

Report on the Health
conditions in Madras State
1952

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REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1952

CHAPTER I—VITAL STATISTICS.

POPULATION.

The extent and population of the Madras State as per 1951 census population are 127,790 square miles and 57,016,002 respectively giving a density of 446 per square mile. There are 99 municipal towns with a population of 6,882,481 as per 1951 census. In the non-municipal areas, there are certain census towns which are characterised as urban by census authorities. These towns with a population of 5,000 and above and the municipal towns have been taken to constitute urban areas and the rest as rural areas for purposes of analysis of vital statistics. As the list of census towns was made available late in 1952, vital statistics for the towns as per 1941 census were compiled. The population of urban areas was 10,567,121 and that of the rural areas was 46,448,881. Out of this rural population, 234,239 belong to the Agency areas in Srikakulam and Vishakapatnam. Except in the few villages comprising Araku Colony, there is no proper agency for registration of births and deaths in these areas. The figures of births and deaths for the whole of these Agencies are therefore not available. The population for which vital statistics are recorded is 56,781,763 as per 1951 census—the populations in urban and rural areas being 10,567,121 and 46,214,642 respectively. The urban population constitutes 18·6 per cent of total population of the State for which vital statistics are recorded.

For purposes of calculating vital statistical rates, the estimated mid-year populations of 1952 of the respective areas (districts, municipal and census towns) have been adopted. The estimated populations have been arrived at on the basis of arithmetic progression method, the annual rate of increase being that of the last two census years 1941 and 1951. The estimated mid-year population of the State as a whole for 1952 for which vital statistics are recorded, is 57,737,000 of whom 10,929,000 are in urban and 46,808,000 in rural areas.

The census authorities have not yet published their report. It is understood that the age composition of population for the State as a whole will not be published as in 1941 census. But a ten per cent random sample of population has been taken and the age distribution of this sample is given in annexure E. The percentages of populations in the different age groups in the sample as compared with that of 1931 population—the latest for which age composition is available, are given below :—

Age group.	Percentage of population in each age group to total.		Age group.	Percentage of population in each age group to total.	
	1951 Sample (popula- tion).	1931 State (popula- tion).		1951 Sample (popula- tion).	1931 State (popula- tion).
Under 1 year ..	2·57	2·79	10 to 20 years ..	21·81	20·54
1 to 5 years ..	9·49	11·71	20 to 60 years ..	48·17	47·48
5 to 10 years ..	11·90	12·86	Over 60 years ..	6·06	4·62
				100·00	100·00

The pattern of age composition in 1951 has slightly changed as compared with that of 1931. The percentage of population in the younger age group 1 to 10 years in 1951 is less than that in 1931, while percentage of old population aged over 60 years has increased.

Estimated populations for each group for the State have been worked out on the basis of the age composition of the sample population for calculating the age specific death rates.

Registration of Births and Deaths.—In municipal areas, registration of birth and deaths is compulsory under the provisions contained in the Madras District Municipalities Act and the rules framed thereunder. Whole time birth and death registrars with the Sanitary Inspector's qualification are appointed for this purpose.

In rural areas, registration of vital events is compulsory only in those villages where the Madras Registration of Births and Deaths Act, 1899 (Act II of 1899) is in force. To almost all the villages except those in backward areas in a few districts and in the Agencies, the Act has been extended. In some of the areas of big panchayats, registration of births and deaths is enforced by extending the provisions of the Madras District Municipalities Act relating to registration of births and deaths, so that the registration might be improved. During 1952, this was done in the case of Eral, Viravanallur Panchayats in Tirunelveli district and Kotagiri Panchayat in the Nilgiris district. It is hoped that many big panchayats will adopt this procedure to improve the registration of births and deaths in their areas. In villages where Act III of 1899 or provisions of District Municipalities Act have not been extended, registration is however done under the executive instructions of the Revenue Department.

In all the rural areas excluding the few panchayats where the provisions of the District Municipalities Act in regard to registration of births and deaths have been extended, the village headmen are generally appointed as birth and death registrars. These are not whole time registrars. Registration work is only one of their many duties. Consequently, the Registrars do not bestow as much attention on the subject as it deserves. This has become worse after extension of the compulsory provisions of births and deaths contained in Act III of 1899. During 1952, the health staff detected 54,854 unregistered births and 15,688 unregistered deaths. It is reported by several District Health Officers, this is largely due to the fact that the village headmen are generally of opinion that the onus of reporting vital events now rests entirely with the parties. Under section 15 of Act III of 1899, the Registrar should ascertain and register the particulars touching every birth or death which has not already been registered. This provision requiring the registrars also to enquire and register the vital events, should be impressed on the village headmen by the Collectors.

It is also reported by several Health Officers that the fortnightly statements showing the defaulters under the Act are not being sent by the registrars as required under rule 15 (1) of the rules issued under Act III of 1899—a neglect of statutory obligation. The penal provisions of section 18 (b) should be enforced by Collectors in cases where the registrars fail to send the fortnightly statement.

The Superintendent of Census Operations, Madras, brought to the notice of Government instances in North Arcot district where the registrars were not supplied with birth and death registers in time under section 7 of Act III of 1899. The District Health Officers of Tanjore, Nellore, Chingleput, West Godavari, Guntur and Chittoor have also reported that

some of the Birth and Death Registrars were not supplied with printed registers with the result that the vital events were not registered or, were registered on scraps of paper which may be lost. Such registers may also be tampered with. The birth and death registers are valuable permanent records from which extracts are granted and accepted by Courts. Hence it is extremely necessary that the registrars are supplied with these registers in time.

Compilation of Vital Statistics.—The vital statistics of the State have been compiled and tabulated in my Office as in the previous years. The monthly birth and death returns from villages and municipalities are abstracted from the register of births and deaths. They form the basic record for compilation of vital statistics. All the monthly returns due from the municipalities are received by the end of succeeding month at the latest. But in respect of villages, only about 70 to 75 per cent of the villages send the returns by the close of the succeeding month. All the remaining returns are generally not received even after four to five months. The annual figures of births and deaths are finally compiled by the middle of April of the following year. Even at the time of final compilation a good number of birth and death returns due are not received. The number of village birth and death returns that were not received and therefore not included in the annual statements for 1952, was 14,740 representing 3.47 per cent of the total returns (425,332) due for the year. The percentage of birth and death returns not received during the past five years is as follows:—

Year.							Percentage of birth and death returns not received.
1948	..	..	..	..	..	..	3.2
1949	..	..	..	..	..	..	1.9
1950	..	..	..	..	..	..	1.4
1951	..	..	..	..	..	..	4.4
1952	..	..	..	..	..	..	3.47

The number of birth and death returns due from each district for 1952, the number not received and the percentage of returns not received are shown in annexure D. The arrears were heavy in the districts of the Nilgiris, Bellary, South Arcot, Ramanathapuram, Chittoor, East Godavari and Salem. The position in the other districts was a little better. All the returns were received from Malabar and South Kanara districts.

The main purpose of compilation of vital statistics is to study the health conditions of the area and launch timely preventive measures, if necessary. This is rendered difficult if a large percentage of birth and death returns are not received by the close of the succeeding month. This has been repeatedly pointed out in the previous reports, but no substantial improvement has resulted. This is mainly due to lack of interest on the part of village headmen who are generally the birth and death registrars. In villages where Act III of 1899 is in force and it is in force in almost all villages the birth and death registrars are required to submit the returns by the 3rd of the following month. It is therefore a statutory duty of the registrars which is not carried out in full. The Registrars could be punished for failure to do this duty under section 18 (b) of the Act III of 1899. If the compilation of vital statistics should improve, the registrars should be

Many monthly village birth and death returns are not furnished in the specially printed form (Revenue Form) prescribed for the purpose. Some District Health Officers have reported that these printed forms are not supplied to the registrars in time, with the result that the returns in manuscript are submitted. In these manuscript forms, all the particulars required are not very often furnished and the returns have to be returned for rectification. Thus unnecessary delay in compilation is caused. It is therefore suggested that the Revenue Department should obtain the required number of forms of returns from the Government Press on time and supply the Registrars with the printed forms.

BIRTHS.

The number of live births registered in the State during 1952 was 1,696,435 (874,103 boys and 822,332 girls) representing a birth-rate of 29.38 per 1,000 of estimated population as compared with the rate of 27.55 in 1951. The percentage of birth and death returns for the villages for 1952 that were not received was 3.47. Correcting the birth rate for non-receipt of returns on pro rata basis, the rate will be 30.3 as against 28.8 in 1951. An examination of the birth rates recorded during 1942-52 shows that the rates after decreasing from 1942 to 1945, increased to 34.0 in the post-war period 1946-47 and again steadily declined to 28.8 in 1951. In 1952, the rate again tends to swing up. A straight line fitted up to these rates, however, shows that the birth-rates in the last decade on the whole tend to decline though only slightly (vide chart No. 1).

There were 373,045 births in urban areas and 1,323,390 in rural areas in 1952, the birth-rates being 34.12 and 28.27 respectively, as compared with 32.51 and 26.45 in 1951. The birth-rates in both the areas have thus registered an increase over those in the previous year. As usual the birth rates in urban areas are higher than those in rural areas.

The ratio of male to female birth was 106:100.

Births in districts.—The number of births and the birth-rates per 1,000 of estimated populations recorded in each district are given in Statement I of the appendix. The rate varies from 24.20 in East Godavari Plains district to 37.81 in South Kanara district. The distribution of recorded birth-rates among the districts is shown below:—

Range of birth-rates.	Number of districts.	
	1951.	1952.
20 and less than 25 per mille	8	3
25 and less than 30 per mille	12	12
30 and less than 35 per mille	2	7
35 and less than 40 per mille	3	3
Total ..	25	25

The districts that returned low rates were East Godavari Plains (24.20) Chittoor (24.59) and South Arcot (24.79). In these districts a good proportion of birth and death returns was not received. If correction is made for the non-receipt of returns, the rates will be well over 25 per mille. High birth rates were recorded in the districts of South Kanara (37.81), Kurnool (36.03) and Anantapur (35.62).

As compared with 1951, the birth-rates have increased in all districts except Guntur, Bellary, Anantapur, Chittoor and Tanjore. In respect to Bellary district, the fall is not real, as the number of birth and death returns

that were not received was comparatively large. In the other districts, the decrease in rates were small.

Births in municipalities.—In all municipal areas, there were 278,482 births (143,156 males and 135,326 females) giving a birth-rate of 38.96 in 1952 as against 31.10 in 1951. Statement VI gives the birth-rates recorded in each municipality. The rates varies from 14.39 in Gudur to 62.94 in Chingleput district. The distribution of municipal towns according to birth-rates recorded in 1951 and 1952 was as follows:—

Birth-rate per 1,000 of population.	Number of municipal towns.	
	1951.	1952.
Below 20	19	1
20 and below 30	47	14
30 and below 40	32	48
40 and over 40	—	36
Total ..	96	99

The municipal towns that returned very low birth-rates were Gudur (14.39), Melapalayam (21.56), Salem (21.77), Chirala (22.07), Vijayavada (23.84), Eluru (23.90), Bapatla (23.98). Gudur was constituted into a municipality only this year. The low rate in the town is probably due to defective registration. The rules regarding registration of births should be strictly enforced. In other municipalities, especially in Vijayavada and Eluru which recorded low rates last year also, the proportion of unregistered births detected by health staff during routine outdoor work is high. This shows that registration of vital events is not satisfactory in these municipal towns. Only a few defaulters have been prosecuted in Vijayavada and none in Eluru and Melapalayam and Chirala. The provisions contained in rules for registration of births and deaths require to be strictly enforced in these municipalities.

Births in census towns.—There were 94,563 births (48,879 males and 45,684 females) in census towns with a population of 5,000 and above, giving a birth rate of 25.02 in 1952 as compared with 24.00 with a rate of 22.34. Out of 6,492 birth and death returns due for the year from 292 census towns, 160 returns (2.46 per cent) only were not received, an improvement over last year when 7.09 per cent of returns were not received. The birth-rate corrected for non-receipt of returns will be 25.65 in 1952 as against 24.0 in 1951. The distribution of census towns as per birth-rates as compared with the previous year is given below:—

Birth-rate per 1,000 of population.	Number of census towns.	
	1951.	1952.
Below 15	48	34
15 and less than 20	54	40
20 and less than 30	129	125
30 and less than 40	42	72
40 and above	21	21
Total ..	294	292

The lesser frequency in the lower groups shows that of birth-rates are comparatively higher in 1952. Out of 34 towns which recorded low rates, complete birth and death returns were not received for 10 towns. The low rates in other towns are mainly due to defective registration.

Still-births.—The number of still-births registered in 1952 was 18,271 representing a rate of 10.66 per 1,000 of births (live and still) as against 10.94 in 1951. Of these, 6,307 occurred in rural areas and 11,967, urban areas, the still-birth rates being 4.74 and 31.08 respectively. The comparatively very low rate in rural areas is apparently due to defective registration. Many still-births in rural areas go unregistered. The village munsifs who are generally the birth and death registrars in villages should realise that registration of still-births is as important and necessary as that of live-births. The public should also be educated regarding their responsibility to register still births.

In municipal areas, 10,762 still-births were recorded giving a rate of 37.21 in 1952 as against 37.45 in 1951. In census towns, there were 1,205 still-births giving a rate of 12.58.

Deaths.—The total number of recorded deaths in the State further decreased from 925,981 with a death-rate of 16.20 per 1,000 of estimated population in 1951 to 908,426 (462,537 males and 445,890 females) giving a rate of 15.71 in 1952. The percentage of birth and death returns that were not received for 1952 was 3.47. The death-rate for 1952 as corrected for non-receipt of birth and death returns on pro-rata basis is 16.2 as against 16.9 in the previous year.

The death-rates (as corrected for non-receipt of returns) recorded during 1942—1952 are extracted below:—

Year.	Death-rate per 1,000 of population as corrected for non-receipt of returns.	Year.	Death-rate per 1,000 of population as corrected for non-receipt of returns.
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
		1952	16.2

A straight line has been fitted up to these rates and is shown in Chart No. 1. It will be seen that the general death-rates show a definite downward trend, the rate of decline being greater than that in the case of birth-rates, thereby increasing population. There has been an excess of birth-rate over death-rate in all the districts, the excess ranging from 7.86 in Tiruchirappalli district to 24.32 in South Kanara district.

In urban areas there were 199,993 deaths with a rate of 18.30 in 1952 as against 203,295 representing a rate of 19.10 in 1951. In rural areas the total deaths numbered 708,434 in 1952 giving a rate of 15.13 as compared to 722,686 with a rate of 15.61 in 1951. There has thus been a reduction in death-rates in urban and rural areas. The death rate in urban areas was higher than that in rural areas.

Statement III of the appendix gives the recorded deaths in each month in the districts and State as a whole. The deaths recorded in different quarters of the year are abstracted below:—

	Number of deaths.
First quarter	202,000
Second quarter	201,325
Third quarter	242,066
Fourth quarter	263,035
Total ..	908,426

The above statement shows that the last quarter recorded the highest mortality and the second the minimum.

Deaths in districts.—The number of registered deaths and the death-rate in each district and the State are given in Statement II of the appendix. The distribution of districts excluding Madras and the Agencies according to the death-rates is as follows:—

Death-rate per 1,000 of population.	Number of districts.	
	1952.	1951.
10 and less than 15	9	8
15 and less than 20	16	15
20 and less than 25	2	2
Total ..	25	25

No district returned a death-rate higher than 20 per mille in 1952. The death-rate varied from 11.61 in Coimbatore district to 18.94 in Visakhapatnam district. The other districts which recorded high death-rates were Srikakulam (18.86), Kurnool (18.76), Tiruchirappalli (18.05), Tirunelveli (17.99), North Arcot (17.97) and Chingleput (17.85) as compared with the rate of 15.73 for the State as a whole. The high death-rate in the first three districts is largely due to fevers including malaria. The death-rates recorded in all districts except Chittoor were however less than the average rates for the previous five years.

Deaths in municipalities.—There were 151,789 recorded deaths in all municipal areas in 1952 giving a rate of 21.24 as against 154,634 with a rate of 22.47 in 1951. There was thus a further reduction in the death-rate in municipal towns. The distribution of municipalities as per death-rates recorded in 1952 as compared with 1951 is shown below:—

Death-rate per 1,000 of population.	Number of municipal towns.	
	1952.	1951.
Less than 15	20	16
15 and less than 20	49	36
20 and less than 30	29	42
30 and less than 35	1	2
Total ..	99	96

The above statement shows that a greater number of municipalities recorded low rates as compared with the previous year. High death-rates were recorded in Nellore (32.82), Kancheepuram (29.55) and Madras (29.05). In Nellore about two-thirds of deaths are classified under 'other causes'. Respiratory diseases contributed to the high death-rate in Kancheepuram, while respiratory diseases and dysentery and diarrhoea were responsible for the high rate in Madras.

Deaths in census towns.—In the census towns with a population of 5,000 and above, the number of deaths registered was 48,204 giving a rate of 12.76 in 1952 as compared with 48,765 with a rate of 12.96 in 1951. The death-rate corrected for non-receipt of birth and death returns is 13.08 in

1952 as against 12.76 in 1951. The number of towns that recorded different death-rates in 1952 as compared with 1951 is shown below :—

Death-rate per 1,000 of population.	Number of towns.	
	1951.	1952.
Below 15	168	182
15 and less than 20	72	72
20 and less than 30	40	36
30 and less than 40	5	2
40 and above	1	..
Total ..	294	292

The two towns that registered high death-rates were Rameswaram (39.82) and Palayampatti (36.6).

Deaths by causes.—The mortality from the principal causes of deaths recorded in 1951 and 1952 is shown below :—

Causes of deaths.	Number of registered deaths in		Death-rate per 1,000 of estimated population.	
	1951.	1952.	1951.	1952.
Cholera	17,113	13,632	0.30	0.24
Smallpox	17,236	5,158	0.30	0.09
Plague	51	4	0.001	0.0001
Malaria	5,380	6,459	0.09	0.11
Fevers and other than malaria ..	205,643	195,234	3.69	3.38
Dysentery and diarrhoea ..	65,633	71,587	1.15	1.24
Respiratory diseases ..	87,231	95,063	1.53	1.64
Deaths from child-birth ..	9,006	9,717	5.67	5.67

Compared with the previous year, the mortality from the three epidemic diseases, cholera, smallpox and plague and from fevers excluding malaria has decreased, while the mortality from dysentery and diarrhoea, respiratory diseases and malaria has very slightly increased. The maternal mortality rate has practically remained stationary.

Deaths by ages.—In the report on 1941 census the age composition of the population was not published. It is understood from the census department the particulars of population as per ages for the State as a whole will not be published in 1951 census report also. Hence, it is not possible to calculate the age specific death rates. However, the age composition of a 10 per cent sample of population of the State has been made available by the Superintendent of the Census Operations. An estimate of the population in each age group in the State as a whole has been worked out on the basis of the age composition of the sample population. The age specific death-rates based on the estimated populations are given below :—

Age group.	Number of deaths.	Age specific death-rate.
Under 1 year	183,554	108.20*
1 year and under 5 years ..	159,744	29.15
5 years and under 10 years ..	37,855	5.51
10 years and under 15 years ..	22,674	3.22
15 years and under 20 years ..	29,319	5.29
20 years and under 30 years ..	52,197	5.45
30 years and under 40 years ..	57,967	7.39
40 years and under 50 years ..	65,002	10.51
50 years and under 60 years ..	66,819	15.88
60 years above and	233,295	66.68
Total ..	908,426	15.73

* Per 1,000 live-births.

The age specific death-rates show the usual pattern of high death-rates in the early and late age groups. The death-rate was minimum in the age group 10—15 years.

The deaths among old people aged 60 years and above form 25.7 per cent of the total deaths in the State in 1952. The deaths among toddlers between 1 to 5 years represent 17.6 per cent, while deaths of infants under 1 year account for 20.2 per cent of total deaths. The number of deaths in these age groups alone thus represent 63.5 per cent of total deaths.

General.—The salient features of vital statistics recorded in 1952 are as follows :—

- An increase in birth-rate from 27.55 in 1951 to 29.38 in 1952.
- A decrease in death-rate from 16.20 in 1951 to 15.73 in 1952.
- A noticeable reduction in deaths from cholera from 17,113 in 1951 to 13,632 in 1952—a fall of 21 per cent.
- A remarkable fall in deaths from smallpox from 17,236 in 1951 to 5,158 in 1952—a fall of 70 per cent.
- The number of deaths from plague (4 deaths only) was the lowest on record.
- A slight decrease in the deaths from fevers from 205,643 in 1951 to 195,234 in 1952.
- An increase in the mortality from dysentery and diarrhoea and respiratory diseases.
- A further marked reduction in infant mortality rate from 118.59 in 1951 to 108.20 in 1952.
- The vital index was 186.8 in 1952 as against 169.7 in 1951.

CHAPTER II—COMMUNICABLE DISEASE CONTROL.

CHOLERA.

The number of deaths registered from cholera has further decreased from 33,004 in 1950 and 17,113 in 1951 to 13,632 in 1952, the mortality rates being 0.61, 0.30 and 0.24 per 1,000 of population respectively. The recorded mortality from cholera during the decade 1943—1952 is given below :—

Year.	Number.	Deaths from cholera. Rate per 1,000 of population.
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
1952	13,632	0.24

As reported by the Health Officers there were however 43,913 cases resulting in 20,921 deaths during the year, as against 47,161 cases with 24,334 deaths in 1951. The large difference between the figures of death furnished by the Health Officers and the Registrars of Births and Deaths is due partly to non-submission of birth and death returns which is rather high in districts affected severely by cholera and partly to the fact that several

cholera deaths are wrongly registered under 'diarrhoea' or 'other causes' by village headmen. The health staff have been circularised to see that all cholera cases occurring in villages are registered properly in the death registers and to see that the figures in the cholera register specially maintained and the death register agree. The Collectors have also been addressed to see that the village munsiffs who are also Registrars of Births and Deaths to classify all deaths from cholera as such and consult the health staff, in cases of deaths suspected to be from cholera. The registrars were also requested to submit all birth and death returns due for the year. However, no substantial improvement is noticed.

The districts that returned high mortality from cholera were Tiruchirappalli (1,877), Chittoor (1,635), Salem (1,440), Madurai (1,289), North Arcot (1,012), Tanjore (989), Coimbatore (767) and South Arcot (735). These districts account for nearly 71 per cent of total cholera deaths recorded in the State during 1952. The district of South Kanara was free while the incidence was low in the districts of the Nilgiris, Malabar, East Godavari, West Godavari, Visakhapatnam, Srikakulam and Krishna.

In all the municipalities, there were 2,177 deaths from cholera in 1952 giving a rate of 0.30 per mille as against 1,874 deaths in 1951 with a rate of 0.27. The towns that reported large number of deaths were Madras (182), Salem (197), Vaniyambadi (122), Chittoor and Palni (93 each), Nellore (88) and Cuddapah (83).

Epidemiology.—The incidence of cholera in the State which continued from the winter months of the previous year reached peak incidence of 2,198 cases in February and it progressively declined thereafter to about 900 cases registered in the month of May. Since June, the incidence increased to about 4,300 and 4,900 cases in the months of July and August. It declined in the month of September, but again showed an upswing in the months of October and November, when the customary autumn-winter epidemic prevailed on account of the movement of agricultural labour in the southern districts. The severe cyclone on 30th November 1952 and the subsequent heavy rains during the first week of December, resulted in a further flare up of the epidemic in December in the southern districts, when the highest incidence of about 11,000 cases for any month of the year in the State, was recorded.

In the month of January the bulk of the cases were recorded in South Arcot district. In the month of February, a large number of cases was contributed by Tanjore and Chittoor districts. The famine-affected Chittoor district continued to report heavy infection even in the subsequent months reaching a peak incidence of 1,329 cases out of the State total of 4,873 cases in the month of August. An explosive outbreak of cholera in the labour camps of Tungabhadra Project in Bellary district in June-July contributed not only to heavy infection in Bellary district but to an extensive spread of infection to the adjoining Anantapur district and to other districts—Cuddapah, Chittoor, etc. The other districts which recorded heavy infection during June to August were Cuddapah, North Arcot and Salem. The upswing in incidence in October and November was due to heavy infection in the deltaic areas of the Cauvery delta, in Tiruchirappalli, South Arcot and Tanjore districts and in Madurai, Salem and Coimbatore districts. As a direct result of the damage caused by the cyclone on 30th November 1952 and the heavy rains which followed, contaminated flood waters were brought into the irrigation channels which served as a source of infection to the villages. A very severe infection of cholera prevailed in December in the deltaic taluks of

Tiruchirappalli, Tanjore and South Arcot districts. It also resulted in an exacerbation of the previously existing infection in Madurai, Salem, North Arcot and Coimbatore districts. A simultaneous sharp rise in the incidence was also noticed in Madras City and in the districts of Nellore, Chingleput, Ramanathapuram and Tirunelveli.

Owing to the continued drought in the previous years and the deteriorating agricultural conditions due to failure of monsoons, acute water and food scarcity conditions prevailed during the year in the Rayalaseema districts of Cuddapah, Chittoor, Anantapur and to some extent in Kurnool. In view of this, early in April at a joint conference with the Famine Commissioner and the Director of Medical Services, anticipatory preventive measures against cholera were organized in those areas. A conference of the Health Officers of the concerned districts and the Regional Nutrition Health Officer, Anantapur, was also held in the last week of April at Cuddapah with a view to co-ordinate anticipatory public health measures in those areas. Further, to ward off anticipated cholera outbreaks in the scarcity areas, the State epidemic reserve of 100 Health Inspectors was concentrated. The staff carried out anticipatory anti-cholera inoculations among those seeking relief at gruel centres and among the labour groups located in famine relief works, in addition to the general supervision of the sanitary conditions at the gruel centres and labour camps. As this staff was found inadequate to meet the growing needs of the water and food scarcity and cholera-affected districts, an additional staff of 50 Health Inspectors were sanctioned by Government in July to serve as a famine reserve. A further special epidemic reserve of 50 Health Inspectors was additionally sanctioned for three months in December to combat the severe explosive outbreak which occurred in the wake of the cyclone in the southern districts.

In addition to the above staff of special Health Inspectors, Health Officers from Central office and from the malaria staff serving in anti-malaria schemes and the Regional Nutrition Health staff were mobilised and posted for supervision and control work in the heavily affected Chittoor, Cuddapah, Anantapur, Bellary, South Arcot, Tiruchirappalli, Tanjore and Madurai districts, to reinforce the district health staff to meet the abnormal and changing epidemic situation, from time to time. Assistant District Health Officers of Chittoor and Chingleput were also deputed for cholera work in the affected areas of South Arcot district. These heavily affected districts were divided into convenient zones and circles and were placed for direct supervision and control by the above officers—District Health Officers themselves being in charge of one such zone in each district. The Director of Public Health, Deputy Director and Assistant Directors toured the heavily cholera-affected districts frequently and tightened up the control measures wherever needed. In view of the prevalence of cholera in the festival centres of Srirangam and Chidambaram, additional staff were posted to these places for the Vaikunta Ekadasi and Arudra Darsanam festivals.

The four mobile epidemic control van units of the departments and the Madras Fire Service vans under Medical Officers of the famine reserve were deployed for work in the famine-affected and cholera-affected areas. The Medical Officers in charge of the Madras Fire Service vans assisted in giving saline transfusion treatment and in carrying out prompt removal of cases from distant villages to adjoining hospitals for isolation and treatment of cases. One jeep each, for the District Health Officers of the affected areas and two jeeps for the District Health Officer, Cuddapah, were allotted and these along with abovementioned ambulance van units gave the necessary

mobility to the public health staff in reaching the villages and concentrating work. Two voluntary medical squads worked in May and June in Chittoor district and one squad later in the worst affected Rayachoti taluk in Cuddapah district in July and August and rendered valuable service. The Madras Fire Service vans from the Police department and Civil Supplies jeeps were also requisitioned to move staff and equipment and for the removal of cases for isolation and treatment in the several affected southern districts. Two vans belonging to the Medical department were also mobilized temporarily for work in Kanigiri (Nellore district) and Tiruchirappalli.

Temporary isolation wards and sheds were put in several places and those at Polur, Piler, Madanapalle and Chittoor especially rendered good service. The improvised isolation wards run at Polur (North Arcot district) were exemplary and Government commended the measures of control taken by the Panchayat Board to other local authorities for adoption. For the first time, saline transfusion equipments were obtained and made available on an extensive scale for treatment of cholera cases at the temporary isolation wards put up and in some cases even in their homes in remote villages, wherever this was feasible. Gift rice and gift clothes made available by the Revenue Department, were distributed to the families of these affected with cholera and this supply served as a considerable measure of relief to the indigent and affected families. Want of facilities for isolation and treatment of cases in the rural areas on a large scale, greatly handicapped control measures. Despite this, the mobile van units removed a considerable number of cases from the rural areas of the affected places to the nearest improvised isolation wards in hospitals or dispensaries in panchayat board areas, for isolation and treatment.

In addition to the above measures taken for the control of cholera, chlorination of water sources and disinfection of infected houses and clothing were promptly carried out in the infected villages. An intensive inoculation campaign was carried out in the infected areas and in vulnerable areas as an anticipatory prophylactic measure. *Nearly 68 lakhs of persons as against 46 lakhs in 1951 were protected against cholera in the State during the year.*

The mobilization of extra motor vehicles coupled with the concentration of the large number of Health Inspectors from the epidemic, famine and cyclone reserves, helped to control the explosive incidence that occurred in December, promptly, and in view of the experience gained and the results achieved by such mobilization of transport and staff, it is most essential that in the interests of the prompt control of cholera in future, similar arrangements be made to put into the field extra staff and equipment in the districts threatened or affected with cholera, mobilizing necessary staff and the transport. Proposals in this regard have been submitted to Government and are awaiting sanction.

It is gratifying to record that despite heavy odds—the severe food and water scarcity conditions prevailing in several districts, and heavy contamination of water sources in the wake of the cyclone on 30th November 1952, and the heavy rains that followed, in the cauvery delta area—the severe explosive outbreaks of cholera which occurred in the state were promptly controlled and in many instances, the epidemic curve showed as steep a fall as it rose and a lower incidence of cholera than in the previous year was recorded for the State.

DYSENTERY AND DIARRHOEA.

These diseases caused 71,587 deaths giving a death rate of 1.24 per 1,000 of population in 1952 as against 65,633 deaths with a rate of 1.15 in 1951. Although the mortality has increased as compared with the previous year, it compares favourably with the annual average deaths of 78,760 with a rate of 1.54 in the decennium 1941—1950. The number of deaths from these diseases represents 8 per cent of the total deaths in 1952. In urban areas 19,667 deaths were registered under this group of diseases giving a rate of 1.80 per 1,000 of population in 1952, as compared with 18,467 deaths and a rate of 1.73 in 1951. In rural areas there were 51,920 deaths from these diseases representing a rate of 1.11 in 1952 as against 47,166 deaths with a death rate of 1.02 in 1951. The mortality in both rural and urban areas has registered a slight increase over that in the previous year. The number of deaths from dysentery and diarrhoea recorded in each month in the State is given in Statement VIII of the appendix. The incidence after decreasing to the minimum in April, increased steadily to maximum in July. Again after declining to a second low in November, it tended to increase in December, exhibiting the usual two peaks. It may be noted from the appended graph that the peak in July preceded that for cholera in August.

The monthly mortality from these diseases and the annual death rates registered in each district are shown in Statement VIII of the appendix. The districts that recorded high death-rates were North Arcot (2.16), Coimbatore (1.69), Tanjore (1.68) and Ramanathapuram (1.50).

These districts were also severely affected with cholera epidemics. Low death-rates were recorded in Malabar (0.67), East Godavari Plains (0.72) and Cuddapah (0.73).

In the municipal areas, there were 16,014 deaths from these diseases giving a rate of 2.24 in 1952 as against 14,869 deaths with a rate of 2.16 in 1951. High death-rates were recorded in the municipalities of Arni (5.16), Madras (4.44), Sivakasi (4.26), Walajapet (4.14) and Srivilliputtur (4.13).

In the census towns the number of deaths from dysentery and diarrhoea registered was 3,653 representing a rate of 0.97 in 1952 as compared with 3,584 deaths with a rate of 0.95 in 1951. The towns that returned high rates were Palayampatti (6.19), Walajahbad (5.35), Ulundurpet (5.31), Thevaram (5.14), Kalambar (3.92) and Uttiramerur (3.55).

The number of deaths from dysentery and diarrhoea separately are not available for the State as a whole. However, the number of patients treated for dysentery (amoebic, bacillary and others) in hospitals in each district and in the State, is given in Annexure F. There were 675,209 cases of dysentery of all types in 1952, as against 706,925 in 1951. As in the last year, the number of patients (272,537) treated for amoebic dysentery was greater than that for bacillary dysentery (236,337). The incidence of amoebic dysentery was very high in the districts of Tanjore, Malabar, Coimbatore, Tirunelveli, Tiruchirappalli and Chingleput, while cases of bacillary dysentery were high in Tanjore, Madurai and East Godavari districts.

ENTERIC FEVER.

Mortality from enteric fever in rural areas is not available as it is not a registrable cause of death in these areas. In municipal areas, 1,827 deaths from enteric fever were registered giving a rate of 0.26 in 1952 as against 1,877 deaths with a rate of 0.21 in 1951. The municipalities that returned high death rates from the disease were Narasaraopet (1.31),

Tiruvellora (1.22), Tadpatri (1.10), Cochin (0.86), Peddapuram (0.84) and Salur and Chirala (0.76 each). The usual preventive measures such as disinfection of infective material chlorination of water-supplies were promptly adopted. Anti-typhoid inoculations among the immediate contacts were conducted by health staff and private medical practitioners to whom free vaccine was supplied free on request.

As the number of cases of enteric fever treated in hospitals in each district gives a rough picture of the relative prevalence of the disease, the figures of enteric fever cases treated in hospitals during 1951 and 1952 are tabulated in Annexure G. The number of patients treated for enteric fever has increased from 48,796 in 1951 to 54,983 in 1952. Compared with the previous year the number of cases has increased in all districts except Srikakulam, Visakhapatnam, Kurnool, Chittoor, Tiruchirappalli, Coimbatore, the Nilgiris and in City of Madras.

The increase was high in East Godavari, Guntur, South Arcot, Tanjore, Ramanathapuram, Salem and South Kanara districts, while there was a large reduction in the City of Madras and Coimbatore district.

SMALLPOX AND VACCINATION.

The mortality from smallpox after gradually increasing from a low 2,650 in 1947 to 17,236 in 1951 with a rate of 0.30 has recorded a steep fall to 5,158 only in 1952 representing a rate of 0.09. As compared with the previous year there has been a reduction of 70 per cent. These figures of smallpox deaths were compiled from the death registers maintained by village headmen. The Health Officers, however, reported 19,305 cases with 4,227 deaths in 1952 as against 71,068 cases with 16,206 deaths in 1951. Of these 19,305 cases, 16,558 were registered in rural areas and 2,747 in municipal areas. The difference between the two sets of smallpox mortality figures is due mainly to wrong classification of chicken-pox cases as smallpox. The health staff have been instructed to see during their visits to villages at the time of epidemics that the death registers and smallpox registers are scrutinized so that only genuine cases of smallpox are recorded.

Although all the districts were affected, the disease did not prevail in any severe epidemic form. The districts that reported high mortality were Chittoor (381), North Arcot (369), South Arcot (329), Visakhapatnam (283), Guntur (276), Srikakulam (264) and Nellore (251). The lowest mortality was registered in the Nilgiris (19) and South Kanara (22).

The number of deaths from small pox recorded in all municipal areas was 772 in 1952 giving a death-rate of 0.11 as against 1,874 in 1951 with a rate of 0.27. The municipalities that returned high mortality from smallpox were Anakapalle (89), Vijayavada (63) and Madurai (56), these four municipalities alone being responsible for nearly 45 per cent of total small pox deaths in all municipal areas. Madras City reported stray cases throughout the year, the total deaths from small pox being 127.

Epidemiology.—The incidence of smallpox which prevailed in 1951 continued into 1952. From November 1951 with 1,576 cases, the incidence increased through January and February of 1952, reaching the customary peak incidence of the disease in March 1952 at 3,900 cases. The incidence registered a steady and progressive decline from April onwards, reaching the lowest monthly incidence of 341 cases in October. In the month of December, the usual increase in seasonal incidence occurred with 861 cases

only (as against 1,576 cases recorded in November 1951 and 1,878 cases in December 1951).

The first quarter of the year in which infection of the previous year continued in an epidemic form, recorded 10,164 cases representing more than half of the cases recorded for the whole year. The incidence in the second quarter showed a decline by about 5,000 recorded cases when compared with the first quarter. The third and the fourth quarters of the year showed a further progressive decline from about 2,200 cases in third quarter to 1,500 cases in the fourth quarters.

The paucity of qualified vaccination staff was felt during the year also, in spite of the slight increase in their pay sanctioned. Persons with short training had therefore to be appointed to cope with emergency. To augment the district board staff, Health Inspectors from the state epidemic reserve were posted to the heavily affected areas and wherever motor transport was not available to the District Health Officers, jeeps or other motor vans were allotted from other districts to facilitate prompt visits of the public health staff to the infected villages for adopting control measures.

Vaccination.—The vaccination operations performed during the years 1943 to 1952 are given in the following statement:—

Number of Operations.

	r.	Primary and Secondary vaccination.	Re-vaccination.	Total.
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
1952		1,872,795	6,669,864	8,542,659

There has been a fall of 13 per cent in the primary and 43 per cent in re-vaccinations as compared with the previous year. In the districts exclusive of municipalities 7,127,428 operations were performed, of which 1,633,378 were primary and 5,494,050 re-vaccinations, as against 11,225,377 operations (1,860,996 primary and 9,364,381) in the previous year. In municipal areas, the number of vaccinations performed in 1952 was 1,362,370 (237,188 primary and 1,125,182 re-vaccinations) as compared with 2,559,428 operations (278,887 primary and 2,275,541 re-vaccinations) in 1951. The large fall in the number of operations in the districts exclusive of municipalities and in municipalities, is due mainly to the sharp fall in the incidence of small pox in the State in 1952, but is of the same order as in non-smallpox epidemic years.

The number of successful vaccinations by the different agencies and the percentage of successful vaccinations to the total number of operations for which results were known are given below :—

Agency.		Number of successful vaccinations.			Percentage of successful cases to cases for which results were known.	
		Primary vaccination.	Re-vaccination.	Total.	Primary re-vaccination.	Re-vaccination.
Local Boards.		1,226,605	618,525	1,845,130	95.8	19.7
Municipalities ..		227,504	141,121	368,625	99.2	15.0
Government (in the Agency areas).		13,057	4,374	17,431	91.8	20.7
Medical and Port Health Officers ..		9	24,442	24,451	90.0	62.9
Railways ..		2,138	2,743	4,881	98.1	33.4

The success rates in the case of primary vaccinations have been high in respect of vaccinations performed by all agencies, while the success rates in respect of re-vaccinations were high in the case of the Railways and the Medical and Port Health Officers.

PLAGUE.

The number of deaths from plague as compiled from the birth and death returns received from the Registrars is only 4 in 1952 as against 51 in 1951. This is the lowest on record. But as per the reports of Health Officers there were 23 attacks and 12 deaths from plague in 1952 as compared to 139 attacks and 62 deaths in 1951, 173 attacks and 38 deaths in 1950, and 453 attacks and 150 deaths in 1949. The difference in the mortality figures as compiled from birth and death returns and the Health Officers' reports is due to non-receipt of birth and death returns from a few infected villages. Out of the 23 attacks and 12 deaths, 18 attacks and 10 deaths occurred in the Hosur taluk of Salem district distributed in all the four quarters of the year and 5 attacks and 2 deaths in the rural parts of the Nilgiri district in the first quarter only. The other districts 'endemic' for plague—Bellary, Anantapur, Chittoor and Coimbatore, all the municipalities in these districts and the rest of the State remained free. The distribution of the incidence during the four quarters of the year is given below :—

		Quarters.				Attacks.	Deaths.
First ..	..	..	..	..	..	6	3
Second ..	..	..	..	..	..	6	3
Third ..	..	..	..	..	..	6	4
Fourth ..	..	..	..	..	..	5	2
						—	—
						23	12
						—	—

Plague in the Nilgiri district.—DDT treatment had been carried out once a year during the previous two years continuously in all the plague endemic villages of the district as a part of the plague eradication programme and the district was free from October 1950 to January 1952.

Suddenly plague broke out towards the end of January 1952, in a small hamlet in Coonoor taluk of the Nilgiris district. This hamlet consisted of a group of 7 huts occupied by an Adi-Dravida Community. All the villages round about this colony, were treated with DDT, once a year since 1950, but the existence of this small colony was not detected, as it was in a small tea estate under cover of hills all round. This small colony therefore escaped DDT treatment altogether till the outbreak of plague causing 5 attacks and 2 deaths. The occurrence of rat falls was not taken notice of, as it was thought that the rats, died as a result of poisoned rat baits. Several dead rats were recovered from the roofs of these huts while doing anti-plague work. Fresh cases did not occur after DDT treatment was commenced and completed in the hamlet. Plague did not occur in any of the other villages in the district treated with DDT previously. The plague eradication scheme in the Nilgiris district was continued during the year. The headquarters of the Special Plague Officer was moved from Coonoor to Madras and the field staff was allocated for work under the District Health Officer, the Nilgiris, and the Municipal Health Officers of Ootacamund and Coonoor. The two municipal towns and about 600 village units in the endemic areas of the district were treated with DDT once during the year and for the third time during the last three years.

Plague in Salem district.—Plague occurred off and on during the year in some village or other in the Hosur taluk of Salem district. 18 attacks and 10 deaths occurred in 8 village units during the period, of which 7 village units had not been previously treated with DDT. Only one attack occurred in one village which received DDT treatment 6 months previously. During the inspection of anti-plague work in Hosur taluk, it was found that inadequate quantity of 10 per cent DDT dust was being used for insufflation of rat harbourages. It is likely that occurrence of plague in the DDT treated village above, may be due to the inadequate dosage of DDT used. The work has improved in quality since then, and plague has not occurred in any of the other DDT treated villages in the districts.

Plague control measures in the State.—During the year, cyanogas fumigation has been replaced by DDT treatment as a plague control measure throughout the State. The municipalities of Bellary, Hospet, Hindupur, Coimbatore, Udumalpet, Pollachi, Tiruppur, Ootacamund, and Coonoor and certain villages in Harp nall, Hadagalli, Kudligi taluks of Bellary district, Hindupur, and Madakasira taluks of Anantapur district, Palmaner, Madanapalle, Punganur and Kuppam taluks in Chittoor district, Hosur taluk in Salem district, Kollegal and Satyamangalam taluks in Coimbatore district and Ootacamund, Coonoor and Gudalur taluks of Nilgiris district, which were heavily infected in previous years were selected for intensive DDT treatment. Sufficient field staff were posted to all these areas and these received one round of DDT treatment at least, during the year, except Coimbatore Municipality. Steps are being taken to see that all the plague endemic areas receive one round of DDT treatment at least once a year regularly, for a few years continuously with a view to eradicate plague altogether from the State in the near future. The Special Plague Officer with his headquarters at Madras, co-ordinated the work of plague staff in the various endemic district.

He inspected all the field DDT treatment units in the several areas and has trained the staff in the proper technique, dosage and other technical details regarding the use of DDT for plague control.

The particulars of DDT treatment work carried out during the year in the above areas are given in the statement below :—

Number of plague "endemic" localities in the State.	Municipalities.	Districts.	Total.
	9.	6	
1 Number of infected localities treated with DDT.	..	8	8
2 Number of uninfected but endemic localities treated with DDT.	9	1,327	1,336
3 Number of houses treated with DDT.	76,556	111,906	188,462
4 Number of rat burrows treated with DDT.	391,243	737,453	1,128,696
5 Number of crevices treated with DDT.	25,415	36,564	61,979
6 Approximate quantity of 10 per cent DDT powder used.	21,350 lb.	34,115 lb.	55,465 lb.
7 Approximate quantity of 50 per cent DDT wettable purchased used.	3,442 lb.	1,640 lb.	5,082 lb.

Proposals have been submitted through the State Government to the Government of Mysore regarding certain reciprocal measures and arrangements based on the use of DDT treatment for plague control, that should be carried out by the two States, in their respective "endemic" and "epidemic" areas in order to ultimately control and eradicate plague from the two States.

Amendments to Plague Standing Order 19, regarding allocation of expenditure on plague control measures, based on residual insecticidal treatment, between local authorities and the State, were submitted to Government and approved. Proposals submitted for amendments to Plague Regulations issued under section 2 of the Epidemic Diseases Act of 1897 to facilitate plague control in "endemic" and "Threatened" areas through DDT treatment are under consideration of Government.

It is gratifying to record the excellent progress already achieved in the control of plague, through prophylactic treatment of "endemic" areas with DDT. It can confidently be expected that with such continued treatment during the next few years, plague incidence in the State can be effectively and completely controlled.

FEVERS OTHER THAN MALARIA.

The recorded number of deaths from fevers other than malaria and the death rates since 1950 when statistics of deaths from malaria and fevers other than malaria are separately compiled, are given below :—

Year.	Number of deaths from fever other than malaria.	Death-rate per 1,000 of population.
1950	240,972	4.43
1951	205,643	3.60
1952	195,234	3.38

The figures given above show that there has been a gradual reduction in mortality from this broad group of diseases. This group was responsible for 21.5 per cent of total deaths in the State in 1952. Out of 195,234 deaths registered under this group 24,404 occurred in urban areas and 170,830 in

rural areas, giving deaths-rates of 2.23 and 3.65 per 1,000 of population respectively. Compared with the previous year the mortality has decreased both in rural and urban areas. As usual, the rate in rural areas was greater than that in urban areas. The last quarter of the year recorded the highest mortality.

The number of deaths from fevers other than malaria registered in each district in each month of the year and in the year and the annual death rates are given in Statement IX of the appendix. The districts that reported highest mortality rates from this group of diseases were Srikakulam (7.87), East Godavari Agency (7.48), Kurnool (7.20), Visakhapatnam (6.99), West Godavari Agency (6.96), Cuddapah (5.16) and Guntur (4.49). These districts returned high rates in 1951 also. It is not possible to obtain the details of the causes of deaths under this group in view of the lay agency employed for registration of deaths. The districts that recorded low rates were Tanjore (1.03), Coimbatore (1.10), Malabar (1.67) and South Arcot (2.59).

In the municipalities, there were 13,386 deaths from fevers other than malaria giving a rate of 1.87 in 1952 as against 13,682 with a rate of 1.99 in 1951. The municipalities which recorded high rates were Sivakasi (8.21), Walajapet (4.53), Nellore (4.48), Tadpatri (4.37), Arni (4.29), Pudukottai (4.18) and Gudivada (4.00).

In the census towns, 11,001 deaths from this group of causes were registered giving a rate of 2.91 in 1952 as compared to 10,787 deaths with a rate of 2.87 in 1951. The towns that reported high rates were Kodumbur (18.08), Kosigi (14.05), Maddikera (11.58), Koilkuntla (10.97) and Palayampatti (10.79).

MALARIA.

