	West Godavari ..	568	502	1,070	352	329	138	144	144	138	144	78	78	98	98	98	65	65	65		
5	Krishna ..	849	699	1,548	512	474	153	70	78	153	144	51	50	65	65	65	33	33	33		
6	Guntur ..	473	366	839	315	308	91	78	78	91	78	33	31	41	41	41	27	27	27		
7	Bellary ..	290	237	527	264	223	60	56	56	60	56	34	34	34	34	34	27	27	27		
8	Anantapur ..	218	233	451	124	124	75	66	66	75	66	34	34	34	34	34	27	27	27		
9	Kurnool ..	512	470	982	357	323	116	101	101	116	101	52	52	52	52	52	36	36	36		
10	Cuddapah ..	397	343	740	277	277	159	144	144	159	144	79	79	79	79	79	52	52	52		
11	Nellore ..	557	506	1,063	429	443	159	144	144	159	144	79	79	79	79	79	52	52	52		
12	Chingleput ..	210	170	380	112	113	51	41	41	51	41	25	25	25	25	25	14	14	14		
13	Chittoor ..	1,150	1,020	2,170	794	794	203	203	203	203	203	143	143	143	143	143	81	81	81		
14	North Arcot ..	600	506	1,106	448	448	171	149	149	171	149	89	89	89	89	89	55	55	55		
15	South Arcot ..	1,086	944	2,030	722	722	241	196	196	241	196	129	129	129	129	129	81	81	81		
16	Tanjore ..	826	742	1,568	570	570	241	196	196	241	196	129	129	129	129	129	81	81	81		
17	Tiruchirappalli ..	1,721	1,533	3,254	1,462	1,462	526	448	448	526	448	268	268	268	268	268	148	148	148		
18	Madurai ..	1,083	918	2,001	722	722	241	196	196	241	196	129	129	129	129	129	81	81	81		
19	Ramanathapuram ..	1,599	1,445	3,044	1,125	1,125	426	358	358	426	358	211	211	211	211	211	127	127	127		
20	Tamil Nadu ..	651	654	1,305	475	475	181	164	164	181	164	107	107	107	107	107	63	63	63		
21	Salem ..	1,637	1,383	3,020	1,135	1,135	426	358	358	426	358	211	211	211	211	211	127	127	127		
22	Coimbatore ..	216	188	404	151	151	58	58	58	58	58	31	31	31	31	31	15	15	15		
23	Nilgiris ..	761	719	1,480	506	506	195	166	166	195	166	76	76	76	76	76	45	45	45		
24	Malabar ..	267	237	504	182	182	66	56	56	66	56	29	29	29	29	29	16	16	16		
25	South Kanara ..	22,796	20,224	43,020	18,793	19,124	4,940	4,770	4,770	4,940	4,770	2,327	2,530	2,530	2,530	2,530	1,614	1,614	1,614		
26	Total for municipalities and rural towns.	128,06	120,40	248,46	99,674	99,674	38,612	38,612	38,612	38,612	38,612	17,234	17,234	17,234	17,234	17,234	10,669	10,669	10,669		
	Rate per 1,000 live births for age periods under one year.	128.06	120.40	248.46	99.674	99.674	38.612	38.612	38.612	38.612	38.612	17.234	17.234	17.234	17.234	17.234	10.669	10.669	10.669		
	Total for the State ..	123,06	113,85	236,91	87,540	87,540	33,849	33,849	33,849	33,849	33,849	15,736	15,736	15,736	15,736	15,736	9,669	9,669	9,669		
	Rate per 1,000 live births for age periods under one year.	123.06	113.85	236.91	87.540	87.540	33.849	33.849	33.849	33.849	33.849	15.736	15.736	15.736	15.736	15.736	9.669	9.669	9.669		

(Rates for the age groups above one year have not been calculated as the figures for population for the age groups are not available).

(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 20 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.		
1	Srikakulam ..	131	137	128	142	145	116	143	110	348	345	1,882	(36)
2	Vizakhapatnam ..	218	257	233	193	271	137	253	121	600	639	1,781	(37)
3	East Godavari ..	186	254	230	172	251	165	238	121	608	639	3,080	(38)
4	West Godavari ..	122	193	124	158	158	138	173	122	501	542	2,820	(39)
5	Krishna ..	150	218	171	144	192	132	173	122	501	542	1,953	(40)
6	Guntur ..	241	314	243	287	330	217	302	188	611	732	2,403	(41)
7	Bellary ..	129	172	130	129	146	82	158	96	374	309	3,622	(42)
8	Anantapur ..	75	121	65	85	102	74	114	57	290	200	1,879	(43)
9	Kurnool ..	87	160	115	106	104	71	112	48	245	230	1,353	(44)
10	Cuddapah ..	70	110	77	76	101	63	115	67	272	241	1,231	(45)
11	Nellore ..	1,060	1,451	1,451	1,244	1,680	968	1,076	1,085	3,409	3,310	21,588	(46)
12	Chingleput ..	146	199	176	177	161	140	179	105	466	398	2,111	(47)
13	Chittoor ..	179	276	211	203	221	165	236	169	654	560	2,822	(48)
14	North Arcot ..	54	96	75	95	90	58	79	58	311	233	1,041	(49)
15	South Arcot ..	314	399	306	362	383	273	453	315	1,100	999	4,703	(50)
16	Tanjore ..	225	304	283	261	277	180	298	200	608	554	3,005	(51)
17	Tiruchirappalli ..	380	535	481	431	558	455	666	428	1,433	1,463	5,860	(52)
18	Madurai ..	423	583	501	501	565	428	506	376	1,318	1,233	5,330	(53)
19	Ramanathapuram ..	581	647	579	562	726	465	751	491	1,427	1,405	7,444	(54)
20	Tirunelveli ..	262	352	317	385	419	326	417	321	1,022	1,140	5,044	(55)
21	Salem ..	375	561	413	515	544	386	674	491	1,506	1,652	6,941	(56)
22	Coimbatore ..	207	221	205	189	256	178	274	195	684	641	3,047	(57)
23	Nilgiris, The ..	399	602	397	452	475	353	588	337	1,243	1,205	6,663	(58)
24	Malabar ..	46	60	55	37	63	54	57	36	134	172	790	(59)
25	South Kanara ..	345	349	399	297	378	268	365	224	761	740	4,179	(60)
26	South Kanara ..	142	126	116	113	117	87	143	94	315	341	1,449	(61)
Total for municipalities and rural towns.		6,790	8,906	7,377	7,259	8,603	5,970	9,039	6,005	20,993	20,658	104,412	98,987
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	85.73	3	187.5	2	285.7	..	..	75	89.89
Salur ..	135	274.95	1	125.0	..	..	..	..	136	272.54
Vizakhapatnam district—										
Vizakhapatnam ..	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	28.33	..	..	304	106.44
Gudivada ..	113	101.71	9	89.11	2	16.26	..	..	124	92.88
Guntur district—										
Guntur ..	292	74.78	69	85.73	49	78.23	..	..	410	74.86
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	115.83	5	74.63	..	..	274	117.19
Adoni ..	88	73.15	38	63.23	..	..	..	..	126	69.23
Hospet ..	124	127.17	20	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	137.23
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	138.31	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
Tirupattur ..	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	83.24	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	129.61
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	108.89
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	96.81	65	66.67	..	..	1,973	118.15
Dindigul ..	239	121.32	32	92.49	46	111.65	..	..	317	116.20
Bodinayakanur ..	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
Kodalkanal ..	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	137.98	..	..	263	137.84
Tirunelveli district—										
Tuticorin ..	505	194.38	29	174.70	103	113.94	..	..	637	173.16
Tirunelveli ..	308	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	..	..	134	106.87

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	138.66
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	62.93	58	127.19	9	54.22	..	..	132	70.58
Cannanore ..	37	64.01	61	95.91	5	55.56	..	..	103	78.63
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	39.58	309	67.01
Udipi ..	62	81.79	4	65.99	6	45.44	..	..	72	74.46
Grand total ..	27,754	126.43	3,861	125.87	1,469	127.35	52	99.23	331,36	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.		Muslims.		Hindus.		Other Classes.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Srikakulam	54	55	39	34	21,475	20,923	18	12
2	Visakhapatnam	36	30	151	125	18,192	17,642	14	12
3	East Godavari Plains	177	135	285	254	14,921	14,282	15	21
4	Do. Agency	13	11	42	25	1,955	1,725	12	20
5	West Godavari Plains	646	612	206	214	12,367	12,381	65	65
6	Do. Agency	15	13	21	18	1,015	869	1	3
7	Krishna	1,038	944	711	593	11,190	10,664	53	30
8	Guntur	2,335	2,238	1,554	1,607	16,299	15,420	89	50
9	Bellary	66	69	909	803	9,276	8,627	23	74
10	Anantapur	36	33	983	977	11,055	10,733	102	22
11	Kurnool	928	862	1,656	1,530	9,101	8,722	174	80
12	Cuddapah	381	371	957	931	6,381	6,316	158	166
13	Madras	1,011	972	2,114	1,915	18,462	17,561	1	8
14	Nellore	728	674	1,007	924	12,578	11,343	174	141
15	Chingleput	281	285	313	300	17,082	15,527	125	157
16	Chittoor	58	36	641	588	11,807	11,053	76	72
17	North Arcot	328	344	1,415	1,357	25,746	24,428	162	159
18	South Arcot	447	446	424	453	24,203	22,922	245	225
19	Tanjore	814	824	1,369	1,528	22,927	22,300	19	59
20	Tiruchirappalli	1,058	1,182	958	976	24,318	23,493	26	19
21	Madurai	718	658	906	953	21,417	19,732	36	29
22	Ramanathapuram	580	630	733	825	16,050	15,300	57	46
23	Tirunelveli	2,233	2,381	1,193	1,295	22,846	22,431	104	96
24	Salem	180	202	459	421	20,116	19,656	109	120
25	Coimbatore	388	354	682	714	24,992	28,553	12	10
26	Nilgiris, The	221	202	141	172	1,382	1,270	10	4
27	Malabar	1,047	932	9,057	8,718	18,118	17,999	6	7
28	South Kanara	755	826	1,880	1,364	8,221	8,532		
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.		Muslims.		Hindus.		Other classes.*	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	Srikakulam	12.36	12.04	7.37	9.16	21.44	19.78	..	..
2	Visakhapatnam	6.05	6.00	11.69	9.21	19.82	18.64	..	..
3	East Godavari Plains	8.37	6.35	17.74	16.04	13.95	13.31	..	..
4	Do. Agency	4.86	4.17	45.65	29.10	19.29	17.24	..	..
5	West Godavari Plains	14.03	10.00	13.00	13.25	16.67	16.81	..	..
6	Do. Agency	13.08	13.31	17.71	17.14	21.74	21.59	..	..
7	Krishna	11.30	10.77	14.17	12.22	14.58	14.32	..	..
8	Guntur	12.51	12.81	14.70	15.35	16.18	15.68	..	..
9	Bellary	9.13	9.88	13.04	11.92	16.64	15.91	..	..
10	Anantapur	4.25	6.32	12.72	14.02	17.88	18.25	..	..
11	Kurnool	19.34	19.93	18.27	17.09	22.51	21.51	..	..
12	Cuddapah	14.14	12.51	12.22	12.02	12.97	13.69	..	..
13	Madras	16.79	18.83	27.15	29.99	30.67	30.88	..	..
14	Nellore	12.97	13.64	13.51	13.18	16.23	14.62	..	..
15	Chingleput	14.04	14.41	14.85	14.55	18.96	17.78	..	..
16	Chittoor	6.41	3.74	11.43	10.55	13.69	12.79	..	..
17	North Arcot	14.51	13.62	14.00	13.40	19.65	18.71	..	..
18	South Arcot	14.84	13.13	13.51	13.18	16.23	14.62	..	..
19	Tanjore	16.60	16.57	16.35	14.39	19.30	16.33	..	..
20	Tiruchirappalli	15.38	16.52	16.13	16.19	18.10	17.22	..	..
21	Madurai	14.03	12.86	15.21	15.78	16.03	14.64	..	..
22	Ramanathapuram	11.47	11.68	11.45	9.17	18.19	16.57	..	..
23	Tirunelveli	17.36	15.75	16.04	15.19	23.11	21.82	..	..
24	Salem	15.31	15.89	9.75	9.27	12.27	12.06	..	..
25	Coimbatore	10.25	9.63	15.63	17.63	15.82	15.06	..	..
26	Nilgiris, The	10.02	9.36	10.58	15.36	10.55	10.80	..	..
27	Malabar	13.20	12.07	11.58	10.64	12.35	11.53	..	..
28	South Kanara	10.16	10.17	11.29	10.53	12.76	12.28	..	..
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.

Serial number.	Districts and towns.	Births.				Deaths.			
		Males.		Females.		Cholera.		Plague.	
		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Srikakulam	28,238	26,602	28,238	26,602	526	1,082	164	164
2	Visakhapatnam	23,568	22,377	23,568	22,377	35	264	106	106
3	East Godavari Plains	19,921	17,044	19,921	17,044	287	171	212	212
4	Do. Agency	18,073	17,158	18,073	17,158	44	46	51	51
5	West Godavari Plains	14,551	13,374	14,551	13,374	116	286	128	128
6	Krishna	21,466	19,375	21,466	19,375	16	38	41	41
7	Guntur	31,620	29,513	31,620	29,513	161	515	124	124
8	Bellary	18,341	17,378	18,341	17,378	136	169	85	85
9	Anantapur	22,800	20,841	22,800	20,841	225	384	167	167
10	Kurnool	19,955	18,335	19,955	18,335	227	384	384	384
11	Cuddapah	18,942	17,687	18,942	17,687	227	384	384	384
12	Nellore	21,756	20,498	21,756	20,498	227	384	384	384
13	Chingleput	17,454	16,770	17,454	16,770	227	384	384	384
14	Chittoor	29,625	27,795	29,625	27,795	227	384	384	384
15	North Arcot	33,155	31,387	33,155	31,387	227	384	384	384
16	South Arcot	30,843	28,150	30,843	28,150	227	384	384	384
17	Tanjore	30,857	28,954	30,857	28,954	227	384	384	384
18	Tiruchirappalli	30,857	28,954	30,857	28,954	227	384	384	384
19	Madurai	29,892	28,536	29,892	28,536	227	384	384	384
20	Ramanathapuram	29,892	28,536	29,892	28,536	227	384	384	384
21	Tirunelveli	29,892	28,536	29,892	28,536	227	384	384	384
22	Salem	27,749	26,168	27,749	26,168	227	384	384	384
23	Coimbatore	31,365	29,753	31,365	29,753	227	384	384	384
24	Nilgiris, the	27,756	26,168	27,756	26,168	227	384	384	384
25	Malabar	2,334	2,310	2,334	2,310	227	384	384	384
26	South Kanara	67,867	65,181	67,867	65,181	227	384	384	384
Total of rural areas		631,920	592,662	631,920	592,662	14,162	13,010	38	4,157
Total of urban areas		48,377,000	48,377,000	48,377,000	48,377,000	1,162	1,162	1,162	1,162

A. RURAL DISTRICTS.
(Districts exclusive of municipalities and rural towns.)

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

Serial number.	Districts and towns.	Births.			Total.	Birth-rate per 1,000 of mid-year population.	Deaths.				
		Male.	Females.				Cholera.	Smallpox.	Plague.	Malaria.	Fever.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
B. TOWNS.											
Srikakulam.											
1	M.T.C. Srikakulam	24,300	431	408	839	34.52	2	20	..	6	47
2	M.T.C. Salur ..	21,500	272	226	498	20.37	7	138	..	..	139
3	T.C. Palakonda ..	14,800	252	198	450	30.82	10	46	..	..	126
4	T.C. Vayalattam ..	7,700	107	102	209	28.84	..	30	..	13	86
5	T.C. Parvatipur ..	21,200	233	202	435	20.52	4	53	..	2	150
6	T.C. Narasannapeta ..	9,620	121	114	235	24.44	1	15	..	3	77
7	T.C. Ichapuram ..	11,400	124	125	249	21.84	20	8	..	2	45
8	T.C. Sompet ..	9,610	170	109	279	29.04	..	32	..	2	68
9	T.C. Barva ..	7,800	137	140	277	35.51	..	91	..	2	87
*10	T.C. Mandasa ..	5,670	94	93	187	32.99	17	5	..	..	64
11	T.C. Tekkali ..	10,100	146	127	273	27.08	14	3	..	..	80
12	T.C. Bobbili ..	23,100	277	302	579	25.06	..	54	..	..	107
13	T.C. Rajam ..	6,550	101	101	202	30.85	11	9	..	..	40
Vizianagaram.											
14	M.T.C. Vizianagaram	109,800	1,738	1,589	3,327	30.43	..	71	..	2	364
15	M.T.C. Vizianagaram ..	67,600	1,186	1,093	2,279	33.71	..	29	..	7	166
16	M.T.C. Anaparthi ..	40,500	696	621	1,317	31.77	5	84	..	58	125
17	M.T.C. Bheemipatnam	10,500	203	182	385	36.67	..	2	..	..	8
18	T.C. Narasannapeta ..	17,700	161	170	331	19.21	..	..	..	..	80
19	T.C. Nallandhilly ..	12,100	155	159	314	25.95	..	2	..	..	60
20	T.C. Singavaramkota ..	8,770	115	104	219	24.97	..	..	..	..	43
21	T.C. Chodavaram ..	14,100	148	128	276	19.92	..	..	..	..	35
22	T.C. Madugula ..	8,400	108	107	215	25.59	..	..	..	..	45
Godavari, East.											
23	M.T.C. Kakinada ..	100,800	1,352	1,339	2,691	26.70	..	100	..	19	168
24	M.T.C. Rajahmundry ..	106,300	1,737	1,644	3,381	31.81	8	102	..	10	224
25	M.T.C. Piddapuram ..	28,400	371	365	736	31.46	..	5	..	3	50

