Report of the Director of Medical and Sanitary Services / [Ceylon].

CEYLON.

PART IV.—EDUCATION, SCIENCE, AND ART (C).

Administration Report of the Director of Medical and Sanitary Services for 1937.

(*Dr. S. T. GUNASEKARA.*)

OCTOBER, 1938.

Printed on the Orders of Government.

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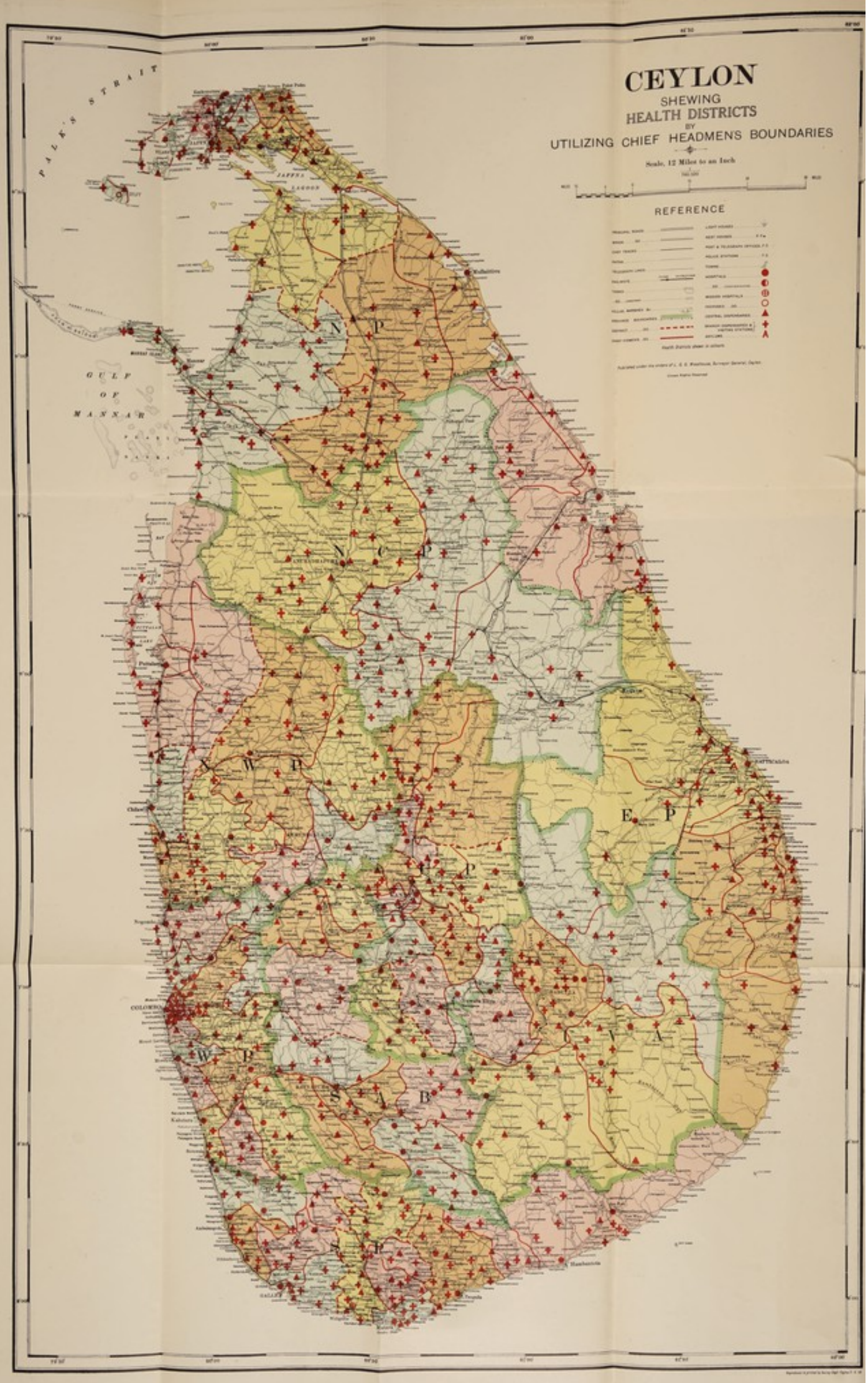
CEYLON
SHEWING
HEALTH DISTRICTS
BY
UTILIZING CHIEF HEADMENS BOUNDARIES
Scale, 12 Miles to an Inch
REFERENCE
PALK'S STRAIT
GULF OF MANNAR
JAFFNA LAGOON
N P
N C P
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E P
P
W P
S A B
S P
C V A

DEPARTMENT OF MEDICAL AND SANITARY SERVICES.

REPORT OF THE DIRECTOR OF MEDICAL AND SANITARY SERVICES FOR THE YEAR 1937.

TABLE OF CONTENTS.

I.—ADMINISTRATION.

(*a*) (1) Establishments (including vacancies) on December 31, 1937.

Directorate.

1 Director of Medical and Sanitary Services.
1 Assistant Director of Medical Services.
1 Assistant Director of Sanitary Services.
1 Administrative Secretary.
2 Senior Medical Officers, Headquarters.
1 Senior Medical Officer of Health.
1 Medical Officer of Health, Headquarters.
1 Accountant.
1 Assistant Accountant.

Medical Side.

1 Medical Superintendent, General Hospital, Colombo.
1 Medical Superintendent, Lunatic Asylum, Angoda.
1 Medical Superintendent, Leper Asylum, Hendala.
1 Medical Superintendent, Civil Hospital, Kandy.
1 Medical Superintendent, Civil Hospital, Galle.
9 Provincial Surgeons.
1 Medical Officer-in-Charge, Anti-Tuberculosis Institute, Colombo.
1 Radiologist, General Hospital, Colombo.
1 Medical Officer-in-Charge, Dental Institute, Colombo.
83 Medical Officers in Grade I. (14 vacancies).
219 Medical Officers in Grade II. of whom 11 are women (9 vacancies).
19 Honorary House Officers.

Sanitary Side.

3 Inspecting Medical Officers of Estates.
2 Assistants to Inspecting Medical Officers of Estates (Medical Officers in Grade II.).
27 Medical Officers of Health (22 Medical Officers of Health, 5 Medical Officers, Grade II.).
8 Medical Officers for Colombo Port Health Work (1 Medical Officer of Health and 7 Medical Officers, 2 in Grade I. and 5 in Grade II.).
1 Superintendent, Anti-Malaria Campaigns.
2 Medical Officers, Anti-Malaria Campaigns (Medical Officers, Grade II.).
5 School Medical Officers (2 in Grade I. of Medical Officers and 3 in Grade II.).
4 Sanitary Engineers (including 3 Assistant Sanitary Engineers).
42 Sanitary Assistants, Class I. (1 vacancy).
215 Sanitary Assistants, Class II. (1 vacancy).
4 Draughtsmen (Sanitary Engineering Division).

Laboratory Staff.

1 Director of Bacteriological and Pasteur Institutes and Vaccine Establishment.
1 Bacteriologist (Medical Officer, Grade II.).
1 Assistant Bacteriologist (Medical Officer, Grade II.).
40 Laboratory Assistants (6 vacancies).
1 Medical Entomologist.
1 Research Assistant in Entomology (vacant).
16 Entomological Assistants (2 vacancies).
15 Laboratory Attendants (2 vacancies).

Nursing Staff.

Recruited through the Overseas Nursing Association:—

7 Matrons (1 vacancy).
1 Assistant Matron.
28 Sisters (7 vacancies).
1 Sister Tutor (vacant).

Recruited from Religious Orders:—

7 Mothers.
122 Sisters (8 vacancies).

Recruited in Ceylon:—

6 Sisters (2 vacancies).
1 Home Sister (vacant).
1 Relieving Sister (vacant).
1 House Matron.
47 Public Health Nurses (4 vacancies).
4 Nurses, Dental Clinics (vacant).
81 Matrons (8 vacancies).
247 Nurses (18 vacancies).
86 Pupil Nurses.
172 Hospital (75) and Health Unit (97) midwives.
120 Pupil midwives.

Clerical Staff.

Head Office:—

1 Chief Clerk, Special Class.
1 Clerk, Special Class.
2 Clerks, Class I.
82 Clerks in Classes II. and III.
1 Stenographer.
1 Despatch Clerk.

Branch Offices:—

87 Clerks in the various branch offices (7 vacancies).

Apothecaries.

20 Apothecaries in Special Class.
100 Apothecaries in Class I.
300 Apothecaries in Class II. (14 vacancies).

Vaccination.

9 Inspectors of Vaccination (1 vacancy).
32 Male Vaccinators, Class I.
90 Male Vaccinators, Class II. (27 vacancies).
17 Female Vaccinators (5 vacancies).

Civil Medical Stores.

1 Superintendent and Chief Medical Storekeeper.
1 Assistant Superintendent.
9 Supervisors.

Malaria Control Scheme.

55 Field Medical Officers.
6 Entomological Assistants.
90 Sanitary Assistants (48 vacancies).
6 Laboratory Assistants (1 vacancy).
55 Clerks.
10 Nurses (vacant).
2 Assistant Sanitary Engineers (vacant).
1 Draughtsman (vacant).

Ankylostomiasis.

1 Superintendent, Ankylostomiasis Campaigns (Medical Officer, Grade I.).
2 Clerks.
8 Microscopists.
31 Dispensers.

Opium Branch.

1 Opium Storekeeper.
3 Opium Clerks.
10 Opium sellers.

Miscellaneous.

3 Hospital Stewards in Special Class.
6 Hospital Stewards in Class I. (1 vacancy).
35 Hospital Stewards in Class II. (2 vacancies).
1 Sister, X'Ray Electrical Branch.
2 X'Ray Assistants, General Hospital.
4 X'Ray Technicians.
4 Hospital Stores Clerks.
9 Hospital Admitting Clerks.
4 Bookbinders.
3 Telephone operators.
2 Head Overseers (Sanitary Engineering Division and General Hospital).
10 Hospital Overseers.
5 Motor Ambulance Drivers (2 vacancies).
1 Survey Overseer (vacant).

Minor Employees.

Packers Peons Overseers Disinfecting orderlies Hospital orderlies Dispensary orderlies Bicycle orderly Caretakers Male attendants Female attendants Opium store servants Tappal labourers Itinerating labourers Latrine labourers Garden labourers Burial labourers Kitchen labourers Cemetery keepers Ward labourers. Disinfecting labourers Nurses' ayahs Barbers, dhobies &c. Cooks and appus.	About 3,500

(2) Promotions, Appointments, &c.

Dr. E. A. Blok was appointed Senior Medical Officer, Headquarters, with effect from December 12, 1937: Dr. R. Willenberg was appointed Acting Medical Superintendent with effect from March 9, 1937: Dr. D. B. de Alwis and Dr. J. M. Somasunderam were appointed Acting Provincial Surgeons with effect from May 1, 1937, and April 5, 1937, respectively; Dr. D. C. de Fonseka was appointed

Acting Inspecting Medical Officer with effect from May 1, 1937; Dr. K. Somaskander, Medical Officer of Health in Grade II., was promoted to Grade I. from January 28, 1937; Dr. W. A. N. Chanmugam, Dr. W. S. Ratnavale, and Dr. K. G. Dalpatadu retired with effect from January 14, 1937, March 9, 1937, and January 1, 1937, respectively.

The death of Dr. J. P. Sabapathy is recorded with deep regret.

Mr. A. M. A. Azeez, C.C.S., was appointed Administrative Secretary to the Director of Medical and Sanitary Services and Additional Secretary to the Hon. the Minister for Health with effect from June 10, 1937, *vice* Mr. W. J. A. van Langenberg, C.C.S., and Mr. M. Rajendra, C.C.S., was appointed Secretary to the Hon. the Minister for Health and Additional Administrative Secretary to the Director of Medical and Sanitary Services with effect from June 10, 1937.

(3) Officers on Leave.

Eighteen officers of the department, exclusive of the Nursing Staff, proceeded to Europe on long leave during the course of the year.

(4) Special Qualifications, &c.

The following officers obtained special qualifications during the year:—

Dr. M. L. Corera, Dr. G. S. W. de Saram, Dr. J. H. Gunawardena obtained the degree of M.B.B.S. (Lond.).

Dr. S. F. Jayawardena obtained the B.S.C. in Physiology and the degree of M.B.B.S. (Lond.).

Dr. F. Gunaratna obtained the T.D.D. (Wales).

Dr. L. M. de Silva obtained the diploma of Anæsthetics (Lond.).

Dr. S. Amerasinghe, Dr. A. Caralasingham, Dr. S. N. Chelliah, Dr. L. M. de Silva, Dr. E. L. W. de Silva, Dr. V. T. Pasupathy, Dr. P. B. Seneviratne and Dr. (Miss) D. C. Wallace obtained the D.T.M. & H. (Lond.).

Dr. W. H. V. Ferdinands, Dr. B. Josef, and Dr. C. Ponnambalam obtained the diploma of M.R.C.S. (Eng.) and L.R.C.P. (Lond.).

Two officers (Drs. G. Jeremiah and P. B. E. Seneviratne) of the department obtained the diploma of L.R.C.P. & S. (Edin.) and L.R.F.P. & S. (Glas.).

Dr. S. Sivalingam and Dr. E. A. Lawrence obtained the D.P.H. (Lond.).

(*b*) Legislation affecting Public Health enacted during the Year.

The draft of an Ordinance to amend the Lunacy Ordinance, 1873, to remedy certain defects now existing which has been approved by the Attorney-General, is still under consideration.

An Ordinance to provide for the destruction and the prevention of the propagation of mosquitoes is under consideration by the Departmental Committee on Malaria.

The following regulations were passed during 1937:—

(*a*) Under the Quarantine and Prevention of Diseases Ordinance, 1897:—
Relating to the—

(1) Proper authority to carry out orders of the Director of Medical and Sanitary Services in matters regarding the enforcement and execution of regulations—*Gazette* of February 26, 1937.
(2) Control of malaria—*Gazette* of February 12, 1937.
(3) Storing of rice—*Gazette* of September 10, 1937.

(*b*) Under the Medical Ordinance, 1927:—

Relating to the control of the practice of midwifery within the area of Kotte U. D. C.—*Gazette* of December 18, 1936.

(c) Financial.

Revenue and Expenditure for the Financial Year ending September 30, 1937.

REVENUE.

		Rs.
1.	Hospital and dispensary receipts	479,143
2.	Sales of drugs, &c.	1,495
3.	Sales of drugs, &c., under the Medical Wants Ordinance	4,507
4.	Charges for maintenance and visits under the Medical Wants Ordinance	94,353
5.	Opium sales	86,813
6.	Export duties under the Medical Wants Ordinance	1,413,693
7.	Payment by the Railway Department for Medical and Sanitary Services	50,000
8.	Payment by the Electrical Department for Medical and Sanitary Services	2,750
		2,132,754

EXPENDITURE.

		Rs.
1.	Personal emoluments	6,898,330
2.	Travelling	531,017
3.	Stationery, office furniture, and office requisites	16,992
4.	Rent	81,602
5.	Uniforms	28,688
6.	Equipment and contingencies	520,811
7.	Diets	1,426,887
8.	Transport	54,267
9.	Drugs, dressings, disinfectants, and instruments	1,084,327
10.	Grants	96,300
11.	Rebates payable under the Medical Wants Ordinance	161,625
12.	Epidemics	26,855
13.	Destruction of rats	13,673
14.	Purchase of opium and general expenses	10,014
15.	Earthfilling, drainage, &c., in connection with anti-malaria measures	21,940
16.	Conservation of cemeteries	540
17.	Removing and relieving destitute sick persons	8,707
18.	Incidental expenses	9,573
19.	Equipment for new hospitals and dispensaries	36,811
20.	Special equipment for existing institutions	2,580
21.	Ceylon Delegate to the International Conference on Rural Hygiene at Singapore	1,841
22.	Investigation of foods	5,648
23.	Postgraduate training of eight nurses	750
24.	Construction of two fully equipped dental vans	14,570
25.	Purchase of X'ray equipment for Kandy Hospital	584
26.	Anti-Malaria Campaign	14,014
—	Purchase of X'ray outfit, General Hospital	16,325
		11,085,271

The estimated and actual expenditure for the last ten years has been—

	Budget Estimate. Rs.	Actual Expenditure Rs.
1927–28	10,500,274	10,211,104
1928–29	11,009,103	10,216,467
1929–30	11,319,907	10,669,279
1930–31	11,358,152	9,703,775
1931–32	10,795,496	9,805,541
1932–33	10,234,695	9,275,559
1933–34	9,961,700	9,442,749
1934–35	9,992,701	11,720,371
1935–36	10,681,422	10,952,128
1936–37	11,262,132	11,085,271

The figures do not include the cost of new buildings and improvements to, and maintenance of, existing ones. The revenue of the Island during the financial year ending September 30, 1937, was Rs. 119,196,900.

II.—PUBLIC HEALTH AND GENERAL EPIDEMIOLOGY.

A.—GENERAL REMARKS.

Western Province.—The incidence of malaria showed a marked decline especially in Colombo and Kalutara Districts. In Negombo District the improvement was not so evident. There were no outbreaks. Typhoid fever as usual prevailed throughout the year and its incidence this year was considerably higher than that of last year. Nine cases of plague—all of bubonic type—were treated at the Infectious Diseases Hospital, Angoda. The only case of smallpox occurred in a tourist who took ill in Colombo. There were no cases of cholera. The general health of the province was satisfactory.

Central Province.—The health of the province was on the whole good. The malaria situation in Kandy District was very satisfactory. In Nuwara Eliya District during October, November, and December there was a marked rise in the incidence in Uda Hewaheta and Walapana. The peak was reached in October. In Matale District the incidence was only slightly above normal up to the end of September but during the last quarter malaria prevailed to a much larger extent than usual, and the dispensary attendances showed a considerable increase.

Southern Province.—Galle District experienced a comparatively healthy year. The incidence of malaria was low throughout the year being under 10 per cent. of the total morbidity. Incidence of typhoid fever shows no abatement. In Matara District, dispensary attendances were considerably higher than usual. Influenza was rife at several centres. Malaria was responsible for about 40 per cent. of the total attendances. It is gratifying to record that the outbreaks of this disease that usually occur during the 2nd quarter did not occur this year and this happy result was largely due to the vigorous control measures adopted against the disease. In Hambantota District malaria as usual was responsible for about two-third of the total sickness. Dispensary attendances were large during the first and last quarters of the year which constitutes the malaria season. August, September, and October were relatively healthy months.

Northern Province.—The general health of the Northern Province was unsatisfactory. The principal diseases were malaria, dysentery, and influenza. The most prevalent disease was malaria. In Jaffna District there was a very marked increase in the incidence during the 1st quarter: 50 per cent. of the total attendances were due to malaria. The 2nd and 3rd quarters were relatively healthy. During the 4th quarter a wave of less intensity was experienced. In Mannar and Mullaittivu, the increase of malaria was decidedly high in January and February but it did not reach its highest level until December, when it was responsible for half the total visits. No cases of major infectious diseases, viz., cholera, plague, and smallpox, were recorded.

Eastern Province.—There were no outbreaks of malaria, during the year, and the usual seasonal rise during 1st and 4th quarters of the year was not much worse than usual. Parangi is on the decline owing to the systematic campaign that is being carried on against it. The malaria for the most part was of the tertiary type. One case of smallpox occurred at Trincomalee. There were no cases of plague, cholera, or any other epidemic disease.

North-Western Province.—In this province as usual malaria was the most prevalent disease. The usual seasonal rise in April and November was observed this year. The November rise was very sharp necessitating immediate control measures. It was noticed chiefly in the areas lying to the north of Deduru-oya.

The basin of the Mi-oya was particularly affected. The outbreak reached its peak during the latter half of December and the decline was gradual. One case of plague was reported from Marawila.

North Central Province.—From the end of the fever season in March, the health of the province was on the whole satisfactory until November. As a result of the failure of north-east monsoon rains there was an exceptionally severe fever season and large attendances were reported from all hospitals and dispensaries in the province. There was a small outbreak of typhoid fever at Poonawa; 7 cases with 4 deaths. There were no cases of smallpox and cholera.

Province of Uva.—During the first half of the year, the health of the province was satisfactory. During the latter half there was an increase in the number of cases treated at hospitals and dispensaries due chiefly to increased incidence of malaria and influenza. No cases were recorded of smallpox, cholera, and plague.

Province of Sabaragamuwa.—There were no serious epidemics of any kind. In Ratnapura District typhoid fever prevailed throughout the year in sporadic form, but there was no marked increase in the incidence. Prevalence of malaria showed no increase until November when a mild outbreak occurred which was more or less localized in the Godakawela area. The health of the Kegalla District was satisfactory.

1.—GENERAL DISEASES.

The most prevalent general diseases of hospital in-patients were rheumatism, intestinal disorders (diarrhoea and enteritis), bronchitis, and pneumonia. Year by year the number of patients who seek hospital treatment for cancer is increasing.

The following statement shows the numbers of cases and deaths of these diseases dealt with in hospitals throughout the Island during the years 1933 to 1937:—

	1933.	1934.	1935.	1936.	1937.
Rheumatism—					
Cases ..	3,133	3,934	3,643	4,284	4,641
Deaths ..	12	10	14	8	5
Intestinal disorders—					
Cases ..	3,505	7,625	10,639	8,918	9,930
Deaths ..	723	1,045	2,163	1,093	1,194
Bronchitis—					
Cases ..	5,024	6,073	6,240	6,906	8,446
Deaths ..	256	279	336	323	358
Pneumonia—					
Cases ..	6,798	9,515	10,706	10,014	13,383
Deaths ..	2,297	3,054	4,205	4,069	4,270
Malignant Growths—					
Cases ..	1,112	1,233	1,279	1,636	1,512
Deaths ..	113	141	137	168	166

The total number of deaths from "Cancer and other Tumours" reported by the Registrar-General in respect of the whole Island was 612 during the year 1937, as compared with 580 in 1936, 589 in 1935, 570 in 1934, and 483 in 1933.

Most of the operable cases of cancer resort to the General Hospital, Colombo, for treatment; of a total of 1,512 cases of cancer dealt with in all the hospitals 995 were treated in the General Hospital.

On account of the prevalence of betel chewing the site of the disease in the majority of cases was in the region of the buccal cavity, usually the cheek. The analysis of cases treated is given on page 12.

Cancer Returns of In-patients in Hospitals for 1937.

SINHALESE.

Age.	Sex.	Cheek.		Tongue.		Penis.		Breast.		Uterus.		Palate, Jaw, and Floor of Mouth.		Skin and Extremities.		Stomach.		Caecum.		Rectum.		Liver.		Intestines.		Ovary.		Oesophagus.		Lymph Glands.		Other Sites.		Sites not specified.		Total.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
20–30	Male	6	—	2	—	5	—	—	—	—	—	5	1	1	—	—	—	—	—	1	1	2	1	—	—	—	1	—	1	—	2	—	25	2
	Female	3	—	3	—	—	—	4	—	22	4	1	—	—	—	1	—	—	—	1	1	1	—	—	—	2	—	—	—	2	—	2	—	48	6
31–40	Male	18	—	16	—	12	2	—	—	—	—	2	—	3	—	1	—	—	—	3	1	1	1	—	—	3	—	—	—	3	—	1	1	69	5
	Female	14	—	5	—	—	—	16	3	71	6	2	—	—	—	1	—	—	—	3	1	1	1	—	—	3	—	—	—	10	3	1	—	130	15
41–50	Male	44	—	9	—	17	—	—	—	—	—	9	—	10	2	1	—	—	—	13	2	3	1	1	1	—	—	—	—	1	—	2	1	112	6
	Female	15	—	3	—	—	—	13	1	73	6	4	—	2	1	3	—	1	—	4	1	1	1	—	—	2	—	1	—	1	—	4	1	135	10
51–60	Male	47	2	11	—	24	1	—	—	—	—	18	1	2	2	5	2	—	—	9	2	2	2	—	—	1	—	1	—	1	1	8	3	131	12
	Female	20	—	1	—	—	—	20	1	58	1	5	—	2	2	—	—	2	—	1	2	1	1	—	—	1	—	2	2	2	1	6	3	119	4
61 and upwards	Male	68	—	14	1	26	—	—	—	—	—	13	—	11	2	1	—	—	—	1	—	1	1	—	—	1	—	3	1	2	2	3	1	149	4
	Female	25	1	2	—	—	—	7	1	38	2	4	1	—	—	1	—	—	—	1	—	1	—	1	—	1	—	—	—	—	—	4	—	88	5
	Total	260	3	66	1	84	3	60	7	262	19	70	3	36	1	14	2	3	—	37	8	13		2	1	9	—	10	1	10	1	54	10	16	3	1006	69

TAMILS.

Age.	Sex.	Cheek.		Tongue.		Penis.		Breast.		Uterus.		Palate, Jaw, and Floor of Mouth.		Skin and Extremities.		Stomach.		Caecum.		Rectum.		Liver.		Intestines.		Ovary.		Oesophagus.		Lymph Glands.		Other Sites.		Sites not specified.		Total.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
20–30	Male	8	1	3	1	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	1	—	20	3
	Female	2	1	—	—	—	—	1	—	7	—	1	—	—	—	2	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	4	—	16	1
31–40	Male	19	—	2	—	3	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	5	—	33	1
	Female	9	1	—	—	—	—	8	—	18	2	2	—	1	1	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	2	—	42	5
41–50	Male	18	1	4	3	2	1	—	—	—	—	3	—	2	—	1	1	—	—	1	—	2	—	—	—	1	—	—	—	1	—	1	—	34	7
	Female	8	—	5	—	4	—	4	3	13	2	—	—	—	—	1	—	1	—	2	1	1	—	—	—	—	—	—	—	—	—	2	—	30	6
51–60	Male	19	3	1	—	—	—	2	1	4	1	3	1	1	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	1	—	2	1	35	5
	Female	9	—	2	—	3	—	—	—	4	1	2	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	1	22	1
61 and upwards	Male	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	1	10	1
	Female	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	1
	Total	98	7	17	4	13	1	16	4	46	6	13	1	6	1	4	2	1	—	5	1	5	2	1	—	—	—	2	—	4	1	21	6	1	—	254	35

OTHER RACES.

Age.	Sex.	Cheek.		Tongue.		Penis.		Breast.		Uterus.		Palate, Jaw, and Floor of Mouth.		Skin and Extremities.		Stomach.		Caecum.		Rectum.		Liver.		Intestines.		Ovary.		Oesophagus.		Lymph Glands.		Other Sites.		Sites not specified.		Total.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
20–30	Male	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—
	Female	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—
31–40	Male	3	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
41–50	Male	4	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—
	Female	1	—	—	—	—	—	2	1	4	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—
51–60	Male	4	—	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	10	—
	Female	—	—	—	—	—	—	1	—	3	—	4	1	—	—	—	—	—	—	1	1	—	—	1	—	—	—	1	—	—	—	—	—	15	1
61 and upwards	Male	1	—	1	—	2	—	5	1	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	10	1
	Female	—	—	—	—	—	—	—	—	—	—	—	—	2	—	3	—	—	—	1	1	—	—	1	—	—	—	1	—	—	—	5	—	1	—	65	6
	Total	18	—	3	—	2	—	9	3	12	1	5	1	2	—	3	—	—	—	1	1	—	—	1	—	—	—	1	—	2	—	5	—	1	—		

C = cases. D = deaths.

2.—COMMUNICABLE DISEASES.

Tables of Communicable Diseases.—The following tables show the number of cases and deaths from the communicable diseases notified for the whole Island inclusive of the three Municipal Towns, and their distribution according to months and provinces:—

TABLE I.

Notified Cases of Communicable Diseases with Deaths and Fatality Rates.

	Cases.	Deaths.	Fatality Rate.	Fatality Rate Percentage for 1936.
Chickenpox	6,137	2	·03	·18
Cholera	—	—	—	89·80
Diphtheria	135	21	15·55	12·62
Dysentery	3,711	367	9·88	10·29
Enteric	2,629	502	19·09	17·88
Measles	7,248	26	·35	·07
Mumps	2,242	6	·26	·44
Pulmonary tuberculosis	2,526	836	33·09	30·45
Plague	29	28	96·55	80·70
Smallpox	2	—	—	100·00
Whooping cough	662	8	1·21	7·09

TABLE II.

Distribution by months of Notified Communicable Diseases—1937.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Chickenpox—													
Cases	532	706	864	609	492	598	454	383	372	381	420	526	6,137
Deaths	—	—	—	—	1	—	—	1	—	—	—	—	2
Cholera—													
Cases	—	—	—	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria—													
Cases	32	11	9	6	14	16	12	13	3	8	3	8	135
Deaths	3	2	1	—	—	4	4	5	1	—	—	1	21
Dysentery—													
Cases	440	199	156	124	142	237	412	331	306	338	441	585	3,711
Deaths	36	23	16	21	17	35	43	39	34	27	32	44	367
Enteric—													
Cases	221	197	225	220	205	254	267	253	247	230	164	146	2,629
Deaths	32	45	44	45	34	46	53	53	54	48	23	25	502
Measles—													
Cases	461	436	797	558	299	375	953	502	520	794	889	664	7,248
Deaths	1	2	3	—	1	—	2	10	3	2	1	1	26
Mumps—													
Cases	119	218	180	139	127	203	316	140	188	174	187	251	2,242
Deaths	—	1	1	—	—	1	—	—	2	—	1	—	6
Pulmonary tuberculosis—													
Cases	217	136	198	197	247	200	248	202	220	228	237	196	2,526
Deaths	82	36	58	68	66	61	81	73	89	69	73	80	836
Plague—													
Cases	2	10	6	1	2	3	—	1	—	1	1	2	29
Deaths	2	10	6	1	2	3	—	1	—	1	1	1	28
Smallpox—													
Cases	—	2	—	—	—	—	—	—	—	—	—	—	2
Deaths	—	—	—	—	—	—	—	—	—	—	—	—	—
Whooping cough—													
Cases	47	35	39	57	74	37	67	59	48	50	77	72	662
Deaths	—	—	1	—	—	—	2	1	2	1	—	1	8

TABLE III.

Distribution by Provinces of Notified Communicable Diseases.

Province.	Chicken-pox.	Cholera.	Diph-theria.	Dysen-tery.	Enteric.	Measles.	Mumps.	Pulmonary Tuber-culosis.	Plague.	Small-pox.	Whooping Cough.
Western	2,789	—	79	1,551	1,148	3,089	905	1,365	27	1	460
Central	1,116	—	42	80	209	850	290	166	1	—	40
Southern	651	—	1	988	604	654	210	407	—	—	25
Eastern	130	—	—	30	31	13	66	25	—	1	2
Northern	246	—	2	189	110	780	140	98	—	—	69
North-Central	11	—	—	75	28	22	29	27	—	—	3
North-Western	268	—	5	492	95	913	362	171	1	—	32
Sabaragamuwa	536	—	1	268	348	505	208	225	—	—	28
Uva	390	—	5	38	56	422	32	42	—	—	3
Total	6,137	—	135	3,711	2,629	7,248	2,242	2,526	29	2	662

Communicable Diseases: (1) Plague.—The following is a statement of cases, deaths, and fatality rates for the last five years:—

	1933.	1934.	1935.	1936.	1937.	5 Years' average 1932–1936.
Cases	57	35	60	57	29	57
Deaths	52	31	56	46	28	51
Fatality rate	91·2	88·5	93·3	80·7	96·5	91·1

The incidence of the disease compared with the average for the previous 5 years (57) has decreased to 29 during 1937. Of these, 20 cases were of the bubonic variety and 9 septicaemic.

The distribution of the cases according to locality is as follows:—

	Cases.	Deaths.
Western Province—		
Colombo City	27	27
Central Province—		
Talawakele	1	1
North-Western Province—		
Marawila	1	1

In Colombo there was a rat epizootic and 48 infected rats were detected. The case at Talawakele occurred in a Sinhalese boutique employee, and the one at Marawila occurred in a Sinhalese cultivator. The source of infection of these two cases could not be traced, but there was no evidence of rat infection.

(2) Cholera.—The following is a statement of cholera cases and deaths for the five years 1933-1937:—

	1933.	1934.	1935.	1936.	1937.
Cases	—	1	30	49	—
Deaths	—	1	22	44	—

There were no cases of cholera during 1937 in the Island.

(3) Smallpox.—There were 2 cases of smallpox in Ferbuary, 1937, and both these cases were among new arrivals from India. One of the patients was an American tourist who developed the disease in Colombo and the other an Englishman engaged as a mechanic in the Chinanwadi Naval Tank works at Trincomalee. Both the cases, which were of the confluent type, had been vaccinated prior to the onset of the disease and ended in recovery.

(4) Chickenpox.—6,137 cases as compared with 6,760 cases in 1936 were reported during the year with 2 deaths, giving a fatality rate of .03 per cent. Of these cases, 45.4 per cent. occurred in the Western Province, 18.2 per cent. in the Central Province, 10.6 per cent. in the Southern Province, 8.7 per cent. in the Province of Sabaragamuwa, and 17.1 per cent. in the other provinces. On an average 511 cases were reported each month with the maximum 864 in March and the minimum 372 in September.

The following is a statement of cases by years for the past five years:—

Year.	Cases.	Year.	Cases.
1932	6,902	1935	5,266
1933	7,439	1936	6,760
1934	6,885		

(5) **Diphtheria.**—135 cases as compared with 103 cases in 1936 were reported during the year with 21 deaths, giving a fatality rate of 15.55 per cent. Of these cases, 58.5 per cent, occurred in the Western Province and 31.1 per cent. in the Central Province. All the cases were of the faucial variety. On an average 11 cases were reported monthly with the maximum 5 in August.

The following is a statement of cases and deaths by years for the past five years :—

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1932	61	16	1935	116	14
1933	72	18	1936	103	13
1934	99	18			

The following table shows the number of cases and deaths in hospitals and total registered deaths from diphtheria for the Island in the past five years :—

	1933.	1934.	1935.	1936.	1937.
Hospital cases	60	84	84	84	96
Hospital deaths	21	27	23	20	22
Total number of deaths for the Island	30	32	41	33	34

Of the 96 cases treated, 29 were at the Infectious Diseases Hospital, Angoda, 19 at the Lady Havelock Hospital, 20 at Kandy Hospital, 13 at Haputale Hospital, 5 in Galle, 2 each in Badulla and Negombo, 1 each in Epitiya, Matara, Karawanella, Nuwara Eliya, Avisawella, and Panadura. Most of the cases were among children.

(6) **Measles.**—7,248 cases as compared with 2,775 in 1936 were reported during the year with 26 deaths giving a fatality rate of .35 per cent. Of the cases, 42.6 per cent. occurred in the Western Province, 12.6 per cent. in the North-Western Province, 11.7 per cent. in the Central Province, 10.8 per cent. in the Northern Province, 9.0 per cent. in the Southern Province, and 13.3 per cent. in the other provinces. On an average 604 cases per month have been reported with the maximum 953 in July and the minimum 299 in May.

The following is a statement of cases by years for the last five years:—

Year.	Cases.	Year.	Cases.
1932	3,700	1935	719
1933	9,101	1936	2,775
1934	5,201		

(7) **Mumps.**—2,242 cases as compared with 1,135 in 1936 were reported with 6 deaths. Of these cases, 40.4 per cent. occurred in the Western Province, 16.2 per cent. in the North-Western Province, 13.0 per cent. in the Central Province, 9.4 per cent. in the Southern Province, 9.3 per cent. in the Province of Sabaragamuwa, and 11.7 per cent. in the other provinces. On an average 187 cases were reported monthly, with the maximum 316 in July and the minimum 119 in January.