The numbers of deaths from malaria registered during the last three years are given below :—

Year.	Deaths from malaria.	Death-rate per 1,000 of population.
1950	6,224	0.11
1951	5,389	0.09
1952	6,459	0.11

The mortality from malaria formed 3.2 per cent of total deaths from fevers inclusive of malaria. It is not possible to say how far this represents the true situation as attempt has been made only for the past three years to compile deaths from malaria separately. Most of the village headmen who are the registrars of deaths in rural areas are not likely to have differentiated malaria from other fever cases.

Statement IX (a) of the appendix gives the deaths from malaria recorded in each district in each month and the annual deaths with death rates. The districts that recorded high death rates from malaria were West Godavari Agency (0.89), Kurnool (0.44) and Nellore (0.25). In the municipalities there were only 826 deaths from malaria giving a rate of 0.12 per 1,000 of population.

MALARIA CONTROL.

Part I—General.

Anti-malaria work has been extended to all parts of the State excepting the more remote parts of the Agencies and a few hilly areas rather difficult access. Every other area where malaria is a problem and where malaria

control will yield the largest return has been included in the control programme. The State Malaria Organization is the most broad-based and well organized in the country. Apart from control, the organization is equipped for malaria surveillance, prevention and research.

There are 36 individual Anti-malaria schemes functioning in different parts of the State. Eleven of these are for the improvement of areas intended for land colonization and development. It is well-known that malaria has a considerable, though not always immediately obvious, adverse effect on agriculture, industry and transportation and interferes with education and social welfare. The anti-malaria control measures eliminate the handicaps and add to the sum of human happiness and progress. Some of these development schemes are for the betterment of scheduled classes and tribes. Large tracts of virgin country have been opened out for cultivation affording new work to many and producing more food for the country.

Four other schemes are operating (along with other general health work) in multi-purpose project areas. By close watch on labour, by avoidance of actual or potential breeding-places of mosquitoes and by preventive DDT spraying programmes, malaria has been kept out of the areas. Located as these project areas are, in remote sylvan or hilly country and particularly prone to the hazard of malaria it would not be possible to execute the projects expeditiously or according to schedule, but for the anti-malaria work being done there. The work may therefore be said to be the first and lasting foundation on which these projects will be built.

Other schemes tackle local malaria problems created by the prevalence of carrier mosquitoes or their infiltration from sources outside the State. Adequate provision is made for the control of malaria, in rural or urban areas in endemic or epidemic areas. An organizational chart, a classified list of schemes and a state malaria map are appended to this report.

The Central Malaria Laboratory and Museum.—This institution is intended for the training of Public Health Officers and Officers selected for manning the different schemes. Courses of lectures and demonstrations in advanced Malariology were arranged for four Health Officers and Entomological Assistants. A unique feature of this year was that a course of lectures was arranged for a batch of 14 Engineers selected from the Public Works Department who would be benefited by a knowledge of malariology. Special training was given to the students of B.S. Sc. class for a period of 15 days.

Demonstrations were held for the benefit of students of the Madras Medical College, Stanley Medical College, Vellore Medical College, Health Visitors and Nurses under training. The Laboratory is well-equipped with colonies of mosquitoes, and strain of animal and bird malaria necessary for the training classes and for research are maintained. Research work on the period of residual action of DDT when sprayed on different surfaces and on the value of different formulations of DDT and BHC as adulticides and larvicides, was in progress. J.S.B. stain which is a cheaper but more effective substitute for foreign stains was prepared in the laboratory and distributed to various schemes.

Regional Malaria Organizations.—The four organizations with headquarters at Coimbatore, Tanjore, Bellary and Visakhapatnam, continued their function during the year. Each organization is in charge of a group of 10 to seven districts. The staff visit malarial and filarial areas on request

from local authorities or on their own initiative to study or obtain a clearer understanding of local problems or to obtain new and useful information on the epidemiology of the two diseases. They survey local areas and prepare schemes for mosquito control, malaria control or filariasis control for implementation by local bodies. They inspect areas where sanctioned schemes are working to see and certify that they are worked on right and approved lines. Technical advice is also offered for improving the schemes, if necessary.

In certain cases, the Regional Malariologists directly hold administrative charge of anti-malarial schemes. It is an important function of the Regional Organizations to control outbreaks of epidemic malaria whenever they occur. They also carry out systematic control measures in isolated endemic pockets which are too small for being taken up in independent schemes. Periodical check up surveys of schemes in the charge of Health Officers (Class I) are also done to assess the results of the work done.

The regional organizations function as research centres where studies are made on insecticides, methods of control of filariasis and its treatment and allied subjects. They also organize training classes for subordinate personnel working in or required in anti-malaria schemes and in filariasis work. The following statement gives the number of candidates who were given the prescribed course at the Regional Malaria Organizations:—

	Tanjore.	Coimbatore.	Bellary.	Krishna-devipeta. (Visakhapatnam).
(1)	(2)	(3)	(4)	(5)
Health Inspectors and Sanitary Inspectors (one month course).	8	26	12	13
Laboratory Assistants (three months' course) ..	3	8	..	1
Field Assistants (one month course)	16	39	10	38

Propaganda also received due attention of the organization. Apart from an instructive museum attached to their laboratories, the organizations participate in exhibitions conducted in connection with various conferences and important fairs or festivals.

Rat-flea surveys, phlebotomus surveys, studies on the effect of DDT spraying in relation to these and guinea-worm control are auxiliary items of work done by these organizations.

Part I.—A brief resume of the work done in the individual Regional Malaria Organization is given hereunder:—

Regional Malaria Organization, Coimbatore.—The region comprises six districts in the western part of the State. The staff conducted 15 malaria surveys during the year. The three major surveys were in Coondapur taluk in South Kanara district and Barur and Sandur firka in Krishnagiri taluk of Salem district. At the instance of the concerned local bodies, mosquito surveys were carried out in nine panchayat board areas with a view to formulate schemes of control and recommendations made. The organization also conducted seven check-up surveys of areas where anti-filariasis scheme was already functioning.

Five exhibitions on malaria and filariasis were organized at Erode, Kalpatti village (Coimbatore district), Coimbatore, Salem, Kasipalayam Project (Coimbatore district) and Vellore.

The following special items of work were also carried out during the year :—

- (1) Monthly rat-flea survey in Coimbatore town.
- (2) Field studies to determine the comparative efficacy of the DDT formulations and Gammexane P. 520, a BHC formulation.
- (3) Field trials of quinine sulphate and Paludrine.
- (4) Trials on the efficacy of Gammexane P. 520 and Hexidol, both BHC formulations as larvicides.
- (5) Preliminary studies to carry out experiments on eradication of all species of mosquitoes in a small pocket in Puttur taluk of South Kanara district.

Regional Malaria Organization, Visakhapatnam.—This organization was started in 1945 with one static unit and two mobile units and was made permanent in 1951. Twenty-five general surveys were undertaken with a view to prepare malaria and filariasis control schemes, as also 9 special entomological surveys for the purpose of fixing the transmission season in Yellavaram taluk. The Regional Malariologist checked the control operations carried out in the Agency tracts of Chodavaram, Chintur, Kunavaram and Polavaram taluk, the anti-malarial scheme in Guntur district and antimalarial control measures in Simhachalam of Visakhapatnam district. The organization made routine inspections of municipal and panchayat board areas where control schemes approved by Government had been adopted. Thirteen Health Inspectors, one Laboratory Assistant and 38 Field Assistants were trained in the basic principles of malaria and filariasis and their control in the training centre at Krishnadevipeta under the general supervision of the Regional Malariologist.

In February 1952, a unit of the organization conducted experiments on the efficacy of different insecticides at the Zaddangi group of villages. The organization also arranged an exhibition on malaria and other insect-borne diseases at Tenali during the 18th Andhra Provincial Medical Conference. The exhibition was well appreciated.

J.S.B. stain was prepared in bulk and distributed to the various schemes in the region.

Regional Organization, Tanjore.—The Regional Malariologist is in charge of seven eastern districts in the South. Thirty-five malaria surveys and re-surveys were conducted by the mobile units of this organization in the various malarious areas of this region. Pyrethrum spraying for adulticidal purposes was carried out to prevent epidemic outbreaks of malaria. Several areas of mild endemicity were under the care of the regional organization for purposes of surveying and implementation of control measures and the organization by well-timed DDT sprayings kept the areas free from malaria.

In Courtallam and Rameswaram, the respective local authorities carried out anti-larval work as part of anti-malaria operation. At Papanasam project area, anti-malarial work is in the hands of a special staff posted for such work and paid under the project. Excellent results have been achieved.

The schemes at Ennore, Lower Palnis and Nadumandalam group of villages undertook DDT spraying and antiparasitic measures. The areas are becoming healthier day by day.

A comparative statement showing the progressive decline in spleen rates, morbidity rates and parasite rates in the areas which are under the control of this organization either directly or indirectly, is given below:—

Place.	Spleen rates (in percentage).	
	Before control.	After control.
(a) Spleen rates.		
Papanasam	11.4 (1948)	Practically nil.
Courtallam	8 (1948)	Nil.
Kani Settlements	64 to 100 (1948)	26 to 57 (1951).
Gandamanayakanur area	66.2 (1948)	7.8 (1951-52).
Nadumandalam	46.8 (1948)	17.3 (1951) and 14.9 (1952).
Lower Palni Scheme	36.7 (1948)	22.9 and 21.8 (1950), 9.3 (1951) and 8.62 (1952).
Pottiyam-Mayambadi	82 and 80 (1948)	52 and 64 (1950), 42 and 47.5 (1951), 28 and 30.7 (1952).
Arjunapuram	50 (1949)	16.5 (1952).
(b) Malaria morbidity.		
Place. Pre DDT period. After DDT control.		
Papanasam	14 in 1948	6.3 (1949), 4.7 (1950), 1.6 (1951) and 0.3 (1952).
Lower Palni Scheme	23.5 in 1948	17.0 (1949), 16.3 (1950), 13.6 (1951) and 13.4 (1952).
Nadumandalam	7.9 (1949)	4.9 (1951) and 3.3 (1952).
Rameswaram	6.6 (1948)	1.8 (1950), 1.0 (1951) and 1.0 (1952).
(c) Parasite rate.		
Papanasam	15.4 (1948)	10.0 in 1949 and nil during 1951 and 1952.
Lower Palni Scheme	13.0 (1948)	11.4 (1949), 3.7 (1950), 1.9 (1951) and 0.3 (1952). Scheme figures, 9.3, 4.1 and 0.66.
Nadumandalam	45 (1948)	11.0 in 1949, 8.3 in 1950 and 1.1 in 1952.
Rameswaram	6 (1947-48)	Nil rate since 1951.

Twenty-nine local areas were surveyed for the preparation of schemes of mosquito control. Thirty-seven other local areas where anti-mosquito or anti-filariasis schemes were already functioning were inspected.

An Entomological Assistant specially trained in sand-fly investigation and control was posted for intensive study of the bionomics and sand-flies and the incidence of Kala-azar. An experimental area was selected and DDT was sprayed in varying dosages, for studying the effects and duration of effects on Phlebotomus and Kala-azar control. The study is not yet completed.

Eight Sanitary Inspectors and Health Inspectors were given special training in malaria and filariasis control. Nineteen outsiders took special training for acquiring the technical qualifications of Laboratory and Field Assistants.

Experimental work of the organization consisted of use of Pyrethrum adult spraying as an adjunct to larvicidal measures. The results have been very satisfactory in Tiruvayyar, Ananthandavapuram and Needamangalam, where the measure has been tried. As the public appreciated it, a large number of local bodies have applied for the inclusion of adult spraying in their programme of mosquito control. Experiments to investigate the possibility of filariasis control by parasitic measures using Hetrazan and Banocide, were in progress. The comparative usefulness of quinine and Paludrine in malaria treatment was also being studied.

The museum, mosquito colony and insectarium were further improved and were found of great use to trainees and visiting school children.

The organization took active part in exhibitions organized in Tirunelveli, Nagapattinam, Kumbakonam and at Palayamkottai. The exhibits regarding the life-cycle of the mosquito and measures of personal prophylaxis were well appreciated.

Regional Organization, Bellary.—The organization is in-charge of malaria and filariasis work in the districts of Bellary, Anantapur, Kurnool, Chittoor, Cuddapah and Nellore. Forty-nine surveys were conducted, 33 for malaria and 5 for filariasis and 11 for rat fleas.

At the training centre attached to the organization, 12 Health and Sanitary Inspectors and 10 field assistants were given training in malaria and filariasis work. The Senior Entomologist of the region was deputed for a special course of training for a period of 12 weeks in the Malaria Institute of India at Delhi.

Residual toxicity experiments with insecticides in different formulations, assessment of potency of pyrethrum extract, studies in the use of Gammexane and DDT as larvicide were conducted.

Routine check surveys of five anti-malarial schemes and 9 anti-mosquito schemes were also made.

Methods of malaria control adopted.—Use of DDT as a residual spray has already demonstrated the economic feasibility of State wide malaria control. Apart from its effect on mosquitoes, its action on other disease carrying insects, as flies, fleas, pests, etc., adds to its popularity. DDT has been sprayed in the form of water emulsion with Aromex and soap or as a wettable-powder suspended in water.

In almost all the areas approximately a course of three rounds of DDT indoor spraying at a dosage of 56 mgms. per square foot per application, at intervals of 8 weeks during the transmission season, has been the rule. In areas where the transmission season is long and in the project areas, where on account of special conditions no risks can be taken, more rounds have been carried out. Data collected from the controlled areas amply demonstrate that transmission of malaria has been stopped.

In the Nilambur area, a single dose of 200 mgms per sq. ft. was tried as a demonstration by the World Health Organization team who worked in the area. While the results have been generally good, there are indications that the procedure has its limitations. A serious interfering factor is that the surfaces sprayed are subject to frequent renovation, replastering or whitewashing on special occasions such as festivals and domestic functions. This would require not only a staff for detection of such cases but also another course of spraying in such renovated areas. Nor are signs wanting to show that in contact with certain surfaces there is fairly rapid deterioration or at least 'masking' of DDT. In an area where the transmission season is prolonged or where there is more than one such season in the year, one round only using massive dosage is likely to give a sense of false security.

In certain large villages lying close to streams and where malaria is one of moderate intensity, spraying of only a few rows of houses adjoining the breeding places have been done as "buffer". Results have been very encouraging.

Larvicidal measures have been undertaken as an adjunct to insecticides in project camps and in the Arimbra area near Nilambur. In the

Arimbra area eradication of *A. fluviatilis* is being attempted with demonstrable good results.

Pyrethrum as an anti-adult spray has been used as a preliminary to DDT spray in the control of epidemics.

No effort is spared in keeping the running costs low. Direct measures as retrenchment of staff have been taken where, on the attainment of healthy conditions, the demand for supervisory staff became less. In other cases, by extending considerably the area of operations without additions to the supervisory staff the per capita cost of anti-malaria schemes has been lowered. The entomological staff is utilized for public health work other than malaria and filariasis, as an indirect measure of economy. The expenditure, over supervisory staff, cost of insecticides and labour is reviewed once a year and a special report submitted to Government.

Mention should be made here of two serious handicaps confronting the progress of malaria work in remote locations such as the Agencies.—

(1) One is want of roads which are necessary for transport of men and heavy materials without which undue strain is thrown on the staff. There are other areas where unbridged streams are a source of great inconvenience, especially because the streams run full when spraying has to be undertaken.

(2) The other handicap is that the staff posted for control work cannot find accommodation for themselves or for their stores. The need for good means of communication and a provision for at least temporary quarters for the staff cannot be over-emphasized.

Free quinine distribution.—The scheme of free quinine distribution was in force in 14,563 villages during the year under report. There were 5,884 authorized agents appointed for the distribution, consisting mostly of village headmen, school teachers, voluntary social workers and officers of the rural welfare and co-operative departments. The departmental staff also continued to be actively engaged in this work. In areas where anti-malarial work was in progress, anti-parasite treatment constituted an important item of work in the programmes and was being carried out on an intensive scale throughout the year. 2,147 lb. of cinchona products and 120,966 tablets of synthetic anti-malarials were distributed during the year as against 2,850 lb. of cinchona products and 231,687 tablets of synthetic anti-malarials in the previous year. The decrease in the consumption of cinchona products and synthetic anti-malarials is attributable to the definite decline in the incidence of malaria as a result of sustained anti-malaria work.

Proposed expansion of anti-malarial work in the State.—The National Malaria Programme has been extended to the Madras State. Under this programme, provisions will be made for extending anti-malarial work to all the affected areas in the State. Control of rural as well as urban malaria will be undertaken on comprehensive basis.

Extension of the Madras Public Health Act, 1939.—The provisions of Chapter IX of the Madras Public Health Act, 1939, relating to mosquito control were extended to the following areas during 1952:—

- (1) Tiruvarur Municipality (Tanjore district).
- (2) Achanta Panchayat Board (West Godavari district).
- (3) Sattenapalle Panchayat Board (Guntur district).
- (4) Srikali Panchayat Board (Tanjore district).
- (5) Avanashi Panchayat Board (Coimbatore district).
- (6) Chowghat Panchayat Board (Malabar district).

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

Thirty-six malaria control schemes are functioning in different parts of the State. Annexure M to this report gives details regarding areas of operations, population, protected and controlling agencies of the different schemes. The results achieved are briefly described below :—

Schemes in Engineering Project areas.—Control of malaria has been recognized as an essential preliminary to the execution of big projects. Health staff has been posted from the early inception of these projects with the two objects of maintenance of public health and the control of malaria. High malarial endemicity was common. Making all-out efforts combining anti-larval measures with anti-adult measures, keeping constant watch over the mosquito vector and providing adequate treatment to the sick, has made the project areas healthy. In fact, when the engineering work is completed, the camp sites will become modern townships with protected water-supply, efficient drainage system, good and sufficient lighting and the menace of malaria removed. In Machkund Hydro-Electric Project area, spleen rate in the controlled area is only 19.8 per cent against 76.4 per cent in the adjoining uncontrolled areas. The Tungabhadra Project designed for productive irrigation in seven taluks in Bellary district and Kurnool taluk in Kurnool district in the Madras State, besides large areas in the Hyderabad State, was spread over an area of high endemicity. The incidence of malaria has now dwindled to negligible proportions. In Hospet Municipality the spleen rate is now only 0.6 per cent. The usefulness of the operations in the Lower Bhavani Project area, where anti-malarial works go on in the Head Works area and over the canal zone, can be gauged from the following malariometric data :—

Year.	Spleen rate. PER CENT.	Parasite rate. PER CENT.	Morbidity rate. PER CENT.
1949	2.6	6.6	2.9
1950	3.5	11.9	2.3
1951	0.6	0.8	1.6
1952	0.4	Nil.	1.0

In Malampuzha Project area, relatively less malarial than the other control works have brought down the spleen and parasite rates to nil.

Land Development Schemes under the Development departments.—In Araku Valley in the Visa hapatnam Agency and in a section of Wynaad taluk, colonization schemes are functioning. The malaria organization had to blast the trial and make these erstwhile death-traps into health resorts. The work in the Araku area was further extended during the year. The area is now free from malaria. All available arable land has been cultivated. The Wynaad Colonization area has become quite healthy. There was no evidence of transmission of malaria throughout the year under report. The mosquito vector species could not be found in the adult or larval stages. It has been estimated that more than 10,000 acres of land have now been brought under cultivation, a valuable national asset. Conditions have become so normal that it has been decided to merge the scheme with the Taluk Scheme as further need exists to keep it as a separate entity.

The Agency Schemes.—One of the earliest anti-malaria schemes started in the State was in Krishnadevipeta in the Agencies. The Agencies have been notorious for malarial hyperendemicity and malaria has been the most formidable barrier to progress. *A. fluviatilis* is the ubiquitous vector. Large tracts of virgin land remained unexploited. New Schemes are functioning in Polavaram, Nugur, Bhadrachalam, Chodavaram, Yellavaram, Krishnadevipeta, Chintapalle and Paderu Agencies. The controlled areas have not

become popular. Tobacco, tapioca and millets have been grown in large quantities, an enormous contribution to public good and the uplift of the Agency tribes.

The steady progress that has been maintained is evidenced by the data given below :—

Year.	Spleen rate per cent.			Parasite rate per cent.	
	Polavaram, Chodavaram and Krishnadevipeta.			Krishnadevipeta.	
1949	63.4	37.7	27	12	
1950	55.6	60.3	25	10	
1951	31.4	54.7	25	9	
1952	20.2	33.4	21	8	

Nugur.—The overall spleen rate has fallen to 22.8 per cent while the parasite rate has come down to 3.9 per cent during the year in the taluk. In a corresponding unsprayed area in Bhadrachalam taluk, the rates were as high as 85.4 and 36.4 per cent respectively. There has also been a decline in the percentage of malaria cases treated to total admissions at Charla and Venkatapuram dispensaries, the percentages being 6.1 and 7.3 in 1952 against 7.6 and 9.6 respectively in 1951.

Chintapalli.—Large extensions were made to this scheme in 1952. Chintapalli has become so healthy that all the officers are staying with their families and the official colony no longer presents a deserted appearance.

Paderu.—The following data show the progress of work done in the area :—

Name of sub-unit.	Spleen rate.				Parasite rate.			
	1949.	1950.	1951.	1952.	1949.	1950.	1951.	1952.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Paderu—								
(a) group	20.9	15.7	13.3	8.4	4.5	2.2	1.7	..
(b) group	54.6	38.6	32.4	26.1	11.2	6.9	3.6	2.2
Hukumpeta—								
(a) group	44.9	38.3	31.2	24.5	8.5	5.7	4.9	2.5
(b) group	65.5	59.3	49.6	43.3	15.4	9.4	8.7	4.0
Kurchmunda	45.3	35.2	27.2	28.6	5.7	4.6	5.0	5.1
Minimalur	82.6	62.5	49.0	19.3	12.9	10.5	5.3	4.2

Malaria cases treated in the Government dispensary at Paderu constituted only 0.48 per cent of total admissions against 0.59 per cent in 1951.

The Malnad Group Schemes.—In and near the foot-hills of the Western Ghats, four anti-malaria schemes are functioning in Puttur, Karkal and Coondapoor taluks of South Kanara district and in Wynaad, Kurumbranad, Kottayam, Chirakkal, Kozhikode, Ernad and Walluvanad taluks and parts of Palghat taluk of Malabar district. Hyperendemic malaria (transmitted by *A. fluviatilis*) used to be the rule. The picture has entirely changed. Malaria is no longer a factor to be counted in most of these areas. Cultivation of tapioca, rice, rubber and pepper has been given a fillip. Thirteen thousand acres of land have been reclaimed. Colonization has gone on apace. Control of malaria has been so effective that supervisory staff has

been retrenched in two of these schemes. A Health Officer, Class II, has been replaced by an Entomological Assistant in the New Settlers' Colony Scheme. Two Health Inspectors have been retrenched in Wynaad taluk. Records illustrative of the good work done are given below:—

South Kanara District Scheme.	1949.	1950.	1951.	1952.
(1)	(2)	(3)	(4)	(5)
Spleen rate per cent	45.9	23.5	0.45	4.6
Parasite rate per cent	8.3	1.0	0.50	0.2
Morbidity rate per cent in Local Fund Hospital, Kadaba.	55.4	26.5	23.4	20.2
Morbidity rate per cent in Rural Dispensary, Uppinangady.	37.1	26.5	19.1	17.3
Morbidity rate per cent in Local Fund Hospital, Belthangady.	55.1	27.2	24.1	14.1
Morbidity rate per cent in Local Fund Hospital, Sullia.	32.1	17.7	13.8	17.5
Morbidity rate per cent in Rural Dispensary, Habri.	40.8	26.1	20.4	15.2

Wynaad Taluk.

Year.	Spleen rate per cent.	Parasite rate per cent.	Morbidity rate per cent in Hospitals at		
			Vayithiri.	Manantoddy.	Panamaram.
1949	36	6	23	29	31
1950	16	2	11	28	16
1951	10	1	9	6	16
1952	5	0.6	10	5	12

Ernad-Walluvanad area.—During the year, the programme of the World Health Organization, Malaria Control Demonstration Team, was continuing with the staff of the State Government. Two foot-hill pockets in Nenm and Pandalur villages were newly included in the control programme.

In addition to anti-adult measures, off-season anti-larval operations were carried out in Arimbra area with the object of achieving total eradication of *A. fluviatilis* from this pocket. The results have been very gratifying. The spleen rates in the scheme area recorded a further fall from 33.5 per cent in 1950 and 17.4 per cent in 1951 to 14.7 per cent in 1952. The number of malaria cases that attended the dispensaries fell from 3,912 in 1951 to 2,587 in 1952.

The following special investigations were carried out by the staff:—

- Observations on exophilism of *A. fluviatilis* in the Silent Valley.
- Experimental measures to eradicate *A. fluviatilis* from malarious pocket of Arimbra by combining larvicidal measures with anti-control measures.
- Chemical analysis of samples of scraping from treated mud-walls in sprayed houses.
- Establishment of *A. fluviatilis* colony.

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

Attendance.

Year.	Number of clinics.	Infants and children.	Ante-natal mothers.	Nursing mothers.	Total.
1950	42	1,551	17	..	1,568
1951	119	5,451	148	265	5,863
1952	221	23,188	1,480	..	24,668

New Settlers' Colony Scheme.—The incidence of malaria has been brought down to almost healthy limits. Hospital statistics indicate marked decline in the percentage of cases treated for malaria.

Tekkali Taluk Scheme.—This scheme started functioning in January 1952. As a result of one year's work the spleen rate fell from 48 per cent in 1951 to 33.9 per cent in 1952. The rate in 1952 of an adjacent uncontrolled area was 59.6 per cent.

A. Sundaicus Scheme.—Started for the control of *A. Sundaicus* along the coastal taluks of Ichapur, Sompeta, Tekkali and Narasannapeta taluks, results achieved were so good that during 1952 control operations were confined to the villages bordering on Orissa State only. Strict surveillance was kept over the rest of the operational area. The vector mosquito was practically eliminated in the control area though in the Orissa villages on the border the vector was still prevalent. The following figures indicate the success of control operations:—

Year.				Spleen rate.	Parasite rate.	Morbidity rate.
				PER CENT.	PER CENT.	PER CENT.
1949	..	..	..	13.8	4.7	8.2
1950	..	..	..	5.3	2.3	8.0
1951	..	..	..	1.8	0.4	7.0
1952	..	..	..	0.5	0.0	7.0

In May 1952, an epidemic of malaria transmitted by *A. sundaicus* broke out in Loddaputti, Ayyavaripeta and Innespeta villages which are outside the scheme area. The epidemic was rapidly controlled by the immediate institution of DDT spraying and distribution of anti-malarial drugs.

Guntur District Scheme.—This scheme is run by the Guntur District Board with a contribution from the State Government. The spleen rate for the control area declined from 14.9 per cent in 1951 to 7.6 per cent in 1952, while the percentage of malaria cases treated to total admissions in dispensaries fell from 5 per cent in 1951 to 3.3 per cent in 1952.

Nellore District Schemes.—There are three schemes functioning in the district under the charge of a Senior Entomologist, viz., the Coastal Scheme, the Mica Mining Area Scheme and the Sreeharikota Island Scheme. In the last-named area, filariasis control is also simultaneously undertaken. There was no transmission of malaria in any of the areas under control. The hospital admissions for malaria came down from 20.2 per cent in 1950, and 16.1 per cent in 1951 to 8.2 per cent in 1952 in the coastal scheme area; from 39.4 per cent in 1949 to only 13.1 per cent in 1952 in the mica-mining area. Just a year's work had been done in Sreeharikota Island. There has been a marked increase in the birth-rate and decrease in the death-rate in the area.

Anti-malarial Scheme Tirumalai Hills.—As Tirumalai is an important pilgrim centre attracting several thousands of pilgrims from all parts of India, the necessity for malaria control becomes paramount. From 1947 anti-adult measures with DDT indoor spraying have been undertaken with signal success and the place has become totally healthy. The spleen rate was 48.7 per cent in 1947 and is now only 1 per cent; likewise the malaria attendance in the local dispensary has come down from 32 per cent in 1944 to 0.85 per cent in 1952, a most telling result.

Kurnool District Anti-malaria Scheme.—The scheme extended to three taluks with 148 villages of Kurnool district covering a population of 192,728. Three rounds of DDT spraying were carried out. A total of 5,474 cases of

fever treated. As the District Board, Kurnool, was not willing to pay share of the expenditure, the scheme was wound up in December 1952. It is proposed, however, to revive the scheme in 1953 as part of the National Malaria Control Programme.

North Arcot District Anti-malaria Scheme, Tiruppathur.—Started a scheme for the control of malaria in the plains villages of Chengam taluk the scheme now stands extended over the Tirupattur and Chengam and Javadi Hills also. The results achieved have been satisfactory as could be judged from the following data :—

Year.	Spleen rate per cent.	
	Plain villages.	Hill villages.
1948	20.8	..
1949	13.2	53.0
1950	10.3	62.0
1951	7.2	22.4
1952	4.0	13.4

Coimbatore District Anti-malaria Scheme.—Control operations extended over eight taluks of the district. Over 90 per cent of all the malarious areas in the district have been freed from malaria, leaving only a few isolated and inaccessible pockets in the interior forests for active tackling. The following data relating to highly endemic areas in the district indicate the results achieved :—

Taluk.	Spleen rate per cent.	
	Before control.	After control in 1952
1 Pollachi	21.5 (1949)	12.0
2 Bhavani	42.7 (1951)	23.6
3 Kollegal	52.8 (1950)	17.3
4 Gobichettipalayam	53.7 (1950)	14.7
5 Udumalpet	82.7 (1950)	41.0
6 Avanashi	35.3 (1950)	12.9
7 Coimbatore	69.4 (1951)	59.1

Morbidity Statistics.

	Percentage of malaria cases in 1949.	Percentage of malaria cases in 1952.
V.K. Pudur	10.2	6.27
Dispensary	33.2	6.29
Periapadu	15.3	5.5
P.G. Palayam	17	7.3
Odayarpalayam	..	..

Anti-malaria Scheme in Government Cinchona Plantations.—This scheme was sanctioned for the benefit of the labour population and staff residing in the Plantations area in the Anamalais and has the twofold functions of carrying out anti-malaria measures and general health measures. The post of Health Officer (Class I) for the scheme was abolished during the year and the scheme is now in charge of an Entomological Assistant working under the supervision of the Regional Malariologist, Coimbatore. The spleen and parasite rates recorded during 1952 in this area, once hyperendemic for malaria, were only 0.72 per cent and 0.22 per cent respectively. The percentage of malaria cases treated during 1952 in all the divisions constituted only 0.8 per cent of the total attendance.

Salem district.—The scheme included over 900 villages in the control programme started in 1948 and as a result of sustained anti-malaria measures 629 endemic villages and hamlets have so far been rendered healthy. The following data show the progress made :—

	1949.	1950.	1951.	1952.
1 Over-all spleen rate per cent.	31.3	15.9	11.9	8.3
2 Over-all parasite rate per cent.	..	9.8	2.8	1.0
3 Percentage of malaria cases to total fever cases.	73.0	6.1	6.7	5.3

Consonant with the reduction in the area of operations, the operative staff was reduced. The posts of one Entomological Assistant, one Laboratory Assistant, two Health Inspectors and two peons were retrenched during 1952.

Other anti-malaria schemes in operations in the State.—Schemes for the control of malaria functioned in the following areas also :—

Cuddapah, Kurnool, Guntur, Salem, Anantapur and Tiruppur municipalities, Simhachalam in Visakhapatnam district, three groups of villages in Chittoor district, Kollur and Kambadagi villages of South Kanara district, Valparai panchayat board in Coimbatore district, the Kani settlements in the Papanasam reserves and Jilugumalli, Pochavaram, Aminabad and Gannavaram land colonization areas in the Agency.

Towards the close of December 1952, the following anti-malaria schemes were sanctioned by Government in order to take full advantage of the UNICEF gift of 17-1/2 tons of DDT and the Technical Co-operation Administration allotment of 18 tons (40,000 lb.) of DDT and necessary action was taken to implement them immediately :—

- Anti-malaria Scheme, Gudalur taluk (The Nilgiris district) as an extension to the Anti-malaria Scheme, Nilambur (Malabar district).
- Anti-malaria Scheme, Coondapoor taluk (South Kanara district) as an extension to the Anti-malaria Scheme, Puttur (South Kanara district).
- Anti-malaria Scheme, Polur-Javadis (North Arcot district) as an extension to the Anti-malaria Scheme, Tiruppathur (North Arcot district).
- Rajahmundry Anti-malaria Unit.
- Anti-malaria Scheme, Divi taluk (Krishna district).

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. The following filariasis surveys were carried out :—

Regional malaria organizations.	Number of filariasis surveys.
Chennai	(6 plus 15 resurveys)
Coimbatore	11
Chennai	5
Visakhapatnam	14

Annexure L gives the results of filariasis surveys conducted in typical localities. Anti-larval work using BHC compounds mostly and DDT in certain cases is the main line of control adopted. BHC in the form of Gammexane

P520 or Hexidol 950 has been found to be very economical for use as larvicide. Treatment with *Hetrazan* is being tried on an experimental basis in one or two areas.

There are two distinct types of filarial problem in the State. The commoner one is caused by *filaria bancrofti* transmitted by *Culex fatigans*. The sheet anchor of control is proper drainage, failing which systematic application of larvicides is an effective temporary measure. The other problem, due to *filaria malayi* transmitted by *Mansonioides* mosquitoes.

These mosquitoes breed commonly in association with *Pistia stratiotes* an aquatic plant. Removal of *pistia* plants from ponds and pits is a simple method of dealing effectively with the breeding of this type of mosquitoes.

Filariasis control schemes approved by the Government are undertaken by local bodies out of their funds in the first instance and the Government make one-third grant towards the expenditure. Only in Sreeharikota Island in Nellore district, where the twin problems of filariasis and malaria are present, a scheme totally financed by Government is functioning.

Anti-larval measures give reasonably good results consistent with economy. It is however desirable to deal with the adult mosquito and the parasite factor in the human host. These schemes will, therefore, become more comprehensive if anti-larval measures are supplemented by anti-adult measures—to cut out directly the mosquito transmission factor—and by the administration of *Hetrazan* to human carriers of micro filaria.

As the Government of India are considering the question of drawing up a plan for all-out filariasis control in India in collaboration with the World Health Organization, proposals have been submitted for canvassing the support of the Government of India and the World Health Organization for carrying out comprehensive control measures in five selected localities with high incidence of filariasis in the Madras State. The areas selected are (1) The Poonamallee Health Unit area, (2) The Mangalore Municipality, (3) Sreeharikota Island, (4) Kozhikode Municipality and (5) The Community Project area in East Godavari district.

GUINEA-WORM DISEASE.

Dracontiasis is a place disease prevalent in areas mainly rural, where guinea-worm infested individuals have direct access to stationary drinking water sources, such as, step-wells and tanks containing susceptible species of cyclops. East Godavari, West Godavari, Krishna, Visakhapatnam, Cuddapah, Kurnool, Bellary, Anantapur, Nellore, Chittoor, South Arcot, Tirunelveli, North Arcot, Coimbatore and Chingleput districts are endemic for guinea-worm disease. A map of the Madras State showing the endemic areas and the degree of infestation during the year 1952 is appended separately. The disease is more prevalent from April to June. The intensity of infestation varies directly with scarcity of drinking water-supplies during the above season. Chemical and biological methods of control in South Arcot, West Godavari and Bellary districts, and chemical method of control in other districts were carried out. The infestation was heavy in South Arcot, Kurnool and Bellary districts. In all 614 villages with a population of 667,868 reported guinea-worm infestation. Control measures were carried out only in 38 villages by a special staff of one Health Inspector, four Sanitary Inspectors, four maistris and two mazdoors. A sum of Rs. 10,45-2-0 was spent on guinea-worm control measures by the local bodies.

thousand and seven hundred and twenty-seven persons were found suffering from the disease in the endemic areas. Three thousand six hundred and eighteen talks, 652 lectures, 115 magic lantern demonstrations and 6,561 pamphlets were distributed. In all 56 step-wells were converted into draw wells. Conversion of step-wells into draw-wells is included in the programme of rural water supplies.

A sum of Rs. 4,000 was sanctioned by the Government for the control of guinea-worm disease in Bellary district by biological method under the auspices of the Fisheries Department of Government. Surveys of the existing tanks and wells, the prevalent species of cyclops, the density of infected cyclops and the degree of guinea-worm infestation in the area prior to the introduction of the cyclopocidal fishes by the Fisheries Department were carried out in 12 villages of Bellary taluk. Eight villages of Alur taluk and 3 villages of Hospet taluk of Bellary district, during the year. The efficacy of the biological method will be appraised by periodical resurveys of cyclops density in the fish-introduced-tanks and step-wells and also by ascertaining the degree of guinea-worm infestation in the villages where biological control is effected. Cyclops leukarti were the ubiquitous species in the area though a few cyclops hyalinus were also collected.

Cheap and effective method of control of cyclops breeding in tanks and step-wells was being studied. Laboratory trials carried out earlier with 0.5 per cent DDT suspension as a cyclopocide below a dosage of 7 parts per million resulted in 100 per cent kill of the crustaceans in 48 hours. Experimental field trial was carried out in a district board step-well of Jolardasi village to confirm the laboratory finding, in the field. The step-well water contained innumerable cyclops per dip at the commencement of field trial and the cyclop density was reduced to 5 per dip within 5 days of the application of 0.5 DDT suspension at 4.6 parts per million. The reduced cyclops density level was maintained for a period of two months. The result is quite encouraging and a cheap, effective and safe method of cyclops control without affecting the palatability and potability of water, would appear possible.

RESPIRATORY DISEASES.

The number of deaths from respiratory diseases has increased from 87,231 in 1951 to 95,063 in 1952, the death rates being 1.53 and 1.64 respectively. The mortality in urban areas has however slightly decreased from 33,915 deaths with a rate of 3.18 in 1951 to 33,152 giving a rate of 3.03 in 1952. In rural areas, the deaths have increased from 53,316 with a rate of 1.15 in the previous year to 61,904 representing a rate of 1.32. The rate in urban areas is greater than that in rural areas as in the previous years. The deaths registered in each month are given in statement XI of the appendix. The maximum mortality was recorded in the last quarter and the minimum in the first quarter, the mortality increasing steadily from April to December.

The number of deaths from this group of diseases in each district and the death rates recorded during the year are given in statement XI of the appendix. The districts that recorded high mortality rates were Madurai (2.59), West Godavari Agency (2.51), Tanjore (2.38), Coimbatore (2.32) and the Nilgiris (2.23). Low death rates were registered in East Godavari Agency (0.83), Chittoor (0.87), Cuddapah (0.92) and Anantapur (0.98).

In municipal areas there were 28,645 deaths from this group with a rate of 4.01 in 1952 as against 29,581 deaths with a rate of 4.30 in 1951. The

towns that returned high rates were Palni (7.76), Madras (7.23), Madurai (7.17), Kancheepuram (7.05) and Kodaikanal (6.30).

In the census towns, 4,507 deaths from these diseases occurred giving a rate of 1.19 in 1952 as compared with 4,334 deaths with a rate of 1.1. High rates were returned from Kotagiri (5.79), Nattarasankottai (5.14), Palayampatti (5.05), Rameswaram (4.44) and Panapakam (4.09).

TUBERCULOSIS.

Tuberculosis is not a registrable cause of death in rural areas. The mortality from this disease in the State as a whole is therefore not available. In municipalities, deaths from pulmonary tuberculosis are separately registered. There were 6,747 deaths from tuberculosis, representing a rate of 0.94 per 1,000 of population in 1952 as compared with 7,227 deaths with a rate of 1.05 in 1951. The death rate of 0.94 in 1952 is low when compared to the rate of 1.31 in the decade 1942-51. High mortality rates were returned from the municipalities of Palni (2.65), Tellicherry (2.24), Melapalayam (1.95), Kozhikode and Palayamkottai (1.77 each), Mangalore (1.7), Periyakulam (1.73), Bellary and Kancheepuram (1.71) each.

Statistics of patients treated for tuberculosis pulmonary and other in hospitals district-wise are given in Annexure F. The cases treated for tuberculosis in the State during the past five years are extracted below :—

Year.	Pulmonary tuberculosis.	Non-pulmonary tuberculosis.	Total.
1948	72,961	27,094	100,055
1949	79,934	40,075	120,009
1950	94,708	72,788	167,496
1951	106,498	64,736	171,234
1952	126,118	82,647	208,765

The above statement reveals the steady increase in the number of tuberculosis patients treated. The number of non-pulmonary cases has steadily increased threefold during the quinquennium. This may partly be due to better diagnosis of disease.

Tuberculosis control.—The control of tuberculosis through curative and preventive medical care, is under the direction of the Director of Medical Services. The Director of Government Tuberculosis Institute, Egmore, is in supervisory charge of preventive care of contacts of open cases of tuberculosis attended to by State tuberculosis clinics in the city and in charge of mass radiograph examinations, and B.C.G. vaccination campaign—present confined to Madras city and environs only.

Home visiting and contact examination.—Two Medical Officers and two Health Visitors are working in the Government Tuberculosis Institute, Egmore, for providing preventive care for the contacts. They visit homes of the open cases of pulmonary tuberculosis and advise the patients and their relatives about the methods of disposal of sputum of patients, the segregation and other hygienic measures. From the number of advanced tuberculosis cases who attend the Tuberculosis Institute and the clinics in the City, it is evident that an isolation hospital for chronic cases is absolutely necessary. The following is the summary of work done at the Tuberculosis Institute, Egmore :—

Total number of contacts	3,750
Total number of contacts completely investigated.	1,699
Total number of contacts found to be tubercular ..	

'Contact' survey work is also done by the Medical Officers and Health Visitors of the four Tuberculosis clinics at the Government Stanley, Royapet, General and the Kasturba Gandhi Hospitals under the overall supervision of and control of the Director of Tuberculosis Institute, Egmore. One Medical Officer and two Health Visitors are attached to each of the two tuberculosis clinics at Government General Hospital and Government Stanley Hospital and one Medical Officer and one Health Visitor to each of the two clinics at Royapet Hospital and Kasturba Gandhi Hospital for Women and Children. The following is the summary of work done at the four Tuberculosis clinics :—

Total number of house visits (including revisits).	10,617
Total number of contacts of open cases	8,693
Total number of tubercular cases traced among contacts	359

Mass X-Ray examination.—Mass X-Ray examination of various groups of people, mainly industrial workers, groups of people in various institutions like Children Aid Society, Vigilance Home, Civil Asylum, Madras City Police, Madras Fire Service, Indian Air Force, Avadi, etc., was undertaken. A total of 11,143 persons were thus X-rayed of which 2,648 persons were found to be suspicious cases and 105 cases were found to be cases of pulmonary tuberculosis. It may be seen from the above that a fairly large number of tuberculosis cases was detected by mass radiography during the year.

Tuberculin testing P. and B.C.G. vaccination.—With a view to providing protection to the vulnerable groups, B.C.G. vaccination campaign in the State under the direction of the Director of Tuberculosis Institute, Egmore, has been continued and the three B.C.G. vaccination teams, one of the Madras Corporation and two of Government, continued to function in the City during the year under review. Children of primary and secondary schools of Government, Aided and Corporation, all the contacts of patients attending Tuberculosis Institute and clinics, the Indian Air Force personnel, including officers and their families have been tuberculin tested and B.C.G. vaccination given to negative reactors. Mass X-ray survey and B.C.G. vaccination of non-reactors of Mantoux test were conducted among the students of the Women's Christian College during the year. In all, 31,868 persons have been tuberculin tested during the year and 9,412 were B.C.G. vaccinated.

A conference of administrative officers of B.C.G. campaigns and the Directors of Public Health of the States was held at New Delhi in December 1952, and the Director of Public Health of this State participated at this conference. The methods for popularizing and pushing on B.C.G. vaccination work in the State were also discussed at the meeting of the Central Health Council at Hyderabad in January 1953, at which the Director of Public Health participated.

LEPROSY.

The geographical distribution of leprosy can be discerned to some extent from the Annexure G which gives the number of leprosy cases treated in hospitals in each district during 1952 as compared with 1951 and 1950. The number of leprosy patients treated in 1952 was 91,145 as against 85,262 in 1951 and 101,359 in 1950. The number treated was high in the districts of South Arcot, Salem, Madurai, North Arcot and Tanjore and in the City of Madras. About two-thirds of the number of cases treated in the hospitals in the State were from these areas.

The State Leprosy Survey Unit at Vellore and the District Leprosy Survey Unit at Tirukkuvilur working under the Director of Medical Services continued to function during the year under report. The District Survey Unit concentrated its activities on special and detailed leprosy survey of villages in the scheme area with special reference to the epidemiology of leprosy incidence and spread. The State Survey Unit, besides supervising and guiding the work of the District Survey Unit, carried out random leprosy surveys in certain villages and detailed surveys in certain special areas of the State.

The following is a summary of the work done by the Units during 1952:

West Godavari district was taken up for the investigation of the incidence of leprosy, since there is already one District Leprosy Survey Officer working under the District Board. A scheme for starting a Mobile Unit for both survey and treatment in the district was submitted.

A survey of 25 villages in Chingleput, Tiruvallur Firka areas, at the request of the Honorary Organizer for Leprosy Control in firka development areas, and of 16 villages in Kallupatti firka (now community project area) were undertaken to assess the incidence of leprosy in these areas and report thereon was submitted.

Watrap-Pudupatti village, Srivilliputtur taluk of Ramanathapuram district and area in and around Villupuram Municipality were surveyed for leprosy incidence. Preliminary surveys to assess the State of endemicity of the disease were done in some villages in Tirunelveli, Coimbatore and North Arcot districts. The infective cases were advised to segregate themselves, to keep away from children and persuaded to attend regularly the nearest clinic where treatment for the disease is given.

VENEREAL DISEASES.

The following statement shows the number of patients treated for venereal diseases in hospitals in the State during the past five years:—

Year.	Syphilis.	Gonorrhoea.	Others.	Total.
1948	112,430	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	181,008	127,235	455,623
1952	151,518	191,363	135,589	478,470

The total number of cases of venereal diseases treated has continued to increase, as also the number of gonorrhoea cases. The percentage of gonorrhoea cases to total number of venereal cases treated has increased from 37 in 1948 to 40 in 1952.

The number of cases of venereal diseases under sub-groups in each district is given in Annexure H. The largest number of cases of syphilis was treated in the districts of Guntur, Krishna and North Arcot. The districts where the number of gonorrhoea patients treated was high, were Ramanathapuram, South Arcot, Tanjore, Coimbatore, Salem, Guntur and Madurai.

The cities of Madras and Madurai established venereal diseases clinics for the control of the venereal diseases. In Madras City, the final instalment of the equipments in connection with mass serological tests for venereal diseases donated by the UNICEF, was received and put to use during the year. Three thousand nine hundred and forty-two ante-natal cases were screened. Five hundred and ninety-five vials of procaine penicillin donated by the UNICEF were used in the free treatment of venereal diseases

maternity and child welfare centres in the City and the following is the statement of cases treated at the special venereal diseases clinic run by the Madras Corporation at Otteri:—

Number of cases treated.