26	M.T.C. Anaparthi ..	21,300	283	281	564	26.48	3	14	..	..	..	..	17	26
27	T.C. Somakota ..	21,000	9	17	26	0.91	..	..	..	..	..	..	2	27
28	T.C. Piddapuram ..	22,200	132	114	246	11.07	..	..	..	..	..	..	79	28
29	T.C. Tuni ..	15,600	116	106	222	11.93	13	9	..	..	..	..	60	29
30	T.C. Munidivaram ..	11,400	52	40	101	8.86	2	..	..	..	..	..	12	30
31	T.C. Mandasa ..	14,200	24	21	47	3.09	..	..	..	..	..	..	18	31
32	T.C. Nallandhilly ..	18,900	24	24	58	4.11	..	..	..	..	..	..	6	32
33	T.C. Nachavaram ..	15,000	47	55	102	11.36	..	..	..	..	..	..	31	33
34	T.C. Bheemipatnam ..	12,600	70	62	132	8.46	..	3	..	..	..	..	20	34
35	T.C. Bheemipatnam ..	12,600	42	24	66	5.24	..	..	..	..	..	..	4	35
36	T.C. Bheemipatnam ..	5,900	75	50	125	21.10	..	..	..	..	..	..	10	36
37	T.C. Kothapeta ..	6,400	42	38	80	14.95	5	1	..	..	..	..	8	37
38	T.C. Kothapeta ..	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	..	..	..	..	196	39
40	M.T.C. Palacole ..	31,300	373	338	706	30.56	..	66	..	..	..	..	40	40
41	M.T.C. Bheemipatnam ..	21,300	131	137	268	15.26	..	13	..	..	..	..	149	41
42	T.C. Penugonda ..	12,300	192	185	377	17.78	..	2	..	..	..	..	7	42
43	T.C. Narasannapeta ..	11,000	62	62	124	13.09	..	3	..	..	..	..	68	43
44	T.C. Taduku ..	17,000	329	295	624	36.70	..	..	..	..	..	..	10	44
45	T.C. Taduku ..	9,650	58	57	115	11.91	..	..	..	..	..	..	32	45
46	T.C. Achanta ..	11,400	122	139	261	23.89	..	..	..	..	..	..	37	46
47	T.C. Velpuru ..	11,700	173	156	328	25.93	..	1	..	..	..	..	41	47
48	T.C. Nidadavole ..	9,500	128	123	257	27.38	..	10	..	..	..	..	22	48
49	T.C. Belangi ..	12,400	124	120	244	19.68	..	2	..	..	..	..	49	49
50	T.C. Kovvur ..	7,160	94	90	189	26.40	..	..	..	..	..	..	23	50
51	T.C. Maruturu ..	..	..	..	..	..	..	..	..	..	..	..	13	51
Krishna.														
52	M.T.C. Vijayavada ..	163,700	2,039	1,837	3,876	23.68	1	39	..	..	..	..	294	52
53	M.T.C. Masulipatnam ..	78,600	1,496	1,380	2,876	36.33	2	52	..	..	..	..	134	53
54	M.T.C. Guntur ..	32,200	719	616	1,335	41.47	1	21	..	..	..	..	94	54
55	T.C. Nuzvid ..	17,000	176	152	328	19.29	..	..	..	..	..	..	47	55
56	T.C. Jaggaipateta ..	12,900	134	122	256	19.85	..	1	..	..	..	..	25	56
57	T.C. Pamaru ..	10,200	126	106	232	22.75	..	2	..	..	..	..	40	57
58	T.C. Vallyuru ..	10,500	142	140	282	26.86	..	..	..	..	..	..	37	58
59	T.C. Pedana ..	11,700	168	127	295	24.36	..	..	..	..	..	..	31	59
60	T.C. Vayyuru ..	14,600	329	303	623	42.67	4	7	..	..	..	..	37	60
Guntur.														
61	M.T.C. Guntur ..	126,600	2,843	2,634	5,477	43.26	60	44	..	..	..	..	349	61
62	M.T.C. Tenali ..	58,700	1,044	930	1,974	33.64	10	24	..	..	..	..	100	62
63	M.T.C. Ongole ..	28,000	680	680	1,360	48.99	4	8	..	..	..	..	28	63
64	M.T.C. Narasannapet ..	22,400	477	429	906	40.44	..	25	..	..	..	..	78	64
65	M.T.C. Chitla ..	38,100	404	509	1,003	26.33	..	..	..	..	..	..	90	65
66	T.C. Bapatla ..	28,000	191	173	364	15.83	..	..	..	..	..	..	29	66
67	T.C. Bapatla ..	14,700	146	130	276	18.77	..	1	..	..	..	..	54	67
68	T.C. Velapalem ..	18,100	240	227	467	25.80	..	10	..	..	..	..	43	68
69	T.C. Ponnuru ..	17,700	162	159	321	17.01	..	37	..	..	..	..	66	69
70	T.C. Masabagiri ..	14,100	298	276	574	40.71	..	..	..	..	..	..	66	70
71	T.C. Cheluru ..	12,100	198	173	366	30.25	1	1	..	..	..	..	48	71
72	T.C. Vinukonda ..	10,100	106	92	199	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.	District and towns.	Deaths—cont.										Total deaths from all causes.	Serial number.
		Suicides.			Injuries.			Total.	All other causes.				
		(13)	(14)	(15)	(16)	(17)	(18)			(19)	(20)			(21)
Dysentery and diarrhoea.	Respiratory diseases.	Males.	Females.	Wounds and accidents.	Snakes bite and killed by wild beasts.	Rabies.							
B. TOWNS—cont.													
MUNICIPALITIES AND RURAL TOWNS—cont.													
Srikalahasti.													
1	M.T.C. Srikalahasti	35	40	3	1	11	1	4	15	216	381		
2	M.T.C. Satur	37	33		1	1	1		5	153	505		
3	T.C. Pakonda	19	23						2	128	333		
4	T.C. Viraghatam	2	2		1					6	156		
5	T.C. Parvatipur	9	15	1	1		1	1	4	133	370		
6	T.C. Narasannapeta	17	10	3	1		1		4	98	230		
7	T.C. Narasannapeta	25	4						6	104	208		
8	T.C. Ichchapuram	37	10	2		4		2	3	94	190		
9	T.C. Sompetta	30	22		1				8	87	329		
10	T.C. Baruva	12	17							59	174		
11	T.C. Mandasa	19	20							87	208		
12	T.C. Tekkali	41	44	1	2	1			4	208	458		
13	T.C. Bobbili	1	4							51	122		
	T.C. Rajam												
Vishakhapatnam.													
14	M.T.C. Vishakhapatnam	141	368	1		30	1	7	39	1,284	2,264		
15	M.T.C. Vizianagaram	138	168	1		22	3	4	27	1,024	1,601		
16	M.T.C. Anakapalle	130	133	1	4	3		1	17	140	214		
17	M.T.C. Bheemunipatnam	24	40			4			6	96	189		
18	T.C. Narasannapeta	2	5		1		1		3	101	179		
19	T.C. Yellamanchili	11	9		2	2	1		5	57	124		
20	T.C. Srungavarapukota	5	22	1	1	1			3	105	190		
21	T.C. Chodavaram	26		1	1	1			7	74	129		
22	T.C. Madugula	3		5									
Godavari, East.													
23	M.T.C. Kakinada	77	83	1	1	8	1	2	13	1,111	1,371		
24	M.T.C. Rajahmundry	172	198		1	19		1	22	1,470	2,206		
25	M.T.C. Peddapuram	61	35	1	1	1			3	252	409		
Godavari, West.													
26	M.T.C. Anaparthi	17	26			3			3	177	319		
27	T.C. Sankota	2	5			1				6	17		
28	T.C. Pithapuram	3	14			1			1	57	154		
29	T.C. Tuni	22	17			3			3	61	194		
30	T.C. Munmidivaram	9	6						1	45	73		
31	T.C. Mandapeta	5	7							12	47		
32	T.C. Dowlaishawaram	1	6							19	33		
33	T.C. Machavaram	17	36						1	17	92		
34	T.C. Ramachandrapuram	15	36	1	1	3	1		4	48	126		
35	T.C. Biccavolu	4	4	1	1				1	39	63		
36	T.C. Kottapeta	3	11							38	71		
37	T.C. Kozole	5	12			1			2	78	116		
38	T.C. Yelleswaram	1								6			
Godavari, West.													
39	M.T.C. Eluru	51	143	2		37	1		38	1,000	1,510		
40	M.T.C. Palacole	33	52			1			3	226	420		
41	M.T.C. Bhimavaram	41	26	1		2			4	76	311		
42	T.C. Pengonda	16	15	2	1	2			4	134	169		
43	T.C. Narsapur	5	22	2					1	233	233		
44	T.C. Atkili	5	11			4			4	49	77		
45	T.C. Tanuku	5	19							228	298		
46	T.C. Achanta	5	2						1	44	88		
47	T.C. Velpuru	12	19				1		1	120	168		
48	T.C. Nidadavole	11	8	1		1			1	102	167		
49	T.C. Relangi	2	5	1		5			1	132	205		
50	T.C. Kovvur	8	5			1			1	117	153		
51	T.C. Maruturu	2	5	1		1			2	131	161		
Krishna.													
52	M.T.C. Vijayavada	108	251	1	2	26			28	1,260	1,988		
53	M.T.C. Machilipatnam	39	125	2		18			21	948	1,339		
54	M.T.C. Gudivada	23	38			6			8	288	477		
55	T.C. Nuzvid	6	30	1		1			1	72	156		
56	T.C. Jaggaipeta	2	6	1					1	107	142		
57	T.C. Pamaru	1	6			2			2	55	106		
58	T.C. Valluru	2	16			2			3	52	108		
59	T.C. Pedana	7	14		1				1	47	105		
60	T.C. Vuyyuru									122	180		
Guntur.													
61	M.T.C. Guntur	125	265	8	2	50	3		64	1,157	2,067		
62	T.C. Tenali	40	131	2		7			10	521	860		
63	M.T.C. Ongole	36	97	1	2	13			17	450	64		
64	M.T.C. Narsaraopet	9	37	1		4			6	222	377		
65	M.T.C. Chirala	31	75							302	534		
66	T.C. Velpet	11	15	1					1	124	179		
67	T.C. Vissapalem	12	4	1					1	105	192		
68	T.C. Ponnur	8	19	1		7			1	99	181		
69	T.C. Mangalagiri	2	12	4	2				14	103	234		
70	T.C. Chebrolu	1	7						1	142	218		
71	T.C. Addanki	28	28							88	205		
72	T.C. Vinukonda	4	14							76	153		

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.														Number of maternal deaths.	Rate per 1,000 births (live and still).
		(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	15.68	14.18	12	13.42			
2	M.T.C. Salur	..	5.68	..	..	5.67	1.51	1.35	0.20	6.23	20.61	17.31	2	3.97			
3	T.C. Palakonda	..	2.05	..	..	8.63	1.30	1.53	0.14	3.77	23.15	24.35	6	13.16			
4	T.C. Viraghatnam	..	5.91	..	1.66	11.04	0.26	0.26	0.77	0.77	19.90	17.83	..	..			
5	T.C. Parthapur	..	2.50	..	0.09	7.08	0.42	0.71	0.18	6.27	17.45	14.36	..	11.44			
6	T.C. Karasannapeta	..	1.56	..	0.83	8.01	1.77	1.04	0.41	10.19	23.02	20.86	2	8.40			
7	T.C. Ichapuram	..	0.70	..	0.17	3.94	2.19	0.35	3.94	9.12	18.25	13.94	7	3.97			
8	T.C. Sompeta	..	3.33	..	..	7.08	1.77	1.04	0.62	5.93	19.78	19.23	..	..			
9	T.C. Baruva	..	11.67	..	0.25	11.15	8.84	2.82	0.38	12.05	42.18	12.59	1	3.57			
*10	T.C. Mandasa	..	0.88	..	..	11.28	2.11	3.00	..	10.41	30.69	12.37	1	5.32			
11	T.C. Tekkali	..	1.38	..	..	5.94	1.88	1.98	0.47	8.61	20.10	18.40	4	14.65			
12	T.C. Bobbili	..	2.33	..	..	4.63	1.77	1.90	0.17	9.00	19.83	21.88	5	8.39			
13	T.C. Rajam	..	1.37	..	..	6.11	1.06	0.61	..	7.78	18.68	23.94	1	4.93			
Visakhapatnam.																	
14	M.T.C. Visakhapatnam	..	0.65	..	0.02	3.33	1.39	3.32	0.36	11.74	20.71	22.22	52	15.44			
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			
16	M.T.C. Anakapalle	..	0.12	..	1.43	3.09	3.20	3.28	0.42	10.39	24.2	23.18	12	8.83			
17	M.T.C. Bheemunipatnam	..	0.19	..	..	0.76	2.28	3.30	0.33	13.33	20.38	18.84	1	2.48			
18	T.C. Narasipatnam	..	..	..	..	4.52	0.11	0.28	0.34	5.42	10.67	10.55	3	8.82			
19	T.C. Yellamanchilli	..	0.16	..	..	4.96	0.91	0.16	0.24	8.34	14.79	24.96	..	..			
20	T.C. Srungavarapukota	..	..	..	..	5.47	0.57	1.03	0.57	6.49	14.14	19.89	2	9.05			
21	T.C. Chodavaram	..	..	..	..	2.48	1.77	1.56	0.21	7.44	13.47	10.87	3	10.87			
22	T.C. Madugula	..	..	..	..	5.35	0.85	..	0.83	8.81	15.65	23.97	1	4.50			
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			
24	M.T.C. Rajahmundry	..	0.46	..	0.09	2.12	1.61	1.86	0.21	13.82	20.75	25.56	21	5.94			
25	M.T.C. Peddapuram	..	0.21	..	0.13	2.18	2.61	1.50	0.18	10.77	17.48	20.00	2	2.62			

[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.	Births.			Estimated population for mid-year 1951	Deaths.					Serial number.
		Males.	Females.	Total.		Cholera.	Smallpox.	Plague.	Malaria.	Hepatitis.	
(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
B. TOWNS—cont.											
MUNICIPALITIES AND RURAL TOWNS—cont.											
Guntur—cont.											
78	T.C. Sattenapalle	15,200	150	318	29.92	..	7	..	..	51	74
79	T.C. Kolluru	8,380	73	162	18.89	..	29	..	..	16	75
80	T.C. Kolluru	8,340	64	140	16.89	..	2	..	..	14	76
81	T.C. Kolluru	9,700	188	305	33.89	..	..	..	..	39	77
82	T.C. Allurukothapattam	14,100	208	436	31.06	..	..	..	..	29	78
83	T.C. Repalle	11,800	153	141	13.19	..	12	..	..	24	79
84	T.C. Chilikalpurpet	7,640	56	133	18.46	..	4	..	..	19	80
85	T.C. Gurzala	14,500	210	454	31.31	..	5	..	..	54	81
86	T.C. Bhatiprolu	7,620	67	133	17.44	..	..	..	..	41	82
87	T.C. Bellary	70,800	1,118	2,338	33.01	18	6	13	13	24	83
88	T.C. Adoni	54,700	884	1,820	33.58	12	..	..	..	10	84
89	T.C. Hospet	39,100	663	1,330	34.02	..	..	..	..	16	85
90	T.C. Rayadurg	19,900	257	610	30.95	..	..	..	..	27	86
91	T.C. Hadagalli	7,600	132	284	32.51	..	..	..	..	11	87
92	T.C. Yenniganur	16,000	282	284	32.99	..	..	..	..	101	88
93	T.C. Koeigi	11,000	208	393	37.53	..	..	..	..	31	89
94	T.C. Harpanahalli	14,200	182	391	27.73	..	..	..	..	24	90
95	T.C. Tekkalakota	7,680	82	182	23.75	..	..	..	..	11	91
96	T.C. Kampli	8,430	67	120	14.23	..	..	..	..	7	92
97	T.C. Koturu	9,870	112	213	21.36	..	..	..	..	5	93
98	T.C. Siruguppa	7,090	79	149	21.01	..	..	..	..	..	..
Anantapur.											
99	M.T.C. Anantapur	32,300	588	1,174	36.85	9	2	..	2	39	94
100	M.T.C. Hindupur	24,600	324	638	27.97	17	14	..	..	10	95
101	M.T.C. Tadipatri	19,500	306	632	32.40	..	..	..	..	73	96
102	M.T.C. Guntakal	31,700	380	872	27.51	..	..	..	..	49	97
103	M.T.C. Guntakal	16,800	213	432	25.71	..	..	..	..	54	98
104	T.C. Gooty	15,500	66	124	8.00	..	81	..	..	23	99
105	T.C. Kadiri	20,400	206	454	22.03	..	2	..	..	108	100
106	T.C. Dharmavaram	14,800	243	449	30.34	17	2	..	..	114	101
107	T.C. Pennakonda	6,910	153	308	44.56	..	2	..	..	101	102
108	T.C. Madakadira	6,810	136	271	41.00	..	6	..	..	56	103
109	T.C. Pamidi	6,500	69	159	24.47	..	..	..	..	19	104
110	T.C. Kalyandurg	8,240	111	214	25.98	..	..	..	..	11	105
111	M.T.C. Karnool	60,700	1,884	2,880	47.43	..	19	..	..	32	106
112	M.T.C. Nandyal	38,600	645	1,289	38.36	..	10	..	..	9	107
113	T.C. Giddalur	9,500	43	123	12.95	3	4	..	..	12	108
114	T.C. Kolluru	8,200	43	123	11.10	9	8	..	..	16	109
115	T.C. Guntakal	7,280	103	212	31.27	..	..	..	..	51	110
116	T.C. Guntakal	11,900	116	242	34.29	..	..	..	..	69	111
117	T.C. Anantapur	11,900	92	206	17.23	..	14	..	..	41	112
118	T.C. Nandikotkur	10,200	104	206	16.45	..	..	..	..	94	113
119	T.C. Nandikotkur	10,200	121	227	22.16	..	..	..	..	41	114
120	T.C. Madakadira	8,350	96	317	21.70	..	..	..	..	84	115
121	T.C. Patikonda	9,200	156	306	36.65	..	..	..	..	32	116
122	T.C. Kodumuru	9,200	175	401	43.58	..	..	..	..	122	117
123	M.T.C. Cuddapah	37,700	709	1,421	37.69	12	18	..	..	73	118
124	M.T.C. Proddatur	37,700	726	1,395	37.71	13	29	..	..	7	119
125	T.C. Rajampet	9,320	62	106	11.37	..	3	..	..	13	120
126	T.C. Jammalamadugu	12,620	254	507	40.17	..	16	..	..	124	121
127	T.C. Rayachoti	10,730	151	308	28.70	..	..	..	..	57	122
128	T.C. Vempalle	7,630	95	188	24.65	..	..	..	..	39	123
129	T.C. Nandakur	6,880	49	118	18.49	..	..	..	..	19	124
130	T.C. Nandakur	6,880	63	128	19.16	..	..	..	..	32	125
131	T.C. Kamalapuram	7,130	67	186	19.08	..	..	..	..	25	126
132	T.C. Bedvel	7,130	67	186	19.08	..	..	..	..	..	..
133	M.T.C. Madras	1,434,000	28,881	58,961	41.12	216	490	..	91	3,760	127
134	M.T.C. Nellore	82,800	1,804	3,848	46.75	120	24	..	21	395	128
135	T.C. Gudur	20,300	100	196	9.65	..	..	..	..	28	129
136	T.C. Venkatagiri	17,400	120	244	14.02	..	..	..	..	28	130
137	T.C. Alur	7,880	84	179	22.86	..	..	..	..	17	131
138	T.C. Sullurpet	8,680	97	183	21.20	..	..	..	..	17	132
139	T.C. Kavali	15,600	149	328	21.02	..	..	..	..	28	133
140	T.C. Bichireddipalem	7,080	62	101	14.36	..	..	..	..	4	134
141	T.C. Kovuru	11,600	60	112	9.65	..	..	..	..	4	135
142	T.C. Kandukur	12,000	170	334	27.83	..	..	..	..	11	136
143	T.C. Nayadupet	7,480	155	312	41.71	..	..	..	..	55	137
144	T.C. Kalligiri	8,390	120	246	29.33	..	17	..	3	70	138

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

Districts and towns.	Deaths—cont.										Total deaths from all causes.	Serial number.
	(13)	(14)	Suicides.			(17)	(18)	(19)	(20)	(21)		
			Male.	Females.	Wounds and accidents.							
Injuries.												
Total.												
Rabies.												
Snake-bites and killed by wild beasts.												
Total.												
All other causes.												
Total deaths from all causes.												
Serial number.												