The following is a statement of cases by years for the past five years:—

Year.	Cases.	Year.	Cases.
1932	221	1935	485
1933	333	1936	1,135
1934	235		

(8) **Whooping Cough.**—662 cases as compared with 296 cases in 1936 were reported with 8 deaths, giving a fatality rate of 1.21 per cent. Of these cases, 69.5 per cent. occurred in the Western Province, 10.4 per cent. in the Northern Province, and 20.1 per cent. in the other provinces. The incidence shows a rise in the months of November and December. On an average 55 cases were reported monthly with the maximum 77 in November and minimum 35 in February.

The following is a statement of cases by years for the past five years:—

Year.	Cases.	Year.	Cases.
1932	461	1935	235
1933	374	1936	296
1934	279		

(9) **Enteric.**—The following table shows the number of cases and deaths in hospitals and the total registered deaths from enteric fever in the Island for the past five years:—

	1933.	1934.	1935.	1936.	1937.
Hospital cases ..	2,745	2,858	2,387	3,048	3,278
Hospital deaths ..	606	577	543	630	715
Total number of deaths for the Island	794	715	690	773	880

The actual prevalence of the disease cannot be judged from hospital admissions since many cases resort to ayurvedic treatment and the majority of cases probably are not notified. The number of registered deaths does not indicate the actual mortality from this disease, as some deaths from enteric are undoubtedly included amongst those reported as due to pyrexia. There were 13,918 deaths due to pyrexia in 1937 as against 14,520 in 1936.

2,629 cases were notified in 1937 as compared with 2,503 in 1936, with 502 deaths giving a fatality rate of 19.09 per cent. Of these cases 43.7 per cent. occurred in the Western Province, 23.0 per cent. in the Southern Province, 13.2 per cent. in the Province of Sabaragamuwa, 8.0 per cent. in the Central Province, and 12.1 per cent. in the other provinces. On an average 219 cases were notified per month. Investigation of outbreaks points to the existence of carriers and contact infection. The number of anti-typhoid inoculations administered are as follows:—

1st Dose ..	25,138	2nd Dose . ..	17,746

The following is a statement of enteric cases reported, by years, for the past five years:—

Year.	Cases.	Year.	Cases.
1932	2,510	1935	1,991
1933	2,638	1936	2,629
1934	2,785		

(10) **Dysentery.**—The following table shows the number of cases and deaths in hospitals and the total registered deaths from dysentery for the Island in the past five years:—

	1933.	1934.	1935.	1936.	1937.
Hospital cases . ..	5,299	5,804	7,858	5,179	6,037
Hospital deaths ..	663	785	1,429	624	728
Total number of deaths registered for the Island..	1,886	2,279	6,175	2,217	1,967

3,093 cases or 51.0 per cent. of the total number of cases were stated to be amoebic, 1,564 cases or 25.9 per cent. bacillary, and the balance 1,380 or 23.1 per cent. undefined cases. These figures, however, are not of great value since the distinction was often made on clinical grounds. Only a small percentage of the cases were submitted to complete laboratory investigation and among them the bacillary type greatly preponderated (*vide* Section IX.). The mortality rates of amoebic dysentery were 10.9 per cent. and of bacillary 12.2 per cent.

The following provinces contributed the majority of the hospital cases:—

Western Province 2,542 cases with 347 deaths.
Southern Province 855 cases with 94 deaths.
North-Western Province 562 cases with 96 deaths.
Province of Sabaragamuwa 453 cases with 64 deaths.
Northern Province 424 cases with 27 deaths.
Eastern Province 349 cases with 22 deaths.
Central Province 341 cases with 38 deaths.

27,399 out-patients were treated for this disease during the year, as against 28,631 during 1936. The distribution of out-patient cases is as follows:—

	1935.	1936.	1937.
Western Province	4,919	4,334	3,525
Central Province	9,165	4,095	2,680
Southern Province	2,532	3,064	3,775
Eastern Province	3,885	4,407	4,247
Northern Province	4,622	4,138	2,852
North-Western Province ..	6,381	3,803	4,520
North-Central Province . ..	3,038	1,895	2,002
Province of Uva	1,380	1,059	1,461
Province of Sabaragamuwa ..	3,896	1,836	2,337

These figures show an increase of the disease in four provinces and decrease in five provinces as compared with those of the previous year.

3,711 cases as compared with 3,060 in 1936 were notified during the year with 367 deaths giving a fatality rate of 9.88 per cent. Of these cases 41.6 per cent. occurred in the Western Province, 26.5 per cent. in the Southern Province, 13.2 per cent. in the North-Western Province, 7.2 per cent. in the Province of Sabaragamuwa, and 11.5 per cent. in the other provinces. On an average 310 cases were reported monthly—the largest number 585 in December and the smallest 124 in April. The dysentery that occurred was largely of the bacillary type and investigations carried out point to carriers and contacts as the chief factors in the spread of infection.

The following is a statement of cases reported by years for the past five years:—

Year.	Cases.	Year.	Cases.
1932	2,729	1935	5,170
1933	2,559	1936	3,060
1934	5,049		

(11) **Influenza.**—The following table shows the number of cases and deaths in hospitals and total registered deaths for the Island in the past five years:—

	1933.	1934.	1935.	1936.	1937.
Number of cases treated at dispensaries . ..	192,413	216,731	159,379	177,699	295,767
Hospital cases . ..	6,762	9,749	6,103	6,806	11,916
Hospital deaths ..	104	163	157	139	144
Total number of deaths for the Island	1,920	2,305	1,917	1,583	2,087

(12) **Tuberculosis of the Lungs.**—The following table shows a comparison between the figures for 1937 and the figures for the previous four years:—

	1933.	1934.	1935.	1936.	1937.
Hospital cases . ..	4,229	4,278	4,851	4,449	4,554
Hospital deaths ..	1,108	1,126	1,382	1,054	1,169
Total number of deaths registered for the Island ..	3,118	3,094	3,387	3,167	3,145

Four special institutions—the Anti-Tuberculosis Institute, Colombo (out-door), Kandana Sanatorium, Western Province, and the Kankesanturai Sanatorium, Northern Province, for early cases, and the Ragama Tuberculosis Hospital, Western Province, for moderately advanced cases—are maintained to deal with this disease. Details of work at these institutions are given in Section VI. The number of cases treated at the out-door dispensaries in the Island was 2,494.

(13) **Leprosy.**—During the year 1,292 cases with 84 deaths, as against 1,253 cases with 74 deaths in 1936 were treated at Government hospitals including the two asylums which are maintained in the Island for the segregation of lepers under the Leper Ordinance, No. 4 of 1901. A report on these two asylums is given in Section VII.

Leprosy Survey.—During the month of January and early part of February the survey was carried on in the Elpitiya and Udugama areas of Bentota-Walallawiti korale and Gangaboda pattu of the Southern Province.

From February to August, 1937, the survey of the whole of the Province of Sabaragamuwa was completed.

During the month of September the Survey Officers paid their annual visit to the Eastern Province and reviewed the work of the Batticaloa District and detected nine cases, which shows again the value of these re-visits and further surveys.

During October and December the survey was extended to the North-Western Province and work was done in the Kurunegala and Polgahawela areas.

During the year 30,411 children in 208 schools, as given below, were examined and 16 cases detected of whom 8 had definite lesions and 8 indefinite lesions.

District.	No. of Schools.	Scholars.	Cases.
Batticaloa	8	1,390	1
Kurunegala	41	7,144	1
Ratnapura and Kegalla.. ..	159	21,877	14
Total ..	208	30,411	16

The total area covered by the survey was about 2,000 square miles with a population of over 600,000.

The Leprosy Survey Staff consisted of two Medical Officers; two Apothecaries, Western Province; one Apothecary, Southern Province; one Apothecary, Eastern Province; and one Orderly at the Central Leprosy Office, Maradana.

Fifteen treatment centres were operating during the year in the Western, Eastern, and Southern Provinces. 992 cases are attached to these clinics of whom 552 are for observation only and 440 for treatment and observation and 3,663 treatments have been given during the year in these clinics.

Statement for 1937.

Clinics.	No. of Cases in the Area.	No. for Observation.	No. for Treatment.	Total No. of Treatments.
1. Colombo	308	175	133	1,563
2. Kadawata	104	38	66	280
3. Lunawa	109	46	63	133
4. Wadduwa	30	5	25	44
5. Kalutara	39	11	28	149
6. Beruwala	32	7	25	100
7. Horana	54	46	8	6
8. Pimbura	22	13	9	68
9. Bentota	20	5	15	45
10. Balapitiya	30	22	8	12
11. Galle	74	55	19	200
12. Weligama	92	74	18	322
13. Kalmunai	46	35	11	476
14. Kattankudi . ..	20	15	5	67
15. Nindoor	12	5	7	198
Total ..	992	552	440	3,663

In the month of November Drs. de Simon and Jeremiah visited the Lady Willingdon Leper Settlement, Chingleput, Madras, with the object of exchanging views on the latest methods relating to the treatment and control of leprosy and other problems arising from them.

Dr. Jeremiah was especially requested by the department to pay special attention to Pathology, Treatment, Hospital Routine, and Statistics.

Dr. David Money of Nigeria worked with the Survey Officers during January and familiarized himself with the work carried on in Ceylon.

In the areas surveyed all officers were trained in the methods of early diagnosis and treatment. Gradual education and special propaganda were carried on in schools and villages.

One Apothecary for Leprosy Survey, Senior Medical Students, Field Medical Officers, and Sanitary Learners attended lectures and demonstrations at the Central Leprosy Clinic, Maradana.

In addition to the school and village talks on leprosy, a section on leprosy for purposes of propaganda was arranged and demonstrations given by the officers at the following Health Exhibitions:—

1. British Medical Association Exhibition.
2. Kurunegala Health Show.
3. Weligama Health Show.
4 Food and Health Exhibition, Colombo.

At the end of 1936 there were according to available statistics, 950 cases segregated in the two Asylums and 1,257 cases outside, making a total of 2,207. In 1937, 281 cases were detected of whom 100 have been already segregated and 181 are outside.

At the end of 1937, there were 1,000 cases in segregation and 1,321 cases outside, making a total of 2,321 showing an increase of 114 cases.

During the year 197 cases were admitted to the asylums and of these 43 were re-admissions. Forty-five cases were discharged on parole as bacteriologically negative, 41 cases have been repatriated to India and 81 cases have died. 987 cases remained in both Asylums at the end of 1937 and with the 13 cases absconding makes a grand total of 1,000 cases.

Statement of cases segregated and remaining outside to the end of 1937 by provinces:—

Province.	1935.		1936.		1937.	
	Segregated.	Outside.	Segregated.	Outside.	Segregated.	Outside.
Western ..	391	645	407	734	482	789
Southern ..	148	144	188	288	156	239
Eastern ..	117	75	86	108	121	122
Central ..	36	26	16	44	74	62
Sabaragamuwa ..	43	37	33	48	81	66
Uva ..	35	3	25	10	37	15
North-Western .	12	6	19	12	19	16
Northern ..	11	2	18	12	22	10
North-Central .	20	—	7	1	8	2
Indians ..	—	—	151	—	—	—
Total ..	944	938	950	1,257	1,000	1,321

(14) **Parangi (Yaws).**—The following table shows the number of cases and deaths in hospitals and total registered deaths for the Island in the past five years:—

	1933.	1934.	1935.	1936.	1937.
Hospital cases . ..	1,043	795	986	956	944
Hospital deaths ..	3	2	3	4	1
Number of cases treated at dispensaries . ..	18,368	10,366	9,385	10,666	9,054
Total number of deaths for the Island	5	8	9	14	9

With the organization of the Malaria Control and Health Scheme the control of Yaws has been placed on a more satisfactory basis. Each of the Field Medical Officers and Medical Officers of Health is responsible for the control of the disease in his area. Every case in the area is put on a card and inspected and reinspected every six months and necessary treatment given. Villages, in which cases are found, are carefully inspected half yearly for detection of new cases.

For areas not coming under Field Medical Officers and Medical Officers of Health, there are 2 itinerating whole-time Medical Officers working on the same basis. These 2 officers are confining their attention to the North-Central, Eastern, and Southern Provinces.

The work done by the two Itinerating Medical Officers is as follows:—

	No. of Patients treated.	No. of Injections given.		
		1st.	2nd.	3rd.
Itinerating Medical Officer, Eastern Province	1,284	1,225	430	69
Itinerating Medical Officer, Southern Province and North-Central Province .	1,479	908	453	118

3.—VACCINATION.

The total number of primary vaccinations performed during the year under review was 162,826; of these, 140,208 were successful and 4,042 failures. In 18,576 cases the results were not determined. The percentage of successful primary vaccinations was 86.1.

Vaccination is carried out throughout the year by trained male and female vaccinators. The former vaccinate in towns, villages, and estates periodically according to a fixed programme; the latter work in towns and villages and vaccinate Muslim women and children.

A vaccine station for the preparation of calf lymph is maintained by Government (*vide* Section IX. of this report).

The following table gives the number of vaccinations performed according to provinces, during the year 1937:—

Province.	Total.	Successful.	Failures.	Not determined.
Western ..	38,166	32,183	1,205	4,778
Southern ..	24,153	21,192	516	2,445
Sabaragamuwa ..	21,922	18,338	678	2,914
North-Western ..	16,868	14,474	400	1,994
Central ..	30,778	26,144	600	4,034
Uva ..	10,318	9,670	63	585
Northern ..	10,396	8,939	263	1,194
Eastern ..	6,096	5,525	235	336
North-Central ..	4,129	3,743	90	296
Total ..	162,826	140,208	4,042	18,576

The following table gives the number of primary and secondary vaccination performed during 1937:—

Province.	Primary Vaccination.	Secondary Vaccination.	Total.
Western ..	38,166	2,027	40,193
Southern ..	24,153	70	24,223
Sabaragamuwa ..	21,922	40	21,962
North-Western ..	16,868	11	16,879
Central ..	30,778	437	31,215
Uva ..	10,318	3	10,321
Northern ..	10,396	265	10,661
Eastern ..	6,096	3,584	9,680
North-Central ..	4,129	234	4,363
Total ..	162,826	6,671	169,497

B.—VITAL STATISTICS.

The following tables give the more important vital statistics for Ceylon:—

TABLE I.

Population, Births, Deaths, Immigration, and Infant Mortality since 1871.

	Average Annual Estimated Population (Mid-year Estimates for 1928–1937).	Average Annual Number of Births registered (Actual Numbers for 1928–1937).	Average Annual Number of Deaths registered (Actual Numbers for 1928–1937).	Excess of Registered Births over Deaths.	Excess of Immigrants over Emigrants.	Average Annual Birth Rate per 1,000 (Annual Rates for 1928–1937)	Average Annual Death Rate per 1,000 (Annua Rates for 1928–1937).	Average Annual Infant Mortality, *i.e.*, Deaths of Children under 1 Year of Age per 1,000 Births (Annual Rates for 1928–1937).
1871–1880 ..	2,584,780	70,815	58,836	11,979	23,862	27·4	22·4	—
1881–1890 ..	2,888,104	83,664	69,238	4,426	10,398	28·9	24·0	158
1891–1900 ..	3,295,279	112,204	89,664	22,540	34,070	34·1	27·2	169
1901–1910 ..	3,838,750	145,962	110,347	35,615	17,735	38·0	28·7	180
1911–1920 ..	4,311,328	164,807	132,866	31,941	9,225	38·2	30·8	196
1921–1930 ..	4,920,028	194,611	128.916	65,695	14,880	39·5	26·2	182
1928 ..	5,090,666	213,308	132,334	80,974	298	41·9	26·0	177
1929 ..	5,171,938	198,005	135,274	62,731	18,541	38·3	26·1	187
1930 ..	5,253,210	205,106	133,708	71,398	9.874	39·0	25·4	175
1931 ..	5,325,354	199,170	117,453	81,717	31,581*	37·4	22·1	158
1932 ..	5,386,106	199,370	110,650	88,720	28,837*	37·0	20·5	162
1933 ..	5,514,516	209,032	114,690	94,342	58,170*	38·6	21·2	157
1934 ..	5,551,623	206,512	127,069	79,442	94,534	37·2	22·9	173
1935 ..	5,598,467	192,755	204,823	—	7,861*	34·4	36·6	253
1936 ..	5,631,000	192,060	123,039	69,021	7,965*	34·1	21·8	166
1937 ..	5,712,000	216,079	124,210	91,869	9,583	37·8	21·7	158

* Excess of emigrants over immigrants.

TABLE II.

Vital Statistics by Provinces.

Province.	Population, 1937.	Area in Square miles.	Number of Births, 1937.	Number of Deaths, 1937.	Birth Rate per 1,000 of the Population, 1937.	Death Rate per 1,000 of the Population, 1937.	Infant Mortality Rate per 1,000 Births registered, 1937.
Western ..	1,542,000 ..	1,432 ..	49,620 ..	28,718 ..	32·2 ..	18·6 ..	133
Central ..	1,082,000 ..	2,290 ..	42,371 ..	20,217 ..	39·2 ..	18·7 ..	163
Southern ..	819,000 ..	2,146 ..	32,465 ..	20,448 ..	39·6 ..	25·0 ..	151
Northern ..	406,000 ..	3,429 ..	14,097 ..	10,286 ..	34·7 ..	25·3 ..	183
Eastern ..	221,000 ..	3,840 ..	8,628 ..	7,529 ..	39·0 ..	34·1 ..	212
North-Western ..	571,000 ..	3,016 ..	23,603 ..	14,926 ..	41·3 ..	26·1 ..	202
North-Central ..	96,000 ..	4,009 ..	4,694 ..	3,920 ..	48·9 ..	40·8 ..	246
Uva ..	341,000 ..	3,277 ..	15,341 ..	7,444 ..	45·0 ..	21·8 ..	142
Sabaragamuwa ..	634,000 ..	1,893 ..	25,260 ..	10,722 ..	39·8 ..	16·9 ..	128

TABLE III.

Vital Statistics by Urban and Rural Areas.

	Population Estimated to the Middle of 1937.	Births. Number.	Births. Rate.	Deaths. Number.	Deaths. Rate.	Maternal Deaths. Number.	Maternal Deaths. Rate per 1,000 Live Births.	Infant Deaths. Number.	Infant Deaths. Rate per 1,000 Births.
Urban residents and non-residents in 37 town) areas ..	799,000..	31,721..	39·7..	25,770..	32·3..	1,001..	31·6..	5,328..	168
For residents only ..	— ..	*22,177*..	*27·8*..	*16,224*..	*20·3*..	— ..	— ..	*4,029*..	*182*
Rural areas .	4,913,000..	184,358..	37·5..	98,440..	20·0..	3,303..	17·9..	28,852..	157
Whole Island .	5,712,000..	216,079..	37·8..	124,210..	21·7..	4,304..	19·9..	34,180..	158

Stillbirths are registered only in the urban areas. During 1937 in the 37 principal towns, there were 2,278 stillbirths (including 1 case in Colombo in which the sex was not distinguishable, 1 hermaphrodite in Tangalla, and 1 monster in Panadure), giving a rate of 72 per 1,000 live births.

TABLE IV.

Vital Statistics: (A) by Races and (B) by Communities.

Races and Communities.	Estimated Population at Mid-year, 1937.	Births. Number registered, 1937.	Births. Rate per 1,000 Persons living, 1937.	Deaths. Number registered, 1937.	Deaths. Rate per 1,000 Persons living, 1937.	Infant Deaths. Number registered, 1937.	Infant Deaths. Rate per 1,000 Births registered, 1937.
(A) *Races*—							
1. All races ..	5,712,000 ..	216,079 ..	37·8 ..	124,210 ..	21·7 ..	34,180 ..	158
2. Europeans ..	10,000 ..	97 ..	9·7 ..	63 ..	6·3 ..	4 ..	41
3. Burghers and Eurasians ..	37,000 ..	1,036 ..	28·0 ..	526 ..	14·2 ..	74 ..	71
4. Sinhalese ..	3,830,000 ..	152,831 ..	39·9 ..	82,269 ..	21·5 ..	22,564 ..	148
5. Tamils ..	1,422,000 ..	47,998 ..	33·8 ..	31,335 ..	22·0 ..	8,867 ..	185
6. Moors ..	362,000 ..	12,577 ..	34·7 ..	9,097 ..	25·1 ..	2,447 ..	195
7. Malays ..	17,000 ..	768 ..	45·2 ..	451 ..	26·5 ..	129 ..	168
8. Others ..	34,000 ..	772 ..	22·7 ..	469 ..	13·8 ..	95 ..	123
(B) *Communities*—							
1. Ceylonese (*i.e.*, total population less Europeans and Indians) on estates	5,048,000 ..	190,487 ..	37·7 ..	111,556 ..	22·1 ..	29,855 ..	157
2. European (including officials) ..	10,000 ..	97 ..	9·7 ..	63 ..	6·3 ..	4 ..	41
3. Indian immigrant population on estates ..	654,000 ..	25,495 ..	38·4 ..	12,591 ..	19·0 ..	4,321 ..	169

Indian Population on Estates.—Section 2 of the Medical Wants Ordinance, No. 9 of 1912, defines an " Estate " as " any estate in which labourers are employed having ten acres of land actually cultivated in tea, rubber, coffee, cacoa, cardamoms, camphor, pepper, or cinchona ". The Indian population of the tea and rubber estates had declined greatly during the years 1929 to 1933 on account of the depression in trade, but during 1934 and 1935 the depression began to lift and considerable recruitment of labour from India took place.

TABLE V.

Vital Statistics of Indian Population on Estates for the past Ten Years.

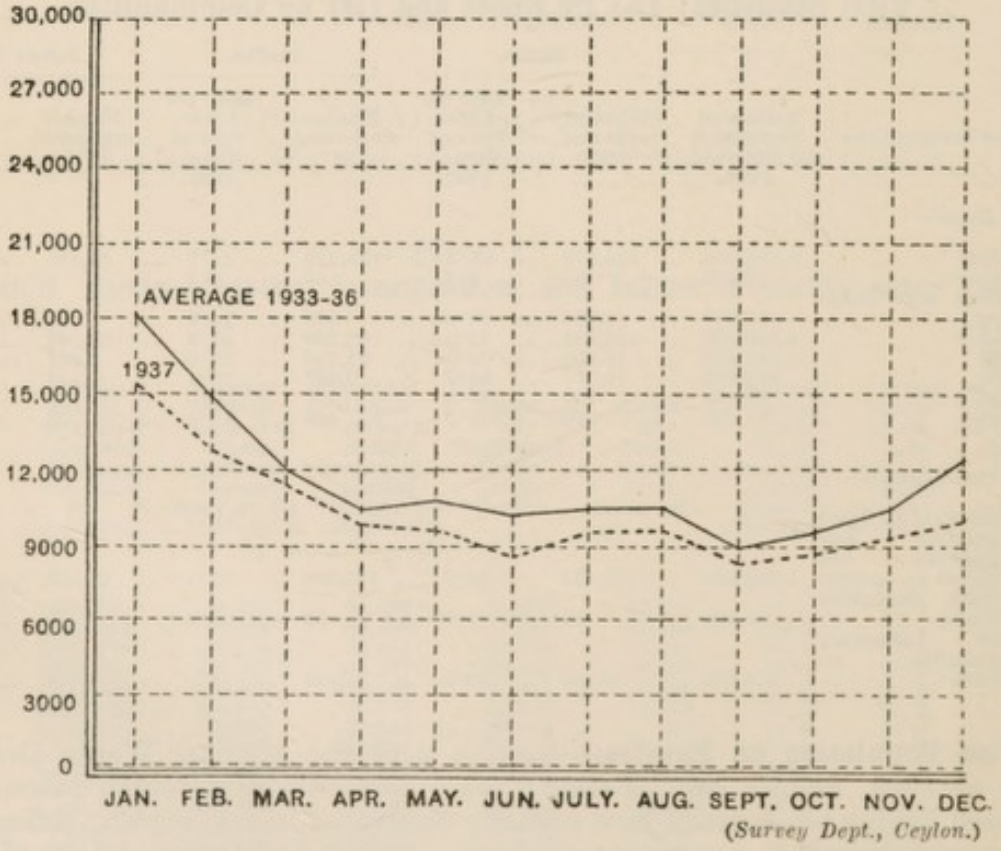
	Mean Population.	Births. Number.	Births. Rate.	Deaths. Number.	Deaths. Rate.	Infant Deaths. Number.	Infant Deaths. Rate.	Immigrants.	Emigrants.
1928	717,480	24,767	34·5	19,823	27·6	5,215	211	133,712	97,088
1929	731,177	25,064	34·3	18,382	25·1	5,338	213	105,095	104,411
1930	740,863	24,813	33·5	16,346	22·1	4,804	194	91,422	106,190
1931	685,527	23,441	34·2	14,231	20·8	4,303	184	68,337	91,573
1932	664,322	24,324	36·6	12,431	18·7	4,576	188	50,869	72,495
1933	618,314	24,335	39·4	11,688	18·9	4,397	181	32,898	88,969
1934	650,564	23,346	35·9	13,709	21·1	4,666	200	140,607	54,785
1935	679,201	25,759	37·9	18,133	26·7	5,094	198	43,018	43,036
1936	665,000	25,181	37·9	12,891	19·4	4,336	172	40,803	41,721
1937	664,000	25,495	38·4	12,591	19·0	4,321	169	51,427	47,924

TABLE VI.

Number of Deaths for the Whole Island each Month for the past Five Years.

Month.	Number of Deaths, 1933.	Number of Deaths, 1934.	Number of Deaths, 1935.	Number of Deaths, 1936.	Number of Deaths, 1937.	Average Monthly Deaths, 1933–36.
January	13,005	11,541	36,251	15,330	12,936	19,032
February	11,353	9,964	26,550	12,708	11,479	15,144
March	10,050	9,105	19,065	11,251	9,804	12,368
April	8,276	8,786	15,928	9,968	9,519	10,740
May	8,906	9,116	16,688	9,450	9,445	11,040
June	8,679	8,739	15,450	8,961	8,912	10,457
July	9,210	9,476	16,242	9,366	9,549	11,074
August	9,274	9,967	14,561	9,538	10,115	10,835
September	8,524	8,540	10,888	8,277	10,054	9,057
October	8,917	9,910	10,913	8,770	10,209	9,628
November	9,447	12,198	10,872	9,344	10,651	10,465
December	9,049	19,728	11,415	10,076	11,537	12,567
Total	114,690	127,070	204,823	123,039	124,210	142,407

SEASONAL CURVE OF MORTALITY



(*Survey Dept., Ceylon.*)

Causation of Deaths.—The registration of births and deaths is compulsory throughout the Island, but the causes of deaths given cannot be accepted as completely accurate since in the rural districts deaths are not usually medically

certified and the majority of the registering officers are not medical men. The Registsar-General compiles separately the vital statistics of the 37 principal towns in Ceylon and these figures are more reliable as regards the causes of deaths, since most of them are based on the certificates of medical practitioners.

TABLE VII.

Causes and Numbers of Deaths in the 37 Principal Towns for the past Three Years.

Causes.	Number of Deaths. 1935.	1936.	1937.
I.—*Infant Mortality*	5,473 ..	4,614 ..	5,328
(A) One Week and under.			
1. Prematurity	781 ..	686 ..	814
2. Debility	877 ..	737 ..	846
3. Convulsions	175 ..	170 ..	173
4. Tetanus	22 ..	15 ..	6
5. Bronchitis	4 ..	4 ..	1
6. Pneumonia	6 ..	3 ..	6
7. Other causes	106 ..	94 ..	136
(B) Over One Week and under One Year.			
1. Prematurity	142 ..	96 ..	132
2. Debility	837 ..	629 ..	697
3. Convulsions	493 ..	444 ..	451
4. Diarrhoea	95 ..	89 ..	143
5. Enteritis	330 ..	411 ..	411
6. Tetanus	12 ..	12 ..	4
7. Bronchitis	110 ..	125 ..	134
8. Pneumonia	461 ..	475 ..	659
9. Syphilis	43 ..	21 ..	29
10. Other causes	979 ..	603 ..	686
II.—*General Mortality (One Year and over)* ..	26,678 ..	19,513 ..	20,442
1. Plague	35 ..	28 ..	19
2. Smallpox	3 ..	1 ..	—
3. Chickenpox	— ..	2 ..	4
4. Measles	3 ..	10 ..	15
5. Influenza	353 ..	309 ..	412
6. Enteric fever	509 ..	520 ..	573
7. Malaria and malarial cachexia ..	5,696 ..	2,112 ..	1,520
8. Cholera	3 ..	1 ..	—
9. Diarrhoea	1,072 ..	630 ..	669
10. Enteritis	969 ..	702 ..	684
11. Dysentery	1,032 ..	487 ..	502
12. Ankylostomiasis	959 ..	637 ..	571
13. Diseases due to other intestinal parasites	571 ..	508 ..	592
14. Cancer	279 ..	273 ..	284
15. Pulmonary tuberculosis ..	1,234 ..	1,332 ..	1,333
16. Other tuberculous diseases ..	110 ..	106 ..	100
17. Anaemia	118 ..	61 ..	67
18. Diabetes Mellitus	256 ..	266 ..	297
19. Paralysis	388 ..	436 ..	487
20. Convulsions	341 ..	242 ..	244
21. Tetanus	120 ..	134 ..	121
22. Heart disease	876 ..	903 ..	929
23. Bronchitis	375 ..	394 ..	347
24. Pneumonia	3,753 ..	3,095 ..	3,848
25. Other diseases of the respiratory system	273 ..	263 ..	329
26. Bright's disease and nephritis ..	1,035 ..	746 ..	870
27. Puerperal eclampsia	96 ..	101 ..	116
28. Puerperal septicaemia	435 ..	428 ..	411
29. Accidents of childbirth .	440 ..	388 ..	474
30. Accidents and negligence ..	556 ..	533 ..	592
31. Homicide	91 ..	117 ..	83
32. Suicide	82 ..	77 ..	107
33. Execution	53 ..	41 ..	36
34. All other causes	4,562 ..	3,630 ..	3,806
Total, all causes ..	32,151	24,127	25,770

Table VIII.

Deaths according to the Class of Diseases for the whole Island during the past Two Years.

	1936.	1937.
I.—Infectious and parasitic diseases—		
(*a*) Infectious and parasitic diseases (less tuberculous and venereal diseases)	18,744	16,397
(*b*) Tuberculous diseases	3,558	3,552
(*c*) Venereal diseases	132	136
II.—Cancer and other tumours	580	612
III.—Rheumatic diseases, nutritional diseases, diseases of the endocrine glands and other general diseases	6,365	6,811
IV.—Diseases of the blood and blood-making organs	2,164	2,198
V.—Chronic poisonings and intoxications	5	15
VI.—Diseases of the nervous system and of the organs of special sense	14,530	15,260
VII.—Diseases of the circulatory system	1,921	2,049
VIII.—Diseases of the respiratory system	14,471	16,046
IX.—Diseases of the digestive system	8,792	8,603
X.—Non-venereal diseases of the genito-urinary system and annexa	1,848	1,949
XI.—Diseases of pregnancy, childbirth, and the puerperal state	4,158	4,304
XII.—Diseases of the skin and cellular tissue	9,463	10,328
XIII.—Diseases of the bones and organs of locomotion	30	23
XIV.—Congenital malformations	51	61
XV.—Diseases of early infancy	9,239	9,749
XVI.—Old age	6,175	6,256
XVII.—Violent and accidental deaths	3,050	3,046
XVIII.—Ill-defined causes and deaths	17,763	16,815

Table IX.

Deaths due to Diseases of Special Interest in Ceylon for the whole Population during the past Five Years.

		1933.	1934.	1935.	1936.	1937.
1.	Dysentery	1,886	2,279	6,175	2,217	1,967
2.	Pulmonary tuberculosis	3,118	3,094	3,387	3,167	3,145
3.	Infantile convulsions	11,666	12,939	16,501	11,323	12,015
4.	Diarrhoea	6,609	8,047	11,146	7,123	6,978
5.	Pneumonia	6,900	8,398	11,431	9,668	11,008
6.	Ankylostomiasis	1,877	2,118	2,644	1,839	1,708
7.	Dropsy	2,051	2,020	2,381	2,216	1,701
8.	Anaemia	2,217	2,244	2,645	1,905	1,988
9.	Intestinal parasites	3,689	4,372	4,832	3,077	3,502
10.	Puerperal septicaemia	1,336	1,461	1,647	1,527	1,453
11.	Malaria	1,409	2,333	47,317	7,620	4,405
12.	Enteric fever	794	715	690	773	880
13.	Rickets	4,696	4,878	5,133	3,599	3,850
14.	Tetanus	248	266	286	285	289
15.	Rabies	56	58	85	64	54
16.	Cholera	1*	—	22	24	2
17.	Influenza	1,920	2,305	1,917	1,583	2,087
18.	Leprosy	89	104	98	69	89
19.	Plague	53	32	57	44	34
20.	Scarlet fever	—	—	—	—	—
21.	Anthrax	—	1	1	4	3
22.	Smallpox	87	10	20	4	—
23.	Diphtheria	30	32	41	33	34
24.	Parangi	5	8	9	14	9
25.	Pyrexia	13,776	15,467	22,507	14,520	13,918

* This was a case of acute choleraic diarrhoea.

The above table shows that, excluding malaria, pyrexia, and infantile convulsions continue to be the two principal causes of death followed by pneumonia and diarrhoea.

TABLE X.

Causes and Numbers of Deaths among the Indian Population on Estates for the past Five Years.

		1933.	1934.	1935.	1936.	1937.
1.	Dysentery ..	330	491	683	337	301
2.	Debility	2,513	2,620	2,840	2,430	2,406
3.	Diarrhoea and enteritis ..	523	626	897	601	531
4.	Pneumonia ..	1,508	2,242	2,360	1,925	1,947
5.	Ankylostomiasis ..	709	835	1,091	719	631
6.	Infantile convulsions ..	889	963	1,174	783	849
7.	Dropsy	29	33	52	38	39
8.	Pulmonary tuberculosis ..	236	230	217	227	226
9.	Anaemia . ..	24	17	45	23	28
10.	Other diseases ..	4,927	5,652	8,773	5,810	5,633

III.—HYGIENE AND SANITATION.

A.—GENERAL REVIEW OF WORK DONE AND PROGRESS MADE.

Public health work continues to make steady progress. The Malaria Control and Health Scheme which was launched during the latter part of 1936 was extended during 1937 to include the whole of the North-Western Province, the Matale and Kandy Districts of the Central Province, Province of Sabaragamuwa with the exception of Kolonna and Kukul korales, Mannar and Mullaittivu Districts and the Tenmaradchi and Pachchilaipallai-Karachchi divisions of the Northern Province, Matara and Hambantota Districts and Gangaboda pattu in the Galle District of the Southern Province, certain areas in the Batticaloa District of the Eastern Province, one chief headman's division of the Province of Uva, Hurulu, Kalagam palatas, and Tammankaduwa division of the North-Central Province, and three chief headmen's divisions in the Western Province.

General sanitation has received the same attention as in previous years. The two important items under this head are: control of soil pollution and the provision of protected water supplies.

In the control of soil pollution during the year 4,672 bucket latrines were constructed in urban areas as compared with 3,687 in 1936; 16,619 deep pit latrines in rural areas as compared with 13,639 in 1936; 179 bored hole latrines as compared with 312 in 1936; 322 mound latrines as compared with 263 in 1936 making a total of 21,792 as compared with 17,901 in 1936.

In order to hasten the construction of latrines a five-year programme has been formulated for areas under Sanitary Assistants (Inspectors) and every effort is being made to completely sanitate villages. There still continues to be a good deal of indifference on the part of villagers to construct latrines.

In regard to the provision of protected water supplies during the year 281 new public wells and 4,215 new private wells were constructed, 2,794 wells were improved.

The annual grant for the construction of wells in rural areas is inadequate to meet the problem in a satisfactory manner. When Village Committees construct wells out of their own funds they prefer to build wells for bathing purposes than for drinking purposes. Till such time as an adequate number of protected wells are provided, the people are being educated to boil their drinking water.