	Men.	Women.	Children.
Syphilis	264	365	63
Gonorrhoea	489	230	11
Soft sore	900	..	..
Bubo	111	3	..
Genital lesions	267	495	74

In Madurai City the proposed control team staff, consisting of a venereal diseases clinician, technician and a Health Visitor were not recruited and trained during the year. However, the venereal diseases cases were treated with the assistance of the Medical Officers-in-charge of Municipal dispensaries. The following is the statement showing the number of patients treated during the year up to August 1952.

	Men.	Women.	Children.
Number of new cases ..	331	138	3
Number of old cases ..	2,870	1,919	105
Total number ..	3,201	2,057	108

YAWS.

As yaws prevails extensively among the hill tribes especially, in the Agency tracts of Visakhapatnam, Srikakulam and East and West Godavari district, the Director of Medical Services in collaboration with the World Health Organization Regional Adviser on Venereal Diseases, New Delhi and in consultation with the Director of Public Health submitted to Government a scheme of control of the disease, utilizing the services of the existing anti-malaria organizations under the Director of Public Health working in the agency areas. The Government approved the scheme of control to function under the direction and control of the Director of Public Health and this is awaiting implementation after the World Health Organization Regional Adviser on Treponematoses and Dr. Kruizunga, the World Health Organization Expert on yaws control, have discussed the scheme in detail with the Director of Public Health and finalized it.

The scheme under the immediate direction and control of a Project Medical Officer (a Health Officer, Class I) envisages the establishment of three mobile survey and treatment units at important centres in the affected agency areas, Polavaram, Bhadrachalam and Krishnadevipeta for intensive surveys around and domiciliary treatment of cases detected with penicillin. This is to be supplemented by free treatment facilities with P.A.M. being made available at all the hospitals and dispensaries located in the affected agency areas. The transport, equipment, supplies of penicillin needed in this connection will be donated free by the WHO UNICEF.

A Health Officer of the anti-malaria organization in Araku Valley was deputed for training in yaws control and for attending the symposium on yaws in Bangkok and Indonesia. He returned after training and he will take charge shortly as Project Medical Officer in overall charge of the Yaws

RESEARCH.

Kala-Azar.

Kala-Azar is a place of disease. The triangular eastern part of Ramanathapuram taluk and Rameswaram Island comprising an area of 60 square miles and Madras City are endemic for Kala-Azar. A few Kala-Azar cases are also reported from Tirunelveli district.

Kala-Azar in Madras City.—A map of the Madras City showing the distribution of *Phlebotomus argentipes*, the biological vector and the divisions endemic for the disease is appended. Kala-Azar cases were reported from 14 divisions in Madras City. The number of Kala-Azar cases treated in the Stanley, General and Royapetta Government Hospitals during 1944-50 is as follows:—

Year.	Number of Kala-Azar cases.	Year.	Number of Kala-Azar cases.
1945	197	1949	963
1946	335	1950	719
1947	531	1951	858
1948	748	1952	1,025

A total of 4,075 sandflies were collected from 5,254 structures after a search of 712.75 man hours. Data of sandflies caught from different species are as follows:—

	Males.	Females.	Total.
1 <i>P. argentipes</i>	44	87	131
2 <i>P. papatasi</i>	1,239	1,045	2,284
3 <i>P. minutus</i>	1,157	499	1,656
4 <i>P. bailyi</i> var <i>compestor</i>	1	2	3
5 <i>P. squamipleuris</i>	..	1	1
Total	2,441	1,634	4,075

Sandflies naturally infected with Leptomonad forms of the Leishmandonovan body were not encountered with, during dissections carried out at the Research Laboratory of this department. A total of 769 sandflies were examined for Leishmania infection, of which 58 were *P. argentipes*, 2 *P. bailyi* var *compestor* 588 *P. Papatasi* and 121 *P. minutus*.

Kala-Azar in Ramanathapuram taluk.—The number of Kala-Azar cases treated in the medical institutions in Ramanathapuram district from 1944 is given below:—

Year.	Number of Kala-Azar cases.	Year.	Number of Kala-Azar cases.
1945	3,172	1949	2,232
1946	2,864	1950	2,068
1947	11,046	1951	3,315
1948	4,730	1952	2,154

One Entomological Unit under this department and another mobile medical unit under the Director of Medical Services for treatment of Kala-Azar are stationed in the area with Ramanathapuram as headquarters. The mobile medical unit was diverted temporarily in an emergency for cholera work in Cuddapah district from the middle of the year and it resumed its work in Ramanathapuram by the end of December 1952.

A large percentage of sandflies were caught from human dwellings and very few collections were obtained from fowl, duck and pigeon houses and cattle sheds. Four thousand five hundred and ten sandflies were caught in all from the 3 villages under study of which 59.1 per cent, 27.9 per cent and 13 per cent were *P. argentipes*, *P. Papatasi* and *P. minutus* respectively. There was a progressive reduction in the density of sandflies from the coastal region towards the inland in the Kilakarai and Yervadi villages. Sandfly distribution was however even in Periapattinam village. Sandfly density decreased considerably when the average maximum temperature rose above 95°F.

A survey of Kala-Azar.—Prevalence was carried out in the three villages of Kilakarai, Periapattinam and Yervadi. All suspected cases of fever were subjected to the Napier and Chopra blood tests using the capillary-tube technique. Enlargements of liver and spleen and their consistency were also noted. Twenty-three cases of Kala-Azar were met with in Yervadi, 25 in Periapattinam and 110 in Kilakarai village, giving a rate of 5.75, 7.14 and 7.33 per 1,000 of population respectively. The disease is equally prevalent among all communities and more or less equally among both sexes, 32.2 per cent of those diagnosed as Kala-Azar, were children below 12 years of age. There is also a tendency for the disease to have familiar incidence since a clear family history of more than one near relative having the disease or having had the disease and died of it prior to their illness, could be obtained. All the cases are indigenous and not imported. No case of Dermal Leishmaniasis was met with during the survey. In Kilakarai village 60 per cent of the Kala-Azar cases were from areas having high sandfly density and in Yervadi village all the Kala-Azar cases were from areas having high sandfly prevalence. Skin clippings and liver smears taken from stray dogs to elucidate if dogs are animal reservoirs of infection were examined for Leishmania infection but were found negative in 10 cases examined.

Laboratory work.—Under ordinary conditions of temperature and humidity, colonies of *P. argentipes*, and *P. papatasi* have been successfully raised in the laboratory. However, the metamorphosis of the larvae into adults is prolonged during the winter months. The longevity of *P. argentipes* and *P. papatasi* under normal conditions of temperature and humidity were estimated by a series of laboratory experiments by maintaining them on honey feeding. *P. argentipes* and *P. papatasi* lived up to 18 to 45 days respectively under the above conditions. In one experiment *P. papatasi*, fed on flowers lived up to 12 days.

Sixty-four specimens of blood samples from gut of sandflies were sent for precipitin tests to the Malaria Institute of India, Delhi, of which 23 specimens were positive for human blood, working out a percentage of 35.9 for those having human blood feed. As tests however were carried out against human antisera only, it is not possible to assess the source of blood in the remaining cases.

INFECTIOUS DISEASES HOSPITAL.

In the control of communicable diseases, isolation of the source of infection is the most important preventive measure. Isolation of the patient removes the individual from insanitary home environment, prevents household members from continued contact with the source of infection and thereby minimises the chances for the spread of infection. In this State the major diseases which occur in epidemic form are cholera and

smallpox and the facilities provided for isolation of patients are generally inadequate and unsatisfactory.

Cholera and smallpox.—As per the recommendations of the Public Health Board, cases coming to a local area from other local areas in the neighbourhood are admitted into the hospitals maintained by Government and local authorities in these local areas—municipalities and even panchayat boards. During the severe epidemic of cholera in Polur taluk North Arcot district at the close of 1952, improvised isolation wards were put up by the Polur Panchayat Board in the Government hospital premises and cholera cases from adjoining rural villages, were removed by ambulance vans, isolated and successfully treated. Government commended the control measures adopted to other local authorities for adoption. As it is found difficult for local authorities to supply at short notice, staff, equipment and drugs, etc., for treatment of cholera cases, on requisition from Medical Officers of hospitals, it was suggested that the District Medical Officers should be authorized to mobilise staff, use the equipment and medicines available with them, in the first instance, and recover the expenditure thereon finally from the local authorities concerned. To enable the District Medical Officers to incur the expenditure, necessary budgetary allotments should be made every year by the local authorities concerned, and the District Medical Officers informed of the provision made for the purpose. Many of the local authorities consulted, have agreed to make a specific budget provision for expenditure on epidemic emergencies. The District Medical Officers will maintain control over the expenditure and inform the local authority concerned from time to time and advise them whether extra provision is required or whether there has been any saving in the amount provided. This question will be placed before the Public Health Board for further consideration and decision.

Regarding isolation accommodation for smallpox and chickenpox cases this is very unsatisfactory even in the best municipal towns. "Isolated sheds" constructed in outlying parts of town, far removed from the Government hospital in the locality, not adequately staffed by medical and trained nursing staff and properly equipped are now functioning and these are unpopular. In view of the modern conception of the epidemiology and the spread of smallpox, it was suggested that the isolation wards on 'pavilion' and 'cubicle' system, should be constructed inside the existing Government or Local Fund hospital premises where adequate vacant space is available in the existing hospital premises. The existing prohibition against location of isolation wards for smallpox and chickenpox within 50 to 100 yards of an existing hospital ward or residential quarters is considered unnecessary and proposals to amend the G.O. No. 3212, Public Health, dated 19th July 1940, have been put up for consideration and decision of the Public Health Board at its ensuing meeting. During the year, improvised isolation wards in Government or Local Fund hospitals have been put up to remove, isolate and treat a large number of cases of cholera from the neighbouring cholera affected villages in North Arcot, Chittoor, Cuddapah, Tanjore, Tiruchirappalli and South Arcot districts—all the heavily cholera-affected districts. With the saline transfusion treatment instituted after prompt removal of cases from villages, the case-fatality rate of cholera cases in some of these wards, was reduced from about 40 to 50 per cent in non-hospitalized cases to 10 to 15 per cent in hospitalized cases, thus effecting a large saving in human lives, bringing home the necessity for such isolation facilities—even of an improvised character, in the successful combating of cholera outbreaks in rural areas.

CHAPTER III—HEALTH SERVICES.

MATERNITY AND CHILD WELFARE.

Infantile mortality.—The number of deaths among infants under one year was 183,554 in 1952 as compared to 186,286 in 1951, the infant mortality rates being 108.20 and 118.60 per 1,000 live births respectively. The infant mortality rates recorded during 1942 to 1952 are given hereunder:—

Year.							Infant mortality rates.
1942	..	..	..	..	..	..	159.67
1943	..	..	..	..	..	..	172.67
1944	..	..	..	..	..	..	192.44
1945	..	..	..	..	..	..	169.44
1946	..	..	..	..	..	..	146.88
1947	..	..	..	..	..	..	146.76
1948	..	..	..	..	..	..	128.13
1949	..	..	..	..	..	..	119.81
1950	..	..	..	..	..	..	130.13
1951	..	..	..	..	..	..	118.60
1952	..	..	..	..	..	..	108.20

The steady decline observed in the infant mortality rates since 1944 has been maintained during 1952 also. A straight line has been fitted up to the rates to study the trend in the rates. A marked downward trend is revealed by the straight line fitted up, the equation being $Y = 7.0x + 144.76$.

The infant deaths in rural and urban areas numbered 141,110 and 42,444 in 1952, giving infant mortality rates of 106.63 and 113.78, respectively, as against 116.93 and 124.34 in 1951. The rates have thus decreased in both rural and urban areas. The rural rate was less than the urban rate as in the previous year.

The death-rates in the neo-natal period, 1-6 months and 6-12 months in rural and urban areas and in the State as a whole are given below:—

				Rural.	Urban.	Total.
Under 1 month	..	..	..	53.61	49.52	52.71
1-6 months	..	..	..	21.88	31.95	24.09
6-12 months	..	..	..	31.14	32.30	31.40
Under one year	..	..	..	106.63	113.78	108.20

The neo-natal mortality represents nearly one half of the total infant deaths in the State as a whole and in rural areas. In the urban areas, the neo-natal deaths however form 43.5 per cent. It will be seen from the above statement that the death rate in the age group "1-6 months" in rural areas was much less than that in urban areas, while the rates in the age "6-12 months" in rural and urban areas were about the same.

In municipal areas, there were 32,694 infant deaths giving an infant mortality rate of 117.4 in 1952 as against 126.39 in 1951. The number of infant deaths and the infant mortality rates recorded in each municipality are given in Statement IV (a) of the appendix. The municipalities of Anakapalle and Melapalayam recorded very high rates of 236.28 and 206.02 respectively. These municipalities should improve their maternity and child welfare services.

Statistics regarding the infant deaths by causes are not available. An investigation into the causes of infant mortality with the financial aid of Indian Council of Medical Research is being carried out in the Poonamallee Health Unit area. The investigation is in progress and will be completed by August 1953. The enquiry will reveal the chief causes of infantile deaths in rural areas.

Maternal Mortality.—The number of mothers who died as a result of child birth was 9,717 giving a maternal mortality rate of 5.67 per 1,000 births (live and still) as compared with 9,006 maternal deaths with a rate of 5.67 for 1951. Although the maternal mortality rate has practically not changed as compared with the previous year, the rates recorded during the last decade show a decreasing trend. The maternal deaths recorded in urban and rural areas are 2,545 and 7,172 representing maternal mortality rates of 6.61 and 5.39 respectively. The rate in rural areas is less than that in urban areas as in the previous year. This may not be real and is likely to be due to comparatively defective registration of maternal deaths in rural areas or due to complicated cases of labour resorting to urban hospitals for treatment.

The number of deaths from child birth and the maternal mortality rates recorded in each district are given in Statement II of the appendix and in each municipal and census town in Statement VI of the appendix. The rates range from 2.15 in Coimbatore district, 10.10 in Tiruchirappalli district and 10.58 in East Godavari Agency.

In the municipal areas there were 1,901 maternal deaths giving a rate of 8.51 in 1952 as against a rate of 7.06 in 1951.

Introduction.—There has been a marked decline in the recorded infant and maternal mortality rates during the last decade. One of the contributory causes for the decline is the expansion of maternity and child welfare services. The present provision of the services is very inadequate. With a fully established and well-developed maternity and child health schemes, it would be possible to minimize infant and maternal mortality in this State as had been done in advanced countries in the world. The local bodies that have realized the sustaining results achieved during the past decade by the provision of skilled maternal and child health services, have begun to evince keen interest in extending these services in their areas by providing more maternity and child welfare centres and augmenting the existing maternity and child health schemes. Having realized the usefulness of maternity and child health work, several philanthropists have donated magnanimously towards the expansion of maternity and child health work in this State. Thus 58 maternity and child welfare centres were newly opened during the year by local bodies bringing the total to 572. Posts of 2 Women Medical Officers, 9 Health Visitors, 3 Resident Matrons and 63 Maternity Assistants were sanctioned.

Under the powers vested in the panchayats under the Village Panchayat Act some panchayats have provided maternity and child welfare services of their own, instead of contributing funds annually to the district boards, and depending on them for the provision of this service in their areas. The panchayat boards of Panruti and Shoranur have opened maternity and child welfare centres of their own during the year under report. The question of a full or partial supervision and control of the work of the maternity and child welfare centres maintained by panchayat boards by the Women Medical Officers of the district boards is under consideration.

Out of 38 maternity and child welfare centres sanctioned by Government for 1952-53 (26 under district boards, 10 under municipalities and 2 under panchayats) all were opened during the year under review. Five maternity homes were opened in the municipalities of Rajahmundry, Kurnool, Anakapalle, Bellary and Anantapur and one in the district of Coimbatore with a total bed strength of 20. In all, there exist 510 maternity and child health centres and 62 maternity homes in this State with a total bed strength of 580. The statement below gives the distribution of these maternity and child welfare centres and homes maintained by local bodies and Government:—

	Maternity homes.		Maternal and 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.		
Panchayats	..	..	..	..	2	2
District boards	3	16	50	160	263	316
Municipalities	34	149	26	60	152	212
Government Health Unit (Community Projects).	7	32	..	..	5	12
Corporation of Madras	18	223	..	..	12	30
Total	62	420	76	160	434	572

There are 2 maternity and child welfare centres under panchayats, 317 maternity and child welfare centres and homes under district boards, 212 under municipalities, 12 under Government and 30 under the Corporation of Madras, making a grand total of 572 for the State as a whole.

Excluding Corporation of Madras, there are 22 maternity homes located in the buildings owned by the local bodies and 22 in the buildings donated by the philanthropists, while the rest were housed in rented buildings.

The provision of beds is intended for normal labour cases only. This amenity has aroused much appreciation among the rural population as conditions for a delivery in rural homes are either insanitary or devoid of any such facilities. To overcome the difficulties experienced in securing suitable accommodation for housing the maternity and child welfare centres, local bodies have been advised to initiate the simplest scheme of maternity and child welfare work which is domiciliary midwifery service by the employment of a maternity assistant alone in the rural areas.

Personnel.

Women Medical Officers.—All district boards either employed or sanctioned posts of Women Medical Officers excepting those of Srikakulam, South Kanara, Nilgiris, Kurnool, Cuddapah and Nellore. The district boards of Chingleput, Coimbatore, Salem, Tanjore and West Godavari and the municipalities of Salem, Coimbatore and Tiruchirappalli employed two Women Medical Officers. In Madurai there are 5 Women Medical Officers. Out of 118 sanctioned posts of Women Medical Officers, 87 were under local bodies, 2 under Government and 29 under the Corporation of Madras. Two posts of Women Medical Officers (Grade II) were sanctioned in 1952, thus bringing the total number of Women Medical Officers sanctioned for local bodies to

87, of which 36 were Grade I and 51 Grade II. Twenty-one of these posts (ten of Grade I and eleven of Grade II) were vacant for want of qualified and suitable candidates.

Health Visitors.—Eight posts of health visitors were sanctioned during the year, increasing the total number of posts to 141. This includes the health visitors employed under the local bodies and the State Government. Four health visitors were deputed to work in the malaria demonstration team of the World Health Organization, Nilambur, to co-ordinate malaria work with maternity and child health work. Owing to the dearth of qualified hands, general trained nurses were employed to serve as health visitors with the special sanction of Government in the municipalities of Adoni and Amalapuram and in the West Godavari District Board. In the Poonamallee Health Unit, two such were employed under the auspices of the Indian Council of Medical Research.

Maternity Assistants.—Sixty-four posts of maternity assistants were sanctioned during the year. A total number of 1,164 maternity assistants were employed under local bodies in the maternity and child health schemes, 335 in rural areas and 723 in the urban areas. The training of the maternity assistants is under the medical department while their employment by local bodies is done in consultation with the Director of Public Health. Government have been pleased to sanction 'uniform' allowance to the subordinate staff of the maternity and child health schemes in local bodies.

Resident Matrons.—At the end of the year, there were 13 sanctioned posts of Resident Matrons in municipalities and one in district board. Candidates with general nursing qualifications trained either in the regional languages or in English were appointed to these posts. The efficiency maintained in maternity homes improved in a great measure by the appointment of these Resident Matrons. Residential accommodation on the premises of maternity homes has been provided in several cases for them.

Compounders.—In all, eight compounders were employed in the maternity homes in the municipalities of Tirupati, Madurai, Karaikudi and Mayuram. The dearth of female compounders has been acutely felt and the creation of the posts in some places has therefore not been considered.

Training of Maternity and Child Health personnel—Women Medical Officers (Maternity and Child Health).—Ten Women Medical Officers underwent the course for Diploma in Maternal and Child Health and 12 appeared for the examination. Eight candidates were successful.

Health Visitors.—Eight candidates were trained during the year and 4 of them qualified successfully in the final examination held in December 1952. One candidate, a general trained nurse and a qualified health visitor, was deputed in July 1952 by the Government for training as a Public Health Nurse in the College of Nursing, New Delhi. The course of training extends over one year.

Maternity Assistants.—Refresher courses for maternity assistants continue to be conducted either in the City hospitals or in the district headquarters hospitals.

Orders have since been issued by Government that maternity assistants employed in maternity and child welfare centres maintained by the local bodies should, immediately after their joining duty as maternity assistants in substantive vacancies, be deputed by the local body concerned to the nearest municipality where there is a Medical Officer (Maternity and Child Health) or to the Medical Officer (Maternity and Child Health) either

within the district or in the neighbouring district, as the case may be, for a preliminary training in Domiciliary Midwifery, Home Visits, and in the maintenance of prescribed records and registers relating to maternity and child welfare work for a period of one week, the period of such training being treated as on duty. The trainees will also be paid travelling allowance and dearness allowance at the admissible rates.

Activities of Maternity and Child Welfare staff—(a) Maternity Assistants.—383,930 mothers, 321,156 pre-natal and 170,037 labour cases and 248,804 infants were brought under the care of the maternity and child health staff. There has been an increase under all activities as compared with the previous year. The conduct of labour cases by untrained dais in several areas in the State has been further minimized by the initiative taken by the maternity assistants in weaning many cases of expectant mothers from the hands of the untrained dais.

Home visits were made in connexion with 851,490 pre-natal, 993,975 post-natal cases and 327,853 infants.

Labour cases that received skilled attention during the year under report were 123,255 representing a rate of 7.2 per cent of total births in the State. The labour cases attended to by qualified midwives in the municipal and non-municipal areas were 69,995 and 53,260 giving rates of 24.2 per cent and 3.7 per cent of total births, respectively.

(b) Health Visitors.—Home visits were made by health visitors for the care of 146,167 pre-natal cases, 96,637 post-natal cases and 253,329 infants and 58,812 pre-school children. During the course of these home visits intensive health education was carried out by way of organizing mothers' classes at the maternity and child-welfare centres and by talks at high schools. In addition, health visitors also visited children in elementary schools and induced the school authorities to introduce health education in the form of plays, dramas, songs and pictorial illustrations. Six hundred and ninety-four schools were visited and 2,085 talks were given to 168,227 children.

(c) Women Medical Officers (Maternity and Child Health).—The presence of Women Medical Officers (Maternity and Child Health) has certainly popularized clinics for both mothers and children at maternity and child welfare centres. During the year under report, 28,445 clinics were conducted and there were 400,630 expectant mothers who were physically examined by the Women Medical Officers themselves, while 436,812 infants and 167,232 toddlers attended the clinics and received the necessary medical check up. The care of the expectant mothers and in particular of the infants has appreciably increased.

One thousand and three hundred ninety-four abnormal cases were conducted by the Women Medical Officers, while 1,707 cases were referred to hospitals for treatment. The home visits made by the Women Medical Officers numbered 134,276 during the year as against 104,293 in the previous year. 13,109 mothers' classes were held and the attendance at these classes was 219,638 as compared with an attendance of 200,490 in 1951. Women Medical Officers visited mainly the higher classes of girls' high schools and imparted instructions on "Mother Craft" and invited them to attend maternity and child-welfare centres once a week for practical demonstrations.

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FINANCE.

Finance.—A total sum of Rs. 29,86,456 was expended by all local bodies in the State towards the maternity and child welfare work. Of this amount a sum of Rs. 5,00,515 related to district boards and Rs. 24,85,941 to municipalities. The expenditure incurred under this head by all local authorities during 1951 was Rs. 22,93,750.

Grants.—A sum of Rs. 3,43,245-6-0 was sanctioned by Government maintenance grant for maternity and child welfare schemes during the year 1951-52 payable before the closure of the financial year (1952-53). Nine municipalities and twenty-five district boards and five panchayats received 25 per cent grant.

VOLUNTARY ORGANIZATIONS.

The extension of help from voluntary organizations for the working of the maternity and child welfare schemes was continued during the year under report also. These private and voluntary organizations that needed and deserved financial assistance were given contributions from the funds of the local bodies and Government. Several maternity and child welfare centres are maintained by these bodies, e.g., the Indian Red Cross Society has 9 affiliated centres, but only 9 are directly maintained by them. The Avva Rural Medical Service, runs 4 centres in the districts of Madurai, Coimbatore and Chingleput, while the Kasturba Gandhi Memorial Trust has 21. There is a complete understanding in the working arrangement of the official and non-official maternity and child welfare centres and duplication of work and staff is thereby avoided. The advice and direction of this department, often sought as regards details in administrative matters.

United Nations international children's emergency fund gifts.—Free gifts of articles and equipment received from the United Nations International Children's Emergency Fund and their utilization are detailed below:—

Nine maternity and child health sets were supplied to selected maternity and child welfare centres in the districts of South Kanara, Kurnool, Chingleput, South Malabar, Krishna, Tiruchirappalli, Poonamallee Health Unit and the Malaria Control Team, Nilambur. Nine sets of drugs and diet supplements subsequently supplied as adjuncts to sets, were distributed to children below 14 years, and pregnant and nursing mothers as per the union regulations through the agencies of the maternity and child welfare centres in the districts and units mentioned above.

Soap chips, 24,250 lb. in quantity, were supplied to all the maternity and child welfare centres for their use.

Twenty-nine sets of maternity and child health kits provided with muslin cloth were distributed to selected maternity and child welfare centres, staffed with either at least two maternity assistants or with at least one maternity assistant and one health visitor.

The Corporation of Madras.—The scope of the maternity and child health scheme was further widened in the city of Madras by the addition of maternity ward at Kodambakkam centre. Special attention was paid to pre-natal clinics, infants and pre-school children.

Free distribution of cow's milk to priority consumers continued at the rate of four measures a day per centre.

There are 30 maternity and child welfare centres, 18 of which have maternity wards with 233 beds. Three creches functioned during the year.

The maternity and child health staff consisted of 29 Women Medical Officers, 30 health visitors, 8 sick nurses, 26 compounders and 230 maternity assistants. 32,264 labour cases were brought under the care of the maternity and child health scheme in the city during 1952.

General remarks.—In spite of the expansion of maternity and child welfare schemes secured during the past twenty years, farflung villages and even a few urban areas still remain unserved by adequate skilled maternal and child health services. The need for the further expansion of the schemes on a well organized basis needs therefore no over-emphasis. The extension of the schemes will go a long way in saving many lives of mothers and infants. These schemes will also help to dispel ignorance of mothers in matters relating to mother craft.

INDUSTRIAL HYGIENE.

Under the Factories Act, 1948, Health Officers have been appointed as Additional Inspectors of Factories. There were about 10,207 factories working during the year 1952 and the health conditions obtaining in factories were inspected by the Health Officers twice during the year in their capacity of Additional Inspectors of Factories. Their observations with reference to ventilation, lighting, overcrowding, water-supply, etc., were reported to the Inspectors of Factories for further action under the Factories Act.

Mines existed only in the districts of Nellore, Chingleput, Srikakulam, Tirunelveli, Salem and Coimbatore. The Health Officers also inspected the mines situated in their jurisdiction to ensure the safety and health of the workers and reports were also sent by them to the Chief Inspector of Mines.

The general health conditions in factories and mines were fair and no serious outbreak of communicable disease occurred among these during the year. No case of serious health hazard in factory was reported by the Inspecting Officers. The question of improving the health conditions prevailing in the beedy factories where children of tender age are employed, is now being investigated.

RESIDENTIAL AND INDUSTRIAL AREAS.

Much difficulty is being experienced by this department in approving the sites for installation of factories and mills as a result of, (1) failure of many local bodies to set apart and notify the industrial and residential areas, (2) allowing installations to spring up in unauthorized places, such as electricity installations in residential areas and oil installations in non-industrial areas even after notification, and (3) failure to take action in time in case of installations in unauthorized areas. Numerous such instances have come to notice in the recent times. Most of such cases of unauthorized installations are objected to years after the installations came into existence and proposals were received to rectify the action or inaction of the local bodies.

Forty-five municipal councils and 127 other urban local authorities have notified residential areas under section 89 of the Madras Public Health Act. During the year, proposals for the fixation of residential areas were approved in respect of 6 municipal councils and 9 panchayats.

Fifty-four municipalities and 203 panchayats have set apart industrial areas. The Town-Planning Department approved during the year industrial areas and additional industrial areas in respect of 10 municipalities and 16 panchayats.

HEALTH PROPAGANDA AND PUBLICITY.

Health propaganda was conducted in the state by the mufassal health staff with the help of the leaflets, pamphlets, posters, slides and films. The following is the summary of the work done in this regard :—

1 Lectures with magic lanterns	7,736
2 Lectures without magic lanterns	18,824
3 Cinema shows	805
4 Exhibitions	256
5 Short talks	108,924
6 Total audience	5,803,645

The film strip projectors with film strips kindly lent by the United States Information Service, Madras, are being utilized by the health staff in the municipalities for propaganda purposes. The mobile units of the United States Information Services, visited all the districts in the state except Visakhapatnam, Srikakulam, North Arcot, Malabar and South Kanara exhibiting cinema shows on health subjects from May 1952 onwards. The local health staff co-operated with the unit and helped them in the conduct of the shows. They attached large audiences.

This department conducted cinema shows at Chitrai Exhibition at Madurai, Andhra Provincial Medical Conference at Tenali and in the Exhibition at the Poonamallee Health Unit area. Exhibitions on Health and Nutrition were also arranged in the Park Fair Exhibition, Madras City, in connection with the Adi Festival, Tirunelveli, in the Chingleput District Political Conference at Poonamallee, in the Third South Indian Adult Education Week, Madras, and in the All-India Khadi, Swadeshi and Industrial Exhibition, Madras.

The World Cancer Day was celebrated in this State on 6th April 1952 by arranging lectures at important centres and by distribution of leaflets on the subject in regional languages.

The Health staff in the State celebrated the World Health Day on 18th July 1952 in collaboration with the District Medical Officers and other personnel in the Medical Department focussing the attention of the public on "Environmental Sanitation" as suggested by the World Health Organization.

During the year two sets of posters one on "Venereal Diseases" and the other on "Nutrition" were prepared and issued for the health propaganda purposes.

From the All-India Radio, Madras, Tiruchirappalli, Vijayavada and Kozhikode broadcasts were given on health subjects. The scripts on the subjects of Food and Nutrition, Soil sanitation, Protected water supplies in Rural areas and Filariasis control in the state were sent to the All-India Radio Stations in Madras and Tiruchirappalli to be read over by their staff.

ACTIVITIES OF VOLUNTARY ORGANIZATIONS.

The National Health Association of South India, Madras, in addition to its usual programme for carrying out propaganda on Public Health, has started a new branch of activity. It gives effective aid to the sickly destitutes in the city who come for admission into the hospitals and to those who are discharged from the hospitals and forced to live on street pavements through the Anadhseva Sangam, Madras, an asylum maintaining feeding and attending to the segregation of such sickly destitutes.

The Women's Welfare department, Madras, educated the public on the importance of keeping their houses and huts and surroundings clean by collecting and depositing the rubbish into the dust-bins provided in the streets. Conversion of such refuse into good manure for their kitchen gardens was also taught to the people. It assisted the Health department during the prevalence of epidemics, by getting the villagers and their children inoculated or vaccinated. First aid and hospitalization services were rendered to the people in community welfare centres. Home remedies for common diseases and cooking of nutritive and cheap non-rice dishes were taught. Useful talks on Health subjects were given with the aid of magic lantern-slides, charts, etc. The children were taught how to keep themselves and their clothes clean and to develop healthy and good habits. Milk, codliver oil and vitamin tablets were distributed amongst the children who attended pre-basic classes and to pregnant and nursing mothers.

The Members of the Guild of Service, in addition to their welfare work in the hospitals, teach diversional therapy, distribute literature, help the patients by writing letters for them and bring to the notice of the Guild deserving cases needing help for the benefit of the patients; they organize films shows and parties in the hospitals at Christmas and Pongal times. They run nursery schools with trained teachers in certain hospitals in the city in the children's wards.

At the request of the Health Officer, Corporation of Madras, Commissioner and the Superintendent of the Women and Children Hospital, they educated the Venereal disease patients in taking necessary treatment at the Corporation Clinics.

The Guild of service is the first agency to start the family planning work on a voluntary basis and it assisted the All-India Women's Conference in organizing the Family Planning Programme. It may be stated that one family planning clinic in the Government Hospital for Women and Children, Madras, are run by social workers of the All-India Women Association, South Indian Branch and three such clinics are run by the Corporation of Madras.

The Guild presented a radio set to the Tuberculosis Sanatorium, Tambaram and furnished the wards with curtains, etc., in the cottages. It helped in the raising of Mother and Baby Week ward in the Women and Children's hospital. It runs two creches and one nursery school in the slums. The Guild's medical van continues to serve the public and it is loaned to other agencies which wish to do mobile medical work. The Mohite playground was opened through the generosity of the Madras Provincial Welfare Fund and with an allotment of Rs. 5,000 from UNICEF funds towards layout and equipment. One electric bath was donated to the Stanley Hospital. The Guild of Service acquired two mobile vans through the Famine Relief Committee and the Madras Provincial Welfare Fund.

The members assisted in the collection of subscriptions in the shape of money and kind, in connection with the Famine Relief Fund. They assisted other welfare centres in Famine Relief Work.

They fed the children and expectant and nursing mothers with the rice and milk powder allotted by the Director of Public Health, Madras.

PUBLIC HEALTH ACTIVITIES OF THE PRIMARY HEALTH CENTRES UNDER THE POST-WAR DEVELOPMENT SCHEME.

Out of 30 Primary Centres opened in 1948 in the districts of Kurnool, Guntur, North Arcot, Coimbatore and South Malabar, 28 centres continued to function during 1952, two centres in the North Arcot district having been closed. About 300 villages with a population of roughly six lakhs were served by the primary centres.

The public health work carried out in all the centres during the year 1952 is summarised below :—

Five hundred and forty-eight unregistered births and 165 unregistered deaths and 6,050 unprotected cases were detected during the year. One lakh and thirty-seven thousand seven hundred and seventy primary vaccinations, 39,915 re-vaccinations were done and 50,429 anti-cholera inoculations were performed. Sixteen new wells were constructed, 17 were deepened, 4 were under construction and 29 sites were selected. Almost all the wells, both private and public were inspected and the defects noticed were got rectified.

Propaganda was done to encourage the construction and the use of latrines. Sixty-three dry earth type, 18 trench type, 100 septic tank and 118 other types of latrines (private and public) were constructed during the year.

One thousand six-hundred and sixty-eight labour cases were conducted and 1,603 pre-natal and 2,456 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.

All restaurants and tea shops were inspected by the Health Inspector during their visits to villages and steps were taken to remedy the defects wherever necessary. Notices were issued under various sections of the Madras Public Health Act and 147 prosecutions were launched against the defaulters.

Health education was carried out in the areas served by the primary centres. In all, eight lectures with magic lantern, 749 lectures without magic lantern and 5,959 talks were given, supplemented by other means of propaganda including distribution of pamphlets on health subjects.

Free distribution of quinine in all the primary health centres in Kurnool district was made by the Health staff. The centres have been doing useful work. The public have begun to realize the usefulness of the centres and rendered all necessary co-operation to the staff.

COMMUNITY PROJECTS.

The purpose of the Community Project as defined in the Draft Outline issued by the Community Projects Administration is to serve as a pilot for the establishment of the "Right to live" for the men, women and children covered by the project area—food production receiving the primary emphasis in the initial stages of the programme. The scheme is financed by the State and the Union Governments with financial assistance from the U.S.A. Out of the 51 projects sanctioned for implementation during the three years

1952 to 1954 for the whole of the Indian Union, 6 projects will be established in the State as shown below :—

Name of the project.		Area covered by the project.
(1) Kurnool-Cuddapah Project.	Canal	Parts of Cuddapah, Proddatur and Jammalamadugu taluks in Cuddapah district and parts of Kurnool, Sirvel, Nandyal, Nandikotkur and Koilkuntla taluks in Kurnool district.
(2) Lower Bhavani Project	..	Gobichettipalayam, Erode, Bhavani and Dharapuram taluks in Coimbatore district and three villages in Karur taluk in Tiruchirappalli district.
(3) Malampuzha Project	..	Palghat taluk in Malabar district.
(4) East Godavari district	..	Parts of Kakinada, Ramachandrapuram, Peddapuram and Pithapuram taluks.
(5) Periyar Project	..	Parts of Nilakottai, Madurai and Melur taluks.
(6) South Kanara district	..	Karkal taluk, Mangalore and parts of Coondapur taluks.

Each project area comprises three blocks covering 300 villages with a population of 200,000. The estimated cost of expenditure for each project is fixed at Rs. 65 lakhs. A sum of Rs. 7 lakhs has been allotted out of this amount for provision of water supplies, improvement of sanitation and drainage. Separate provision has been made for the construction of buildings to house health centres, their equipment and for mobile health vans.

One health centre has been provided for each of the three blocks of the project area. Integrated health services, curative and preventive, are provided radiating from this centre into the villages included in the block. One Medical Officer, one Health Inspector, one Compounder, one Health Visitor and four Maternity Assistants, comprise the medical and Public Health staff at each centre, where provision of six beds for treatment of in-patients has also been made. For carrying out the health activities, a staff of 17 Health Inspectors, 17 Health Visitors and 68 Maternity Assistants was sanctioned. The scheme was inaugurated on 2nd October 1952 in the six project areas in one block in each project area. Nine Health Inspectors, 11 Health Visitors and 7 Maternity Assistants were on duty under the scheme by the end of the year under report.

The Assistant Director of Public Health (III) has been entrusted with the work of the overall supervision of the project scheme at the State level, and of the work of Public Health staff in the project areas. The concerned District Health Officers supervise and direct the work of the Health staff in the project areas.

All the areas covered by the Community Project Schemes were inspected by the Assistant Directors of Public Health and necessary advice and assistance to the Project Executive Officers were given in organizing public health work in the project areas. A preliminary survey of filariasis was made in the project area in East Godavari district by the Regional Malariologist, Visakhapatnam, and a scheme for control has been submitted and is awaiting implementation.

Training of village guides—the basic extension service workers at the village level—in Public Health, along with training in other subjects like agriculture, co-operation, education, etc., had been arranged in three training centres at Peddapuram, Gandhigram and Parli, to cater to the different

language groups. Training in public health according to prescribed syllabus has been given to the village guides in the three training centres at Peddapuram, Parli and Gandhigram by three lecturers in Public Health (Health Officers, Class II) specially appointed for the purpose.

Fifteen Primary Health Centres have so far been selected in the blocks in the project areas and their locations are shown below :—

Community Project.	Villages selected for Primary Health Centre.	Centres now functioning.
(1)	(2)	(3)
1 Madurai District Project— Headquarters Gandhigram.	Block I—Vadipatti .. Block II—Tiruvaddavur. Block III.	....
2 Kurnool-Cuddapah Canal Project—Project head- quarters Nandyal.	Block I—Yallur Block II—Velpanur. Block III—Mudukur or Duvvur.	Yallur.
3 South Kanara District Project—Headquarters Mangalore.	Block I—Bajpe Block II—Mudidiri. Block III—Hebri.	Bajpe.
4 Coimbatore District Project —Headquarters Erode.	Block I—Kasipalayam .. Block II. Block III.	Kasipalayam.
5 South Malabar District Project—Headquarters Palghat.	Block I—Parli Block II—Alathuru. Block III—Malampuzha.	Parli.
6 East Godavari Project— Headquarters Samalkot.	Block I—Mandapeta .. Block II—Kirlampudi .. Block III—Karapa ..	Mandapeta. Kirlampudi. Karapa.

Indents for stores and equipment under the Dollar expenditure for the Health Services of the Primary Health Centres under the Community Project Programme for the six projects at an estimated cost of Rs. 5,03,640 were drawn up and submitted to Government.

The establishment of Secondary Health Centres under the Scheme of Health Services recommended in draft hand-book by the Ministry of Health Government of India, is under consideration of the Government. Some of the Project Executive Officers have, however, drawn up their budgets within Rs. 65 lakhs provided under the Community Project Scheme including provision for Health Services at Primary and Secondary Health Centres recommended above. In the case of the remaining projects the necessity for provision of staff on the above scale for the Primary Health Centres and the opening of the Secondary Health Centres has been stressed and recommended to the Director, Community Projects. The budgets tentatively drawn up were presented and discussed at the State Advisory Committee meeting held on 30th November 1952 at Madras and their finalization and approval are awaited.

RURAL RECONSTRUCTION SCHEME.

The aim of the rural reconstruction scheme is to make the villages self-supporting by reviving village economy and revitalising village life with the co-ordinated activities of all the departments. The people in areas where the scheme has been in force have begun to realize the usefulness of the rural welfare work undertaken by Government and extend their co-operation. The scheme was in operation in about 109 selected firkas and centres in the

State. The public health activities carried out by this department during 1952 are summarized below :—

Water-supply.—Two hundred and eighty-six sites were selected for construction of wells, 237 new wells were sunk and 216 wells constructed, while repairs and improvements were made to 322 old wells. In addition, 135 other drinking water sources were repaired and five sources were under repair.

Conservancy.—One thousand three hundred and fifty-six latrines of the Wardha and other types and 29 septic tank latrines were constructed besides 254 under construction. The number of latrines repaired was 42.

Sanitation.—Eight thousand and forty-two rubbish heaps were cleared, 7,006 insanitary pits filled up, 740 cesspools constructed and 130 dust bins were provided. Drainage channels to a total length of 23,344 feet for the outflow of sullage water were also constructed.

Environmental hygiene.—Mass cleansing campaigns were conducted in about 1,674 slums. Two thousand five hundred and thirteen premises of private houses and 429 premises of business houses were cleaned up and 1,493 premises equipped with garbage bins. The tea shops and restaurants that were inspected by the health staff was 2,038. Two hundred display cases were provided with glass panes to protect food articles from dust and flies. One hundred and forty-eight copper vessels used in tea shops and restaurants were also tinned.

Maternity and Child Welfare.—One maternity home in the district of South Arcot and another in Bellary district were opened during the year. A rent-free building was secured for running a Maternity and Child Welfare Centre in Salem district. One thousand five hundred and twenty-four labour cases were conducted by the Maternity and Child Welfare staff and 10,969 pre-natal and post-natal cases were visited.

Public Health Education.—Propaganda on all aspects of public health were carried out. This comprised 1,094 magic lantern demonstrations, 1,724 lectures and 4,435 talks. Leaflets on health subjects were also distributed.

General.—The hospital, the dispensary and the primary centre opened at Dendulur in West Godavari district continued to cater to the needs of the public. Health exhibitions were organized in South Arcot and Chittoor districts. Three thousand one hundred and twenty-seven compost pits were dug in the districts of Visakhapatnam and North Arcot. About 200 manure pits were tight packed in Tiruchirappalli and Tanjore districts. Three thousand seven hundred and nineteen notices were issued under the provisions of the Madras Public Health Act for offences under drainage, sanitary conveniences, and food control. Of these 1,896 offenders complied with the notices, while 676 were prosecuted most of whom were convicted. A sum of Rs. 798 was collected as fines out of the cases prosecuted in Ramanathapuram district. Wholesome drinking water-supply was provided in 92 shops in the South Kanara district.

POONAMALLEE HEALTH UNIT.

The Poonamallee Health Unit which started in 1935, stands as a model demonstration centre for organized public health work in rural areas. It also serves as a field training centre for post-graduate students in Public Health, for under graduates and for the pupils of the Sanitary Inspector's class in the Madras Medical College and the Stanley Medical College. Much useful work has been done during the year under Maternity and Child

Welfare and water supplies. The unit serves a total of 36 revenue villages divided into four groups, with a total population of 61,523 in an area of 10 square miles. The public health staff consists of one Health Officer (Class I), One Woman Medical Officer, Grade I, 4 Health Inspectors, 4 Vaccinators, 4 Health Visitors, 10 Maternity Assistants, 4 public health maistris, 2 fitters, 10 ayahs, 11 peons, 24 menials and 2 anti-mosquito coolies.

A resume of the work done is given below :—

Two thousand and seventy-five births and 1,303 deaths were registered during the year giving rates of 33.72 and 21.17 per mille respectively. The staff detected 163 unregistered births and 82 unregistered deaths during the year. The numbers of infantile and maternal deaths during the year are 250 and 11 respectively.

Sporadic attacks of cholera occurred during the year and the total cases and deaths were 40 and 6 respectively. Prompt preventive measures, which included 7,107 anti-cholera inoculations were carried out and the disease was controlled.

As regards smallpox, there were only eight attacks and two deaths. The staff conducted 2,281 primary vaccinations and 11,732 revaccinations and the smallpox incidence was promptly controlled.

Two hundred and seven house surveys were carried out. Six hundred and fifty-four houses were revisited in connexion with rectification of sanitary defects. Nine hundred and forty-two back-yards of houses were visited and cleaned up. Two thousand three hundred and forty-seven fly-breeding places were detected and treated. Four thousand five hundred and thirty-eight mosquito-breeding places were attended to, and forty-five soakage pits were dug for disposing waste water in private compounds. Seventy earthen drains were dug for preventing the stagnation of sullage and 317 wells (public and private) were chlorinated.

Health propaganda was carried out by the unit by distribution of leaflets on health topics. Eighty-five lectures with magic lanterns, and 168 without magic lanterns, and 731 talks were delivered. Fifteen cinema shows on health subjects were given. A health exhibition was organized with the assistance of the Maternity and Child Welfare, Nutrition, Malaria, and Research sections of the office of the Director of Public Health, Madras, which was largely attended by the rural population. Other activities were the celebration of the Village Improvement Week "Clean up Campaigns", "Harijan Day" celebrations and "Children's Day" and "Parents Day" celebrations and "Anti-mosquito Day". The "World Health Day" was also celebrated in Mangadu Range.

Out of the 48 samples taken under Food Adulteration Act during the year, twenty-one were certified to be adulterated. Twenty prosecutions were launched and a sum of Rs. 660 was realized as fines. Thirty-nine restaurants, 96 tea shops and 16 meat and fish stalls were inspected by the staff and action taken to rectify the defects noticed.

The Bangalore method of composting was adopted and 60 trenches were filled during the year.

Maternity and Child Welfare work continued with four main centres at Poonamallee, Tirumuzhi, Mangadu and Kunrathur and three sub-centres at Nazarethpet, Kovur and Pattu. Six maternity homes functioned during the year with total bed strength of 28. In addition to the annual contribution of Rs. 250 and 20 from Panchayats Boards of Kunrathur and Kovur, a donation of Rs. 2,510 was also received from the District Welfare Fund.

Chingleput district. There were 1,856 admissions in all the maternity homes; 1,822 labour cases were conducted by the unit maternity staff, giving a percentage of 87.8 of the total births in the unit area. The percentage of labour cases which received skilled attention during delivery was 89.4. The number of ante-natal cases, old and new, which were attended on by the staff during the year was 7,111. The total attendance at the clinics in the various centres was 66,442.

Twelve bore-well operations were conducted during the year, of which five were successful. Eight bore-wells were also cleaned up and brought into use for the public.

Two public latrines and 88 private latrines were constructed bringing the total number of sanitary conveniences provided to 569. Anti-larval D.D.T. spraying was undertaken in Kunrathur and Tirumuzhi Panchayat areas. All the breeding places, including cess-pools and water stagnations in back-yards of houses were treated systematically once a week.

Sixty-eight maternity cases and 27 cases of infectious diseases were removed to hospitals in Madras City, by the Ambulance van attached to the Unit.