B. TOWNS—cont.												
MUNICIPALITIES AND RURAL TOWNS—cont.												
Guntur—cont.												
73 T.C. Sattenapalle	10	16	..	2	6	..	..	..	8	73	171	73
74 T.C. Kolluru	..	..	..	..	..	..	..	..	..	74	108	74
75 T.C. Kolluru	1	9	..	..	..	..	..	..	..	75	38	75
76 T.C. Alurukothapatnam	6	14	..	..	..	..	..	..	1	76	139	76
77 T.C. Repalle	5	2	1	1	..	..	..	1	3	77	155	77
78 T.C. Chikaturpet	1	2	..	..	..	..	..	..	..	78	89	78
79 T.C. Gurzala	1	6	..	..	..	..	..	..	..	79	56	79
80 T.C. Bhatiprolu	11	38	..	..	1	..	..	..	1	80	238	80
81 T.C. Chirangipuram	2	2	..	..	..	..	..	..	..	81	71	81
Bellary.												
82 M.T.C. Bellary	73	296	2	1	31	2	4	..	39	787	1,251	32
83 M.T.C. Adoni	47	175	..	..	8	1	1	..	11	355	613	83
84 M.T.C. Hospet	56	93	2	..	10	3	..	..	15	307	533	84
85 T.C. Rayachoti	5	3	..	..	..	..	..	..	..	178	202	85
86 T.C. Hadagali	12	10	..	..	1	..	..	..	1	66	117	86
*87 T.C. Vemiganur	21	27	..	1	1	..	..	..	2	73	151	87
*88 T.C. Kosi	..	..	..	..	..	1	..	..	1	136	239	88
*89 T.C. Haranahalli	28	10	..	..	..	..	..	..	1	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

Districts and towns.		Death rate per 1,000 of estimated mid-year population.													
Serial number.	Districts and towns.	Cholera.	Smallpox.	Plague.	Malaria.	Typhoid.	Dysentery.	Respiratory diseases.	Injuries.	All other causes.	From all causes.			Number of maternal deaths.	Rate per 1,000 births (live and still).
											Total deaths.	Average of rates last five years.	Published for the last five years.		
B. TOWNS—cont.															
MUNICIPALITIES AND RURAL TOWNS—cont.															
Guntur—cont.															
73	T.C. Sattenapalle	..	0.46	..	..	..	0.65	1.05	0.53	5.19	11.25	12.16	4	12.46	73
74	T.C. Kollur	..	3.36	..	..	..	0.11	1.05	..	7.34	12.59	17.18	..	74	
75	T.C. Kollur	..	1.67	..	..	..	0.11	1.05	..	1.40	14.45	9.76	..	75	
76	T.C. Alurukothapattanam	..	..	..	..	..	0.35	1.56	0.11	8.78	16.44	13.98	1	76	
77	T.C. Rajapalle	..	..	..	..	..	0.09	0.14	0.21	8.23	10.99	14.79	1	77	
78	T.C. Chikilurpet	..	1.03	..	0.09	..	0.09	0.17	..	4.22	7.67	7.80	1	78	
79	T.C. Gurzala	..	0.52	..	..	..	0.13	0.79	..	3.40	7.38	8.82	..	79	
80	T.C. Bhadrachalam	..	0.34	..	0.07	..	0.16	2.62	0.07	8.82	16.41	16.72	3	80	
81	T.C. Chirangipet	..	..	..	..	..	0.26	0.26	..	3.41	9.31	13.01	..	81	
Bellary.															
82	M.T.C. Bellary	..	0.08	0.18	0.18	..	1.08	4.17	0.55	11.11	17.66	24.44	26	10.94	82
83	M.T.C. Adoni	..	0.23	0.04	0.04	..	0.87	3.22	0.20	6.54	11.30	23.49	..	83	
84	M.T.C. Hospet	..	0.31	0.67	0.67	..	1.43	2.85	0.38	7.85	14.91	23.72	6	84	
85	T.C. Badargur	..	0.15	..	..	..	0.76	0.15	0.14	8.94	10.15	15.61	1	85	
86	T.C. Kinnigaur	..	0.09	1.06	1.06	..	1.31	1.69	0.09	9.88	17.51	22.06	3	86	
87	T.C. Kinnigaur	..	0.09	1.06	1.06	..	1.31	1.69	0.09	9.88	17.51	22.06	3	87	
88	T.C. Kinnigaur	..	0.09	1.06	1.06	..	1.31	1.69	0.09	9.88	17.51	22.06	3	88	
89	T.C. Kinnigaur	..	0.09	1.06	1.06	..	1.31	1.69	0.09	9.88	17.51	22.06	3	89	
90	T.C. Takalokota	..	0.39	..	..	..	1.87	0.70	..	6.26	12.79	17.53	..	90	
91	T.C. Kinnigaur	..	0.39	..	..	..	1.87	0.70	..	6.26	12.79	17.53	..	91	
92	T.C. Kinnigaur	..	0.39	..	..	..	1.87	0.70	..	6.26	12.79	17.53	..	92	
93	T.C. Siruguppa	..	1.41	..	0.23	..	0.14	0.60	0.14	5.21	7.02	23.43	2	93	
Anantapur.															
94	M.T.C. Anantapur	0.27	0.03	0.06	0.06	..	0.58	1.64	0.84	3.08	12.75	16.63	8	6.66	94
95	M.T.C. Hindupur	0.69	0.57	0.03	0.03	..	1.80	2.92	0.36	7.92	14.47	14.80	10	13.87	95
96	M.T.C. Tadakuri	..	0.03	0.41	0.41	..	0.67	2.51	0.41	4.77	12.51	22.41	9	13.74	96
97	M.T.C. Guntakal	..	0.03	0.03	0.03	..	1.36	1.70	0.19	3.91	9.43	13.99	3	3.39	97
98	T.C. Urvakonda	..	..	..											

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[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.	Deaths—cont.										Total deaths from all other causes.	Serial number.
		Injuries.		Suicides.	Wounds and accidents.	Snake and killed by bite and wild beasts.	Rabies.	Total.	All other causes.				
		Dysentery and diarrhoea.	Respiratory diseases.							Males.	Females.		
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	..	..	23	..	..	24	805	949	140	
141	M.T.C. Tiruvallur	63	58	..	..	1	..	..	3	217	418	141	
*142	T.C. Poonamallee	52	42	1	..	2	..	..	8	162	338	142	
*143	T.C. Uthiramerur	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. Tiruvotiyur	35	23	..	..	..	..	..	..	171	311	146	
*147	T.C. Tirukkalkundram	18	19	..	..	..	..	..	..	105	201	147	
148	T.C. Madurankam	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	18	..	..	..	..	..	..	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	78	..	..	12	..	..	9	296	492	155	
*156	T.C. Kalahasti	17	47	..	..	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	56	82	159	
160	T.C. Tiruttani	15	13	..	..	1	..	..	1	41	98	160	
*161	T.C. Palmaner	1	2	..	..	..	..	..	1	20	45	161	
North Arcot.													
162	M.T.C. Vellore	269	479	3	1	58	..	7	64	1,654	2,677	162	
163	M.T.C. Tiruvannamalai	126	165	3	2	5	..	..	12	533	846	163	
164	M.T.C. Gudiyattam	121	76	1	1	..	..	..	5	434	807	164	
165	M.T.C. Vandambadi	53	132	1	1	..	..	..	2	388	548	165	

166	M.T.C. Tirupattur	38	98	..	..	8	1	..	10	249	478	166	
167	M.T.C. Walajpet	28	40	..	..	6	1	..	8	189	278	167	
168	M.T.C. Ambur	65	73	..	..	7	..	..	9	361	624	168	
169	T.C. Arni	93	64	..	..	7	..	..	8	324	599	169	
170	T.C. Arcot	32	26	..	..	2	..	..	1	78	259	170	
171	T.C. Arkonam	21	26	..	..	..	..	..	1	120	214	171	
172	T.C. Tiruvotiyur	26	24	..	..	..	..	..	3	119	258	172	
173	T.C. Pothur	29	10	..	..	..	..	..	4	168	299	173	
174	T.C. Kanpet	26	17	..	..	..	..	..	4	156	281	174	
175	T.C. Vishnambur	19	6	..	..	..	..	..	1	110	186	175	
176	T.C. Pernambatti	12	8	..	..	..	..	..	1	148	178	176	
177	T.C. Sholinghur	18	13	..	..	..	..	..	3	148	177	177	
178	T.C. Pallikonda	29	14	..	..	..	..	..	1	112	175	178	
179	T.C. Wandiwash	14	11	..	..	1	..	..	1	97	287	179	
180	T.C. Kalambur	8	11	..	..	1	..	..	2	118	172	180	
181	T.C. Chetput	17	7	..	..	..	..	..	1	84	141	181	
182	T.C. Kaverippakkam	11	7	..	..	..	..	..	..	77	121	182	
183	T.C. Panayappakkam	10	14	..	..	..	..	..	1	115	182	183	
South Arcot.													
184	M.T.C. Cuddalore	122	204	6	1	26	2	..	37	1,003	1,557	184	
185	M.T.C. Chidambaram	78	68	..	..	8	..	..	8	560	900	185	
186	M.T.C. Villupuram	160	121	1	1	15	..	..	20	285	879	186	
187	M.T.C. Tindivanam	196	121	..	..	10	..	..	19	283	584	187	
188	T.C. Panrui	6	7	..	..	..	..	..	..	21	52	188	
189	T.C. Porto Novo	27	26	..	..	..	..	..	2	55	178	189	
190	T.C. Nellikuppam	34	67	..	..	4	..	..	6	144	335	190	
191	T.C. Tirukkovilur	25	9	..	..	..	..	..	1	79	147	191	
192	T.C. Pennadam	1	2	..	..	..	..	..	..	30	41	192	
193	T.C. Karinjipadi	9	11	..	..	..	..	..	..	105	147	193	
194	T.C. Vaddachalam	21	11	..	..	..	..	..	..	66	142	194	
195	T.C. Bhuvanagiri	7	9	..	..	1	..	..	3	147	195	195	
196	T.C. Kalakurichi	4	3	..	..	..	..	..	..	68	134	196	
197	T.C. Chinnai	8	5	..	..	..	..	..	..	125	160	197	
198	T.C. Chinnai Salem	6	7	..	..	..	..	..	2	40	102	198	
199	T.C. Valavanur	12	17	..	..	..	..	..	..	84	139	199	
200	T.C. Srirangam	26	10	..	..	3	..	..	4	95	180	200	
201	T.C. Ulundurpet	26	10	..	..	..	..	..	4	88	165	201	
Tanjore.													
202	M.T.C. Tanjore	153	311	5	1	47	4	..	72	1,951	2,792	202	
203	M.T.C. Kumbakonam	180	272	1	..	15	1	..	24	1,411	1,941	203	
204	M.T.C. Nagapattinam	136	107	..	..	16	2	..	11	1,475	1,869	204	
205	M.T.C. Masuram	58	141	..	..	18	2	..	22	609	846	205	
206	M.T.C. Mannargudi	47	58	..	..	5	..	..	8	531	833	206	
207	M.T.C. Tiruvannamalai	5	11	..	..	4	..	..	6	278	523	207	
208	T.C. Vedaranyam	16	20	..	..	4	..	..	8	219	246	208	
209	T.C. Papanasam	9	11	..	..	3	..	..	6	255	365	209	
210	T.C. Papanasam	17	15	..	..	3	..	..	6	186	178	210	
211	T.C. Kuttal	15	13	..	..	1	..	..	3	191	189	211	
212	T.C. Kuttal	22	38	..	..	1	..	..	2	125	177	212	
213	T.C. Tiruvannamalai	32	35	..	..	1	..	..	1	111	181	213	
214	T.C. Pattukottai	9	4	..	..	1	..	..	1	95	179	214	
215	T.C. Adirampattinam	25	24	..	..	3	..	..	4	204	238	215	
216	T.C. Ayyampettai	25	24	..	..	3	..	..	5	126	208	216	

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

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Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population.											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)				
												Total deaths.				Average of rates for the last five years.
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	48	14.63	139	
140	M.T.C. Chingleput	0.17	0.53	..	0.10	2.40	6.88	7.06	1.26	15.07	33.48	26.11	22	18.60	140	
141	M.T.C. Tiruvallur	..	..	..	0.34	2.59	2.72	2.54	0.28	7.88	16.33	25.29	1	1.66	141	
142	T.C. Poonamallee	..	0.17	..	0.17	3.98	2.52	2.04	0.15	7.88	28.48	18.75	..	..	142	
143	T.C. Uthamerur	..	..	..	0.17	4.13	3.64	3.55	0.08	13.98	28.48	22.02	..	..	143	
144	T.C. Alwar	..	0.06	..	1.00	2.29	0.95	0.89	0.06	4.52	15.86	15.84	..	..	144	
145	T.C. Pallavaram	0.08	0.25	..	0.17	3.08	0.83	1.33	0.09	4.67	17.76	17.76	..	..	145	
146	T.C. Tirukottai	0.80	0.04	..	0.17	3.33	1.47	0.97	0.09	7.21	13.12	17.07	1	2.90	146	
147	T.C. Maduranakam	0.54	2.71	..	..	3.45	1.59	1.68	0.33	9.29	17.79	23.14	5	23.15	147	
148	T.C. Valajabad	..	..	..	..	7.28	3.59	1.20	0.14	13.04	28.70	29.14	1	3.91	148	
149	T.C. Chennayur	2.41	..	..	..	3.62	4.35	2.46	0.14	7.82	18.40	21.81	1	5.56	149	
150	T.C. Arni	..	..	..	..	3.14	0.92	0.56	..	16.67	23.78	23.78	1	5.71	150	
151	T.C. St. Thomas' Mount	..	..	..	..	7.76	1.78	2.59	..	7.92	20.06	15.68	1	4.98	151	
152	T.C. St. Thomas' Mount	..	..	..	..	0.73	0.40	0.47	..	1.20	2.82	15.32	1	151	152	
153	T.C. Villivakkam	..	0.61	..	..	0.79	0.17	0.88	..	2.10	4.56	6.34	..	..	153	
Chittoor.																
154	M.T.C. Chittoor	0.53	0.13	..	0.43	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	0.06	..	0.89	1.06	2.44	2.87	0.35	11.73	19.87	22.81	6	6.00	155	
156	T.C. Kalahasti	0.56	..	..	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	17.11	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. Tirutani	..	..	..	..	2.60	1.50	1.30	0.10	4.10	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	

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

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Serial number.	Districts and towns.	Births.			Estimated population for mid-year	Birth-rate per 1,000 of population.	Deaths.			
		Males.	Females.	Total.			Cholera.	Smallpox.	Plague.	Malaria.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
217	T.C. Vallam	69	83	157	17-96	17-96	..	..	..	..
218	T.C. Tiruvadi	127	134	261	22-89	22-89	..	..	..	..
219	T.C. Tirunelveli	233	286	519	51-69	51-69	..	..	..	..
220	T.C. Mudupet	112	98	210	21-43	21-43	..	..	..	..
221	T.C. Tirukattupalli	226	231	457	65-47	65-47	..	..	..	..
222	T.C. Kuttanallur	179	177	356	29-87	29-87	..	..	..	..
223	T.C. Tirumalaivasal	132	96	228	38-92	38-92	..	..	..	..
224	T.C. Velangimam	107	90	197	32-56	32-56	..	..	..	..
225	M.T.C. Tiruchirappalli	3,508	3,706	7,274	32-93	32-93	90	59	..	3
226	M.T.C. Srirangam	597	552	1,149	31-06	31-06	20	4	..	3
227	M.T.C. Karur	717	729	1,446	38-94	38-94	4	4	..	1
228	M.T.C. Pudukkottai	324	784	1,108	35-81	35-81	1	1	..	..
229	T.C. Golden Rock	377	342	719	36-12	36-12	..	2	..	..
230	T.C. Thabaiyargampet	64	65	129	13-94	13-94	..	1	..	..
231	T.C. Tiruvarur	114	112	226	15-64	15-64	..	..	..	..
232	T.C. Laludi	157	182	339	22-64	22-64	14	4	..	..
233	T.C. Tholam	121	66	187	21-90	21-90	..	..	..	..
234	T.C. Arivar	132	101	233	20-99	20-99	2	..	..	..
235	T.C. Perambalur	140	163	303	32-06	32-06	5	..	..	..
236	T.C. Palakkottai	116	95	211	22-24	22-24	23	3	..	..
237	T.C. Kulitthai	179	196	375	31-57	31-57	..	..	..	..
238	T.C. Udayarpalayam	119	131	250	34-43	34-43	..	..	..	..
239	T.C. Marupatti	107	109	216	21-31	21-31	..	..	..	..
240	T.C. Musiri	118	109	227	28-59	28-59	..	..	..	..
241	T.C. Jayankondesholapuram	152	156	308	25-88	25-88	2	2	..	..
242	T.C. Mannachanallur	71	69	140	18-69	18-69	..	..	..	..
243	T.C. Mannampalli	76	66	142	15-98	15-98	..	..	..	..
244	T.C. Varpattu	68	60	128	22-90	22-90	..	..	..	..
245	T.C. Ponnampalayam	63	87	150	11-88	11-88	..	..	..	..

MUNICIPALITIES AND RURAL TOWNS—cont.

Tanjore—cont.

Tiruchirappalli.