Housing in urban areas is under control and small housing schemes have been carried out. In rural areas all that has been done has been in relation to peasant colonization schemes in connection with which dwellings are being constructed in accordance with two type plans supplied by the department; one for the married and the other for the unmarried settler. In the construction of these dwellings each settler is given a Government subsidy.

On estates regular inspection has been carried out on labourers' lines and Government requirements were met with in the case of 59,067 rooms as compared with 49,351 in 1936.

In regard to the control of communicable diseases there have been during the year 29 cases of plague as compared with 57 in 1936. There have been no outbreaks of the disease outside Colombo but there have been two sporadic cases whose

source of infection could not be determined. There have been no cases of cholera. There were two cases of smallpox in two new arrivals (one an American and the other European) from India. There were no secondary cases.

The incidence of typhoid and dysentery continues to keep at a high level and special attention is being paid to the control of these diseases.

There has also been an increase in the notified cases of diphtheria; there being 135 as compared with 103 in 1936.

Maternity and Child Welfare work continues to receive popular support. The work has been carried out at 207 centres as compared with 77 in 1936; at which 8,395 clinics have been held as compared with 4,543 clinics in 1936; with a total attendance of 39,841 expectant mothers as compared with 17,393 in 1936, 88,479 infants as compared with 29,563 in 1936, and 39,637 pre-school children as compared with 18,611 in 1936. These increased numbers are due to the large number of Field Medical Officers and associated staff who have been appointed. The infant mortality shows a reduction from 166 in 1936 to 158 in 1937 and the maternal mortality rates from 21.6 in 1936 to 19.9 in 1937. In limited areas where intensive work is being done with an adequate staff of Public Health Nurses and Midwives the reduction in mortality rates is very encouraging.

On school health work depends the future of the public health work of the country. A good deal of attention has been paid to the health of the school child and the work is being appreciated by all concerned with the result that work is receiving more co-operation. The staff engaged on the work consisted of 81 medical officers of whom 8 were whole time, and 9 school nurses. The number of schools in which health work has been done increased from 1,779 in 1936 to 3,106 in 1937; the number of children medically inspected increased from 52,629 in 1936 to 84,730 in 1937; the defects found were 124,540 as compared with 73,757 in 1936; and the defects corrected were 44,807 or 36 per cent. as compared with 21,979 or 30 per cent. in 1936. In the correction of dental defects the Mobile Dental Clinic inaugurated in June did very useful work and was much appreciated by the people. School health education has continued to receive more and more interest and the work in training schools was undertaken by School Medical Officers and Medical Officers of Health. The Education Department was responsible for the giving of a mid-day meal to a selected number of schools.

The Hookworm Campaign was carried out with more intensity and 2,163,373 treatments were given as compared with 1,855,572 in 1936 and 1,401,962 in 1935.

The Leprosy Survey, which had completed and organized its work in the Eastern, Western, Sabaragamuwa, and Southern Provinces, extended its work to the North-Western Province, and continued follow-up work in the former provinces.

An Island Survey of filariasis was undertaken and is in progress. Control work in a demonstration area in Dewamedi hatpattu in the North-Western Province is being undertaken, and action is being taken for the removal of the pistia plant throughout the Island.

Health work under Urban District Councils is being carried out satisfactorily. One Council continues to have its own Medical Officer of Health who is a private practitioner and another Council nominally has the departmental Medical Officer of Health in an executive capacity without getting him to function as such.

Health Unit work which was inaugurated in 11 areas is now the type of work that is being carried out in the major part of the Island and continues to be satisfactory in every respect.

1.—PREVENTIVE MEASURES.

(*a*) Mosquito or Insect-Borne Diseases.

(1) **Malaria.**—Malaria is the most prevalent disease in the Island. The hospital admissions for the disease were 57,190 cases in 1937 as against 73,192 in the previous year. The cases treated at the dispensaries and out-patients' departments of hospitals numbered 2,251,786 in 1937 as against 2,873,436 in 1936.

There were 1,451 deaths in hospitals from malaria in 1937, giving a death rate of 2.5 per cent. as contrasted with 2,030 deaths with a rate of 2.8 per cent. in the previous year.

The number of malaria cases treated annually in hospitals and dispensaries during the last ten years is as follows:—

Year.	Cases treated in Hospitals.	Percentage of the Total Number of Patients treated in the Hospitals.	Cases treated in Dispensaries.	Percentage of the Total Number of Patients treated in the Dispensaries.
1928	44,356	19·7	1,542,029	44·2
1929	37,591	17·8	1,629,586	44·6
1930	36,901	18·0	1,722,210	45·2
1931	27,714	14·4	1,419,807	38·2
1932	32,696	15·7	1,506,194	38·0
1933	23,101	11·1	1,199,075	31·8
1934	41,551	16·5	2,293,224	44·5
1935	161,313	40·8	5,293,468	65·4
1936	73,192	22·5	2,873,463	47·7
1937	57,190	16·6	2,251,786	38·2

The following table shows the hospital admissions and deaths on account of malaria in the different provinces for the past three years:—

	1935.		1936.		1937.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
General Hospital, Colombo	8,664	380	5,775	229	2,609	111
Western Province	22,080	728	7,842	262	5,112	160
Central Province	52,997	1,590	15,594	293	9,979	144
Northern Province	3,715	79	4,404	117	4,422	72
Eastern Province	1,798	34	2,964	41	4,093	63
Southern Province	7,959	203	7,411	189	6,995	198
North-Western Province	14,484	983	8,712	319	7,821	383
North-Central Province	3,660	114	3,858	194	3,217	80
Province of Uva	13,001	208	7,210	104	6,608	89
Province of Sabaragamuwa	32,955	1,021	9,422	282	6,334	151
Total	161,313	5,390	73,192	2,030	57,190	1,451

5,545,525 five-grain tablets and 19,091 pounds of quinine were issued free through various agencies for curative and preventive purposes.

(a) Special Anti-Malaria Measures.

Anuradhapura.—The town is 9¼ square miles in extent and of this an area of 6 square miles was under malaria control measures. This was the fifteenth year of Anti-Malaria Campaign activities here.

Staff.—The permanent staff consisted of one Medical Officer of Health, two Sanitary Assistants, one Overseer, three kanganies and a labour force of 36 men. Temporary labour was engaged from time to time for specific drainage works.

Oiling.—Routine oiling of all breeding places, other than drinking water supplies and paddy fields, was carried out. 46,184 situations covering a total extent of 3,534,000 square yards were treated with 7,068 gallons of oil. The total cost of this measure was Rs. 4,199.24, of which Rs. 2,685.84 was for oil and Rs. 1.513.40 for labour.

Maintenance—General.—Under this head, all breeding places were cleaned prior to oiling, 2,974 drains with a total length of 241,953 feet were maintained, and 3,744 ponds, pools and pits were maintained free of weeds and debris.

325 borrow pits were completely filled up and 1,282 pits dug to bury water-holding receptacles. The total cost of work done was Rs. 2,973.22½.

The gang employed for maintenance carried out the following special items of work :—

(*a*) Drop wall in drainage line No. 1 in sub-section No. 5.
(*b*) Laying of 2 culverts across the Inner Circular road to drain off water collections in Thuparama Archæological Reservation. 2.25 cubes of stone work and 375 feet of drains were done in this connection.
(*c*) 2,000 feet of Halpan Ela No. 3 was repaired with 150 cubes of silt.
(*d*) Complete re-alignment of the spill channel from Drinking Pond to Basawakkulam.
1,000 feet of new channel was cut, and with the 105 cubes of earth made available the old channel was filled. Cost of work Rs. 715.97½.

Maintenance of Elas.—The Ela Patrol gang, whose duties were to keep the main lengths of the Elas and their side-drains clear of weeds and free from obstruction, carried out the maintenance of the Elas.
7,300 feet of Wan Ela, 8,200 feet of Toluwila Ela, 17,600 feet of Halpan Ela. 8,042 feet of Diulgahakotuwa Ela, and 1,200 feet of Malwatu Oya Lane pond channel were maintained in good condition at a cost of Rs. 2,242.05 for labour.

Permanent Ela Works.—A gang for carrying out permanent repair works in the Elas was organized in June and worked till the end of September. The following work was done by this gang—

Halpan Ela Tract: 3.—Removal of 150 cubes of silt, repairing of 6,845 feet of main ela, and 2,470 feet of side drains, clearing of reservation to a length of 1,270 feet. The work cost Rs. 187.25.

Toluwila Ela.—3,100 feet of the channel was attended to 41.20 cubes of rubble lining done, 74 feet of channel turfed, 200 feet of channel revetted with pegs. The total cost of this work was Rs. 508.90.

Anicut in Malwatu Oya.—A part of the anicut was blasted and removed. 201.76 cubes of stone work was done at a cost of Rs. 413.35.
The permanent ela gang was restarted in November and up to the end of the year, carried out a considerable amount of permanent repair work in the Malwatu Oya Lane pond channel, new outlet channel from Drinking Pond to Halpan Ela and Toluwila Ela No. 3. The work done by this gang cost Rs. 319.05. The total cost, therefore, of all works carried out by the Ela permanent works gang was Rs. 1,428.55.

Major drainage works.—(*a*) Improvement of outlet channel from Drinking Pond to Halpan Ela commencing from Kurunegala road was commenced in June. A 700 feet pointed " V " shaped drain was constructed along the Kurunegala road beginning at the irrigation channel opposite the Archæological Museum. The main 2,300 feet of channel was earth cut and turfed up to its outfall in Halpan Ela No. 1. Nine masonry drop walls, two irrigation regulators, and one culvert were constructed. 4 road-side drains at Elakatuwa road bridge were realigned and rubble lined, and 7 herring-bone side channels were connected to the main channel and turfed. By the construction of this channel, which cost Rs. 4,988.85, the swampy areas between the Elakatuwa and Kurunegala roads, were drained.

(*b*) Malwatu Oya river training work was started in March and completed in October. In this process 3 islands with over 20 full grown trees were removed in addition to the hundreds of fallen trees and trees growing in the bed of the river, that were uprooted and removed. Trees growing on the banks and leaning heavily towards the bed were also cleared. The section where this work was carried out is between Mihintale road bridge and outfall of Toluwila Ela. The total length of this section was 4,000 feet and the cost of all work done was Rs. 1,498.29. Clearing of that section of the Malwatu Oya between Dickson road bridge and Mihintale road bridge was started in December and the work done for the month cost Rs. 318.34. The total cost of work done on the Malwatu Oya for the year was Rs. 1,816.63.

Filling, Minor drainage and clearing.—The following items of work were done almost exclusively by the Anti-malaria Convicts Brigade.

(*a*) Breeding places along Mihintale road, a large pond in " Y " road, pits in sections 7B and 9A, and pools below Basawakkulam bund were filled. 1,233 cubes of earth were used for the purpose on 37 situations.

The Urban District Council filled up a large pond in Section 2C with town refuse and has undertaken similar filling work along Puttalam road.

(*b*) The realignment of Tissawewa spill channel with a view to prevent pools being formed, straightening of bends, and other minor work were done by the convicts gang. A total of 339.84 cubes of earth work was done in this connection.

The Urban District Council constructed a new culvert for Tissawewa spill channel on Arippu road for the more satisfactory drainage of storm water.

(*c*) 260,570 square feet of jungle near Tissawewa spill channel, Toluwila Ela, and Wan Ela sources was cleared by the Convicts gang.

For all these works, 10,633 convicts and 1,117 officers were employed.

Fish distribution to wells.—Introduction of " millions " into wells was carried out twice a month during the year. Carnivorous fish were found in some wells and these wells proved positive to anopheline breeding. Nineteen wells were treated with tropical chloride of lime with a view to kill the carnivorous fish and the experiment proved successful. The highest larval rate for wells was 10 per cent. in January and the lowest in July, August, and September—0.4 per cent. Fish distribution work cost Rs. 294.25. A fish nursery 12 ft. by 6 ft. was constructed at the Drinking Pond as per specifications of the Sanitary Engineer.

Quinine prophylaxis.—Administration of quinine to school children and the labour forces of the various departments was systematically done throughout the year. 33,087 five-grain tablets and 14,980 three-grain tablets were distributed. 5,400 quinoplasmoquine tablets too were issued at the Clinics. The total cost of drugs administered was Rs. 989.40.

General.—(*a*) The total rainfall for the year was 48.97 inches with a fall of 3.79 inches in March as the highest.

(*b*) A spleen and parasite survey was conducted in March and gave the following results. Spleen rates in town for under 12 and over 12 year groups—69.9 per cent. and 35.8 per cent.; outside town rates for same groups—87.5 per cent. and 85.7 per cent. The corresponding spleen rates for 1936 were 69.8 per cent. and 52.8 per cent. in town and 80.6 per cent. and 75.0 per cent. outside town. 724 town children were examined for malaria parasites and 105 proved positive. Parasite rate 14.5 per cent. B.T: 35; M.T: 25; Qt: 42; Mixed: 3.

(*c*) Anti-malaria measures were carried out at Puliyankulam Agricultural Experiment Station from October and consisted of:—1. *Drug administration*: An average of 126 persons were systematically treated with quinine (mixture and tablets) and plasmoquine. 2. *Oiling*: 3,797 breeding places were treated with 357 gallons of oil. The oil cost Rs. 135.66 and labour Rs. 107.80. Total Rs. 243.46. 3. *Maintenance*: Cleaning of breeding places prior to oiling, disposal of water-holding receptacles, filling of breeding places where possible were done. The cost of this work was Rs. 264.55. 4. *Shell Tox spraying*: 762 rooms were sprayed with 7½ gallons of Shell tox costing Rs. 30. 5. *Fish distribution to wells*: 10 wells were stocked with " millions ".

Kurunegala.—The town is 4⅜ square miles in extent and the whole area was under malaria control during the year 1937. This was the tenth year of anti-malaria activities in the town.

Staff.—The Medical Officer of Health, Health Unit, was in charge and he had a Sanitary Assistant, an overseer, three kanganies, one stores labourer and a labour force of 24 labourers.

Oiling.—86,039 breeding places with an area of 4,613,000 square yards were treated with oil. The quantity of oil used was 9,226 gallons at a cost of Rs. 3,505.86 and with the labour costing Rs. 1,611.56, the total cost of this anti-larval measure was Rs. 5,117.42.

Maintenance.—The work done under this head consisted of realigning and maintaining in good condition 1,981 drains of a total length of 440,528 feet. This item cost Rs. 1,517.31. The Bu-Ela, the Wan Ela and Gettuwana Ela were

periodically cleaned of floatage and obstructions to the free flow of water. The elas were also canalized to prevent formation of pools. This work cost Rs. 199.45. The total cost of all maintenance work done amounted to Rs. 1,716.76.

Fish distribution.—There were 622 wells till October, and in November and December 23 unbuilt earth wells were closed down, leaving 599 wells.

28,647 examinations were made of these wells and " millions " regularly and systematically introduced. Yet anopheline breeding continued throughout the year. The percentage of wells breeding anopheline larvae was 9.2 for the year. The lowest monthly percentage was 3.3 in May and the highest 11.0 in November. The wells were petrolised in January and February on account of an alarming increase in larval breeding in the latter part of 1936. Petrolising work cost Rs. 152.60 and fish introduction work Rs. 1,023.96 giving a total cost of Rs. 1,176.56 for well control work.

As the old fish nursery in the tank was abandoned, a new nursery was built at the back of the resthouse at a cost of Rs. 232.29.

Quinine prophylaxis.—Throughout the year quinine bisulphate in tablet form was administered to children in the town schools: 366,810 grains were spent and cost Rs. 1,467.24.

Filling.—Three large low-lying areas in section 3A, 9B and 5A were filled and drained. This has resulted in a reduction of the oil consumption. 791 breeding places were filled during the year. 1,375 cubes of earth were used for the purpose and the labour cost Rs. 1,348.08.

Drainage.—With the Urban District Council contribution of Rs. 100 a month the following permanent works were executed:—(*a*) A cement drain at Yantampalawa near culvert No. 2/4 on Puttalam road. Cost Rs. 400. (*b*) A channel through the site of the culvert at the junction of Puttalam road and Tank Circular road. Cost Rs. 46.

General.—(*a*) The total rainfall for the year was 72.65 inches as against 85.43 inches in 1936. The heaviest precipitation occurred in November (11.91″). (*b*) The hospital attendance figure for malaria was 8,473 as against 13,751 in 1936. (*c*) Two spleen examinations were carried out in March and October and the spleen rates for town children were 19.2 per cent. and 6.8 per cent. respectively. 876 children were examined in March and 1,076 in October. The spleen rate for the year 1936 was 68.0 per cent.

Chilaw.—The area under malaria control is about 2 square miles and extends slightly beyond the Urban District Council limits. The year under review was the tenth of anti-malaria activities in the town.

Staff.—The work of the Campaign was in charge of the Medical Officer of Health, Chilaw, and the staff doing anti-malaria work consisted of two sanitary assistants, one overseer, one kangany and 42 labourers.

Oiling.—In spite of a heavier rainfall in the year than in any of the four previous years, the consumption of oil was reduced by about 2,000 gallons as compared with 1936. This was due to the large amount of filling work done. 8,633 gallons of oil were used at a total cost of Rs. 4,613.31 in treating breeding places. The oil cost Rs. 3,225.40 and labour Rs. 1,387.91.

Paris Green spraying.—A 2 per cent. mixture of Paris Green with soapstone powder was used in treating bathing and drinking ponds. 2,388 lb. of this mixture were used during the year. The total cost was Rs. 479,29, of which Rs. 95.92 was for materials and Rs 383.75 for labour.

Maintenance.—Cleaning of all breeding places prior to oiling, and cleaning, levelling and grading of drains were the items of work done under this head. 14,378 situations were attended to at a cost of Rs. 3,576.89½ for labour. Some improvements to the Wattakaliya Odai built drain inverts and pavements and general repairs to the main and branch drains were effected at a cost of Rs. 186.50.

Fish distribution.—A new fish nursery was installed in the office premises and in all there were three built nurseries in the Campaign area, while some of the gala wells also served as subsidiary nurseries.

A total of 5,548 examinations of wells was made, and "millions" introduced into 2,197 wells. 110 wells were positive to anopheline breeding, the percentage of such wells being 1.9 per cent. for the year.

The highest monthly percentage was 3.1 in January and April and the lowest in December 1.0.

Taking gala wells only into account, the total examinations were 1,174. "Millions" were introduced into 349 wells and the annual percentage of gala wells positive to anopheline larvae was 0.4. This percentage was nil from January to September and rose to 2.5 in October, dropped to 1.6 in November and further dropped to 1.0 in December. A sum of Rs. 690.55 was spent on this item.

Quinine prophylaxis.—All 7 schools in town were given quinine during January-March and Sptember-December. The campaign staff was also similarly treated. 29,769 5-grain tablets and 40,250 3-grain tablets were issued. This cost Rs. 1,003.96.

Filling.—(*a*) With the sum of Rs. 1,500 provided by the Urban District Council for the purchase of sea sand and coir dust, 28 gala wells were filled. Eight other wells were filled with material obtained from the vicinity, so that a total of 36 wells was filled in the year. 152 gala wells had been filled in previous years, thus bringing the grand total to 188 wells.

Continuation of filling of 4 partly filled gala wells was undertaken and two of them completed.

(*b*) Twelve borrow pits and 8 swamps in various parts of the town were filled with sea sand obtained from the vicinity. The side drain to the south of the built drain at Wattakaliya Odai was also filled up to the level of the inverts with sea sand.

(*c*) The scavenged rubbish of the town which was placed at the disposal of the campaign by the Urban District Council was utilized in filling large swampy and low-lying areas in the town. Coir dust was spread over such fillings to prevent fly breeding.

The total cost of labour of all items of filling done during the year was Rs. 2,844.86.

General.—(*a*) The total rainfall for the year was 63.66 inches which was heavier than in any of the four preceding years. (*b*) Herbage packing of six borrow pits was carried out as an experiment to prevent anopheline breeding. From this point of view the experiment was successful but culicines bred very heavily in these places. The cost too was prohibitive—Rs. 356,52 for three months. (*c*) The channel from Colombo road culvert to Railway culvert was revetted with pegs and the width of a part of it was reduced by filling in and turfing. (*d*) Two spleen surveys were carried out in March and September and gave the following results:—

	Age Group.	In Town. Per Cent.	Outside Town. Per Cent.
March, 1937	Under 12 years	19·6	48·6
	Over 12 years	11·3	31·3
September, 1937	Under 12 years	13·0	33·1
	Over 12 years	3·6	9·1

The spleen rates for all children examined in town in 1936 were 35.5 per cent. in March and 13.6 per cent. in November.

Badulla.—Anti-malaria measures reached the eighth year of their operation in this town.

Staff.—The staff consisted of a Medical Officer of Health, two Sanitary Assistants, an overseer and a labour force averaging 14 labourers.

Oiling.—This measure was confined to margins of rivers, Badulla Oya, Kuda Oya and Rambukpotha Oya and the numerous sand pools and rock pools in the beds of these rivers. Other mosquito breeding places in the control zone were also treated with oil. The total area thus treated for the year was 1,482,500 square yards and 2,965 gallons of oil were used. The cost of this work was Rs. 2,883.99, of which Rs. 1,119.44 was for oil and Rs. 1,764.55 for labour.

Maintenance.—Maintenance work consisted of (*a*) clearing the margins of the rivers; (*b*) filling up of sand pools and rock pools in river beds; (*c*) filling up of pits, borrow-pits, and pools in the various parts of the town. The total cost of all work done under this head was Rs. 2,985.49.

Quinine prophylaxis.—Quinine was given in tablet form to the various schools in town. The staff and labour force of the Campaign and members of the public were also given quinine. A total of 11,160 5-grain tablets and 10,450 3-grain tablets was distributed.

River training works were carried out by the Sanitary Engineer, but maintenance of some of the work was undertaken by the campaign labour force in January to March and October to December. The cost of labour on maintenance work was Rs. 370.37.

General.—(*a*) 68.19 inches of rain fell in the year; (*b*) the incidence of malaria as gauged by hospital attendances showed 11,841 malaria attendances for 1937 as compared with 11,265 previous year. The total hospital attendances, however, were 52,214 in 1937 and 32,543 in 1936 so that there was actually a reduction in the percentage of malaria cases in 1937 as compared with the figure for 1936; (*c*) the spleen survey of boys' schools in town in March gave a rate of 7.5 per cent. as against 25.2 in 1936.

Puttalam.—The town is $8\frac{3}{8}$ square miles in extent of which an area of 2.12 square miles is under malaria control measures. The year was the eighth year of the anti-malaria campaign.

Staff.—The activities in this town were supervised by the Medical Officer of Health, Chilaw, till May when, with the appointment of a Field Medical Officer, the Campaign was placed under his charge. A labour force of two kanganies and 20-28 labourers was supervised by one Sanitary Assistant.

Oiling.—All breeding places except wells, tanks, and paddy land under cultivation, were treated every week with oil. A total of 14,500 situations covering an area of 1,156,250 square yards was treated during the year. 2,312½ gallons of oil costing Rs. 878.73 were used for the purpose at a cost of Rs. 504.88 for labour, the total cost of this measure being Rs. 1,383.61.

The efficiency rate was quite satisfactory and a marked reduction in the quantity of oil used was observed. (3,852 gallons in 1936) due to the large scale filling and drainage works.

Maintenance work.—All pools, ponds, coconut trenches, gala wells, &c., were cleaned and edges trimmed prior to applications of oil. The number of places so cleaned was smaller than in the previous year and was only 645 as compared with 3,862 in 1936. The cost of labour on this item was Rs. 330.82.

Fish distribution.—In addition to the existing mosque tank nurseries, the landlord of the office constructed at his own expense a cistern 10 feet by 4 feet by 2 feet in the office premises to serve as a fish nursery.

The wells in town are of various types, built, pottery, cement barrel, cistern, &c., and about 500 of them are found in the control area. These were examined once a month and fish millions introduced where necessary. A total of 5,455 wells was inspected and millions introduced into 4,183 wells, at a cost of Rs. 233.28 for labour. Only 53 wells were positive to anopheles larvae (0.9 per cent.).

Quinine distribution.—Systematic distribution of quinine tablets to school children and the campaign labour force was carried out during the fever season. 11,653 5-grain tablets and 17 961 3-grain tablets of quinine bisulphate were distributed in the schools, while 1,604 5-grain tablets were issued to the labourers.

Filling.—A considerable amount of filling was carried out both on Crown and private property in sections 2B, 3B, 3C and 3D with earth obtained from adjacent high ground. Seventy-nine borrow-pits, 70 pits, 10 swamps, 5 gala wells, and 15 other places were filled during the year at a cost of Rs. 2,207.09 for labour.

The Urban District Council placed at the disposal of the campaign its town refuse and with this 53 breeding places were filled up and a layer of earth spread over the fillings. The cost of labour Rs. 571.62 was borne by the campaign.

Drainage.—(*a*) The drains and channels in existence were maintained in good condition. 59,930 feet of channels and 69,454 feet of drains were kept in good repair at a cost of Rs. 1,020.39 for labour. (*b*) The sides of channels in sub-sections 4B and 4A were turfed to prevent damage by floods. The area turfed was 3,165 feet by 3 feet and cost Rs. 454.06. (*c*) The scheme to drain the Settlement area was put in hand and 1,550 feet by 3 feet by 2½ feet of drain opened as instructed by the Sanitary Engineer. This cost Rs. 69.50. (*d*) The invert of the existing drain from culvert 1/3 towards upstream on the western side of Mannar road was raised to a length of 130 feet.

The laying of the 18-inch half round drain below culvert No. 1/3 to a distance of 40 feet and carried out by the Sanitary Engineering Division at a cost of Rs. 106.25.

General.—(*a*) The labourers' lines were rethatched at a cost of Rs. 82.25. (*b*) Three borrow-pits and one pool were packed with herbage to prevent anopheline breeding. Cost Rs. 89.75. (*c*) 119 acres of jungle in various parts of the town were cleared at a cost of Rs. 174. With funds provided by the Assistant Government Agent 35 acres of jungle were cleared along the reservation of the Settlement area. Cost Rs. 59.75. (*d*) The total rainfall for the year was 43.56 inches of which 15.12 inches fell in November. July had no rain at all. (*e*) Two spleen examinations were carried out, one in February and the other in September. In the first examination the town children gave a spleen rate of 28.3 per cent. (examined 430: positive 122) and children outside town gave a spleen rate of 55.0 per cent (examined 60: positive 33). At the September examination the spleen rates were 10.4 per cent. (examined 429: positive 44) and 23.9 per pent. (examined 109: positive 26) respectively. (*f*) The hospital attendance figures for all diseases in town were 7,278 and for malaria 2,638 (38.2 per cent.) which compare favourably with the corresponding figures for the previous year—5,483 and 2,353 (43.0 per cent.). The number of all cases outside town in 1937 was 10,168 and malaria cases 5,742 (56.4 per cent.).

Trincomalee.—This town is about 2⅞ square miles in extent and the maintenance of anti-malaria measures was continued as in the past. The expenditure on such work was borne by the Urban District Council excepting the salary and allowances of the Sanitary Assistant.

Staff.—The Medical Officer of Health was in charge of the campaign. One sanitary assistant, one overseer, one head labourer and a gang of 6-15 labourers were employed on anti-malaria work.

Oiling.—An area of 1,335,500 square yards of breeding places was treated with 2,671 gallons of the oil. The total cost of this measure was Rs. 1,448.27 the cost of oil being Rs. 988.27 and labour Rs. 460.

Maintenance.—143,876 feet of drains were periodically cleaned and maintained in good condition at a cost of Rs. 916.60 for labour.

The Horse Pond which was found to breed the malaria carrying mosquito in August was treated with copper sulphate. It was also periodically cleaned and algae removed. It is also being filled with town refuse. The cost of work done here was Rs. 235.60.

Fish distribution.—There are 1,041 wells in town and these were regularly examined and where necessary fish millions introduced. In all 6,076 examinations were made and fish introduced 2,840 times. Only 103 wells were found positive to anopheline larvae (1.7 per cent.).

Filling.—41 borrow-pits with a total capacity of 76,678 cubic feet were filled in the Maddicaly area and in Division 11. This work cost Rs. 387.60.

General.—The total rainfall for the year was 58.36 inches of which 20.42 inches fell in November.

Railway Anti-Malaria Works, Maho.—Anti-malaria measures were confined to a radius of ¼ mile from Maho railway station.

Staff.—The campaign was placed in charge of the Field Medical Officer, Maho, from February, and the Sanitary Assistant who was doing only anti-malaria work was given general sanitary work outside the campaign area in addition to normal work. The labour force consisted of 1 kangany and 29 labourers till February when 9 labourers were discontinued leaving only 20 labourers from March, 1937.

Oiling.—36,576 breeding places covering an area of 881,075 square yards were treated with oil. The cost of 1,465 gallons of oil used was Rs. 556.70 and labour Rs. 385.40 giving a total cost of Rs. 942.10.

Maintenance.—141,935 feet of drains were maintained in satisfactory condition at a cost of Rs. 731.70 for labour.

Filling.—208 pits and low-lying places were filled during the year. 199,360 cubic feet of earth were used for the purpose at a cost of Rs. 2,548.55 for labour.

Quinine distribution.—6,522 tablets 5-grain and 1,075 tablets 3-grain quinine bisulphate were distributed mainly to the railway staff.

Fish distribution.—A fish nursery was built by the campaign labourers at a cost of Rs. 27.10 and fish millions were introduced into the 41 wells in the area on 961 occasions. The labour of this work cost Rs. 78.

General.—(*a*) Scavenging of the bazaar area was done by the Village Committee. The campaign scavenged the railway premises at a cost of Rs. 496.25. (*b*) Water holding receptacles were collected and destroyed. This work cost Rs. 43.50. (*c*) The tank was cleared of pistia plants by a gang of labourers at a cost of Rs. 132.66. (*d*) Jungle clearing was done at a cost of Rs. 79.50. (*e*) The total rainfall for the year amounted to 51.69 inches. (*f*) The attendances for malaria at Maho dispensary were 22,143 cases—an increase of 1,544 over the numbers for 1936. There were, however, only 1,443 cases of fever from the town area treated at the dispensary and the rest came from outside the campaign area.

Minneriya Development Scheme.—The staff consisted of a sanitary assistant, an overseer and a gang of 20 labourers. The District Medical Officer, Polonnaruwa, visited the area twice a week or more often and was responsible for the malaria control and general health measures in the area.

Oiling.—Weekly treatments of breeding places with oil were carried out, and a total of 54,665 places covering an area of 1,900,500 square yards was oiled. 3,801 gallons of oil costing Rs. 1,444.38 were sprayed at a cost of Rs. 1,517.02 for labour. The total cost of oiling was Rs. 2,961.40.

Maintenance.—This work included the cleaning of 6,894 breeding places preparatory to oiling, maintenance in good state of 189,462 yards of drains and channels, filling up of 200 borrow-pits and 26 drains and the opening up of a number of drains where necessary. The labour of this item totalled Rs. 1,696.75.

Paris green spraying.—This was done on selected breeding places, such as paddy fields and irrigation channels for five days in January and from middle of April to middle of May. 9,284 places of a total area of 212,200 square yards were treated with 4,244 lb. of Paris green soapstone mixture. The total cost of this item was Rs. 303.53, of which Rs. 190.98 was cost of material and Rs. 112.55 of labour.

Herbage Packing.—2,097 breeding places were packed with herbage to prevent anopheline breeding. This work cost Rs. 573.12.

Fish Distribution.—There were 14 wells in the area and 8 of them were found to breed anopheline larvae. An attempt to build a fish nursery and to introduce " millions " into these wells was being made.

Shell tox spraying was done in the latter part of January and in February to destroy adult mosquitoes in huts. 1,797 huts were sprayed with 16 gallons of shell tox at a cost of Rs. 75.20 for material and Rs 51 for labour.

Quinine prophylaxis.—Up to the end of July regular quinine prophylaxis work was done among colonists and others and a total of 27,571 5-grain tablets and 2,000 3-grain tablets was distributed.

Distribution of quinine by the Sanitary Assistant was discontinued in August and the colonists were informed to apply for the drug from the Government dispensary, the Ratemahatmaya, the Colonization Officer, or the Peace Officer with whom stocks were always available.

General.—(*a*) Total rainfall for the year was 51.18. (*b*) 198 blood films from colonists were examined in June and 14 proved positive. Parasite rate 7.0 per cent. (*c*) The housing of the colonists remained in the same unsatisfactory state as in the past years. There were about 25 huts in the old area, some completed, others under construction. In the new 250-acre block at Hingurakgala there were 35 huts, 12 of them completed, and 23 under construction. All these huts were scattered about and anti-mosquito work over so wide an area was rendered difficult. (*d*) 1,302 colonists and 1,653 others were treated for malaria at the dispensary. A total of 167 colonists was treated at the hospital and 77 of them were for malaria. 11 patients died mostly due to malarial entero-colitis, cerebral malaria, and influenzal pneumonia. A wave of influenza swept over the area in December and a few of these developed pulmonary complications. On August 19 a case of chickenpox was detected. Three contacts subsequently developed the disease, but with necessary precautions the disease was confined to that hut. Child welfare and maternity clinics were held weekly at Minneriya and Hingurakgoda and nearly 30 infants were provided with Lactogen and Cod liver oil. (*e*) Advice on general sanitary measures was given to the colonists by the medical officer and sanitary assistant. A public latrine in the Bazaar area where a large number of people congregate is an urgent necessity.

China Bay.—Anti-malaria measures which were carried out by the Admiralty authorities on Crown land at China Bay and which were taken over by the Department of Medical and Sanitary Services in April, 1936, were continued in 1937. The staff consisted of one sanitary assistant, one kangany and six labourers. The work was supervised by the Medical Officer of Health, Health Unit, Trincomalee.

Oiling.—4,754 breeding places at China Bay and Natchchikuda were treated with oil mixture. 1,762½ gallons of oil mixture costing Rs. 652.12½ were used for the purpose at a cost of Rs. 577.20 for labour. The total cost of oiling was therefore Rs. 1,229.62½.

Shell Tox spraying.—Following increase prevalence of adult anophelines in April, Shell Tox spraying was carried out to destroy them. 1,858 huts and boutiques were sprayed with 10 gallons of Shell Tox. The total cost of this measure was Rs. 67.60, of which Rs. 47.50 was cost of Shell Tox and Rs. 20.10 of labour.

Maintenance of built channels and earth drains.—(*a*) 12,496 cubic feet of earth was excavated in opening up drains. Cost of labour Rs. 166.85. (*b*) All channels and drains were graded and maintained to a length of 22,346 feet at a cost of Rs. 427.25 for labour. (*c*) 121,794 square feet of jungle clearing was done at a cost of Rs. 109.70 for labour. (*d*) 10,311 square feet of turfing was done on sides of new masonry channels. Cost Rs. 132. (*e*) Repairing of damages caused by floods to channels Nos. 1 and 2 cost Rs. 27 and Rs. 11.20 respectively.

Filing.—(*a*) 188 borrow-pits were filled with 54,029 cubic feet of earth at a cost of Rs. 612.95.

(*b*) The sides of the newly built channels were filled with 25,941 cubic feet of earth at a cost of Rs. 407.75.

General.—The total expenditure on anti-malaria measures was Rs. 3,144.62½ for the year 1937 exclusive of the salary and allowances of the Sanitary Assistant.

Kataragama.—Anti-malaria measures in connection with Esala festival at Kataragama commenced on May 24 and were continued till July 24, 1937.

Oiling of the Menik-ganga river was commenced on May 31 and continued every week till the end of the festival. 120 gallons of diesel oil and 18 gallons of kerosene were used for the purpose. The river bed was cleaned of floatage whenever necessary.

Shell insecticide spraying was done in all occupied houses to destroy adult mosquitoes. Twenty such applications were systematically made and a total of 12 gallons of the insecticide was used.

Jungle clearing around the temple premises, along both banks of the river, and around Government bungalows was done and the clearings burnt before the festival commenced.