The students of the Madras and Vellore Medical Colleges visited the Unit for a study of field work in Hygiene and Sanitation. The Sanitary Inspector students were interned here for 15 days at a time, in 3 batches of 60 students each for intensified training in rural public health. The Health Visitor trainees as well as departmental Health Visitors undergoing refresher course, visited the unit area twice a week for practical training, and house visits. The Woman Medical Officer, diploma course students and B.S.Sc. student and medical practitioners, attached to Woman Welfare department also attended the unit for training. Six second-class Health Officers underwent a short course of field training in the unit area. Over 100 International Social Workers who were delegates to the International Social Workers' Conference, visited the unit, during December 1952. Thirty-two distinguished personalities also visited the unit and left records of their appreciation of its activities.

Port and Marine Hygiene.—A statement showing the work of minor ports in the State is given in annexure.

CHAPTER IV—FOOD AND NUTRITION.

RAINFALL.

The distribution of average district rainfall in 1952 as compared with 1951 and the normal is given below :—

Period.	Amount of rainfall in inches.		
	1951.	1952.	Normal.
Inter-monsoon (January to May)	6.7	6.9	5.8
South-west monsoon (June to September)	24.2	16.9	24.1
North-east monsoon (October to December)	9.1	12.4	14.5
Total	40.0	36.2	44.4

The south-west monsoon was very weak and the rainfall was consequently poor. During the north-east monsoon the rainfall was very poor in November,

but the severe cyclone on the last day of November brought widespread rainfall early in December. On the whole, it will be seen from the above statement that the rainfall in 1952 was less than that of the previous year and much below the normal by 18 per cent.

Foodgrains—Production and procurement.—The estimated production of the principal foodgrains (rice, cholam, cumbu and ragi) in Madras State in 1951-52 as per the season and crop Report was higher than that in 1950-51. The higher estimated production is due to larger acreage shown under these crops, but the yield per acre of all the crops was below normal in all districts due mainly to failure of rains.

The procurement scheme of 1951 was continued till 7th June 1952 when it was discontinued as a result of derationing of foodgrains.

Prices of foodgrains.—The following statement shows the average retail prices of rice (2nd sort), cholam, cumbu, and ragi in Madras State during 1951 in terms of rupees per maund :—

Months.	Rice, second sort.	Cholam.	Cumbu.	Ragi.
1951.	RS.	RS.	RS.	RS.
January	19.68	12.52	15.48	13.77
February	19.85	14.80	15.57	14.62
March	19.77	14.09	13.91	12.22
April	19.60	13.97	14.72	12.70
May	19.71	14.63	15.47	13.56
June	18.31	13.32	N.A.	N.A.
July	18.66	12.30	N.A.	N.A.
August	18.85	11.26	N.A.	N.A.
September	18.81	10.93	N.A.	N.A.
October	20.04	10.57	N.A.	N.A.
November	19.42	10.71	N.A.	N.A.
December	19.58	11.21	N.A.	N.A.
1952 average ..	19.36	12.53	15.03	13.37
1951 average ..	18.83	13.37	14.47	13.54
Percentage variation ..	+ 2.81	— 6.28	+ 3.87	— 1.26

N.A.—Not available in fair price shops.

The above statement shows that the prices of principal foodgrains did not vary much as compared with the previous year.

Statutory rationing continued to be in force till 14th June 1952 in Madras City and suburban areas, Mettur township, Kovilpatti and Kasaragod towns and in all municipal areas except those in the surplus districts of East Godavari, West Godavari, Guntur, Krishna, Nellore, Tanjore and Salur in Srikalahasti district. Rationing was abolished from 15th June 1952. Informal rationing was however continued in Malabar, Nilgiris and South Kanara districts. In order that the consumers may not find it difficult to purchase their requirements of rice following decontrol, all ration shops in the former rationed areas were converted into fair price shops. The overall scale of ration was 12 oz. per adult per day. Except for some minor changes, the scale and composition of ration continued to be the same both in de-rationed areas and in the informal ration areas. With the abolition of rationing, all austerity measures adopted were rescinded.

DIET SURVEYS.

During the year 57 preliminary diet surveys were carried out by the three nutrition Units. The diets of 492 families and three institutions selected at

random in 52 representative villages were surveyed. The details of surveys by each unit are given hereunder :—

Nutrition Unit.	Number of surveys.	Number of villages.	Number of families surveyed.	Number of institutions surveyed.
Poonamallee	16	8	82	1
Tiruchirappalli	14	8	88	2
Anantapur	22	20	322	..
Total	52	36	492	3

All the above surveys except one in Pudukkottai Municipality, an urban area were undertaken in rural areas. The survey in the Poonamallee Health Unit and Tiruchirappalli unit areas were carried out for a period of one week, while in the famine affected areas in Anantapur district, it was restricted to three days only. The average monthly income of the families surveyed ranged from Rs. 25 to Rs. 90 in Poonamallee Health Unit area, Rs. 35 to Rs. 200 in Tiruchirappalli Unit area and Rs. 13 to Rs. 40 in Anantapur Unit area.

The cereals consumed in Poonamallee Health Unit and Tiruchirappalli Unit areas were rice, cholam, cumbu, ragi and wheat, but rice formed the staple cereal in all the areas except in Kamakshipatti in Musiri firka where cholam and cumbu constituted the main foodgrain. While rice formed the single cereal included in the diet of the majority of the families surveyed in Poonamallee Health Unit area, the diet of most of the families surveyed in Tiruchirappalli Unit comprised a mixed diet of cereals and millets. The diets were in general deficient in the intake of pulses and protective foods, milk and milk products, flesh foods, leafy vegetables, etc.

The following table gives the maximum and minimum quantity of the food stuffs per consumption unit in respect of the families surveyed :—

Foodstuffs.	Poonamallee Unit.		Tiruchirappalli Unit.	
	Maximum. oz.	Minimum. oz.	Maximum. oz.	Minimum. oz.
Cereals	26.40	9.03	3.21	14.56
Pulses	1.85	0.43	5.90	0.59
Non-leafy vegetables	2.07	0.45	3.30	0.10
Leafy vegetables	1.20	0.06	1.16	0.02
Roots and tubers	1.31	0.54	1.30	0.01
Milk	4.50	0.03	1.97	0.02
Milk products	0.34	..	2.50	0.23
Ghee	0.09	0.01	2.15	0.09
Meat, fish and eggs	0.60	0.01	0.30	0.05
Fruits	0.25	0.06	2.00	0.02
Fats and oils	0.60	0.01	0.80	0.03
Sugar	0.70	0.02	0.70	0.04
Condiments	2.57	0.71	4.40	0.35
Salt	2.30	5.53	0.73	0.02

The calorie value of the diet of almost of all the families was derived predominantly from cereals. It ranged from 1,840 in Mooveli to 3,912 in Kamakshipatti in Tiruchirappalli Nutrition Unit area and from 1,237 in Kavanur to 2,859 in Sirukalathur in Poonamallee Health Unit area. In 50 out of 82 families (61 per cent) surveyed by Poonamallee Health Unit, the diets were defective in quantity providing low calories of less than 2,000.

Results of diet surveys carried out in the famine areas in Anantapur district.—Surveys of diets were undertaken in 20 villages in the famine affected

taluks of Tadpatri, Kadiri, Penukonda and Hindupur in Anantapur district with a view to studying the repercussions of the prevailing famine conditions on the diet of the people.

The number of villages and the number of families surveyed in each of the four taluks are given hereunder :—

Taluk.	Number of families surveyed.
Kadiri	165
Tadpatri	135
Penukonda	15
Hindupur	7
	322

The diets of these families comprised practically a mixture of cholam korra, cumbu, ragi and rice including in all 4.88 ounces to 8.7 ounces in Kadiri taluk, 4.08 ounces to 16.65 ounces in Tadpatri taluk, 16.2 ounces in Penukonda and 12.50 ounces in Hindupur taluk. Besides cereals, the diet contained only very little quantities of vegetables locally grown and butter milk. Quantities of other foodstuffs included in the diet were either nil or insignificant. The families in Kadiri taluk were found to consume a kind of leafy vegetable locally grown Gatheraku, in appreciable quantities—1.64 to 5.44 ounces daily.

The following table gives the maximum and minimum quantity of foodstuffs consumed by the families surveyed :—

Foodstuffs.	Minimum.	Maximum.	Number and percentage of families not consuming the foodstuff	
	oz.	oz.	Number.	Percentage
Cereals	3.42	16.65	..	..
Pulses	0.007	0.09	240	74.5
Leafy vegetables	0.08	5.51	60	18.6
Non-leafy vegetables	0.006	2.4	90	27.9
Roots and tubers	0.02	0.8	195	60.5
Milk	0.57	0.08	277	86.0
Milk products	0.05	0.22	210	65.1
Meat, fish and eggs	0.06	0.09	187	58.0
Sugar and jaggery	0.02	0.03	177	54.9
Condiments	0.02	0.76	..	..

The calorie value of the diets of these families ranging between 374 and 1,743 was very much lower than the average requirements. The following table shows the distribution of gross calorie intake per adult per day :—

Range of calorie intake	Number of families.	Percentage of families to the total.
Below 500	45	14.0
500—1,000	210	65.1
1,000—1,500	22	6.9
1,500—2,000	45	14.0

In the families studied, excepting the old and infirm expectant nursing mothers, and children under 12 years who were receiving gruel at gruel centres run by Government, the other members of the family subsisted

only on their very poor diet. The gruel served to the selected categories of persons provided an additional 325 calories per head per day. The following table shows the number of persons and the number who received gruel in the families surveyed in six villages in Tadpatri taluk and 10 villages in Kadiri taluk :—

Name of the taluk.	Number of families studied.	Number of persons.	Number of beneficiaries in the families surveyed.		
			Adults.	Children.	Total.
Tadpatri	90	563	73	246	319
Kadiri	150	841	153	276	429

Nutrition surveys.—Nutrition survey was conducted among 3,237 children below 16 years—403 in Poonamallee Health Unit area, 1,767 in Anantapur Unit area and 1,067 in Tiruchirappalli Unit area. The survey was conducted according to the schedule recommended by the Nutrition Advisory Committee of the Indian Council of Medical Research. The nutrition surveys conducted by the units at Poonamallee and Tiruchirappalli covered children attending educational institutions, while children examined by the Anantapur Unit were those partaking gruel from gruel centres.

Annexure R shows the percentage incidence of children showing sign of malnutrition among the 3,237 children examined by the Units.

MEASURES FOR COMBATING MALNUTRITION.

1. (a) *Free mid-day meals.*—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 the year. The meals generally consisted of rice (6 oz.) or wheat (4 oz.) and a side dish sambar prepared with dhall and vegetables. In some areas however the meal pattern varied slightly to suit the local requirements, habit, etc. The average cost per meal per day was fixed at Rs. 0-2-6. Nearly 87,300 children attending about 1,330 labour schools were benefited by this scheme. This scheme has been working regularly and satisfactorily. It is reported that the scheme largely contributed to the greater attendance of the children in these schools. The recipient children were also reported by the teachers to be healthy and cheerful and to evince greater interest in their studies.

(b) The Madras Corporation continued its own scheme of supplying free mid-day meals to the children attending the Corporation elementary schools. Children needing supplementary feed were selected by the Medical Inspectors in consultation with the headmasters on the basis of malnutrition and poverty. On the average about 9,300 poor and ill-nourished children in 187 schools were benefited daily under this scheme. The meals served per day per child yielded about 400 calories and comprised rice (3 oz.), dhall (5/12 oz.) vegetables (3 oz.) vegetable oil (1/25 oz.) and other ingredients (3 oz.). The approximate cost of meals per day per child is Re. 0-2-9.

(c) In Tiruchirappalli Nutrition Unit area, a midday meal scheme supplying 550 calories per child per day was instituted in three schools during March 1952 covering 260 children. The meal cost Re. 0-2-1, out of which Re. 0-0-6 was voluntarily contributed by the beneficiaries, and comprised 4 oz. of cooked cereals (rice and wheat and milo) and a side dish of sambar with 1½ oz. of dhall and 3 oz. of vegetables locally grown.

2. *Distribution of free gift of milk, rice, multi-vitamin tablets and vegetable soup powder.*—(a) During the year large quantities of gift milk powder, rice, multi vitamin tablets and vegetable soup powder were received from various sources for free distribution among the malnourished children and mothers

especially in famine affected areas. Details regarding the distribution of the gift food supplements are summarised hereunder :—

(i) During July 1952 the UNICEF released to this State a quantity of 162 tons of rice for distribution as follows : 160 tons for distribution through gruel centres in the famine affected areas of Chittoor, Anantapur and Cuddapah districts, and the remaining two tons to the Poonamallee Health Unit (Chingleput district) for feeding the mothers admitted for delivery in the maternity homes in the Unit and certain deserving children and mothers. The distribution of this gift rice is detailed below :—

Month.	Number of children and mothers fed (daily).			Number of pregnant mothers and deserving children (daily average) Poonamallee Health Unit
	Anantapur.	Chittoor.	Cuddapah.	
1952—				
August	..	..	43,618	..
September ..	..	..	5,413	..
October	14,140	46,938	937	28
November ..	369	270	..	30
December ..	7	828	..	33

(ii) During March 1952 a quantity of 20,000 lb. of Swiss gift milk powder was released to this State by the Director-General of Health Services, New Delhi. This was distributed through the Nutrition Bureau of the Department, gruel centres in Chittoor district, and six voluntary organisations in and around Madras City. The following table shows by months the average daily number of beneficiaries fed with the gift milk powder :—

Month.	Number of infants.	Number of children under 14 years.	Number of expectant and nursing mothers
1952—			
March	..	601	121
April	195	4,098	573
May	303	1,941	328
June	152	1,507	71
July	77	975	76
August	143	344	8
September ..	70	323	45

(iii) For feeding the malnourished children and expectant and nursing mothers in the famine affected areas in the State the Government of India supplied 60,000 lb. of sweetened condensed milk in April 1952 out of the gift received from the Government of Netherlands and Switzerland. This was distributed in the famine affected districts of Chittoor, Cuddapah, Anantapur and Kurnool in equal quantities.

(b) A quantity of 250 tons of skim milk powder was also received as gift from the UNICEF during August 1952. This was supplied to 11 famine affected districts for distribution through gruel centres. The milk powder was distributed from October 1952 onwards. The following table shows the average number of beneficiaries under different categories during October to December 1952 :—

Month.	Daily average number of infants under one year.	Daily average number of children between 1 to 12 years.	Daily average number of expectant and nursing mothers.
1952—			
October	621	38,031	16,747
November	4,470	29,156	4,690
December	7,273	42,024	7,227

(c) In April the Government of India made available to this State free of cost 2½ lakhs of multi-vitamin tablets for distribution among children and mothers in the famine-affected areas in Rayalaseema. These tablets were distributed through gruel centres in the districts of Chittoor, Cuddapah, Anantapur and Kurnool. A quantity of 16,000 lb. of vegetable soup powder received as gift from the Government of Netherlands was supplied to this State by the Director-General of Health Services, New Delhi. This gift was allotted for distribution through gruel centres in the districts of Chittoor, Cuddapah, Anantapur and Kurnool.

3. *Other ameliorative measures.*—(a) From the allotment of Rs. 2,500 per each nutrition unit per year for ameliorative measures, food supplements, viz., multi-vitamin tablets, shark liver oil, food yeast, etc., were distributed to deserving children in different institutions for combating vitamin deficiencies, as revealed by the nutrition surveys conducted.

(b) In Madras City, poor and ill-nourished children were given shark liver oil and calcium lactate. Yeast was also administered to the children suffering from chronic stomatitis of nutritional origin. During the year a total of 5,907 were given shark liver oil and calcium lactate, and 1,925 children were administered with food yeast.

(c) Free distribution of milk, malt extract with shark liver oil and multi-vitamin tablets to needy children and mothers attending the maternity and child welfare centres was arranged in certain municipalities.

(d) There were 253 canteens attached to the industrial undertakings in this State as against 232 reported in the previous year. Of these 253, 75 served cooked foods and refreshments to the workers and others catered tea or coffee only.

NUTRITION EDUCATION.

(i) During the year 4 nutrition exhibitions accompanied by demonstrations were organized, one at Tirunelveli, and other at Poonamallee (Chingleput district) and the remaining two at Madras City.

(ii) A pamphlet in popular language on wheat eating intended for press release by Government has been prepared by the Nutrition Bureau and submitted to Government. Another attractive pamphlet on rice under the caption "The Rice We Eat" has been prepared by the Nutrition Bureau. This pamphlet gives in detail with illustrative pictures the rich parts of rice, the superior nutritive value of the parboiled rice, the different kinds of hulling in vogue, the correct methods of cooking rice to avoid loss of Vitamin B1, etc. This pamphlet after approval by Government is intended for publication in the various regional languages for wide distribution.

(iii) Sound films on Nutrition entitled "Food and Nutrition" and Walt Disney's animated cartoon pictures entitled "Infant care", "Planning for good eating" and the "Human body" were exhibited during the year in several places.

(iv) Nutrition education by means of cinema shows, lectures, and group talks was carried out intensively by the three nutrition units. During these talks and lectures, results of observations from the areas surveyed for diet and the appropriate remedial measures therefor were explained besides educating the general public on other nutritional matters. Details regarding

the number of cinema shows and the number of lectures and group talks given by the three nutrition units are given hereunder :—

Nutrition unit.	Cinema shows.	Lectures.	Group talks.
Poonamallee Health Unit	15	13	543
Tiruchirappalli	23	..	124
Anantapur	6	85	353

NUTRITION RESEARCH.

1. *Nutrition Laboratory.*—(i) In the Nutrition Laboratory the assay of the nutritive value of the common South Indian food preparations has been continued. During the year 35 random samples of food preparations, a sample of improved diet with rice and cumbu and food packets sold at the Railway restaurants were analysed for total caloric value and for common nutrients. A statement showing the details of analysis of the above food preparations is appended (vide Annexure 3).

(ii) Preparations of gruel were made with greengram and with "Pillipesara" a kind of pulse instead of greengram and the comparative palatability, consistency and nutritive value have been examined with a view to substitute Pillipasar in place of greengram.

(iii) Towards popularising palmyrah jaggery at the request of the Co-operative department, several simple palatable and cheap recipes with palmyra jaggery have been evolved.

(iv) In the "Animal colony" attached to the Nutrition Laboratory, the following two feeding experiments were undertaken :—

(a) Studies on the comparative growth of the experimental rats fed with "Rice diet", "Rice and ragi diet" and "Rice and milo diet" were undertaken with a view to assess the comparative merits of the above diets and how best ragi and milo can be substituted for rice in the diet. For the purpose of this study four groups of rats were fed for a period of six weeks respectively with the following four types of diets :—

- (1) Diet containing single cereal rice.
- (2) Diet containing 2/3 parts rice and 1/3 part ragi.
- (3) Diet containing rice and ragi in equal parts.
- (4) Diet containing rice and milo in equal parts.

In all these four types of diets, the cereal content was 39 per cent of the diet. Besides the cereal, as given above, the diets commonly included red gram dhal (3 per cent), brinjals (3 per cent), green plantain (3 per cent), groundnut oil (0.5 per cent), mutton (0.5 per cent) and salt (1 per cent). The following table shows the average weekly increase in body weights of the rats fed on different diets :—

Group number and diet.	Percentage substitution of rice.	Intake total protein.	Average daily food intake.	Average weekly increase in weight of rats.
(1)	(2)	(3)	(4)	(5)
	PER CENT.	PER CENT.	GMS.	GMS.
1 Rice diet	..	8.14	8.64	3.08
2 Rice and ragi diet I	33-1/3	8.40	9.10	3.47
3 Rice and ragi diet II	50	8.41	8.80	3.75
4 Rice and milo diet	50	9.63	10.37	2.08

It may be seen from the above table that in the four groups of rats comparatively, the rate of growth recorded was better in the groups fed with "Rice and ragi diets," the rate being higher in the group fed with rice and ragi in equal parts. The rate of growth recorded in the group fed with

"Rice and milo diet" was poor compared to that fed with the diet containing rice only.

(b) Experiments to demonstrate the rate of growth of rats fed with the following diets (i) ill-balanced diet, (ii) rice and cumbu diet and (iii) wheat and meat diet were also undertaken. The above experiment was conducted for a period of 14 weeks. The following table shows the average weekly increase in the body weights of the rats fed on the above diets :—

Diet.	Intake of protein per centage.	Average daily food intake.	Average initial weight.	Average final weight in	Increase for the period.	Average weekly increase.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		GMS.	GMS.			GMS.
1 III balanced diet	7.7	15.0	30	122	92	6.6
2 Rice and cumbu diet (improved) diet.	10.07	20.0	30	162	132	9.5
3 Wheat and meat diet	19.33	25.0	30	206	176	12.5

The rate of growth was found to be comparatively higher in the group fed with the wheat and meat diet, and the increase in the growth rate is proportionate to the protein intake.

2. The special nutrition clinics attached to the Nutrition Unit, Tiruchirappalli and Anantapur continued to function during the year at the headquarters hospital at Tiruchirappalli and Anantapur. In these clinics patients attending the hospitals for various ailments showing also conspicuous nutritional deficiencies were grouped together and offered treatment both as out-patients and in-patients.

Government have approved the proposals submitted by this department for undertaking clinical nutrition work by the Central Nutrition Bureau in collaboration with one of the City State hospitals.

3. *Biometric studies.*—The heights and weights of about 8,000 boys and girls between the ages of 2 to 20 years were recorded during the All-India Khadi and Swadeshi Exhibition held during December 1952 to February 1953. The above data are being statistically analysed to evolve forms for different age groups.

TRAINING OF PERSONNEL.

(i) During the year two batches of candidates one consisting of Women Medical Officers undergoing training for the Diploma Course in Maternal and Child Health and the other consisting of the teacher trainees attending the Teacher's College, Saidapet, Madras, were given a series of lectures and demonstrations on practical nutrition.

(ii) Government have approved the proposals submitted by this department for the conduct by the Central Nutrition Bureau of this department, of the training course in Nutrition for wardens of hostels, lay personnel in charge of orphanages, residentia boarding schools, etc., and Health Inspectors, Sanitary Inspectors and Health Visitors of this department. The training of the above personnel is proposed to be conducted in batches, each consisting of not more than 15 persons. The period of training will be one month providing two weeks for lectures accompanied by demonstrations and two weeks for field work by the trainees themselves. These training courses are proposed to be conducted at three centres one at the Central Nutrition Bureau at Madras, and the other two at the two Regional Nutrition Units at their respective headquarters.

4. *Other activities.*—A conference on nutrition was held on the 11th August 1952 to review the progress of Nutrition work carried on in the State and to consider further measures to be taken to improve Nutrition. The Secretaries to Government and heads of Medical, Public Health, Rural Welfare, Fisheries, Animal Husbandry, Agriculture, Education and Food department participated in the conference. The following decisions arrived at at the conference will be implemented :—

(i) Nutrition training of medical under-graduates, incorporation of the subject of Nutrition in the refresher courses for Medical Officers and as part of Hygiene Course of the trainees of the Teacher's College of Physical Education.

(ii) Nutrition education to be carried out by the Health Inspector after undergoing training in Nutrition work at the Central and Regional Nutrition units.

(iii) Improvement of the food preparations in the Industrial Canteens in collaboration with the Industries department and of the diets of the hostels and orphanages with the assistance of the Education department.

(iv) Popularization of parboiled rice in view of its high vitamin B content, in areas where raw rice is now in common use. Study of the method now in vogue in the manufacture of parboiled rice with a view to formulate improved methods in consultation with the Industries department and the Nutrition Research Laboratories, Coonoor.

(v) Educating the masses in the rural areas by demonstrations and group discussions on the improved methods of cooking to preserve the nutritive value of foods.

(vi) Shifting of the existing two Regional Nutrition units at Anantapur and Tiruchirappalli to two community project areas one in Tamil area and other in Telugu area.

The Assistant Director of Public Health (Nutrition) attended the meeting of the Nutrition Advisory Committee of the Indian Council of Medical Research held at Jaipur in November 1952.

PREVENTION OF FOOD ADULTERATION.

The report of the Government Analyst on the working of the Madras Prevention of Food Adulteration Act is extracted below. It was in force in 238 local bodies (97 municipalities and 141 panchayats). The Act was not extended to any new areas during the year.

The number of samples analysed was 18,512 of which 8,734 were adulterated, the percentage of adulteration being 47.2. The average fine imposed on food adulteration offences was Rs. 36 as against Rs. 43 for the previous year. Particulars about the nature of the samples and number adulterated are given below :—

Nature of sample.	1952.			1951.		
	Total.	Number adulterated.	Percentage adulterated.	Total.	Number adulterated.	Percentage adulterated.
Milk ..	11,340	6,926	61.1	12,239	7,178	58.7
Ghee ..	1,161	438	37.7	1,058	313	29.6
Butter ..	404	235	58.2	394	162	41.1
Gingelly oil.	1,515	134	8.8	1,473	241	16.4
Coconut oil.	1,134	55	4.9	1,145	133	11.6
Coffee ..	1,054	337	31.9	769	1,176	22.9
Turmeric ..	201	39	19.4	192	57	29.7
Tea ..	524	165	31.5	145	42	29.0
Other samples.	179	405	34.5	1,236	512	41.4
Total ..	18,512	8,734	47.2	18,651	8,814	47.3

The above figures show that there has been marked increase in adulteration of ghee, butter and coffee, while that of gingelly and coconut oil has decreased. Butter was adulterated either with excess water or with foreign fat or with both. Actually a butter sample from Hospet contained no butter fat at all but was an emulsion of water and hydrogenated vegetable fat only.

Government have issued new rules prescribing standards for goat's and sheep's milk and arrowroot and prohibiting the sale of adulterated tea and honey and regulating the use of saccharin. Sale of coffee-chicory mixtures was prohibited by Government, but in view of the representations made by several manufacturers, Government have decided to keep the rule in abeyance till 1st April 1953.

As usual, assistance is being given by the Government Analyst's Laboratory at King Institute of Preventive Medicine to the Government Milk Factory by analysing their batches of skimmed milk powder and reconstituted milk and also by supplying them with hydrogenated vegetable fat reinforced with Carotene, the precursor of Vitamin A.

The Regional Food Commissioner sent sample of damaged wheat and milo to test their fitness for human consumption. The Southern Railway authorities were advised to discontinue the use of the poisonous colouring matter Mentanil yellow, popularly known as "kesari powder" in eatables served in Railway refreshment rooms. Other safe alternative colours were suggested by the Government Analyst.

The following are some of the noteworthy High Court ruling given in connexion with food adulteration cases. The plea of a milk contractor that he was supplying to the Railway refreshment room under the terms of a contract and the adulterant was innocuous was disallowed by the High Court and his conviction was confirmed.

When a Sanitary Inspector who has been authorized to file the complaint has signed the charge sheet, there is no further necessity to express the consent of the Health Officer in writing.

The sale by a co-operative society for consideration is a sale and even a purchase by a Sanitary Inspector would not make the transaction any the less a sale.

When once a prosecution is instituted in time it does not get time-barred even if the case is taken up for hearing long after it is filed.

Hotel Sanitation Committee.—The Report of the Hotel Sanitation Committee is now under the consideration of the Government. The early formation of the Expert Committee for evolving standards for design, equipment, bacteriological standards of milk and milk preparation, etc., envisaged in his report has been stressed in a separate report to Government.

CHAPTER V—ENVIRONMENTAL HYGIENE.

WATER-SUPPLY AND DRAINAGE.

In urban areas the Sanitary Engineering department is in charge of execution of water-supply and drainage schemes drawn up by the Water-supply and Drainage Committee. During the year under report, plans and estimates for 13 water-supply and 2 drainage schemes were submitted to the Chief Engineer and designs for 14 water-supply and 7 drainage schemes

were at various stages of design. Investigation of 26 water-supply and drainage schemes was undertaken. Technical sanction for 23 water-supply and 11 drainage schemes was accorded. In 1952, three water-supply schemes were completed and brought into commission. During the year 46 municipal and other water-supply schemes and 10 drainage schemes were in execution. During the year 1952, the budget provision for water-supply scheme was Rs. 79.4 lakhs including 8.0 lakhs provided for a composite water-supply scheme for Kayalpatnam and other villages in Tirunelveli district under rural water-supply schemes. The budget provision for drainage schemes under execution was Rs. 4.5 lakhs.

Rural water-supply.—The year 1952-53 is the final year of the five-year programme of rural water-supply scheme. Three thousand six hundred twenty-seven wells have been completed and thrown open for use by public during 1952. The total number of works in progress is about 4,000. A composite scheme known as the Kayalpatnam scheme (Tirunelveli district) intended to provide water-supply for 10 villages is in progress.

Scarcity of drinking water began to be felt in March 1952 in the districts of Anantapur, Chittoor, Cuddapah and Kurnool. A special scheme for deepening drinking water wells (both private and public) was introduced in these districts. Under the scheme, a free grant of Rs. 150 was given to any ryot or institution undertaking to deepen drinking water wells to 6 feet within a period of one month from the date of the grant. Nine hundred and two public wells and 409 private wells were deepened. A total sum of Rs. 1.87 lakhs was spent on this scheme from the allotment under the Rural Water-supply Scheme.

The Army came to the assistance of the civil authorities in relieving drinking water scarcity. Two hundred and thirty wells were deepened in districts of Chittoor, Cuddapah, Anantapur, Kurnool, Salem, Coimbatore, Tiruchirappalli, Madurai and Ramanathapuram.

The Army also lent their lorries with full equipment and drivers for distribution of drinking water. One thousand steel barrels, 26 steel water tanks, besides canvas water tanks and pipes were sent by them. Twenty-six Civil Supplies Lorries and 10 Tractors of the Agricultural Department were diverted to the scarcity areas for distribution of drinking water. The Railways arranged to supply drinking water through tenders at the Railway Stations at Guntur, Narasaraopet, Katpadi and Udumalpet.

For long time, the execution of wells was also hampered for want of pump sets to bale out water from well works in progress. Much time was taken up by bailing out water with country "picotahs". The Government therefore purchased 29 pump sets at a cost of Rs. 1.14 lakhs and distributed to the Collectors during the year.

The Government originally provided a sum of Rs. 82 lakhs for rural water-supply works and as the amount was found to be insufficient, the Government permitted the Board to incur expenditure up to Rs. 115.35 lakhs.

During the year, out of the 70 borewells put up under rural water-supply scheme, 29 proved successful. One hundred and thirty trial borewells were put up, of which 67 proved successful.

During the year, 7 pumps were installed and 57 borewells were cleaned as the original bores were clogged and water yield diminished. The rural water-supply borewells and pumps were maintained in good working order. One hundred and eighty-eight pumps were repaired during the year.

A scheme to tap ground water at great depth in order to relieve water scarcity conditions prevailing in South Arcot district was sanctioned by Government and a number of artesian wells have come into existence in that district.

The approval of sites for rural water-supplies was continued to be done by the health staff. Certain complaints of delays in approval of sites of wells under the rural water-supply scheme were enquired into and departmental instructions issued to speed up this work. The health staff also tested the quality of water tapped by rough field tests. In special cases the samples were got analysed by the King Institute of Preventive Medicine, Guindy.

Water analysis.—Samples of water, from protected water-supply schemes throughout the State were taken, at regular intervals by sample-takers from King Institute, Guindy, for analysis. Action was taken by this department on the reports of the water analysis to remedy defects found in the quality of water. This procedure was adopted in the case of water-supplies to Railway stations and colonies also and similar action was taken to set right the defects and deficiencies reported on chemical and bacteriological examinations. The state of water-supplies as judged from these periodical analysis was, on the whole, satisfactory. The progress of action taken to set right the defects reported was also satisfactory.

RURAL AND URBAN SANITATION.

Provision of adequate number of latrines of closed type is one substantial measure that will go a long way to control bowel diseases like cholera, typhoid, etc., and intestinal parasitic diseases. A scheme for provision of sanitary conveniences on an adequate scale in all rural areas as a part of the permanent measures of controlling cholera in deltaic areas was submitted. Every effort was made to provide more houses with latrine accommodation by enforcing the legal provisions of the Madras Public Health Act. The Health Officers insisted on the provision of flush-out type of latrines in preference to dry earth types, wherever water-supply and other facilities existed.

The following statement shows the number of seats of different types of latrines constructed in the State during the year 1952 :—

<i>Private—</i>					
Septic tank type	..	..	..	..	2,111
Borehole tank type	..	..	..	..	863
<i>Public—</i>					
Trench type	..	..	..	..	1,196
Septic tank type	..	..	..	..	1,200
<i>Other types (private and public)—</i>					
Dry earth type	..	..	..	..	4,822
Pail type	..	..	..	..	6,182
Other type	..	..	..	..	1,807

The progress has been slow due to (1) objection from certain quarters to septic tank type of latrines and (2) the absence of engineering or other assistance to District Health Officers in the work. Some district boards abolished the posts of special overseers with whose help the District Health officers were able to produce substantial results as in the case of Salem.

district board. This department in consultation with the Sanitary Engineering department is now considering alternate designs which can be set up at a cheap cost within the means of the average villager and not requiring much technical help from outside so that the health staff may push latrine construction work by themselves.

To step up progress in sanitation, proposals were submitted in consultation with the Sanitary Engineering department to start a Public Health Engineering nucleus with the assistance of the Malaria Engineer of the department, to devise cheap and sanitary types of latrines, and to visit rural areas and advise the local authorities on schemes of improvement in rural sanitation, especially, the construction of sanitary conveniences, small scale protected water supplies at annual festival gatherings, minor drainage scheme in rural areas, designs for quarters for conservancy staff, small isolation sheds, markets, slaughter houses, etc.

COMPOST PRODUCTION.

The number of municipalities and notified panchayats manufacturing compost increased from 96 and 324 at the beginning of the year to 100 and 371 respectively at the end of the year. Out of 419 notified panchayats, only 48 have still to take up the work. Steps are being taken to induce the non-notified panchayats also to undertake the manufacture of compost wherever facilities exist. A quantity of 305,946 tons of compost was prepared and 167,562 tons were sold during the year. Sale of compost has not kept pace with production due to failure of seasonal rain cutting down the demand for manure and to inadequate transport facilities available to local bodies. Government have rendered necessary help by hiring out the lorries under the control of the Agricultural Department at concessional rates for transport of compost and granted subsidies to municipalities which undertook to hire their lorries at concessional rates to meet the loss incurred by them.

Two meetings of the State Compost Development Committee were held during this year and action has been taken on most of the important resolutions passed at these meetings.

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 and small, in the spread of communicable diseases, especially cholera, sanitary arrangements are made and supervision exercised over these festival celebrations by the health staff. The main measures undertaken are provision of safe drinking water by protection of existing sources by disinfection with chlorine, supervision of environmental sanitation including nightsoil 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

outbreaks of communicable diseases and isolation accommodation is kept ready for prompt isolation and treatment of the first cases, to prevent spread of infection.

The sanitary needs of each celebration are carefully scrutinized in advance and instructions issued by the Director of Public Health for carrying out specific sanitary arrangements needed.

The officers at headquarters personally supervised the sanitary arrangements of all the important festivals attracting large congregations of pilgrims. The following festivals were thus supervised:—

Karthigai Deepam at Tiruvannamalai, Vaikunta Ekadasi at Srirangam, Adi Krithigai at Tiruttani, Arokiyamatha at Velanganni, Brahmotsavam at Tirupati, Varadharajaswami festival at Conjeevaram and Arudra Darsanam at Chidambaram.

Except Adi Krithigai festival at Tiruttani, Vaikunta Ekadasi festival at Srirangam and Arudra Darsanam at Chidambaram, the other festivals passed off without any outbreak of cholera. In the case of the above three festival celebrations, cholera was prevailing at the festival centre or in the immediate neighbourhood at the time of the festival celebrations and this was responsible for the outbreaks which were however promptly controlled. A large reserve staff of Health Inspectors were posted in advance and the concentration of staff and close supervision limited and controlled the spread of infection. The infection from Tiruttani was imported into 3 villages in Wandiwash taluk (North Arcot district) and Kancheepuram Municipality. Prompt and adequate measures were taken and the epidemic was brought under control.

Funds for making sanitary arrangements were provided by the local bodies concerned. In certain cases contributions were obtained from temple authorities. Generally the expenditure on sanitary arrangements in respect of major festivals was being met by the district boards, though the festival centres were in the jurisdiction of panchayat boards.

With the coming into force of the Madras Village Panchayat Act, 1950, some of the district boards expressed their unwillingness to bear the cost of sanitary arrangements in connexion with festivals celebrated in the panchayat board limits. Many of these festivals are of more than local importance as pilgrims not only congregate from all over the district, but also from neighbouring districts of the State, to attend these festivals. Pending orders of Government classifying the festivals celebrated in the panchayat board areas, as district and panchayat festivals under the Madras Village Panchayat Act, Government have instructed the presidents of district boards to maintain the status quo in respect of the sanitary arrangements of festivals celebrated in panchayat board areas carried out by the district boards prior to the introduction of Madras Village Panchayat Act, 1950.

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 was in force in 99 municipalities including the Corporation of Madras and 341 panchayats in the State. The provisions of the Town-Planning Act were extended to 36 villages in the Chingleput district and to 10 other panchayats. The provisions of the Madras District Municipalities Act relating to building regulations and street

making and subdivision of lands as sites for buildings, were in force 306 panchayats and villages in the State.

General town-planning schemes.—The Corporation of Madras and the Municipalities of Mangalore, Coimbatore, Tiruchirappalli, Madurai and Vijayavada made good progress in the preparation of general town-planning schemes. There were 374 detailed town-planning schemes under preparation or publication or under submission to Government for sanction. One hundred and eighteen sanctioned schemes were in various stages of execution in various municipalities and panchayats. Twelve detailed schemes were newly undertaken and notified under sections 9 and 10 of the Town Planning Act and a large number of old schemes were reviewed and proceeded with.

Building regulations.—The enforcement of building regulations continued to be satisfactory in the case of municipalities. The Town-Planning Department received 976 appeals for exemption from one or the other requirements of building rules.

Requests from some municipalities for relaxation of building rules in built-up areas when buildings were demolished and reconstructed, were rejected by the Government. The Government urged on the local bodies the supreme importance and necessity for detecting unauthorized constructions and for taking prompt and effective action in that regard.

Making of private streets and subdivision of lands as sites for buildings.—The municipal councils enforced the street provisions of the Madras District Municipalities Act satisfactorily in consultation with the Town-Planning department. One hundred and eleven layouts were approved in 1952.

Housing.—The Town-Planning department prepared schemes for (a) 41 co-operative housing and house construction societies, (b) six housing schemes for municipal employees and menials, (c) 377 Harijan colonies and (d) one Industrial Labour Housing scheme. The department prepared and furnished or approved 238 designs for houses for the above schemes.

WATER AND SEWAGE PURIFICATION COMMITTEE.

The Water and Sewage Purification Committee met twice during the year. It discussed the experiment on break-point chlorination of the raw water derived from lake as a method pre-conditioning the water prior to sand filtration, which has been in progress at the Government Experimental Filter Station Water Works, Madras Corporation, for the last two years.

The Committee considered the question of levy of fees for the analysis of samples of water carried out at the King Institute, Guindy, in connection with the investigation and execution of new urban and rural water supply schemes undertaken on behalf of the local bodies by the Sanitary Engineering department.

The Committee also discussed the question of compilation of analytical data pertaining to the quality of sewage; sewage effluents and principal industrial trade wastes in the State for determining disposal methods and drawing up of standards of purity for treated effluents. It was proposed to consider it in detail after a technical note on the subject is prepared.

The Committee proposed to explore the possibilities of using carbon for treating small water supplies for fluorene removal for a hamlet or a small village under rural conditions and decided that an experiment to test the above possibility be carried out at Kilpauk using flouridated Red Hills lake water.

The Committee after discussing in detail the question of treating the Red Hills lake water with chlorine and chloramine prior to sand filtration decided that it would be in the interests of the city water-supply, if these experiments are carried out on one row of the Corporation sand beds, comprising a battery of seven filters, adopting break point chlorination, chloramination and also "Cupri Chloramine" (suggested by the Corporation Health Officer and Corporation Water Analyst) as pre-treatment procedures, either simultaneously or in succession, to assess their relative merits. The Committee resolved to commend the above proposal to Government and the Corporation for immediate approval.

CHAPTER VI—GENERAL ADMINISTRATION.

PERSONNEL.

The strength of the officers in the Public Health department on 31st December 1952 was as follows:—

1	Director of Public Health	.. .. .	1
2	Deputy Director of Public Health	.. .. .	1
3	Assistant Directors of Public Health including the Professors of Hygiene in the two Medical Colleges at Madras and Visakhapatnam	.. .. .	7
4	Health Officers, Class I.—These include the 4 posts of Regional Malariologists, 1 post of Health Officer to assist Assistant Director of Public Health (Malaria), 9 posts of Health Officers in Anti-Malaria Schemes, 2 posts of Regional Nutrition Health Officers, 1 post of Health Officer to assist Assistant Director of Public Health (Nutrition), 4 posts of Assistants to the Professors of Hygiene, 1 post of Research Health Officer, 1 post of Special Plague Officer, 1 post of Health Officer, Health Unit, Poonamallee and 1 post of Health Officer, State Leprosy Survey Unit, Vellore	.. .. .	84
5	Health Officers, Class II.—Out of these five posts of Assistant District Health Officers are kept in abeyance. The remaining 94 include 9 posts of Health Officers in anti-malaria schemes, one in Rameswaram Panchayat Board, one in Tirumalai Hills, 1 post of Health Officer in District Leprosy Survey Unit, 3 posts of Assistant Municipal Health Officers and 3 posts as Lecturers for Village guides in Community Project Scheme	.. .. .	99
6	Chief Entomologist	.. .. .	1
7	Senior Entomologists (includes one post in Madras Medical College)	.. .. .	7
8	Statistician	.. .. .	1
9	Malaria Engineer	.. .. .	1
10	Medical Officer (Maternal and Child Health), Grade II, Government Health Visitors School, Kilpauk and in Poonamallee Health Unit	.. .. .	2

11 Health Inspectors	707
12 Entomological Assistants	32
13 Chemical Assistant	1
14 Laboratory Assistant (Nutrition)	3
14 (A) Laboratory Attendants (Nutrition)	2
15 Agency Vaccinators	17
16 Statistical Assistants	2
17 Artist and Photographer	1
18 Draughtsman	1
19 Propaganda Technician	1
20 Health Visitors	8
21 Maternity Assistants	15
22 Laboratory Attendant (Research)	2
23 Laboratory Technician (Malaria)	1
24 Field Assistants	248
25 Trained Attenders (Guinea-worm Research)	2
26 Laboratory Assistants (Malaria)	44
27 Superintendent	1
28 Senior Office Assistant	1
29 Office Assistants	9
30 Upper Division Clerks	27
31 Lower Division Clerks	43
32 Steno-Typists	6
33 Typists	6

During the year Dr. K. S. Viswanathan held the post of the Director of Public Health except for the period from 5th May to 1st July 1952 when he was permitted by Government to serve as a member of the Health Mission from India to Canada for study of Public Health Practice, Organization and Administration at Federal, Provincial and local levels in that country. During his absence Dr. P. Arunachalam, Director of Medical Services, Madras, held full additional charge of the post of Director of Public Health. Dr. Isaac Joseph assumed charge as Deputy Director of Public Health on 2nd August 1952, vice Dr. T. R. Rangaswami. The post of Nutrition Officer was upgraded to that of Assistant Director of Public Health. The services of the one Assistant Director of Public Health and one Chief Entomologist were lent to the World Health Organization, New Delhi, for appointment as Malariologist, Iraq and for assignment as Scientist, Malaria Control Project, Indonesia, respectively.

One Health Officer (Class II) was deputed for International Yaws Conference at Bangkok and visits in Indonesia. In order to enable certain Health Officers (Class II) to complete their probation, if otherwise eligible, Government were pleased to exempt them from acquiring the Public Health qualification. However, they were required to undergo a short intensive course of training in Public Health at Madras for a period of three months. Accordingly, 13 Health Officers (Class II) underwent the course arranged for them in two batches in the Madras Medical College.

Local Fund Personnel.—The approximate strength of the public health staff employed under the local authorities is furnished hereunder :—

1 Lady Superintendents in charge of Maternity and Child Welfare.	2
2 Medical Officers (Maternal and Child Health)	117
3 Health Visitors	135
4 Maternity Assistants (Maternal and Child Health)	1,087
5 Resident Matrons in charge of maternity homes	13
6 Compounders (Maternal and Child Health)	7
7 Sanitary Inspectors	651
8 Health Assistants (for vaccination)	895
9 Health Assistants (for registration of births and deaths).	256

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

Due to dearth of qualified candidates, many posts of Health Assistants were filled up by emergency trained persons and some posts of Health Visitors and Maternity Assistants (Maternity and Child Health) have been kept vacant.

As in previous years local board staff were detailed for work during epidemic and festivals.

Training.—During the year under report, one Health Officer (Class I), one Health Officer (Class II), and one Senior Entomologist underwent training at the Malaria Institute of India, Delhi. Two Health Officers (Class I) and two Health Officers (Class II) underwent the training given at a six week's course at the Central Malaria Laboratory, Madras. One Health Officer (Class I) underwent practical training in Nutrition work at Coonoor.

During the year one Health Officer, Class I, Dr. D. Balasubramaniam, died.

The posts of Health Officers in the Public Health Department continued to be unattractive and response to recruitment was very poor, leaving many posts vacant.

THE PUBLIC HEALTH BOARD.

The Public Health Board met once in February 1952. One important resolution passed by it was that the Plague regulations issued from time to time under the Epidemic Diseases Act, 1897, may be continued for some more time and that the question whether amplification in the provisions of the Public Health Act are required in this connexion may be considered later on by Government. This was subsequently examined and Government have re-issued the plague regulations under the Epidemic Diseases Act, 1897, as was done hitherto.

The Board also resolved that the rules regarding grant of special casual leave in the case of infectious diseases do not require any revision.

MADRAS CITY IMPROVEMENT TRUST.

The Director of Public Health as an Ex-officio Trustee attended the meetings of the Trust.

FINANCE.

The actual expenditure incurred under "39. Public Health" under heads of accounts under the control of the Director of Public Health summarized below :—

	RS.	RS.
(a) Staff—		
Pay of officers	6,29,367	27,78,300
Pay of establishments	9,96,737	
Dearness Allowance	5,44,608	
Travelling allowance and Other Compensation Allowances.	6,07,653	
(b) Other Charges		20,37,100
(c) * Contribution to East Godavari Agency District Board.	3,244	3,244
Total ..		48,18,725
Total, excluding grants ..		43,51,571

The expenditure incurred under "39. Public Health" by other officers and given below :—

(1) Director of King Institute	15,96,612
(2) Board of Revenue	81,61,150
(3) Sanitary Engineer	4,73,280
(4) Director of Industries	63,730
(5) Director of Town-Planning	65,700
(6) Administration of Drugs Act, 1950	39,500
(7) Grant to the Provincial Research Committee	17,000
(8) Charges in England	34,310
Total ..	1,04,51,380
Grant for public health purposes	17,22,887
Recoveries	24,980
Total expenditure "39. Public Health" ..	1,65,50,800

* Out of this a sum of Rs. 4,67,146 relates to this department.