246	M.T.C. Madurai	8,513	8,193	16,706	45-64	45-64	284	145	..	5	739	246
247	M.T.C. Dindigul	1,355	1,383	2,738	29-98	29-98	8	11	..	3	153	247
248	M.T.C. Bodinayakanur	635	665	1,300	38-70	38-70	3	8	..	20	99	248
249	M.T.C. Periyakulam	697	642	1,339	42-02	42-02	18	25	..	19	17	249
250	M.T.C. Palani	628	584	1,212	34-20	34-20	..	8	..	1	8	250
251	M.T.C. Kodaikanal	324	300	624	35-55	35-55	..	6	..	1	3	251
252	T.C. Gudalur	189	205	394	14-53	14-53	..	..	..	..	..	252
253	T.C. Thevaram	20,000	248	20,248	23-70	23-70	24	2	..	17	93	253
254	T.C. Obdhanur	10,500	169	10,669	26-50	26-50	..	..	..	..	..	254
255	T.C. Tirumangalam	14,500	184	14,684	23-73	23-73	..	..	..	..	..	255
256	T.C. Tirumangalam	11,100	154	11,254	23-18	23-18	..	..	..	..	..	256
257	T.C. Uthamapalayam	12,500	191	12,691	31-78	31-78	13	4	..	..	134	257
258	T.C. Solvandan	18,900	200	19,100	18-03	18-03	10	..	..	..	34	258
259	T.C. Andipatti	14,100	168	14,268	11-21	11-21	..	3	..	..	23	259
260	T.C. Andal	8,920	72	9,000	19-43	19-43	..	..	..	..	39	260
261	T.C. Kambal	10,700	40	10,740	17-38	17-38	..	..	..	..	17	261
262	T.C. Battagunda	10,800	96	10,896	19-64	19-64	2	..	..	..	71	262
263	T.C. Melur	14,200	139	14,339	17-46	17-46	17	..	..	..	11	263
264	T.C. Natam	10,500	127	10,627	21-80	21-80	..	2	..	..	56	264
265	T.C. Tirupparankunram	9,100	107	9,207	21-10	21-10	..	1	..	..	23	265
266	T.C. Ayakudi	14,700	165	14,865	21-70	21-70	..	..	..	..	59	266
267	M.T.C. Rajapalayam	61,300	1,109	62,409	33-89	33-89	27	18	..	14	135	267
268	M.T.C. Virudhunagar	46,700	1,041	47,741	45-35	45-35	54	32	..	..	136	268
269	M.T.C. Sivakasi	40,800	792	41,592	38-45	38-45	1	..	..	..	137	269
270	M.T.C. Karaikal	38,800	673	39,473	34-33	34-33	5	..	..	..	138	270
271	M.T.C. Devakottai	26,000	661	26,661	50-34	50-34	1	15	..	..	139	271
272	M.T.C. Sivakasi	22,800	586	23,386	47-11	47-11	6	7	..	..	140	272
273	M.T.C. Aruppukottai	49,000	973	50,000	38-94	38-94	42	..	..	..	141	273
274	T.C. Ramanathapuram	24,300	283	24,583	21-89	21-89	..	..	..	..	251	274
275	T.C. Paramagudi	22,400	224	22,624	18-37	18-37	22	..	..	..	35	275
276	T.C. Sivaganga	14,800	183	15,000	22-67	22-67	36	1	..	..	59	276
277	T.C. Tirupattur	14,400	196	14,596	23-47	23-47	3	18	..	..	50	277
278	T.C. Tirupattur	15,600	213	15,813	26-28	26-28	1	1	..	..	52	278
279	T.C. Abiraman	10,600	94	10,694	16-79	16-79	15	9	..	..	53	279
280	T.C. Kannur	9,600	87	9,687	18-85	18-85	18	..	..	..	54	280
281	T.C. Wazir	9,600	115	9,715	21-57	21-57	..	..	..	..	55	281
282	T.C. Sethur	10,500	116	10,616	22-57	22-57	..	..	..	..	56	282
283	T.C. Rameswaram	6,430	86	6,516	34-26	34-26	..	..	..	..	57	283
284	T.C. Sattur	18,600	114	18,714	14-84	14-84	12	4	..	..	58	284
285	T.C. Manamadurai	9,170	97	9,267	14-60	14-60	4	2	..	..	59	285
286	T.C. Tirupuvanam	8,730	69	8,829	15-69	15-69	..	..	..	..	60	286
287	T.C. Tondur	12,130	73	12,203	18-19	18-19	..	..	..	..	61	287
288	T.C. Kondanur	6,030	88	6,118	22-47	22-47	..	..	..	..	62	288
289	T.C. Pallatur	6,450	65	6,515	22-57	22-57	..	..	..	..	63	289
290	T.C. Kattur	16,250	107	16,357	11-57	11-57	..	..	..	..	64	290
291	T.C. Kattur	7,850	82	7,932	20-38	20-38	7	6	..	..	65	291
292	T.C. Kattur	7,850	82	7,932	20-38	20-38	7	6	..	..	66	292
293	T.C. Pannayampatti	5,800	97	5,897	32-63	32-63	12	1	..	..	67	293
294	T.C. Nattarakottai	5,800	181	5,981	54-99	54-99	1	..	..	..	68	294
295	T.C. Kottaiyur	5,800	61	5,861	21-26	21-26	..	..	..	..	69	295
296	T.C. Mallankur	5,840	63	5,903	31-51	31-51	4	..	..	..	70	296

Ramanathapuram.

[illegible]

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

Districts and towns.	Death rate per 1,000 of estimated mid-year population.										Serial number.		
	Cholera.	Smallpox.	Plague.	Malaria.	Revers.	Dysentery.	Respiratory diseases.	Injuries.	All other causes.	Total deaths.			
	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
From all causes.													
											Average published for the last five years.	Number of maternal deaths.	Rate per 1,000 births (live and still).
B. TOWNS—cont.													
MUNICIPALITIES AND RURAL TOWNS—cont.													
Tanjore—cont.													
T.C. Vallam ..	..	..	..	..	0.34	0.80	1.37	..	8.92	11.44	22.31	..	217
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	218
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	219
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	220
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	221
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	222
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	223
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	224
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	225
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	226
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	227
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	228
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	229
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	230
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	231
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	232
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	233
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	234
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	235
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	236
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	237
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	238
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	239
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	240
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	241
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	242
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	243
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	244
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	245
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	246
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	247
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	248
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	249
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	250
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	251
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	252
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	253
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	254
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	255
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	256
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	257
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	258
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	259
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	260
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	261
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	262
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	263
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	264
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	265
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	266
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	267
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	268
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	269
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	270
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	271
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	272
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	273
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	274
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	275
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	276
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	277
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	278
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	279
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	280
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	281
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	282
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	283
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	284
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	285
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	286
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	287
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	288
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	289
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	290
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	291
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	292
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	293
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	294
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	295
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	296
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	297
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	298
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	299
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	300
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	301
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	302
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	303
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	304
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	305
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	306
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	307
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	308
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	309
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	310
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	311
T.C. Tiruvadi ..	..	..	..	..	0.35	0.87	1.40	..	8.94	11.58	22.32	..	312
T.C. Tiruvadi ..	..												

Serial number.	Districts and towns.	Births.		Estimated population and deaths are to be returned.	Deaths.						
		(4) Males	(5) Females.		(6) Total.	(7) Birth-rate per 1,000 of estimated population.	(8) Cholera.	(9) Smallpox.	(10) Plague.	(11) Malaria.	(12) Fevers.
297	M.T.C. Tuticorin	1,915	1,753	99,700	3,668	16	9	..	14	176	297
298	M.T.C. Tirunelveli	1,292	1,300	73,900	2,592	25	7	..	1	12	298
299	M.T.C. Palayankottal	1,957	1,843	40,300	3,799	22	1	..	1	60	299
300	M.T.C. Palayankottal	409	394	37,900	803	4	..	..	..	85	300
301	M.T.C. Melapalayam	293	296	31,300	529	9	..	..	..	30	301
302	T.C. Tenkasi	243	226	38,300	468	15	53	..	..	77	302
303	T.C. Kadayanalur	254	120	28,800	374	2	..	..	..	66	303
304	T.C. Pulliyangudi	253	224	20,200	477	2	..	..	..	30	304
305	T.C. Kalidakkurchi	253	280	18,000	533	23	1	..	..	12	305
306	T.C. Viravanalur	139	343	10,100	482	63	2	..	..	97	306
307	T.C. Sernadevi	209	173	20,500	382	8	..	..	..	12	307
308	T.C. Ambasamudram	209	173	16,700	382	..	..	..	..	18	308
309	T.C. Tiruchendur	208	181	13,500	389	..	..	..	..	80	309
310	T.C. Vandanur	227	174	12,900	401	13	..	..	..	137	310
311	T.C. Vandanur	227	204	14,500	431	..	1	..	..	70	311
312	T.C. Surandai	301	203	10,000	504	41	..	..	..	54	312
313	T.C. Kulasekharapatnam	301	300	26,400	601	..	2	..	..	28	313
314	T.C. Kovilpatti	325	316	11,600	641	11	8	..	..	84	314
315	T.C. Srivallur	325	319	9,500	644	4	4	..	..	45	315
316	T.C. Sankarankoli	229	198	22,100	427	16	16	..	..	50	316
317	T.C. Sankarankoli	131	116	9,820	247	3	..	..	..	66	317
318	T.C. Etthalapuram	151	173	11,400	324	18	11	..	..	46	318
319	T.C. Kavalpatnam	281	394	29,700	675	..	5	..	..	55	319
320	T.C. Vikramasingapuram	144	275	9,160	419	2	..	..	..	67	320
321	T.C. Vadakkuvallur	200	78	8,320	278	6	3	..	..	32	321
322	T.C. Sattanur	87	80	8,820	167	2	..	..	..	14	322
323	T.C. Pattamadai	235	202	11,870	437	9	2	..	..	24	323
324	T.C. Alwarthirunagari	235	202	6,200	437	1	..	..	..	20	324
325	T.C. Tirayavilai	53	89	5,500	142	..	..	..	..	24	325
326	T.C. Kalugumalai	53	89	5,500	142	..	..	..	..	26	326
327	T.C. Kayattar	93	92	5,500	185	..	..	..	..	12	327
328	T.C. Kayattar	93	92	5,500	185	15	..	..	..	39	328
329	T.C. Kayattar	93	92	5,500	185	..	..	..	..	39	329

MUNICIPALITIES AND RURAL TOWNS—cont.

Tirunelveli.

B. TOWNS—cont.

Sl. No.	Name of the Candidate	Age	Height	Weight	Complexion	Education	Religion	Marital Status	Family Income	Remarks
336	M. T. C. Salem	36.66	116	330	96	30	66	4	4	116
337	M. T. C. Pasipatnam	35.66	115	332	4	..	..	..	..	330
338	M. T. C. Riddipadi	28.75	67	332	4	..	..	..	..	332
339	M. T. C. Dhanurpuri	18.88	304	346	..	..	..	..	..	346
340	M. T. C. Dhanurpuri	14.24	346	346	..	..	..	..	..	346
341	M. T. C. Dhanurpuri	24.32	243	346	..	..	..	..	..	346
342	M. T. C. Dhanurpuri	15.66	302	346	..	..	..	..	..	346
343	M. T. C. Dhanurpuri	9.71	268	346	..	..	..	..	..	346
344	M. T. C. Dhanurpuri	20.02	187	346	..	..	..	..	..	346
345	M. T. C. Dhanurpuri	16.11	312	346	..	..	..	..	..	346
346	M. T. C. Dhanurpuri	17.23	267	346	..	..	..	..	..	346
347	M. T. C. Dhanurpuri	22.69	267	346	..	..	..	..	..	346
348	M. T. C. Dhanurpuri	17.23	267	346	..	..	..	..	..	346
349	M. T. C. Dhanurpuri	41.56	266	346	..	..	..	..	..	346
350	M. T. C. Dhanurpuri	17.06	290	346	..	..	..	..	..	346
351	M. T. C. Dhanurpuri	35.6	346	346	..	..	..	..	..	346
352	M. T. C. Dhanurpuri	40.50	346	346	..	..	..	..	..	346
353	M. T. C. Dhanurpuri	23.62	202	346	..	..	..	..	..	346
354	M. T. C. Dhanurpuri	17.44	347	346	..	..	..	..	..	346
355	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
356	M. T. C. Dhanurpuri	19.900	181	346	..	..	..	..	..	346
357	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
358	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
359	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
360	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
361	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
362	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
363	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
364	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
365	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
366	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
367	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
368	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
369	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
370	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
371	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
372	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
373	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
374	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
375	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
376	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
377	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
378	M. T. C. Dhanurpuri	181	166	346	..	..	..	..	..	346
379	M. T. C. Dhanurpuri	181	166	346						

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.											Rate per 1,000 births (live and still).	Serial number.
		Cholera.	Smallpox.	Plague.	Malaria.	Typhoid.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	Total deaths.	Average of published ratios for the last five years.		
B. 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	28	297
298	M.T.C. Tirunelveli	0.33	0.03	..	0.01	0.16	2.09	5.44	0.08	16.13	24.35	28.05	21	298
299	M.T.C. Palayamkottai	0.29	0.03	..	0.02	0.81	1.01	2.06	0.26	8.79	13.27	20.03	41	299
300	M.T.C. Melapalayam	0.10	0.02	..	0.02	2.21	1.66	3.35	0.03	10.23	17.68	19.20	3	300
301	M.T.C. Tenkasi	0.28	0.02	..	0.02	2.62	0.23	1.37	0.13	6.51	17.37	19.20	4	301
302	M.T.C. Kadayannal	0.39	1.38	..	0.07	2.01	0.42	0.57	0.08	5.54	10.39	10.98	6	302
303	M.T.C. Puliyangudi	0.07	0.05	..	0.07	1.72	0.18	0.10	0.04	4.13	6.21	17.67	8	303
304	M.T.C. Kalidakkurichi	1.13	0.22	..	0.22	5.39	1.72	4.41	0.06	12.63	19.01	21.02	7	304
305	M.T.C. Viravanallur	0.20	0.20	..	0.20	1.78	0.99	2.61	0.40	18.03	24.45	33.54	14	305
306	M.T.C. Sornadevi	1.17	1.17	..	1.17	0.59	0.44	0.39	0.05	12.88	15.51	15.70	5	306
307	M.T.C. Ambasamudram	0.60	0.60	..	0.60	4.36	1.05	1.13	0.45	15.94	24.51	39.08	8	307
308	M.T.C. Tiruchendur	..	..	..	..	5.20	1.44	3.29	0.15	7.40	17.80	20.13	7	308
309	M.T.C. Sivagiri	..	..	..	..	5.18	..	1.78	0.15	7.40	14.52	17.40	7	309
310	M.T.C. Udangudi	..	..	..	..	5.18	..	1.78	0.15	11.24	11.55	18.16	310	310
311	M.T.C. Vasudevanallur	..	..	..	..	5.18	..	1.78	0.15	11.24	11.55	18.16	311	311
312	M.T.C. Surandai	2.83	0.07	..	..	3.72	1.03	1.03	0.16	10.07	10.21	21.38	3	312
313	M.T.C. Kuleshwarapatnam	..	..	..	..	2.80	0.20	0.20	0.30	16.40	10.60	14.24	8	313
314	M.T.C. Kovilpatti	0.08	0.08	..	..	3.18	0.10	1.63	0.42	9.21	14.81	14.70	7	314
315	M.T.C. Srivilliputhur	0.94	0.68	..	..	3.83	0.60	0.93	0.17	12.62	25.07	26.99	2	315
316	M.T.C. Nanguneri	0.42	0.20	..	..	2.25	0.63	1.88	0.38	25.18	38.43	38.43	2	316
317	M.T.C. Sankarankoil	0.13	0.72	..	..	2.99	0.60	0.82	0.20	19.49	27.15	18.99	2	317
318	M.T.C. Tachanallur	0.30	1.16	..	..	4.63	2.14	2.04	0.30	17.82	27.15	25.88	2	318
319	M.T.C. Ettayapuram	..	..	..	..	5.80	8.27	3.16	0.32	9.21	26.15	22.41	4	319
320	M.T.C. Kanyakumari	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	320
321	M.T.C. Kanyakumari	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	321
322	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	322
323	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	323
324	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	324
325	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	325
326	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	326
327	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	327
328	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	328
329	M.T.C. Vadamangalam	1.57	0.16	..	..	5.83	0.63	1.76	0.03	8.72	18.05	18.92	3	329

Salem.

330	M.T.C. Salem	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	330
331	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	331
332	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	332
333	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	333
334	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	334
335	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	335
336	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	336
337	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	337
338	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	338
339	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	339
340	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	340
341	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	341
342	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	342
343	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	343
344	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	344
345	M.T.C. Rasipuram	0.14	0.32	0.47	0.17	0.37	0.83	0.52	0.40	10.03	16.29	18.01	82	345

Coimbatore.

346	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	346
347	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	347
348	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	348
349	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	349
350	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	350
351	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	351
352	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	352
353	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	353
354	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	354
355	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	355
356	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	356
357	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	357
358	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	358
359	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	359
360	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	360
361	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	361
362	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	362
363	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	363
364	M.T.C. Coimbatore	0.01	1.03	0.16	0.75	0.75	0.81	5.24	0.50	14.52	25.71	24.90	70	364

The Nilgiris.

365	M.T.C. Ootacamund	0.02	0.88	0.11	0.31	0.31	1.41	5.14	0.89	9.86	17.94	21.90	15	365
366	M.T.C. Ootacamund	0.02	0.88	0.11	0.31	0.31	1.41	5.14	0.89	9.86	17.94	21.90	15	366
367	M.T.C. Ootacamund	0.02	0.88	0.11	0.31	0.31	1.41	5.14	0.89	9.86	17.94	21.90	15	367
368	M.T.C. Ootacamund	0.02	0.88	0.11	0.31	0.31	1.41	5.14	0.89	9.86	17.94	21.90	15	368

Malabar.