Quinine prophylaxis.—Quinine was distributed to all residents of the place on two consecutive days every week. 5,000 each of 5-grain and 3-grain tablets of quinine bisulphate were used for the purpose.

General.—A Sanitary Assistant was in charge of the anti-malaria work with a labour force of one kangany and six labourers.

Central Office and Laboratory, Colombo.

Investigation.—Spleen and parasite surveys of selected areas in observation stations were continued to determine how long it takes for the spleen and parasite rates to regain normal conditions after the malaria epidemic. The following areas were examined:—Kandy, Giriulla, and Kitulgala in June; Baddegama in July; and Avissawella in August. Investigations were started in July to determine the seasonal prevalence of Malaria Plasmodia in ten selected stations in Ceylon. The stations selected were Pesalai, Nochchiagama, Polonnaruwa, and Sammanthurai in the dry zone; Narammala, Rambukkana, and Alawwa in the intermediate zone; and Avissawella, Gampola, and Kegalla in wet zone.

100 children below the age of 12 were selected from schools in each of these stations and blood films were taken from them every month from July onwards.

The life history study of the Malaria Plasmodia outlined in this investigation is not to be confused with the already determined and conclusively demonstrated development of the various stages of malaria parasites in the human blood, but it will have as its main objects the following points:—(*a*) The seasonal prevalence of the human plasmodia in different zones of the Island. (*b*) The proportionate distribution of the three species as a whole in regard to—(i.) the zones of inquiry, and (ii.) by months in the Island. (*c*) The increase (if any) in parasite infestation during the non-transmission season. (*d*) The time of appearance of increased gametocyte prevalence in the zones of inquiry. (*e*) The determination of the time best suited for quinine distribution in schools. (*f*) The correlation of spleen sizes to parasite findings and fever histories.

With the object of investigating the percentage error in the clinical diagnosis of malaria at out-patients' departments, the Medical Officer of Health, Matale, and the Field Medical Officers of Gampola, Wattegama, and Wahacotte were instructed to collect 50 blood films a month from patients clinically diagnosed as malaria cases and seeking treatment at the out-patients departments of the respective hospitals or dispensaries. These blood films were received from September and were examined and recorded for the purpose of the investigation, which is still proceeding.

Blood films were examined for Medical Officers of Health, Field Medical Officers, District Medical Officers, and Apothecaries from various parts of the Island in connection with their own work.

Blood and spleen examinations were carried out at Puliyankulam Agricultural Experiment Station, Anuradhapura, where anti-mosquito measures were started in September. The examinations were carried out once in two months.

Blood and spleen examinations were conducted in December in Manipay area (N. P.) where extensive breeding of the malaria carrier A. culicifacies was reported.

A grand total of 12,506 blood films was examined during the year and of these 1,128 were found positive to malaria parasites. Generally speaking the quartan parasite predominated with benign tertian taking second place and malignant tertian, third.

The following table gives a summary of blood films examined monthly from all sources :—

1937.	Number examined.	Number positive.	Percentage of Species. B.T.	M.T.	Qt.
January	244	26	42·3	38·4	19·2
February	300	70	44·2	40·0	31·4
March	388	83	28·9	22·8	50·6
April	1,045	136	45·5	38·2	23·5
May	900	109	25·6	33·0	46·7
June	966	65	44·6	16·9	41·5
July	452	30	13·3	13·3	76·6
August	1,919	81	28·3	20·9	54·3
September	1,884	134	26·8	9·7	66·4
October	1,360	79	21·5	18·9	62·0
November	1,788	135	33·3	17·0	51·8
December	1,260	180	41·1	33·8	27·7
Total	12,506	1,128	34·0	25·6	44·6

(*Note* :—Wherever the percentages of the three species for any month do not add up to 100; the differences are due to mixed infections found on the same films).

Conferences held at outstations.—Periodical conferences of Field Medical Officers were held at Kurunegala, Kandy, and Ratnapura, which were attended by the Superintendent, Anti-Malaria Campaigns. Advice on malaria control and investigations was given.

Lectures to Field Medical Officers.—Lectures were given to batches of Field Medical Officers in training on the subjects of Malaria Epidemiology and Control.

Annual spleen survey, March, 1937.—The second annual spleen survey of boys attending schools in the Island was carried out in March and the records of this work were analysed in this laboratory and a report prepared at the end of July. The spleen rates were worked out for each Chief Headman's division, by altitudes and by river catchments of the Island. The rates for 1937 by revenue districts of the Island are given in the following table as done in 1936 :—

Name of District.	Number of Boys examined.	Number Positive. Small.	Moderate.	Large.	Spleen Rate. 1937.	1936.
Colombo	21,382	2,009	415	22	11·4	13·0
Kalutara	10,105	176	18	1	1·9	1·7
Kandy	12,738	1,623	573	56	17·7	32·8
Matale	4,272	994	684	214	44·3	55·2
Nuwara Eliya	2,905	492	126	25	22·1	22·1
Galle	6,638	145	14	3	2·4	1·4
Matara	6,915	1,478	540	224	32·4	15·1
Hambantota	2,876	587	749	247	55·0	63·6
Jaffna	11,338	724	463	111	11·4	19·4
Mannar	1,276	369	309	76	59·1	51·3
Mullaittivu	1,184	304	363	229	75·7	84·1
Batticaloa	7,262	1,874	1,425	289	49·4	43·3
Trincomalee	1,588	484	273	64	51·7	53·4
Kurunegala	16,822	3,662	4,211	1,062	53·1	75·1
Puttalam	1,302	278	505	142	71·0	77·7
Chilaw	6,131	1,921	484	96	40·8	43·8
Anuradhapura	3,838	1,230	1,177	341	71·6	77·6
Badulla	4,696	633	427	128	25·3	36·0
Ratnapura	5,811	785	344	134	21·7	26·7
Kegalla	9,697	1,518	1,090	403	31·1	59·4
Total	138,776	21,286	14,190	3,867	28·3	30·6

In all, 138,776 boys were examined and 39,343 were found with enlarged spleens. The spleen rate for the whole Island was 28.3 as compared with 30.6 in 1936.

Meteorological features of the Island were studied for each Province every month and summaries were sent for the information of Provincial Surgeons.

(b) The Malaria Control and Health Scheme.

This scheme provides for the carrying out of malaria control measures as part of an intensive general health scheme based on the principles of health unit work which has been in operation in a few selected areas for the last 12 years. In this new scheme malaria receives special prominence.

Malaria in rural areas cannot be dealt with in the same way as in urban areas. In the latter a large population is congregated within a limited area and it is possible for intensive anti-larval work to be undertaken on a reasonably economical basis; but this is not possible in wide areas with scattered population and where rice cultivation depends generally on artificial irrigation. The work that is being carried out consists of direct and indirect methods for the amelioration of existing conditions in regard to malaria. The direct method is chiefly the treating of the disease and the control of the insect vector as far as possible and the indirect method deals with conditions the existence of which aggravate the incidence of malaria by caring for the mother and child through maternity and child welfare work, by caring for the school child through school health work, by giving mass hookworm treatment, by treatment for parangi, by control of communicable diseases, general sanitary work, and by health education.

The Medical Entomologist, Superintendent, anti-Malaria Campaign, and the Sanitary Engineer act as specialists and provide specialist advice and work as required of them. They along with the Senior Medical Officer constitute the Malaria Departmental Committee with the Assistant Director of Sanitary Services as Chairman and Superintendent, " Anky " Campaign as Secretary. This Committee deals with the policy of anti-malaria work in the Island and reviews periodically the state of malaria.

Each Field Medical Officer is assigned an area with a population that could be effectively looked after by him and will eventually be provided with an adequate staff of sanitary assistants, midwives and nurses. At the present time work is organized on an intensive basis in areas provided with the necessary auxilliary staff.

Each Field Medical Officer has received a training of 10 weeks duration consisting of 2 weeks of lectures, 4 weeks of training in malaria at the Torrington Square laboratories, and 4 weeks of training in general public health work either at the Panadure totamune or Kalutara totamune health unit. This training is most important and what has been imparted is not adequate and continuous guidance is being given in this work. This is done through periodical conferences, monthly visits by special supervising officers, and periodical visits by the Assistant Director of Sanitary Services. Eight conferences were held during 1937—4 at Kurunegala on April 10, May 3, July 3, and October 23; 2 at Kandy on June 5, and November 6; and 2 at Ratnapura on July 10 and December 11.

Special arrangements have been made for the better training sanitary assistants and midwives. Two classes for sanitary assistants were held in which 77 were trained. 60 midwives were selected and trained.

On being appointed to his station each Field Medical Officer is provided with a clerk and field attendant. He secures for himself an office, and carries out a general health survey of his area. From the findings of the survey he prepares a programme in accordance with which he plans and carries out his work.

At the end of 1937 the staff appointed under this scheme consisted of—

Supervising officers	..	2	Midwives	..	60
Field Medical Officers	..	55	Clerks	..	55
Sanitary Assistants	..	42	Field attendants	..	35

Each sanitary assistant is assigned a population of 8 to 10,000, each midwife a population between 4 to 5,000, and each nurse a populaton similar to that of a sanitary assistant.

The areas taken up for work consist of—

(1) North-Western Province: the whole of it.
(2) Central Province: Kandy and Matale Districts.
(3) Province of Sabaragamuwa: the whole of it with the exception of Kukul and Kolonna korales.

(4) Northern Province: Mannar and Mullaittivu Districts, Tenmaradchi, Pachchilaipallai, and Karachchi divisions of the Jaffna District.
(5) North-Central Province : Kalagam palata and Tamankaduwa division.
(6) Eastern Province : Bintenna pattu, Akkarai pattu, Panawa pattu, Manmunai pattu north, and Eravur and Koralai pattus.
(7) Western Province : Alutkuru korale south and Pasdun korale east and west.
(8) Province of Uva: Wellawaya division.
(9) Southern Province: the whole of Hambantota and Matara Districts, Gangaboda pattu of the Galle District.

In all these localities field medical officers have carried out their surveys and have organized their work with the auxiliary staff that is available to each. A point to be emphasized is that the auxiliary staff is inadequate and till it is provided effective work right through each field medical officer's area will not be possible.

The following statement will indicate the amount of work that has been carried out during 1937 :—

The population looked after under this scheme amounts to 2,138,145. The birth rate in this population is 35.4, the death rate is 22.3, the infant mortality rate is 176, and the maternal mortality rate is 24.5.

Houses surveyed	27,135
Houses resurveyed	9,312
Health Education—	
Lectures with lantern, without lantern, and with cinema	1,183
Talks, school, village, and clinic	13,743
Health exhibitions	13
Estimated attendance	525,986
Communicable diseases—	
Notified	9,559
Investigated	9,138
Isolated	7,503
Quarantined	442
Houses cleaned	2,413
Anti-typhoid inoculations given	19,575
Anti-smallpox vaccinations done	48,295
Laboratory examinations done locally and in Colombo	20,856
Hookworm treatment—	
Number examined (fæces)	13,572
Number treated	248,179
Tuberculosis control—	
Number notified	778
Number examined	605
Number under care	729
Anti-malaria work—	
Breeding places surveyed:—	
(Borrow-pits, quarries, wells, drains, irrigation channels, coconut trenches, streams, sandpools, rockpools, natural depressions, swamps, marshes, and paddy fields)	36,931
Number with anopheline larvae	8,746
Number dealt with temporarily	6,839
Number dealt with permanently	1,907
Control measures—	
Fish nurseries established	410
Filling	446,457 cubic feet
Drainage established	6,840 yards
Oil used	5,774 gallons
Treatment—	
Number of quinine distribution centres established	703
Prophylactic quinine given in...	998 schools
Number of tablets given.—5-grain	677,202
Number of tablets given.—3-grain.	279,390
Mixture, quinine	18,527 oz.

Curative—	
Adults taking quinine	21,820
Children taking quinine	36,085
Quinine taken tablets—5-grains ..	61,081
Quinine taken tablets—3-grain ..	34,623
Mixture	132,326 oz.
Treatment clinics—	
Number at schools	428
Number at dispensaries	325
Number treated—	
Adults	4,494
Expectant and nursing mothers ..	995
Infants	2,488
Pre-school	1,731
School children	4,708
Anti-plague measures—	
Number of premises found with rat holes ..	2,923
Number of rat holes	14,931
Number dealt with	11,359
Number of premises fumigated ..	1,030
Number of rats caught	37,118
Rice stores built according to regulations ..	136
Rice boutiques provided with rice bins ..	703
Anti-fly measures—	
Breeding places found	18,932
Breeding places dealt with	15,422
Maternity and child welfare—	
Number of centres	115
Number of clinics held	3,067
Number of mothers under care ..	5,263
Number of infants under care	4,036
Number of pre-school children ..	2,388
Visits to clinics—	
By expectant mothers	9,243
By infants	27,657
By pre-school children	6,835
Home visits by Public Health nurses ..	18,140
Work of midwives—	
Ante-natal visits	98,010
Deliveries	7,678
Post partum visits	45,900
Deliveries by midwives to total births ..	28 per cent.
School health work—	
Schools inspected	1,454
School population examined	33,203
Number of children defective	24,822
Number of defects	54,509
Defects corrected	13,320
Consultations in the office	11,096
Sanitation :	
Latrines—	
Number of private latrines built ..	6,947
Number of school latrines built ..	133
Number of public latrines built ..	8
Wells—	
Number of public wells built	256
Licensed premises—	
(Bakeries, tea kiosks, eating-houses, dairies, butchers' stalls, fish stalls, &c.)—	
Number inspected	6,332
Number of inspections	51,751
Food sanitation.—	
Cattle and goats inspected	32,815
Cattle and goats passed	23,828
Housing—	
Private premises inspected	148,079
Defects found	168,949
Corrected	108,284
Public premises inspected	2,277
Defects found	5,200
Corrected	3,929

Estate health work—	
Number of estates inspected	352
Inspections	502
Defects	241
Corrected	21
Expectant mothers under care	751
Infants under care	581
Number of deliveries conducted by midwives	126
Number of communicable diseases dealt with	111
Lectures (lantern cinema)	56
Talks (by Nurses and Sanitary Assistants)	185
Estimated attendance	5,515
Railway sanitation—	
Stations, bungalows, and lines received inspection in regard to buildings, drains, latrines, urinals, water supply, mosquito and fly breeding places, scavenging and conservancy.	

(2) **Dengue.**—There were only ten cases of dengue during 1937.

(3) **Filariasis.**—There were 134 cases of filarial diseases admitted to hospitals in 1937 with two deaths. In addition, 96 cases were treated as out-patients, of which, 48 were in the Southern Province, 35 in the North-Western Province, and 13 in the other provinces.

Filariasis Survey.—With the opportunities made available under the new malaria control and health scheme inaugurated during the year for giving extended public health services to the rural population of Ceylon, an investigation into the incidence and other factors connected with filariasis infection in the Island was undertaken by the Department. A special officer, Dr. W. L. P. Dassanayake, was appointed to carry out the survey in the Island and the work was commenced in April, 1937.

The areas surveyed during the year were the whole of the North-Western Province and Hambantota District of Southern Province.

North-Western Province.—Area 3,016 square miles; population 547,000 (1931 census). 577 cases with clinical signs and symptoms of filariasis were detected and investigated. Out of these, 272 (47 per cent.) were cases of elephantiasis of the extremities and 305 (53 per cent.) were cases of filarial lymphangitis of the extremities.

The general distribution of the clinical cases and the results of blood films taken according to chief headmen's divisions are as follows:—

Chief Headman's Division.	Clinical Cases.		Blood films taken.	Blood films positive for Microfilaria.	Per Cent. positive.
	Elephantiasis.	Lymphangitis.			
Weudawili hatpattu	5	2	104	0	0
Dambadeni hatpattu	2	5	227	0	0
Dewamedi hatpattu	99	133	1,786	725	40
Katugampola hatpattu	91	105	923	385	40
Wanni hatpattu	18	2	66	15	23
Hiriyala hatpattu	6	4	177	7	4
Pitigal korale north	27	40	765	67	9
Pitigal korale south	12	11	237	1	0·4
Demala hatpattu	4	2	12	0	0
Puttalam pattu	7	1	43	0	0
Kalpitiya	1	0	16	0	0
	272	305	4,356	1,200	30
	577				

The distribution of the disease is very uneven. Though the cases have been detected in all the chief headmen's divisions, 451 cases out of the total 577 (80 per cent.) are located in an area comprising (*a*) Kiniyama, Yatikaha North, and Karandawa pattu korales of Katugampola hatpattu, (*b*) Tissawa, Baladora, Giratalana, and Angomu korales of Dewamedi hatpattu; and (*c*) Pitigal korale north of Chilaw District—all the korales 8 in number being contiguously situated.

This endemic area where the cases are mainly found is situated in the catchment areas of Kolamunu Oya and Kadupitiya Oya and for all practical purposes can be considered to be the area lying within 8 miles radius of the present bazaar of Hettipola, with two small extensions one along the Deduru Oya towards Chilaw and the other along Kadupitiya Oya towards Kudawewa.

Hambantota District.—Area 1,013 square miles; population 124,359 (1931 census). 446 cases with clinical signs and symptoms of filariasis were detected and investigated. Out of these, 217 (49 per cent.) were cases of elephantiasis of the extremities and 229 cases (51 per cent.) were cases of filarial lymphangitis of the extremities.

The general distribution of the clinical cases and the results of blood films taken according to chief headmen's divisions are as follows:—

Chief Headmen's Division.	Clinical Cases.		Blood films taken.	Blood films positive.	Per Cent. Positive.
	Elephantiasis.	Lymphangitis.			
Magampattu ..	9	8	449	3	0·7
East Giruwa pattu ..	35	38	512	23	5
West Giruwa pattu ..	173	183	958	136	14
Total ..	217	229	1,119	162	8·5

407 cases (91 per cent.) of the total 446 cases are located in an endemic area situated in the catchment areas of Urubokke Aru and Kiriama Oya. This area is situated within the Chief Headman's Division, West Giruwa pattu, and can be considered to the area within 7 miles radius of the present bazaar of Weeraketiya.

To determine the species of the parasites occurring in the areas investigated, blood samples were taken during the night between 9 P.M. and 1 A.M. In North-Western Province 4,356 blood films were examined. Out of these, 1,200 were positive for microfilaria, and all these were of microfilaria malayi (Brug) variety. In Hambantota District 1,119 blood films were taken; out of these, 152 were positive for microfilaria, 2 were of the bancroftian variety, and remainder were of the malayi variety.

The main clinical type of the disease that was found in the areas investigated was the " limb " type. Out of 1,023 cases investigated the left leg was effected in 76 per cent. of the cases, the right leg was effected in 47 per cent. of the cases. Recurrent adenitis of the inguinal, axillary, and epitorchlear glands were common specially amongst children in the endemic area. Most of these adenitis are positive for microfilaria. The other manifestations of filarial disease, such as elephantiasis of the genitals, funiculitis, and orchitis, were not found. Hydrocele was detected in 8 cases.

The survey carried out so far reveals that the disease is mainly restricted to villages situated by the tanks which are heavily infested with pistia plant and lying along the streamlets mentioned above. Even in the endemic areas the distribution of the disease is very patchy in character; there are small circumscribed patches where the incidence of the disease is very high surrounded by areas of very similar climatic and physiographic conditions but with low incidence or total absence of the disease. The spread of the disease had been along channels of human communications associated with heavy pistia infestations.

Educational Work.—A set of 45 lantern slides depicting the main features regarding the causation and prevention of filariasis has been prepared. During the year 26 lantern lectures have been given in the infected localities. Legislative measures for the destruction of the pistia plant are also being considered.

Demonstration work at Bandara Koswatte.—With a view to demonstrating the possibility of controlling the spread of filariasis, a special area around Bandara Koswatte in Dewamedi hatpattu in Kurunegala District was selected. The type of filariasis prevalent in this district is caused by the *microfilaria malayi* which is transmitted by the mansonia mosquitoes which breeds in pistia plants growing extensively in this area.

Four villages near Bandara Koswatte were selected with a view to protecting the inhabitants of them and a control zone of about 60 villages situated within a radius of one mile from the periphery of the protected zone. One other village was selected as contrast.

A filariasis survey of the four villages that constituted the protected zone was carried out during April and May, 1937, and 48 per cent. were found positive for microfilaria. The percentage showing clinical signs was 20.

Next a pistia survey of the entire protected and control zones was carried out and the plant was found to grow in 36 places. A special gang was employed to remove the pistia plants and the removal is carried out periodically.

A mosquito survey of the protected and control zones was also carried out by the Medical Entomologist in June, 1937.

(*b*) HELMINTHIC DISEASES.

The year 1937 commenced with 31 dispensers in the field and the training of six apothecaries for ankylostomiasis work in the hope that in future Ankylostomiasis dispensers will be replaced by apothecaries. But the replacement of the dispenser class by the apothecary has not been the success that it was expected to be and it is now proposed to get eventually the Sanitary Assistants to do the work of Anky dispensers.

Personnel.—The Campaign staff consisted of 1 Superintendent, 2 clerks, 32 dispensers, 8 microscopists, 1 office peon, and 2 laboratory attendants. Of the microscopists 1 was attached to the Pathological Laboratory of the General Hospital to help in research work and another was loaned for part time work to the out-patients' department of the General Hospital. The second officer was recalled in August to carry out his normal duties.

On October 18, 1937, after the completion of the new Bacteriological Institute, the ankylostomiasis laboratory was shifted to the new building and the microscopists were placed under the control of Director of the Bacteriological Institute.

The 36 dispensers and apothecaries of the campaign were distributed as follows :—

Western Province	6
Province of Sabaragamuwa	4
Central Province	6
Province of Uva	2
North-Central Province	2
Southern Province	4
Northern Province	3
Eastern Province	3
North-Western Province	5
Mandapam Camp	1
	36

Campaign Procedure.—During January, February, March, and April intensive work was carried out in the Southern Province. Taking advantage of the presence of the Field Medical Officers from April onwards, work was carried out in the North-Western, Sabaragamuwa, and Central Provinces. During the latter part of the year Province of Uva was taken up for treatment. The Western Province had dispensers working throughout the year.

Every Medical Officer of Health and Field Medical Officer had a dispenser working under him, at some time during the course of the year. In areas where Medical Officers of Health and Field Medical Officers were not available, the dispensers were attached to the District Medical Officers, Apothecaries-in-charge, and School Medical Officers.

Education.—During the course of the year, lantern lectures on hookworm disease were delivered at Hakmana, Akuressa, Elpitiya, Biyagama, and the Excise Training Centre, Colombo; cinema shows were given and lectures delivered on hookworm and malaria at Heenatiyana and Biyagama—at Biyagama cinema

shows and lectures on Maternity and Child Welfare and cleanliness too were given; and daily lantern lectures and cinema shows on hookworm were given at the All-Ceylon Exhibition held in May, 1937.

Exhibitions.—During the year the Campaign participated in—

(*a*) the All-Ceylon Exhibition.
(*b*) Exhibition at Akurana.
(*c*) Exhibition at Kurunegala.
(*d*) Exhibition of the National Fitness Movement.

Pamplets and leaflets distribution.—Thirty-seven sets of lecture-charts pasted on cardboard were distributed among the Field Medical Officers of the North-Western Province and Central Province and dispensaries in the Southern Province. 45 sets of posters pasted on cardboard were distributed among the Field Medical Officers of the North-Western Province, Central Province, and Province of Sabaragamuwa.

Training of Officers.—The apothecaries were given a laboratory training and were sent out to the field by May.

Training Centre at Mirigama.—A microscopist was sent to the training centre on six occasions—twice during July and four times during October to demonstrate on soil pollution, ova, larvae, &c.

Demonstrations were given to the Field Medical Officers on one occasion and Sanitary Assistants on two occasions.

A new leaflet on ankylostomiasis was completed and printed in English, Sinhalese, and Tamil.

Research.—Dr. Samson Goonewardene, Assistant Pathologist, General Hospital, Colombo, published notes on some interesting and instructive work carried out at the General Hospital. His work showed as a result of the examination of some 200 dead bodies that (*a*) the infestation rate of hookworm admitted to the General Hospital for all conditions, is 97.5 per cent.; (*b*) egg-counts, as an individual factor, is not of much practical value: (*c*) tetrachlorethylene is a very safe drug (minimum dosage for an adult should be half a drachm—it can be given up to a drachm); (*d*) for complete expulsion of the worm a large dose is necessary.

Professor P. B. Fernando and Dr. D. J. T. Leanage carried out experiments with tetrachlorethylene, and their interim report is to the effect that this drug is the safest and the most effective drug in the treatment of hookworm infestation.

The Percentage of Treatments in Government Institutions in relation to First Visits and Admissions showed an average of 24.1 per cent. which is too low. With a safe drug like tetrachlorethylene it is hoped that this percentage will rise and every attempt will be made to interest officers in charge of institutions to acquire the tetrachlorethylene outlook.

The following tables—I. to XII.—indicate the work done in connection with hookworm control:—

Table I.

Treatments by all Agencies in 1937 and 1936.

Agencies.	Treatments, 1937. First.	Subsequent.	Total.	1936. Total.
Government Institutions:—				
(1) At Institutions ..	1,393,987	49,906	1,443,893	1,223,850
(2) Outside Institutions ..	30,410	73	30,483	29,295
Campaign Staff:—				
(1) School children ..	151,035	—	151,035	107,502
(2) Estate labourers ..	244,499	—	244,499	256,362
(3) Villagers	92,795	—	92,795	60,658
Health Units	61,827	323	62,150	45,255
Mandapam Camp ..	42,182	—	42,182	34,148
Estate Medical Staff ..	78,808	17,528	96,336	98,502
Total ..	2,095,543	67,830	2,163,373	1,855,572

TABLE II.

Ankylostomiasis Treatments given by all Agencies, and average egg-count per c.c. per person and percentage infected before and after treatment, by Provinces, for the year 1937.

Provinces.	Treatments.			Microscopical Examinations by Stoll's method only.					
				Before treatment.			After treatment.		
	First.	Subsequent.	Total.	Number examined.	Average egg-count.	Percentage infected.	Number examined.	Average egg-count.	Percentage infected.
Eastern ..	109,828..	3,256..	113,084..	673..	2,400..	89·5..	85..	1,100..	64·7
North-Western ..	284,130..	5,920..	290,050..	3,109..	1,900..	87·0..	536..	1,000..	66·0
Western ..	454,715..	12,210..	466,925..	4,473..	1,700..	83·7..	1,108..	900..	63·4
Sabaragamuwa ..	262,056..	7,582..	269,638..	2,031..	1,200..	83·7..	423..	800..	64·5
North-Central ..	56,836..	1,876..	58,712..	282..	1,200..	83·3..	47..	500..	66·7
Southern ..	263,943..	13,381..	277,324..	2,170..	1,300..	82·7..	513..	800..	68·3
Central ..	397,846..	19,974..	417,820..	4,751..	1,200..	79·4..	1,349..	700..	59·3
Uva ..	128,914..	2,809..	131,723..	658..	900..	71·0..	33..	300..	66·7
Northern ..	95,093..	822..	95,915..	1,274..	900..	70·1..	593..	600..	55·8
Mandapam Camp .	42,182..	— ..	42,182..	— ..	— ..	— ..	— ..	— ..	—
Total for 1937 ..	2,095,543	67,830	2,163,373	19,421	1,500	81·4	4,687	800	62·2
Total for 1936 ..	1,778,459	77,113	1,855,572	14,265	1,800	76·2..	3,133	900	56·4

TABLE III.

Ankylostomiasis Treatment at Government Hospitals and Dispensaries in 1937.

Provinces.	Attendance (First Visits).	Treatments.			Percentage of treatment to First visit.
		First.	Subsequent	Total.	
Western ..	1,199,074 ..	357,014 ..	10,852 ..	367,866 ..	30·7
Uva	220,682 ..	66,872 ..	548 ..	67,420 ..	30·6
Sabaragamuwa ..	567,041 ..	161,213 ..	4,396 ..	165,609 ..	29·2
Central ..	659,647 ..	167,126 ..	9,839 ..	176,965 ..	26·8
Eastern ..	422,549 ..	98,502 ..	3,256 ..	101,758 ..	24·6
Southern ..	1,027,352 ..	212,139 ..	12,501 ..	224,640 ..	21·9
North-Western ..	1,163,063 ..	218,241 ..	5,889 ..	224,130 ..	19·3
Northern ..	386,819 ..	62,615 ..	749 ..	63,364 ..	16·4
North-Central ..	354,959 ..	50,265 ..	1,876 ..	52,141 ..	14·7
Total for 1937 ..	6,001,186	1,393,987	49,906	1,443,893	24·1
Total for 1936 ..	6,129,483	1,165,117	58,733	1,223,850	20·0

TABLE IV.

Ankylostomiasis Treatments given by the Medical Officers of the Department outside their Institutions without the aid of the Campaign Staff during 1937.

Provinces.	Schools.		Estates.		Villages.		Total.	
	Number.	Number treated.	Number.	Number treated.	Number.	Number treated	Number.	Number treated.
Central ..	12 ..	925 ..	37 ..	13,996 ..	4 ..	347 ..	53 ..	15,268
Western ..	4 ..	167 ..	16 ..	3,334 ..	8 ..	4,785* ..	28 ..	8,286
North-Western ..	38 ..	2,370 ..	1 ..	108 ..	12 ..	1,651 ..	51 ..	4,129
Sabaragamuwa ..	11 ..	918 ..	4 ..	480 ..	4 ..	435 ..	19 ..	1,833
Northern ..	6 ..	242 ..	— ..	— ..	4 ..	547 ..	10 ..	789
Uva ..	1 ..	70 ..	— ..	— ..	1 ..	59 ..	2 ..	129
North-Central ..	1 ..	49 ..	— ..	— ..	— ..	— ..	1 ..	49
Total for 1937 ..	73	4,741	58	17,918	33	7,824	164	30,483
Total for 1936 ..	47	3,619	66	21,346	22	4,330	135	29,295

* This includes the number of treatments given at clinics by the Medical Officer of Health, Padukka, during the year.

Table V.

Ankylostomiasis Treatments given by Campaign Staff in schools, estates and villages outside Health Unit areas during 1937.

Provinces.	Number of units dealt with.			Census in Schools.	Treatments.				Percentage of School Children treated to Census.
	Schools.	Estates.	Villages.		School Children.	Estate Labourers.	Villagers.	Total.	
North-Central ..	41..	— ..	102..	2,732..	1,976..	— ..	4,546..	6,522..	72·3
Uva ..	52..	133..	65..	6,582..	4,673..	43,290..	3,694..	51,657..	71·0
North-Western ..	305..	22..	310..	36,377..	24,358..	1,408..	26,402..	52,168..	67·0
Central ..	225..	410..	151..	31,913..	21,130..	125,803..	15,180..	162,113..	66·2
Eastern ..	69..	— ..	49..	5,583..	3,430..	— ..	4,534..	7,964..	61·3
Southern ..	242..	44..	97..	35,667..	10,971..	7,348..	10,959..	39,278..	58·8
Sabaragamuwa ..	187..	214..	89..	22,554..	13,335..	54,900..	9,160..	77,395..	54·7
Northern ..	434..	— ..	72..	48,285..	25,338..	— ..	6,424..	31,762..	52·5
Western ..	502..	59..	86..	71,071..	35,824..	11,750..	11,896..	59,470..	50·4
Total for 1937 ..	2,057	882	1,021	260,764	151,035	244,499	92,795	488,329	57·9
Total for 1936 ..	1,462	861	891	194,531	107,502	256,362	60,658	424,522	55·3

Table VI.

Number of Schools, Estates and Villages treated by Campaign Staff under the supervision of various officers of the Department during the year 1937.

Supervising Officers.	Schools.	Estates.	Villages.
District Medical Officers and Assistants .	404 ..	548 ..	125
Medical Officers of Health of Districts ..	435 ..	50 ..	77
Field Medical Officers	588 ..	215 ..	525
School Medical Officers	186 ..	— ..	4
Apothecaries in charge of dispensaries ..	444 ..	69 ..	290
Total for 1937 ..	2,057	882	1,021
Total for 1936 ..	1,462	881	897

Table VII.

Treatments given by Campaign Staff on Estates during 1957.

Supervising Officers.	Number of Estates treated.	Census.	Number treated.	Percentage treated to Census.
Medical Officers of Health of Districts ..	50 ..	11,905 ..	9,795 ..	82.3
Apothecaries in charge of dispensaries ..	69 ..	17,455 ..	14,325 ..	82.1
District Medical Officers and Assistants .	548 ..	209,445 ..	167,351 ..	79.9
Field Medical Officers	215 ..	67,709	53,028 ..	78.3
Total for 1937 ..	882	306,514	244,499	79·8
Total for 1936 ..	861	392,363	256,362	79·5

Table VIII.

Ankylostomiasis Treatments given by Health Units in 1937 and 1936.

Health Unit.	1937.	1936.
Matara	9,318 ..	5,562
Kurunegala	9,311 ..	5,777
Panadure	10,006 ..	6,450
Kalutara	9,565 ..	9,454
Kegalla	7,224 ..	4,009
Kadugannawa	6,247 ..	5,021
Dehiwala	7,117 ..	5,427
Trincomalee	3,362 ..	3,555
Total ..	62,150	45,255

TABLE IX.

Ankylostomiasis Treatments at Mandapam Camp during 1937.

Month.	Number arrived.	Number treated.	Percentage treated.
January	894	735	82·2
February	1,385	1,265	91·3
March	1,740	1,554	89·3
April	2,386	2,159	90·5
May	3,199	2,756	86·2
June	5,199	4,384	84·3
July	8,214	6,702	81·6
August	6,916	5,104	73·8
September	8,481	6,193	73·0
October	7,078	5,861	82·8
November	3,842	3,180	82·8
December	2,812	2,289	81·4
Total for 1937	52,146	42,182	80·9
Total for 1936	40,913	34,148	83·5

TABLE X.

Ankylostomiasis Treatments reported as given by Estate Medical Staff during 1937.

Province.	Census of estates treated.	Treatments. First.	Subsequent.	Total.	Percentage of total treatments to Census.
Southern	7,284	3,208	880	4,088	56·1
Western	17,651	3,580	1,035	4,615	26·1
Central	223,833	47,092	10,135	57,227	25·6
Sabaragamuwa	81,386	14,391	3,186	17,577	21·6
Uva	62,105	10,256	2,261	12,517	20·2
North-Western	1,734	281	31	312	18 2
Total for 1937	393,993	78,808	17,528	96,336	25·8

TABLE XI.

Number of days spent by Anky Dispensers on treatment and educational work and the number of talks given by them during 1937.

Number of Dispensers	35
Number of days spent on Anky treatment	3,808
Number of days spent on Anky education	3,333
Number of villages visited	4,241
Number of homes visited	116,464
Number of individual talks given in homes	74,510
Number of village group talks given	8,587
Number of school talks with charts	1,699
Number of lantern talks given	442
Number of talks given at the Out-Patient's Department, General Hospital	810

TABLE XII.

Intestinal Parasites found in the course of miscroscopical examinations made in the " Anky " Laboratory in 1937.

	Before Treatment. Number.	Before Treatment. Percentage infected.	After Treatment. Number	After Treatment. Percentage infected.
Specimens examined	22,485		6,035	
Infected with hookworms	17,718	78·8	3,768	62·4
Infected with round worms	16,087	71·6	3,971	65·8
Infected with whip worms	16,334	72·6	4,183	69·3
Infected with thread worms	363	1·6	44	·7
Infected with tape worms	15	·07	2	·03
Infected with other worms	23	·1	6	·1
Total examined before and after treatment	28,520			

Multiple Parasitic Infestation.	Before treatment.	After treatment.
Harbouring no parasite	1,170	589
With one kind of parasite	3,394	1,205
With two kinds of parasite	6,025	1,880
With three kinds of parasite	11,749	2,340
With four kinds of parasite	147	21
Total infected with some kind of parasite	21,315	5,446

2.—GENERAL MEASURES OF SANITATION.