Grants of Rs. 4,67,146 have been disbursed to local bodies for the purposes detailed below :—

Maternity and Child Welfare	3,43,240
Malaria, etc.,	93,140
Other Public Health purposes	23,570
Recurring grants to East Godavari District Board	7,180
Total ..	4,67,146

The balance of Rs. 12,55,714 represents grants to local bodies including Corporation of Madras for water-supply and drainage.

Besides the sum of Rs. 48,18,725 (including grants) controlled by the Director of Public Health under "39. Public Health" a sum of Rs. 24,60,000 was also spent on vital statistics establishments during 1951-52.

The receipts and expenditure on Public Health by district boards exclusive of Panchayats, Corporation of Madras and the Municipalities are given below :—

	District Board. (1) RS.	Corporation. (2) RS.	Municipalities. (3) RS.
Receipts excluding Government grants and contributions—			
Medical relief	92,278	44,891	41,588
Public Health	7,42,657	4,76,257	36,97,878
Town-Planning	1,652	3,53,367	4,26,643
Water-supply and Drainage		30,95,303	66,68,499
Lighting		12,63,172	15,18,908
Education	4,36,11,378	74,440	26,07,904
Other General	3,12,23,648	1,81,81,806	2,73,78,246
Railway	17,12,994		
Total ..	7,73,84,607	2,34,87,236	4,23,39,666
Expenditure—			
Medical relief	48,94,751	10,09,438	13,21,015
Public Health	79,17,116	49,50,825	1,47,11,560
Town-Planning	1,51,692	3,48,155	4,71,088
Water-supply and Drainage		44,13,318	57,93,966
Lighting			
Education			
Other General			
Railway			
Total ..	1,29,63,559	1,07,21,736	2,22,97,629
Expenditure on preventive medicine only	80,68,808	97,12,298	2,09,76,614

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. It will be seen from the above statement that the municipalities and district boards have spent on Public Health more than the prescribed minima.

The expenditure incurred by the State on Public Health was Rs. 165.51 lakhs and that on medical relief was 34.42 lakhs. The percentage of expenditure on Public Health to total sum spent on Public Health and Medical relief was 33 per cent. Out of the sum spent on Public Health about 29 per cent was controlled by the Director of Public Health.

CHAPTER VII—CONCLUDING REMARKS.

Another milestone in the public health administration has been reached during 1952. The vital statistical indices show a record of further progress in the health conditions in the State as compared with the last year. The birth-rate has slightly increased. The death-rate has steadily decreased since 1944, there being a decrease of nearly 40 per cent. The infant mortality—a sensitive index of the health of a community has decreased further to 108.20, the lowest during the past three decades—the rate being only about 61 per cent of the average rate of 177.5 during the decade 1921-1930. The maternal mortality has maintained the low level reached last year. There was considerable reduction in the mortality from cholera and smallpox 21 per cent reduction in cholera and 70 per cent reduction in smallpox. The number of deaths from plague was the lowest on record and the State was practically free from plague. The mortality from fevers shows a decrease. There was

however a slight increase in the number of deaths from dysentery and diarrhoea and respiratory diseases.

The large fall in the infant mortality rate and in maternal mortality during the past decade, is partly due to the increased maternity and child welfare services. This is one field of public health activities where tangible results can be achieved by the provision of skilled aid to expectant and nursing mothers and infants. The fact that more philanthropists come forward to make voluntary contributions towards maternity and child welfare services is a proof positive of the good work done by maternal and child health staff. It should however be stated that these services have touched only a fringe of the problem and have not reached the far flung villages in rural areas and the maternal and child health staff is quite inadequate to meet the needs of the State. The staff should be considerably increased so that every expectant mother and child may receive the necessary care.

Malaria is another problem that has been engaging the serious attention of the department ever since the inception of reorganized malaria bureau in 1945. The anti-malaria work has paid high dividends. Very spectacular results have been achieved by the use of the newer methods of malaria control. Several thousands of acres of fertile land which were lying fallow owing to hyper endemicity of malaria, as in Wynaad taluk in Malabar district and the Agency in Visakhapatnam, have been reclaimed and are now producing more food for the country. So far, the highly endemic areas of malaria or areas where it is prevalent in epidemic form, have been tackled. It is now proposed to utilize the well knit malaria organization to carry out anti-malaria work throughout the State under the National Malaria Control Programme, sponsored by Government of India, Technical Co-operation Administration of the United States of America and the State Government. Under the scheme, all malarious tracts in the State, wherever they are located will be covered by anti-malaria units to rid the State of the menace of malaria. The direct and indirect benefits of this all out drive are bound to step up the health conditions in the State to a much higher level.

The activities of the Nutrition Bureau have further expanded during the year. Special emphasis has been laid on educating the public on nutrition. A course of lectures on the subject was given to the students of the B.S.S. Course, teacher trainees in Teachers' College, students of the Y.M.C. College of Physical Education, Health Officers on intensive training, Women Medical Officers undergoing the Post-graduate Course (Maternity and Child Welfare) and the personnel working in the Community Project areas. Nutrition Exhibitions were organized to demonstrate the values of food-stuffs and to educate the masses on nutritional matters including balanced diet. Propaganda on nutrition by means of radio talks, distribution of pamphlets and booklets, cinema shows, group talks, etc., was also conducted. Dietary surveys were conducted and the defects noticed in the diet and how to improve the diet by inclusion of cheap locally available food-stuffs, were explained by the staff of the Nutritional units. The bureau has also arranged supplementary feeding of vulnerable groups of population with distribution of skim milk powder and other food supplements. It is hoped that these measures, if continued intensively, will go some way in reducing the sickness and suffering due to diseases caused by mal-nutrition.

Specially intensive and timely measures were instituted to control epidemics of cholera. The State epidemic reserve staff and additional temporary staff of Health Inspectors were concentrated in the affected

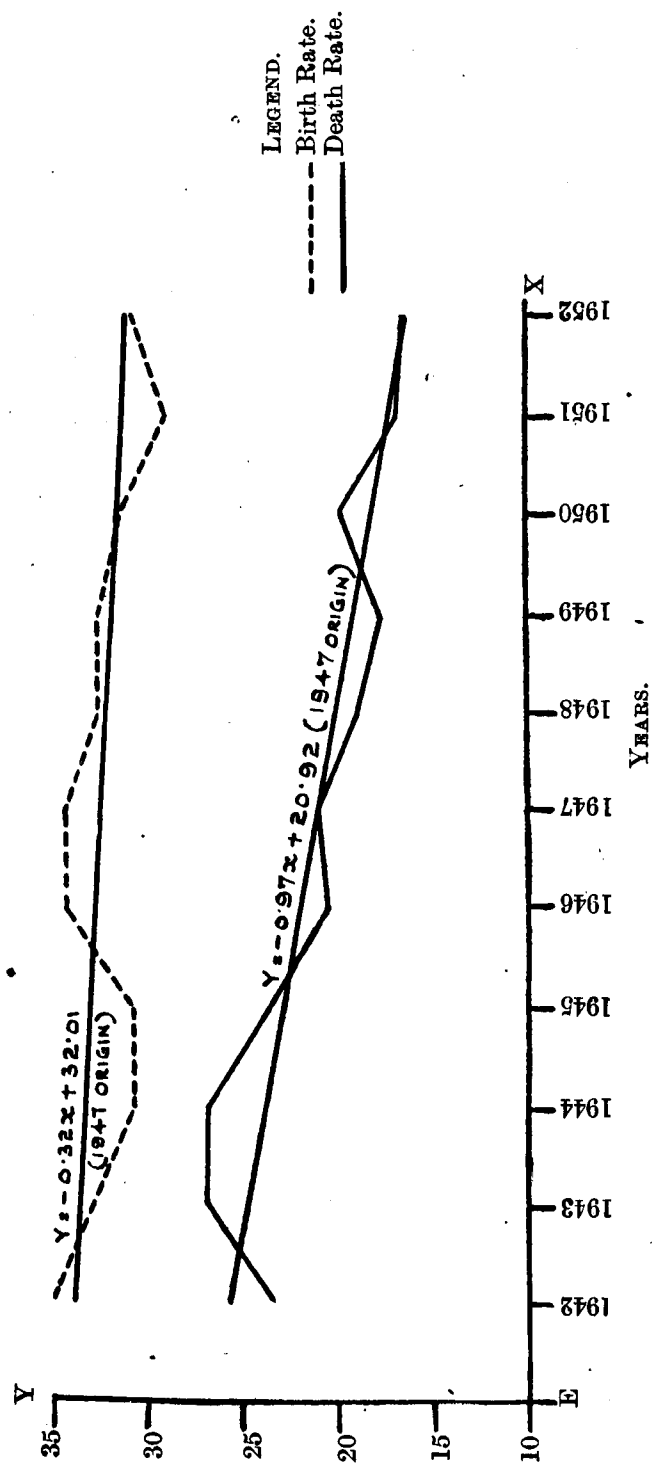
threatened areas by rushing them in vans and jeeps and carrying out anti-cholera inoculations, besides taking other sanitary measures, such as isolation, chlorination of water sources and disinfection of infected houses and clothing. The prompt action taken was responsible for the large reduction in the incidence of cholera despite food scarcity and drought conditions. To obviate the difficulties experienced in combating cholera and smallpox epidemics, the provision of isolation wards in the hospitals maintained by Government and panchayats and municipalities and of staff, equipment, medicines and drugs by the local authorities in advance is very necessary. Detailed proposals are suggested in Chapter II for implementation by the local authorities.

I wish to place on record my appreciation of the arduous work of the Officers of the Department in the field and at headquarters. The concord and team spirit evinced by them deserve special mention.

K. S. VISWANATHAN,
Director of Public Health, Madras.

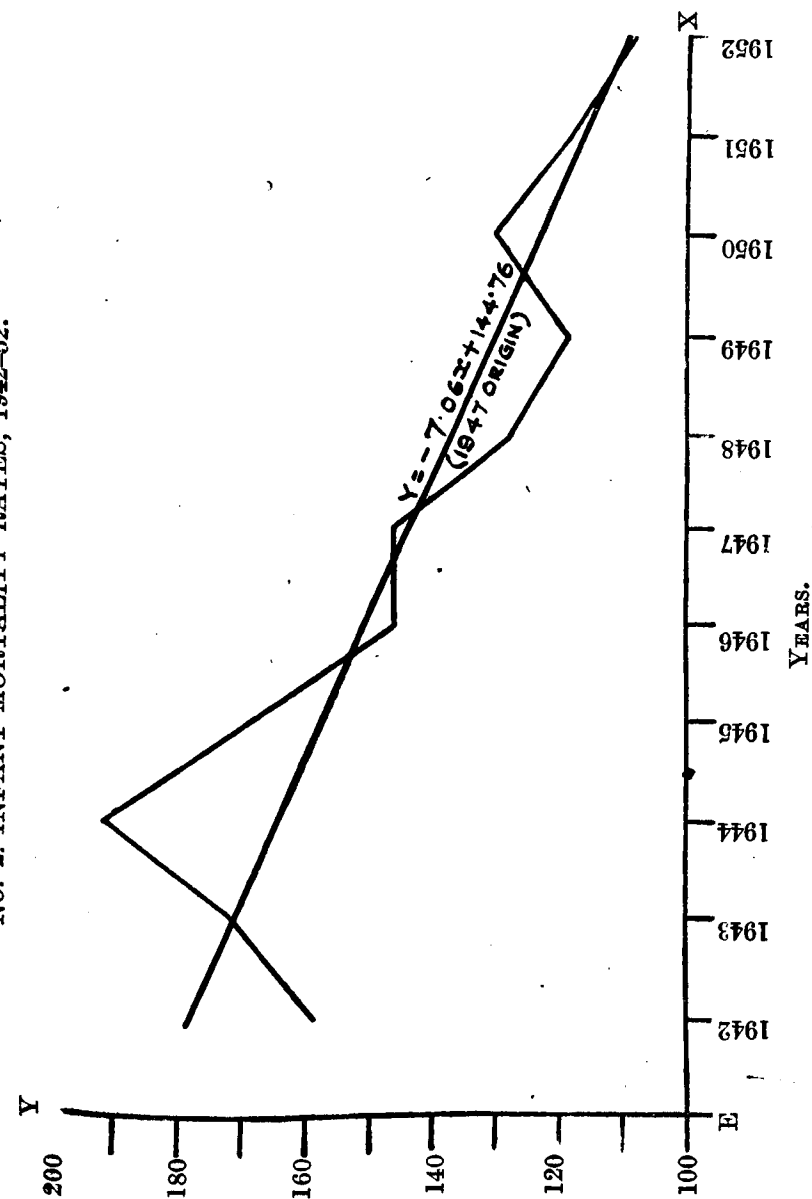
RATE PER 1,000 OF POPULATION.

No. 1. BIRTH AND DEATH RATES, 1942-52.

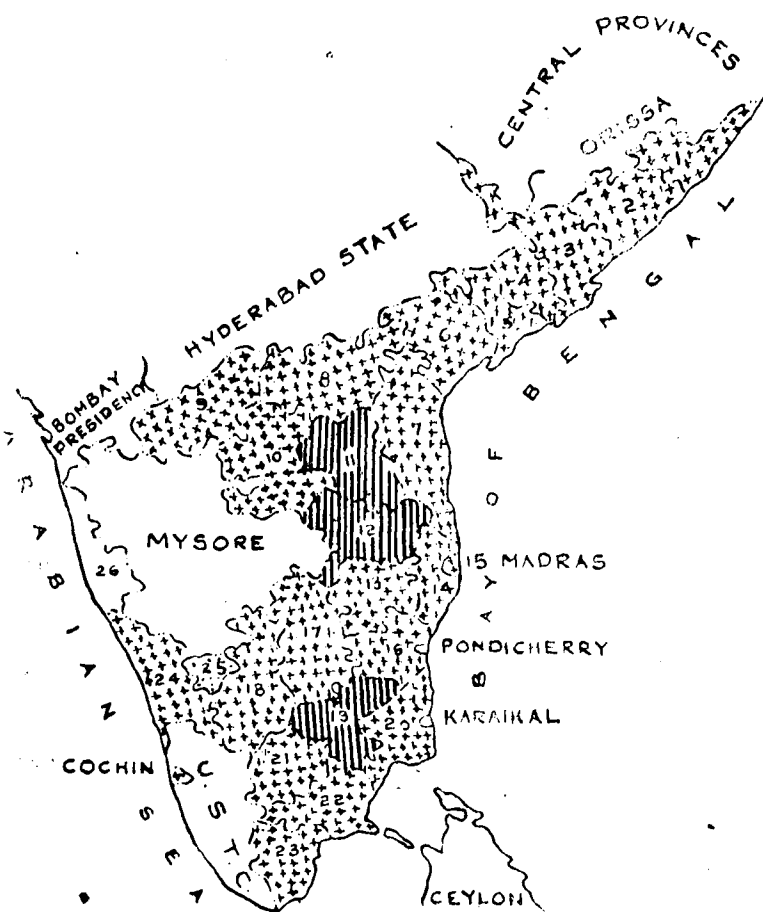


RATE PER 1,000 OF POPULATION.

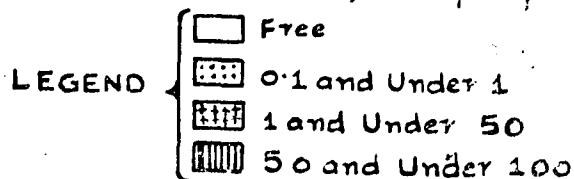
No. 2. INFANT MORTALITY RATES, 1942-52.



No. 3. MAP OF CHOLERA MORTALITY, 1952



Death rates per 100,000 of Population

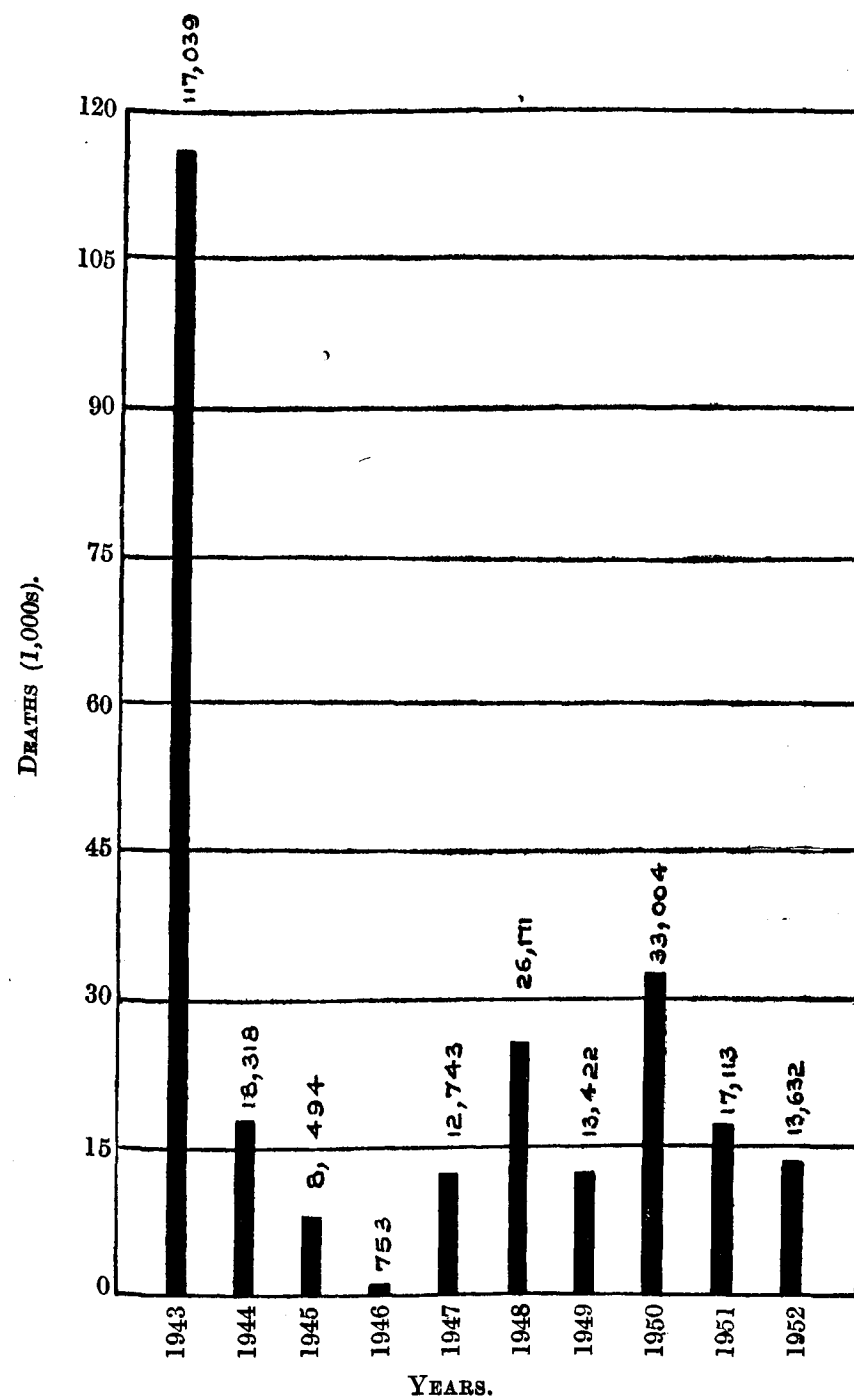


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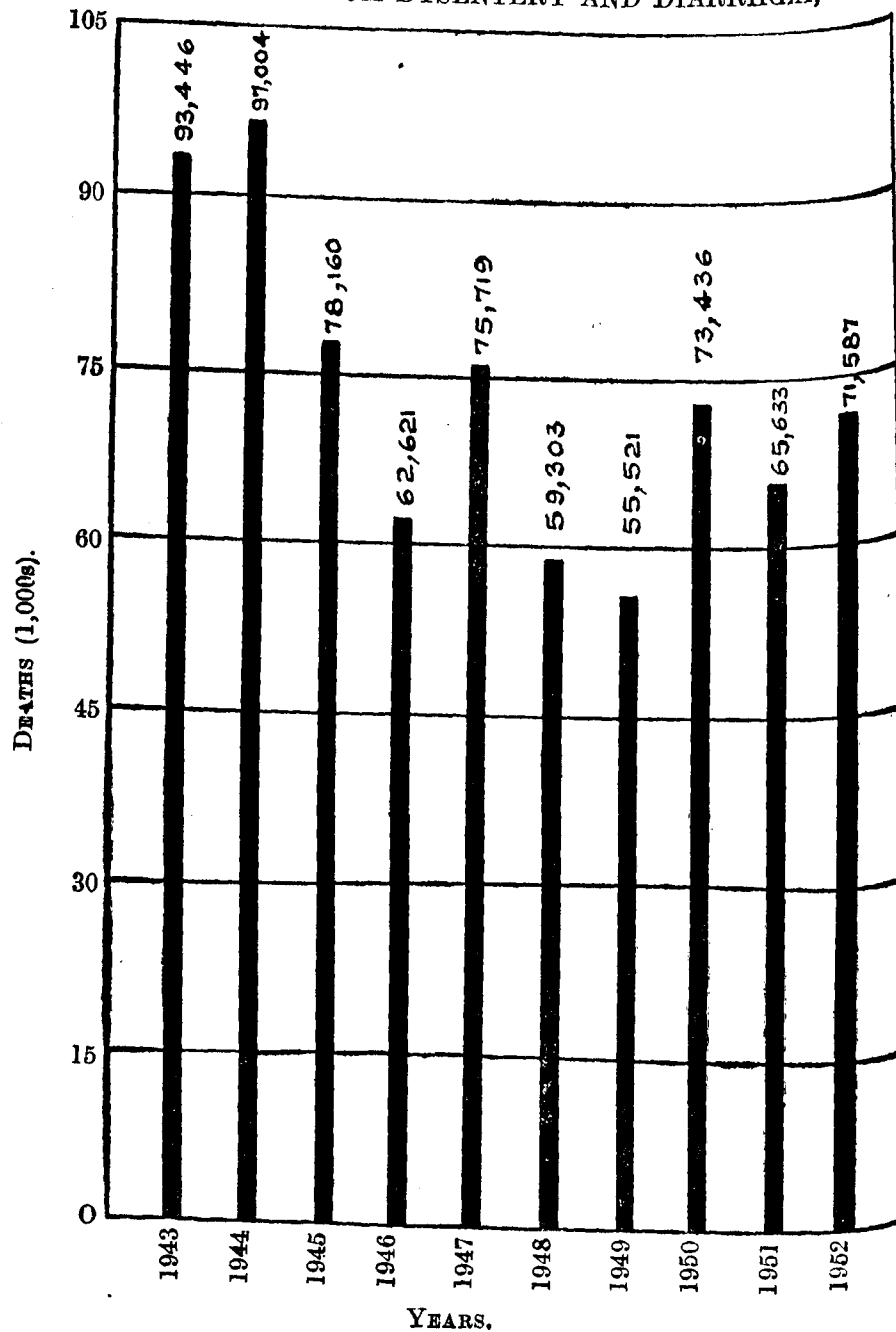
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16 South Arcot.
17 Salem.
18 Coimbatore.

19 Tiruchirappalli.
20 Tanjore.
21 Madurai.
22 Ramanathapuram.
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara.

No. 4. DEATHS FROM CHOLERA, 1943-52.

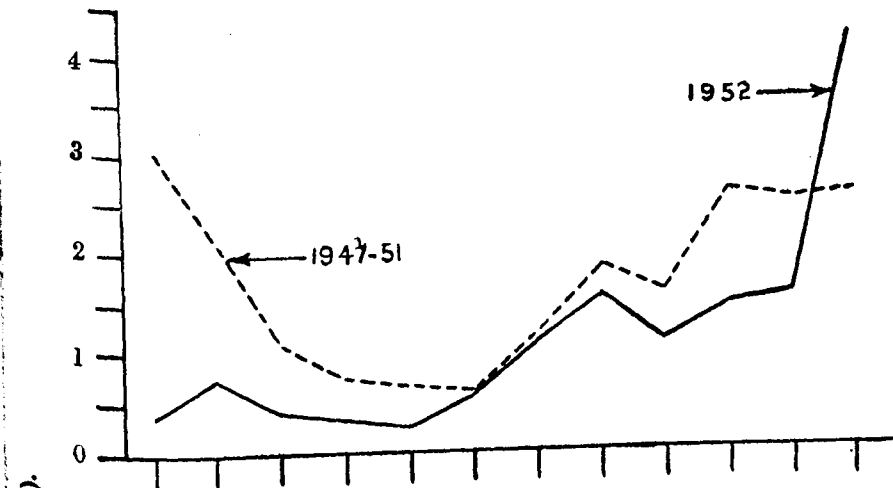


No. 5. DEATHS FROM DYSENTERY AND DIARRHŒA, 1943-52

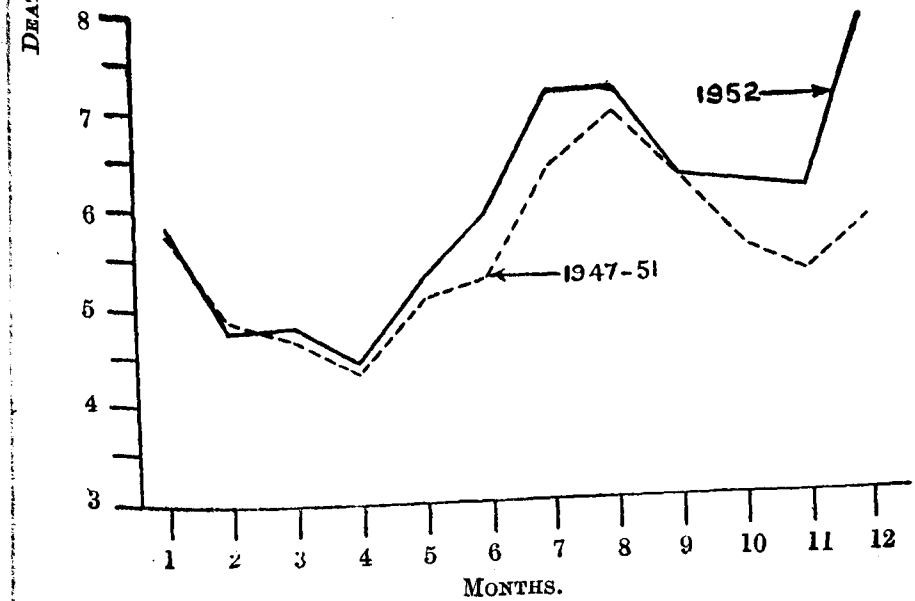


No. 6. MEAN MONTHLY MORTALITY, 1947-51, AND MONTHLY MORTALITY, 1952.

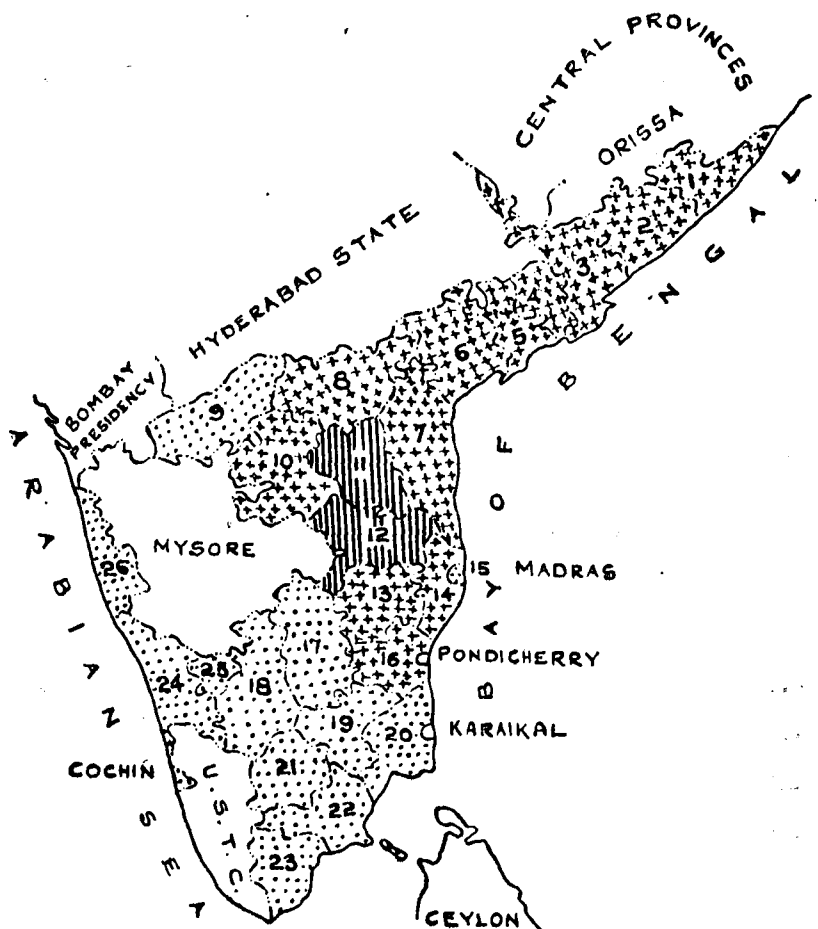
CHOLERA,



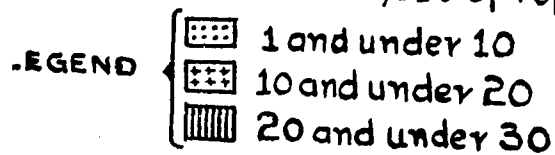
DYSENTERY AND DIARRHŒA.



No. 7. MAP OF SMALLPOX MORTALITY, 1952.



Death rates Per 100,000 of Population

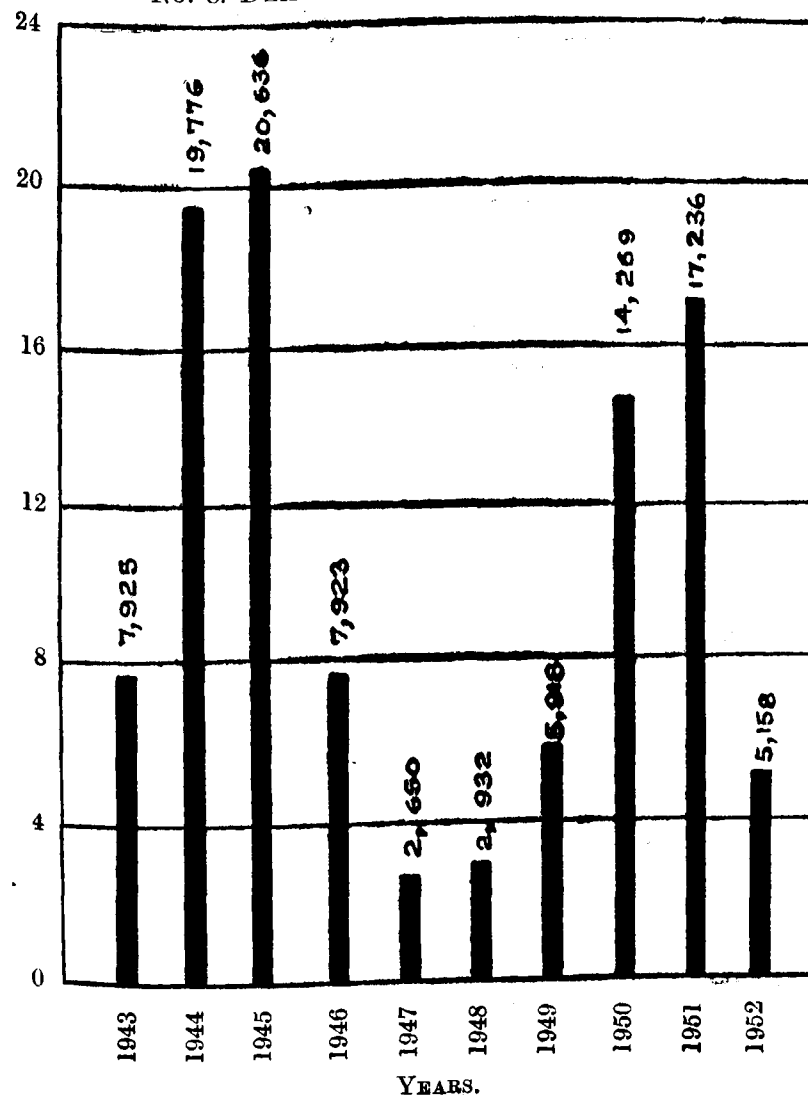


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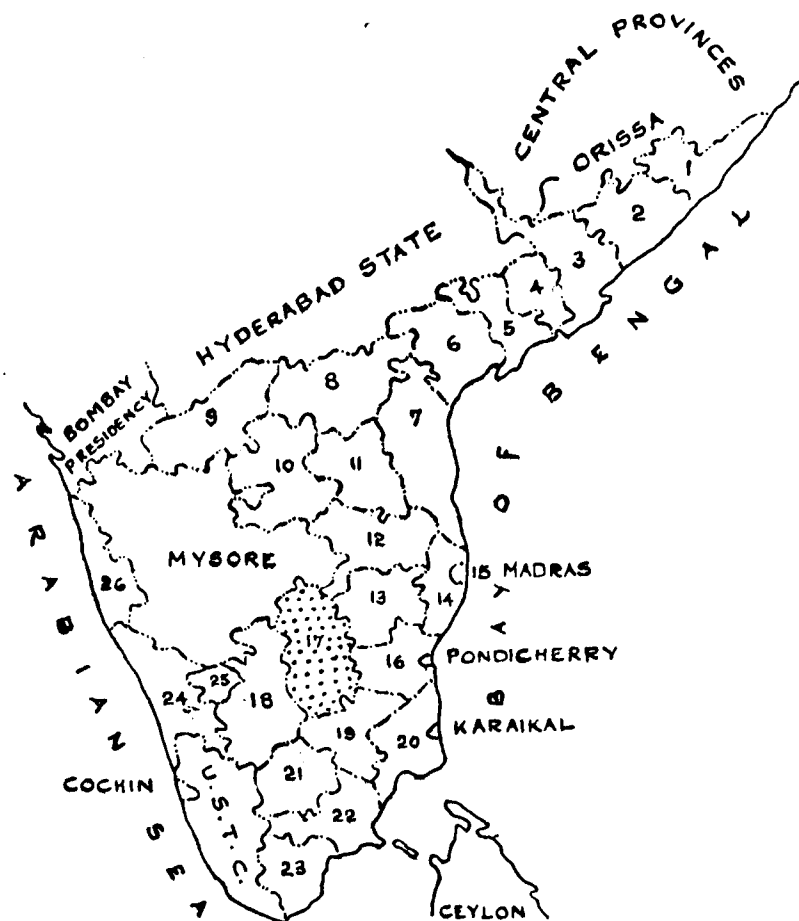
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16 South Arcot.
17 Salem.
18 Coimbatore.

19 Tiruchirappalli.
20 Tanjore.
21 Madurai.
22 Ramanathapuram.
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara.

No. 8. DEATHS FROM SMALLPOX, 1943-52.



No. 9. MAP OF PLAGUE MORTALITY, 1952.



Death rates Per 100,000 of Population

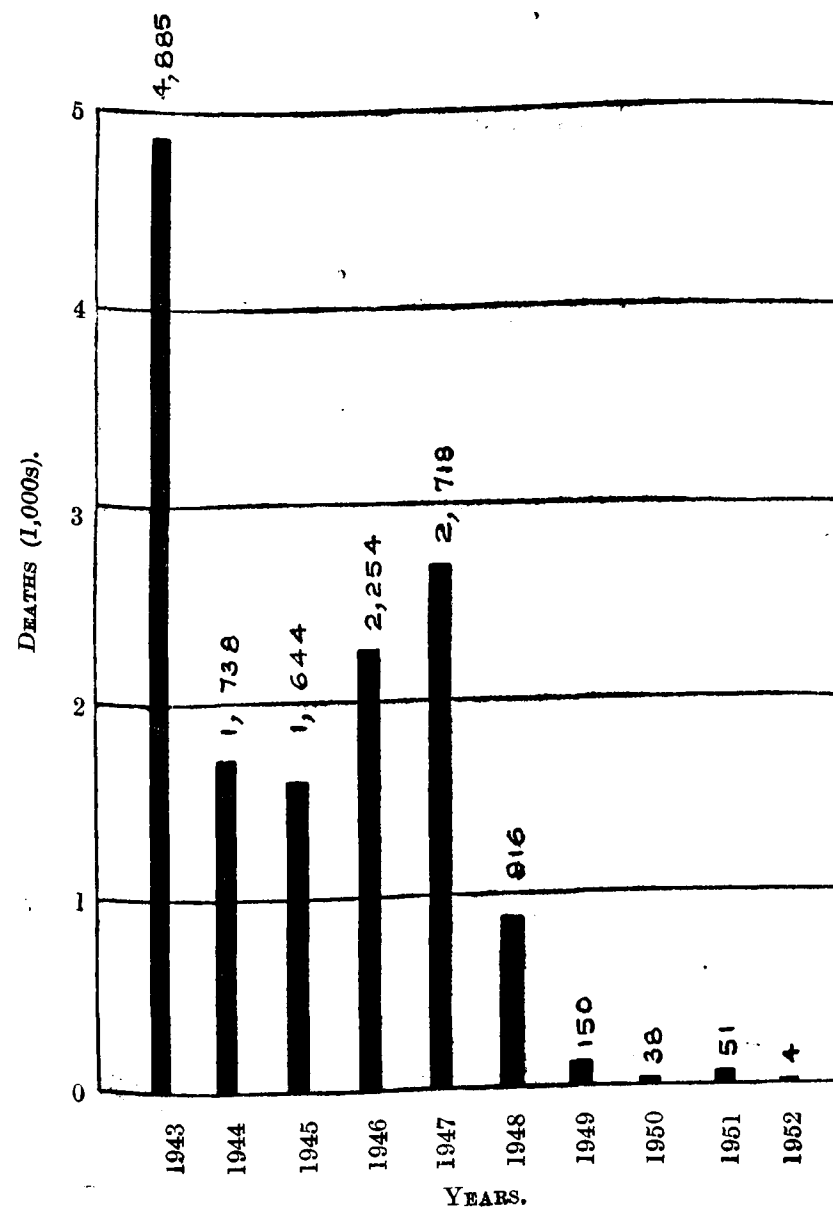
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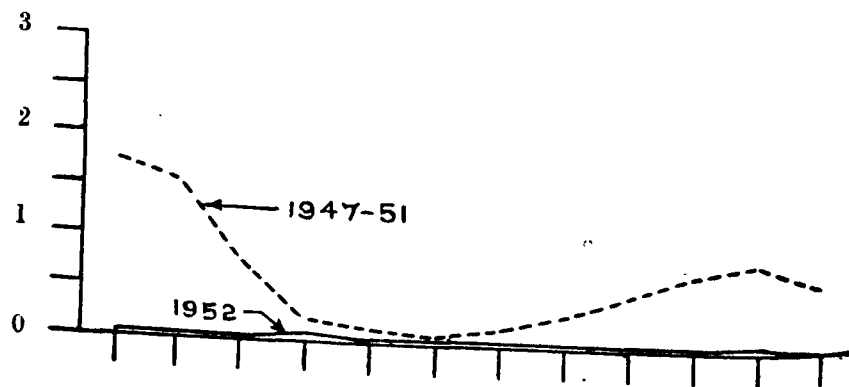
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 23 Tirunelveli.
 24 Malabar.
 25 The Nilgiris.
 26 South Kanara.

No. 10. DEATHS FROM PLAGUE, 1943-52.

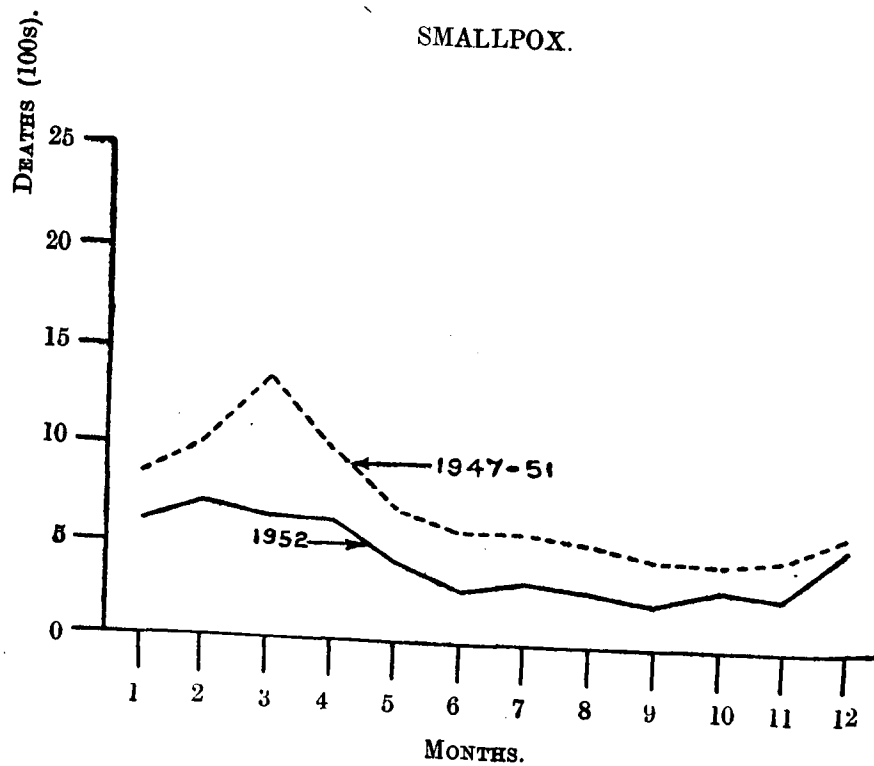


No. 11. MEAN MONTHLY MORTALITY, 1947-51, AND MONTHLY MORTALITY, 1952.

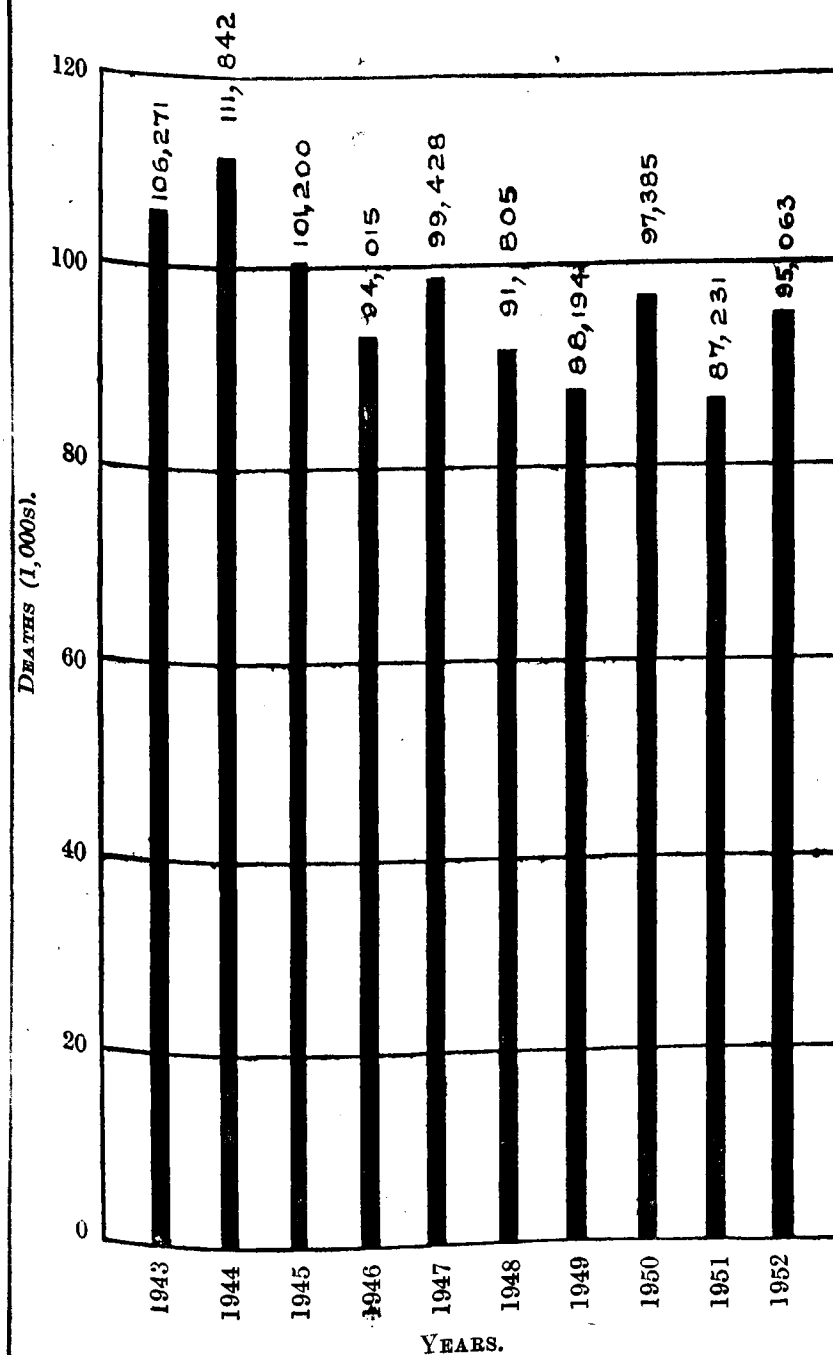
PLAGUE.



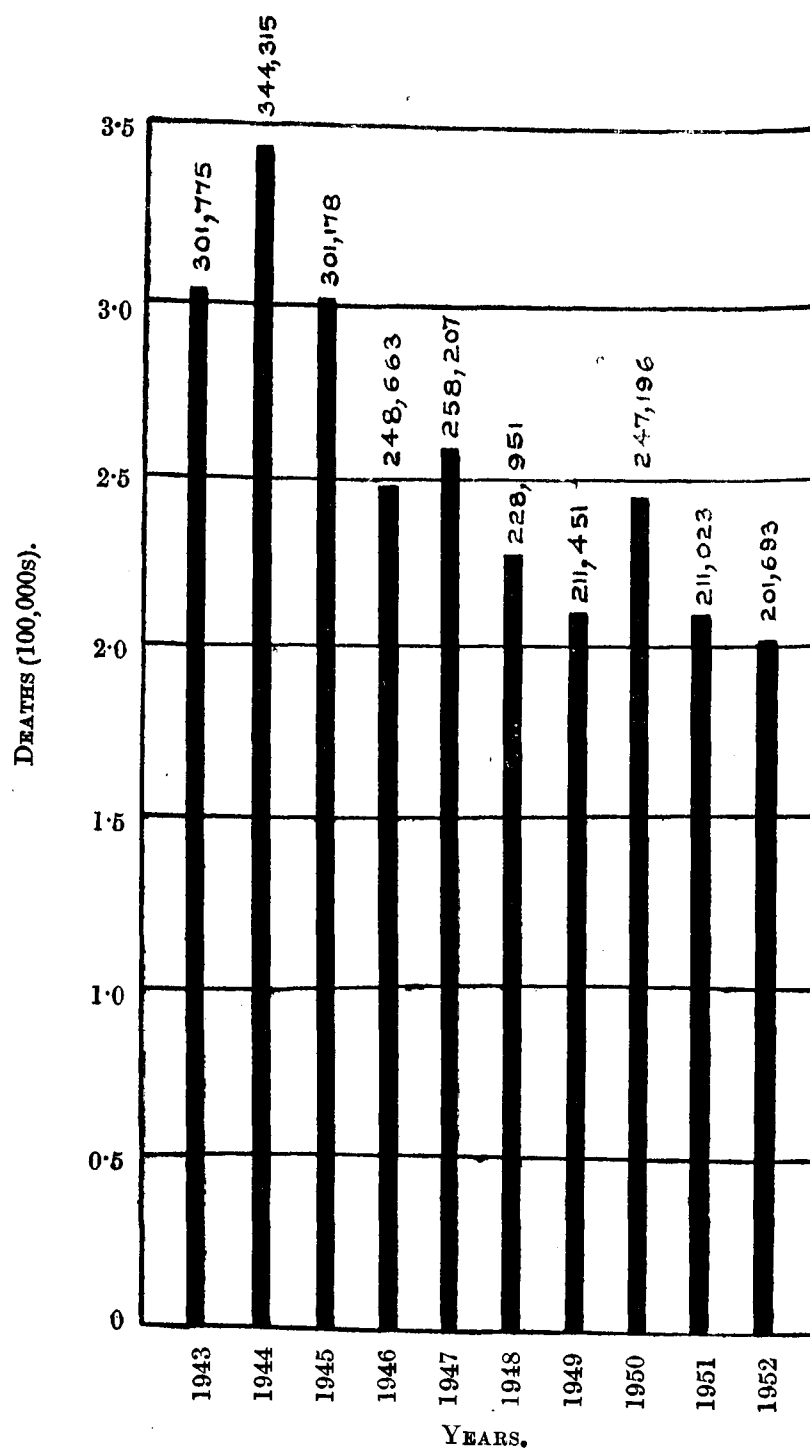
SMALLPOX.