369	M.T.C. Kozhikode	0.19	0.50	0.08	2.19	2.19	0.84	3.27	0.25	15.24	22.62	24.95	29	11.39
370	M.T.C. Palgat	0.36	0.50	0.09	0.84	1.00	1.00	3.31	0.32	12.47	19.00	24.95	4	9.02
371	M.T.C. Cannanore	..	..	0.02	3.87	0.40	0.98	0.09	0.94	8.07	12.95	20.62	10	8.64
372	M.T.C. Tellicherry	..	0.25	0.07	0.87	0.30	2.76	0.30	12.89	18.21	19.45	23.44	6	8.76
373	M.T.C. Cochin ..	..	..	..	1.40	1.97	4.80	0.40	10.27	18.33	23.44	28.81	3	4.24
374	T.C. Ponnani ..	..	0.20	..	1.60	0.50	1.05	0.08	12.31	15.84	23.44	28.81	3	4.24

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

Serial number.	Districts and towns.	Births.			Deaths.					
		Males.	Females.	Total.	Birth-rate estimated per 1,000 of mid-year population.	Cholera.	Smallpox.	Plague.	Malaria.	Fever.
(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
B. TOWNS—cont.										
<i>Melabur—cont.</i>										
375	T.C. Panthalayini	260	273	533	18.07	..	2	..	..	6
376	T.C. Badagara	196	164	360	17.06	..	2	..	..	25
377	T.C. Perote	318	311	629	31.41	..	..	..	..	28
378	T.C. Tirukkandiyur	182	168	350	29.09	..	..	..	..	17
379	T.C. Tanur	155	152	307	17.43	..	..	..	..	10
380	T.C. Shoranur	139	116	255	21.52	..	1	..	..	2
381	T.C. Otappalam	119	122	241	10.86	..	..	..	..	4
382	T.C. Manjeri	105	89	194	18.49	..	..	..	..	10
<i>South Kanara.</i>										
383	M.T.C. Mangalore	2,415	2,186	4,601	38.98	..	26	..	2	190
384	M.T.C. Udipi	508	464	972	47.17	..	1	..	1	59
385	T.C. Kasaragod	121	92	213	9.22	..	..	..	8	25
386	T.C. Coondapoor	147	152	299	18.23	..	..	..	2	13
387	T.C. Puttur	111	102	213	24.07	..	..	..	1	11
388	T.C. Karkal	124	125	249	17.79	..	..	..	1	24
389	T.C. Mulki	178	198	376	58.24	..	..	..	..	25
390	T.C. Bantwal	102	66	168	28.98	..	..	..	1	18
Total for Urban areas		178,083	168,135	346,218	82.51	2,951	4,236	18	1,223	24,473
Total for Rural areas		681,920	592,662	1,274,582	26.45	14,162	13,010	38	4,157	181,170
Total for the State		810,003	760,797	1,570,800	27.55	17,113	17,246	51	5,380	205,643

Serial number.	Districts and towns.	Deaths—cont.										Serial number.
		Dysentery and diarrhoea.		Buloides.		Wounds and accidents.		Injuries.		Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
		Dysentery and diarrhoea.	Respiratory diseases.	Males.	Females.	Wounds and accidents.	Bite-bites and killed by wild beasts.	Babies.	Total.	All other causes. †	Total deaths from all causes.	
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)			
B. TOWNS—cont.												
Maleb—cont.												
375	T.C. Panthalayini	6	24	1	1	..	..	..	..	110	375	
376	T.C. Badagara ..	10	22	..	..	..	..	..	..	71	134	
377	T.C. Perote ..	24	14	..	..	2	..	..	2	86	377	
378	T.C. Tirukkandiyur ..	8	16	..	..	1	..	..	1	99	378	
379	T.C. Tanur ..	9	17	..	..	1	..	..	1	91	379	
380	T.C. Shoranur ..	5	11	..	..	1	..	..	1	76	380	
381	T.C. Otappalam ..	3	14	2	2	4	1	..	6	55	381	
382	T.C. Manjeri ..	9	14	..	..	1	..	..	9	49	382	
South Kanara.												
383	M.T.C. Mangalore	110	347	1	3	32	1	..	37	1,803	383	
384	M.T.C. Udipi ..	23	63	..	..	7	..	..	7	217	384	
385	T.C. Kasaragod ..	7	5	..	..	..	..	..	..	31	385	
386	T.C. Coondapoor ..	2	11	2	..	1	..	..	3	76	386	
387	T.C. Puttur ..	..	4	..	..	..	..	..	..	53	387	
388	T.C. Karkal ..	..	7	..	..	..	..	..	..	69	388	
389	T.C. Mulki ..	5	12	..	1	1	..	..	2	78	389	
390	T.C. Bantwal ..	2	13	..	..	..	..	..	..	37	390	
Total for Urban areas ..		18,467	38,915	325	223	2,021	325	187	3,031	115,100	203,399	
Total for Rural areas ..		47,166	59,316	1,529	1,580	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.														Serial number.
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)		(33)	(34)	(35)	
											All other causes.	Total deaths.				
From all causes.																
Average of pub- lished ratios for the previous five years.																
Deaths, of maternal																
(live and still).																
Rate per 1,000 births																
Serial number.																
B. TOWNS—cont.																
MUNICIPALITIES AND RURAL TOWNS—cont.																
Malabar—cont.																
375	T.C. Panthalayini	..	..	..	..	0.20	0.20	0.81	..	3.72	5.01	12.52	..	..	278	375
376	T.C. Badagara	..	..	..	0.09	1.18	0.47	1.04	0.09	3.36	6.35	8.16	..	..	278	376
377	T.C. Keroke	..	..	..	..	1.15	1.20	0.70	0.10	4.82	7.49	32.48	..	..	1.68	377
378	T.C. Tirukandiyur	..	..	..	..	0.58	0.72	1.34	0.08	8.32	11.01	13.48	..	..	2.90	378
379	T.C. Tanur	..	..	..	..	0.55	0.49	0.93	..	5.00	7.03	10.10	..	..	3.20	379
380	T.C. Shoranur	..	..	..	0.25	2.34	0.43	0.94	0.09	6.50	8.24	13.10	..	..	..	380
381	T.C. Ottapalam	..	..	..	..	0.45	0.13	0.63	0.23	2.48	4.01	12.18	..	..	..	381
382	T.C. Manjeri	..	..	..	0.19	3.33	0.86	1.33	0.43	4.67	10.26	30.33	..	..	5.16	382
South Kanara.																
383	M.T.C. Mangalore	..	..	..	0.02	1.61	0.93	2.93	0.31	11.01	17.03	22.63	14	..	2.95	383
384	M.T.C. Udipi	..	..	..	0.05	2.87	1.12	3.07	0.34	10.58	18.10	22.52	4	..	3.92	384
385	T.C. Kasargod	..	..	..	0.32	1.08	0.30	0.22	..	1.34	3.29	17.60	..	..	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	0.28	0.45	..	5.98	7.80	15.08	..	..	4.69	387
388	T.C. Karikal	..	..	..	0.07	1.71	0.28	0.50	..	3.67	6.14	10.10	..	..	5.97	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	1.73	3.18	0.28	10.80	19.10	21.41	2,501	..	7.00	..
Total for Rural areas		..	0.31	0.28	0.001	0.09	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	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 of Madras during the year 1951.

REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1951																			1951	1979
Serial number and municipalities.	Malaria.		Enteric fever.		Measles.		Relapsing fever.		Kala-Azar.		Influenza.		Other fevers.		Dysentery.		Diarrhoea.			
	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)																				
Srikulam District—																				
1 Srikulam ..	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 ..	7	0.02	22	0.20	..	..	..	..	..	..	..	..	342	3.13	62	0.57	79	0.72		
4 Vizianagaram ..	2	0.10	16	0.24	..	..	..	..	..	..	..	..	150	2.22	84	1.24	104	1.54		
5 Anakapalle ..	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	..	..	..	..	1	0.01	139	1.38	51	0.51	26	0.26		
8 Rajamahendravaram ..	10	0.09	16	0.15	3	0.08	..	..	..	..	..	..	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	3	0.04	..	..	..	..	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	0.37	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		
Rayachoti 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	0.81	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 Tadipatri ..	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	1.86	12	0.38	31	0.98		
Kurnool District—																				
29 Kurnool ..	11	0.18	20	0.33	28	0.4	..	..	..	..	..	..	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		
Madras District—																				
31 Chidambaram ..	7	0.19	4	0.11	3	0.03	..	..	..	..	..	..	69	1.33	10	0.26	27	0.72		
32 Proddutur ..	4	0.11	8	0.22	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	..	..	358	4.35	55	0.67	125	1.52		
Chingleput District—																				
35 Kanchipuram ..	..	..	10	0.12	..	..	..	..	..	..	..	..	123	1.45	149	1.75	66	0.78		
36 Tiruvallur ..	2	0.08	9	0.47	22	1.15	..	..	..	..	..	..	40	2.09	31	1.62	31	1.62		
37 Chingleput ..	..	..	7	0.39	7	0.31	..	..	..	..	..	..	35	1.54	47	2.06	75	3.29		
Chittoor District—																				
38 Chittoor ..	11	0.43	16	0.40	13	0.51	..	..	1	0.03	..	..	25	0.64	14	0.36	18	0.46		
39 Tirupattur ..	..	..	3	0.12	..	..	..	..	..	..	..	..	24	0.94	14	0.55	48	1.35		
North Arcot District—																				
40 Villore ..	4	0.04	38	0.35	..	..	..	..	..	..	..	..	112	1.04	132	1.23	137	1.28		
41 Tiruvannamalai ..	3	0.07	9	0.21	..	..	..	..	..	..	..	..	85	2.07	104	2.54	92	2.54		
42 Gudiyattam ..	..	..	20	0.43	68	1.47	..	..	..	..	..	..	137	2.97	57	1.24	64	1.30		
43 Vaniyambadi ..	2	0.03	7	0.18	..	..	..	..	..	..	..	..	3	0.08	41	1.05	19	0.30		
44 Vaniyambadi ..	56	2.06	16	0.53	1	0.04	..	..	..	..	..	..	..	..	21	0.77	17	0.63		
45 Tirupattur ..	1	0.08	1	0.08	..	..	..	..	..	..	..	..	34	1.25	22	0.81	4	0.15		
46 Walajpet ..	16	0.40	10	0.25	..	..	..	..	..	..	..	..	84	2.08	42	1.04	21	0.52		
South Arcot District—																				
47 Gudalore ..	1	0.01	15	0.22	1	0.01	..	..	..	..	..	..	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 Tiruvannam ..	..	..	1	0.03	..	..	..	..	..	..	..	..	54	1.80	82	2.73	14	0.47		
Tanjore District—																				
51 Tanjore ..	1	0.01	52	0.51	3	0.03	..													

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.		Other respiratory diseases.		Pulmonary Tuberculosis.		Diphtheria.		Cerebro spinal fever.		Deaths under one year.			Infant mortality rate per 1,000 live birth.	(18)
	(11)		(12)		(13)		(14)		(15)		(17)				
	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Males.	Females.	Total.		
Srikulam—															
1 Srikulam	8	0.83	10	0.41	22	0.91	1	..	1	0.24	41	31	75	183.88	
2 Salur	..	..	19	0.78	14	0.57	1	..	1	0.04	76	60	136	222.56	
Vizianthapuram—															
3 Vizianthapuram	111	1.02	142	1.30	110	1.00	2	0.07	..	..	808	242	550	165.318	
4 Vizianthapuram	45	0.97	32	0.47	91	1.35	..	..	..	..	17	190	185	165.866	
5 Anakkaville	24	0.59	70	1.73	39	0.96	..	..	2	0.05	115	129	244	189.58	
6 Bheemunipatnam	22	2.10	1	0.09	17	1.62	..	..	..	..	36	23	59	133.23	
East Godavari—															
7 K. Kinada	12	0.12	24	0.24	47	0.47	1	0.01	4	0.04	173	189	362	93.068	
8 Rajahmundry	72	0.63	20	0.19	106	1.00	2	0.02	..	..	234	196	430	127.18	
9 Peddapuram	2	0.03	23	0.46	10	0.43	..	..	..	..	49	45	94	127.72	
10 Amalapuram	3	0.14	23	1.08	2	0.09	..	..	..	..	39	26	65	115.25	
West Godavari—															
11 Eluru	35	0.40	46	0.52	62	0.70	4	0.05	..	..	119	98	217	106.06	
12 Palacole	13	0.56	30	1.30	9	0.39	..	..	..	..	82	48	130	15.81	
13 Bheemavararam	7	0.22	10	0.32	9	0.29	..	..	..	..	24	19	43	56.51	
Krishna—															
14 Vijayavada	114	0.70	27	0.16	106	0.65	1	0.01	..	..	247	203	450	110.10	
15 Masulipatnam	48	0.61	14	0.13	63	0.80	..	..	..	..	157	147	304	1.644	
16 Gudur	8	0.09	32	0.99	3	0.09	..	..	..	..	72	52	124	92.86	
Guntur—															
17 Guntur	94	0.75	65	0.52	106	0.86	7	0.07	..	..	225	185	410	74.86	
18 Tenali	68	1.16	7	0.12	56	0.05	2	0.03	..	..	126	93	219	110.94	
19 Ongole	46	1.64	8	0.20	43	1.34	1	0.04	..	..	89	85	174	127.20	
20 Narasapur	9	0.40	12	0.54	16	0.71	..	..	1	0.04	75	55	130	143.49	
21 Chirala	25	0.66	10	0.26	40	1.05	..	..	..	..	47	33	80	79.76	
Bellary—															
22 Bellary	64	0.40	83	1.24	144	2.03	7	0.10	..	..	163	111	274	117.19	
23 Adoni	48	0.89	60	1.11	67	1.24	..	..	..	..	71	55	126	69.23	
24 Ho-pet	32	0.82	35	0.90	26	0.67	..	..	..	..	85	69	154	115.79	
Araniapur—															
25 Anantapur	19	0.59	31	0.96	3	0.09	3	0.09	..	..	27	21	48	40.89	
26 Hindupur	29	1.36	23	2.11	20	1.28	..	..	..	..	58	40	98	132.44	
27 Talipati	1	0.05	38	1.95	10	0.51	..	..	..	..	32	17	49	77.83	
28 Guntakal	8	0.25	26	0.82	20	0.63	10	0.32	..	..	37	26	63	72.25	
Kurnool—															
29 Kurnool	85	1.40	25	0.41	66	1.09	4	0.07	..	..	156	103	259	89.93	
30 Nandyal	54	1.61	38	1.13	60	1.79	..	..	..	..	74	69	143	110.92	

Cuddalore—	Pneumonia.		Other respiratory diseases.		Pulmonary Tuberculosis.		Diphtheria.		Cerebro spinal fever.		Deaths under one year.		Infant mortality rate per 1,000 live birth.
	(11)		(12)		(13)		(14)		(15)		(17)		
	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Deaths.	Rate per mille.	Males.	Females.	Total.
31 Cuddalore	12	0.22	15	0.40	67	1.77	4	0.11	..	..	58	50	108
32 Proddatur	37	1.00	25	0.68	45	1.23	..	..	..	..	79	104	183
Madras—													
33 Madras	..	..	9,933	9.92	898	0.63	..	..	..	..	5,121	4,700	9,821
Nellore—													
34 Nellore	132	1.60	32	0.39	82	1.00	4	0.06	1	0.01	319	269	588
Chingleput—													
35 K. Chingleput	321	3.77	183	2.15	85	1.00	..	..	2	0.02	234	193	427
36 Tiruvallur	14	0.73	43	2.25	1	0.05	..	..	..	..	42	53	95
37 Chingleput	76	3.33	18	0.79	41	1.80	..	..	..	..	74	56	130
Chittoor—													
38 Chittoor	27	0.69	14	0.36	38	0.97	..	..	..	..	91	71	162
39 Tirupati	19	0.75	20	0.79	34	1.34	..	..	..	..	47	41	88
North Arcot—													
40 Vellore	206	1.92	116	1.07	158	1.47	5	0.05	..	..	325	276	600
41 Tiruvannamalai	97	2.37	33	0.78	36	0.84	..	..	..	..	100	84	184
42 Tiruvannamalai	13	0.25	60	1.64	63	1.37	..	..	..	..	90	100	190
43 Vaidyanbadi	43	1.10	60	1.64	29	0.74	2	0.07	..	..	82	67	149
44 Tirupattur	70	2.58	3	0.11	24	0.85	..	..	..	..	45	42	87
45 Vaidyapet	30	1.10	43	0.71	27	0.26	..	..	1	0.03	37	35	72
46 Ambur	4	0.10	43	1.19	26	0.65	..	..	..	..	59	66	125
South Arcot—													
47 Cuddalore	32	0.46	77	1.10	95	1.37	3	0.04	2	0.03	176	136	312
48 Cuddalore	18	0.51	22	0.53	50	1.43	..	..	..	..	78	74	152
49 Villupuram	52	1.44	32	0.89	76	2.12	..	..	..	..	81	77	158
50 Tiruvannamalai	14	0.47	46	1.33	61	2.03	..	..	..	..	63	50	116
Tamilnadu—													
51 Tanjore..	117	1.15	59	0.49	144	1.42	10	0.09	..	..	238	204	442
52 Kumbhakram..	120	1.60	35	0.33	117	1.26	1	0.01	..	..	196	176	372
53 Kumbhakram..	18	0.31	46	0.79	43	0.74	1	0.02	1	0.02	132	114	246
54 Mayaram	70	1.60	28	0.64	19	0.43	..	..	..	..	67	66	133
55 Mannargudi	62	2.06	52	1.73	27	0.90	..	..	..	..	80	67	147
56 Tiruvannamalai	35	1.28	2	0.07	21	0.77	..	..	..	..	52	31	83
Tiruchirappalli—													
57 Tiruchirappalli	358	2.52	441	2.00	99	0.45	16	0.07	..	..	378	359	737
58 Tiruchirappalli	22	0.46	39	0.62	16	0.42	..	..	..	..	72	77	149
59 Tiruchirappalli	53	1.23	23	0.62	50	1.11	1	0.02	..	..	51	47	98
Madurai—													
60 Madurai	1,727	4.72	230	0.62	591	1.62	19	0.05	4	0.01	1,075	948	1,973
61 Dindigul	96	1.06	77	0.85	62	0.62	7	0.07	11	0.12	149	168	317
62 Pudukkottai	6	0.17	11	0.30	11	0.30	..	..	..	..	88	48	136
63 Periyakulam	80	2.56	38	1.16	58	1.86	1	0.03	2	0.06	82	74	156
64 Periyakulam	44	1.26	216	7.07	87	2.56	1	0.03	..	..	86	88	184
65 Palai	49	4.45	9	0.82	6	0.55	1	0.00	2	0.18	25	24	49
66 Kodakkal	..	..	..	..	..	..	..	..	..	..	..	..	..
Ramanathapuram—													
67 Ramanathapuram	140	2.28	26	0.42	49	0.80	..	..	..	..	134	106	240
68 Srivilliputhur	3	0.05	4	0.05	85	1.82	..	..	..	..	125	96	221
69 Srivilliputhur	65	1.40	22	0.49	69	1.70	..	..	..	..	135	135	269
70 Srivilliputhur	16	0.39	12	0.66	49	1.26	..	..	..	..	93	64	157
71 Srivilliputhur	18	0.49	65	1.66	65	2.84	1	0.04	..	..	84	46	130
72 Srivilliputhur	16	0.35	27	1.16	65	1.63	..	..	..	..	83	61	144
73 Aruppukottai	19	0.66	11	0.23	89	1.63	2	0.04	3	0.04	125	137	263