Anti-plague Measures.—5,067 commercial premises were inspected for rat holes. 39,427 rat holes were found, of which 33,510 were dealt with. 909 premises were radically improved. In addition to the routine anti-rat measures, the Urban District Councils and the Sanitary Boards were prevailed upon to make provision for storage of grain in large quantities, to enforce the plague regulations and also to make necessary arrangements for cyanide fumigation. 457 rice stores were built according to regulations and 1,448 rice bins had been provided. 86,461 rats were caught and 1,737 were examined for plague and none was found infected. 1,196 dwelling houses and 1,862 boutiques were fumigated with cyanide gas.

Anti-fly Measures.—42,270 out of the 49,890 breeding places of flies detected were dealt with as compared with 44,025 detected in 1936.

Conservancy: Public Latrines.—Twenty-one public latrines were built during the year under review. They are distributed as follows:—5 in Urban District Council towns, 6 in Sanitary Board towns, and 10 in Village Committee areas.

Private Latrines.—21,169 were newly built during the year as compared with 17,601 in 1936. They are classified as follows:—Deep pit 16,329, Dry Earth 4,359, mound 302, and bored hole 179. During the year 1,072 latrines were restored to sanitary type.

School Latrines.—602 new latrines were built during the year and 88 old latrines were improved. Eighty-eight latrines were improved by introduction of squatting plates.

Cement Concrete Slabs.—12,644 cement concrete slabs were made, of which 8,900 were sold.

Disposal of Night Soil.—The most popular method of disposal of night soil at present is by trenching. Some incinerate the night soil as at Talaimannar and Diyatalawa while others convert it into compost. The last method enables night soil and refuse, now thrown away, to be converted into valuable manure.

Scavenging and disposal of refuse.—549 dust bins were provided in Urban District Council towns, 308 in Sanitary Board towns, and 18 in rural areas.

Water Supply.—281 public and 4,215 private wells were built during the year 165,638 inspections of wells were made and 76,804 wells were found unprotected. There are 33 towns with a pipe-borne water supply.

126 samples of water were sent for analysis, of which 79 were for bacteriological and 47 for chemical examinations. Sixteen samples were found unfit bacteriologically and 9 chemically.

Licensed Trades.—During the year the number of licensed trades inspected was as follows:—1,335 bakeries, 7,294 tea and coffee boutiques, 1,401 eating houses, 695 dairies, 627 butchers' stalls, 404 fish stalls, 31 pork stalls, 43 aerated water manufactories, 746 vegetable stalls. These places received 146,979 inspections.

Applications for licences were recommended during the year in regard to 79 public galas, 31 manure stores, 4 soap manufactories, 14 hide stores, 95 lime kilns, 45 brick kilns, 208 laundries, 23 cabook quarries, 14 plumbago sheds, 31 metal quarries, 36 public bathing places, 10 coconut husk kraals, 26 fibre mills, 12 desiccating mills, 1 tannery, 3 gravel quarries, 1 storage for raw bones, 1 salt fish stall.

In Sanitary Board and Urban District Council towns, all food handling trades (viz., bakeries, tea and coffee boutiques, eating houses, dairies vegetable fish, and meet stalls) are licensed yearly on the recommendation of the Medical Officer of Health or Field Medical Officer.

The Sanitary Assistants of the area visit the trade premises regularly and see that they are maintained in a clean and sanitary state.

Maintenance of Sanitary Conditions of Licensed Trade Premises.—10,500 premises were inspected. The number of notices served for breach of regulations was 2,469.

Sanitary Inspections.—The inspection of private premises contributes one of the routine duties of the Sanitary Assistant. In the course of his inspection, he endeavours as much as possible to get premises cleaned up in his presence, collections of rubbish burnt or buried and other defects attended to whenever practicable. Though it entails more time, this method had always proved very satisfactory and is being encouraged. In addition to this work, he gives talks on sanitation and personal hygiene to groups of villagers while on inspection.

The following is a statement of work done:—(*a*) *Private premises*—Out of 288,347 private premises, 214,327 were inspected and received 798,567 inspections. 83,454 inspections were paid to 1,121 licensed stalls, viz., 671 in Urban District Councils, 278 in Sanitary Boards, 4 in Local Boards, and 168 in rural areas, 13,265 defects were detected, of which 8,641 were remedied.

(*b*) *Railway premises.*—

	Inspected.	Inspections.	Defects.	Defects rectified.
(1) Stations:—				
Premises ..	208	3,148	458	388
Drains	187	3,078	430	400
Latrines ..	363	7,150	618	515
Mosquito breeding places	86	159	53	50
Water supplies ..	121	1,957	187	155
(2) Bungalows:—				
Premises ..	653	11,361	486	444
Drains	598	8,792	629	493
Latrines ..	824	11,107	598	495
Mosquito breeding places	16	80	23	23
Water supplies ..	218	2,492	146	124
(3) Lines:—				
Premises ..	618	14,718	687	473
Drains	420	18,611	926	859
Latrines ..	417	10,433	1,040	829
Mosquito breeding places	249	191	258	97
Water supplies ..	152	2,185	242	138

Drainage.—Provision of drains in towns is a matter of urgency but it has not received the attention it deserves. Proper drainage schemes will eliminate the collections of storm water and swampy lands and together with filling work will eliminate many potential and actual breeding places of mosquitoes. Most of the towns have only cement drains partially provided. There are some towns like Chilaw, Negombo, Weligama, Jaffna, all of which are below sea level where pumping schemes will be required.

The following statement shows the towns and bazaar areas by provinces supplied with drains and the length of drains so provided:—

Province.	Urban District Councils. Feet of Drains.	Sanitary Board Towns. Feet of Drains.	Rural Bazaar Areas. Feet of Drains.
1. Western ..	83,479	75,763	6,748
3. Southern ..	53,628	58,928	15,576
5. Eastern ..	7,298	320	555
4. Northern ..	33,100	5,864	2,892
2. Central ..	6,699	20,972	3,216
7. North-Central ..	12,128	—	—
6. North-Western ..	38,098	29,311	4,100
9. Sabaragamuwa ..	30,265	35,723	19,819
8. Uva ..	—	19,706	1,725
Total ..	264,695	246,587	54,631

The following statement gives particulars of offences against sanitary regulations for which people have had to be prosecuted:—

Offences.	Number.	
	Prosecuted.	Convicted.
Erection of unauthorized buildings	329 ..	270
Failing to demolish temporary sheds	44 ..	37
Occupying buildings after compulsory closure ..	28 ..	20
Occupying buildings without certificate of conformity .	99 ..	87
Failing to improve insanitary houses	34 ..	16
Deviating from approved plan	51 ..	34
Sinking wells without permission of the Chairman, Sanitary Board	6 ..	6
Faecal pollution	458 ..	404
Carrying on trades without permission ..	755 ..	631
Depositing rubbish in drains	35 ..	35
Depositing rubbish in public roads	53 ..	25
Failing to clear rank vegetation	50 ..	36
Failing to provide dust bins	28 ..	23
Exposing for sale food on roadside	67 ..	36
Exposing food to the contamination of flies ..	84 ..	60
Exposing for sale food unfit for human consumption ..	36 ..	29
Failing ro notify cases of Infectious Diseases ..	15 ..	15
Failing to provide drains	26 ..	9
Burying outside proclaimed cemeteries ..	27 ..	22
Alterations to buildings without permission ..	45 ..	42
Failing to close insanitary pits	1 ..	1
Insanitary trades premises	166 ..	86
Failing to repair latrines	6 ..	6
Failing to construct latrines	79 ..	67
Filthy premises	2 ..	2
Failing to comply with anti-plague measures ..	14 ..	14
Slaughtering cattle without permits	1 ..	1
Selling milk without licences	15 ..	15

3.—SCHOOL HEALTH WORK.

Schools and School Population.—The number of schools, excluding the unregistered and special type schools is 4,947 and the school population amounts to 728,113. The total number of schools in which health work has been carried out during the year increased from 1,779 in 1936 to 3,106 in 1937. Of these, 833 were primary, 2,056 junior secondary, 197 senior secondary, 18 collegiate, and 2 training; 547 were boys', 514 girls', and 2,045 mixed schools; 1,156 Government, 1,828 Government-aided, and 122 unaided. These schools are distributed by Provinces as follows:—Western 959, Central 402, Southern 371, Northern 483, Eastern 85, North-Central 9, North-Western 421, Uva 20, and Sabaragamuwa 356.

The total school population dealt within these schools amounts to 554,595, of which 329,277 are boys and 225,318 girls; 94,229 are in primary, 393,184 in junior secondary, 58,546 in senior secondary, 8,564 in collegiate, and 72 in training schools; 202,383 in Government, 340,486 in aided, and 11,726 in unaided schools. The school population dealt with classified by provinces is as follows:—Western 191,006, Central 70.295, Southern 80,705, Northern 76,030, Eastern 9,711, North-Central 990, North-Western 67,329, Uva 3,362, and Sabaragamuwa 55,167.

Personnel.—The personnel engaged in school health work during the year consisted of 8 School Medical Officers, 24 Medical Officers of Health, 28 Field Medical Officers, 20 District Medical Officers, 1 Lady Medical Officer, and 9 School Nurses. They were distributed according to provinces as follows:—

TABLE 1.

Personnel.

Province.	School Medical Officers.	Medical Officers of Health.	Field Medical Officers.	Medical Officers.	Lady Medical Officer.	Nurses.
Western	4*	7	—	2	—	3
Central	1	4	10	7	—	1
Southern	2†	4	1	2	—	2
Northern	1	1	2	2	—	2
Eastern	—	2	—	—	1	1
North-Central ..	—	1	—	—	—	—
North-Western ..	—	2	14	—	—	—
Uva	—	1	—	5	—	—
Sabaragamuwa ..	—	2	11	2	—	—
	8	24	28	20	1	9

* Including Assistant Medical Officer of Health, Kalutara, and School Medical Officer, Panadure.

† Including School Medical Officer, Matara.

Visits to Schools.—Of 833 primary schools, 2,253 secondary and 18 collegiate and 2 training schools, 773, 1,860, 15, and 1 respectively were visited for school survey, medical inspection, hookworm treatment, &c. Total visits paid number 14,219 or 5.4 per school.

Activities carried out: (1) *Medical Inspection of School Children.*—2,649 schools were visited as compared with 1,426 of the previous year; 84,730 children in 1,141 schools were medically examined, while in 1936 the number was 52,629 in 487 schools. This represents an increase of nearly 60 per cent. over the numbers examined last year. Of the children examined 53,582 or 63.2 per cent. were boys, 31,148 or 36.8 per cent. were girls; 19,298 or 22.7 per cent. were from primary, 50,990 or 60.2 per cent. from junior secondary, 13,441 or 15.9 per cent. from senior secondary, 929 or 1.1 per cent. from collegiate, and 72 or .09 per cent. from training schools.

TABLE 2.

Scholars Examined.

Provinces.	Total.	Boys.	Girls.	Primary	Junior Secondary.	Senior Secondary.	Collegiate.	Training
Western	17,621	9,797	7,824	3,949	8,762	4,172	666	72
Central	18,734	12,864	5,870	3,914	12,536	2,028	256	—
Southern	9,927	5,796	4,131	1,491	5,566	2,870	—	—
Northern	6,393	3,947	2,446	2,690	1,481	2,215	7	—
Eastern	3,445	2,055	1,390	1,770	1,044	631	—	—
North-Central ..	735	418	317	—	735	—	—	—
North-Western ..	14,767	9,501	5,266	2,599	11,749	419	—	—
Uva	1,379	885	494	802	577	—	—	—
Sabaragamuwa ..	11,729	8,319	3,410	2,083	8,540	1,106	—	—
Total ..	84,730	53,582	31,148	19,298	50,990	13,441	929	72

Of 84,730 children examined, 75,255 or 88.8 per cent. received the first examination, 6,730 or 7.9 per cent. received the second, 1,492 or 1.8 per cent. received the third, and 1,253 or 1.5 per cent. received special examinations; 55,995 or 66.09 per cent. were found to be defective with 124,540 defects or 2.2 defects per defective child as shown in the table below:—

TABLE 3.

Province.	Schools visited.	Pupils examined. First.	Second.	Third.	Special.	Total.	Number Defective.	Percentage Defective.	Number of Defects.	Defects per Defective Child.
Western ..	708..	15,558..	1,866..	131..	66..	17,621..	14,867..	84·4 ..	34,312..	2·3
Central ..	354..	17,525..	943..	186..	80..	18,734..	7,536..	40·2 ..	21,188..	2·8
Southern ..	228..	7,922..	1,289..	445..	271..	9,927..	7,788..	79·5 ..	10,173..	1·3
Northern ..	474..	5,320..	840..	233..	— ..	6,393..	5,980..	93·6 ..	14,944..	2·5
Eastern ..	85..	2,588..	857..	— ..	— ..	3,445..	2,696..	78·3 ..	3,996..	1·5
North-Central ..	9..	375..	199..	96..	65..	735..	670..	91·2 ..	1,311..	1·9
North-Western ..	417..	14,688..	57..	22..	— ..	14,767..	8,865..	60·03..	20,766..	2·3
Uva ..	16..	121..	289..	237..	732..	1,379..	777..	56·4 ..	814..	1·04
Sabaragamuwa ..	358..	11,158..	390..	142..	39..	11,729..	6,816..	58·1 ..	17,026..	2·5
Total ..	2,649	75,255	6,730	1,492	1,253	84,730	55,995	66·09	124,540	2·2

The defects per defective child is 2.2 and is higher than the figure for 1936, which was 1.9. While this increase may be apparently due to a more careful examination and the detection of more defects, it is nevertheless an indication that the facilities available for the correction of some of the defects at least have not been taken advantage of fully. The correction of the minor defects is important and active co-operation on the part of the teachers and the local Medical Officers should make it possible to reduce them to a minimum.

The examination of scholars by different groups of Medical Officers were as follows:—

TABLE 4.

Examination of Scholars.

Provinces.	School Medical Officers.	District Medical Officers of Health.	Health Unit Medical Officers of Health.	Field Medical Officers.	Medical Officers.
	8	14	10	28	21
	Number of Scholars.				
Western	13,785 ..	653 ..	2,058 ..	— ..	125
Central	2,421 ..	1,127 ..	794 ..	13,171 ..	1,221
Southern	6,437 ..	1,656 ..	1,506 ..	— ..	338
Northern	4,592 ..	241 ..	— ..	1,485 ..	75
Eastern	— ..	2,276 ..	58 ..	— ..	1,111
North-Central	— ..	735 ..	— ..	— ..	—
North-Western ..	— ..	799 ..	1,338 ..	12,630 ..	—
Uva	— ..	341 ..	— ..	— ..	1,038
Sabaragamuwa ..	— ..	4,069 ..	2,039 ..	5,377 ..	244
	27,235	11,897	8,793	32,663	4,142

TABLE 5.

(2) *Correction of Defects.*—The following two tables give the nature of defects detected at the medical inspection of children, the percentage each forms to total defects, defects corrected and their percentages:—

Defects found.

Defects.	Total.	Percentage each Defect forms to Total Defects.	Defects found at—							
			W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sal.
Malnutrition	12,096	—9·7	4,064	1,500	1,064	2,098	292	1	1,474	7	1,596
Uncleanliness	7,205	—5·7	1,845	1,357	282	1,806	162	—	1,112	5	636
Unvaccinated	4,209	—3·4	1,244	530	560	530	80	2	609	7	647
Eyes	1,415	+1·2	659	220	177	17	6	4	94	20	218
Ears	1,871	+1·5	109	1,212	210	16	25	7	217	5	70
Defective vision	1,189	— ·9	536	285	78	189	1	2	50	17	31
Defective hearing	87	0 ·2	40	14	3	15	—	—	10	1	4
Enlarged glands	3,497	+2·8	1,274	1,782	17	47	—	1	258	—	118
Enlarged spleen	1,529	—1·2	—	—	70	546	—	—	904	9	—
Lymph glands	506	— ·4	—	480	—	—	17	—	5	—	4
Dental caries	5,132	—4·1	2,563	489	114	314	—	—	870	55	727
Teeth and gums	17,012	—13.6	4,097	3,108	1,240	3,479	972	409	1,996	92	1,619
Nose	357	— ·3	208	90	1	4	15	1	1	—	37
Tonsils and Adenoids	9,031	+7·3	2,834	2,178	301	385	130	2	1,785	31	1,385
Anæmia	10,382	+8·3	2,397	2,042	1,755	171	262	185	1,883	12	1,675
Heart	448	0 ·4	109	202	47	5	20	4	31	—	30
Lungs	374	0 ·3	89	215	25	2	16	—	12	—	15
Hernia	10	0	—	6	2	—	1	—	—	—	1
Orthopaedic	83	0 ·1	31	23	19	—	—	—	8	—	2
Nervous system	21	0	19	—	—	—	—	2	—	—	—
Rickets	1	0	—	1	—	—	—	—	—	—	—
Skin	2,397	0 1·9	1,100	340	71	191	10	28	458	32	167
Scalp	195	0 ·2	57	43	6	19	4	1	58	3	4
Hookworm	23,801	+19·1	7,351	1,613	2,409	3,148	885	4	3,418	368	4,605
Malaria	6,237	+5·0	77	854	408	13	626	468	2,530	70	1,191
Abnormal behaviour	3	—	1	2	—	—	—	—	—	—	—
Mental deficiency	28	—	13	5	1	1	—	—	4	—	4
Speech	73	—	47	15	2	3	—	1	3	—	2
Scabies	1,635	1·4	325	84	143	605	164	28	124	33	129
Pediculosis	9,329	0 7·5	2,083	1,844	837	1,061	74	89	1,535	28	1,778
Ringworm	123	·1	57	9	18	2	3	6	9	—	19
Other defects	4,264	3·4	1,083	645	313	277	231	66	1,308	19	322
Total	124,540	100%	34,312	21,188	10,173	14,944	3,996	1,311	20,766	814	17,036

TABLE 6.

Defects corrected.

Defects.	Total Defects found.	Total Defects corrected.	Percentage corrected.	Defects corrected at—							
				W.P.	C. P.	S. P.	N. P.	E. P.	N.-W.P.	N.-C.P.	Uva.	Sab.
Malnutrition	12,096	3,080	25·5	1,058	310	357	436	41	—	582	3	293
Uncleanliness	7,205	4,301	59·7	1,244	722	120	1,301	89	—	548	3	274
Unvaccinated	4,209	1,822	43·3	587	235	266	238	48	—	106	5	337
Eyes	1,415	428	30·3	197	36	60	2	3	—	44	20	66
Ears	1,871	647	34·6	35	386	111	4	1	—	55	5	50
Defective vision	1,189	201	16·9	125	36	10	27	1	—	—	—	2
Defective hearing	87	5	5·8	1	—	—	4	—	—	—	—	—
Enlarged glands	3,497	479	13·4	75	319	1	2	—	—	65	—	17
Enlarged spleen	1,529	453	29·6	—	—	—	10	127	—	—	313	3	—
Lymph glands	506	—	—	—	—	—	—	—	—	—	—	—	—
Dental caries	5,132	831	16·2	670	34	20	10	—	—	—	73	4	20
Teeth and gums	17,012	3,867	22·7	1,090	721	383	787	276	—	—	515	43	52
Nose	357	86	24·1	47	35	—	3	—	—	—	—	—	1
Tonsils and Adenoids	9,031	1,705	18·9	448	362	35	24	35	—	—	682	17	102
Anæmia	10,382	4,157	4·0	1,124	596	1,187	59	116	11	—	639	12	413
Heart	448	29	6·5	7	4	6	—	7	—	—	2	—	3
Lungs	374	65	17·4	31	17	5	2	3	—	—	3	—	4
Hernia	10	—	—	—	—	—	—	—	—	—	—	—	—
Orthopaedic	83	2	2·4	1	—	—	—	—	—	—	—	—	1
Nervous system	21	1	4·8	1	—	—	—	—	—	—	—	—	—
Rickets	1	—	—	—	—	—	—	—	—	—	—	—	—
Skin	2,397	820	34·2	310	134	46	35	7	—	—	159	30	99
Scalp	195	81	41·5	20	8	4	19	—	—	—	23	3	4
Hookworm	23,801	13,028	54·8	3,708	349	1,529	2,012	648	—	1,833	346	2,603
Malaria	6,237	2,367	37·9	46	190	62	12	464	171	931	35	456
Abnormal behaviour	3	—	—	—	—	—	—	—	—	—	—	—	—
Mental deficiency	28	1	3·6	—	—	1	—	—	—	—	—	—	—
Speech	73	—	—	—	—	—	—	—	—	—	—	—	—
Scabies	1,635	1,106	73·8	264	68	89	387	117	—	—	67	33	81
Pediculosis	9,329	3,838	41·1	978	63	395	640	25	22	—	798	8	359
Ringworm	123	59	47·9	36	5	7	2	2	—	—	4	—	3
Other defects	4,264	1,348	31·6	544	178	67	115	118	—	—	180	7	139
Total	124,540	44,807	36·0	12,647	5,358	4,771	6,248	2,001	204	7,622	577	5,379

The more common defects found at the inspections were hookworm 19.1 per cent., teeth and gums 13.6 per cent., malnutrition 9.7 per cent., anaemia 8.3 per cent., pediculosis 7.5 per cent., tonsils and adenoids 7.3 per cent., dental caries 4.1 per cent. These account for 69. 6 per cent. of all the defects.

Diseases of Teeth and Gums.—Dental caries and disorders of the teeth and gums had accounted for 24.8 per cent. of the total defects in 1936. During the year under review the percentage is 17.7 and a reduction is observed in dental caries from 7.4 per cent. to 4.1 per cent. and disorders of the teeth and gums from 17.5 per cent. to 13.6 per cent. The incidence of these defects also shows a marked reduction particularly in the case of dental caries where the rate dropped from 103 to 61 per 1,000 children. The reduction in the case of the diseases of the teeth and gums was from 246 to 210 per 1,000.

The Mobile Dental Clinic, which was inaugurated in June, 1937, attended to 5,366 cases, of which 3,443 were for extractions. There is no doubt that a substantial proportion of these cases was composed of children attending schools.

The following is a statement of work done in the Dental Chambers attached to each of the following colleges:—

TABLE 7.

Record of Treatment at Dental Clinics of the following schools:—

	Number treated.	Extractions.	Fillings.	Dressings.	Scalings.	Number with diseased Gums.
St. Peter's College ..	746	114	522	—	52	—
Good Shepherd Convent ..	406	90	195	61	114	25
Zahira College ..	327	94	195	—	124	—
Milagiriya Girl's English School	353	207	245	—	9	—
St. Thomas' College ..	550	220	244	—	86	—

Hookworm Infestation.—The reduction of hookworm infestation particularly during the growing period of life is of primary importance. 13,028 treatments were administered during the year as compared with 5,510 of the previous year. The diagnosis of this condition among school children is made on visual examination and there is likely to be a great margin of error.

The fact that 28 per cent. of the children examined are diagnosed to be suffering from this condition and that it accounts for 19 per cent. of all the defects is a clear indication that there yet remains to be done a great deal of work for control of this insidious disease. Treatment of hookworm disease is necessary but the permanent measures for its control are the construction, maintenance, and the use of sanitary latrines.

Malnutrition.—This condition formed 9.7 per cent. of the total defects found in school children. Of the children examined 14 per cent. manifested a state of under-nourishment.

The analysis of local foods carried out by this Department and the Department of Agriculture should prove of immense value in educating the teachers and the children with regard to balanced diets and in helping to remedy this defect.

The inclusion of milk in the mid-day meal should be encouraged whenever possible.

The following table gives the work done in this connection by provinces:—

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total.
Number of schools	136	63	42	45	23	5	91	3	57	465

Tonsils and Adenoids.—Tonsils and adenoids contributed 7.3 per cent. of the total defects. In 10.6 per cent. of the children examined this defect was revealed. In 1,705 children this defect was corrected giving a percentage of 18.9 Facilities for the correction of advanced stages of this condition are not available except in the larger towns but the institution of the practice of breathing exercises by school children would be a valuable measure in the control and prevention of this condition.

Pediculosis.—11 per cent. of the children examined were found to have this defect. As this condition is prevalent mostly among girls and the percentage is computed on the basis of the total number of children, the figure is an understatement of the conditions prevailing among the girls' schools, 41 per cent. of this defect were corrected. In view of the cheap and easy technique available for the correction of this defect, the conditions prevailing must be considered disappointing.

Anaemia.—This condition accounted for 8.3 per cent. of the total defects and 12.3 per cent. of the children examined were found to be suffering from it. Malaria, hookworm, and deficient diet are the chief contributory causes.

Malaria.—Of the children examined 7.4 per cent. were found to be suffering from malaria. This is higher than the figures obtained for the previous year (2.3 per cent.) and is accounted for by the fact that a larger number of children from schools in the malaria zones have been included. It is however gratifying to record that only 1.8 per cent. of the children showed enlarged spleens as compared with 4.9 per cent. of the previous year.

With the launching of the Malaria Control Scheme and the appointment of the Field Medical Officers intensive measures are being adopted to prevent and control malaria through the medium of the schools.

Uncleanliness.—The children who showed this defect constituted 8.5 per cent. of the total. The figure obtained for the previous year was 10 per cent. 59.7 per cent. of the defects were corrected.

Scabies.—A reduction in the incidence of scabies is observed. 1.9 per cent. of the children suffered from this condition as compared with 2.9 per cent. of the previous year. 73.8 per cent. of this defect were corrected.

Ophthalmic Defects.—2,604 children or 3.1 per cent. of those examined showed some defect of the eyes. Of these 1,189 or 1.4 per cent. had defective vision and 1,415 or 1.7 per cent. had some other defects of the eyes. 16.9 per cent. of the cases of defective vision and 30.3 per cent. of the other defects were corrected.

The following statement shows by provinces the centres at which treatment clinics were held, the number of clinics held and the conditions dealt with at them :—

TABLE 8.

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total
Number of centres	149..	73..	50..	58..	6 ..	— ..	68..	5..	94..	503
Number of clinics held	266..	233..	278..	250..	16 ..	— ..	155..	5..	188..	1,391
Malnutrition	1,356..	358..	93..	— ..	— ..	— ..	368..	— ..	305..	2,480
Uncleanliness	334..	713..	5..	724..	— ..	— ..	208..	— ..	233..	2,217
Unvaccinated	— ..	18..	176..	144..	20..	— ..	70..	2..	304..	734
Eyes ..	— ..	— ..	225..	— ..	— ..	— ..	33..	14..	59..	331
Ear and nose	— ..	26..	93..	1..	— ..	— ..	52..	6..	52..	230
Enlarged glands	— ..	321..	— ..	1..	— ..	— ..	22..	— ..	6..	350
Enlarged spleen	— ..	85..	10..	42..	— ..	— ..	463..	— ..	7..	607
Tonsils and adenoids	— ..	292..	51..	— ..	— ..	— ..	516..	5..	54..	918
Anæmia ..	— ..	446..	966..	22..	— ..	— ..	505..	— ..	270..	2,209
Heart ..	— ..	— ..	— ..	— ..	— ..	— ..	— ..	— ..	— ..	—
Lungs ..	— ..	— ..	— ..	— ..	— ..	— ..	1..	— ..	— ..	1
Nervous system	— ..	— ..	— ..	— ..	— ..	— ..	— ..	— ..	— ..	—
Skin ..	— ..	94..	205..	5..	— ..	— ..	51..	18..	108..	481
Hookworm	1,272..	225..	2,730..	30..	— ..	— ..	966..	53..	2,522..	77,98
Malaria ..	— ..	266..	4..	9..	— ..	— ..	553..	56..	438..	1,326
Scabies ..	689..	3..	206..	888..	18..	— ..	49..	12..	83..	1,948
Pediculosis	356..	153..	67..	154..	16..	— ..	466..	3..	231..	1,446
Other diseases	512..	584..	1,004..	252..	— ..	— ..	204..	3..	31..	2,590
Dental caries	163..	73..	960..	161..	— ..	— ..	124..	36..	19..	1,536
Defective vision	— ..	— ..	19..	— ..	— ..	— ..	— ..	— ..	— ..	19
Total ..	4,682	3,657	6,814	2,433	54	—	4,651	208	4,722	27,221

(3) *Sanitation.*—3,106 schools were visited during the year and the sanitation of the schools was looked into. In spite of the great efforts on the part of the officers of this department the sanitary facilities available in the schools inspected must be considered as inadequate. For 554,595 children there were only 2,649 latrines with 5,663 seats, 493 urinals with 1,312 compartments, and 991 protected wells.

The importance of providing adequate sanitary facilities for school children cannot be overstressed both for the immediate advantages gained and for the educational value they must possess.

The following table will show the state of sanitation in the schools surveyed :—

TABLE 9.

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total.
Schools ..	959..	402..	371..	483..	85..	9..	421..	20..	356..	3,106
School children ..	191,006..	70,295..	80,705..	76,030..	9,711..	990..	67,329..	3,362..	55,167..	554,595
Schools with latrines ..	828..	317..	353..	324..	83..	9..	387..	20..	328..	2,649
Total seats ..	1,899..	678..	629..	704..	196..	23..	843..	61..	630..	5,663
Schools with urinals ..	145..	65..	101..	68..	18..	1..	71..	2..	22..	493
Total urinal compartments	412..	112..	359..	208..	31..	1..	115..	4..	70..	1,312
Schools with protected wells ..	529..	50..	150..	58..	65..	7..	200..	3..	121..	991

(4) *Health Education.*—Health education is the basis of all school health work and the importance of conveying information to the children regarding matters pertaining to health through the teachers themselves is being increasingly appreciated.

With a view to creating a greater interest among the teachers and equipping them better for the purpose, the training classes for teachers has received the serious consideration of this Department.

During the year 27 classes were held and 1,025 teachers trained as against 22 classes and 876 teachers of the previous year.

TABLE 10.

Health Education.

Provinces.	Number of Training Classes.		Number of Teachers trained.
	Commenced.	Completed.	
Western	9	8	330
Central	4	4	165
Southern	4	3	230
Northern	5	3	121
Eastern	3	1	78
North-Central	—	—	—
North-Western	—	1	20
Uva	—	—	—
Sabaragamuwa	2	2	81
Total	27	22	1,025

The following tables show the routine health education procedures, health instruction and other activities connected with health education carried out in the schools in the different provinces:—

TABLE 11.

Number of Schools carrying out Procedure.

Health Education Procedures.	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total for 1937.	Total for 1936.
1. Daily morning inspection	733	289	225	266	71	9	365	20	337	2,315	1,309
2. Scoring of health habit booklet	369	147	130	63	49	8	196	9	97	1,068	635
3. Weighing and measuring	318	103	49	18	28	6	160	4	177	863	344
4. Use of handkerchief	252	107	69	19	9	7	95	—	70	628	351
5. Proper storage of drinking water	376	107	111	169	38	8	165	16	82	1,072	646
6. Use of individual drinking cups	314	42	71	11	—	7	98	4	65	612	293
7. Pupil participation, &c.	470	132	111	70	57	7	242	6	198	1,293	602
8. Mid-day meal	136	63	42	45	23	5	91	3	57	465	520
9. Health clubs	42	14	12	11	—	0	4	—	2	85	14
10. Organized play	497	163	189	125	63	9	327	6	285	1,664	903

TABLE 12.

Number of Schools carrying out Instruction.

Health Instruction.	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total for 1937.	Total for 1936.
1. Direct teaching	579	187	173	187	67	6	303	15	308	1,825	1,077
2. Teaching by correlation	393	89	141	46	38	7	145	6	201	1,066	676
3. Posters, scrap books, &c.	256	52	92	36	24	6	124	2	68	660	340
4. Dramatization	71	5	26	2	7	1	21	—	13	146	101
5. Health songs and debates	112	90	22	6	38	3	16	1	12	300	162
6 Field visits	198	70	38	61	25	3	84	2	87	568	302

TABLE 13.

Other Activities.	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total for 1937.	Total for 1936.
1. Parent Teachers' Associations	200	26	46	8	13	5	65	1	72	436	367
2. School health demonstrations	25	4	15	2	25	0	2	2	3	78	67

The progress made with regard to the health education procedures will be observed from the above tables. A reduction is observed only with regard to the issuing of free mid-day meals.

(5) *Control of Communicable Diseases.*—The reported incidence of communicable diseases in schools by provinces is as follows:—

TABLE 14.

Provinces.	Chickenpox.	Diphtheria.	Dysentery.	Enteric.	Measles.	Mumps.	Phthisis.	Whooping Cough.
Western ..	243	7	71	41	832	151	1	106
Central ..	305	5	6	2	187	47	—	7
Southern ..	117	—	71	45	152	88	2	2
Northern ..	152	—	23	16	471	16	1	74
Eastern ..	44	—	5	—	3	52	—	1
North-Central ..	—	—	—	—	—	—	—	—
North-Western ..	63	—	27	8	516	234	1	20
Uva ..	35	—	—	—	—	—	—	—
Sabaragamuwa ..	45	—	3	—	110	79	—	—
Total ..	1,004	12	206	112	2,271	667	5	210

A larger number of diseases has been reported in 1937 than in 1936. Perhaps the most striking feature during the year with regard to the communicable diseases in the schools has been the relatively high incidence of diphtheria in the Western and Central Provinces.

One of the main objects of the early morning inspection is the detection of cases of communicable diseases in the early stages, and if such inspections are efficiently carried out, an effective method of control of these diseases will be available to the health officers.

Quinine Administration.—Nearly 3 times as many schools and 4 times as many scholars have been treated with quinine as in the previous year.

In hyper-endemic areas the prophylactic use of quinine is a preventive measure which all schools should adopt during the malarial seasons. The following table is the statement of the number of children who received quinine:—

TABLE 15.

Quinine Administration.

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total.
Schools ..	33	234	126	78	27	9	393	12	187	1,099
Scholars ..	7,490	133,259	21,473	6,332	2,236	988	55,532	1,889	28,845	258,044

Hookworm Treatment.—In the last report it was recorded that in 1936 twice as many children as in 1935 were treated. In 1937 the number has been doubled again and is twice as many as in 1936.

The increasing numbers that avail themselves of the treatment against the disease is as much an indication of the interest taken by the teachers as it is a measure of the success of the health education that is practised in the schools.

TABLE 16.

Hookworm Treatment.

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total.
Schools ..	513	285	151	212	59	9	407	15	200	1,851
Scholars ..	39,655	66,325	15,448	11,886	6,951	429	35,487	1,583	16,950	194,714

Anti-Typhoid Inoculation.—Nearly 3 times as many inoculations against typhoid fever were given as during the past year. It is gratifying to note the lead given by the schools in the adoption of this valuable measure against a disease which is almost endemic and which has its highest morality among the older children and adults.

TABLE 17.

Anti-Typhoid Inoculation.

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total.
First ..	5,024	1,849	1,622	8,941	252	—	1,970	—	6,408	26 066
Second ..	4,040	1,562	1,174	7,842	220	—	1,702	—	4,538	21,078

Anti-Smallpox Vaccinations.—Vaccination against smallpox, unlike inoculation against typhoid fever and treatment against hookworm disease, is a requirement by law and is also insisted upon by the Education Department in Government Schools as an essential condition prior to admission. The presence of 4,209 unvaccinated children in the schools examined would suggest that parents and teachers do not pay sufficient attention to this important public health measure.

Table 18.

Anti-Smallpox Vaccination.

	W. P.	C. P.	S. P.	N. P.	E. P.	N.-C. P.	N.-W. P.	Uva.	Sab.	Total
Primary ..	429..	1,393..	311..	455..	217..	9..	115..	— ..	705..	3,634
Secondary ..	168..	69..	— ..	66..	19..	46..	19..	5..	17..	409
Total ..	597	1,462	311	521	236	55	134	5	722	4,043

4.—LABOUR CONDITIONS.