No. 12. DEATHS FROM RESPIRATORY DISEASES, 1943-52.

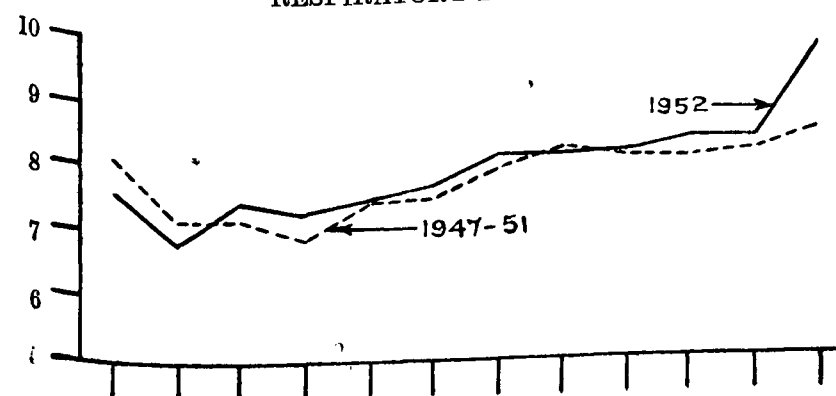


No. 13. DEATHS FROM FEVERS, 1943-52.

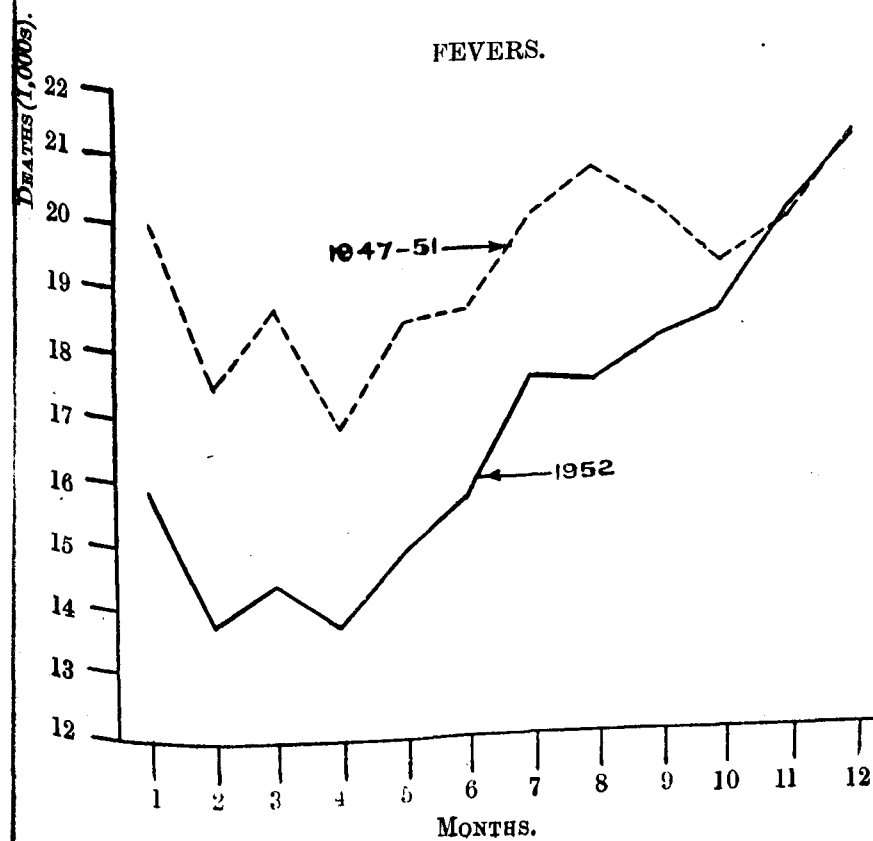


No. 14. MEAN MONTHLY MORTALITY, 1947-51, AND MONTHLY MORTALITY, 1952.

RESPIRATORY DISEASES.

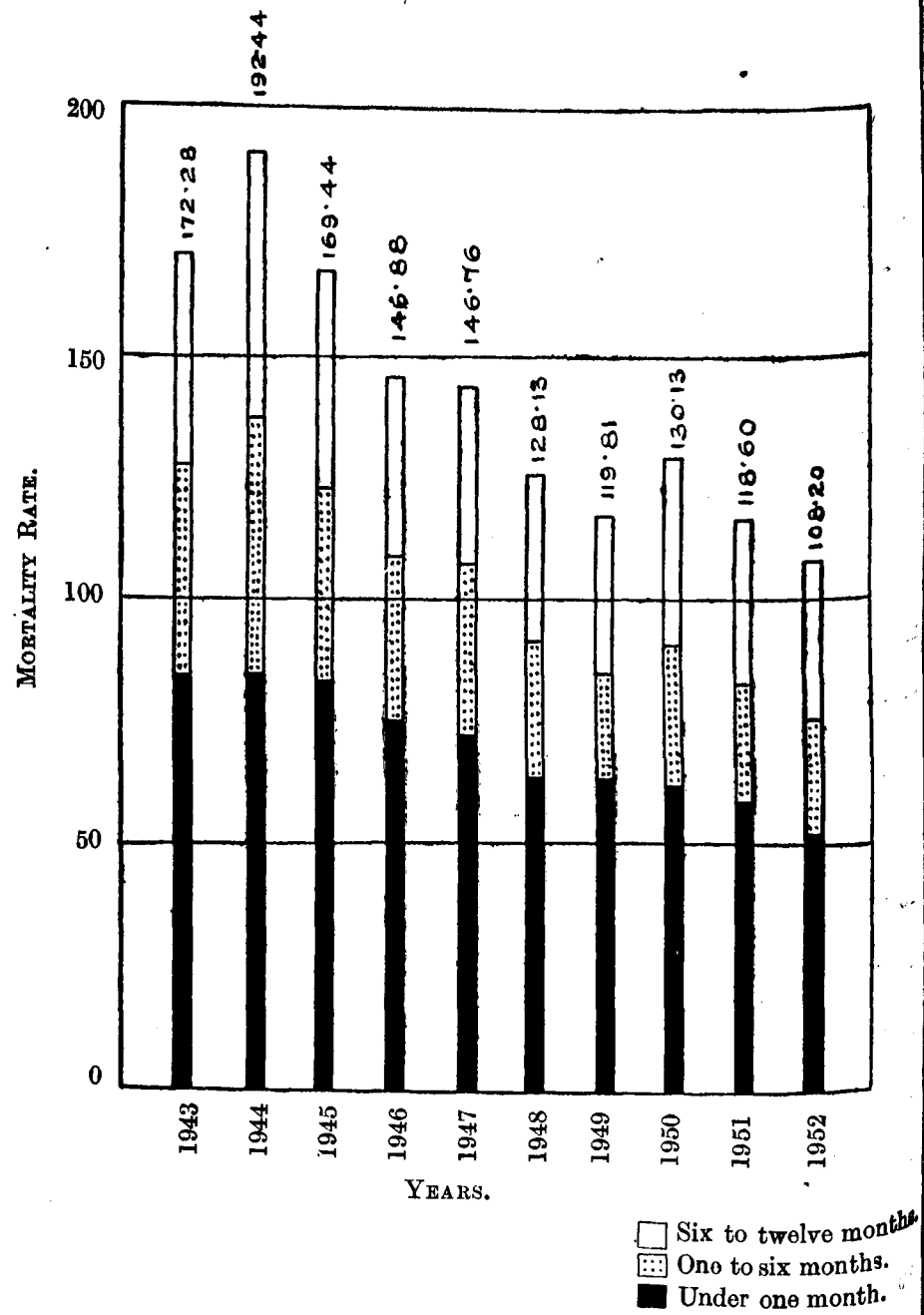


FEVERS.



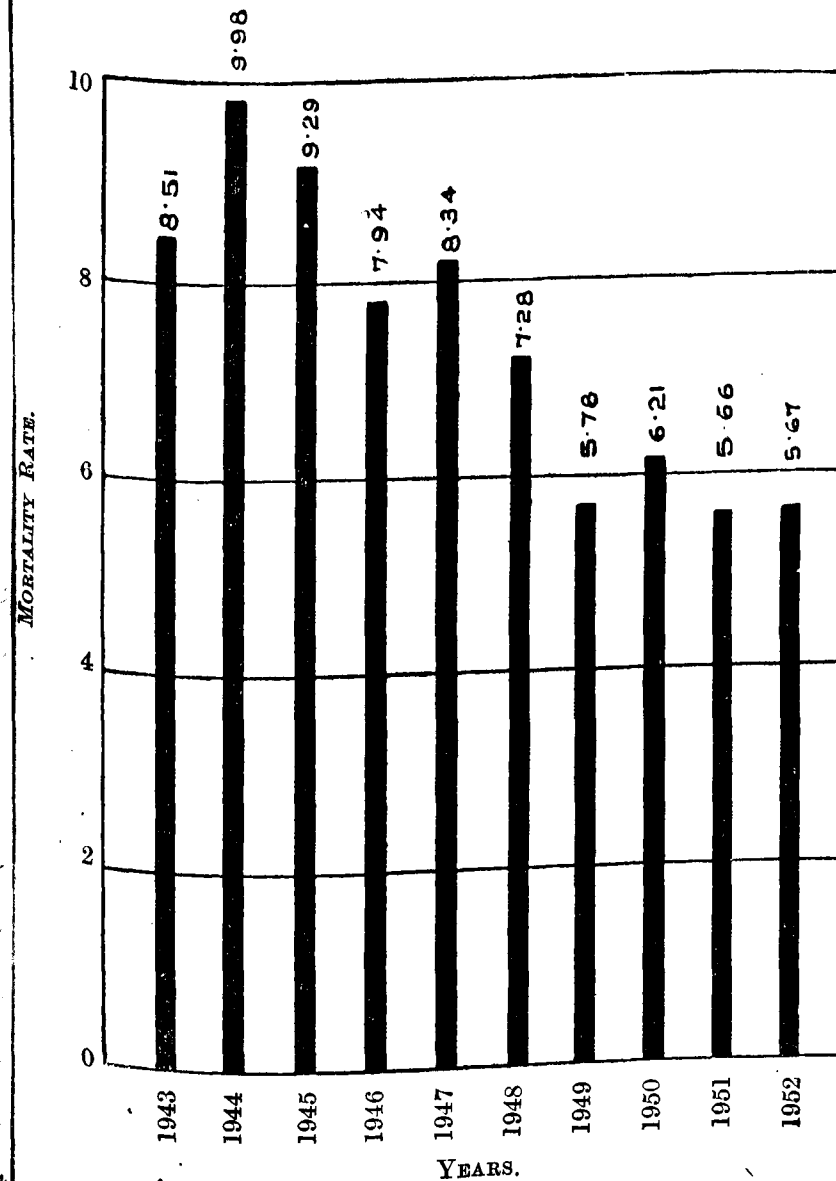
No. 15. INFANT MORTALITY RATES, 1943-52.

(PER 1,000 LIVE BIRTHS.)

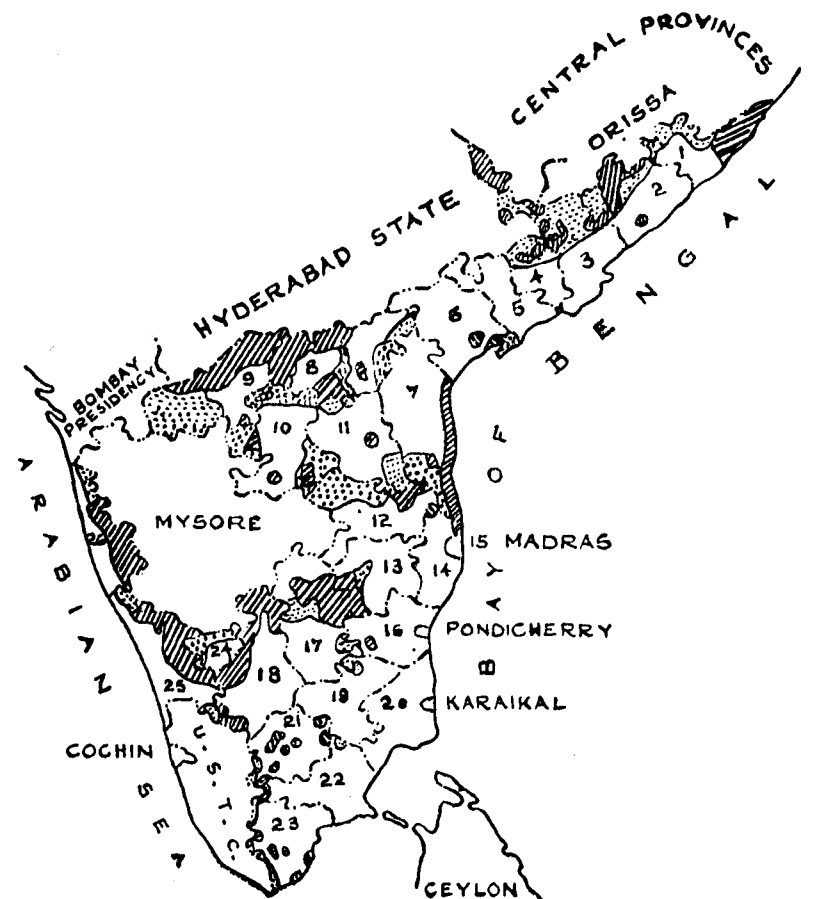


No. 16. MATERNAL MORTALITY RATES, 1943-52.

(PER 1,000 BIRTHS.)



No. 17. MALARIA MAP OF MADRAS STATE, 1952.

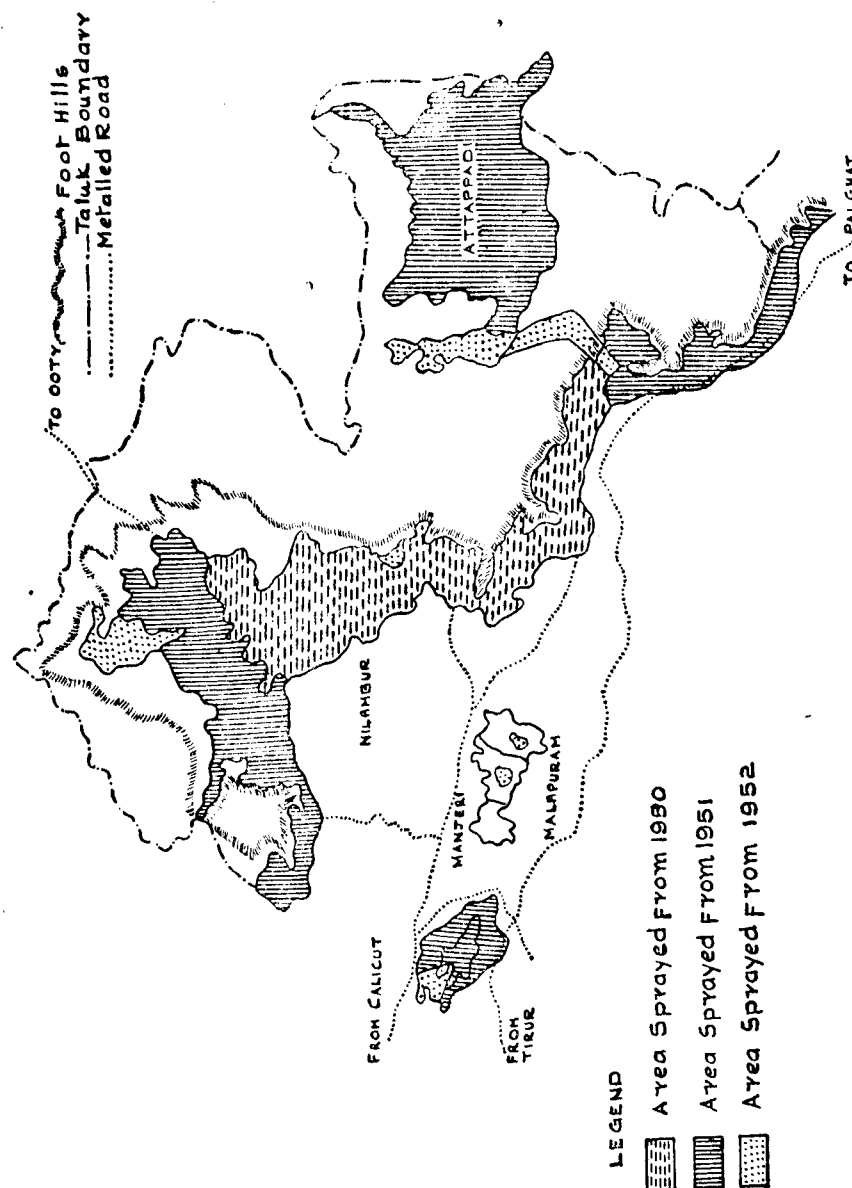


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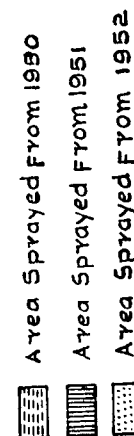


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| 2 Visakhapatnam. | 11 Cuddapah. | 20 Tanjore. |
| 3 East Godavari. | 12 Chittoor. | 21 Madurai. |
| 4 West Godavari. | 13 North Arcot. | 22 Ramanathapuram. |
| 5 Krishna. | 14 Chingleput. | 23 Tirunelveli. |
| 6 Guntur. | 15 Madras. | 24 Malabar.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

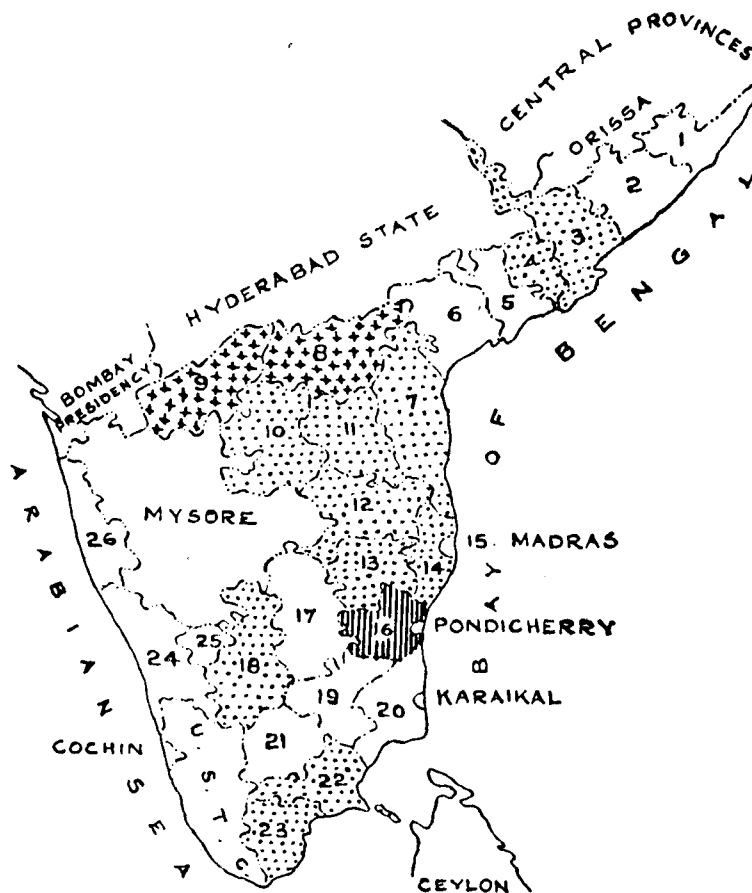
No. 18. MAP OF MALARIA CONTROL TEAM, NILAMBUR (MALABAR DISTRICT).



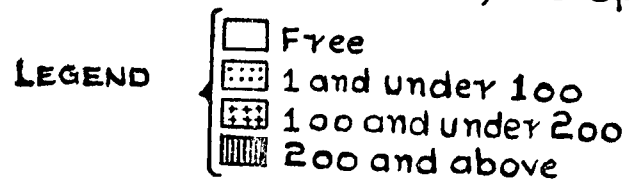
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No. 19. MAP OF GUINEAWORM DISEASE PREVALENCE, 19



Morbidity Rates Per 100,000 of Population

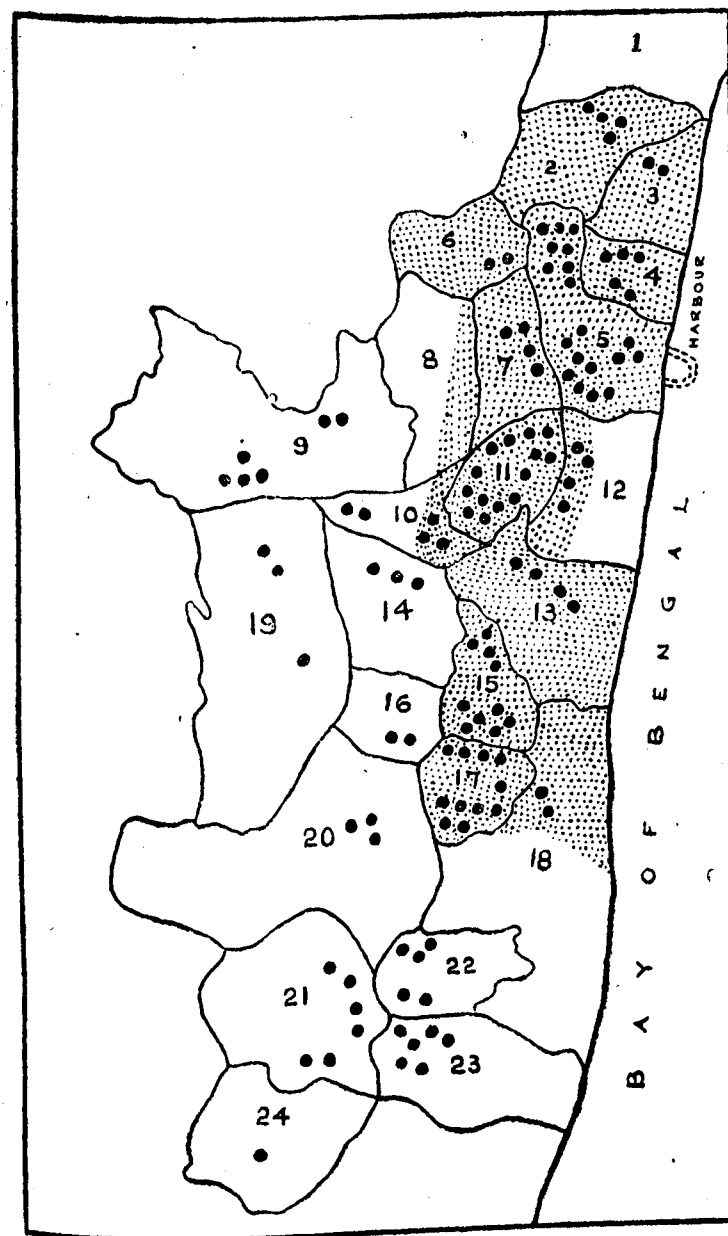


1 Srikakulam.
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3 East Godavari.
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7 Nellore.
8 Kurnool.
9 Bellary.

10 Anantapur.
11 Cuddapah.
12 Chittoor.
13 North Arcot.
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17 Salem.
18 Coimbatore.

19 Tiruchirappalli.
20 Tanjore.
21 Madurai.
22 Ramanathapuram.
23 Tirunelveli.
24 Malabar.
25 The Nilgiris.
26 South Kanara.

No. 20. KALA-AZAR MAP, MADRAS CITY, 1952.



LEGEND

Divisions reporting Kala-azar cases frequently
Phlebotomus Argentipes Distribution

19 Vottiyur.
20 Lodiarpet.
21 Wabermanpet.
22 Rayapuram.
23 Georgetown and Moolakothalam.
24 Perambur.
25 Choolai.
26 Purasawakam.

9 Kilpauk and Chetput.
10 Egmore and Pudupet.
11 Chintadripet.
12 Park Town and Central.
13 Triplicane.
14 Nungambakkam.
15 Royapetta.
16 Teynampet.

17 Gopalapuram.
18 Mylapore.
19 Kodambakkam.
20 T. Nagar.
21 Saidapet and Jabbarampet.
22 Alwarpet.
23 Adyar.
24 Guindy and Little Mount.

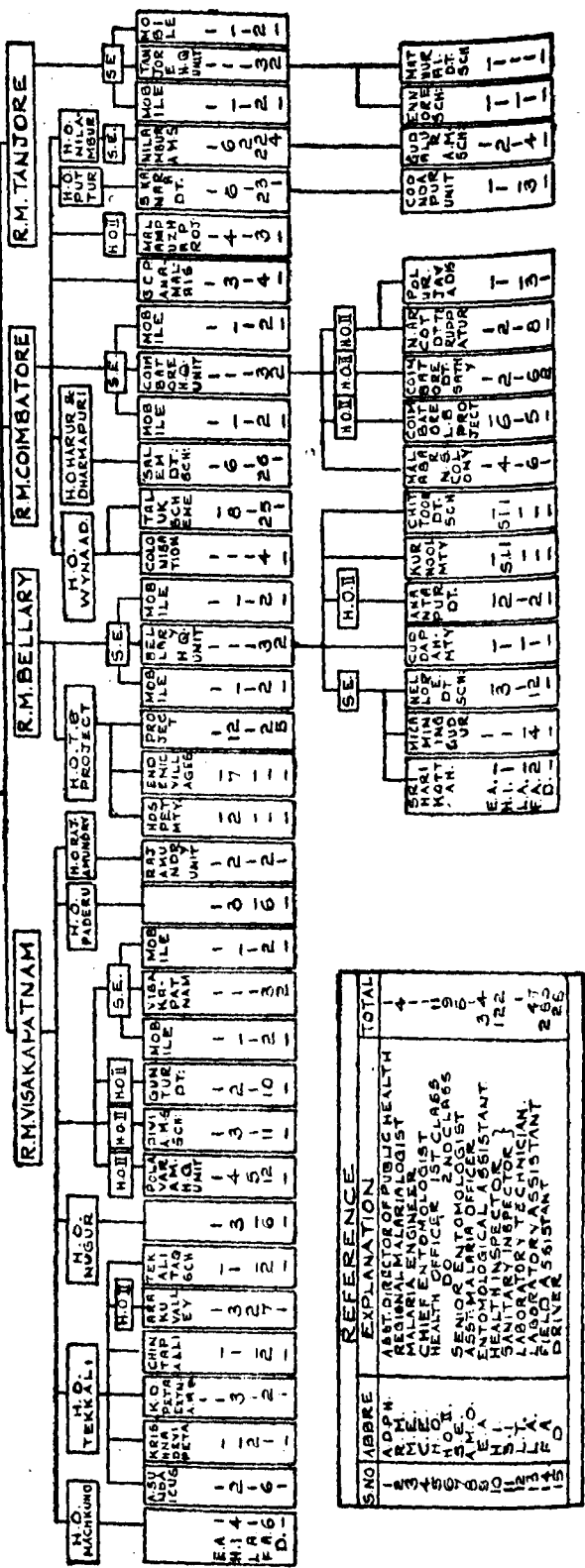
REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1952

MALARIA BUREAU-MADRAS STATE

DIRECTOR OF PUBLIC HEALTH
ASST. DIRECTOR OF PUBLIC HEALTH

HEALTH OFFICER

CHIEF ENTOMOLOGIST
CENTRAL MALARIA LABORATORY
L.T. L.A. L.F.A. 2



ANNEXURE A.

Detailed return—Births and deaths—Selected municipalities, 1952.

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

Age at the time of death.	Estimated mid-year population for 1922.	Infectious 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)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		
Under one year.	..	..	..	..	..	..	..	1	..	..	..	..	..	..	26	1	27	80		
Under one month.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Over one month and not exceeding six months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Over six months and not exceeding 12 months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Total under one year	..	3	..	48	10	2	10	19	3	2	5	..	..	..	533	13	1,056	544		
1 and under 5 years	..	94	..	58	41	6	45	146	7	22	5	..	..	..	1,060	33	2,298	701		
5 and under 10 years	..	97	..	29	4	..	108	37	1	32	5	..	..	..	1,386	53	505	147		
10 and under 15 years	..	59	..	9	..	..	102	4	..	19	1	1	..	..	207	55	182	43		
15 and under 20 years	..	138	..	15	..	..	126	4	..	25	1	..	..	..	170	848	160	60		
20 and under 25 years	..	31	..	27	..	..	222	9	1	62	1	..	..	..	324	1,206	363	130		
25 and under 30 years	..	104	..	24	..	..	107	2	2	49	4	..	..	..	308	1,005	270	140		
30 and under 35 years	..	82	..	19	..	..	69	2	2	40	2	..	..	..	347	1,776	268	229		
35 and under 40 years	..	49	..	3	..	..	33	..	..	22	1	..	..	..	361	457	238	285		
40 and under 45 years	..	..	..	..	..	..	..	..	..	..	6	..	..	..	330	183	135	247		
45 and under 50 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
50 and under 55 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
55 and under 60 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
60 years and upwards	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Total of all ages	..	793	1	234	57	8	827	231	14	295	28	1	2	76	4,115	4,134	5,475	2,527		
Rate per 1,000 of estimated population	..	0-24	0-0003	0-07	0-02	0-002	0-25	0-07	0-004	0-09	0-008	0-0003	0-001	0-02	1-24	1-25	1-65	0-76		

ANNEXURE A—cont.

Detailed return—Births and deaths—Selected municipalities, 1952—cont.

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

Age at the time of death.

Age at the time of death.	Alimentary diseases.			Diseases of the liver.		Circulatory system.			Genito-urinary diseases.		Venereal diseases.		
	Dysentery (20)	Diarrhoea (21)	Others (22)	Cirrhosis (23)	Others (24)	Heart disease (25)	Arterio-sclerosis (26)	Others (27)	Bright's disease (28)	Others (29)	Syphilia (30)	Gonorrhoea (31)	Others (32)
Under one month	12	61	13	..	4	3	..	9	1	1	1	..	6
Under one week	40	54	47	11	1	4	..	3	..	1	8	..	2
Over one month and not exceeding six months	107	208	149	34	27	7	..	4	2	3	6	2	2
Over six months and not exceeding 12 months	218	324	142	78	32	7	1	18	4	1	2	2	1
Total under one year	322	647	351	123	64	21	1	34	7	6	34	4	12
Under 5 years	1,407	871	265	618	389	19	1	56	87	61	3	4	5
Under 10 years	304	145	59	87	72	32	..	41	48	12	..	..	3
Under 15 years	64	29	40	15	24	48	..	39	18	6	..	..	1
Under 20 years	38	36	44	15	14	93	..	44	8	..	..	..	1
Under 25 years	144	131	198	45	54	274	1	222	27	37	11	3	8
Under 30 years	141	159	225	97	56	361	2	238	87	35	4	4	6
Under 35 years	165	118	259	82	41	436	2	202	121	38	9	1	5
Under 40 years	189	130	238	59	45	444	1	316	113	45	1	2	3
Under 45 years	189	149	172	46	33	383	3	253	113	45	1	..	..
Under 50 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 55 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 60 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 65 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 70 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 75 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 80 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 85 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 90 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 95 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 100 years	..	..	..	..	..	..	..	..	..	..	..	..	..
Total of all ages	2,923	2,346	1,851	1,187	792	2,111	11	1,580	654	257	68	21	59
Rate per 1,000 of estimated population	0.88	0.71	0.56	0.36	0.24	0.64	0.008	0.68	0.20	0.08	0.002	0.06	0.06

Malignant diseases.

Deficiency diseases.

Accidents of pregnancy and child-birth.

Diseases of the nervous system.

Other accidents and cases of pregnancy and dis-

parturition.

Abortion.

Puerperal sepsis.

Other.

Epilepsy.

Tetanus.

Convulsions.

Cerebral thrombosis.

Stroke.

Alimentary tract.

Breast.

Genito-urinary.

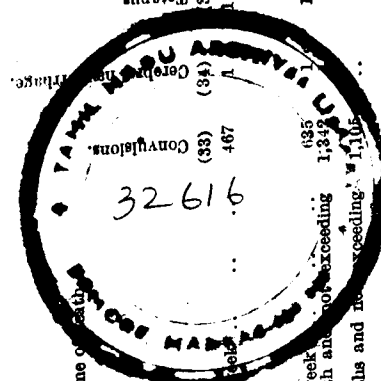
Other regions.

Ankylostomiasis.

Diabetes.

Total of all ages

Rate per 1,000 of estimated population



Age at the time of death.

Under one month

Under one week

Over one month and not exceeding six months

Over six months and not exceeding 12 months

Total under one year

Under 5 years

Under 10 years

Under 15 years

Under 20 years

Under 25 years

Under 30 years

Under 35 years

Under 40 years

Under 45 years

Under 50 years

Under 55 years

Under 60 years

Under 65 years

Under 70 years

Under 75 years

Under 80 years

Under 85 years

Under 90 years

Under 95 years

Under 100 years

Total of all ages

Rate per 1,000 of estimated population

ANNEXURE A—cont.

Detailed return—Births and deaths—Selected municipalities, 1952—cont.
 Municipalities: selected. Visakhapatnam, Vizianagaram, Kakinada, Rajahmundry, Eluru, Masulipatnam, Guntur, Tenali, Bellary, Adoni, Nellore, Kancheepuram, Vellore, Cuddalore, Tanjore, Kumbakonam, Nagapattinam, Tiruchirappalli, Madurai, Dindigul, Rajapalayam, Tuticorin, Tirunelveli, Salem, Coimbatore, Erode, Tiruppur, Kozhikode, Palghat and Mangalore)—cont.

Age at the time of death.	(50)	Leprosy.	(51)	Alcoholism.	(52)	Congenital debility and malformation, prematurity birth.	(53)	Rabies.	(54)	Wounds and accidents.	(55)	Snake-bite, and scorpion stings, etc.	(56)	Killed by wild beasts.	Suicides.	(58)	Poisons.	(59)	Old age.	(60)	All other causes.	(61)	(62)	(63)	Remarks.	Total.
Under one month	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under one week	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over one month and not exceeding six months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over six months and not exceeding 12 months.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total under one year	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 5 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 10 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 15 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 20 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 30 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 40 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 50 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Under 60 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
60 years and upwards	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total of all ages	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rate per 1,000 of estimated population	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

* Rate per 1,000 of estimated population.

ANNEXURE B.

Statement showing live-births by months, sex and area in Madras State for 1952.

Serial number and names of months.	Rural.			Urban.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
January	47,890	44,643	92,533	13,492	12,963	26,455	61,382	57,606	118,988
February	43,152	39,824	82,976	12,910	12,286	25,196	56,062	52,110	108,172
March	48,945	44,415	93,360	14,280	13,034	27,314	63,225	57,449	120,674
April	51,745	48,133	99,878	15,367	14,375	29,742	67,112	62,608	129,720
May	57,320	54,304	111,624	16,171	15,044	31,215	73,491	69,348	142,839
June	58,673	55,729	114,402	15,168	14,160	29,328	73,541	69,895	143,436
July	62,020	57,741	119,761	16,894	15,887	32,781	78,614	73,628	152,242
August	62,091	58,511	120,602	16,486	15,717	32,203	78,577	74,228	152,805
September	64,462	60,853	125,315	16,644	15,676	32,320	81,106	76,529	157,635
October	65,536	62,254	127,790	18,802	17,846	36,648	84,338	80,100	164,438
November	61,517	58,649	120,166	17,411	16,598	34,009	78,928	75,247	154,175
December	53,717	50,206	103,923	18,410	17,418	35,828	77,127	73,684	150,811
Total	682,068	641,322	1,323,390	192,035	181,010	373,045	874,103	822,332	1,696,435

ANNEXURE C.

Statement showing deaths by months, sex and area in Madras State for 1952.

Serial number and names of months.	Rural.			Urban.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1 January	28,130	26,628	54,758	8,593	8,260	16,853	36,723	34,888	71,611
2 February	25,407	23,554	48,961	8,396	7,628	16,024	33,893	31,382	65,275
3 March	25,109	24,045	49,154	8,278	7,682	15,960	33,387	31,727	65,114
4 April	24,682	23,846	48,528	7,689	7,297	14,986	32,371	31,143	63,514
5 May	26,205	25,722	51,927	7,892	7,592	15,484	34,097	33,314	67,411
6 June	28,037	27,365	55,402	7,666	7,332	14,998	35,703	34,697	70,400
7 July	32,217	31,824	64,041	8,953	8,015	16,968	41,175	40,439	81,614
8 August	32,522	32,033	64,555	8,498	8,246	16,744	41,170	40,279	81,449
9 September	32,051	31,362	63,413	8,015	7,575	15,590	40,066	38,937	79,003
10 October	33,242	32,169	65,411	9,003	8,399	17,402	42,245	40,868	83,113
11 November	34,017	32,894	66,911	8,784	8,452	17,236	42,801	41,346	84,147
12 December	38,147	36,835	74,982	10,758	10,035	20,793	48,905	46,870	95,775
Total	350,856	348,577	700,433	102,680	97,313	199,993	462,536	445,890	908,426

ANNEXURE D.

Statement showing the number of village birth and death returns due from each district and number not received for the year 1952.

Districts.	Number of returns due for 1952.	Number of returns not received.	Percentage returns received total num due.
(1)	(2)	(3)	(4)
Srikakulam ..	32,568	874	2.68
Visakhapatnam ..	15,300	220	1.44
Godavari, East—			
Plains ..	10,068	463	4.61
Agency ..	11,724	1,169	9.97
Godavari, West—			
Plains ..	8,904	66	0.74
Agency ..	1,572	..	..
Krishna ..	11,844	450	3.80
Guntur ..	13,680	436	3.19
Bellary ..	11,928	1,826	15.31
Anantapur ..	10,368	7	0.07
Kurnool ..	10,668	3	0.03
Cuddapah ..	12,432	440	3.54
Nellore ..	20,232	804	3.97
Chingleput ..	26,076	207	0.79
Chittoor ..	26,424	1,597	6.04
North Arcot ..	24,216	621	2.56
South Arcot ..	27,204	2,163	7.95
Tanjore ..	29,496	35	0.11
Tiruchirappalli ..	18,132	281	1.55
Madurai ..	12,852	401	3.13
Ramanathapuram ..	18,336	1,224	6.68
Tirunelveli ..	13,080	63	0.48
Salem ..	21,408	947	4.42
Coimbatore ..	14,340	19	0.13
Nilgiris, The ..	2,616	424	16.21
Malabar {North 4,656 } {South 5,448 }	10,104	..	..
South Kanara ..	9,780	..	..
Total ..	425,332	14,740	3.47

ANNEXURE E.

Age composition of the population in Madras State as per 10 per cent sample in 1951 census.

Madras State.				Males.	Females.	Total.
(1)				(2)	(3)	(4)
Under 1 year	..	..	..	73,090	73,499	146,589
1 year and less than 5 years	..	..	..	271,233	270,009	541,242
5	..	..	..	340,059	339,047	679,106
10	do.	10	do.	352,488	344,203	696,691
15	do.	15	do.	277,376	270,187	547,563
20	do.	20	do.	229,298	249,527	478,825
25	do.	25	do.	227,485	240,217	467,702
30	do.	30	do.	202,105	214,534	416,639
35	do.	35	do.	183,995	174,021	358,016
40	do.	40	do.	172,498	168,205	340,703
45	do.	45	do.	140,129	130,447	270,576
50	do.	50	do.	132,259	129,666	261,925
55	do.	55	do.	80,600	73,528	154,128
60	do.	60	do.	81,068	83,593	164,661
65	do.	65	do.	36,047	35,200	71,247
70	do.	70	do.	28,332	30,648	58,980
75 years and above	..	..	..	22,500	25,662	48,162
Age not stated	..	..	..	877	1,026	1,903
Total for the State ..				2,851,439	2,853,219	5,704,658

ANNEXURE F.

Number of cases of dysentery treated in hospitals in 1952.

Serial number and districts.	Amoebic dysentery.	Bacillary dysentery.	Others.	Total.
1 Srikakulam ..	14,380	18,914	8,883	42,177
2 Visakhapatnam ..	4,735	15,432	7,594	27,761
3 East Godavari ..	7,094	3,691	3,212	13,999
4 West Godavari ..	8,508	5,969	18,771	33,248
5 Krishna ..	8,594	7,904	2,040	18,538
6 Guntur ..	5,344	6,412	3,849	15,605
7 Bellary ..	8,765	5,992	80	14,837
8 Anantapur ..	12,296	4,165	1,394	17,855
9 Kurnool ..	5,819	4,796	11,853	22,468
10 Cuddapah ..	11,698	11,623	18,148	41,469
11 Madras ..	4,585	7,609	4,683	16,877
12 Nellore ..	15,612	4,054	110	19,776
13 Chingleput ..	10,916	4,806	4,229	19,951
14 Chittoor ..	15,613	15,147	10,613	41,373
15 North Arcot ..	8,367	13,903	9,248	31,518
16 South Arcot ..	25,016	28,363	9,324	62,703
17 Tanjore ..	17,777	7,593	6,849	32,219
18 Tiruchirappalli ..	646	18,146	7,441	26,233
19 Madurai ..	13,139	7,760	10,363	31,262
20 Ramanathapuram ..	19,229	12,194	3,379	34,802
21 Tirunelveli ..	4,431	7,101	2,704	14,236
22 Salem ..	19,627	12,634	12,762	45,023
23 Coimbatore ..	3,760	2,639	2,380	8,779
24 The Nilgiris ..	23,705	7,093	6,426	37,224
25 Malabar ..	2,879	2,397	..	5,276
26 South Kanara ..	..	..	..	..
Total ..	272,537	236,337	166,335	675,209

ANNEXURE G.

Number of cases of enteric fever treated in hospitals in 1951-52.

Serial number and districts.	Number of cases.		Number of districts.
	1951.	1952.	
1 Srikakulam	(2)	(3)	(4)
2 Visakhapatnam	3,265	2,066	53
3 East Godavari	888	2,278	22
4 West Godavari	670	873	21
5 Krishna	1,020	1,993	12
6 Guntur	1,686	3,476	30
7 Bellary	471	496	17
8 Anantapur	1,360	1,666	20
9 Kurnool	599	465	12
10 Cuddapah	870	1,845	3
11 Madras	9,100	4,957	427
12 Nellore	873	941	28
13 Chingleput	690	764	36
14 Chittoor	1,461	1,216	33
15 North Arcot	1,982	2,134	61
16 South Arcot	956	2,741	29
17 Tanjore	1,841	3,703	63
18 Tiruchirappalli	1,490	1,075	37
19 Madurai	1,629	1,864	38
20 Ramanathapuram	1,395	2,663	14
21 Tirunelveli	2,022	3,001	39
22 Salem	1,509	3,703	59
23 Coimbatore	6,022	1,753	91
24 Nilgiris, The	275	216	37
25 Malabar	5,586	6,981	190
26 South Kanara	1,136	2,113	55
Total ..	48,796	54,983	1,427

ANNEXURE H.

Number of cases of tuberculosis treated in hospitals in 1951-52.

Serial number and districts.	1951.			1952.		
	Pulmonary tuberculosis.	Other forms of tuberculosis.	Total.	Pulmonary tuberculosis.	Other forms of tuberculosis.	Total.
1 Srikakulam	4,448	1,711	6,159	5,733	4,173	9,906
2 Visakhapatnam	1,935	2,486	4,421	4,863	1,587	6,450
3 East Godavari	863	1,212	2,075	924	2,872	3,796
4 West Godavari	3,288	1,386	4,674	3,251	2,300	5,551
5 Krishna	4,463	1,513	5,976	4,691	5,955	10,646
6 Guntur	1,570	1,029	2,599	3,520	3,905	7,425
7 Bellary	5,153	5,026	10,179	1,836	1,642	3,478
8 Anantapur	3,272	542	3,814	2,092	522	2,614
9 Kurnool	1,558	407	1,965	2,616	2,350	4,966
10 Cuddapah	17,000	8,146	25,146	18,459	7,701	26,160
11 Madras	2,120	534	2,724	2,073	990	3,063
12 Nellore	922	249	1,171	6,246	853	7,099
13 Chingleput	589	462	1,051	1,988	521	2,509
14 Chittoor	4,731	5,172	9,903	4,461	3,211	7,672
15 North Arcot	1,795	1,401	3,196	2,122	1,745	3,867
16 South Arcot	4,657	2,580	7,237	6,863	5,999	12,862
17 Tanjore	2,192	1,117	3,309	684	5,001	5,685
18 Tiruchirappalli	8,786	6,554	15,340	6,711	12,316	19,027
19 Madurai	1,308	3,783	5,091	1,945	6,737	8,682
20 Ramanathapuram	3,367	1,383	4,750	2,873	2,656	5,529
21 Tirunelveli	11,037	6,217	17,254	5,491	1,279	6,770
22 Salem	5,712	6,172	11,884	18,936	3,868	22,804
23 Coimbatore	166	117	283	175	144	319
24 Nilgiris, The	13,364	5,216	18,580	14,718	3,533	18,251
25 Malabar	2,132	321	2,453	2,847	987	3,834
26 South Kanara						
Total ..	106,498	64,736	171,234	126,118	82,447	208,565

ANNEXURE I.

Number of leprosy cases treated in hospitals in 1950-52.