Serial number and municipalities.	Malaria.		Enteric fever.		Measles.		Relapsing fever.		Kala-Azar.		Influenza.		Other fevers.		Dysentery.		Diarrhoea.	
	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)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Tirunelveli—																		
74 Tuticorin ..	14	0.14	11	0.11	..	..	..	..	1	0.01	..	0.01	164	1.64	145	1.45	53	0.53
75 Tirunelveli ..	1	0.01	1	0.01	..	..	..	..	..	..	..	..	48	0.48	77	1.04	78	1.06
76 Pudukkottai ..	1	0.02	12	0.30	..	..	..	..	..	..	..	..	85	1.09	32	0.79	43	1.07
77 Melapalayam ..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.24	17	0.45	46	1.21
Salem—																		
78 Salem ..	86	0.46	58	0.28	..	..	..	..	..	..	..	..	58	0.28	91	0.44	79	0.38
79 Rasipuram ..	4	0.17	2	0.08	..	..	..	..	..	..	..	..	118	4.85	12	0.52	7	0.30
(Chombatore—																		
80 Chombatore ..	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	7	0.29	..	..	..	..	..	..	200	2.86	99	2.34	10	0.24
84 Narasapuram ..	5	0.21	9	0.37	..	..	..	..	..	..	..	..	67	2.76	35	1.44	21	0.84
85 Udumalpet ..	1	0.04	14	0.60	..	..	..	..	..	..	..	0.04	6	0.26	17	0.72	14	0.60
86 Mettupalayam ..	34	1.22	22	0.79	..	..	..	..	..	..	2	0.07	11	0.40	63	2.27	36	1.29
87 Obichettipalayam ..	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 Puthatt ..	6	0.09	28	0.40	..	..	..	..	..	..	..	..	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	0.76
93 Cannanore ..	1	0.02	6	0.14	..	..	..	..	..	..	..	..	138	3.23	10	0.23	7	0.16
94 Ceehin ..	..	..	33	1.10	..	..	..	..	..	..	..	..	9	0.30	43	1.43	16	0.55
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	8,417	1.23	6,422	0.93

Serial number and municipalities.	Pneumo- nia.		Other respiratory diseases.		Pulmonary Tuberculo- sis.		Diphtheria.		Cerebro Spinal fever.		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.	(18)
Tirunelveli—														
74 Tuticorin ..	129	1.29	239	2.40	235	2.36	2	0.02	..	..	325	312	637	178.66
75 Tirunelveli ..	214	2.89	56	0.74	138	1.80	..	..	..	..	241	217	458	178.70
76 Pudukkottai ..	49	1.22	5	0.12	98	2.43	3	0.07	..	..	142	99	241	188.89
77 Melapalayam ..	18	0.84	25	0.66	90	2.38	..	..	..	..	78	61	134	166.87
Salem—														
78 Salem ..	346	1.67	94	0.45	281	0.87	11	0.05	..	..	343	331	674	92.30
79 Rasipuram ..	4	0.17	24	1.03	2	0.09	..	..	..	..	39	31	70	116.64
(Chombatore—														
80 Chombatore ..	412	2.06	412	2.60	224	1.12	18	0.09	..	..	786	651	1,437	163.54
81 Erode ..	152	2.61	40	0.69	60	1.08	11	0.19	..	..	118	111	229	198.86
82 Tiruppur ..	34	0.58	61	0.95	54	0.85	2	0.03	..	..	143	115	258	138.86
83 Pollachi ..	48	1.13	31	0.73	27	0.64	..	..	..	..	160	117	277	138.81
84 Narasapuram ..	5	0.21	..	..	20	0.82	..	..	..	..	34	28	62	98.47
85 Udumalpet ..	46	1.96	41	1.74	5	0.18	1	0.04	..	..	69	56	125	88.45
86 Mettupalayam ..	72	2.69	32	1.15	..	..	..	..	..	..	67	67	134	147.35
87 Obichettipalayam ..	19	0.62	32	1.04	..	..	..	..	..	..	70	53	123	160.78
The Nilgiris—														
88 Ootacamund ..	164	3.92	41	0.98	10	0.28	..	..	..	..	107	101	208	114.79
89 Coonoor ..	33	3.44	28	1.16	8	0.12	4	0.17	..	..	82	60	142	126.22
Malabar—														
90 Kozhikode ..	67	0.42	62	0.39	393	2.46	4	0.03	1	0.01	304	311	615	88.80
91 Puthatt ..	91	1.30	49	0.70	91	1.30	29	0.03	..	..	156	134	290	114.60
92 Tellicherry ..	28	0.70	9	0.22	74	1.84	1	0.02	..	..	71	61	132	76.89
93 Cannanore ..	5	0.11	37	0.87	37	0.87	..	..	..	..	60	43	103	76.93
94 Ceehin ..	33	1.10	38	1.27	58	1.93	..	..	..	..	48	51	99	76.27
South Kanara—														
95 Mangalore ..	90	0.76	55	0.46	282	1.71	2	0.02	..	..	158	151	309	67.01
96 Udipi ..	9	0.44	11	0.54	43	2.10	2	0.10	..	..	43	29	72	74.46
Total for the State ..	7,786	1.13	14,978	2.11	7,227	1.05	189	0.03	44	0.01	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.	(1)	(2)	(3)	(4)	January.	February.	March.	April.	May.	June.	July.	August.
						(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, { Plains	..	..	12	843	4	4	29	42	40	10	24	42
4	East. { Agency	..	..	4	967	2	..	14	6	..	..	..	..
5	Godavari, { Plains	..	..	10	745	..	..	6	7	..	1	..	17
6	West. { Agency	..	..	1	131	..	..	..	2	1	..	..	13
7	Krishna	..	..	12	987	2	26	13	3	1	..	..	4
8	Guntur	..	..	14	1,145	29	8	28	17	16	15	55	65
9	Bellary	..	..	12	987	7	..	1	7	21	22	40	38
10	Anantapur	..	..	13	868	..	..	12	26	26	57	69	49
11	Kurnool	..	..	12	891	15	16	5	3	99	67	25	2
12	Cuddapah	..	..	10	1,034	6	..	..	16	344	401	131	1
13	Madras	..	..	1	1	18	6	7	3	21	15	4	15
14	Nellore	..	..	14	1,689	209	172	43	38	57	80	105	63
15	Chingleput	..	..	10	2,176	228	67	42	36	68	50	47	139
16	Chittoor	..	..	11	2,204	3	41	5	34	18	57	33	58
17	North Arcot	..	..	18	2,025	219	77	62	51	88	44	92	65
18	South Arcot	..	..	12	2,271	370	352	165	173	85	80	175	556
19	Tanjore	..	..	17	2,464	778	594	130	8	5	1	9	28
20	Tiruchirappalli	..	..	14	1,338	515	408	125	102	65	46	22	8
21	Madurai	..	..	14	1,077	252	208	291	199	140	36	13	2
22	Ramanathapuram	..	..	16	1,535	147	89	170	135	174	54	8	9
23	Tirunelveli	..	..	13	1,094	799	350	360	182	36	..	5	1
24	Salem	..	..	13	1,786	109	32	55	68	31	1	14	11
25	Coimbatore	..	..	18	1,203	248	532	268	279	95	25	10	7
26	Nilgiris, The	..	..	5	105	..	..	..	..	4	..	..	..
27	Malabar	..	..	15	847	..	..	..	23	2	..	..	..
28	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.	(13)	(14)	(15)	(16)	Total.		Ratio of deaths per 1,000 of estimated mid-year population.		Average of the ratio published for the last five years.
						Males.	Females.	Males.	Females.	
1	Srikakulam	17	..	5	6	291	314	0.29	0.30	0.01
2	Visakhapatnam	10	13	..	..	13	27	0.01	0.03	0.64
3	Godavari, { Plains	55	57	11	..	174	144	0.16	0.13	0.25
4	East. { Agency	20	1	1	..	26	18	0.25	0.17	0.37
5	Godavari, { Plains	69	13	..	13	53	78	0.06	0.10	0.22
6	West. { Agency	..	..	..	..	7	9	0.14	0.18	0.32
7	Krishna	2	..	..	..	24	27	0.03	0.03	0.24
8	Guntur	10	..	..	3	141	105	0.11	0.08	0.14
9	Anantapur	5	7	11	4	76	87	0.12	0.14	0.12
10	Kurnool	20	12	1	..	184	118	0.22	0.18	0.14
11	Madras	..	12	..	..	129	115	0.20	0.18	0.25
12	Nellore	..	12	..	..	486	417	0.81	0.73	0.82
13	Chingleput	71	24	8	24	120	96	0.16	0.14	0.95
14	Chittoor	153	36	23	..	504	395	0.56	0.44	0.30
15	North Arcot	56	64	46	49	445	391	0.47	0.43	0.33
16	South Arcot	139	22	35	12	476	430	0.34	0.30	0.36
17	Tanjore	325	46	9	30	1,266	1,100	0.89	0.78	0.84
18	Tiruchirappalli	6	4	1	4	799	769	0.54	0.51	0.66
19	Madurai	10	5	2	..	699	609	0.48	0.41	0.50
20	Ramanathapuram	4	..	..	..	624	531	0.42	0.36	0.70
21	Tirunelveli	6	..	..	..	409	383	0.41	0.35	0.53
22	Salem	10	..	4	4	895	907	0.70	0.72	0.51
23	Coimbatore	1	..	3	..	158	176	0.09	0.10	0.26
24	Nilgiris, The	..	..	..	..	776	689	0.47	0.44	0.36
25	Malabar	..	..	..	..	3	1	0.02	0.01	0.02
26	South Kanara	..	..	..	..	14	11	0.01	0.004	0.01
Total for the State		1,074	322	160	149	8,929	8,184	0.31	0.29	0.32

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No. VIII.—Deaths from Smallpox registered in the districts in the State of Madras during each month of the year 1951.

Serial number	Districts.	(1)	(2)	(3)	(4)	January.	February.	March.	April.	May.	June.	July.	August.
				Number of circles of registration (talukas and municipalities).	Number of villages or groups of villages and towns from each of which death return is received.								
1	Srikakulam	11	2,717	190	253	418	237	69	152	64	65	64	65
2	Visakhapatnam	12	1,279	20	50	65	30	41	57	57	50	57	50
3	Godavari, { Plains East. } Agency	12	843	79	61	64	50	36	20	15	25	15	25
4	Godavari, { Plains West. } Agency	10	967	11	15	3	1	..	2	..	..	..	..
5	Krishna	12	1,145	81	97	163	123	13	9	37	20	37	20
6	Guntur	14	1,145	437	384	445	324	172	65	92	65	92	65
7	Bellary	12	997	18	27	56	19	14	15	32	15	32	15
8	Anantapur	13	868	34	54	118	92	62	57	35	57	35	57
9	Kurnool	12	891	65	116	233	149	88	102	68	102	68	102
10	Cuddapah	10	1,034	63	76	119	122	67	74	36	74	36	74
11	Madras	14	1,689	57	66	85	62	36	36	42	36	42	36
12	Nellore	10	2,176	145	124	153	124	75	40	23	40	23	40
13	Chingleput	11	2,204	22	35	58	30	16	31	45	31	45	32
14	Chittoor	18	2,025	158	138	183	79	61	76	108	76	108	94
15	North Arcot	12	2,271	85	119	246	141	128	43	101	43	101	94
16	South Arcot	17	2,464	24	42	79	62	45	35	43	35	43	76
17	Tanjore	14	1,338	55	66	22	17	15	45	24	45	24	31
18	Tiruchirappalli	14	1,077	89	75	43	43	69	28	31	28	31	29
19	Madurai	16	1,535	63	61	90	80	28	23	14	23	14	13
20	Ramanathapuram	13	1,094	38	64	152	63	25	42	39	42	39	40
21	Tirunelveli	13	1,786	97	95	245	89	68	93	108	93	108	79
22	Salem	18	1,203	100	206	398	252	93	66	31	66	31	28
23	Coimbatore	5	105	1	4	10	4	5	8	6	8	6	4
24	Nilgiris, The	15	847	67	59	123	95	37	28	54	28	54	50
25	Malabar	8	817	10	21	14	1	4	6	6	6	6	2
26	South Kanara	322	35,236	2,150	2,428	3,810	2,144	1,427	1,256	1,192	1,256	1,192	879
	Total for the State												

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Serial number.	Districts.	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1	Srikakulam	58	11	30	39	748	838	1,586	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, { Plains East. } Agency	28	4	19	4	200	205	405	83	180	0.14	0.18	0.18	0.22
4	Godavari, { Plains West. } Agency	12	..	2	..	22	24	46	10	15	0.21	0.23	0.22	0.36
5	Krishna	..	..	7	..	19	19	38	9	13	0.39	0.39	0.39	0.16
6	Guntur	37	19	1	36	312	325	637	178	271	0.34	0.37	0.36	0.24
7	Bellary	..	..	2	5	92	96	188	422	931	0.79	0.80	0.79	0.33
8	Anantapur	..	..	8	2	249	245	494	64	76	0.14	0.16	0.15	0.16
9	Kurnool	11	20	6	4	424	440	864	156	225	0.35	0.37	0.36	0.17
10	Cuddapah	16	16	24	21	342	353	695	259	403	0.66	0.70	0.68	0.32
11	Madras	7	3	3	10	226	264	490	151	321	0.57	0.62	0.60	0.19
12	Nellore	20	17	13	26	246	240	486	45	50	0.30	0.38	0.34	0.27
13	Chingleput	13	2	..	..	394	367	761	102	160	0.27	0.27	0.27	0.13
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	56	21	37	28	303	294	597	125	200	0.25	0.23	0.24	0.05
22	Salem	19	5	9	3	609	601	1,210	498	298	0.27	0.30	0.28	0.07
23	Coimbatore	17	1	..	..	28	15	43	5	14	0.17	0.10	0.14	0.03
24	Nilgiris, The	..	..	7	3	304	257	561	76	133	0.13	0.10	0.12	0.07
25	Malabar	2	..	..	..	38	28	66	7	23	0.01	0.03	0.04	0.04
26	South Kanara	663	353	304	330	8,500	8,736	17,236	3,921	6,694	0.30	0.31	0.30	0.13
	Total for the State													

Average of ratios published for the previous five years.

No. IX.—Deaths from Fevers (excluding Malaria) registered in the districts in the State of Madras during each month of the year 1951.

Districts.	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Srikakulam	..	11	2,717	1,865	1,646	2,033	1,305	1,684	1,270	1,365	1,452
Visakhapatnam	..	12	1,279	1,224	1,002	1,267	1,096	1,116	1,158	1,256	1,289
Godavari, { Plains	..	12	843	808	730	703	628	646	667	649	764
East. { Agency	..	4	967	142	117	154	93	113	88	76	173
Godavari, { Plains	..	10	745	524	505	533	477	512	478	593	597
West. { Agency	..	1	131	57	49	56	40	69	30	73	86
Krishna	..	12	987	524	496	453	515	597	550	579	672
Guntur	..	14	1,145	1,074	847	960	982	1,127	995	957	994
Bellary	..	12	997	337	381	448	376	357	434	479	426
Anantapur	..	13	868	572	472	839	636	526	436	498	484
Kurnool	..	12	891	650	689	1,026	755	734	661	769	800
Cuddapah	..	10	1,034	470	410	462	463	505	537	494	452
Madras	..	1	1	470	203	312	211	299	319	301	319
Nellore	..	14	1,689	553	532	554	487	559	464	489	531
Chingleput	..	10	2,176	553	551	707	482	495	589	495	406
Chittoor	..	11	2,204	481	515	602	479	474	473	510	454
North Arcot	..	18	2,025	1,055	977	939	791	971	1,054	943	908
South Arcot	..	12	2,271	1,015	548	680	663	662	655	661	653
Tanjore	..	17	2,464	836	374	350	320	353	361	154	177
Tiruchirappalli	..	14	1,338	893	884	821	719	932	817	729	678
Madurai	..	14	1,077	773	687	824	760	752	780	739	582
Ramanathapuram	..	16	1,535	858	778	719	683	792	928	819	719
Tirunelveli	..	13	1,094	970	602	627	625	699	528	593	572
Salem	..	13	1,786	821	846	900	804	930	869	760	787
Coimbatore	..	18	1,203	824	768	995	832	863	967	406	444
Nilgiris, The	..	5	105	42	61	60	61	74	83	69	47
Malabar	..	15	847	838	735	783	737	964	1,006	878	720
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 number.	Districts.	(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, { Plains	784	804	646	754	4,390	4,193	8,583	3.97	3.78	3.87	5.43
4	East. { Agency	112	116	48	237	826	643	1,469	7.87	6.18	7.03	9.92
5	Godavari, { Plains	635	577	511	596	3,196	3,332	6,528	3.95	4.14	4.06	5.15
6	West. { Agency	45	55	55	84	358	341	699	7.30	7.00	7.13	6.77
7	Krishna	686	653	548	650	3,585	3,338	6,923	3.94	3.79	3.86	5.29
8	Guntur	985	938	861	913	5,895	5,738	11,633	4.55	4.54	4.55	5.64
9	Bellary	421	286	433	408	2,520	2,268	4,788	3.97	3.69	3.84	6.86
10	Anantapur	434	383	462	582	3,209	3,115	6,324	4.56	4.70	4.62	5.38
11	Kurnool	704	592	637	570	4,435	4,152	8,587	6.88	6.60	6.74	10.20
12	Cuddapah	409	435	396	479	2,810	2,702	5,512	4.71	4.76	4.73	7.34
13	Madras	309	403	386	468	1,875	1,885	3,760	2.51	2.74	2.62	2.88
14	Nellore	540	541	536	517	3,267	3,071	6,338	3.61	3.43	3.52	4.24
15	Chingleput	392	228	451	474	2,765	2,765	5,523	3.24	3.02	3.13	2.74
16	Chittoor	357	318	398	445	2,892	2,704	5,596	3.11	3.04	3.08	3.48
17	North Arcot	604	530	562	520	3,963	3,800	7,763	3.97	3.86	4.03	4.13
18	South Arcot	154	216	244	194	1,679	1,574	3,253	2.84	2.74	2.59	3.32
19	Tanjore	588	628	946	864	4,944	4,555	9,499	1.14	1.03	1.09	1.72
20	Tiruchirappalli	436	613	831	916	4,687	4,026	8,713	3.37	3.06	3.22	3.59
21	Madurai	519	644	675	595	4,338	4,361	8,729	3.24	2.76	3.00	3.14
22	Ramanathapuram	491	604	798	1,031	4,065	4,075	8,140	4.38	4.01	4.19	4.93
23	Tirunelveli	792	694	646	766	5,003	4,612	9,615	3.41	3.23	3.32	3.86
24	Salem	306	403	295	278	3,850	3,531	7,381	2.32	2.14	2.23	3.71
25	Coimbatore	17	26	51	36	333	294	627	2.01	1.96	1.99	4.30
26	Nilgiris, The	623	617	1,063	686	4,771	4,879	9,650	2.05	1.98	2.02	2.75
27	Malabar	464	501	660	459	2,956	3,026	5,982	3.50	3.32	3.40	5.39
28	South Kanara	15,506	15,442	16,324	17,125	105,167	100,476	205,643	3.70	3.51	3.80	4.48
Total for the State		..	..	..	..	..	..	..	..	..	..	..

Average of the published rates for the previous five years.

Rates of deaths per 1,000 of estimated mid-year population.

Total.