This department is more directly concerned with the sanitary conditions of immigrant labourers on estates than of indigenous labourers as such, because the medical wants of estates are governed by Ordinance No. 9 of 1912 which does not deal with the medical wants of indigenous labour as such. The following report deals with the sanitary conditions of immigrant labourers on estates and the medical facilities available to them.

Medical Wants on Estates in 1937.—The only change in the number of Government hospitals scheduled to estates was the addition of the Lindula hospital. There were at the end of the year 64 scheduled Government hospitals (exclusive of 4 infectious diseases hospitals which are reckoned as part of the local district hospitals) and 109 Government dispensaries. 92 estates maintained their own private hospitals, as against 85 during last year. 723 estate dispensaries were maintained in 1937 as against 733 in 1936.

Rebates payable to estates which maintained their own hospitals amounted to Rs. 161,625 in 1937 as against Rs 166,613 in 1936. The value of drugs supplied to estates increased from Rs. 268,782 in 1936 to Rs. 342,936 in 1937.

The statement of revenue and expenditure of the administration of the Medical Wants Ordinance for the year ended September 30, 1937, is as follows:—

Revenue.	Rs.	Rs.
(*a*) Surplus brought forward from previous statement		4,751,147
(*b*) Amount of all sums recovered as visiting or maintenance fees under section 10 ..		94,353
(*c*) Amount of all fines recovered in respect of all offences against the Ordinance ..		—
(*d*) Amount of all sums recovered as the cost price of drugs supplied to Superintendents under section 9 (*d*)		4,507
(*e*) Amount of export duty collected under section 28 ..	1,413,693	
Less rebates paid	161,625	
		1,252,068
(*f*) Annual contribution out of the moneys provided for by the State Council of an amount equal to 15 per cent. of the total expenses of the administration of the Ordinance as shown under expenditure		133,591
		6,235,666

Expenditure.	Rs.
(*b*) *Pro rata* share of the actual expenditure (including salaries of staff) of all hospitals scheduled under the Medical Wants Ordinance	397,333
(*c*) Ditto of all dispenaries scheduled under the Medical Wants Ordinance ..	18,332
Ditto Ankylostomiasis Campaigns	38,235
(*d*) Annual amount sufficient to liquidate the cost of construction of all hospital or dispensary buildings completed after the commencement of the Medical Wants Ordinance which have been scheduled in terms of section 30 (*d*) together with interest at 4 per cent. per annum on any unliquidated amount in 25 equal annual instalments until the cost of construction is liquidated ..	—
(*e*) Annual expenditure on additions and improvements to existing buildings properly chargeable to a capital account upon hospitals and dispensaries primarily maintained in terms of section 30 (*e*)	9,018
(*f*) Cost of drugs supplied to Superintendents under section 9 (*d*) ..	4,507
(*g*) Miscellaneous expenses incidental to the administration of the Ordinance :—	
(1) Issue of free drugs to estates under section 9 (*c*) of the Ordinance ..	342,936
(2) Annual subscription for upkeep of telephone and other incidental expenses connected with the telephones attached to hospitals and dispensaries ..	380
(3) Full cost of salaries and allowances of Inspecting Medical Officers ..	78,962
(4) Salary of clerk, Civil Medical Stores, for pricing estate requisition for drugs ..	900
Surplus	5,345,063
	6,235,666

Inspecting Officers.—There was no change in the system of inspection nor in the number of officers. In all 506 estates were visited in 1937.

Estate Sanitation: General.—The sanitary conditions on the larger estates visited by the Inspecting Medical Officers were satisfactory.

Of the 198 estates inspected in the Central Province Inspectorate the general sanitary condition of 7 was reported to be bad; in the Uva Province Inspectorate there were 4 estates with bad sanitary conditions out of 204 estates inspected; in Colombo Inspectorate the sanitary conditions of 5 out of 104 estates inspected were bad.

Line Maintenance.—The lines were maintained in fairly satisfactory condition. The temporary and semi-permanent lines are being gradually demolished and the reoccupation of lines is increasing.

Line Surroundings.—The sanitary condition of line surroundings, notwithstanding the great reduction or total removal of scavenging labourers owing to depression, was generally satisfactory. The importance of removing shade from round the lines and keeping vegetable gardens and cattle sheds at a sufficient distance from the lines has not been sufficiently realized.

Line Construction.—There has been appreciable activity in the matter of line construction on estates which were unfavourably reported on during the years of depression.

Government requirements were met by 5,101 out of 10,320 rooms inspected in Colombo Inspectorate, by 31,263 out of 32,962 in the Central Inspectorate, and by 22,703 out of 36,185 in the Uva Inspectorate. 20,400 line rooms did not reach the standard required. Some of these particularly on small privately owned estates were unfit for the housing of labour. A fair percentage of these are beyond repair and are being demolished.

Central cattle sheds on estates in which all cattle can be housed, incinerators for groups of lines for adequate disposal of rubbish, and separate kitchens or chimneys over fire places (one chimney in the centre of a partition wall to serve two cooking places) to avoid blackened walls are some items of importance and are being gradually introduced.

Line Accommodation.—There was not much overcrowding in the Western and Central Inspectorates, but in the Uva Inspectorate the lines of 16 out of 182 estates inspected were overcrowded.

Inspectorate.	Not overcrowded.			Slightly overcrowded.			Overcrowded.		
	1935.	1936.	1937.	1935.	1936.	1937.	1935.	1936.	1937.
Western	84	113	101	2	2	1	—	—	2
Central	87	149	184	3	2	9	—	—	5
Uva	186	167	182	2	5	6	22	21	16
	357	429	467	7	9	16	22	21	23

Latrines.—Although most estates have provided latrines for the use of their labourers, it is reported that they do not use the latrines. Inspecting Medical Officer, Western Province, reports that where dry earth latrines are provided the labourers are certainly forming the habit, but where supervision and influence are felt, progress in the use of latrines has been very marked. Besides educating the labourers on the advantages of using the latrines estate schools should be provided with latrines so that the children may be trained while they are young. Most estates have pit latrines which are unpopular with the labourers, and if these can be replaced by bucket latrines some improvement in the extensive use of latrines may be expected.

The following table shows the latrine accommodation on the estates inspected in 1937:—

Inspectorate.	Provided a sufficient Number of Latrines.	Provided an insufficient Number of Latrines.	Provided no Latrines.
Colombo	87	14	3
Central	122	66	10
Uva	117	80	7
	326	160	20

Water Supply.—The Inspecting Medical Officer, Western Inspectorate, reports that the water supplies of 10 out of 104 estates inspected were unprotected. In the Uva Inspectorate the water supplies of 22 out of 204 estates inspected were unprotected. In the Central Inspectorate only 9 sources out of 198 inspected remained altogether unprotected.

In 1937, 399 of the 506 estates visited had an entirely protected supply; in 1936, 334 of the 459 estates visited had protected supplies The number of unprotected supplies formed about 8 per cent. of the total number of supplies inspected, and were usually on estates owned by private individuals.

Maternity and Child Welfare.—The infant mortality rate for the year, among the Indian labourers was 169 per 1,000 births registered as compared with 172 in 1936 and 198 in 1935. The infant mortality rate for the whole Island was 158 in 1937 as compared with 166 in 1936 and 263 in 1935.

In 1937, 2,364 male infants and 1,957 female infants died on estates, a total of 4,321 as against a total of 4,336 in 1936. The chief causes of high infant mortality among children on estates are: (1) the ignorance of the mother regarding feeding and clothing; (2) the exposure of expectant mothers and infants to hardships during the shifting of gangs from estate to estate; (3) the exposure to severe cold in the higher hills of Ceylon of infants born on the hot plains of India; (4) the want of sufficient clothing for infants born in the hill country; (5) presence of ankylostomiasis in the mother.

The infant death rates of the different estate districts for the last five years are given below:—

	1933.	1934.	1935.	1936.	1937.
Kandy	202	227	204	191	182
Matale	153	200	270	145	152
Nuwara Eliya ..	213	236	202	204	209
Badulla ..	171	175	171	156	149
Ratnapura ..	134	165	157	132	140
Kegalla	112	116	251	103	109
Colombo ..	110	182	211	128	151
Kalutara ..	127	139	135	115	142
Galle	137	144	135	117	124
Matara ..	194	199	245	224	163
Kurunegala ..	182	182	740	184	197

The chief causes of death during the past three years are as follows:—

Causes.	Infant Deaths under One Year.			Percentage of Deaths to Total Infant Deaths on Estates.		
	1935.	1936.	1937.	1935.	1936.	1937.
Convulsions	740	576	603	14·5	13·3	14·0
Tetanus	1	2	2	·02	·05	·05
Diarrhoea	43	47	36	·8	1·1	·8
Bronchitis	113	118	158	2·2	2·7	3·6
Pneumonia	218	254	271	4·3	5·9	6·3
Enteritis	16	15	12	·3	·3	·3
Debility	2,840	2,430	2,406	55·8	56·0	55·7
Prematurity	744	664	617	14·6	15·3	14·3
Other causes	379	230	216	7·4	5·3	5·0

Debility, prematurity, and convulsions are the chief causes of death. The high rate of mortality is attributed to inadequate skilled ante-natal attendance at the confinement and after the birth. Comparatively few estates retain the

services of trained midwives, this being to some extent due to the difficulty in securing the services of suitable women. The ideas and methods of the labourers themselves on the subject of maternity and child welfare are not calculated to increase the infant's chances of life, and the remedy appears to be in the training of suitable estate women as midwives as soon as estate funds permit of this being done.

As regards maternal welfare, 464 mothers died in 1937 as against 428 in 1936. Of this 464 deaths, 195 were due to puerperal septicæmia, principally caused by dirt and faulty midwifery. The maternal mortality on estates was 18.2 per 1,000 births registered as compared with 17.0 in 1936, 21.2 in 1935, and 17.9 in 1934. The Island rate for 1937 was 19.9 and 21.2 during the quinquennium 1932-1936. The high rate is largely due in all probability to the stubborn conservatism of the Indian labourers which prevents their utilizing freely the medical benefits now provided on estates for lying-in women. The maternity wards on estates are not much used and it is only by the gradual education of the female labourers and through their personal experience of the advantages to be derived by treatment in estate maternity wards that any considerable improvement can be expected.

Estates are required by law to allow expectant mothers a rest during the last month of pregnancy and give other benefits in the form of food and cash, though the cash bonus has in many cases been perforce reduced recently.

Principal Causes of Deaths among Estate Labourers.—Figures showing the principal causes of deaths among Indian immigrant labourers are given in Section II., Vital Statistics. The chief causes of death were debility, pneumonia, ankylostomiasis, infantile convulsions, and diarrhœa.

Estate Health Work.—The work done by Medical Officers of Health and Field Medical Officers was as follows:—

486 estates which employ resident labour came within the purview of the intensive health activity areas.

253 defects were corrected out of 533 found at 671 inspections paid to 375 estates inspected. There were 822 expectant mothers and 702 infants under care; 166 visits were paid to 58 estates by nurses; 1,237 visits were paid to 77 estates by midwives. On these visits 2,545 ante-natal cases, 247 deliveries were attended to. 1,431 post partum visits were paid. Out of 243 communicable diseases reported 239 were dealt with. 64 lectures with cinema and lantern and without were given and 236 talks were given by sanitary assistants and nurses.

5—HOUSING AND TOWN PLANNING.

Before any building can be constructed or any alteration affected to an existing building in Sanitary Board and in Urban District Council areas and in certain areas outside these declared under the operation of the Housing Ordinance application for permission has to be made to the local authority who refers it to the Medical Officer of Health for report and recommendation. Permission is given provided the building or alteration conforms to the Housing Ordinance.

Buildings are systematically inspected and in the case of those that are found to be unfit for human habitation action is taken to improve them by taking closing orders under the Housing Ordinance.

The following is a statement of work done in connection with the enforcement of the requirements of the Housing Ordinance.

Housing.—(*a*) *Private Premises*: 1,034,460 inspections of 686,180 private premises were made. The number of defects found at these inspections was 411,852, of which 282,107 were rectified.

(*b*) *Public Premises.*—4,824 public premises received 99,043 inspections and 12,725 defects were detected, of which 10,443 were remedied.

(*c*) *Building Applications.*—4,120 applications for new buildings were received during the year, and 4,040 were reported on. There were 1,744 applications for making additions and alterations to existing buildings and 1,718 were dealt with.

(*d*) *Insanitary Dwellings.*—712 dwellings were reported upon, 95 closing orders and 30 demolition orders were allowed, 199 were improved and 234 were demolished voluntarily.

6.—FOOD IN RELATION TO HEALTH AND DISEASE.

Meat Inspection.—All cattle slaughtered are inspected before slaughter and kept in pounds for 24 hours. Slaughtering in areas under local authorities is carried out in slaughter-houses maintained by them. The work has been satisfactorily carried out. 52,938 heads of cattle were inspected and 45,040 passed to be slaughtered.

Of the 26,866 goats inspected 22,446 were passed as fit for slaughter.

The following is a statement showing the number of slaughter-houses and cattle pounds as found in the areas worked by the department:—

	Slaughter-houses.	Cattle Pounds.
Urban District Councils	26 ..	20
Sanitary Boards	58 ..	32
Local Boards	1 ..	1
Rural areas	69 ..	31

Milk Supply.—In the absence of a Milk and Dairies Ordinance the control of the milk supply is still a matter of difficulty. The common adulterant is water. There is no control over the sale of milk in Village Committee and other rural areas while there is a fair measure of control in all towns areas.

There were 583 licensed dairies, of which 394 were under local authorities and 189 were in rural areas. 358 samples of milk were examined as against 349 in 1936. Of these 240 were found adulterated.

Food Unfit for Human Consumption.—195 cases of food unfit for human consumption were dealt with. 125 samples of such food were seized.

7.—HEALTH UNITS.

The 11 health units which were in operation at the end of last year continued to function during the year under review and no new areas were taken up specifically for health unit work.

The principles of health unit work have, however, been adopted in the areas worked by the Field Medical Officers under the Malaria Control Scheme.

Area.—The area worked in 1937 was 1,376 square miles as compared with 1,245 in 1936. This increase is due to the extension of the Matara and Weudawili Hatpattu Health Units.

Population.—The total population of the health unit areas increased from 820,166 in 1936 to 898,381 in 1937. The difference is due partly to the natural increase of population and partly to the extensions effected to the two health units already referred to. A classification of the population by residence shows that there were 167,795 persons living in urban areas, 724,082 in rural areas, and 6,504 on estates.

Personnel.—The personnel employed was as follows:—

	1935.	1936.	1937.
Medical Officer of Health	9 ..	11 ..	11
Medical Officers	2 ..	2 ..	5
Field Medical Officers	— ..	— ..	4
Supervising Sanitary Assistants ..	3 ..	2 ..	2
Sanitary Assistants	55 ..	82 ..	90
Public Health Nurses	17 ..	23 ..	30
Midwives	78 ..	114 ..	143
Clerks	9 ..	12 ..	14
Peons	7 ..	9 ..	9
Orderlies and labourers	11 ..	16 ..	21
Others	3 ..	5 ..	6

Births and Birth Rates.—The total number of births in the health unit areas taken together was 29,056 giving a rate of 32.3 per 1,000 as compared with 23,829 births and a rate of 29.1 in 1936. The birth rate for the whole Island in 1937 was 37.8.

The table below gives the rates for the last four years by respective units:—

Units.	Years.			
	1934.	1935.	1936.	1937.
Kalutara totamune ..	30·0	32·2	32·6	33·6
Panadura totamune ..	25·3	25·5	27·9	29·3
Weudawili hatpattu ..	42·0	25·6	39·9	46·3
Matara Gravets and Wellaboda pattu	40·8	40·8	37·7	36·6
Paranakuru korale ..	40·9	34·2	28·3	45·8
Trincomalee District ..	40·0	36·0	35·6	36·7
Yatinuwara	36·5	31·5	28·7	38·4
Colombo Mudaliyar's Division ..	20·1	21·3	22·6	20·8
Salpiti korale	—	—	27·0	28·1
Raigam korale	—	—	27·0	29·9
Hewagam korale	—	—	26·2	27·1

Deaths and Death Rates.—15,375 deaths occurred during 1937 giving a rate of 17.1 per 1,000 as compared with 12,601 deaths and a rate of 15.3 in 1936. The corresponding rate for the whole Island in 1937 is 21.7.

The death rates for the different units are as follows for the last four years:—

Units.	Years.			
	1934.	1935.	1936.	1937.
Kalutara totamune ..	23·4	19·4	16·8	19·9
Panadure totamune ..	17·4	17·0	13·9	15·5
Weudawili hatpattu ..	32·4	95·4	25·1	28·3
Matara Gravets and Wellaboda pattu	19·1	20·8	17·7	22·3
Paranakuru korale ..	19·2	78·4	15·1	15·5
Trincomalee District ..	21·5	36·0	37·7	29·9
Yatinuwara	18·7	40·2	12·1	14·6
Colombo Mudaliyar's Division ..	13·2	13·3	11.4	11·7
Salpiti korale	—	—	16·6	19·0
Raigam korale	—	—	11·7	12·0
Hewagam korale	—	—	11·2	11·2

Infant Mortality.—There were 3,996 infant deaths in 1937 with a mortality rate of 137.5 per 1,000 as compared with 2,904 deaths and a rate of 121.8 in 1936. The infant mortality rate for the Island in 1937 is 158.

The rise in the infant mortality rate in the health unit areas is partly accounted for by the inclusion in 1937 of comparatively unhealthy areas in the Matara and Weudawili Hatpattu Health Units. This is illustrated by a consideration of the infant mortality rates of the Matara Health Unit which in 1936 was 109.7 and which in 1937 rose to 149 after the extension of its boundaries.

The Weudawili Hatpattu and Trincomalee Health Units continue to have the highest infant mortality rates among the health units. The infant mortality rates which were abnormally high in the Weudawili Hatpattu and Paranakuru Korale Health Units during the year of the malaria epidemic have returned to their normal pre-epidemic level.

The rates for the past four years are:—

Units.	Years.			
	1934.	1935.	1936.	1937.
Kalutara totamune ..	134	99	98	108
Panadura totamune ..	121	92	101	114
Weudawili hatpattu ..	245	904	186	195
Matara Gravets and Wellaboda pattu	102	121	109	149
Paranakuru korale ..	128	553	119	129
Trincomalee District ..	197	274	215	166
Yatinuwara	162	278	125	145
Colombo Mudaliyar's Division ..	150	148	114	149
Salpiti korale	—	—	178	158
Raigam korale	—	—	84	96
Hewagam korale	—	—	87	112

Maternal Mortality Rate.—The maternal deaths in 1937 in all the Units amounted to 319 with a rate of 10.9 per 1,000 births as compared with 288 deaths and a rate of 12 in 1936. The rate for the whole Island for 1937 is 19.9.

The rates for the different units for the last four years are as follows:—

Units.	Years.			
	1934.	1935.	1936.	1937.
Kalutara totamune ..	16·3	15·5	12·7	15·3
Weudawili hatpattu ..	28·0	87·6	27·0	33·2
Panadura totamune ..	15·6	17·5	11·0	14·0
Matara Gravets and Wellaboda pattu	5·6	18·0	9·3	11·4
Paranakuru korale ..	10·4	27·1	15·8	11·2
Trincomalee District ..	18·0	23·0	23·4	20·0
Yatinuwara	10·8	11·7	9·1	9·2
Colombo Mudaliyar's Division ..	10.4	13·5	5·5	10·2
Salpiti korale	—	—	10·2	9·4
Raigam korale ..	—	—	9·8	5·7
Hewagam korale	—	—	4·4	10·6

Stillbirths and Stillbirth Rate.—In urban areas only are these figures available. Total stillbirths in the urban areas of these 11 units amounted to 333 giving a stillbirth rate of 51.3 as compared with 42.1 in 1936 and 50.5 in 1935.

Expenditure.—Government spent Rs. 392,268 on this work while the local authorities contributed Rs. 404,742. The per capita cost worked out for respective units as follows:—

	Per Capita Cost.	
	On Government Expenditure.	Including Expenditure of Local Authorities.
	Rs. c.	Rs. c.
Kalutara totamune	0 68	1 31
Weudawili hatpattu	0 48	1 03
Matara Gravets and Wellaboda pattu ..	0 55	0 64
Paranakuru korale	0 62	0 08
Trincomalee District	0 81	1 78
Yatinuwara	0 55	0 65
Panadura totamune	0 41	0 89
Colombo Mudaliyar's division	0 23	1 58
Salpiti korale	0 31	0 75
Raigam korale	0 31	0 37
Hewagam korale..	0 25	0 36

Health Education.—A tabulated statement of the work done under this head during the last three years is given below:—

	1935.	1936.	1937.
Lectures—			
With lantern	100	240	282
Without lantern ..	62	164	161
With cinema	30	55	30
Talks—			
School	1,588	2,389	2,818
Village	3,100	4,806	6,872
Clinic	1,978	2,433	3,423
Health weeks	3	5	12

It is estimated that a population of 505,035 or 56 per cent. of the total population of the health unit areas was reached as compared with 58 per cent. in 1934, 51.8 per cent. in 1935 and 51 per cent. in 1936.

577 conferences were held with the staff and 61 with others.

Training in health habits was carried out in 430 schools during the year under review as compared with 369 in 1934 and 350 in 1935 and 397 in 1936.

Health Survey.—A total of 3,375 premises were resurveyed of which 360 were done in Kalutara totamune, 293 in Panadura totamune and 2,722 in Weudawili hatpattu. 5,409 premises were newly surveyed of which 3,018 were done in the Matara Gravets and Wellaboda pattu, 55 in Panadura totamune and 222 in Paranakuru korale.

Communicable Diseases.—5,432 cases of communicable diseases were notified and investigated as compared with 4,155 during 1936. It did not necessarily indicate greater incidence of all communicable diseases but was partly due to better notification and reporting.

Of the various communicable diseases chickenpox, measles, dysentery, typhoid fever, pulmonary tuberculosis and whooping cough contributed with 1,146, 1,589, 759, 677, 403, and 254 cases respectively.

The increase in the total number of communicable diseases is due to a relatively high incidence of measles which has accounted for 1,589 cases.

The occurrence of typhoid fever, dysentery, and tuberculosis has been nearly the same as in the previous year.

15,101 first and 10,187 second doses of anti-typhoid inoculations were given in 1937 as against 8,394 and 6,454 respectively in 1936. Mass inoculation campaign was conducted in several units and a greater proportion of the second dose to the total was reached.

19,863 primary and 3,880 secondary vaccinations against smallpox were done as compared with 15,893 primary and 168 secondary in 1936.

Mass hookworm treatment continued to receive intensive attention during the year and 89,472 persons were treated during the year under review as compared with 53,567 in 1936.

46,374 laboratory examinations were carried out as compared with 16,752 in 1936, 23,375 in 1935, and 19,749 in 1934. Of this number 6,124 were done in Colombo and 40,250 at the local offices as compared with 3,074 and 13,678 in 1936.

410 notifications of cases of tuberculosis were received in 1937, as against 386 in 1936, 155 in 1935, and 174 in 1934.

A total of 406 patients and 1,748 contacts were kept under observation as compared with 332 patients and 1,306 contacts in 1936. The contacts received 450 examinations and 85 patients were placed in institutions.

A good deal of intensive work in connection with anti-malarial measures was done in all those areas, especially in Weudawili hatpattu, Paranakuru korale, and Yatinuwara, which came under the Malaria Control Scheme. No less than 11,787 places were surveyed for anopheline larvae and 2,425 places dealt with permanently and 1,949 places temporarily. Distribution of prophylactic quinine was continued and 117,907 three-grain tablets and 70,440 five-grain tablets were distributed in 1937, as a prophylactic measure. 20,588 three-grain tablets and 25,945 five-grain tablets were administered to patients.

Anti-Plague Measures.—Over 2,124 commercial premises were inspected for rat holes as compared with 2,225 in 1936. 5,018 rat holes were found of which 3,489 were dealt with. 260 premises were radically improved.

The progress made by the local authorities with regard to the provision of grain stores has been slow but several Urban District Councils and Sanitary Boards have provided themselves with the necessary equipment for calcid or cyanogas fumigation.

Anti-Fly Measures.—17,005 breeding places of flies were found of which 13,558 were dealt with, as compared with 10,344 in 1936.

Hygiene, Maternity, Infant, and Pre-school.—The number of centres for maternity and child welfare work increased from 63 in 1936, to 83 in 1937. The

number of clinics held at these centres was 4,671 as compared with 3,713 in 1936, 3,015 in 1935, and 2,789 in 1934. The subjoined table shows the growth of the work at these centres within the last three years:—

	1935.	1936.	1937.
Number of expectant mothers under care	—	22,128	17,858
Number of expectant mothers attended clinics	3,554	6,555	11,031
Number of visits by the above	6,909	13,935	26,121
Number of infants under care	—	8,881	13,377
Number of infants attended clinics	3,393	3,967	6,452
Number of visits paid by the above	26,546	23,870	41,767
Number of pre-school children under care	—	11,985	15,704
Number of pre-school children attended clinics	2,628	3,420	3,711
Number of visits paid by the above	19,818	14,610	18,033

The public health nurses made 61,609 home visits as against 43,168 during 1936.

143 trained midwives made 194,194 ante-natal home visits and conducted 14,323 deliveries as against 162,808 such visits and 12,018 deliveries by 117 midwives in 1936. The midwives paid 87,364 postpartum visits as against 83,082 in 1936. The percentage of births delivered by health unit midwives in 1937 was 49.3 as against 50.4 in 1936, and 51 in 1935. Of the health unit deliveries 387 mothers received trained assistance at maternity homes and of the others 364 received trained assistance from private doctors.

The percentage of deliveries by health unit midwives to total births in different units are as follows for the last three years:—

Units.	1935.	1936.	1937.
Kalutara Totamune	63·7	72·0	77·0
Weudawili hatpattu	39·0	55·5	31·0
Matara Gravets and Wellaboda pattu	57·9	67·0	79·8
Paranakuru korale	32·5	58·0	48·0
Trincomalee District	30·4	48·0	50·0
Yatinuwara	50·5	51·0	48·0
Panadura totamune	51·8	60·2	60·5
Colombo Mudaliyar's Division	61·8	58·0	61·1
Salpiti korale	—	19·0	36·0
Rayigam korale	—	31·1	47·8
Hewagam korale	—	33·3	66·5

School Hygiene.—21,637 were medically examined during the year under review as against 14,147 in 1936, and 6,629 in 1935. 15,486 or 71.5 were found to be defective with a total of 32,473 defects or 2.1 defects per defective child. 13,236 or 40.7 of the defects were corrected as against 6,269 and 29.1 per cent. in 1936.

Consultation at Office.—There have been 2,202 consultations at the offices of the Medical Officers of Health, as against 1,665 in 1936. Of these 944 were by children and 1,258 by adults.

Periodic Health Examination.—Ninety-one of the 270 persons attached to these units received complete periodic physical examinations and advice during the year, as compared with 7 in 1936 and 8 in 1935.

Latrine Construction.—During the year under review 6,728 new latrines were built with cement concrete squatting plates as against 6,223 during 1936, and 3,334 during 1935. 2,481 latrines were under construction on December 31, 1937, 443 old latrines were improved by the introduction of squatting plates as against 460 latrines in 1936 and 219 in 1935.

278 new latrines with cement concrete squatting plates were provided in schools and there were 42 under construction on December 31, 1937. Nine old latrines were improved by the introduction of concrete squatting plates. 214 pit latrines were converted into dry earth latrines with cement concrete squatting plates.

3,095 cement concrete squatting plates were made and 2,228 of them were sold during the year under review.

Water Supply.—Five public wells were constructed during the year as against two during 1936.

65,398 inspections were made of private wells and 29,646 were found unprotected of which 614 were improved. In the year under review 236 new wells were constructed as compared with 215 in 1936 and 148 in 1935.

Twenty samples of water were examined, 10 bacteriologically and 10 chemically and two were found unfit for drinking purposes by bacteriological examination.

Licensed Trades.—297 bakeries, 1,973 tea boutiques, 243 eating houses, 225 dairies, 105 butchers' stalls, 143 fish stalls, 6 pork stalls, 7 aerated water manufactories and 258 vegetable stalls received 5,092, 19,455, 4,743, 4,041, 1,200, 11,502, 308, 163 and 65 inspections respectively. 739 notices were served for breach of rules. 202 voluntarily complied with partially and 383 completely.

Food Sanitation.—14,138 heads of cattle were examined and 13,253 allowed to be slaughtered as against 11,382 and 10,661 in 1936, and 7,536 and 6,984 respectively in 1935. Of the 7,843 goats examined 7,496 were passed as fit for slaughter as against 7,495 and 7,213 in 1936, and 5,391 and 5,020 respectively in 1935.

188 samples of milk were examined as against 182 in 1936, and 171 in 1935. Of these 106 were found adulterated as against 101 in 1936.

On 9 occasions food unfit for human consumption was seized and dealt with as against 13 in 1936.

Housing.—144,210 private premises received 334,380 inspections as against 282,904 in 1936, and 199,988 in 1935. The number of defects found at these inspections was 153,413 of which 108,853 were rectified, a percentage of 70.9 as against 63 in 1936, and 53.7 in 1935.

Of the 1,203 public premises 1,106 received 20,644 inspections. 4,197 defects were detected of which 3,508 were remedied obtaining a percentage of 83.5 as against 77.6 in 1936, and 84.2 in 1935.

Thirty-nine insanitary dwellings were reported on and 8 were improved and 17 demolished.

1,775 applications to build were received during the year while 1,729 of these were reported on. There were 758 applications for making additions and alterations to existing buildings and 736 were dealt with.

Estate Health Work.—Ninety-eight estates with resident labour came under the purview of the health unit areas. Of these estates 70 were co-operative and received 150 inspections which resulted in the remedying of 23 defects out of the 74 noted.

Maternity and child welfare work in the estates continued to be carried out. 817 expectant mothers and 647 infants were under care as against 362 and 430 in 1936 and 117 and 55 respectively in 1935. 1,775 ante-natal visits were paid as against 1,234 in 1936 and 1,572 in 1935. The midwives attached to the different areas were responsible for 132 deliveries among the estate expectant mothers as against 137 in 1936 and 118 in 1935.

In the Kalutara and Weudawili hatpattu the Public Health Nurses visited the estates.

Training of Health Personnel.—The Kalutara and Panadure Health Units continued to serve as the chief training centres for health personnel.

The training of Public Health Nurses however continued to be carried out exclusively at the Kalutara Health Unit. In all 11 Public Health Nurses were trained during the year under review of whom 7 completed the course in the first half of the year and 3 in the second while one reverted to hospital nursing. One nurse was a nominee of the Galle Municipality.

Five departmental Medical Officers of Health spent varying periods of time at the Kalutara and Panadura totamunes, some studying general health unit work and some special phases of it. One Medical Officer of Health from India studied Health unit work at Kalutara. Several distinguished visitors from India visited these units, looking into the Health Unit line of public health work.

Kalutara and Panadure units were utilized for giving the Field Medical Officers appointed under the Anti-Malaria Scheme, an intensive course of training in public health work for a month. Fifty-two such officers were trained, twenty-nine

at Kalutara and twenty-three at Panadure. In addition to the above, these two units are also made use of for training of midwives in field work and giving field demonstrations to medical students, sanitary learners, and to teachers of training schools and colleges.

8.—SANITARY ENGINEERING.

Staff.—Mr. H. N. Worth, Sanitary Engineer, returned from leave on September 20 and assumed duties. Mr. J. W. de Alwis, Acting Sanitary Engineer during the Sanitary Engineer's absence, assumed duties as Assistant Sanitary Engineer from that date.

Malaria.—Emergency oiling of rivers and streams was undertaken by this Division as in the past. Work in this connection was carried out at the following centres:—Taldena, Haliela, Rattota, Nalanda, Kongahawela, Ridibende-ela and Ridigama during the period July to December. Some 350 miles of oiling was done at a total cost of Rs. 3,593.13. In a number of cases oiling gangs were despatched to centres but as a result of rain intervening, operations were suspended. Arrangements were made for stocks of oil to be held permanently at certain centres to facilitate the more rapid transportation to outlying centres when emergency work becomes necessary.

Temporary overseers were appointed and given a course of training in emergency oiling and field work for which purpose they were posted to the permanent Malaria Campaign Centres.

As these men become proficient they will undergo further training on permanent malaria control projects, channel construction and river training work as it is essential that a much larger trained staff is required to undertake this class of work. Men with organizing ability and who show promise should then be available to take charge of the malaria engineering works in the rural areas.

River Control —A programme of river control projects was drawn up covering about fifty sections of rivers and streams involving a total length of 120 miles. These projects included preliminary surveys, river clearing, channel control, filling and sealing of rock pools, drainage and flushing.

Clearing of the Malwatu-oya at Anuradhapura was the first section to be put in hand. For a distance of two miles, the Malwatu-oya runs through the protected and control zones of the Malaria Campaign area, and for a further mile it follows the boundary of the protected zone. From the condition of this river it was clear that no permanent control measures could be applied successfully to the low water channel until the vast accumulations of fallen trees and logs had been removed from its bed. The resistance to the flow caused by these obstructions for many years has prevented the stabilization of a dry weather channel and undoubtedly has been the chief factor responsible for the excessive pooling conditions, to which it is subject during the dry seasons. All insecure trees along the river margins have been felled and all trees and stumps in the river bed have been sawn up and removed over a length of ¾ mile between the lower boundary and Mihintale road junction within the control and protected zone. All the heavier removal work was carried out by elephants and much of the felling and sawing was done by prison labour.

Some 2,500 trees and logs have been removed from the river at a cost of Rs. 1,500. The work is now in progress in the upper section. It is hoped to complete the major portion within the 1938 programme.

On the completion of this clearing it is proposed to improve the condition of the river bed by channel control, by the sealing of all rock pools above the normal low water level and to instal automatic flushing devices at several points.

In order to demonstrate the nature of work required on streams in rural areas a section of the Getuwan-ela in the Kurunegala area was taken up. This stream which is 30 feet in width was totally blocked by vegetation, fallen trees and logs. It was thoroughly cleared for a distance of ¾ mile, the edges of banks to a height of 2 feet above bed were cleared of vegetation and a section of the channel was trained by means of peg revetments at a total cost of Rs. 390.

It is proposed to extend river bed clearing to a number of rivers during 1938 where in many cases it is anticipated little additional work will then be found

necessary in order to prevent excess pool formation occurring in the future. Channel control work by means of permeable revetments and spur dikes was continued on the Badulla-oya at Badulla where an additional length of approximately ¾ mile was completed at a cost of Rs. 4,903.18.

Some damage occurred on the previously completed sections due to excessive floods experienced during May and October; in addition, a certain amount of wilful damage occurred due to the removal of stakes and by the removal of sand from the newly formed banks. The Railway Department have under consideration the alteration to their intake channel which was the cause of previous damage as, owing to the effective bank formation, it is not possible to keep this intake channel open. It has been found necessary to discontinue work on this section pending the alterations to this service.

The Badulla-oya is a river of steep gradient which necessitates the provision of a number of low check dams in order that the gradient may be reduced; further, it is subject to very wide and sudden variations in flow. Certain sections are therefore liable to heavy scour particularly at the sharp bends and it is proposed to make more extensive use of rubble filled woven wire spur dikes and check dams for such situations in the future.

It was considered desirable to extend experimental river training works to other rivers where conditions appeared to be favourable for similar treatment and for this purpose four sections were selected, two on the Maha-oya at Alawwa and Mawanella, one on the Mahaweli-ganga at Katugastota and one on the Huluganga at Teldeniya.

The section of river at Alawwa has a sandy bed with an average bed width of 300 feet. This section is liable to excessive pooling during the dry seasons and was responsible for considerable A. culicifacies breeding during the epidemic period.