Serial number and districts.	The number of leprosy cases treated in hospitals.		
	1952.	1951.	1950.
1 Srikakulam	3,433	5,686	5,103
2 Visakhapatnam	2,362	1,706	2,933
3 East Godavari	1,654	1,227	1,101
4 West Godavari	1,331	4,237	658
5 Krishna	921	990	883
6 Guntur	549	133	144
7 Bellary	114	78	127
8 Anantapur	167	399	213
9 Kurnool	533	369	241
10 Cuddapah	7,714	8,673	6,507
11 Madras	774	1,259	1,159
12 Nellore	3,521	1,562	1,448
13 Chingleput	4,691	1,358	1,404
14 Chittoor	5,657	6,950	27,339
15 North Arcot	20,569	10,757	9,262
16 South Arcot	5,331	6,961	16,767
17 Tanjore	1,565	1,478	1,493
18 Tiruchirappalli	6,021	8,076	8,418
19 Madurai	3,393	3,423	2,016
20 Ramanathapuram	1,952	1,366	1,553
21 Tirunelveli	13,938	8,305	9,139
22 Salem	1,259	6,784	1,150
23 Coimbatore	26	30	112
24 Nilgiris, The	3,078	2,976	2,144
25 Malabar	592	479	245
26 South Kanara			
Total ..	91,145	85,262	101,359

ANNEXURE J.

Number of cases of venereal disease treated in hospitals in 1952.

Serial number and districts.	Venereal diseases.			Total.
	Syphilis.	Gonorrhoea.	Other venereal diseases.	
1 Srikakulam	5,939	7,597	4,782	18,318
2 Visakhapatnam	7,621	9,158	5,715	22,494
3 East Godavari	5,417	6,836	2,738	14,991
4 West Godavari	10,760	6,724	4,844	22,328
5 Krishna	12,878	11,609	5,657	30,144
6 Guntur	3,472	4,077	1,647	9,196
7 Bellary	3,941	4,548	1,523	10,012
8 Anantapur	2,643	1,459	1,459	5,561
9 Kurnool	1,789	2,869	2,192	6,850
10 Cuddapah	3,648	9,827	3,513	23,333
11 Madras	9,993	9,827	4,453	24,273
12 Nellore	3,627	2,579	963	7,169
13 Chingleput	1,416	2,579	3,564	7,559
14 Chittoor	9,501	8,900	3,592	22,366
15 North Arcot	10,347	8,427	4,532	26,081
16 South Arcot	7,999	13,550	26,675	47,459
17 Tanjore	7,886	12,898	5,238	25,922
18 Tiruchirappalli	4,330	6,185	10,650	23,380
19 Madurai	2,481	10,249	9,879	22,609
20 Ramanathapuram	9,475	14,329	3,129	26,933
21 Tirunelveli	4,038	7,673	1,395	13,110
22 Salem	7,164	12,380	22,294	44,461
23 Coimbatore	9,693	12,474	215	22,382
24 Nilgiris, The	348	734	215	1,297
25 Malabar	6,768	7,582	4,015	18,365
26 South Kanara	987	854	925	2,766
Total ..	151,518	191,363	135,589	478,470

ANNEXURE K.

Number of cases of malaria and filariasis treated in hospitals in 1952

Serial number and district.	Malaria.	Filariasis.
1 Srikakulam	116,710	9,081
2 Visakhapatnam	74,448	6,024
3 East Godavari	26,946	2,579
4 West Godavari	61,307	1,009
5 Krishna	68,529	465
6 Guntur	86,485	86
7 Bellary	40,958	152
8 Anantapur	98,287	18
9 Kurnool	61,624	140
10 Cuddapah	53,785	14,777
11 Madras	30,836	639
12 Nellore	19,442	6,025
13 Chingleput	27,011	1,265
14 Chittoor	36,170	2,929
15 North Arcot	24,241	10,911
16 South Arcot	17,769	26,640
17 Tanjore	18,163	1,436
18 Tiruchirappalli	23,412	56
19 Madurai	25,196	282
20 Ramanathapuram	32,031	162
21 Tirunelveli	107,460	311
22 Salem	71,578	259
23 Coimbatore	19,229	4
24 Nilgiris, The	52,193	12,020
25 Malabar	40,005	2,188
26 South Kanara		
Total	1,231,595	99,159

ANNEXURE L.

Tabular statement showing the results of some of filariasis surveys conducted in the State by the Malaria Bureau during 1952.

District and locality.	Filariasis infection rate per cent.	Filariasis disease rate per cent.	Mosquito infection rate per cent.
(1)	(2)	(3)	(4)
Tanjore district—			
Kandiyur Panchayat	17.0	9.5	1
Mayuram Municipality	7.8	0.98	1
Udayalur Panchayat	22.3	7.8	3
Mudikondan	12.0	14.0	
Tiruchirappalli district—			
T'Palur Panchayat	8.9	5.8	
Chingleput district—			
Tambaram Panchayat	7.7	1.9	2
Kattur Panchayat	9.2	15.0	1
Ambattur	1.3	3.7	
Nellore district—			
Allur Panchayat	1.5	0.1	
Guntur district—			
Kollur Panchayat	6.3	Nil.	1
East Godavari district—			
Kakinada Municipality	15.7	(0.3 to 4.2)	
Ambajipeta	23.5	11.9	1
Peddapudi	19.5	8.1	
Samalkota	10.9	2.8	
Gollalamamidi	15.8	7.1	1
Pithapuram	7.1	6.4	
West Godavari district—			
Razole	7.2	3.1	
Attili	10.1	3.2	
Achanta	25.0	(Between 10.6 & 18.8)	
Visakhapatnam district—			
Vizianagaram	15.8	2.5	
Srikakulam district—			
Sompeta	16.6	12.5	

ANNEXURE M.

Malaria Control Schemes, 1952.

Schemes.	Area in square miles.	Villages.		Population.	Financed by
		Villages.	Hamlets.		
(1)	(2)	(3)	(4)	(5)	(6)
Sundalious	149	70	41	105,168	State.
Chinnad Scheme. Hydro-Electric	30	18	14	11,100	Do.
Wu Valley	120	118	..	12,506	Do.
deru	245	245	..	22,145	Do.
Chinnadavipeta	514	138	..	28,794	Do.
Chinnadavipeta	208	52	..	4,981	Do.
Chinnadavipeta	590	139	8	35,273	Do.
Chinnadavipeta	694.8	229	..	49,694	State and District Board.
Chinnadavipeta	100	14	5	30,638	State.
Chinnadavipeta	175	161	..	46,587	Do.
Chinnadavipeta	59	11	25	5,651	State and Mica Mining Welfare Fund.
Chinnadavipeta	35	25	99	40,000	Devasthanam Funds.
Chinnadavipeta	1	1	..	3,357	State and District Board.
Chinnadavipeta	1,200	148	..	192,728	State.
Chinnadavipeta	250	95	150	173,931	State and District Board.
Chinnadavipeta	95	52	..	33,280	Do.
Chinnadavipeta	600	110	..	24,786	Do.
Chinnadavipeta	1,535	278	1,133	417,309	Do.
Chinnadavipeta	166	31	115	29,000	State.
Chinnadavipeta	15	10	..	15,000	State and District Board.
Chinnadavipeta	75	13	72	21,305	State.
Chinnadavipeta	4	1	..	15,000	Do.
Chinnadavipeta	120	64	..	200,000	Do.
Chinnadavipeta	390	30	..	125,733	State and District Board.
Chinnadavipeta	231	52	..	58,004	State.
Chinnadavipeta	64	4	..	25,134	Do.
Chinnadavipeta	700	22	3	135,340	State and District Board.
Chinnadavipeta	1,010	155	..	140,000	State.
Chinnadavipeta	52	19	46	17,229	State and District Board.
Chinnadavipeta	5	8	..	2,684	State and Municipality.
Chinnadavipeta	6	2	..	123,829	Do.
Chinnadavipeta	4	1	..	27,446	Do.
Chinnadavipeta	6	1	..	7,000	Do.
Chinnadavipeta	27	1	..	31,387	State and District Board.
Chinnadavipeta	7.5	4	..	5,174	Do.
Chinnadavipeta	17	12	2	2,185	Do.

ANNEXURE N.

Maternity and Child Health Facilities, 1952.

	Districts (exclusive of municipalities).	Municipalities.
1 Area	122,413	446
2 Finance—		
(a) Income of local bodies	Rs. 6,95,60,593	Rs. 7,60,72,767
(b) Amount spent on maternal and child health.	Rs. 5,00,515	Rs. 24,85,941
(c) Proportion	0.72	3.27
3 Institutional—		
(a) Centres—		
Government	5	..
Local bodies	315	190
Private	56	13
(b) Homes—		
Government	7	..
Local bodies	3	52
(c) Maternity beds—		
Government	831	1,271
Local bodies	325	607
Private	553	1,195
4 Personnel—		
(a) Medical women—		
Maternal and Child Health schemes (Government and Local bodies).	26	92
Hospitals	165	219
Private	48	146
(b) Health visitors—		
Maternal and Child Health schemes (Government and Local bodies.)	35	106
Hospitals (Government and Local bodies).	..	17
Private	2	5
(c) Maternity Assistants—		
Maternal and Child Health schemes (Government and Local bodies).	386	723
Institutional (Government and Local Fund Dispensaries).	928	430
Institutions (private)	260	170
Private practice	21	309
(d) Resident matrons—		
Maternal and Child Health schemes ..	1	13
(e) Compounders—		
Maternal and Child Health schemes ..	..	8
5 Adequacy—		
Total births	1,425,465	289,244
Live births	1,417,953	278,482
Still births	7,512	10,762
Proportion per 1,000 births—		
Medical women	0.168	1.58
Maternity Assistants	1.19	5.64
Maternity beds	1.20	10.62
Births which received skilled attention ..	299,685	269,259
Proportion to total	21.0	93.0
Infant mortality rate	106.4	117.4
Maternal mortality rate	5.48	8.51

ANNEXURE O.

Maternal and Child Health Services Outturn, 1952.

	Districts (exclusive of municipalities).	Municipalities.	Total.
brought under care—	160,711	223,269	383,980
total number of mothers	116,068	205,088	321,156
re-natal	58,339	111,698	170,037
about	58,947	189,857	248,804
infants	13,680	45,132	58,812
re-school	..	..	..
Home visits—	34,695	99,581	134,276
a) Women Medical Officers	..	..	..
b) Health visitors—	46,027	100,140	146,167
Pre-natal	26,893	69,744	96,637
Post-natal	50,629	202,700	253,329
Infants	..	..	..
c) Maternity Assistants—	293,971	557,519	851,490
Pre-natal	290,334	703,641	993,975
Post-natal	123,541	204,312	327,853
Infants	..	..	..
6. Clinics—	4,477	23,968	28,445
Number held	43,804	356,826	400,630
Pre-natal	85,933	350,879	436,812
Infants	26,163	141,069	167,232
Pre-school	30,034	332,469	362,503
Nursing mothers	..	..	..
7. Other activities—			
Mother classes—	6,675	6,452	13,109
Number held	70,935	148,703	219,638
Attendance	..	..	..
8. Lantern lectures—	666	995	1,661
Number given	12,423	52,023	64,446
Attendance	..	..	..
Schools visited for health education—	985	1,455	2,440
Number of health talks given in schools ..	54,335	125,475	179,810
Attendance	..	..	..

Maternity and Child Health Staff, 1952.

Districts.	Centres maintained by				Women Medical Officers.				Health visitors.				Maternity Aids.	
	Government.		Local bodies.		Government.		Local bodies.		Government.		Local bodies.		Government.	
	R	U	R	U	R	U	R	U	R	U	R	U	R	U
Srikakulam	..	..	1	2	..	..	1	..	..	..	..	..	..	..
Vizakhapatnam ..	..	..	9	7	..	..	1	2	..	..	1	2	..	..
East Godavari	..	..	6	9	..	..	1	4	..	..	1	3	3	..
West Godavari	1	..	24	3	..	..	2	1	..	..	2	1	1	..
Krishna	..	..	15	9	..	..	1	4	..	..	2	4	..	..
Guntur	..	..	9	8	..	..	1	2	..	..	2	6	..	..
Nellore	..	..	3	2	..	..	..	1	..	..	..	1	..	..
Cuddapah	..	..	5	2	..	..	1	..	..	..	1	1	..	..
Kurnool	..	..	4	2	..	..	1	..	..	..	1	1	6	..
Bellary	..	..	6	5	..	..	1	2	..	..	..	4	..	..
Anantapur	..	..	8	5	..	..	1	2	..	..	1	3	..	..
Chittoor	..	..	21	4	..	..	1	2	..	..	1	2	..	..
North Arcot	..	..	14	7	..	..	1	1	..	..	..	1	4	..
Chingleput	7	..	21	6	1	..	2	1	4	..	..	1	10	..
Madras	..	..	..	30	1	..	29	..	..	..	30	..	..	..
South Arcot	..	..	12	12	..	..	1	3	..	..	1	1	..	..
Tanjore	..	..	27	13	..	..	2	3	..	..	4	3	..	..
Tiruchirappalli ..	..	..	13	12	..	..	1	4	..	..	1	5	..	..
Madurai	..	..	17	18	..	..	1	9	..	..	3	13	..	..
Ramanathapuram ..	..	..	15	20	..	..	1	4	..	..	2	5	..	..
Tirunelveli	..	..	13	14	..	..	1	2	..	..	1	2	..	..
Salem	..	..	22	9	..	..	2	2	..	..	..	4	..	..
Coimbatore	..	..	14	17	..	..	2	6	..	..	2	11	9	..
The Nilgiris	..	..	6	6	..	..	..	2	..	..	..	2	..	..
South Malabar	4	..	7	6	..	..	..	..	4	..	..	1	12	..
North Malabar	..	..	8	7	..	..	1	2	..	..	..	1	..	..
South Kanara	..	..	18	7	..	..	1	1	..	..	2	2	..	..
Total	12	..	318	242	2	..	24	92	9	..	26	106	51	..

R = Rural. U = Union.

R = Rural.

U = Union.

ANNEXURE Q.

Statements showing particulars in regard to Health Administrations of minor ports of Madras State for the year 1952.

Incoming vessels.

[illegible]

APPENDIX

VITAL STATISTICS OF THE

No. I.—Births registered in districts

Serial number.	Estimated mid-year population for 1952.			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	1,015,000	1,089,000	2,034,000	Srikakulam Plains	1,015,000	1,089,000	2,034,000
2	947,000	975,000	1,923,000	Visakhapatnam Plains	947,000	975,000	1,923,000
3	1,123,000	1,126,000	2,249,000	Godavari, { Plains	1,123,000	1,126,000	2,249,000
	106,000	104,500	210,500	East, { Agency	106,000	104,500	210,500
4	815,200	815,700	1,630,900	Godavari, { Plains	815,200	815,700	1,630,900
	49,600	49,300	98,900	West, { Agency	49,600	49,300	98,900
5	926,000	898,000	1,824,000	Krishna	926,000	898,000	1,824,000
6	1,310,000	1,277,000	2,586,000	Guntur	1,310,000	1,277,000	2,586,000
7	644,200	623,000	1,267,200	Bellary	644,200	623,000	1,267,200
8	714,200	673,000	1,387,200	Anantapur	714,200	673,000	1,387,200
9	49,000	632,000	1,232,000	Kurnool	49,000	632,000	1,232,000
10	602,000	574,000	1,176,000	Cuddapah	602,000	574,000	1,176,000
11	774,000	713,000	1,488,000	Madras	774,000	714,000	1,488,000
12	915,000	905,000	1,819,000	Nellore	915,000	905,000	1,819,000
13	949,000	922,000	1,871,000	Chingleput	949,000	922,000	1,871,000
14	936,000	898,000	1,834,000	Chittoor	936,000	898,000	1,834,000
15	1,446,000	1,451,000	2,897,000	North Arcot	1,446,000	1,451,000	2,897,000
16	1,401,000	1,398,000	2,799,000	South Arcot	1,401,000	1,398,000	2,799,000
17	1,497,000	1,452,000	3,039,000	Tanjore	1,497,000	1,452,000	3,039,000
18	1,481,000	1,504,000	2,985,000	Tiruchirappalli	1,481,000	1,504,000	2,985,000
19	1,470,000	1,482,000	2,951,000	Madurai	1,470,000	1,482,000	2,951,000
20	1,002,000	1,092,000	2,094,000	Ramanathapuram	1,002,000	1,092,000	2,094,000
21	1,201,000	1,271,000	2,473,000	Tirunelveli	1,201,000	1,271,000	2,473,000
22	1,725,000	1,714,000	3,439,000	Salem	1,725,000	1,714,000	3,439,000
23	1,686,000	1,672,000	3,358,000	Coimbatore	1,686,000	1,672,000	3,358,000
24	170,700	154,700	325,300	Nilgiris, The	170,700	154,700	325,300
25	2,370,000	2,499,000	4,869,000	Malabar	2,370,000	2,499,000	4,869,000
26	855,000	924,000	1,779,000	South Kanara	855,000	924,000	1,779,000
	27,500	26,200	53,800	* Srikakulam Agencies	..	..	..
	92,500	80,700	182,200	* Visakhapatnam Agencies.	..	..	..
	23,901,000	29,071,000	57,973,000	Total	23,781,000	28,956,000	57,737,000
	..	..	..	† Urban areas	..	..	10,929,000
	..	..	..	† Rural areas	..	..	46,808,000

* No proper system of registration.

† Municipalities and rural towns.

ES.

RURAL POPULATION.

in the State during the year 1952.

or of births registered (excluding still-births).			Ratio of births per 1,000 of estimated mid-year population.			Average of the ratios published for the previous five years.		
Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
32,406	31,916	65,412	16.08	15.32	31.40	16.33	15.45	31.78
29,988	28,458	58,896	15.67	14.80	30.37	14.31	13.28	27.59
23,438	25,978	54,416	12.64	11.55	24.20	14.67	13.13	27.80
3,510	3,290	6,800	16.67	15.62	32.29	15.35	14.46	29.81
22,706	21,647	44,383	13.95	13.28	27.23	16.50	15.37	31.87
1,654	1,633	3,287	16.72	16.51	33.24	16.85	15.75	32.48
17,881	25,716	53,097	15.01	14.10	29.11	16.19	15.11	31.30
17,320	35,845	73,165	14.43	13.86	28.29	18.11	17.16	35.27
21,640	20,303	41,943	17.08	16.02	33.10	19.16	18.03	37.19
25,098	23,466	48,564	18.10	16.92	35.02	16.78	15.98	32.53
23,771	22,416	46,187	18.54	17.49	36.03	14.35	13.47	27.83
16,027	15,026	31,053	13.63	12.78	26.41	24.41	23.31	49.72
32,334	30,587	62,921	21.73	20.56	42.29	14.97	13.17	27.26
25,587	23,958	49,545	14.07	13.17	27.24	14.79	13.93	29.76
26,854	25,237	52,121	14.37	13.49	27.88	14.33	13.48	27.81
23,289	21,804	45,093	12.70	11.89	24.59	16.44	15.56	32.01
46,554	43,693	90,247	16.07	15.08	31.15	14.83	13.97	28.79
35,315	33,584	69,399	12.80	12.00	24.79	14.38	13.48	27.84
39,748	37,356	77,104	13.08	12.29	25.37	14.37	13.72	27.99
39,799	37,356	77,342	13.33	12.58	25.91	15.20	14.24	29.33
41,983	38,326	80,809	14.23	13.16	27.38	15.08	14.21	29.29
30,929	28,910	59,839	14.77	13.81	28.58	16.05	15.14	27.75
41,056	39,127	80,183	16.60	15.82	32.43	14.82	14.03	28.59
45,348	42,264	87,607	13.18	12.29	25.47	14.76	13.82	28.58
46,200	43,082	89,282	13.76	12.83	26.59	16.47	15.39	31.86
5,594	5,481	11,025	17.20	16.70	33.89	17.26	16.56	33.02
87,288	82,660	169,948	17.93	16.93	34.90	17.95	17.11	35.08
34,691	32,576	67,267	19.50	18.31	37.81	..	..	..
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
74,108	822,332	1,606,435	15.14	14.24	29.38	15.85	14.94	30.79
92,085	181,010	373,045	17.57	17.56	34.12	19.50	18.35	37.85
682,663	641,322	1,323,390	14.57	13.70	28.27	15.24	14.34	29.58

† Districts exclusive of municipalities and rural towns.

No. II.—Statement showing deaths registered in the districts in the State of Saurashtra during the year 1952.

Municipalities.	Still-borns.										
	Hindus.		Muslims.		Christians.		Other classes.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Total of all municipalities ..	4,884	4,035	683	519	288	273	4	8	5,909	4,853	10,762

Districts.	(1)	(2)	(3)	(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).		
					Area in square miles.	popula- tion per square mile.	Males.	Females.	Total.	Males.	Females.	Total.	Males.			Females.	Total.
1 Srikakulam	3,337	615.23	19,618	19,076	39,394	19.32	18.41	18.86	20.75	19.63	20.05	327	4.98				
2 Visakhapatnam	9,565	749.54	18,490	17,927	36,417	19.82	18.39	18.94	20.75	19.63	20.05	309	5.26				
3 Godavari, East Agency	2,647	349.74	15,577	14,787	30,364	18.87	18.13	18.50	17.73	17.06	17.40	378	6.89				
4 Godavari, West Agency	2,432	67.24	1,863	1,818	3,681	17.56	17.40	17.48	20.08	19.25	18.77	36	5.29				
5 Krishna	3,438	182.09	977	986	1,963	16.58	16.17	16.38	18.63	19.17	19.94	414	9.5				
6 Guntur	3,469	525.85	13,486	13,164	26,650	19.70	20.00	19.85	22.18	21.28	21.94	35	10.58				
7 Bellary	5,735	446.31	20,277	18,794	39,071	14.56	14.66	14.61	17.86	17.68	17.77	454	8.47				
8 Anantapur	5,732	215.78	10,226	9,513	19,739	15.44	14.72	15.09	17.88	17.14	17.62	438	5.91				
9 Kurnool	7,993	205.96	11,961	11,427	23,388	16.75	16.98	16.86	22.05	21.90	20.98	225	5.81				
10 Cuddapah	5,933	102.36	12,286	11,753	24,044	18.93	18.60	18.76	20.03	20.69	20.37	416	8.52				
11 Madras	5,502	198.51	8,421	8,049	16,463	18.99	14.01	16.50	22.35	21.34	21.85	372	7.98				
12 Nellore	7,042	229.09	22,158	21,049	43,207	28.63	29.48	29.05	32.41	30.70	32.74	155	24.40				
13 Chingleput	2,054	612.64	17,432	13,461	30,893	15.81	14.87	15.35	17.16	16.10	16.64	266	5.31				
14 Chittoor	2,951	308.20	14,568	13,493	28,061	18.37	17.92	17.85	20.14	19.23	19.78	214	4.06				
15 North Arcot	4,871	820.15	26,894	25,173	52,067	18.60	17.85	17.97	19.12	18.42	18.77	393	4.29				
16 South Arcot	3,738	905.68	22,943	21,736	44,679	16.38	15.55	15.94	18.15	18.13	18.12	619	8.83				
17 Tiruchirappalli	5,173	512.89	20,794	20,953	41,747	18.89	14.43	18.74	19.62	18.94	19.14	472	6.02				
18 Madurai	4,883	514.42	27,035	26,859	53,894	18.35	17.86	18.15	18.70	18.41	18.56	789	10.10				
19 Ramana-thapuram	4,951	434.38	22,953	22,973	45,926	16.31	15.38	15.91	18.75	17.59	18.17	377	4.62				
20 Tirunelveli	4,842	531.66	17,711	18,105	35,816	17.68	16.8	17.20	19.37	17.40	18.57	280	4.62				
21 Salem	7,073	569.51	22,322	22,162	44,484	18.59	17.44	17.99	22.18	20.61	21.40	546	6.75				
22 Coimbatore	7,191	487.18	21,861	20,930	42,791	18.67	19.21	19.44	14.12	13.68	14.00	460	5.20				
23 Nilgiris, The	1,959	328.52	19,971	19,031	39,002	11.85	11.88	11.61	16.18	16.23	16.40	194	2.15				
24 Malabar	5,760	328.95	2,156	4,310	12,63	13.92	13.92	13.92	14.98	16.25	15.41	29	2.58				
25 Malabar	5,760	82.91	29,782	28,874	58,656	18.57	11.65	12.05	16.42	14.38	14.90	695	4.06				
26 South Kanara	4,045	439.82	11,818	12,185	24,003	18.82	13.19	13.49	16.42	15.66	15.99	288	4.22				
Total	124,652	463.18	462,536	445,890	908,426	15.49	15.40	15.73	18.58	17.86	18.21	9,717	5.67				
Urban areas	..	..	102,680	97,313	199,993	..	..	13.80	..	..	21.01	2,545	6.61				
Rural areas	..	..	359,856	348,577	708,433	..	..	15.13	..	..	17.66	7,172	5.39				

No. IV.—Deaths registered according to ages in the State of Madras during the year 1952—cont.

Municipalities and rural towns in the districts of	20 and under 30 years.		30 and under 40 years.		40 and under 50 years.		50 and under 60 years.		60 years and upwards.		Total of all ages.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1 Srikulam ..	(27)	(28)	(20)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
2 Vellore ..	109	103	89	80	132	81	126	84	257	308	1,270	1,199
3 West Godavari ..	237	230	254	198	287	165	272	183	668	690	3,193	3,193
4 East Godavari ..	222	231	231	194	250	209	282	207	618	677	3,193	3,193
5 Krishna ..	139	136	133	170	171	121	181	115	518	491	1,901	1,901
6 Guntur ..	124	243	181	162	198	133	184	115	565	543	2,314	2,314
7 Bellary ..	260	322	233	293	283	199	324	203	832	882	3,808	3,808
8 Anantapur ..	141	208	180	136	204	101	324	83	411	335	2,172	2,172
9 Kurnool ..	91	139	170	93	114	54	121	60	291	235	1,349	1,349
10 Cuddapah ..	79	132	104	137	141	73	143	71	217	178	1,094	1,094
11 Madras ..	74	120	93	130	160	61	106	62	319	347	2,158	2,158
12 Nellore ..	1,379	1,649	1,389	1,304	1,608	1,069	1,749	1,157	3,419	3,447	20,049	20,049
13 Chingleput ..	174	206	186	156	210	123	180	124	464	457	2,095	2,095
14 Chittoor ..	219	275	189	215	232	192	279	165	698	678	3,154	3,154
15 North Arcot ..	61	125	80	98	115	77	122	66	309	240	1,161	1,161
16 South Arcot ..	343	456	371	390	393	239	479	235	1,115	1,336	5,365	5,365
17 Tanjore ..	155	208	201	231	213	196	238	186	696	1,358	2,899	2,899
18 Tiruchirappalli ..	350	562	471	432	570	430	608	381	1,439	1,583	4,793	4,793
19 Madurai ..	332	452	375	432	493	344	473	355	1,320	1,583	4,793	4,793
20 Ramanathapuram ..	481	639	481	523	614	453	683	496	1,320	1,583	4,793	4,793
21 Tirunelveli ..	342	330	293	400	384	272	356	268	1,199	1,351	5,774	5,774
22 Salem ..	267	416	358	400	213	310	278	252	699	690	3,242	3,242
23 Coimbatore ..	323	272	236	406	425	310	415	319	1,177	1,144	5,774	5,774
24 Nilgiris, The ..	38	53	44	38	45	37	67	37	144	147	771	771
25 Malabar ..	303	352	377	317	438	294	359	231	805	920	4,253	4,253
26 South Kanara ..	129	119	129	117	143	72	146	104	431	400	1,652	1,652
Total for municipalities and rural towns.	6,614	8,628	7,117	7,214	8,499	5,832	8,802	5,854	20,316	20,492	1,02,631	97,812
Rate per 1,000 live births for age periods under one year.	..	..	..	..	..	..	..	..	..	..	..	..
Total for the State	22,082	30,115	27,563	30,404	36,412	28,560	36,924	29,895	117,854	115,441	462,536	445,890
Rate per 1,000 live births for age periods under one year.	..	..	..	..	..	..	..	..	..	..	..	..

REPORT ON THE HEALTH CONDITIONS IN MADRAS
No. IV-A.—Infantile deaths according to communities in the municipalities in the State of Madras during the year 1952.

Municipalities.	Hindus.		Muslims.		Christians.		Others.		Total.	
	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.
Srikulam district—										
Srikulam ..	55	71.99	4	142.86	1	111.11	..	..	59	73.57
Chittoor ..	75	141.78	..	..	..	..	..	..	76	140.22
Chingleput district—										
Chingleput ..	490	144.56	1	8.54	2	17.24	..	..	499	136.19
Vijayanagara ..	305	142.92	14	144.32	1	83.33	..	..	320	142.67
Annapur ..	318	234.86	2	222.22	3	750.00	..	..	323	238.29
Shenmunipattanam ..	48	114.29	..	..	1	125.00	..	..	49	111.36
West Godavari district—										
Kadapa ..	465	151.55	12	65.93	2	139.86	..	..	479	141.17
Rajahmundry ..	360	115.31	17	111.84	9	52.82	..	..	386	112.01
Paddapuram ..	97	144.78	..	..	1	40.00	..	..	98	137.45
Annapur ..	67	114.1	4	81.8	1	125.00	..	..	72	111.6
East Godavari district—										
Kuru ..	156	81.42	8	58.82	..	..	..	..	164	76.10
Palacole ..	65	118.22	2	200.00	4	90.91	..	..	91	117.72
Bhuvanagiri ..	60	74.35	2	43.43	3	26.79	..	..	65	67.36
Krishna district—										
Vijayavada ..	353	111.78	26	51.59	24	57.14	..	..	403	98.72
Kanulipattanam ..	252	106.02	25	31.07	2	27.78	..	..	279	101.31
Ondivada ..	136	142.20	4	54.05	7	74.47	..	..	147	130.78
Guntur district—										
Guntur ..	371	89.51	71	73.27	66	90.09	..	..	508	87.89
Tenali ..	101	102.61	21	116.02	13	69.51	..	..	135	100.67
Onole ..	141	135.97	10	137.68	19	100.00	..	..	179	131.14
Karasaopet ..	66	130.18	19	125.83	6	86.96	..	..	91	125.17
Chitral ..	78	124.20	5	55.56	0	40.28	..	..	89	102.65
Repalle ..	41	92.3	8	111.1	5	100.00	..	..	54	95.4
Bellary district—										
Bellary ..	180	107.85	30	110.80	7	87.5	..	..	267	108.05
Adoni ..	102	83.33	31	54.10	..	..	1	142.9	134	73.18
Hoopet ..	138	129.31	36	96.51	1	35.56	..	..	175	119.95
Anantapur district—										
Anantapur ..	52	60.68	14	37.94	2	51.28	..	..	68	53.75
Hindapur ..	50	90.42	14	58.58	..	..	..	..	64	79.01
Tadipatri ..	45	104.41	24	114.29	..	..	..	..	69	105.67
Gumakal ..	56	105.46	12	43.64	0	133.33	..	..	74	86.96
Kurnool district—										
Kurnool ..	159	81.16	103	86.48	1	0.67	..	..	263	79.70
Kandyal ..	58	90.08	35	67.57	11	93.22	..	..	104	81.25
Cuddapah district—										
Cuddapah ..	68	84.80	39	60.19	..	..	..	..	107	69.80
Proddatur ..	129	132.04	35	90.44	10	111.11	..	..	174	119.67
Madras district—										
Madras ..	8,775	160.20	1,112	211.60	421	146.20	..	..	10,308	164.09
Madure district—										
Madure ..	450	136.99	67	124.07	30	114.07	..	..	547	133.81
Madure ..	15	58.14	1	33.33	1	62.50	..	..	..	55.92

No. IV-A.—Infantile deaths according to communities in the municipalities in the State of Madras during the year 1952—cont.

Municipalities.	Hindus.		Muslims.		Christians.		Others.		Total.
	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	
Chingleput district—									
Kancheepuram ..	529	145.97	21	155.56	2	54.05	..	..	552
Tiruvallur ..	63	112.30	9	195.65	4	23.57	..	..	76
Chingleput ..	98	86.42	6	89.55	3	76.92	..	..	107
Chittoor district—									
Chittoor ..	141	103.91	0	59.21	3	90.91	..	..	153
Tirupathi ..	80	95.53	0	66.77	..	..	..	..	80
North Arcot district—									
Vellore ..	507	117.20	122	144.55	11	41.67	1	..	641
Tiruvannamalai ..	148	121.41	13	74.29	3	66.67	..	..	164
Gudiyattam ..	176	111.18	38	138.18	1	58.82	..	..	215
Vaniyambadi ..	94.30	115	160.97	2	86.96	..	..	..	163
Tiruppattur ..	53	71.08	25	72.67	..	..	..	..	83
Walajahpet ..	71	171.08	10	153.85	..	..	..	..	81
Ambur ..	81	96.31	42	70.95	2	35.09	1	..	126
Arni ..	163	137.21	3	48.39	..	..	..	..	166
South Arcot district—									
Cuddalore ..	193	69.25	15	88.76	8	105.26	24	114.80	240
Chidambaram ..	103	69.83	7	87.50	1	100.00	..	..	111
Villupuram ..	121	88.58	14	91.56	6	53.57	..	..	141
Tindivanam ..	54	86.82	7	97.22	..	..	17	136.00	78
Tanjore district—									
Tanjore ..	364	93.69	26	125.00	29	97.00	..	..	419
Kumbakonam ..	268	81.04	19	108.57	9	56.25	1	200.00	297
Nagapattinam ..	133	80.90	85	213.57	13	149.43	..	..	231
Mayuram ..	168	96.16	6	176.47	6	117.65	..	..	180
Mannargudi ..	116	74.41	7	92.10	3	69.77	..	..	126
Tiruvarur ..	62	58.77	8	60.61	..	..	..	..	70
Tiruchirappalli district—									
Tiruchirappalli ..	454	85.00	95	97.24	43	47.95	..	..	597
Karur ..	127	104.01	11	120.88	7	152.17	..	..	145
Srirangam ..	106	93.97	1	142.85	3	200.00	..	..	110
Pudukkottai ..	80	61.59	13	64.67	1	20.00	..	..	94
Madurai district—									
Madurai ..	1,313	129.49	91	100.22	70	84.03	..	..	1,974
Dindigul ..	219	111.62	21	53.85	44	86.27	..	..	284
Bodinayakanur ..	137	105.30	1	14.29	3	69.77	..	..	141
Periyakulam ..	123	113.36	14	70.35	16	144.14	..	..	153
Palni ..	131	112.35	16	119.05	2	66.67	..	..	149
Kodalkanal ..	13	91.55	9	204.55	19	78.84	7	100.00	48
Ramanathapuram district—									
Rajapalayam ..	206	93.80	4	67.80	5	125.00	..	..	215
Srivilliputtur ..	209	152.55	4	143.15	5	90.91	..	..	218
Virudunagar ..	190	94.91	13	156.63	16	144.14	..	..	219
Karaiikudi ..	156	121.68	11	85.27	..	..	..	..	167
Devakottai ..	117	96.94	12	187.50	5	121.95	..	..	134
Sivakasi ..	118	120.29	4	74.07	3	136.36	..	..	125
Aruppukottai ..	211	106.08	8	105.26	1	50.00	..	..	220
Tirunelveli district—									
Tuticorin ..	385	150.27	14	77.78	77	78.33	..	..	476
Tirunelveli ..	363	163.07	56	174.45	2	41.67	..	..	421
Palayamkottai ..	154	103.43	8	44.69	17	71.13	..	..	179
Melapalayam ..	47	106.02	123	211.70	1	125.60	..	..	171

No. IV-A.—Infantile deaths according to communities in the municipalities in the State of Madras during the year 1952—cont.

Municipalities.	Hindus.		Muslims.		Christians.		Others.		Total.	
	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.	Infant deaths.	Rate per 1,000 live-births.
Palani district—										
Palani ..	124	81.26	19	33.81	8	53.69	..	..	651	77.59
Ramapuram ..	86	119.28	6	122.45	..	..	..	..	92	119.17
Coimbatore district—										
Coimbatore ..	1,040	124.12	100	131.58	112	165.63	..	..	1,252	127.55
Erode ..	183	81.81	34	165.05	12	107.14	..	..	229	89.63
Tiruppur ..	158	80.53	11	57.29	3	34.88	..	..	172	81.75
Pollachi ..	214	125.83	29	193.33	5	102.04	..	..	248	130.60
Dharmapuri ..	52	95.24	5	42.74	5	102.04	..	..	62	87.08
Udumalpet ..	102	84.72	11	100.00	1	55.56	..	..	114	85.59
Metpalayam ..	61	71.43	12	81.08	1	38.46	..	..	74	71.98
Gobichettipalayam ..	75	83.84	2	44.44	..	..	..	..	77	80.12
The Nilgiris district—										
Ootacamund ..	163	125.00	27	115.38	32	73.39	..	..	217	112.20
Coonoor ..	85	110.68	0	77.59	21	66.46	..	..	115	94.73
Malabar district—										
Kozhikode ..	332	72.71	303	98.81	23	59.00	..	..	663	82.19
Palghat ..	227	111.11	45	103.45	10	121.95	..	..	282	110.16
Tellicherry ..	72	65.22	74	101.51	17	86.73	..	..	163	80.34
Cannanore ..	38	56.72	65	91.04	8	106.67	..	..	111	76.08
Cochin ..	19	50.55	33	82.71	45	55.08	..	..	97	62.50
South Kanara district—										
Mangalore ..	160	55.57	26	58.30	62	62.19	..	..	248	57.33
Udupi ..	71	86.90	8	95.24	6	53.57	..	..	85	83.91
Grand total ..	27,324	119.89	3,330	115.82	1,433	81.29	52	113.29	32,694	117.49

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1952—cont.

Serial number.	Districts and towns.	Deaths—cont.										Total deaths from all causes.	Serial number.
		Suicides.					Injuries.						
		Males.		Females.			Wounds and accidents.	Bites and killed by wild beasts.	Nabies.	Total.	(20)	(21)	(22)

B. TOWNS—cont.
Municipalities and Rural Towns—cont.

Srikalahasti.												
1	M.T.C. Srikalahasti	29	34	1	1	6	2	1	8	274	409	1
2	M.T.C. Sahr	36	44	1	1	1	1	1	1	141	329	2
3	T.C. Palakonda	19	37	1	1	1	1	1	1	125	281	3
4	T.C. Virachattam	7	10	1	1	1	1	1	1	3	41	4
5	T.C. Parasipur	7	10	1	1	1	1	1	1	99	238	5
6	T.C. Narasimhapeta	6	16	1	1	1	1	1	1	71	123	6
7	T.C. Kothapuram	21	35	1	1	3	1	1	1	62	153	7
8	T.C. Sompeta	16	14	1	1	1	1	1	1	45	131	8
9	T.C. Baruva	19	22	1	1	1	1	1	1	61	149	9
10	T.C. Mandasa	1	16	1	1	1	1	1	1	8	15	10
11	T.C. Tekkali	22	45	2	2	7	1	1	1	79	186	11
12	T.C. Bobbili	35	45	4	4	3	1	1	1	164	357	12
13	T.C. Rajam	2	4	1	1	3	1	1	1	32	62	13
Vickhoyyattam.												

Vishakapatnam.

1	M.T.C. Vishakapatnam	175	402	3	3	26	2	1	37	1,502	2,378	14
2	M.T.C. Vizianagaram	138	157	4	4	12	1	1	16	977	1,463	15
3	M.T.C. Anakapalle	96	155	1	1	9	1	1	17	597	1,159	16
4	M.T.C. Rheimunipatnam	26	31	1	1	1	1	1	3	120	181	17
5	T.C. Narasimhapatnam	1	3	1	1	1	1	1	1	105	185	18
6	T.C. Yellamanchilli	3	13	1	1	4	1	1	4	80	144	19
7	T.C. Srungavarapukota	11	18	1	1	2	1	1	5	75	147	20
8	T.C. Chodavaram	32	18	1	1	1	1	1	1	105	187	21
9	T.C. Madugula	6	5	1	1	1	1	1	1	88	129	22

Godavari, East.

1	M.T.C. Kakinada	128	115	2	2	21	1	1	3	1,209	1,709	23
2	M.T.C. Rajamahendravaram	105	140	1	1	2	1	1	2	1,340	1,939	24
3	M.T.C. Peddapuram	68	120	1	1	1	1	1	1	1,209	1,939	25
4	M.T.C. Rajamahendravaram	15	27	1	1	1	1	1	1	22	80	26
5	M.T.C. Rajamahendravaram	10	27	1	1	1	1	1	1	51	169	27
6	M.T.C. Rajamahendravaram	4	12	1	1	1	1	1	1	65	127	28
7	M.T.C. Rajamahendravaram	3	12	1	1	1	1	1	1	80	163	29
8	M.T.C. Rajamahendravaram	7	15	1	1	1	1	1	1	35	76	30

Godavari, West.

1	M.T.C. Kham	57	167	1	1	22	2	1	26	900	1,830	39
2	M.T.C. Palacole	30	115	1	1	1	1	1	3	227	348	40
3	M.T.C. Bhimavaram	57	90	1	1	1	1	1	1	142	367	41
4	M.T.C. Anaparthi	11	20	1	1	1	1	1	1	98	166	42
5	M.T.C. Anaparthi	14	44	1	1	1	1	1	1	107	220	43
6	M.T.C. Anaparthi	8	21	1	1	1	1	1	1	53	146	44
7	M.T.C. Anaparthi	9	21	1	1	1	1	1	1	189	284	45
8	M.T.C. Anaparthi	2	11	1	1	1	1	1	1	85	174	46
9	M.T.C. Anaparthi	2	13	1	1	1	1	1	1	92	155	47
10	M.T.C. Anaparthi	17	13	1	1	4	1	1	1	95	166	48
11	M.T.C. Anaparthi	7	11	1	1	1	1	1	1	92	190	49
12	M.T.C. Anaparthi	3	16	1	1	1	1	1	1	105	150	50
13	M.T.C. Anaparthi	9	6	1	1	1	1	1	1	108	152	51

Krishna.

1	M.T.C. Vijayavada	92	181	1	1	17	2	1	20	1,227	1,843	52
2	M.T.C. Machilipatnam	52	131	1	1	24	1	1	28	889	1,230	53
3	M.T.C. Gudivada	33	90	1	1	3	1	1	3	366	586	54
4	M.T.C. Jagtial	17	20	1	1	1	1	1	1	58	121	55
5	M.T.C. Jagtial	14	11	1	1	1	1	1	1	88	166	56
6	M.T.C. Jagtial	4	11	1	1	1	1	1	1	57	137	57
7	M.T.C. Jagtial	27	92	1	1	2	1	1	3	33	103	58
8	M.T.C. Jagtial	20	17	1	1	1	1	1	1	62	158	59
9	M.T.C. Jagtial	20	17	1	1	1	1	1	1	136	216	60

Guntur.

1	M.T.C. Guntur	172	299	1	1	41	3	1	55	1,491	2,485	61
2	M.T.C. Tenali	48	148	1	1	16	1	1	21	439	860	62
3	M.T.C. Ongole	60	95	1	1	17	1	1	21	476	705	63
4	M.T.C. Narasimhapet	21	17	1	1	3	1	1	2	322	64	64
5	M.T.C. Chirala	41	44	1	1	2	1	1	2	249	467	65
6	M.T.C. Chirala	15	17	1	1	2	1	1	2	221	221	66
7	M.T.C. Chirala	22	8	1	1	2	1	1	3	83	168	67
8	M.T.C. Chirala	9	7	1	1	2	1	1	3	107	149	68
9	M.T.C. Chirala	7	11	1	1	2	1	1	3	138	189	69
10	M.T.C. Chirala	17	22	1	1	3	1	1	3	133	248	70
11	M.T.C. Chirala	16	19	1	1	3	1	1	3	143	143	71
12	M.T.C. Chirala	16	19	1	1	3	1	1	3	153	153	72

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1952—cont.

Serial number.	Districts and towns.	(1)	Births.		(3)	Deaths.		(7)	Deaths.				Serial number.
			Males.	Females.		Total.	Birth-rate per 1,000 of population.	Cholera.	Smallpox.	Plague.	Malaria.	Fever.	
			(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
Municipalities and Rural Towns—cont.													
Guntur—cont.													
73	T.C. Sattenapalle	15,800	191	177	368	23.29						59	73
74	T.C. Kollipara	8,670	155	137	292	33.68						43	74
75	T.C. Kolluru	8,590	149	116	265	30.85						23	75
76	T.C. Allurkotapattanam	9,060	120	95	215	23.73						37	76
77	T.C. Repalle	14,600	235	190	425	29.11						35	77
78	T.C. Chilikalupet	11,900	92	81	173	14.54						48	78
79	T.C. Gurzala	7,680	125	149	274	34.51						23	79
80	T.C. Bhattiprolu	14,700	210	214	424	28.84						44	80
81	T.C. Chirangipuram	7,710	124	133	257	33.83						33	81
Bellary.													
82	M.T.C. Bellary	72,200	1,300	1,171	2,471	34.22	16	5			20	23	82
83	M.T.C. Adoni	54,000	737	594	1,331	24.70	3	2			1	4	83
84	M.T.C. Hospet	40,300	723	735	1,458	35.21	63				25	73	84
85	T.C. Rayadurg	20,300	342	328	670	33.17						29	85
86	T.C. Hadagalli	7,260	163	137	300	40.77						43	86
87	T.C. Yemuganur	16,300	209	225	434	26.63						21	87
88	T.C. Koesigi	11,000	202	192	394	35.80						156	88
89	T.C. Harpanahalli	14,500	253	239	492	33.93						33	89
90	T.C. Tekkalakota	7,760	70	68	138	17.50						14	90
91	T.C. Kampli	8,430	119	96	215	25.32	7				9	98	91
92	T.C. Kotturu	10,000	174	181	355	35.50	1					41	92
93	T.C. Siruguppa	7,190	62	53	115	15.99	3					5	93

Anantapur.

94	M.T.C. Anantapur	33,300	655	610	1,265	37.99	33					41	94
95	M.T.C. Hindupur	25,200	544	485	1,029	40.83	1					19	95
96	M.T.C. Channarayana	15,300	244	225	469	30.63						5	96
97	T.C. Gooty	15,000	244	220	464	31.18						104	97
98	T.C. Kadiri	15,100	240	220	460	30.46						17	98
99	T.C. Dharmavaram	7,010	98	84	182	26.11						103	99
100	T.C. Panikonda	6,730	110	91	201	29.87						104	100
101	T.C. Madakurra	6,560	115	83	198	30.18	2					105	101
102	T.C. Pamidi	8,450	121	134	255								

Kurnool.

106	M.T.C. Kurnool	62,200	1,495	1,605	3,100	53.06	11					22	106
107	M.T.C. Nandyal	34,300	724	556	1,280	37.32	42					12	107
108	T.C. Guntur	8,460	104	77	181	21.80	3					33	108
109	T.C. Giddalore	6,840	95	86	181	26.46						26	109
110	T.C. Kollunkula	7,280	173	138	311	43.68						61	110
111	T.C. Gudur	12,200	207	183	390	31.97	1					16	111
112	T.C. Markapur	11,100	92	76	168	15.14						89	112
113	T.C. Atmakur	10,500	124	88	212	19.71	2					10	113
114	T.C. Nandikotkur	10,100	125	116	241	23.86						117	114
115	T.C. Maddikeri	8,560	146	155	301	35.77						168	115
116	T.C. Patikonda	9,290	209	275	484	52.10						168	116
117	T.C. Kodumuru											117	117

Cuddapah.