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.	(1)	(2)	Number of circles of registration (talukas and municipalities).												Total for the State	322	35,236	521	484	472	412	475	569
				(3)	(4)	(5)	January.	February.	March.	April.	May.	June.	July.	August.										
1	Srikakulam	..	..	11	2,717	30	15	25	15	25	25	15	15	21	14	15	15	21	14	15	15			
2	Visakhapatnam	..	..	12	1,279	14	13	9	13	9	17	13	11	16	11	11	11	16	11	11	11			
3	Godavari, { Plains East. } Agency	..	..	12	843	14	11	11	11	11	17	11	11	7	4	4	3	7	5	5	5			
4	Godavari, { Plains West. } Agency	..	..	10	967	15	1	..	1	..	13	7	13	1	5	5	1	1	..	..	..			
5	Krishna	..	..	1	745	19	7	7	7	7	2	1	1	6	7	7	7	6	7	6	6			
6	Guntur	..	..	12	131	1	9	2	9	2	9	1	1	..	..	..	1	..	6	3	3			
7	Bellary	..	..	14	987	45	17	25	17	25	25	25	25	9	6	25	9	9	8	12	12			
8	Anantapur	..	..	12	1,145	10	25	17	25	17	11	6	11	16	11	11	11	16	11	11	11			
9	Kurnool	..	..	13	997	19	23	19	23	19	23	23	24	12	19	23	24	12	28	16	16			
10	Cuddapah	..	..	12	868	13	18	34	18	34	34	23	19	14	13	23	19	14	33	33	33			
11	Madras	..	..	10	891	39	30	46	30	46	46	49	34	27	40	49	34	27	40	36	36			
12	Nellore	..	..	1	1,034	16	15	7	15	7	7	22	14	11	11	22	14	11	11	6	6			
13	Chingleput	..	..	14	1	5	8	13	8	13	13	6	10	7	4	6	10	7	7	7	7			
14	Chittoor	..	..	10	1,689	55	50	35	50	35	35	23	44	41	23	23	44	41	51	47	47			
15	North Arcot	..	..	11	2,176	6	21	2	21	2	2	5	17	..	1	5	17	..	1	20	20			
16	South Arcot	..	..	18	2,204	8	4	11	4	11	11	8	13	11	11	11	13	11	16	17	17			
17	Tanjore	..	..	12	2,025	9	5	5	5	5	5	14	46	18	14	14	46	18	16	17	17			
18	Tiruchirappalli	..	..	17	2,271	10	8	1	8	1	1	2	..	1	3	1	..	2	3	3	3			
19	Madurai	..	..	14	2,464	1	3	..	3	..	..	2	..	2	..	2	..	2	..	..	..			
20	Ramanathapuram	..	..	16	1,338	16	25	10	25	10	10	15	14	11	8	14	14	11	8	81	81			
21	Tirunelveli	..	..	13	1,077	9	4	6	4	6	6	7	7	33	35	35	7	33	35	55	55			
22	Salem	..	..	13	1,535	3	1	1	1	1	1	4	3	2	1	14	3	2	14	14	14			
23	Coimbatore	..	..	18	1,094	3	4	..	4	..	..	9	2	..	2	1	2	..	2	19	19			
24	Nigeris, The	..	..	15	1,786	10	11	15	11	15	15	6	12	9	13	12	12	9	13	7	7			
25	Malabar	..	..	5	1,203	18	17	20	17	20	20	14	10	6	10	10	9	6	10	5	4			
26	South Kanara	..	..	8	105	4	6	1	6	1	1	1	9	10	75	134	71	10	128	71	71			
		..	..	8	847	69	80	77	80	77	62	26	44	43	30	44	44	43	30	44	36			
		..	..	8	817	60	53	62	53	62	42	412	514	412	475	569	569	475	569	569	569			

Districts.

Serial number.	Districts.	Total.				Ratio of deaths per 1,000 of estimated mid-year population.						
		September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	
		(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	0.09
2	Visakhapatnam ..	24	21	14	20	90	83	173	0.10	0.09	0.08	0.08
3	Godavari, { Plains	24	32	54	56	148	108	256	0.13	0.10	0.12	0.12
4	East. { Agency	2	3	9	8	33	18	51	0.31	0.17	0.24	0.24
	Godavari, { Plains	8	13	25	10	73	65	138	0.09	0.08	0.09	0.09
5	West. { Agency	5	5	9	..	24	17	41	0.49	0.34	0.42	0.42
	Krishna ..	23	15	10	10	107	101	208	0.12	0.11	0.12	0.12
6	Guntur ..	22	14	10	17	83	83	166	0.06	0.07	0.06	0.06
7	Ballary ..	24	7	8	24	96	131	227	0.15	0.21	0.18	0.18
8	Anantapur ..	15	8	8	13	107	104	211	0.16	0.16	0.16	0.16
9	Kurnool ..	33	46	30	24	210	224	434	0.33	0.36	0.34	0.34
10	Cuddapah..	4	8	1	2	63	54	117	0.11	0.10	0.10	0.10
11	Madras ..	6	5	12	8	52	39	91	0.07	0.06	0.06	0.06
12	Nellore ..	46	32	28	20	262	210	472	0.29	0.23	0.26	0.26
13	Chingleput ..	8	..	..	..	29	38	67	0.03	0.04	0.04	0.04
14	Chittoor ..	19	12	8	9	70	58	128	0.08	0.07	0.07	0.07
15	North Arcot ..	3	6	6	10	74	81	155	0.05	0.06	0.06	0.06
16	South Arcot ..	..	1	1	..	13	15	28	0.01	0.01	0.10	0.10
17	Tanjore ..	2	..	1	1	5	7	12	0.003	0.005	0.004	0.004
18	Tiruchireppalli ..	..	2	29	36	124	123	247	0.08	0.08	0.08	0.08
19	Madurai ..	22	43	32	30	174	109	283	0.12	0.07	0.10	0.10
20	Ramanathapuram ..	..	3	3	1	24	17	41	0.02	0.02	0.02	0.02
21	Tirunelveli ..	..	1	2	4	16	12	28	0.01	0.01	0.01	0.01
22	Salem ..	18	15	6	18	69	83	152	0.04	0.05	0.04	0.04
23	Coimbatore ..	5	7	13	13	73	66	139	0.04	0.04	0.04	0.04
24	Nilgiris, The ..	1	1	1	1	25	19	44	0.15	0.13	0.14	0.14
25	Malabar ..	60	47	18	1	436	405	841	0.19	0.16	0.18	0.18
26	South Kanara ..	42	32	5	..	230	203	433	0.27	0.22	0.25	0.25
Total for the State ..		432	389	350	350	2,816	2,564	5,380	0.10	0.09	0.09	0.09
												..

REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1951

Serial number.	Districts.	(3)	(4)	Number of villages or groups of villages and towns from each of which a birth and death return is received.					Number of circles of registration (Talukas and municipalities).			
				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	103	118	79	141	158	152	185	
3	Godavari, { Plains	12	843	119	99	169	132	131	121	128	226	
4	Godavari, { Agency	4	967	15	9	27	13	21	6	9	74	
5	Godavari, { Plains	10	745	104	70	86	90	132	110	187	213	
6	Godavari, { Agency	1	131	5	3	7	11	9	5	10	17	
7	Krishna	12	987	95	88	88	122	83	76	109	167	
8	Guntur	14	1,145	165	138	148	187	200	145	166	187	
9	Bellary	12	997	77	93	123	104	119	144	182	143	
10	Anantapur	13	868	167	146	163	138	149	150	227	222	
11	Kurnool	12	891	78	68	74	58	70	68	115	109	
12	Cuddapah	10	1,034	42	42	60	29	75	60	60	44	
13	Nellore	14	1,689	336	345	326	374	546	482	461	602	
14	Chingleput	10	2,176	316	227	118	112	136	121	172	164	
15	Chittoor	18	2,025	182	185	132	115	167	166	154	237	
16	North Arcot	18	2,025	709	526	523	481	483	548	515	437	
17	South Arcot	12	2,271	345	465	332	200	267	276	304	375	
18	Tanjore	17	2,464	356	291	181	129	155	123	277	273	
19	Tiruchirappalli	14	1,338	335	344	279	196	275	170	208	285	
20	Ramanathapuram	14	1,077	295	244	255	238	277	247	201	308	
21	Tirunelveli	16	1,635	286	251	184	156	253	230	179	215	
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	86	29	19	
25	Malabar	15	847	187	255	228	333	460	464	434	274	
26	South Kanara	8	817	180	168	121	69	78	96	135	136	
Total for the State		322	35,236	5,933	5,468	5,059	4,479	5,505	5,231	5,585	6,088	

REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1951

Serial number.	Districts.	(13)	(14)	(15)	(16)	(17)	(18)	(19)	Ratio of deaths per 1,000 of estimated mid-year population.			Average of the ratio published for the previous five years.
									Males.	Females.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(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	105	114	875	752	1,627	0.93	0.78	0.78	1.13
3	Godavari, { Plains	235	234	181	146	986	935	1,921	0.89	0.84	0.87	1.04
4	Godavari, { Agency	37	27	26	42	167	139	306	1.59	1.34	1.46	1.15
5	Godavari, { Plains	208	147	77	125	781	768	1,549	0.96	0.96	0.96	1.35
6	Godavari, { Agency	6	5	3	4	44	41	85	0.90	0.83	0.87	0.75
7	Krishna	122	82	73	75	654	526	1,180	0.72	0.60	0.66	0.75
8	Guntur	181	133	146	125	996	915	1,911	0.77	0.72	0.75	1.07
9	Bellary	109	74	96	85	699	650	1,349	1.10	1.06	1.08	1.47
10	Anantapur	149	102	114	138	960	905	1,865	1.36	1.37	1.36	1.63
11	Kurnool	92	71	67	67	473	464	937	0.73	0.74	0.74	1.08
12	Cuddapah	52	50	47	57	322	296	618	0.54	0.52	0.53	0.79
13	Madras	512	480	529	702	2,862	2,833	5,695	3.84	4.12	3.97	3.56
14	Nellore	148	131	103	114	894	701	1,595	0.99	0.78	0.89	1.04
15	Chingleput	238	189	152	195	1,198	1,090	2,288	1.27	1.19	1.23	1.36
16	Chittoor	143	125	144	142	1,046	960	2,006	1.13	1.08	1.10	1.34
17	North Arcot	405	458	442	580	3,111	2,996	6,107	2.17	2.09	2.19	1.82
18	South Arcot	274	174	211	310	1,868	1,665	3,533	1.34	1.20	1.27	1.50
19	Tanjore	282	351	592	525	1,779	1,756	3,535	1.21	1.15	1.18	1.09
20	Tiruchirappalli	333	339	279	303	1,641	1,705	3,346	1.12	1.15	1.13	0.69
21	Madurai	241	261	244	369	1,584	1,596	3,180	1.09	1.59	1.09	1.18
22	Ramanathapuram	280	218	208	245	1,314	1,391	2,705	1.32	1.28	1.30	1.31
23	Tirunelveli	114	163	193	278	1,226	1,233	2,459	1.03	0.98	1.00	0.75
24	Salem	318	274	266	313	1,805	1,719	3,524	1.06	1.55	1.63	1.26
25	Coimbatore	436	528	570	662	2,832	2,556	5,388	1.70	1.21	1.20	2.00
26	Nilgiris, The	24	25	37	33	197	181	378	0.67	0.67	0.67	1.06
27	Malabar	187	168	145	73	1,670	1,638	3,208	0.72	0.72	0.74	1.13
28	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. XII.—Deaths from Plague registered in the districts in the State of Madras during each month of the year 1951.

Serial number.	Districts.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
				Number of circles of registration (talukas and municipalities).	Number of village or groups of villages or towns from each of which a death return is received.	January.	February.	March.	April.	May.	June.	July.	August.
1	Srikakulam	11	..	2,717	..	..	..	..	..	..	..	..	..
2	Visakhapatnam	12	..	1,279	..	..	..	..	..	..	..	..	..
3	Godavari, { Plains	12	..	843	..	..	..	..	..	..	..	..	..
4	Godavari, { Agency	4	..	967	..	..	..	..	..	..	..	..	..
5	Godavari, { Plains	10	..	745	..	..	..	..	..	..	..	..	..
6	Godavari, { Agency	1	..	131	..	..	..	..	..	..	..	..	..
7	Krishna	12	..	987	..	..	..	..	..	..	..	..	..
8	Guntur	14	..	1,145	..	..	..	..	..	..	..	..	..
9	Bellary	12	..	997	..	..	..	..	..	..	..	..	..
10	Anantapur	13	..	868	..	..	..	..	..	..	..	..	..
11	Kurnool	12	..	891	..	..	..	..	..	..	..	..	..
12	Cuddapah	10	..	1,024	..	..	..	..	..	..	..	..	..
13	Madras	1	..	1	..	..	..	..	..	..	..	..	..
14	Nellore	14	..	1,689	..	..	..	..	..	..	..	..	..
15	Chingleput	10	..	2,176	..	..	..	..	..	..	..	..	..
16	Chittoor	11	..	2,204	..	..	..	..	..	..	..	..	..
17	North Arcot	18	..	2,025	..	..	..	..	..	..	..	..	..
18	South Arcot	12	..	2,271	..	..	..	..	..	..	..	..	..
19	Tanjore	17	..	2,464	..	..	..	..	..	..	..	..	..
20	Tiruchirappalli	14	..	1,338	..	..	..	..	..	..	..	..	..
21	Madurai	14	..	1,077	..	..	..	..	..	..	..	..	..
22	Ramanathapuram	16	..	1,535	..	..	..	..	..	..	..	..	..
23	Tirunelveli	13	..	1,094	..	..	..	..	..	..	..	..	..
24	Salem	13	..	1,786	..	..	..	..	..	..	..	..	..
25	Coimbatore	18	..	1,203	..	..	..	..	..	..	..	..	..
26	Nilgiris, The	5	..	105	..	..	..	..	..	..	..	..	..
27	Malabar	15	..	847	..	..	..	..	..	..	..	..	..
28	South Kanara	8	..	817	..	..	..	..	..	..	..	..	..
	Total for the State	322	..	35,236	..	34	9	3	..	5	..	..	..

Serial number	Districts.	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
		September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	Average of the ratio published for the previous five years.
1	Srikakulam	..	..	..	..	..	..	..	..	..	..	0.0006
2	Visakhapatnam	..	..	..	..	..	..	..	..	..	..	..
3	Godavari, { Plains	..	..	..	..	..	..	..	..	..	..	..
4	Godavari, { Agency	..	..	..	..	..	..	..	..	..	..	..
5	Godavari, { Plains	..	..	..	..	..	..	..	..	..	..	..
6	Godavari, { Agency	..	..	..	..	..	..	..	..	..	..	..
7	Krishna	..	..	..	..	..	..	..	..	..	..	..
8	Guntur	..	..	..	..	..	..	..	..	..	..	..
9	Bellary	..	..	..	..	..	..	..	..	..	..	..
10	Anantapur	..	..	..	..	..	..	..	..	..	..	..
11	Kurnool	..	..	..	..	..	..	..	..	..	..	..
12	Cuddapah	..	..	..	..	..	..	..	..	..	..	..
13	Madras	..	..	..	..	..	..	..	..	..	..	..
14	Nellore	..	..	..	..	..	..	..	..	..	..	..
15	Chingleput	..	..	..	..	..	..	..	..	..	..	..
16	Chittoor	..	..	..	..	..	..	..	..	..	..	..
17	North Arcot	..	..	..	..	..	..	..	..	..	..	..
18	South Arcot	..	..	..	..	..	..	..	..	..	..	..
19	Tanjore	..	..	..	..	..	..	..	..	..	..	..
20	Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..
21	Madurai	..	..	..	..	..	..	..	..	..	..	..
22	Ramanathapuram	..	..	..	..	..	..	..	..	..	..	..
23	Tirunelveli	..	..	..	..	..	..	..	..	..	..	..
24	Salem	..	..	..	..	..	..	..	..	..	..	..
25	Coimbatore	..	..	..	..	..	..	..	..	..	..	..
26	Nilgiris, The	..	..	..	..	..	..	..	..	..	..	..
27	Malabar	..	..	..	..	..	..	..	..	..	..	..
28	South Kanara	..	..	..	..	..	..	..	..	..	..	..
	Total for the State	..	..	..	..	28	23	51	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.	District.	Rural areas.										Urban areas.										Serial number.			
		Medical grad- uates hold- ing public health qual- ifications.					Vaccina- tors.					Medical grad- uates hold- ing public health qual- ifications.					Vaccina- tors.								
		Whole time.	Part time.	Whole time.	Part time.	Whole time.	Males.	Females.	Other Health staff.	School Medical Officers.	Other Medical staff.	Whole time.	Part time.	Whole time.	Part time.	Whole time.	Males.	Females.	Health Inspectors.	Sanitary Inspectors.	Health Inspectors.	Males.	Females.	School Medical Officers.	Other Health staff.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1 North Arcot	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
2 Salem	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
3 Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
4 Srirangam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
5 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
6 Madras	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
7 Vellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
8 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
9 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
10 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
11 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
12 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
13 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
14 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
15 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
16 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
17 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
18 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
19 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
20 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
21 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
22 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
23 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
24 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
25 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
26 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
27 Tiruchirappalli	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
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.	Agencies.	(1)	Total number of persons vaccinated.			Primary vaccination.						Total number of operations.	Total ages of all ages.	(11)
			(2)	(3)	(4)	(5)	0-1 year.	1-5 years.	5-10 years.	Above 10 years.				
											(6)				(7)	(8)	(9)	(10)
1 Godavari (East)	..	208,500	16,385	13,637	30,002	7,250	1,527	2,383	346	..	20	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	108	..	82	904		
4 Visakhapatnam	..	181,000	8,149	6,456	14,605	5,568	651	2,487	1,159	..	79	4,876		
Total of Agencies ..		541,200	39,521	30,617	67,138	17,755	3,224	6,717	1,741	131	..	11,813		
Districts.														
1 Anantapur	..	1,259,900	148,097	134,838	297,935	51,086	22,664	15,291	154	..	5	38,114		
2 Bellary	..	1,084,900	114,490	96,682	211,191	37,940	18,710	8,818	341	..	..	27,869		
3 Chingleput	..	1,731,000	141,183	122,225	263,391	44,847	17,881	12,937	1,082	..	102	32,002		
4 Chittoor	..	1,751,800	145,016	120,306	265,921	50,082	23,745	15,325	363	..	22	39,455		
5 Coimbatore	..	2,849,000	234,005	194,194	428,199	117,699	31,217	28,056	5,912	..	1,120	66,305		
6 Cuddapah	..	1,090,000	88,003	73,194	161,197	112,308	14,069	12,278	663	..	84	27,094		
7 Godavari (East)	..	1,966,200	159,531	132,201	286,244	38,000	14,069	24,769	2,633	..	420	39,490		
8 Godavari (West)	..	1,485,200	125,821	102,226	228,047	46,980	18,591	13,019	2,014	..	233	38,857		
9 Guntur	..	2,285,200	215,293	177,808	388,311	69,924	18,196	15,522	2,376	..	132	46,731		
10 Krishna	..	1,516,500	120,006	100,006	220,012	13,739	13,739	15,522	1,978	..	47	34,770		
11 Kurnool	..	1,719,700	138,041	115,138	253,179	47,060	20,853	18,029	2,186	..	149	57,244		
12 Madurai	..	2,348,800	204,219	168,628	372,842	91,415	36,880	22,969	4,257	..	893	48,972		
13 Malabar (North)	..	4,443,400	362,000	298,625	660,625	89,955	34,678	22,700	6,954	..	766	65,093		
14 Malabar (South)	..	1,719,700	138,041	115,138	253,179	106,222	16,141	22,495	2,159	..	88	40,923		
15 Nellore	..	1,485,200	125,821	102,226	228,047	56,261	23,271	3,269	243	..	9	6,498		
16 Nilgiris, The	..	2,562,100	206,446	168,448	374,894	109,219	50,153	28,450	2,864	..	411	81,868		
17 North Arcot	..	1,485,200	125,821	102,226	228,047	66,122	20,855	15,143	1,511	..	223	42,237		
18 Ramanathapuram	..	3,160,900	352,002	303,747	655,749	114,470	38,602	27,800	4,143	..	460	76,005		
19 Salem	..	2,611,200	490,055	401,119	891,174	107,482	36,121	26,787	3,608	..	1,380	67,716		
20 South Arcot	..	1,618,200	132,994	130,762	263,756	58,365	25,417	18,928	1,768	..	239	41,292		
21 South Kanara	..	2,643,500	256,996	211,297	468,293	118,145	28,070	32,039	6,548	..	1,231	67,553		
22 Tanjore	..	2,201,200	176,331	148,405	318,736	78,650	28,687	18,829	3,121	..	841	50,378		
23 Tirunelveli	..	2,608,600	230,480	187,662	418,142	106,290	27,982	25,561	1,907	..	1,207	63,019		
24 Tiruchirappalli	..	2,024,200	480,134	342,292	822,426	89,747	26,348	27,273	1,890	..	88	56,069		
25 Srikakulam	..	54,000	4,126	3,572	7,698	2,088	183	586	108	..	82	904		
26 Visakhapatnam	..	1,672,100	138,041	115,138	253,179	63,846	29,106	21,957	2,316	..	437	44,513		
Grand total for the districts ..		50,375,900	4,027,712	3,086,260	11,068,972	1,857,641	610,540	544,455	78,192	10,306	..	1,233,493		