The normal dry weather channel has been confined within stake fencing, the stakes being driven and cut to within a few inches of low water level. Spur dikes of bamboo have been driven between the channel and the river banks, and the stakes cut to a regular grade to ensure even silting in the bays throughout the sections, with the exception of a few isolated spots which require special treatment, the regular distribution of the sand along the river edges has been accomplished.

The main difficulty experienced on this section has been that of dealing with isolated quick sand pockets, which at certain stages of the river cause breaks to occur in the stake lines owing to lack of support. It is hoped to remedy this defect by the utilization of skeleton concrete tetrahedran blocks laid on the river bed in lieu of stakes, a number of which have been cast.

Some trouble has been experienced also at the confluence of the large tributary which enters the main river at right angles just above Alawwa bridge, and which under flood conditions causes a check on the even flow of the main river, with much eddying and consequent uneven deposition of silt. It is hoped to improve conditions here, by making use of a series of rubble filled woven wire spur dikes on a section of the main river between the junction and the bridge, also to break the gradient of the tributary by the installation of check dams on its lower section.

Channel stake fencing is being dispensed with in all future work until the channel regime has become more or less established due to the effect of the permeable spur dikes; by so doing, a reduction in the flood damage is likely to be effected and a greater length of river can be undertaken on the funds available.

The length of channel completed during the year was about ¾ mile at a cost of approximately Rs. 4,168. This work is being proceeded with during 1938.

The section of this river at Mawanella is of entirely different formation, much of the river bed being of rock. On this section work has been confined to the elimination of rock pools by blasting, filling and sealing. In effecting these improvements over 1,900 rock pools with an aggregate area of 5,000 square feet have been eliminated. On the completion of the survey of the upper reaches of this river at a cost of Rs. 1,500, it is proposed to instal flushing devices and to regulate the dry weather channel in order to ensure the periodic flushing being effective.

The section of the Mahaveli-ganga at Katugastota is one containing much rock and on this a length of about ¼ mile of 500 feet bed width was put in hand. Over 2,300 square feet of rock pools were dealt with, many by means of rubble packing and sealing, whilst backwater pools were destroyed by the removal of barriers. The water level in these two sections remained high for the greater part of the year, flood conditions were frequent during the normally dry period which interfered with the progress of the work and prevented the lower pools being dealt with.

At Teldeniya, the Hulu-ganga is a sand-bottomed river with a bed of 125 feet in width. A number of bamboo rubble filled spur dikes and groynes were constructed here and a 2,000 feet section of channel controlled by bamboo stake fencing and spurs. The distribution of silt along the banks has been very effective. A further section is being taken up during 1938 together with a tributary which enters the main river above the Teldeniya bridge.

Permanent Works at Anti-Malaria Campaign Centres.—At Anuradhapura, improvements were made to the outlet channel from Drinking Pond. This work consisted of realigning existing earthen channels of approximately 3,000 feet in length. The channels were re-graded, re-cut and the banks turfed throughout, concrete drop walls were constructed and sections of the channel paved with masonry where required. The work was completed at a cost of Rs. 4,983.

At China Bay, Trincomalee, seven channels passing through Crown lands outside the Admiralty area were constructed on a permanent basis. These channels consisted of the following:—1,886 feet of 10 feet width, 250 feet of 8 feet and 2,200 feet of 4 feet. Total—4,336 feet in length.

The channels were designed with a central dry weather channel of cement concrete in a main channel of rubble masonry pointed in cement, banks being turfed above normal water line. The cost of this work was Rs. 7,449. The construction of these channels has had the effect of improving over 100 acres of land between Batticaloa road and the lagoon, a large portion of the old mangrove swamps are now drying with the result that numerous dangerous anopheline breeding areas have been eliminated.

River Surveys.—During the year survey work on rivers was continued and the following sections were completed:—

(*a*) Hulu-ganga at Teldeniya	..	..	¾ mile
(*b*) Mahaweli-ganga at Katugastota	..	..	¾ mile
(*c*) Maha-oya at Mawanella	..	..	1 mile

Water Supplies: Investigations and Soil Surveys.—Investigations were carried out in connection with improvements to and the augmentation of water supplies to the hospitals at Kandana and Negombo and Hiripitiya dispensary.

Soil surveys and borings were undertaken in connection with proposed water supply schemes at Elpitiya, Welisara, Nikaweratiya, Matara, Negombo, Kalutara, Kandana, Chempianpattu, Veravil, and Gomarankadawela, also at Mahara Prison.

Inspections were made of town supplies at Talawakelle, Pundaluoya, Lindula, Tillicoultry, Pelmadulla, Nuwara Eliya, Nawalapitiya, Avissawella and soil surveys carried out at Kuliyapitiya and Jaffna in connection with proposed supplies.

Water Treatment.—Chlorination plants at the Dikoya and Kandy hospitals were overhauled and put into good working order, designs were submitted for filters for Rattota town supply and Mulhalkella hospital and for chlorination plant at Rakwana.

The installation of the filtration and chlorination plant at Ratmalana was completed and tests upon the efficiency of the plant were carried out.

Reports.—Reports were prepared regarding the analyses of water from the following places:—Boragodawatta, Medemulla, Mandapam, Deniyaya, Pata Hewaheta, Wariapola, Kandana, Mannar, Marathamuru, Nuwara Eliya, Panadura, Killinochchi, Marassana, Mahara, and Padiyapelella.

Drainage.—Preliminary estimates were made for drainage schemes to the towns of Badulla, Alutgama, Dehiowita, and Yatiyantota and surveys were undertaken and schemes are in course of preparation for Dehiwala-Mt. Lavinia and Mannar.

Details were drawn up for the sewerage and sewage disposal schemes for Tataparai Camp and estimates prepared for re-modelling all latrine blocks and bathing places at this camp to conform to the modernized system.

A system of sewers with sewage disposal plants was installed at Ragama Anti-Tuberculosis Hospital and put into operation.

A subsoil drainage system for dealing with latrine and kitchen wash water was also installed at Chilaw.

A number of hospitals at which similar installations have been carried out were inspected and reported upon.

Trade Wastes.—The disposal of distillery wastes into streams and water courses has been a subject of complaint for many years from persons living in the vicinity of distilleries.

The question of treatment was taken up as far back as 1929 when the Government Analyst carried out a series of tests on the spent wash but no solution to the problem was arrived at.

With the co-operation of the proprietors of these distilleries in the Paiyagala area the Sanitary Engineer recommended that a battery of filters of special type should be given a trial on an experimental scale.

An experimental plant suitable for dealing with 400 gallons of spent wash per day was installed at the Anvil Distillery, Paiyagala, during the year and so far the preliminary tests have given very encouraging results.

Owing to lack of funds necessary to carry out tests over a reasonable period and for adjustments to be made for improving results, the experimental part has unfortunately to be closed down.

Flooding.—An inspection was made of the Gampaha area in connection with periodical flooding which occurs there and which is deemed to be the cause of a considerable increase in bowel complaints.

Recommendations were made on the steps required to be taken to reduce the liability to flooding which is aggravated by lack of proper outlets and to the silting up of waterways.

Recommendations were also made on the relief of floods in the Alutgama Sanitary Board area by increasing the size of outlets and providing better drainage facilities.

Miscellaneous.—A report on the Mahaweli-ganga adjoining the proposed site of the University at Aruppola was submitted.

Plans.—During the year 396 plans and charts were prepared and 276 copies of plans were printed.

B.—MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION.

Health education work is carried out by Medical Officers of Health, School Medical Officers, Field Medical Officers, Sanitary Assistants, Public Health Nurses, and Midwives.

Health Education in School.—The same procedure as last year was followed in regard to health education work in schools and the training of teachers in this work. Fifty-two teachers were awarded the joint certificate issued by the Education and Medical Departments for passing the examination held after the training course and also for satisfactorily carrying out for six months the practical application in their classes of the principles of health learnt by them.

The course in health education in connection with the Rural School training centre of the Department of Education at Mirigama was continued.

To encourage health education in elementary schools a Challenge Shield has been provided by the Society of Medical Officers of Health. The winner in the 1936-37 competition is Gonaduwa Vernacular Boys' School.

The following list gives the number of schools in each province where health education procedures are being followed:—

	W. P.	S. P.	C. P.	E. P.	Sab.	Uva.	N.-W.P.	N.-C.P.	N.P.
Daily morning inspection	670	239	275	73	347	46	311	9	378
Use of health habit training booklet	360	127	123	41	99	25	165	8	69
Weighing and measuring	358	38	96	25	163	13	133	6	28
Use of handkerchief	262	47	61	9	72	10	96	7	19
Mid-day meal	111	43	56	22	41	1	76	5	56
Proper storage of drinking water	368	72	58	26	93	13	120	8	195
Use of individual drinking cups	353	68	59	—	62	13	111	8	6
Health clubs	164	3	3	—	1	—	8	—	11
Organized play	347	209	62	65	392	13	285	9	60
First aid	127	108	19	2	47	2	55	3	7

Health education work among individuals, families, and groups of people is carried out by Public Health Nurses in connection with their home visits, both by talks and by actual demonstrations. These concern instructions relating to maternity and child welfare.

The Sanitary Assistants give talks in villages on matters relating to general sanitation, control of communicable diseases, &c., during their routine vists of inspection.

The midwives carry out elementary health education among expectant mothers with regard to pre-natal hygiene.

The School Health Nurses on their home visits give instructions by talks and demonstrations on the health of the school child, correction of defects and the promotion of health habits.

The Ankylostomiasis Dispensers give routine talks with lantern, posters and bottled specimens on hookworm disease, dangers of soil-pollution, &c., in connection with propaganda against hookworm disease.

The number of such talks given during the year were as follows:—

School talks	8,593	Village talks	17,265	Clinic talks	5,767

General Health Publicity.—In carrying out general health publicity and health education among the masses the chief methods adopted are teaching by the help of (*a*) leaflets and pamphlets; (*b*) press articles; (*c*) " Health News " or bulletins; (*d*) radio; (*e*) cinema and magic lantern lectures; (*f*) health weeks and exhibitions and health leagues. Since the appointment of a Publicity Officer in May more intensive work in this direction is being now done.

(*a*) *Leaflets and Pamphlets.*—The department has issued 60,000 leaflets on malaria, 20,000 leaflets on plague, 22,000 leaflets on care of expectant mothers, 50,000 leaflets on infantile convulsions, in English, Sinhalese, and Tamil. During the year under review 200,000 copies of a new illustrated leaflet on hookworm and 15,500 copies of a six-paged pamphlet on " Anti-Malaria instructions and regulations to constructional departments " in English, Sinhalese, and Tamil were issued. Several other leaflets on malaria, communicable diseases, &c., are under preparation.

The series of four posters on hookworm has now been completed with the addition of the fourth poster dealing with the " Prevention of Hookworm ". Posters on filariasis and malaria are under preparation.

(*b*) *Press Articles.*—Newspaper articles provide a cheap and rapid means of disseminating health information. Regular contributions are being sent to the English, Sinhalese, and Tamil newspapers, and good prominence is given to them by these papers. From May to December 18 health communiques were sent out and these were published as follows:—

	Papers.		Papers.		Papers.
In English	54	In Sinhalese	25	In Tamil	40

(*c*) *" Ceylon Health News "*.—The " Ceylon Health News " a publication issued by the department, once in two months, which had been suspended for sometime was resuscitated during the year. Besides containing a record of the departmental activities each number was devoted to a special subject. Various phases of this special subject were dealt with in a series of short articles specially written for the lay public. It is mainly meant to educate the health worker. The increasing demand for the magazine and the number of encomiums received testify to the fact that there is a genuine need for a publication of this type. Arrangements are being made to issue a vernacular edition as well. The following numbers were issued during the year:—

Vol. 7 No. 2 (July-August)	.. Special feature	—Sanitation
Vol. 7 No. 3 (Sept.-Oct.)	.. do.	Rural Hygiene
Vol. 7 No. 4 (Nov.-Dec.)	.. do.	Hookworm

(*d*) *Broadcast Talks*.—Broadcasting has opened up a new avenue for effective work in preaching the gospel of health. It has been recognized that with its extensive reach, and because of the ease with which the message of health can be carried " over the air ", the Radio has become a very valuable aid for disseminating health knowledge. With the co-operation of the broadcasting authorities the department has availed itself of the Radio at regular intervals for talks on health. Since July, however, a regular monthly programme has been drawn up for a series of talks in English, Sinhalese, and Tamil by the officers of the department. Lately a new series of talks entitled " Towards Better Health " has been inaugurated to be delivered in the three languages by officers of the department who have specialized in the subjects allotted to them. The number of broadcast talks delivered from July to November was as follows:—

English 8, Sinhalese 7, Tamil 7.

There were no talks during December.

(*e*) *Cinema Shows and Lectures*.—During the year 2,199 lectures were delivered by various officers of the department. Of these 140 were with the aid of the cinema, 826 with the aid of the lantern, and 1,233 without the cinema or magic lantern. Taking by provinces the number of lectures delivered in each province is as follows:—

Province.	Number of Lectures delivered.	Province.	Number of Lectures delivered.
Northern Province ..	163	Province of Uva ..	31
North-Central Province ..	40	Province of Sabaragamuwa	263
North-Western Province ..	527	Western Province ..	487
Eastern Province ..	151	Southern Province ..	230
Central Province ..	307		

(*f*) *Health Exhibitions and Competitions*.—During the year under review 28 health exhibitions were held at Mawatagama, Colombo, Wahacotte, Kaikawela, Matale, Niyawela, Kandy, Jaffna, Kegalla, Kurunegala, Weligama, Matara, and Rikawa.

The estimated attendance at the above exhibitions was 1,201,885.

In addition to the above, 3 exhibitions were held in Colombo. Of these the most important one organized by the department was in connection with the All-Ceylon Exhibition and Carnival held in Colombo during the Coronation festivities in May. The Carnival was a great attraction not only to the people of Colombo and the suburbs but also to thousands who came to Colombo during the Coronation and Wesak festivities from all parts of the Island and almost all of them visited the health exhibition as well. Among the visitors were hundreds of school children and teachers.

(*g*) *Health Leagues*.—In carrying out general health work among the villagers a procedure that is securing good results is the organization of the work through health leagues. These are voluntary organizations formed by the villagers

themselves with the advice and assistance of the sanitary officers for doing health work in their respective areas. First developed in connection with the construction of latrines these leagues have extended their activities in other directions as well. Once the work of latrine construction, in the particular area, has been completed, another health activity, such as the clearing of rank vegetation and refuse is taken up. This is followed by the improvement of wells. Some leagues have provided child welfare centres and funds for milk for infants. They also assist in inducing people to take treatment for hookworm, to get themselves inoculated against typhoid and to take quinine for malaria. There were 125 health leagues functioning in various parts of the Island during the year.

Education of the Professional Worker.—The Medical Officers of Health held 4 special conferences and 4 meetings of their society during the months of March, June, September, and December. One issue of the "Transactions" of the society was published during the year.

In all health units and in some of the areas of the District Medical Officers of Health, conferences of the sanitary officers of the respective areas are being regularly held. At health units these conferences are held on Saturdays. During each conference the work of the week is reviewed, difficulties are discussed and the work for the next period is planned. A feature of these conferences is the reading of a paper on some particular phase of their work by one of the Sanitary Assistants and this forms the basis for the day's discussion. 1,296 such conferences with the staff were held during the year.

The Sanitary Inspectors have an association of their own and their sixth annual conference was held in September at the Bonjean Memorial Hall, St. Joseph's College, Colombo. A novel feature this year was a Round Table Conference on school health education. Dr. S. F. Chellappah, O.B.E., Assistant Director of Sanitary Services, presided and there was a free discussion of the methods and measures used in health education. Several Sanitary Inspectors exhibited interesting material and literature used by them for this purpose.

The Public Health Nurses held their annual conference in May at Panadure. This conference was opened by Lady Stubbs, C.B.E., and the programme included several discussions of professional interest. Their annual journal "The Public Health Nurse" contains a record of the proceedings of the previous conference.

The first annual conference of trained midwives was held at the Town Hall, Kalutara, in December. Dr. S. F. Chellappah, O.B.E., Assistant Director of Sanitary Services, presided and there were 72 midwives present, apart from a number of health officers and members of the general public including several ladies. The proceedings of the conference are published in their journal in Sinhalese entitled "The Ceylon Midwife".

C.—TRAINING OF SANITARY PERSONNEL.

Sanitary Assistants.—During the year two training classes for Sanitary Assistants (formerly Sanitary Inspectors) were conducted. The first class commenced on January 5 and continued up to end of June. Forty candidates took up the training, 4 fell off during the course and 36 took up the final examination of the Royal Sanitary Institute in July and 29 passed. The second class commenced on September 13 and was continued during the remainder of the year. Forty-six candidates took up the training and 5 fell off during the course and 41 took up the final examination and 31 passed

Sanitary Assistants are of two types: (*a*) those in the permanent cadre and (*b*) those in temporary service both of whom are trained. The latter have been recruited under the malaria control and health scheme. Of the former there were 255 at the end of 1937 while there was provision for 257. Of the latter there were 41.

Public Health Nurses.—The training of Public Health Nurses is carried at the Kalutara Totamune Health Unit. Two training classes were conducted during the year. The first commenced on January 3 with 7 nurses, 6 of whom were for the department and 1 for the Galle Municipality. These sat for their

final examination in June and all were successful. Of these 2 had completed their course having passed in midwifery earlier. The other 5 who had not qualified in midwifery went into the Lying-in Home for the necessary training which is of one year's duration for nurses. The second class commenced in July with 4 nurses for the department. One of them reverted to hospital nursing and 3 continued the course. During the year 8 Public Health Nurses were in training in midwifery at the Lying-in Home. Of these 3 completed their course leaving 5 to continue the training.

At the end of 1937 the position was as follows:—

Provision for 47 Public Health Nurses—in service 37, in training 6, vacancies 4.

Midwives.—The training of midwives under the new scheme mentioned in last year's report was commenced in January. Twenty-three candidates in January, 30 in April, and 8 in October were admitted for a course of 18 months' training. The first batch finished the course of 12 months at the Lying-in Home and is now attached to health units for 6 months' training.

Post-graduate Training.—Fifty-eight Field Medical Officers underwent a course of post-graduate training in health work in the Health Units at Kalutara and Panadure totamunes. Six doctors from foreign countries visited the Health Unit at Kalutara for study purposes.

D.—RECOMMENDATIONS FOR FUTURE WORK.

The general policy in regard to future work is to expand the malaria control and health scheme, which is based on health unit principle of work, to include the whole of the Island. In sparsely populated areas in which the economic condition is low the approach to the people is being made through education and treatment. This needs to be carried out more extensively.

The training of health personnel such as Field Medical Officers, Sanitary Assistants, Public Health Nurses, and Midwives should be pursued in order to provide the necessary staff to completely carry out the work that has already been undertaken.

The special training of Medical Officers in malaria control is very necessary. With this in view provision is being made for the organization of a field training centre at Kurunegala. In addition to the local training of Medical Officers two or three of the more promising men should be sent out each year to study malaria in India and Malaya finishing with the International Malariology course at Singapore.

Arrangements should be made to encourage Field Medical Officers to secure the Diploma in Public Health.

Maternity and child welfare work needs some arrangement for Urban District Councils to secure the services of departmental Public Health Nurses on favourable terms as is done in the case of Sanitary Assistants. This is a matter that needs early attention because many Urban District Councils have voted the money but have not been able to secure the services of suitable trained nurses.

With the increase in the number of Public Health Nurses it is necessary to have the services of a well qualified supervising Public Health Nurse who could be employed in the practical training of Public Health Nurses and in guiding the work of those already in service. Such a nurse should have good educational qualifications such as the Cambridge Senior Local or the London Matriculation and after doing local work should be trained abroad.

Malaria control requires: (*a*) legal sanction in regard to work on private land; (*b*) in campaign centres permanent works; (*c*) a proportionate contribution from the local authority for work in its area; (*d*) in connection with agricultural matters a better draining system for taking away the water that is brought in. On the provision of this depends to a large extent the mitigation of the ravages of the disease in relation to land development for the purpose of cultivation; (*e*) control of breeding of mosquitoes in rivers and streams, experiments in connection with which are being undertaken.

Control of Parangi (Yaws).—The scheme that has been outlined for the study and effective control of yaws and which was put into operation at the end of 1937 should be brought into proper working order.

Control of Filariasis.—With the completion of the Island-wide survey all cases and endemic areas will be kept under observation by the respective Field Medical Officers and Medical Officers of Health and transmission will be checked up by blood examination of children born after the commencement of preventive measures. Legislation which has been drafted will be introduced for the elimination of the Pistia Stratiotes which is at present the only known breeding place of the Mansonia mosquito which is the carrier of microfilaria malayi the cause of rural filariasis.

Water Supplies.—There are many schemes for the provision of pipe-borne water supplies to towns. Rural areas need protected water which will generally be from wells. The use of treated irrigation water is a source of supply that may prove useful in certain areas. The provision of pure water to rural and urban areas is most necessary especially in view of the endemic nature of typhoid and dysentery in many parts of the Island. There are not many areas in which it may be said that every house has been provided with a sanitary latrine and every hamlet with a protected water supply. It is proposed in connection with an attempt to control typhoid and dysentery to take a suitable area and provide every house with a sanitary latrine and every hamlet with a protected well and pump to extract water and to see to what extent these two measures will control the incidence of these diseases. The population that will be dealt with in the first year will be 10,000 which will be added to later.

Health Education.—This needs the services of an artist-photographer for the preparation of the necessary educational material in which we are lacking. A Central Health Museum is very necessary and arrangements are being made to organize one at the old Bacteriological Institute building.

IV.—PORT HEALTH WORK AND ADMINISTRATION.

Ceylon is guarded against the introduction of dangerous infectious disease from abroad by the health service at each of its ports and by the two Quarantine Camps at Mandapam and Tataparai in Southern India. The chief sources of danger to the Island are (*a*) the grain traffic from Rangoon and other Burmese ports, in respect of plague—some 6,000,000 bags of rice are imported annually of which more than 4,500,000 come from Rangoon—and (*b*) the passenger and immigrant labour traffic between Southern India and Ceylon by the Dhanuskodi-Talaimannar and the Tuticorin-Colombo routes, in respect of cholera and smallpox. Prior to 1931 more than 200,000 persons a year usually entered Ceylon by these two routes which are protected by the Quarantine Camps at Mandapam and Tataparai respectively. The number fell for some years after 1931 but in 1934 rose to 245,483 and in 1937 it fell again to 162,552.

The technical work of the Quarantine Department is performed by Medical Officers, Apothecaries, Sanitary Assistants, and Vaccinators of the Department of Medical and Sanitary Services who are seconded for service under the Quarantine Department. The port of Colombo has a whole-time staff of five Medical Officers, while at the 15 minor ports the local Medical Officers give part of their time to the work. The surveillance of travellers after arrival at their destinations in Ceylon is also carried out by Medical Officers of the department.

Colombo.—2,788 British and foreign vessels and 203 Indian sailing craft called at the port, as against 2,615 and 147 respectively in 1936. Of these 44 vessels arrived in Colombo with cases of infectious diseases on board, viz., 9 with chickenpox, 33 with measles, 2 with dysentery, 6 with whooping cough, 3 with diphtheria, 11 with mumps, and 2 with typhoid. It was generally possible to isolate the persons affected on board the vessels. Seven cases, however, were landed and sent to the Infectious Diseases Hospital, Colombo.

One case of suspected cholera occurred on board the s.s. " Mathura " on October 1, 1937. The ship was placed in strict quarantine. Postmortem examination disclosed that the member of the crew died of acute diarrhoea and specimen of

intestinal contents were sent for bacteriological examination which proved negative for cholera. In the meantime the crews' quarters were thoroughly disinfected, the water tanks emptied after chlorination and the entire ship's company and all persons who went on board inoculated against cholera. The ship was then released from strict quarantine.

During the year 1,881 bills of health were issued to ships and 48 rat certificates, 5 deratisation certificates and 12 deratisation exemption certificates were issued to vessels.

7,536 passengers were vaccinated during 1937 at three centres, viz., Port Health Office, Office of the Assistant Port Health Officer for Immigration and the Disinfecting Station.

Six passengers were inoculated against cholera and 37 vaccinated against smallpox.

43,681 passengers going to Tuticorin were medically inspected, 262 of these were found to be unfit and were detained.

During 1937, 27 cases of human plague were recorded in Colombo, as against 39 in the previous year. Since rat plague is enzootic in certain parts of Colombo careful measures are taken in accordance with Article 13 of the International Sanitary Convention, 1926, to prevent infection reaching shipping in the harbour.

The precautions now taken have been extended by the introduction of regulations making compulsory the fumigation of cargoes from plague-infected ports. This is a most important measure in anti-plague work.

It is hoped it will be possible to extend these measures to other parts in Ceylon which receive fairly heavy shipments, *e.g.*, Galle and Northern Ports, to block effectively the entrance of fresh plague infection into Ceylon.

A venereal diseases clinic for seamen has been maintained at the port since 1921, and an account of its work appears in Section VI. of this report.

Minor Ports.—579 steamers and 2,391 sailing vessels called at the fifteen minor ports. 365 of the steamer visits were at Talaimannar in connection with the ferry service to India. All passengers arriving at Talaimannar had passed through Mandapam Quarantine Camp or had been inspected by Medical Officers of the camp. No passengers are permitted to land at the other small ports in the northern part of the Island and ships discharging cargo at these ports must be licensed. This is a necessary precaution since the shipping is mostly engaged in coastwise traffic with small ports in the district of Southern India where smallpox and cholera are more or less endemic, while a few boats bring rice from Burmese ports.

Mandapam Qurantine Camp.—Owing to the increase in the price of rubber and tea the number of persons who passed through the camp *en route* for Ceylon was more than that of the previous year.

The following are the figures for the last seven years :—

Year.	Estate Labourers.	Passengers.	Total.	Year.	Estate Labourers.	Passengers.	Total.
1931	68,337	50,474	118,811	1935	43,018	47,018	90,036
1932	50,869	45,972	96,841	1936	40,803	46,052	86,855
1933	32,898	42,468	75,366	1937	51,427	50,524	101,951
1934	140,607	48,530	189,137				

All estate labourers remain five days in the camp, where they are disinfected, vaccinated, treated for ankylostomiasis and subjected to a careful medical inspection. First class and many second class passengers and their personal servants are medically inspected at the railway station before being allowed to proceed, are vaccinated if necessary, and are subjected to surveillance for 12 days after arrival in Ceylon. The majority of third class passengers pass through the camp.

Fifty-one passengers and 49 estate labourers were rejected on account of leprosy and 5 estate labourers were rejected for other diseases, viz., tuberculosis 1, epilepsy 2, and insanity 2.

The general hospital of the camp has accommodation for 20 patients. There were 607 cases treated of which 14 proved fatal.

The Infectious Diseases Hospital in the camp has 12 beds for smallpox and 16 for cholera. There was no case of smallpox, but there were 3 cases of cholera, all of whom proved fatal. There were 58 cases of other infectious diseases, viz., chickenpox 7, measles 28, and mumps 23, all of whom recovered.

3,609 persons who paid 16,403 visits were treated at the outdoor dispensary of the camp.

Treatment for Ankylostomiasis was given to 42,182 labourers out of 52,146 examined.

36,932 passengers and 50,943 estate labourers were vaccinated against smallpox.

There is a school in the camp for children of employees and there were 203 day pupils on the roll at the end of 1937. A grant of Rs. 1,440.69 was received for the school from Madras Government. The night school was closed owing to the small number of pupils.

The sanitary condition of the camp was very good throughout the year. The camp has its own water supply which is carefully protected and subjected to frequent laboratory examinations, its own electric lighting plant, and a water carriage system of drainage and sewage disposal. The food supply and kitchen were carefully supervised and continued to be satisfactory.

A maternity ward with combined labour and operating room was built during the year.

The work in the camp laboratory generally consists of the examination of pathological and bacteriological specimens from the camp hospitals, but in addition examination for leprosy from among the detenues, bacteriological examination of water, and examination for cholera carriers were carried on. 9,226 specimens were examined; 337 persons were examined for leprosy, 48 of these proved positive; 7 strains of cholera vibrios and 92 strains of atypical vibrios have been isolated, and 276 other vibrios were met with during examination.

Tataparai Quarantine Camp.—60,601 passengers proceeding from India *viâ* Tuticorin to Colombo passed through the camp, as against 51,106 in 1936 and 57,411 in 1935. Of these 45,749 were passed after full quarantine and 14,852 went under surveillance in Ceylon. Most of the passengers were petty traders, bungalow and garden labourers and rickshaw pullers.

There were 216 rejections for the following diseases: 193 for leprosy, 7 for recent smallpox and chickenpox, 1 for syphilis, 2 for unsoundness of mind, 4 for epilepsy, 3 for measles, 5 for chickenpox, and 1 for scabies.

There were no cases of cholera, smallpox or plague in the camp. Of the minor infectious diseases there were 5 cases of chickenpox, 3 of measles and 6 of dysentery among the passengers. Among the camp residents there were 2 cases of chickenpox, 17 cases of dysentery and 4 cases of typhoid fever. The dysentery cases were spread out throughout the year, and in the cases of chickenpox and typhoid fever the infection was brought from outside.

60,626 passengers were vaccinated, 46,564 at the camp and 14,062 at Tuticorin.

2,285 persons who paid 4,844 visits were treated at the camp dispensary.

The camp has an area of 39.68 acres. During the year a new water pumping plant was installed and the construction of a new hospital building was commenced.

There is a school in the camp for children of the resident staff and there were 57 day scholars. The night school was closed in April. The Madras Government paid a grant of Rs. 312.00 to the day school.

Food of good quality and in sufficient quantity was served throughout the year. The catering was done departmentally.

The camp was maintained in a sanitary condition and the health of its personnel was satisfactory.

Surveillance.—98.0 per cent. of the 54,224 persons, or 53,142 persons from Southern India entering Ceylon under surveillance reported at their destinations and completed the 12 days' period of surveillance. Among these persons 2 cases of smallpox, 7 cases of chickenpox and 2 cases of leprosy were detected during their period of surveillance.

V.—MATERNITY AND CHILD WELFARE.

Infant Mortality.—The following statement gives in tabular form the figures relating to infant deaths and infant mortality rates for 1936, 1937 and the average for 10 years 1927 to 1936:—

Infant Deaths.	Average 1927–1936.	1936.	1937.
Whole Island ..	35,849	31,789	34,180
Urban areas ..	4,566	4,614	5,328
Rural areas ..	31,283	27,175	28,852
Infant Mortality rates.			
Whole Island ..	178	166	158
Urban areas ..	189	161	168
Rural areas ..	177	167	157
Ceylonese ..	174	165	157
Indian Immigrant ..	197	172	169
European ..	28	32	41

Of the 34,180 infant deaths convulsions have been responsible for 8,393 or 24.5 per cent. and debility for 6,961 or 20.4 per cent. As in previous years these conditions have been the two chief causes of deaths among infants.

Maternal Mortality.—The following table sets out the number of maternal deaths and maternal death rates for 1936, 1937 and the average for 10 years 1927 to 1936.

	Average 1927–1936.	1936.	1937.
Maternal Deaths.			
Whole Island ..	4,142	4,158	4,304
Urban areas ..	775	917	1,001
Rural areas ..	3,367	3,241	3,303
Maternal Mortality Rates.			
Whole Island ..	19·9	21·6	19·9
Urban areas ..	31·4	32·0	31·6
Rural areas ..	19·0	19·9	17·9

The number of maternal deaths recorded for 1937 shows an increase of 146 deaths of mothers at child birth as compared with the deaths for 1936.

The maternal mortality rate for the year is 19.9 which shows a decrease of 1.7 per 1,000 on the rate for 1936. The maternal mortality rates in areas where intensive work on health unit lines is being undertaken, show a decided reduction. This indicates very strongly that until the greater portion of the island is worked by organizations through which intensive maternity welfare work can be carried on there will be no appreciable result in the island's death rates in spite of improvements in isolated areas.

Puerperal sepsis and puerperal convulsions contributed 78.4 per cent. of the total deaths at child birth as compared with 80.7 in 1936. Of the 4,304 deaths, 1,453 or 33.8 per cent. have been caused by puerperal sepsis and 1921 or 44.6 per cent. by puerperal convulsions as compared with 36.7 per cent. and 44.0 per cent. respectively in 1936.

Stillbirths.—Stillbirths are registered only in urban areas. During 1937 there were 2,278 stillbirths as compared with 2,221 in 1936 and 2,164 in 1935 and 1,877 the average for the years 1927 to 1936.

The still-birth rate for 1937 is 77 per 1000 live-births as compared with 77.0 in 1936, 83.0 in 1935 and 77.0 average for ten years 1927-1936.

Ante-natal, Post-natal, and Baby Clinics.—At the ante-natal clinics held at the De Soysa Lying-in Home 7,942 mothers paid 11,196 visits, as against 6,739 mothers and 9,902 visits in 1936. At the post-natal clinics 487 mothers paid 1,042 visits.

In addition to these, 8,395 combined ante-natal and baby clinics were held in various parts of the Island at 207 centres as against 4,503 clinics at 77 centres in 1936. In some of these centres—especially in those in the health unit areas—ante-natal clinics are held separately from the baby clinics, as the attendance increases

considerably by this arrangement. It will be noticed that there has been a large increase in the number of clinics held. This is due to the work done under the malaria control and health scheme.

Visits paid to these clinics during the year, as compared with those in 1936 are as follows:—

	1936.	1937.
Expectant mothers	17,393	39,841
Infants	29,563	88,479
Pre-school children	18,611	39,637

Midwifery.—225 trained midwives under supervision were provided by Government (75 at hospitals and 97 at health units and 53 under the malaria control and health scheme as against 141 in 1936; 148 by local authorities and 160 by estates, as against 126 and 121, respectively in 1936; making a total of 533 midwives as against 388 in 1936. There are about half this number of trained midwives doing private work.

The total number of midwives registered in the Island under Ordinance No. 26 of 1927 amounts to 765 as against 524 in 1936. During December, 1936, the area of Kotte Urban District Council was brought under the operations of section 57 of the Medical Ordinance, 1927—the object being to prohibit practice by untrained and uncertificated midwives. During 1937 no areas were brought under the section quoted.

The examination of pupil midwives is undertaken by the Ceylon Medical College Council. Training is carried out at the De Soysa Lying-in Home in Colombo, Galle hospital, Green hospital, Manipay, and the McLeod Mission hospital at Inuvil. As the period of training in the Lying-in Home has been increased from 6 months to 12 months, it was only possible during 1937 to train 61 women as compared with 145 in 1936 as follows:—

Hospital.	Class of Pupils.	Number.
Galle Hospital	Stipend pupils ..	6
Lying-in-Home	do. ..	46
Green Hospital, Manipay	..	6
McLeod Mission Hospital	..	3
		61

Maternity Beds in Hospitals.—At the De Soysa Lying-in Home in Colombo there were 107 beds which were increased to 130 in 1937. Out of the remaining 107 Government hospitals with a total of 11,916 beds 78 had maternity wards with a total of 501 beds in 1936. The other hospitals, although not provided with maternity wards, take maternity cases into their general wards. During 1937 one new maternity ward was built at Chavakachcheri hospital with 6 beds.

Public Health Nursing.—At the end of 1936 there were 32 public health nurses. During 1937, 9 more nurses were selected and given training at the Kalutara Totamune Health Unit, thus bringing up the total of public health nurses at the end of 1937 to 41. There is one vacancy and three new appointments were sanctioned from October, 1937, and these will be made in 1938.

Voluntary Association and Child Welfare Work.—Voluntary associations in connection with the carrying out of child welfare work increased in number from 48 in 1936 to 60. These associations are under the names of social service leagues, health leagues, child welfare leagues, &c.

The total income of these societies as far as is known has been Rs. 25,725 during the year, of which Rs. 18,844 or 88 per cent. has been expended on child welfare work. Thirty-eight local authorities contributed to the finances of these voluntary associations.