118	M.T.C. Cuddapah	38,700	810	721	1,531	39.56	83					74	118
119	M.T.C. Proddatur	37,900	755	699	1,454	38.37	16					61	119
120	T.C. Rajampet	9,430	37	30	67	7.10						14	120
121	T.C. Jammalamadugu	12,900	309	259	568	44.03						102	121
122	T.C. Rayachoti	10,900	89	73	162	14.86	22					19	122
123	T.C. Vempalle	7,700	100	80	180	23.38						29	123
124	T.C. Nandalur	6,420	44	45	89	13.86	2					16	124
125	T.C. Kamalapuram	6,750	71	71	142	21.04	15					19	125
126	T.C. Badvel	7,270	94	84	178	24.48	2					22	126

Madras.

127	M.T.C. Madras	1,488,000	32,334	30,557	62,921	42.28	182	127			75	4,099	127
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Nellore.

128	M.T.C. Nellore	84,800	2,099	1,989	4,088	48.20	88	13				380	128
129	M.T.C. Gudur	21,100	172	132	304	14.39	15	25				37	129
130	T.C. Venkatagiri	7,610	133	114	247	32.17	9	1				38	130
131	T.C. Allur	8,810	96	73	173	19.64						23	131
132	T.C. Sullurpet	16,000	175	127	304	19.00						23	132
133	T.C. Kavali	7,170	61	54	108	15.06	2					7	133
134	T.C. Buchreddipalem	11,700	40	36	76	6.44						11	134
135	T.C. Kovuru	12,100	185	181	366	30.25						55	135
136	T.C. Kandukur	7,470	148	114	262	35.07	4					66	136
137	T.C. Nayadupet	8,530	156	143	299	34.85						34	137
138	T.C. Kanigiri												138

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1952—cont.

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REPORT ON THE HEALTH CONDITIONS IN													

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1952—cont.

Serial number.	Districts and towns.	Births.		Birth-rate per 1,000 of population.	Deaths.			
		(4) Males.	(5) Females.		(8) Cholera.	(9) Smallpox.	(10) Plague.	(11) Malaria.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
217	T.C. Vellam	8,310	121	106	296	25.65	0	8
218	T.C. Tiruvallur	11,600	127	113	240	20.69	1	217
219	T.C. Tiruvallur	11,500	205	208	591	51.39	6	10
220	T.C. Tiruvallur	10,000	146	120	248	24.80	1	218
221	T.C. Tiruvallur	7,130	232	194	496	69.83	1	219
222	T.C. Tiruvallur	12,200	152	144	296	24.26	1	220
223	T.C. Tiruvallur	6,930	163	156	519	74.79	1	221
224	T.C. Tiruvallur	6,870	103	98	201	29.11	1	222

B. TOWNS—cont.
MUNICIPALITIES AND RURAL TOWNS—cont.

Tiruvallur—cont.

Tiruvallur.

225	M.T.C. Tiruvallur	228,800	3,787	3,532	7,319	32.28	2	37
226	M.T.C. Tiruvallur	44,100	692	558	1,250	28.40	1	44
227	M.T.C. Tiruvallur	38,000	693	758	1,451	38.19	1	44
228	M.T.C. Tiruvallur	45,000	792	758	1,550	34.44	1	44
229	M.T.C. Tiruvallur	20,300	380	392	772	37.54	1	44
230	M.T.C. Tiruvallur	9,400	91	87	178	18.93	1	44
231	M.T.C. Tiruvallur	14,300	223	188	411	29.41	1	44
232	M.T.C. Tiruvallur	13,500	130	106	236	17.41	1	44
233	M.T.C. Tiruvallur	18,700	109	106	215	11.49	1	44
234	M.T.C. Tiruvallur	11,200	133	135	268	23.93	1	44
235	M.T.C. Tiruvallur	8,990	142	135	297	32.83	1	44
236	M.T.C. Tiruvallur	12,140	96	91	189	15.65	1	44
237	M.T.C. Tiruvallur	7,180	178	134	312	44.71	1	44
238	M.T.C. Tiruvallur	11,360	120	125	245	21.58	1	44
239	M.T.C. Tiruvallur	11,860	117	136	255	21.50	1	44
240	M.T.C. Tiruvallur	7,960	123	120	237	29.60	1	44
241	M.T.C. Tiruvallur	1,960	70	69	138	69.89	1	44
242	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
243	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44

244	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
245	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
246	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
247	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
248	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
249	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
250	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
251	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
252	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
253	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
254	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
255	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
256	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
257	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
258	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
259	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
260	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
261	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
262	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
263	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
264	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
265	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
266	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44
267	M.T.C. Tiruvallur	5,960	102	111	213	35.40	1	44

Ramanathapuram.

268	M.T.C. Ramanathapuram	62,800	1,162	1,190	2,352	36.50	1	121
269	M.T.C. Ramanathapuram	47,000	1,182	1,089	2,271	48.86	1	164
270	M.T.C. Ramanathapuram	47,000	728	724	1,452	31.24	1	113
271	M.T.C. Ramanathapuram	39,700	743	702	1,445	36.40	1	84
272	M.T.C. Ramanathapuram	38,500	671	635	1,306	33.82	1	34
273	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
274	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
275	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
276	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
277	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
278	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
279	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
280	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
281	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
282	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
283	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
284	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
285	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
286	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
287	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
288	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
289	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
290	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
291	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
292	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
293	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
294	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
295	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
296	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272
297	M.T.C. Ramanathapuram	35,500	671	635	1,306	37.46	1	272

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Serial number.

Total deaths from all other causes.

All other causes.

Total.

Rabies.

Snake-bite and killed by wild beasts.

Wounds and accidents.

Suicides.

Males.

Females.

Respiratory diseases.

Dysentery and

Districts and towns.

B. TOWNS—cont.

MUNICIPALITIES AND RURAL TOWNS—cont.

Tirunelveli.

297	M.T.C. Tuticorin	153	421	9	1	12	1,150	1,869	297
298	M.T.C. Tirunelveli	118	312	14	1	19	999	1,461	298
299	M.T.C. Palayamkottai	56	135	1	1	3	606	892	299
300	M.T.C. Melapalayam	66	129	1	1	3	317	644	300
301	T.C. Tenkasi	17	41	1	1	2	212	354	301
302	T.C. Kadayanallur	28	52	1	1	2	140	279	302
303	T.C. Pullyangudi	1	5	1	1	2	188	247	303
304	T.C. Kalidakkurichi	20	71	1	1	2	221	344	304
305	T.C. Viravanallur	20	12	1	1	2	336	536	305
306	T.C. Sernadevi	8	20	1	1	2	197	224	306
307	T.C. Ambasamudram	36	12	1	1	2	242	296	307
308	T.C. Tiruchendur	13	46	1	1	2	207	314	308
309	T.C. Sivagiri	4	9	1	1	2	85	233	309
310	T.C. Vasudevanallur	3	6	1	1	2	120	190	310
311	T.C. Surandai	17	11	1	1	2	186	174	311
312	T.C. Kulasekharapattanam	10	33	1	1	2	118	228	312
313	T.C. Kovilpatti	7	16	1	1	2	125	180	313
314	T.C. Srivillupattur	13	10	1	1	2	162	321	314
315	T.C. Nanguneri	7	10	1	1	2	174	216	315
316	T.C. Sankarankudi	13	18	1	1	2	166	242	316
317	T.C. Tachanallur	24	29	1	1	2	118	199	317
318	T.C. Kadalayam	35	33	1	1	2	58	166	318
319	T.C. Kavalpattam	13	9	1	1	2	102	208	319
320	T.C. Vikramasingampattanam	10	26	1	1	2	275	371	320
321	T.C. Vadakkuvalliyur	8	6	1	1	2	180	195	321
322	T.C. Pattanam	11	19	1	1	2	108	164	322
323	T.C. Alwarthirunagar	23	21	1	1	2	78	98	323
324	T.C. Kalugumalai	11	10	1	1	2	82	127	324
325	T.C. Karattur	9	4	1	1	2	96	192	325
326	T.C. Erat	1	1	1	1	2	52	102	326

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327	M.T.C. Salem	225	813	7	1	13	2,102	3,210	327
328	M.T.C. Radipuram	13	34	2	1	13	240	353	328
329	T.C. Edappadi	15	8	1	1	7	94	159	329
330	T.C. Dharmapuri	20	9	1	1	7	107	188	330
331	T.C. Kumarpalayam	7	13	1	1	4	101	161	331
332	T.C. Tiruchengode	6	10	1	1	2	79	119	332
333	T.C. Mettur Township	8	13	1	1	2	84	136	333
334	T.C. Taramangalam	19	14	1	1	2	115	226	334
335	T.C. Attur	17	6	1	1	2	100	170	335
336	T.C. Kaveripattanam	12	5	1	1	2	177	349	336
337	T.C. Sendamangalam	17	16	1	1	2	134	204	337
338	T.C. Harur	17	3	1	1	2	51	88	338
339	T.C. Namakkal	3	32	1	1	2	232	355	339
340	T.C. Hosur	29	1	1	1	2	2	2	340
341	T.C. Jalakantapuram	1	1	1	1	2	2	2	341
342	T.C. Krishnagiri	1	1	1	1	2	2	2	342
343	T.C. Salem	1	1	1	1	2	2	2	343
344	T.C. Coimbatore	1	1	1	1	2	2	2	344
345	T.C. Erode	1	1	1	1	2	2	2	345
346	T.C. Pollachi	1	1	1	1	2	2	2	346
347	T.C. Dharmapuri	1	1	1	1	2	2	2	347
348	T.C. Tiruppur	1	1	1	1	2	2	2	348
349	T.C. Udumalpet	1	1	1	1	2	2	2	349
350	T.C. Mettupalayam	1	1	1	1	2	2	2	350
351	T.C. Gobichettipalayam	1	1	1	1	2	2	2	351
352	T.C. Kollegal	1	1	1	1	2	2	2	352
353	T.C. Kunnamuthur	1	1	1	1	2	2	2	353
354	T.C. Kottur	1	1	1	1	2	2	2	354
355	T.C. Palladam	1	1	1	1	2	2	2	355
356	T.C. Bhavan	1	1	1	1	2	2	2	356
357	T.C. Avaneeshi	1	1	1	1	2	2	2	357
358	T.C. Vellalore	1	1	1	1	2	2	2	358
359	T.C. Singanailur	1	1	1	1	2	2	2	359
360	T.C. Satyamangalam	1	1	1	1	2	2	2	360
361	T.C. Sullur	1	1	1	1	2	2	2	361
362	T.C. Kurichi	1	1	1	1	2	2	2	362
363	T.C. Peelamedu	1	1	1	1	2	2	2	363
364	T.C. The Nilgiris	1	1	1	1	2	2	2	364
365	M.T.C. Ootacamund	71	223	5	1	18	456	762	365
366	M.T.C. Coonoor	32	109	1	1	12	252	412	366
367	T.C. Kotagiri	18	77	1	1	4	78	231	367
368	T.C. Wellington	17	19	1	1	4	43	80	368
369	M.T.C. Kozhikode	118	412	5	1	63	2,928	3,251	369
370	M.T.C. Palghat	106	208	1	1	32	928	1,372	370
371	M.T.C. Cannanore	27	59	1	1	2	455	1,000	371
372	M.T.C. Tellicherry	46	149	1	1	18	542	744	372
373	M.T.C. Coochin	59	104	1	1	11	311	513	373
374	M.T.C. Ponnai	5	26	1	1	6	318	381	374
375	M.T.C. Ponnai	5	26	1	1	6	318	381	375

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1952—cont.

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Serial number.	Districts and towns.	Births.			Deaths.								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Estimated population and returns for mid-year			Males.	Females.	Total.	Birth-rate estimated per 1,000 of mid-year population	Cholera.	Smallpox.	Plague.	Malaria.	Fever.
B. TOWNS—cont.													
Malabar—cont.													
376	T.C. Panthalayini	..	..	31,309	292	285	577	18.44	..	..	..	..	376
377	T.C. Badagara	..	..	24,100	187	166	353	14.66	..	..	..	..	16 377
378	T.C. Perole	..	..	21,200	877	853	1,730	83.16	..	..	..	..	17 378
379	T.C. Tirukandiyur	..	..	12,100	217	187	404	33.39	..	..	..	..	44 379
380	T.C. Tanur	..	..	19,000	192	171	363	19.10	..	..	..	..	8 380
381	T.C. Shoranur	..	..	12,000	162	153	315	26.25	..	..	..	..	5 381
382	T.C. Ottapalam	..	..	23,700	146	149	295	12.46	..	1	..	..	9 382
383	T.C. Manjeri	..	..	11,000	149	133	282	26.09	..	..	..	22	3 383
South Kanara.													
384	M.T.C. Mangalore	..	..	121,900	2,207	2,115	4,322	35.44	..	..	..	3	138 384
385	M.T.C. Udipi	..	..	20,800	495	478	1,013	48.71	..	..	..	2	48 385
386	T.C. Kasaragod	..	..	24,200	270	235	505	20.87	..	1	..	..	41 386
387	T.C. Coondapoor	..	..	17,000	178	188	366	21.53	..	..	..	..	33 387
388	T.C. Puttur	..	..	11,400	242	247	489	42.90	..	..	..	1	15 388
389	T.C. Karkal	..	..	14,500	199	164	363	25.04	..	..	..	..	21 389
390	T.C. Mulki	..	..	10,800	151	121	272	26.41	..	..	..	..	22 390
391	T.C. Bantwal	..	..	12,400	87	89	176	14.19	..	..	..	..	19 391
Total for Urban areas		..	..	10,929,000	192,035	181,010	373,045	34.13	2,878	983	0	1,226	24,404
Total for Rural areas		..	..	46,808,000	682,068	641,822	1,323,890	29.27	10,754	4,175	4	5,233	170,890
Total for the State		..	..	57,737,000	874,103	822,832	1,696,935	29.38	13,632	5,158	4	6,459	195,294

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Serial number.	Districts and towns.	Injuries.			Deaths.						
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		Dysentery and diarrhoea.	Respiratory diseases.	Males.	Females.	Wounds and accidents.	Snake-bites and killed by wild beasts.	Habits.	Total.	All other causes.	Total deaths from all causes.
<i>Malabar—cont.</i>											
376	T.C. Panthalayini	..	..	..	..	1	..	..	5	177	205
377	T.C. Badagara	..	..	..	..	..	..	..	..	103	165
378	T.C. Perole	..	..	..	..	..	..	..	..	186	182
379	T.C. Tirukandiyur	..	..	..	..	..	..	..	..	86	152
380	T.C. Tanur	..	..	..	..	..	..	..	..	91	139
381	T.C. Shoranur	..	..	..	..	..	..	..	..	74	139
382	T.C. Ottapalam	..	..	..	..	..	..	..	..	70	105
383	T.C. Manjeri	..	..	..	..	..	..	..	..	76	101
<i>South Kanara.</i>											
384	M.T.C. Mangalore	..	..	..	..	24	..	..	27	1,371	1,994
385	M.T.C. Udipi	..	..	..	..	6	..	..	9	238	265
386	T.C. Kasaragod	..	..	..	..	1	..	..	1	143	242
387	T.C. Coondapoor	..	..	..	..	..	..	..	2	80	142
388	T.C. Puttur	..	..	..	..	..	..	..	2	154	178
389	T.C. Karkal	..	..	..	..	..	..	..	1	66	94
390	T.C. Mulki	..	..	..	..	..	..	..	1	72	112
391	T.C. Bantwal	..	..	..	..	1	..	..	1	45	72
Total for Urban areas		..	..	336	273	2,205	169	119	3,102	114,574	199,968
Total for Rural areas		..	..	1,502	1,390	2,964	1,040	102	7,007	396,606	708,483
Total for the State		..	..	1,838	1,672	5,169	1,209	221	10,109	511,180	908,456

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

No. VI.—Births and deaths from different causes registered in the State of Madras during the year 1952—cont.

Serial number.	Districts and towns.	Death rate per 1,000 of estimated mid-year population.													Serial number.	
		Cholera.	Smallpox.	Plague.	Malaria.	Typhoid.	Dysentery.	Respiratory disease.	Injuries.	All other causes.	From all causes.		Average of published ratios for the previous five years.	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.																
Malabar—cont.																
376	T.C. Panthalayini	..	..	..	..	..	0.03	0.70	0.16	5.66	6.55	10.74	1	1.73	376	
377	T.C. Badagara	..	..	..	..	..	0.75	1.16	..	4.27	6.85	8.02	..	2.82	377	
378	T.C. Keroke	..	..	..	..	..	0.57	0.71	0.09	6.42	8.58	27.35	2	2.84	378	
379	T.C. Tirukandiyur	..	..	..	..	..	0.54	1.16	0.17	7.11	12.56	13.12	1	2.72	379	
380	T.C. Tanur	..	..	..	..	..	0.16	1.79	0.16	4.79	7.32	17.03	1	..	380	
381	T.C. Shoranur	..	..	..	..	..	0.42	0.92	0.23	6.17	7.92	11.30	..	..	381	
382	T.C. Ottapalam	..	0.04	..	..	..	0.13	0.55	0.21	2.95	4.26	10.83	..	..	382	
383	T.C. Manjeri	..	..	..	2.00	..	0.45	2.18	0.27	6.91	12.09	26.37	4	14.89	383	
South Kanara.																
384	M.T.C. Mangalore	..	..	..	0.02	1.13	0.75	2.98	0.22	11.24	16.35	21.84	10	4.50	384	
385	M.T.C. Udipi	..	..	..	0.10	2.31	0.91	2.36	0.43	11.44	17.55	21.38	9	8.55	385	
386	T.C. Kasargod	..	0.04	..	..	1.69	0.25	2.07	0.04	5.90	10.00	13.23	1	1.95	386	
387	T.C. Coondapoor	..	..	..	..	1.90	0.24	1.35	0.12	4.71	8.35	8.92	..	..	387	
388	T.C. Futtur	..	..	..	0.09	1.32	0.26	0.98	0.44	13.51	15.61	13.12	4	7.65	388	
389	T.C. Karkal	..	..	..	..	1.45	0.34	0.07	0.07	4.55	6.48	9.25	..	..	389	
390	T.C. Mulki	..	..	..	..	2.14	0.37	0.78	0.10	6.99	10.87	19.90	31.0	..	390	
391	T.C. Bantwal	..	..	..	..	1.53	0.32	0.24	0.08	3.63	5.31	11.12	1	5.59	391	
Total for Urban areas		0.26	0.09	..	0.11	2.23	1.80	3.03	0.28	10.48	18.30	21.01	2,545	6.61		
Total for Rural areas		0.23	0.09	0.0001	0.11	3.65	1.11	1.32	0.15	8.47	15.13	17.96	7,172	5.39		
Total for the State ..		0.24	0.09	0.0007	0.11	3.38	1.24	1.64	0.17	8.84	15.73	18.21	9,717	5.67		

No. VI-A—(Optional).—Deaths registered from certain causes in the municipalities of the State of Madras during the year 1952.

No. VII.—Deaths from Cholera registered in the districts in the State of Madras during each month of the year 1952.

Serial number.	Districts.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
				Number of villages and towns of groups of registration (Taluka and municipalities).	Number of villages and towns of groups of registration (Taluka and municipalities).	January.	February.	March.	April.	May.	June.	July.	August.
				from each of which a monthly return is received.	from each of which a monthly return is received.								
1	Srikakulam	11	2,717	..	..	..	..	3	1	..	1	5	41
2	Visakhapatnam	12	1,279	..	..	..	..	2	..	..	..	2	2
3	Godavari, Plains	12	843	..	..	..	21	21	23	..	6	..	..
4	Godavari, Agency	10	967	..	..	..	10	7	30	..	..	..	..
5	Godavari, Plains	10	745	..	..	..	..	..	..	22	2	4	3
6	Godavari, Agency	1	131	..	..	..	..	..	..	..	3	..	..
7	Krishna	12	987	..	..	..	6	20	6	1	1	3	23
8	Guntur	14	1,145	..	..	..	34	18	2	..	2	15	35
9	Belary	12	997	..	..	..	..	..	..	..	..	79	38
10	Anantapur	13	868	..	..	..	4	13	33	44	150	202	111
11	Kurnool	12	891	..	..	..	68	7	..	1	6	26	52
12	Cuddapah	10	1,034	..	..	..	..	31	8	13	132	261	55
13	Madras	1	1	..	..	..	..	8	5	6	1	1	8
14	Nellore	14	1,689	..	..	..	42	21	8	18	3	5	102
15	Chingleput	10	2,176	..	..	..	91	18	1	27	15	5	53
16	Chittoor	11	2,204	..	..	..	65	61	134	100	104	261	533
17	North Arcot	18	2,025	..	..	..	21	19	..	..	..	35	117
18	South Arcot	12	2,271	..	..	..	33	16	7	3	..	..	..
19	Tanjore	17	2,464	..	..	..	201	35	5	..	..	..	..
20	Tiruchirappalli	14	1,338	..	..	..	125	75	65	35	15	21	101
21	Madurai	14	1,077	..	..	..	4	7	3	..	..	..	3
22	Ramanathapuram	16	1,535	..	..	..	11	9	1	7	1	..	..
23	Tirunelveli	13	1,094	..	..	..	19	6	4	..	..	..	..
24	Salem	13	1,786	..	..	..	..	..	..	1	10	174	225
25	Coimbatore	18	1,203	..	..	..	..	..	..	..	3	24	37
26	Nilgiris, The	5	105	..	..	..	..	..	..	..	..	..	..
27	Malabar	16	847	..	..	..	..	..	2	..	..	..	..
28	South Kanara	8	817	..	..	..	..	..	..	..	..	5	7
Total for the State		322	35,236	392	755	418	338	279	527	1,129	1,546	..	..

Ratio of deaths per 1,000 of estimated population.

Total.

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 last five years published for the year.
1	Srikakulam	71	5	26	6	62	97	159	0.06	0.09	0.08	0.06
2	Visakhapatnam	30	44	20	..	53	48	101	0.06	0.05	0.05	0.28
3	Godavari, Plains	..	..	2	..	33	40	73	0.03	0.04	0.03	0.41
4	Godavari, Agency	..	..	..	..	..	2	2	..	0.02	0.01	0.23
5	Godavari, Plains	5	1	3	..	68	60	128	0.08	0.07	0.08	0.55
6	Krishna	12	7	..	..	48	34	82	0.02	0.04	0.05	0.23
7	Guntur	16	45	18	19	148	120	268	0.11	0.09	0.10	0.16
8	Belary	15	2	..	1	117	86	203	0.18	0.14	0.16	0.15
9	Anantapur	25	16	..	5	319	284	603	0.45	0.42	0.43	0.18
10	Kurnool	32	22	16	21	123	128	251	0.19	0.20	0.23	0.29
11	Cuddapah	51	16	23	29	313	308	621	0.52	0.53	0.53	0.41
12	Madras	1	14	12	101	82	100	182	0.11	0.14	0.12	0.12
13	Nellore	58	1	2	81	185	182	367	0.20	0.20	0.20	0.39
14	Chingleput	20	19	5	52	223	192	415	0.24	0.21	0.22	0.42
15	Chittoor	214	91	3	7	888	747	1,635	0.95	0.83	0.89	0.21
16	North Arcot	158	196	169	295	511	501	1,012	0.35	0.35	0.33	0.43
17	South Arcot	5	4	105	543	388	347	735	0.28	0.25	0.26	0.83
18	Tanjore	5	99	66	564	483	506	989	0.32	0.35	0.33	1.00
19	Tiruchirappalli	122	141	256	913	1,034	843	1,877	0.70	0.66	0.68	0.58
20	Madurai	28	182	350	711	683	606	1,289	0.41	0.41	0.44	0.78
21	Ramanathapuram	5	8	47	98	96	95	191	0.10	0.09	0.09	0.60
22	Tirunelveli	..	..	32	142	92	91	183	0.08	0.07	0.07	0.65
23	Salem	91	291	210	392	750	690	1,440	0.44	0.42	0.42	0.28
24	Coimbatore	76	278	174	174	389	378	767	0.23	0.23	0.23	0.45
25	Nilgiris, The	..	..	1	..	..	..	1	0.01	0.01	0.03	0.02
26	Malabar	1	20	5	15	24	31	55	0.01	0.01	0.01	0.01
Total for the State		1,041	1,493	1,545	4,169	7,114	6,518	13,632	0.25	0.22	0.24	0.38

Number of circles of registration (talukas and municipalities).

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

Total:

Total for the State

REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE, 1952

Districts.	(2)	(3) Number of circles or registration (talukas and municipalities).	(4) Number of villages or groups of villages and towns from each return la received.	(5) January.	(6) February.	(7) March.	(8) April.	(9) May.	(10) June.	(11) July.	(12) August.
Srikakulam	..	11	2,717	..	..	..	..	..	..	..	..
Vishakhapatnam	..	12	1,279	..	..	..	..	..	..	..	..
Godavari, { Plains	..	12	843	..	..	..	..	..	..	..	..
East. Agency	..	4	967	..	..	..	..	..	..	..	..
Godavari, { Plains	..	10	745	..	..	..	..	..	..	..	..
West. Agency	..	1	131	..	..	..	..	..	..	..	..
Krishna	..	12	987	..	..	..	..	..	..	..	..
Guntur	..	14	1,145	..	..	..	..	..	..	..	..
Bellary	..	12	997	..	..	..	..	..	..	..	..
Anantapur	..	13	868	..	..	..	..	..	..	..	..
Kurnool	..	12	891	..	..	..	..	..	..	..	..
Cuddapah	..	10	1,034	..	..	..	..	..	..	..	..
Madras	..	1	1	..	..	..	..	..	..	..	..
Nellore	..	14	1,689	..	..	..	..	..	..	..	..
Chingleput	..	10	2,176	..	..	..	..	..	..	..	..
Chittoor	..	11	2,204	..	..	..	..	..	..	..	..
North Arcot	..	18	2,025	..	..	..	..	..	..	..	..
South Arcot	..	12	2,271	..	..	..	..	..	..	..	..
Tanjore)	..	17	2,464	..	..	..	..	..	..	..	..
Tiruchirappalli	..	14	1,338	..	..	..	..	..	..	..	..
Madurai	..	14	1,077	..	..	..	..	..	..	..	..
Ramanathapuram	..	16	1,535	..	..	..	..	..	..	..	..
Tirunelveli	..	13	1,094	..	..	..	..	..	..	..	..
Salem	..	13	1,786	..	..	..	..	..	..	..	..
Coimbatore	..	18	1,203	..	..	..	..	..	..	..	..
Nilgiris, The	..	5	105	..	..	..	..	..	..	..	..
Malabar	..	15	847	..	..	..	..	..	..	..	..
South Kanara	..	8	817	..	..	..	..	..	..	..	..
Total for the State ..	..	322	35,236	..	..	..	2	..	..	..	..

REPORT ON THE HEALTH CONDITIONS IN MADRAS STATE

[illegible]

No. XIII.—Table showing the health services in Rural and Urban areas of the State of Madras during the year 1952.

Serial number.	Districts.	Rural areas.										Urban areas.									
		Medical staff.					Vaccina- tors.					Sanitary Inspectors.					Health Inspectors.				
		Whole time.	Part time.	Public health.	Medical licen- sures holding public health qualifications.	Epidemic staff.	Males.	Females.	Other Health staff.	School Medical Officers.	Other Medical staff.	Whole time.	Part time.	Public health.	Medical licen- sures holding public health qualifications.	Sanitary Inspectors.	Health Inspectors.	Males.	Females.	School Medical Officers.	Other Health staff.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1	Srikakulam	1	1	1	1	1	32	1	14	1	1	1	1	1	1	5	1	17	1	1	31
2	Vizakhapatnam	1	1	1	1	1	35	1	16	1	1	1	1	1	1	22	1	17	1	1	30
3	East Godavari	1	1	1	1	1	50	1	11	1	1	1	1	1	1	29	1	15	1	1	4
4	West Godavari	1	1	1	1	1	22	1	11	1	1	1	1	1	1	25	1	10	1	1	152
5	Krishna	1	1	1	1	1	28	1	11	1	1	1	1	1	1	26	1	12	1	1	20
6	Guntur	1	1	1	1	1	32	1	11	1	1	1	1	1	1	25	1	14	1	1	28
7	Bellary	1	1	1	1	1	21	1	13	1	1	1	1	1	1	17	1	11	1	1	18
8	Anantapur	1	1	1	1	1	26	1	10	1	1	1	1	1	1	14	1	11	1	1	11
9	Kurnool	1	1	1	1	1	17	1	18	1	1	1	1	1	1	7	1	11	1	1	11
10	Cuddapah	1	1	1	1	1	13	1	13	1	1	1	1	1	1	5	1	11	1	1	11
11	Madras	1	1	1	1	1	31	1	4	1	1	1	1	1	1	70	1	72	1	1	324
12	Nellore	1	1	1	1	1	24	1	22	1	1	1	1	1	1	13	1	10	1	1	17
13	Chingleput	1	1	1	1	1	17	1	20	1	1	1	1	1	1	11	1	10	1	1	21
14	Chittoor	1	1	1	1	1	30	1	12	1	1	1	1	1	1	13	1	10	1	1	23
15	North Arcot	1	1	1	1	1	45	1	12	1	1	1	1	1	1	15	1	10	1	1	43
16	South Arcot	1	1	1	1	1	45	1	61	1	1	1	1	1	1	15	1	10	1	1	45
17	Tanjore	1	1	1	1	1	42	1	80	1	1	1	1	1	1	20	1	24	1	1	47
18	Tiruchirappalli	1	1	1	1	1	42	1	47	1	1	1	1	1	1	40	1	27	1	1	47
19	Madurai	1	1	1	1	1	34	1	36	1	1	1	1	1	1	25	1	10	1	1	62
20	Ramanathapuram	1	1	1	1	1	40	1	14	1	1	1	1	1	1	22	1	10	1	1	83
21	Tirunelveli	1	1	1	1	1	42	1	44	1	1	1	1	1	1	25	1	10	1	1	87
22	Salem	1	1	1	1	1	42	1	16	1	1	1	1	1	1	15	1	10	1	1	87
23	Coimbatore	1	1	1	1	1	7	1	16	1	1	1	1	1	1	42	1	10	1	1	37
24	Nilgiris, Iru	1	1	1	1	1	7	1	20	1	1	1	1	1	1	17	1	10	1	1	36
25	South Kanara	1	1	1	1	1	25	1	24	1	1	1	1	1	1	11	1	10	1	1	20
26	South Malabar	1	1	1	1	1	17	1	32	1	1	1	1	1	1	11	1	10	1	1	20
27	North Malabar	1	1	1	1	1	16	1	95	1	1	1	1	1	1	19	1	10	1	1	240
Total for the State		19	22	22	22	299	739	51	632	377	377	39	39	43	43	574	10	290	55	7	225

No. XIV.—Statement showing the particulars of vaccination in the Madras State for the calendar year 1952.

VACCINATION.

Summary of Statement, 1952.

	Total number of persons vaccinated.		Total number of operations.		Percentage of successful cases in which the results were known.		Number of children successfully vaccinated.			Number of all successful vaccinations performed.
	(2)	(3)	(4)	(6)	(5)	(7)	(8)	(9)	(10)	(11)
	Primary Vaccination.	Re-vaccination.	Primary Vaccination.	Re-vaccination.	Primary Vaccination.	Re-vaccination.	0-1 Year.	1-5 Years.	5-10 Years.	
Districts	1,557,682	5,482,218	1,631,007	5,482,318	95.8	19.7	654,177	491,514	71,241	1,845,130
Municipalities	236,791	1,125,182	237,188	1,125,182	98.2	15.0	166,909	54,214	5,792	368,625
By medical subordinates and Port Health staff	2,208	11,732	2,231	11,732	98.2	19.7	1,199	656	23	3,631
Railways	1,691	10,090	2,219	38,656	90.0	62.9	5	4	231	24,451
Total	1,798,382	6,688,878	1,872,795	6,669,804	96.3	19.0	823,220	547,355	77,287	2,246,718

HEALTH, EDUCATION AND LOCAL ADMINISTRATION
DEPARTMENT

(Health)

G.O. No. 383, 15th February 1954

Public Health—Administration Report—1952—Reviewed.

READ—the following paper :—

From the Director of Public Health, dated 14th August 1953,
R. No. 56072-4/Vs/53.

Order—No. 383, Health, dated 15th February 1954.

Recorded.

2. *Vital statistics.*—The registration of births and deaths was compulsory in the State excepting in large tracts in the Agency areas and in some backward villages in a few districts. The vital statistical indices for the year show a further improvement in the health conditions, in the State as compared with the previous year.

The salient features are—

(a) A decrease in birth rate from 30.72 in 1950 to 27.55 in 1951 and an increase to 29.38 in 1952.

(b) A decrease in death rate from 19.58 in 1950 to 16.20 in 1951 and to 15.73 in 1952.

(c) A noticeable reduction in deaths from cholera from 33,004 in 1950 to 17,113 in 1951 and to 13,632 in 1952—a fall of 45 per cent in 1951 and of 21 per cent in 1952.

(d) An increase in deaths from smallpox from 14,269 in 1950 to 17,236 in 1951 and a remarkable fall to 5,158 in 1952—an increase of 21 per cent in 1951 and a fall of 70 per cent in 1952.

(e) The number of deaths from plague was only 12 in 1952 compared to 38 in 1950 and 51 in 1951.

(f) A decrease in the deaths from fevers from 240,972 in 1950 to 205,643 in 1951 and 195,234 in 1952—a fall of 15 per cent in 1951 and a fall of 5 per cent in 1952.

(g) An increase in the mortality from dysentery, diarrhoea and respiratory diseases

(h) A marked reduction in infant mortality rate from 130.13 in 1950 to 118.59 in 1951 and 108.20 in 1952, the last being lowest figure during the last 30 years.

(i) The vital index was 186.8 in 1952 as against 156.9 in 1950 and 169.7 in 1951.

3. *Communicable disease control*—(i) *Cholera*.—The incidence from cholera decreased from 33,004 in 1950 and 17,113 in 1951 to 13,632 in 1952. High mortality from cholera was recorded in the districts of Tiruchirappalli, Chittoor, Salem, Madurai, North Arcot, Tanjore, Coimbatore and South Arcot. Nearly 68 lakhs of persons as against 46 lakhs in 1951 were protected against cholera in the State during the year.

(ii) *Dysentery and diarrhoea*.—The number of deaths registered on account of this group of diseases fell from 73,436 in 1950 to 65,633 in 1951 and increased to 71,587 in 1952, but was lower than the average of 78,760 for the decennium 1941-50.

(iii) *Enteric fever*.—In municipal areas 1,827 deaths were registered in 1952 as against 2,134 in 1950 and 1,877 in 1951. The number of cases treated in hospitals in 1952 has shown an increase compared to the previous year.

(iv) *Smallpox*.—It is observed that there were 19,305 attacks and 5,158 deaths in 1952 as compared with 71,068 attacks and 17,236 deaths recorded during the year 1951. Five thousand nine hundred and eighteen deaths were recorded during 1950. The districts that returned high mortality were Chittoor, North Arcot, South Arcot, Visakhapatnam, Guntur, Srikakulam and Nellore. There was a fall of 13 per cent in the primary vaccinations and 43 per cent in revaccinations as compared with the year 1951. The fall was mainly due to the sharp fall in the incidence of smallpox during the year.

(v) *Plague*.—During the year under review there were 23 attacks and 12 deaths from this disease as compared to 139 attacks and 62 deaths in 1951. Thirty-eight deaths were recorded during 1950. The cases were reported from Salem and Nilagiri districts. Excellent progress was achieved in the control of plague through prophylactic treatment of 'endemic' areas with DDT. With such continued treatment during the next few years it is hoped that plague incidence in the State can be completely controlled.

(vi) *Fevers other than Malaria*.—There was gradual decline in the mortality from this group of diseases. The figure was 195,234 in 1952 as against 240,972 in 1950 and 205,643 in 1951.

(vii) *Malaria*.—The number of deaths from this disease was 6,459 in 1952 as against 6,224 in 1950 and 5,380 in 1951. In all, 25 mosquito schemes were undertaken by the local bodies with State aid. The Central Malaria Laboratory and Museum arranged a course of lectures for a batch of 14 P.W.D. Engineers and they will be benefited by a knowledge of malariology. The National Malaria Control Programme was extended to the Madras State. Under this programme provision will be made for extending anti-malarial work to all affected areas in the State. Thirty-six anti-malaria control schemes are functioning in different parts of the State.

(viii) *Filaria*.—In all 56 anti-filaria schemes were undertaken by local bodies with State aid. Extensive and detailed surveys carried out by the Regional Malaria Organizations during the year in many panchayats and municipalities have revealed the prevalence of filaria in many areas in varying degrees of endemicity.

(ix) *Guinea-worm disease*.—The districts of East Godavari, West Godavari, Krishna, Visakhapatnam, Cuddapah, Kurnool, Bellary, Anantapur, Nellore, Chittoor, South Arcot, Tirunelveli, North Arcot, Coimbatore and Chingleput are areas endemic for guinea-worm disease. In all 614 villages with a population of 667,868 reported guinea-worm infestation. Chemical and biological methods of control were carried out in South Arcot, West Godavari and Bellary districts and chemical method of control in other districts.

(x) *Respiratory diseases*.—The number of deaths from this group of diseases fell from 97,385 in 1950 to 87,231 in 1951 and increased to 95,063 in 1952.

(xi) *Tuberculosis*.—There were 6,747 deaths from this disease during the year as compared to 7,227 in 1951. The number of cases treated for this disease increased steadily from 167,339 in 1950 to 171,234 in 1951 and to 208,765 in 1952. B.C.G. vaccination is confined to Madras City and environs only. The contact survey of the patients was done by the Tuberculosis Institute, Egmore and also Tuberculosis Clinics of the various City hospitals. A fairly large number of Tuberculosis cases was detected by Mass Radiography during the year. Thirty-one thousand eight hundred and sixty-eight persons were tuberculin tested and 9,412 were B.C.G. vaccinated during the year.

(xii) *Leprosy*.—The number of patients treated for this disease was 91,145 in 1952 as against 98,752 in 1950 and 85,262 in 1951. The number treated was high in the districts of South Arcot, Salem, Madurai, North Arcot and Tanjore and in the City of Madras.

(xiii) *Venereal diseases*.—The total number of cases of venereal diseases treated has continued to increase as also the number of gonorrhoea cases. The largest number of cases was treated in the districts of Guntur, Krishna, North Arcot, South Arcot, Ramanathapuram, Tanjore, Coimbatore, Salem and Madurai.

(xiv) *Yaws*.—The Government have approved a scheme for the control of this disease, utilizing the services of the existing anti-malaria organizations under the Director of Public Health. The scheme is awaiting implementation after the World Health Organization Regional Adviser on Treponematoses and the World Health Organization expert on Yaws control have discussed the scheme in detail with the Director of Public Health and finalized it.

(xv) *Kala Azar*.—The districts of Ramanathapuram, Tirunelveli and the City of Madras were endemic for this disease.

(xvi) *Infectious diseases hospitals*.—In accordance with the recommendation of the Public Health Board, cases coming to a local area from other local areas in the neighbourhood are admitted into the hospitals maintained by Government and local authorities in the former area. The isolation accommodation for smallpox and chickenpox cases even in the best municipal towns requires to be improved.

4. *Health Services*—(i) *Maternity and Child-welfare*.—There are 510 maternity and child welfare centres and 62 maternity homes in the State. During the year under review 58 new maternity and child welfare centres were opened. The expenditure incurred by local bodies during the year was larger compared to the previous year. The scope of the maternity and child welfare scheme was further widened in the City of Madras by addition of a maternity ward at Kodambakkam centre. There has been a marked

decline in the recorded infant and maternal mortality rates during the last decade. An investigation into the causes of infant mortality with the financial aid of the Indian Council of Medical Research is being carried out in the Poonamallee Health Unit.

(ii) *Industrial Hygiene*.—The Health Officers in their capacity as Additional Inspectors of Factories inspected twice all the factories in their jurisdiction and sent their observations with reference to ventilation, lighting, overcrowding, water-supply, etc., to the Inspectors of Factories. They also inspected the mines in their jurisdiction.

(iii) *Residential and industrial areas*.—Forty-five municipal councils and 127 other urban local authorities notified residential areas under section 89 of the Madras Public Health Act. Fifty-four municipalities and 203 panchayats have set apart industrial areas.

(iv) *Health Propaganda and Publicity*.—Health propaganda was conducted in the State by the mufassal health staff with the help of leaflets, pamphlets, posters, slides and films. The department also participated in several exhibitions held in the State.

(v) *Activities of voluntary organizations*.—The National Health Association of South India in addition to its usual programme of health propaganda gave effective aid to the sickly destitutes in the City who came for admission into the hospitals and to those who were forced to live on street pavements, through the Anadh Seva Sangham, Madras. The members of Guild of Service in addition to their welfare work in the hospitals, taught diversional therapy, distributed literature, helped patients by writing letters for them and brought to the notice of Guild deserving cases needing help.

(vi) *Primary Health Centres*.—Twenty-eight centres functioned during the year under report. The centres were doing useful work.

(vii) *Community projects*.—This scheme is financed by the State and the Union Governments with assistance from the United States of America. Out of the 51 projects sanctioned for implementations during the years 1952-54, for the whole of India, six projects are in this State. The expenditure for each project is fixed at Rs. 65 lakhs. The Health Department gave all necessary advice and assistance to the Project Officers in regard to public health matters.

(viii) *Rural Reconstruction Scheme*.—The scheme was in operation in about 109 selected firkas and centres in the State. Various Public Health activities including public health education were carried out in these areas.

(ix) *Poonamallee Health Unit*.—Much useful work was done at the Unit during the year under Maternity and Child-Welfare and water supplies. A health exhibition was organized with the assistance of the Maternity and Child-Welfare, Nutrition, Malaria and Research sections of the office of the Director of Public Health, Madras. It was largely attended by the rural population. Six maternity homes functioned during the year with total bed strength of 28. There were 1,836 admissions in all maternity homes. One thousand eight hundred and twenty-two labour cases were conducted by the Unit maternity staff, giving a percentage of 87.8 of the total births in the Unit area. This Unit serves also a valuable field training centre for public health staff.

5. *Food and nutrition*.—(i) During the year under report 57 preliminary diet surveys were carried out. The diets of 492 families and 3 institutions selected at random in 52 representative villages were surveyed. Surveys of

diets were also undertaken in 20 famine-affected villages. Nutrition survey was conducted among 3,237 children below 16 years of age. The Government scheme of free supply of midday meals to the children of eligible communities attending the labour schools under Government was continued during the year. Nearly 87,300 children attending about 1,330 labour schools were benefited by this scheme. The Madras Corporation continued its own scheme of free supply of midday meals to the children attending Corporation elementary schools. On the average, about 9,300 poor and ill-nourished children, 187 schools were benefited daily under this scheme. During the year, large quantities of milk powder, rice, multivitamin tablets and vegetable soup powder were received from various sources for free distribution among mal-nourished children and mothers especially in famine-affected areas. Conference on nutrition was held in August 1952 to review the progress of nutrition work carried on in the State and to consider the further measures to be taken to improve nutrition. Several decisions to improve nutrition were reached at the Conference. The decisions are being implemented.

(ii) *Prevention of food adulteration*.—During the year, the Madras Prevention of Adulteration Act was enforced in all the municipalities in the State and in 141 panchayats making a total of 239 local bodies. A number of food samples analysed during the year was 18,512 as against 18,600 in the previous year.

The Government observe that during the year under review percentage of adulteration in ghee and butter has increased from 2 to 37.7 and from 41.1 to 58.2 respectively. The increase was from 5 to 61.1 per cent in respect of milk. The Government desire that this notorious evil should be put down. Every step should be taken by health authorities to enforce the provisions of the Madras Prevention of Adulteration Act so as to maintain the purity of food-stuffs.

6. *Environmental Hygiene*—(i) *Water-supply and drainage*.—During the year under report 46 municipal and other water supply schemes and drainage schemes were under execution. A provision of Rs. 79.4 lakhs had been made for the water supply schemes including a sum of Rs. 8.0 lakhs provided for a composite water supply scheme for Kayalpatnam and other villages in Tirunelveli district under rural water supply schemes. The Government permitted the Board of Revenue to incur an expenditure of Rs. 115.35 lakhs on rural water supply schemes during the year.

(ii) *Rural and urban sanitation*.—During the year every effort was made to provide more houses with latrine accommodation by enforcing the provisions of the Madras Public Health Act.

(iii) *Compost and manure production*.—The number of municipalities and notified panchayats manufacturing compost increased from 96 at the beginning of the year to 97 and 371, respectively at the end of the year.

(iv) *Fairs and festivals*.—As usual, the sanitary arrangements for fairs and festivals received adequate attention.

(v) *Housing and Town-Planning*.—The Madras Town-Planning Act was in force in 99 municipalities including the Corporation of Madras and in 141 panchayats in the State. The provisions of the Town-Planning Act were extended to 36 villages in the Chingleput district and to ten other panchayats. The provisions of the Madras District Municipalities Act relating to building regulations and street making and subdivision of lands as sites for buildings were in force in 306 panchayats and villages in the State. Three hundred and seventy-four detailed town-planning schemes were under various stages of execution.

stages of preparation, publication and submission and 118 sanctioned schemes were under various stages of execution. A large number of co-operative housing schemes, municipal employees' housing schemes, Harijan colonies and one industrial labour housing scheme were prepared by the Town-Planning department.

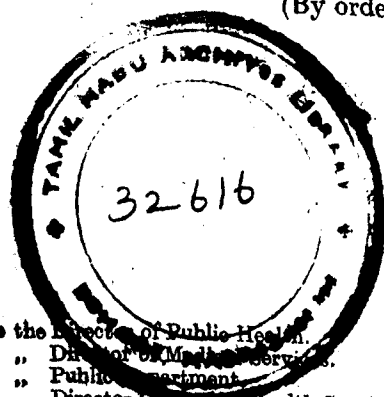
7. *Training.*—During the year one Health Officer, Class I, one Health Officer, Class II and one Senior Entomologist underwent training at the Malaria Institute of India, Delhi. Two Health Officers, Class I, and two Health Officers, Class II, underwent the training given at a six-weeks' course at the Central Malaria Laboratory, Madras. One Health Officer, Class I, underwent practical training in Nutrition work at Coonoor.

8. *Finance.*—The expenditure incurred by the State on public health was Rs. 165.51 lakhs, that is, Rs. 61 lakhs more than in 1951, and that on medical relief was Rs. 340.42 lakhs. The municipalities and district boards spent on public health more than the prescribed minimum.

9. *General.*—The Public Health Board met once during the year.

10. The suggestions for improvement made by the Director of Public Health will be examined and orders issued separately.

(By order of the Governor)



S. VENKATESWARAN,
Secretary to Government.

To the Director of Public Health.

„ Director of Medical Services.

„ Public Health Department.

„ Director-General of Health Services, New Delhi.

„ Director of Information and Publicity.

„ Consul for the United States of America at Madras.

„ Secretary to the Government of Andhra, Health, Education and Local Administration Department, Kurnool.

Forwarded to the

Public Works Dept.

(By order)

H. M. H. H.
Superintendent.

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