Number and name of district.	Agencies.	Primary vaccination—cont.				Re-vaccination.					Total successful of all ages.			
		Unsuccessful.	(12)	(13)	Percentage of cases in which results were known.	Total number of operations.	(16)	Successful.	Unsuccessful.	Unknown.		Percentage of cases in which results were known.	(19)	(20)
1 Godavari (East)	..	1,589	1,405	728	28,484	1,121	15,227	7,136	6-9	5,377				
2 Godavari (West)	..	1,871	415	935	12,236	1,217	6,666	4,353	15-4	3,494				
3 Srikakulam	..	164	1,020	84-6	5,710	539	1,809	9,362	22-9	1,443				
4 Visakhapatnam	..	654	538	87-0	9,232	990	5,487	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	7,638	87-8	248,673	18,517	143,800	86,356	11-4	56,631				
2 Bellary	..	3,602	6,689	88-6	175,637	10,211	87,188	78,238	10-5	38,050				
3 Chingleput	..	2,954	9,989	91-5	210,171	15,516	117,590	76,765	11-6	47,518				
4 Chittoor	..	2,180	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	609,606	609,606	13-7	131,705				
6 Cuddapah	..	5,078	5,333	84-2	228,968	11,594	146,983	70,511	7-3	38,688				
7 Godavari (East)	..	5,863	9,413	87-1	308,447	22,013	168,364	118,070	11-6	61,503				
8 Godavari (West)	..	3,219	9,564	91-3	279,988	20,271	140,666	118,961	12-6	54,128				
9 Guntur	..	8,356	14,837	85-8	387,940	18,439	161,903	170,283	8-5	55,170				
10 Krishna	..	5,901	12,792	86-5	316,549	18,686	161,903	186,060	10-3	53,456				
11 Kurnool	..	8,113	7,570	79-5	285,101	13,149	151,115	120,887	8-0	44,528				
12 Madurai	..	4,696	29,475	92-4	392,010	32,205	188,874	170,981	14-6	89,449				
13 Malabar (North)	..	3,945	17,891	92-5	294,867	22,854	159,070	112,983	12-6	71,826				
14 Malabar (South)	..	4,147	20,710	94-0	468,784	43,440	236,133	169,161	14-5	108,583				
15 Nellore	..	9,337	9,832	81-4	209,128	9,978	118,991	80,169	7-7	50,901				
16 Nilgiris, The	..	1,46	1,071	97-9	49,181	4,614	80,654	13,963	18-1	11,110				
17 North Arcot	..	8,982	13,379	90-1	391,103	28,428	199,002	168,673	12-5	110,256				
18 Ramanathapuram	..	4,052	19,833	91-2	191,346	10,755	79,034	107,567	12-8	62,922				
19 Salem	..	6,982	31,633	91-6	543,815	26,373	267,364	290,088	9-3	102,373				
20 South Arcot	..	9,350	30,386	87-9	793,231	42,140	366,256	384,835	10-3	109,666				
21 South Kanara	..	1,910	10,203	96-0	212,695	21,617	116,637	75,011	16-4	62,596				
22 Tanjore	..	10,432	89,880	86-7	366,147	22,637	163,542	179,973	12-1	70,376				
23 Tirunelveli	..	7,406	21,497	87-3	352,263	21,993	123,564	106,701	11-7	87,090				
24 Tiruchirappalli	..	7,442	35,319	89-4	316,563	19,071	143,451	104,343	11-7	87,090				
25 Srikakulam	..	16,013	19,045	77-9	699,823	32,827	360,212	316,367	8-6	97,916				
26 Visakhapatnam	..	6,512	11,718	86-3	374,553	25,337	192,966	163,580	12-7	72,358				
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—contd.

Number and name of municipality.	Mid-year population for 1950, estimated	Total number of persons vaccinated.		Primary vaccination.						Above 10 years	Total ages of
		Males.	Females.	Total.	0-1 year.	1-5 years.	5-10 years.	Successful.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
1 Adoni ..	54,200	4,086	2,820	6,905	1,782	1,403	148	7	..	1,553	
2 Anantapur ..	82,300	1,492	1,012	2,504	775	393	203	48	..	1,894	
3 Anaparthi ..	21,300	10,145	8,261	18,406	2,083	324	1,189	431	..	1,107	
4 Anaparthi ..	40,500	4,863	15,697	20,560	2,109	881	952	33	..	1,816	
5 Aruppukottai ..	49,000	5,461	12,957	18,418	2,025	1,007	682	12	..	1,701	
6 Bellary ..	70,000	15,392	11,280	26,672	3,092	2,163	710	70	..	390	
7 Bellary ..	31,500	6,022	2,526	8,548	607	1,255	195	36	..	1,285	
8 Bellary ..	10,500	2,017	1,231	3,248	458	1,168	253	6	..	1,853	
9 Bellary ..	36,200	2,700	1,255	3,955	1,387	1,138	141	116	62	1,471	
10 Bellary ..	42,700	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
11 Bellary ..	35,000	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
12 Bellary ..	22,000	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
13 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
14 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
15 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
16 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
17 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
18 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
19 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
20 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
21 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
22 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
23 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
24 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
25 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
26 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
27 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
28 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
29 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
30 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
31 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
32 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
33 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
34 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
35 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
36 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
37 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
38 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
39 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
40 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
41 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
42 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
43 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
44 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
45 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	
46 Bellary ..	38,100	2,700	3,183	5,883	1,841	1,026	373	20	..	957	

REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1951												203																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516	1517	1518	1519	1520	1521	1522	1523	1524	1525	1526	1527	1528	1529

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.
	(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 ..	78	56	89.8	1,729	668	773	933	46.4	1,812
3 Anaparthi ..	28	163	88.6	16,328	2,423	9,589	4,861	26.3	4,312
4 Ambur ..	186	163	97.5	6,262	341	6,215	706	20.1	4,748
5 Anaparthi ..	186	163	97.5	6,262	341	6,215	706	20.1	4,748
6 Aruppukottai ..	19	258	96.2	28,144	4,834	24,174	9,086	16.8	6,740
7 Bellary ..	19	258	96.2	28,144	4,834	24,174	9,086	16.8	6,740
8 Bhimavaram ..	19	258	96.2	28,144	4,834	24,174	9,086	16.8	6,740
9 Bhimavaram ..	19	258	96.2	28,144	4,834	24,174	9,086	16.8	6,740
10 Bodinayakanur ..	28	74	97.8	2,780	1,076	1,245	459	45.4	1,531
11 Channarayana ..	28	74	97.8	2,780	1,076	1,245	459	45.4	1,531
12 Chidambaram ..	98	272	100.0	8,617	111	8,258	1,580	8.3	1,966
13 Chingleput ..	20	13	93.8	4,049	518	7,617	432	6.4	1,959
14 Chitrala ..	24	24	99.1	7,015	297	5,988	780	7.7	1,954
15 Chittoor ..	24	24	99.1	7,015	297	5,988	780	7.7	1,954
16 Coimbatore ..	46	46	96.4	8,825	522	1,612	1,491	24.5	1,952
17 Coimbatore ..	46	46	96.4	8,825	522	1,612	1,491	24.5	1,952
18 Coonoor ..	12	224	99.0	4,572	223	3,760	1,584	4.7	1,392
19 Cuddalore ..	12	224	99.0	4,572	223	3,760	1,584	4.7	1,392
20 Cuddalore ..	12	224	99.0	4,572	223	3,760	1,584	4.7	1,392
21 Devakottai ..	94	29	97.0	14,538	821	11,289	1,079	13.6	2,576
22 Devanahasi ..	94	29	97.0	14,538	821	11,289	1,079	13.6	2,576
23 Dindigul ..	14	30	98.2	1,189	1,189	2,980	1,981	10.8	2,283
24 Dindigul ..	14	30	98.2	1,189	1,189	2,980	1,981	10.8	2,283
25 Erode ..	13	37	98.3	15,663	890	14,705	3,173	18.7	6,387
26 Gobichettipalayam ..	13	37	98.3	15,663	890	14,705	3,173	18.7	6,387
27 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
28 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
29 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
30 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
31 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
32 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
33 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
34 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
35 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
36 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
37 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
38 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
39 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
40 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
41 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
42 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
43 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
44 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
45 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818
46 Gudiyatham ..	29	51	98.5	20,656	2,106	18,009	541	10.6	4,818

47 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
48 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
49 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
50 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
51 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
52 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
53 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
54 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
55 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
56 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
57 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
58 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
59 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
60 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
61 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
62 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
63 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
64 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
65 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
66 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
67 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
68 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
69 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
70 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
71 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
72 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
73 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
74 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
75 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
76 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
77 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
78 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
79 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
80 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
81 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
82 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
83 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
84 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
85 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
86 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
87 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
88 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
89 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
90 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
91 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
92 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
93 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
94 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
95 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
96 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
97 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
98 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
99 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666
100 Melapalayam ..	34	109	92.0	2,154	276	1,499	493	15.8	666

Total for municipalities	4,391	13,233	98.3	2,275,541	245,204	1,060,922	369,416	12.9	508,467
Poonamallee Health Unit	199	240	90.6	15,399	4,131	8,132	3,135	33.7	6,040
Carvery-Mettur Project	69	144	92.0	2,417	114	826	2,477	12.1	908
By medical subordinates and Fort Health staff.	53	344	100.0	57,448	36,625	18,424	2,499	60.5	37,497
Railways	53	344	98.2	25,424	5,613	16,171	9,740	20.4	8,341
Grand total	108,164	469,832	90.0	11,722,724	897,308	4,513,677	1,453,677	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.			(11) Number of all successful vaccinations performed.
	(2) Primary vacol.	(3) Revaccination.	(4) Primary vacol.	(5) Revaccination.	(6) Primary vacol.	(7) Revaccination.	(8) 0-1 year.	(9) 1-5 years.	(10) 5-10 years.	
(1) By special staff.										
Districts (excluding municipalities)	1,720,107	9,384,965	1,867,641	9,345,556	88.3	11.6	610,540	544,455	73,192	1,844,314
Municipalities	277,504	2,276,538	275,987	2,275,541	98.3	12.9	174,700	78,172	7,745	506,467
Provincial Health Unit	2,209	16,395	2,943	15,393	90.6	33.7	1,368	510	34	6,040
Projects	1,007	3,497	1,007	8,417	92.0	12.7	342	406	45	908
By medical subordinates and Port Health staff	8,126	41,289	1,147	57,443	100.0	66.5	490	481	..	37,497
By medical subordinates and Port Health staff	2,728	24,568	3,226	26,124	98.2	25.4	1,151	1,399	243	8,341
Grand total	2,020,781	11,095,175	2,144,255	11,722,423	90.0	12.4	788,566	625,423	81,259	2,408,507



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 the 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 diarrhoea 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.

Communicable disease control—(i) *Cholera*.—The incidence of cholera decreased during 1951 as compared with 1950. The number of deaths was 17,113 as against 33,004 in 1950. High mortality from cholera was recorded in the districts of South Arcot, Tirunelveli, Tanjore, Coimbatore, Tiruchirappalli and Madurai.

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 or cholera-carriers constituted a link between two successive outbreaks. No evidence could be obtained to that effect.

(ii) *Dysentery and diarrhoea*.—The number of deaths registered under these diseases in 1951 is less than the average mortality in any of the previous three decades. The mortality has decreased from 73,436 in 1950 to 65,633 in 1951.

(iii) *Enteric fever*.—In municipal areas 1,877 deaths were registered in 1951 as against 2,134 in the previous year. There has been a decrease in the number of deaths.

(iv) *Smallpox*.—It is observed that there were 71,068 attacks and 16,206 deaths from smallpox in 1951 as compared with 48,985 attacks and 14,269 deaths recorded during the year 1950. The districts that returned high mortality from the disease were Guntur, Srikakulam, Coimbatore and South Arcot.

The number of vaccinations and revaccinations done in the year is the highest during the last decade and covers 24.2 per cent of the estimated mid-year population.

(v) *Plague*.—During the year under review there were 139 attacks and 62 deaths from plague as compared to 173 attacks and 38 deaths in 1950. Stray cases were reported from the districts of Salem, Chittoor, South Arcot 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 free from plague.

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.

(vi) *Fevers*.—There has been a reduction in the mortality from 'other fevers' from 240,972 in 1950 to 205,643 in 1951.

(vii) *Malaria*.—The number of deaths was 5,380 in 1951 as against 6,224 in 1950.

Good progress has been maintained by the Malaria Organization of the department in controlling and eradicating the disease in the malaria-stricken areas. The advent of D.D.T. has made the control of malaria eminently feasible. The successful anti-malarial operations have made available more land for occupation and cultivation resulting in more work for men and more food production. Control operations conducted in large multipurpose project areas have removed the greatest handicap to the progress and execution of Engineering works.

(viii) *Filariasis*.—Extensive and detailed surveys were carried out by the Regional Malaria Organizations during the year in many panchayats and municipalities. Eighteen anti-filariasis schemes and 10 anti-mosquito schemes have been sanctioned by local bodies, and certain other local bodies are preparing control schemes at the instance of the Regional

Malariologists. Forty-four filariasis surveys were carried out by the Regional Malaria Organizations in the districts of Tanjore, Coimbatore, Bellary and Visakhapatnam.

(ix) *Guineaworm disease*.—The districts endemic for the disease are Chingleput, East Godavari, West Godavari, Anantapur, Bellary, Guntur, North and South Arcot and Srikakulam. Control operations have been carried out in many of the areas.

(x) *Respiratory diseases*.—The mortality from this group of diseases decreased from 97,385 in 1950 to 87,231 in 1951.

(xi) *Tuberculosis*.—The mortality from pulmonary tuberculosis accounts for nearly a fourth of the total deaths from respiratory diseases in municipal areas. B.C.G. vaccination campaign in the State inaugurated during the previous years was intensified during the year. Three B.C.G. vaccination teams—one of the Madras Corporation and two of the Government continued to carry out B.C.G. vaccination work in 1951. Forty-one thousand and thirty-two persons have been tested during the year, 14,402 persons who were non-reactors were vaccinated with B.C.G. vaccine during 1951 as compared with 11,147 vaccinated during the two years 1949 and 1950. The 'Mass Radiography Unit' was used and the workers in Buckingham and Carnatic Mills and the men of the Government Transport were x rayed.

(xii) *Leprosy*.—It is observed from the figures collected during the census of 1951 that the disease was least prevalent in Madras—Deccan and most in South Madras Zones. The incidence among males was more than that among females, the rate among males being $2\frac{1}{2}$ times that among females.

The State Leprosy Survey Unit at Vellore and the District Leprosy Survey Unit at Cuddalore continued to function during the year. Survey was conducted in 156 villages.

(xiii) *Venereal diseases*.—The number of cases of venereal diseases treated in hospitals has steadily increased. More people were treated for gonorrhoea than for syphilis during the last two years. The largest number of cases was in the districts of Madurai, Srikakulam, Visakhapatnam, Ramanathapuram and Guntur. The total number of patients that attended the hospitals in 1951 was 455,623 as against 446,115 in the previous year.

The Corporation of Madras and the Madurai Municipality established Venereal Diseases Clinics.

(xiv) *Kala azar*.—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 unit of the Medical department is collaborating with the field unit by treating kala-azar cases in district.

A comprehensive sand-fly survey in Madras city has also been taken up.

(xv) *Infectious diseases hospitals*.—Due to intensive efforts made, three groups of local authorities have agreed to construct and maintain three infectious diseases hospitals common to the respective neighbouring local authorities sharing the capital and recurring expenditure among themselves.

4. **Health Services**—(i) *Maternity and Child-welfare*.—There are 511 maternal and child health centres and maternity homes in the State. During the year under review five maternity homes were opened in Mayavaram, Bodinayakanur, Tirupur, Palni and Kozhikode. Out of 44 maternal and

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 circulation to local bodies and health staff on hire. Two copies of film on tuberculosis 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 deficient 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 introducing 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 Officers 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 Hygiene 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.

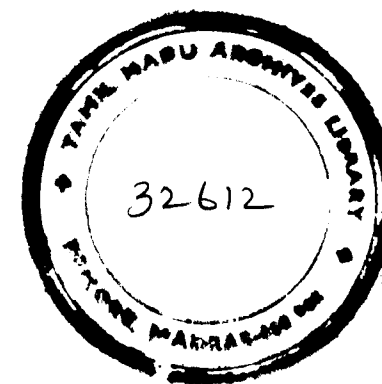
The municipalities have spent on public health much more than the statutory minimum and the district boards on the whole have spent a little above the statutory minimum.

(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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