Work of Lady Doctors.—There were 5 lady doctors stationed at the following towns, viz., Beruwala, Batticaloa, Trincomalee, Puttalam and Weligama, for work among women and children chiefly of the Muslim population. They attend to sick women and children at the dispensary, visit in their homes, those who cannot attend at the dispensary, free of charge in the case of the poor, hold ante-natal and

baby clinics and do a certain amount of health educational work. The doctors at Beruwala and Trincomalee work in conjunction with the local Health Unit. The others work without adequate staff for effective work.

The five doctors paid 3,755 home visits and attended to both in the home and at the dispensary, 391 mothers at child birth, 479 puerperal cases, 1,859 sick expectant mothers, 2,972 sick infants, and 6,377 sick pre-school children. They have held 841 clinics at 18 centres at which 1,519 expectant mothers paid 3,932 visits, 603 infants paid 6,773 visits and 1,021 pre-school children paid 5,942 visits.

VI.—HOSPITALS, DISPENSARIES, AND VENEREAL DISEASES CLINICS.

HOSPITALS AND DISPENSARIES.

General Remarks.—All parts of the Island are generously provided by the State with hospitals and dispensaries. In and around Colombo are the General Hospital (943 beds), Lying-in Home (130 beds), Eye Hospital (127 beds), Women's Hospital (46 beds), Children's Hospital (96 beds), Female Venereal Diseases Hospital (29 beds), Police Hospital (36 beds), Tuberculosis Hospital (352 beds), Hospital for Chronic and Convalescents (68 beds), Tuberculosis Sanatorium (72 beds), and Infectious Diseases Hospital (168 beds). Elsewhere there are 92 Government hospitals with 6,960 beds and a Tuberculosis Sanatorium with 36 beds. In addition there are the Prison Hospitals, Lunatic Asylum, and Leper Asylums mentioned in Section VII. with accommodation for more than 3,000 patients. The number of hospital beds provided by Government is approximately 2 per 1,000 of population. Kilinochchi hospital which was closed in 1933 was re-opened on May 1, 1937. A new hospital for chronic and convalescent patients was opened on July 21, 1937, at Ragama.

The number of dispensaries, central (238) and branch (168) and visiting stations (282) maintained by Goverment was 688 in 1937 against 674 in 1936. In addition to these the following special institutions were maintained for the treatment of out-patients:—King Edward VII. Memorial Anti-Tuberculosis Institute, Colombo; Grenier Ear, Nose, and Throat Clinic, Colombo; Dental Institute, Colombo; and special ophthalmic clinics at the Kandy, Galle, Jaffna, Batticaloa, and Badulla hospital and a Dental Clinic at Galle.

During the year under review, the number of estate hospitals maintained by the proprietors of estates was 92, as against 85 in 1936, and the number of estate dispensaries was 723 as against 733 in 1936.

343,442 in-patients with 19,723 deaths, giving a mortality rate of 5.74 per cent. were treated in the various Government hospitals. The figures for the previous year were 324,265, 18,990 and 5.85 respectively. In the Government dispensaries and out-patient departments attached to Government hospitals 5,895,649 patients who paid 8,872,871 visits were treated, as against 6,104,682 and 9,075,354 visits the previous year.

The diseases treated at hospital out-patient departments and dispensaries were as follows:—

I.—Communicable Diseases.

Enteric fever	334
Fevers of obscure causation	1,358
Malarial fever	2,107,377
Cerebral malaria	103
Malarial cachexia	144,159
Malarial cirrhosis	147
Measles	1,162
Whooping cough	2,308
Diphtheria	4
Influenza	295,767
Mumps	507
Dysentery (all forms)	27,399
Amoebic hepatitis and liver abscess	57
Leprosy	42
Erysipelas	93
Chickenpox	153

I —*Communicable Diseases.*—contd.

Dengue	36
Yaws	9,054
Hydrophobia	1
Tetanus	45
Pulmonary tuberculosis	2,494
Other tubercular diseases	408
Syphilis (all varietes)	7,279
Soft chancres	350
Gonorrhoeal complications (arthritis, rheumatism, &c.)	4,840
Gonorrhoea (acute and chronic)	19,402
Filarial diseases	293
Acute rheumatic fever	2,494
Puerperal fever	2,257

II.—General Diseases.

Malignant tumours—carcinoma, Sarcoma	43
Non-malignant tumours	936
Chronic rheumatism	340,750
Arthritis (acute and chronic)	8,873
Diabetes mellitus	889
Anaemias (of unknown causation)	48,147
Goitre	39
Leukaemias	872
Acute poisonings	232

III.—Local Diseases.

Diseases of the nervous system	36,438
Diseases of the eye	84,339
Diseases of the ear	59,010
Diseases of the heart and blood vessels	7,179
Diseases of the lungs and pleura	317,095
Diseases of the gastro-intestinal tract	639,550
Diseases of the liver and gall bladder	4,316
Diseases of the urinary system	29,942
Diseases of the generative systems	70,099
Diseases of the spleen	9,392
Diseases of the lymphatic system	7,087
Diseases of the skin and cellular tissues	276,174
Diseases of the bones and joints	5,967
Ankylostomiasis	311,055
Other helminthic diseases	420,400
Ulcers	359,356
General injuries	39,851
Local injuries	139,102
Other local diseases	48,591

REPORT ON COLOMBO HOSPITALS.

A brief summary of the work done in the chief Colombo hospitals is given below:—

General Hospital, Colombo.—The number of patients treated in the hospital during 1937 was 32,373 (1,519 paying and 30,854 non-paying patients) as compared with 29,757 (1,552 paying and 28,205 non-paying) in the previous year.

There were 2,755 deaths as against 3,180 in 1936 and the percentage of deaths to those treated was 8.2. The daily average sick in hospital was 1,392.65 as compared with 1,347.69 in 1936.

The maximum and minimum number of patients in hospital on any one day during the year was as under:—

	Maximum.	Minimum.
Paying section	94 on 21.6.37	72 on 21.2.37
Non-paying section	1,430 on 11.2.37	1,166 on 1.4.37

The number of operations performed was 4,447 of which 3,950 were performed in the hospital and 497 (minor operations) at the out-patients department, as against a total of 5,033 (4,342 in hospital and 691 on out-patients) in the previous year.

The total number of patients treated at the out-patients' department amounted to 116,323, as compared with 103,644 in 1936. The number of visits paid by patients was 325,635 with a daily average of 892, as against 294,583 in 1936 with a daily average of 807.

An out-patient clinic for diseases of women was started in October, 1934. The clinic is held on Tuesdays and Thursdays between 9.30 A.M. and 12 noon. 1,620 new patients (3,107 visits) were examined and treated during 1937.

Pathological Department.—The staff consists of a full-time pathologist and two qualified assistants. The following number of specimens was examined and reported upon during 1937:—

Urines	32,596
Faeces	19,099
Gastric contents	2,324
Sputa	4,693
Bloods	21,060
Cerebro spinal fluids	781
Smears	715
Tissue sections, General Hospital	938
Tissue sections, Outstation Hospitals ..	316
Tissue sections, Post-mortem room	24
	82,546

274 post-mortems were held during the year.

X'Ray Department.—14,464 patients in the non-paying section and 1,091 patients in the paying section, making a total of 15,555 patients underwent X'ray examination, as against a total of 10,137 in 1936. These examinations necessitated the use of 20,352 films and the taking of nearly 55,000 radiograms. In the electro-therapeutic section 13,008 sittings were given to non-paying patients (including patients from the 2nd class paying wards from whom no charges are recovered) and 1,090 sittings to paying patients, making a total of 14,098, as compared with 7,324 the previous year.

170 cases had radium treatment for different diseases, chiefly cancer, as compared with 172 cases in 1936.

The Ear, Nose, and Throat Department.—The Grenier Ear, Nose, and Throat Clinic is held at the out-patient department, General Hospital, on three afternoons a week—Tuesdays, Thursdays, and Saturdays—from 1 to 4 P.M. and the Surgeon-in-Charge is allotted 10 beds (6 for males and 4 for females) in the wards of the hospital for cases requiring indoor treatment. 10,136 new out-patients were treated during the year. The total number of visits made by the new and old patients was 19,523, as against 15,458 and 17,569 respectively in 1936.

In addition, there is the school children's clinic which is held on Tuesdays and Thursdays in the afternoons. 800 children attended the clinic and paid 1,065 visits.

The number of patients treated in the wards was 341 (males 212 and females 129).

549 operations—both major and minor—were performed on two days a week (Mondays and Fridays) at the paying section threatre commencing at 1 P.M.

Dental Institute, Colombo.—The professional staff consists of one qualified Dental Surgeon, one House Surgeon, two apothecary assistants, a matron, and a nurse.

25,198 new patients were treated during the year under review, as against 26,513 in 1936. The total number of visits made by the new and old patients was 46,691.

The number of patients was made up as follows:—

Patients sent from hospital wards	513
Children attending the school clinic	1,959
Other patients	22,726
	25,198

The following treatments were given:—

Extractions	22,153
Cleaning and filling	5,537
Temporary relief	9,060
Dressing	9,941

Twenty-seven cases were operated on at this institute and 13 cases of fracture of the jaw were treated.

A mobile dental service consisting of one motor van with the necessary equipment in charge of a Medical Officer, an apothecary and attendants, was started in June, 1937, and the total number of cases treated were 5,366, of which 3,443 were extractions, 1,631 were scalings, 305 were temporary relief and 86 were dressings.

De Soysa Lying-in Home.—Although a small increase in the bed strength has been made, the urgency for increased accommodation to enable the work to be carried out under satisfactory conditions is once more emphasized.

The number of cases under treatment in 1937 was 10,736, as against 9,199 in the previous year and 6,731 in 1935. The daily average number of beds occupied was 180.06 and the mortality rate was 1.67, as compared with 177.27 and 1.85 respectively, the previous year.

There were 180 maternal deaths and of these 4 were due to malaria, 19 to pneumonia, 26 to advanced anæmia and enteritis, 108 to puerperal causes and 13 to non-puerperal causes. There were 273 miscarriages, as against 292 in 1936.

The number of live births was 6,124. Of these infants, 5,737 left the hospital alive while 387 died after delivery, as against 5,205 and 390 respectively, in 1936. 753 obstetric operations were performed during the year, necessitating the use of forceps in 242 cases, craniotomy in 42 cases, decapitation of child in 2 cases, version in 55 cases, evacuation of the uterus in 100 cases, manual removal of placenta in 65 cases, induction of labour in 49 cases, cæsarean section in 12 cases, for complications of breech in 42 cases, and 125 minor operations. Labour was classified as normal in 4,932 cases. In 62 cases of placenta prævia, 24 infants were born alive and 38 were dead, 55 mothers recovered and 7 died. In 53 cases of accidental hæmorrhage one mother died. 1,028 cases of pre-eclampsia were treated with 17 deaths. Of the 120 cases of eclampsia treated during the year 103 mothers recovered and 17 died. There were 152 cases of twins and 2 cases of triplets.

With a view to limiting the number of admissions and lessening the state of overcrowding in the wards, a start was made in 1933 to provide an external midwifery service in the area of Colombo round about the Lying-in Home. This service is gradually being extended and there were 86 cases against 83 in 1936 of confinements conducted by medical students under the supervision of a specialist officer of the staff of the Lying-in Home. This Medical Officer also attended 126 calls by midwives working in the town.

The institution continued to be the chief training school for midwives in the Island. The professional staff consisted of one Medical Superintendent, one Assistant Obstetrician, three qualified House Officers, and an Obstetric Registrar.

The Victoria Memorial Eye Hospital.—There are 7 beds and 1 cot in the paying section and 114 beds and 5 cots in the non-paying section of this hospital.

29,967 new out-patients were treated during the year, as against 26,066 out-patients in 1936. The total number of visits made by the new and old patients were 78,186.

There were 189 in-patients remaining in hospital at the beginning of the year and 3,207 patients were admitted during the year, as compared with 101 and 2,735 respectively in the previous year. 3,163 patients were discharged and 9 died. The daily average number of in-patients was 202.01.

The total number of ophthalmic operations performed on in-patients during the year was 1,007 and on out-patients 1,842, the corresponding figures for the previous year being 861 and 1,847 respectively.

The second Surgeon visited the Leper Asylum, Hendala, four times during the year for the treatment of eye diseases. The total number of cases treated was 175 of which 121 were new cases. Five operations were performed.

The school clinics which are held on Tuesdays and Fridays at 2.30 P.M. continued to be well attended. 463 children (1,348 visits) received treatment.

An ultra violet ray apparatus and a diathermy apparatus are in use.

The Lady Havelock Hospital for Women and Lady Ridgeway Hospital for Children.—The total number of patients admitted during the year was 5,838 and with 167 patients remaining from 1936, 6,005 patients (women 2,345, children 3,660) were treated, as against 4,264, 137, and 4,401 patients respectively in 1936.

The daily average sick was 189.16, as against 132.28 in 1936 and 176.46 in 1935. The number of paying patients treated was 177, as against 162 in 1936.

The total number of deaths was 919, of these 101 were women and 818 were children, showing a mortality rate of 4.3 per cent. for women and 22.3 per cent. for children.

The number of surgical operations performed was 587. Of these 486 were major and 101 minor operations. The operation mortality rate was 1.02 per cent., as against 0.52 in 1936.

In the training school for nurses there were 58 pupils, of whom 22 were first year pupils. The professional staff of this hospital consists of the Lady Doctor-in-Charge and two Lady House Officers.

Female Venereal Diseases Hospital.—The total number of patients admitted during the year was 406 and with 22 patients remaining from 1936, 428 patients were treated in 1937, as against 498 in 1936. The daily average of patients was 25.85, as against 20.83 in 1936. There were no deaths during the year. The principal diseases treated were syphilis (144 cases) and gonorrhoea (111 cases).

Usually female cases of syphilis and gonorrhoea in the acute stage are treated in this hospital and when hospital treatment is not necessary they attend as out-patients (*vide* report under Venereal Diseases Clinic, page 88), for continuation of treatment.

There is an out-patient department at this hospital where general diseases among women and children are treated and during the year 35,501 patients who paid 66,654 visits were dealt with; malaria, influenza, ankylostomiasis, venereal, digestive and skin diseases were the most prevalent ailments treated.

The Infectious Diseases Hospital (Angoda), Colombo.—There remained 77 patients in hospital at the end of 1936 and 3,023 patients were admitted during the year, making the total treated 3,100, as against 3,066 during the previous year. Of these 214 cases proved fatal, giving a mortality rate of 6.9 per cent., as against 5.3 per cent. during the previous year.

The following are some of the infectious diseases treated and the number of deaths in 1937:—

	Number treated.	Deaths.
Influenza	8	—
Pneumonia	55	25
Dysentery	324	41
Smallpox	1	—
Enteric fever	148	40
Measles	345	6
Whooping cough	38	2
Diphtheria	29	7
Mumps	211	—
Plague	9	8
Chickenpox	1,042	4
Enteritis and colitis	440	54
Malaria	116	6

REPORT ON OUTSTATION HOSPITALS.

Of the provincial hospitals those of Kandy and Galle are the largest and most important.

Kandy Hospital.—There are 320 beds and the medical staff consists of a Superintendent, Physician, Surgeon, Assistant Surgeon, Ophthalmic Surgeon, and 5 House Officers. The hospital is also a nurses' training school and 46 pupils were under training during the year.

There were 15,992 admissions in 1937, as compared with 15,544 in 1936. The daily average sick in hospital was 529.18, as against 501.86 in 1936; the percentage of deaths to total treated was 4.55, as against 6.10 in 1936.

The following table gives the principal diseases treated and the number of deaths:—

	Number treated.	Deaths.
Enteric fever	138 ..	39
Malaria	2,237 ..	30
Dysentery	45 ..	7
Pulmonary tuberculosis	174 ..	57
Ankylostomiasis	538 ..	29
Pneumonia	663 ..	217
Venereal diseases	825 ..	3

There were 1,307 operations performed, 790 major and 517 minor with 46 deaths.

The Eye Institute has become very popular and the Eye Surgeon is kept fully occupied till 2 or 3 P.M. every day. Two wards are allotted for eye cases and are always overcrowded. 1,692 in-door patients were treated in 1937. 12,820 out-door patients, who paid 29,808 visits, were treated. The number of eye operations performed was 1,709 of which 350 were major operations and 1,359 minor operations.

Galle Hospital.—This hospital is situated in Mahamodera, a suburb of Galle, and is near the sea. It has at present accommodation for 290 patients.

The staff consists of a Medical Superintendent, Visiting Physician, Visiting Surgeon, Eye Surgeon, and 3 House Officers. This hospital is also a training centre for nurses with a European Matron and two Nursing Sisters.

The total number of in-patients treated during the year was 16,262 with a daily average of 379.4. Out of these 934 died giving a percentage of 5.74 deaths.

The following were the chief diseases treated:—

Diseases.	Cases.	Deaths.
Dysentery	122 ..	13
Pulmonary tuberculosis ..	260 ..	39
Enteric fever	375 ..	84
Malaria	1,503 ..	55
Ankylostomiasis	474 ..	11

There were 817 major and 174 minor surgical operations performed during 1937.

In the casualty room 1,281 cases were attended to and 1,311 injections were given for parangi and syphilis. In the laboratory 22,877 specimens were examined; of these, 2,491 were blood, 11,480 urine, and 6,568 faeces, others 2,338.

In the Eye Institute 10,907 cases (23,973 visits) were treated, and 179 minor operations were carried out.

A new X'ray Department was started from 1935. The working is in charge of a trained technician.

A dental clinic attached to the outdoor dispensary was started during the year.

A venereal diseases clinic is held on every Saturday. 549 syphilis patients were given injections.

INSTITUTIONS FOR TUBERCULOSIS.

There are four special institutions for tuberculosis in Ceylon viz., The King Edward VII. Anti-Tuberculosis Institute, Colombo, the Ragama Hospital, the King Edward VII. Sanatorium at Kandana, and King Edward VII. Sanatorium at Kankesanturai.

The institute in Colombo and the two sanatoria were built and equipped from the King Edward VII. Memorial Anti-Tuberculosis Fund, but are maintained by Government.

The Anti-Tuberculosis Institute.—The institute is situated in a central part of Colombo and in addition to the usual clinic rooms has X'ray apparatus, a laboratory and artificial sunlight apparatus, and serves as a centre for expert diagnosis and treatment. There are no beds at the institute but patients requiring indoor treatment are sent to Kandana or Ragama as accommodation permits. The nurses make a number of visits to patients' homes and are expected to arrange for contacts to attend at the institute for medical examination. 3,696 out-patients who paid 9,845 visits were treated at the institute.

In order to popularize the institute the patients suffering from lung conditions other than tuberculosis were treated and about one-third the attendances were by such patients.

The Ragama Anti-Tuberculosis Hospital.—The hospital for tuberculosis at Ragama is 12 miles away from Colombo and is easily accessible by rail and road. It contains 352 beds and is intended for the treatment of advanced or moderately advanced cases of pulmonary tuberculosis.

The number of patients remaining at the end of 1936 was 338 and the number of admissions during 1937 was 1,034 (of which 198 were readmissions). There were 406 deaths, of which 191 were within one month of admission and 155 within 6 months. 623 patients were discharged, 275 left hospital relieved, and 348 not improved. Out of those relieved, disease became arrested in 93 cases, of which 41 were transferred to Kandana Sanatorium.

The number remaining in hospital on December 31, 1937, was 343 which includes 37 patients remaining for over one year. The daily average number of patients in the hospital was 341.35.

The new admissions in 1936 and 1937 were from the following provinces:—

Province.	1936.	1937.
Colombo City	225	247
Western	523	428
Central	57	88
Southern	91	102
Northern	9	16
Eastern	4	3
North-Western	35	65
North-Central	7	5
Uva	3	2
Sabaragamuwa	59	78
	1,013	1,034

Usually the cases admitted are in the third stage of the disease (according to Turban Gerhardt's classification) and only rarely are second stage patients seen. The average case showed advanced bilateral involvement below the fourth rib, frequently with localized excavations. Unilateral cases were even below ½ per cent. of those admitted during the year.

Treatment is based on—

(1) Rest,
(2) Graduated exercise,
(3) Symptomatic treatment,
(4) (*a*) Artificial pneumothorax, (*b*) artificial light,
(5) Education.

The staff is trained to maintain discipline among the patients with regard to rest and graduated exercises. The patients are given regular talks on the benefit of these methods of treatment. Besides regulated walks, patients have regular breathing exercises and odd light jobs in the wards and gardening.

Symptomatic treatment forms a large part of the work. Only about 20 per cent. of the patients are fit for outdoor exercises, the remaining 80 per cent. being on absolute rest or on the first and second stages of graduated labour.

Those require operative treatment or artificial light treatment are sent to the General Hospital, Colombo.

Patients are given regular talks on—

(1) How to take care of themselves,
(2) How to avoid spreading tuberculosis,
(3) How to avoid getting it,
(4) How to preserve children from it,
(5) The earliest signs and the importance of early diagnosis and treatment,
(6) How to live on returning home from hospital,
(7) Importance of rest, graduated exercises, and discipline.

The King Edward VII. Sanatorium at Kandana.—This sanatorium is 14 miles from Colombo and has accommodation for 72 patients.

The number of patients remaining at the end of 1936 was 68 and the number admitted during 1937 was 176. There was one death. In 102 of the 179 patients discharged the disease was arrested, 6 patients were much improved, 3 were improved, 37 condition severe, 3 became worse, 19 were transferred to Ragama hospital being unsuitable for sanatorium treatment, and 9 transferred to Kankesanturai Sanatorium. The number remaining in the sanatorium on December 31, 1937, was 63 and the daily average number of patients was 60.02.

Artificial pneumothorax was tried on 6 cases during 1937. Guaiacol, creosote, and cod liver oil were employed for routine treatment.

The usual principles of sanatorium regime are applied to patients, viz.—

(1) Rest—mental and physical,
(2) Graduated exercises,
(3) Routine, discipline, and education,
(4) Correct feeding.

supplemented by such therapeutic measures as are required.

A children's ward for 20 children is under construction and will be completed in 1938.

The King Edward VII. Sanatorium at Kankesanturai.—This sanatorium on the coast of the Northern Province is a new building erected at the expense of the King Edward VII. Memorial Fund. It has accommodation for 44 patients—12 for paying patients and 32 for non-paying patients. A fee of Rs. 2 per day is charged.

The number of patients remaining at the end of 1936 was 12 and the number admitted during the year was 86. Of the 82 patients discharged during the year, disease became arrested in 57 cases and 25 were not improved. There were no deaths. The number remaining in the sanatorium on December 31, 1937, was 16.

Rest, feeding, graduated exercise, and health education are the routine treatment. Drugs are not used as a routine, except to relieve the most painful symptoms. Copper and gold compounds have been tried in selected cases. Artificial pneumothorax treatment were given to suitable cases, with good results.

VENEREAL DISEASES CLINICS.

There are three venereal diseases clinics in Colombo, viz., at the General Hospital (out-patient), the Port Surgeon's Office (out-patient), and Female Branch Hospital (in-patient and out-patient).

Venereal Diseases Clinic, General Hospital, Colombo.—This clinic takes place daily, except on Sundays, commencing at 2 P.M. On Mondays and Thursdays cases of syphilis, parangi, and gonorrhoea are treated; on Tuesdays, Wednesdays, and Saturdays cases of urethritis are microscopically examined and dark ground illumination of all venereal sera is done; on Tuesdays and Fridays special treatments, such as prostatic massages, dilation of strictures, and urethroscopic work, are carried out.

All cases requiring indoor treatment are admitted to a ward in the General Hospital.

The following table gives comparative figures of the cases treated at the clinic for the past three years:—

Cases.	1935.	1936.	1937.
Syphilis	280	1,289	1,333
Soft sores	—	47	15
Gonorrhoea	392	1,531	3,171
Yaws	13	10	2
Other diseases ..	107	99	111,802
	839	2,929	116,323

Port Venereal Clinic for Seamen.—This is a clinic held in a special room at the Port Surgeon's Office, established under the Brussels International Agreement, 1924.

Sixty-nine persons were given treatment free during the year; of these, 40 cases were syphilis which received Salvarsan treatment, and 29 were gonorrhoea. The fact that Colombo is not a terminal port, but merely a port of call where most ships spend only a few hours, accounts for the comparatively small number of sailors seeking treatment at the clinic.

Most of the cases are diagnosed by clinical examination only, since there is usually insufficient time to arrange for serological or bacteriological examination at the Bacteriological Institute.

Venereal Diseases Clinic at the Female Branch Hospital.—The number of persons treated in the clinic for the past three years were as follows:—

Cases.	1935.	1936.	1937.
Syphilis	178	227	745
Gonorrhoea	258	367	753
Yaws	4	—	—
Other diseases ..	596	369	455
	1,036	963	1,953

These 1,953 persons paid 5,984 visits during 1937. The clinic is held on two evenings a week—Tuesdays and Fridays. Most of the cases attending the clinic are married women and many of them are cases of chronic gonorrhoeal infection. The existence of the clinic is well known among the hospital class of patients, who have no objections to the injections or other forms of treatment.

Venereal Diseases Clinic at the Kandy Dispensary.—This clinic is held on two evenings a week—Mondays and Saturdays. The cases treated during the year were as follows:—

Syphilis	120
Gonorrhoea	219
Yaws	3
Other diseases	6
	348

These 348 persons paid 1,690 visits during 1937.

Venereal Diseases Clinic at the Galle Dispensary.—This clinic is held on every Saturday. 549 syphilis patients were treated during the year.

Besides the particulars given in respect of the five clinics, 7,728 in-patients (with 81 deaths) in the various hospitals and 31,871 out-patients at dispensaries and out-patients' department of hospitals in the Island were treated for venereal diseases during the year, as against 7,382; 127; 28,072 respectively in 1936.

MEDICAL INSTITUTIONS AIDED BY GOVERNMENT.

The following institutions received financial aid from Government during the year:—

(1) The Victoria Home for the Incurables.
(2) Wiseman Hospital, Welimada.

(3) McLeod Hospital, Inuvil.
(4) Green Hospital, Manipay.
(5) Jevon's Dispensary, Puttur.
(6) The Kalmunai Methodist Women's Medical Mission.
(7) The Talawa Medical Mission.
(8) The Denepitiya Medical Mission Hospital, Southern Province.

Numbers (1), (4), and (8) are for males and females; Numbers (2), (3), and (5) to (7) are for females and children only.

HOSPITAL RETURNS, &c.

Charts and returns of hospital will be found at the end of this report.

VII.—PRISONS AND ASYLUMS.

PRISONS.

During the year 1937, twelve prisons were maintained by Government in the following places:—Central Prisons at Welikada and Hulftsdorp (Colombo), Bogambara (Kandy), Mahara (14 miles north-east of Colombo), and Jaffna; local prisons at Anuradhapura, Badulla, Batticaloa, Galle, and Negombo; remand prisons at Welikada (Colombo) and Kandy.

On December 31, 1936, there were in all the prisons a total of 3,438 convicted prisoners (3,389 males and 49 females). During the year under review 14,601 males and 399 females were admitted and 14,688 males and 400 females were discharged. Thirty male prisoners died. On December 31, 1937, 3,272 male and 48 female convicted prisoners remained in all the prisons.

On the whole the health of the prisoners in all prisons was satisfactory. In Jaffna prison an epidemic of influenza prevailed with 121 cases and 2 deaths. All new admissions were given anti-typhoid inoculations.

In Mahara prison there was no malaria owing to anti-malaria work done. There was an epidemic of influenza of a short duration. All new admissions were given anti-typhoid inoculations.

In Welikada prison dysentery and enteritis were endemic and no cases of enteric fever occurred.

In Kandy prison the health of the prisoners and sanitary condition were satisfactory.

The number of hospitals maintained exclusively for prisoners remained unchanged at nine. At the Welikada prison hospital, 12 of the 192 beds are for females. Elsewhere hospital accommodation is provided only for male prisoners, females being sent to the local civil hospital.

Table.—Average Number of Prisoners and Work of the Prison Hospitals.

Name of Prison.	Daily Average in Prison.	Number of Hospital Beds.	Daily Average Sick in Hospital.	Total Number of In-patients treated.	Total Number of Out-patients treated.	Total Number of Deaths.	Death Rate per cent. of In-patients in Hospital.	Chief Diseases treated (for meaning of figures, please see Key* below).
Welikada	1,397·09	180	81·92	2,351	28,582	16	·75	1, 3, 4, 5, 6, 7, 9, 12, and 16
Welikada Remand	242·27	—	—	—	6,233	—	—	
Hulftsdorp	147·60	—	—	—	7,883	—	—	
Mahara	776·10	55	34·97	1,452	13,805	12	·83	1, 2, 3, 5, and 16
Bogambara	457·04	35	17·61	714	7,780	3	·42	1, 2, 5, 10, 15, and 16
Jaffna	324·68	15	3·93	234	4,363	1	·42	1, 3, and 16
Negombo	50·02	16	3·11	83	1,613	—	—	1, 3, 5, 9, 15, and 16
Galle	93·36	12	1·90	63	435	—	—	3
Anuradhapura	106·60	12	4·54	165	2,141	—	—	1, 3, 8, and 16
Badulla	53·88	3	·32	14	513	—	—	1 and 5
Batticaloa	59·20	5	1·75	54	—	—	—	1, 3, 5 and 12
	3,707·84	333	150·05	5,130	73,348	32	·61	

* Key referred to :—

1. Malaria	5. Influenza	9. Chickenpox	13. Abscess
2. Diarrhoea	6. Pneumonia	10. Skin diseases	14. Pulmonary tuberculosis
3. Dysentery	7. Enteritis	11. Enteric	15. Rheumatism
4. Eye diseases	8. Conjunctivitis	12. Mumps	16. Other diseases

ASYLUMS.

(*a*) The Lunatic Asylum, Angoda.

The Government Lunatic Asylum is situated at Angoda, about 6 miles from Colombo, and was built to accommodate 1,830 patients.

During 1937 the average daily number of patients was 2,924—the largest number on any one day being 3,033 and the lowest number 2,841.

The following table shows the daily average number of patients in the Asylum for the last ten years:—

1928	2,017	1933	2,524
1929	2,267	1934	2,308
1930	2,350	1935	2,308
1931	2,357	1936	2,327
1932	2,426	1937	2,924

The main buildings consist of six three-storey blocks containing altogether eighteen large wards each designed to hold 96 persons. There is also a block of 102 cells in which noisy patients can be locked up. In 1931 two temporary wards to accommodate 300 quiet male patients were added. There are no paying wards for better class patients and no facilities for modern treatment. Steps have been taken to provide suitable accommodation for paying patients next year and the question of providing facilities for mental treatment is receiving attention.

Uncertified persons sent by the courts for medical observation to determine their mental state are placed in the same wards as certified patients and although it is the custom to speak of the " House of Observation " the term refers not to a building but to the legal state of such uncertified persons while they are in the asylum.

Attention was drawn in the 1930 report to the serious overcrowding. From 1926 to 1930 the number of inmates of the asylum had been increasing by nearly 200 a year so that a state of overcrowding had developed which was getting progressively worse. As a result, the death rate from diseases such as dysentery and tuberculosis had become alarmingly high and steps have been taken during the past few years to mitigate to some extent the unsatisfactory conditions under which the patients—in particular, the male patients—were living. The building of additional accommodation for the inmates has been taken up

The statistics for 1937 are as follows:—

Asylum.

(Certified Lunatics.)	Males.	Females.	Total.
Remaining at beginning of the year ..	1,718 ..	910 ..	2,628
Admitted	858 ..	456 ..	1,314
Total treated	2,576 ..	1,366 ..	3,942
Discharged	562 ..	319 ..	881
Died	162 ..	99 ..	261
Remaining at the end of the year ..	1,852 ..	948 ..	2,800

House of Observation.

(Uncertified persons under Observation.)			
Remaining at beginning of the year ..	143 ..	84 ..	227
Admitted	1,687 ..	839 ..	2,526
Total treated	1,830 ..	923 ..	2,753
Transferred to Asylum	823 ..	448 ..	1,271
Discharged	804 ..	358 ..	1,162
Died	55 ..	36 ..	91
Remaining at end of year	148 ..	81 ..	229

Court.—A court for the disposal of lunacy cases was established at the asylum on January 16, 1930, and sits every Thursday. It has been a great benefit and convenience to the patients and to the staff and has resulted in a saving of Government money.

Deaths.—The following table gives an analysis of the deaths during the year:—

	House of Observation.	Lunatic Asylum.	Total.
Ankylostomiasis	3	2	5
Bronchitis	—	4	4
Cardiac failure	2	—	2
Cellulitis	1	3	4
Cerebral Haemorrhage	1	—	1
Colitis	10	30	40
Dysentery	22	62	84
Enteritis	—	5	5
Epilepsy	—	10	10
General debility	14	29	43
Influenza	2	5	7
Pulmonary tuberculosis	3	47	50
Pneumonia	11	18	29
Pyaemia	1	—	1
Typhoid fever	1	11	12
Thrombosis	—	4	4
Other diseases	20	31	51
Total	91	261	352

Infectious Diseasas.—The following table shows the number of cases of infectious diseases occurring during 1936 and 1937:—

	Inmates.		Attendants.	
	1936.	1937.	1936.	1937.
Chickenpox	36	—	—	—
Dysentery	271	374	—	—
Enteric fever	15	30	1	—
Erysipelas	7	4	—	—
Influenza	56	—	—	—
Leprosy	4	5	—	—
Mumps	110	19	1	—
Measles	3	2	—	—
Poliomyelitis	1	—	—	—
Pulmonary tuberculosis	134	142	—	—
Total	637	576	2	—

Dysentery and Pulmonary Tuberculosis.—There were 374 cases of dysentery of whom 84 died and 142 cases of tuberculosis of whom 50 died. It is believed that the spread of dysentery of which an epidemic occurred during the year, is due probably to direct infection from inmate to inmate. The overcrowded dormitories afford opportunities for the dissemination of tubercle bacilli. Isolation of patients already affected is no doubt desirable but lack of accommodation prevents this course. Besides, the physical signs of tuberculosis in the insane, at least in the early stages, are apt to be obscure and make detection difficult.

Accidents.—The number of cases of injury to patients by themselves was 225, by other patients 141, and by attendants nil.

Restraint and Seclusion.—There have been no cases of restraint. Three persons were subjected to seclusion during the year.

Occupation and Amusements.—The male patients were employed mostly in industrial and agricultural work and in maintaining the Asylum grounds in good order. The female patients made uniforms for the staff and other articles for Asylum use.

Games and sports were carried on as usual. There are two tennis and volley ball courts and a cricket ground which were largely used by the patients and attendants.

Newspapers.—Newspapers and magazines were supplied by Government for the staff and inmates.

Laboratory.—5,620 simple laboratory examinations of blood, sputum, faeces, urines, and other clinical tests were made. All other examinations are made at the Bacteriological Institute.

(*b*) Leper Asylums.

There are two Leper Asylums in the Island, one at Hendala, 7 miles from Colombo, and the other on the Island of Mantivu, 3 miles from Batticaloa in the Eastern Province.

Hendala Leper Asylum.—The staff consists of a Medical Superintendent, 2 Medical Officers, 2 Apothecaries, a Steward-Clerk, a Mother Superior, and 12 Religious Sisters, 2 Overseers, 1 Instructor of Games, 46 male attendants, 9 female attendants, an office peon, a gatekeeper, a dhoby, 4 cooks, and 40 labourers.

The statistics of the hospital are given below :—

	Ceylonese.		Indians.		Total.
	Males.	Females.	Males.	Females.	
Remaining on December 31, 1936 ..	524	139	94	8	765
Admitted during 1937 ..	109	20	20	10	159
Discharged during 1937 ..	29	10	32	8	79
Died during 1937 ..	49	6	10	1	66
Remaining on December 31, 1937 ..	555	143	72	9	779

Of the 159 admissions, 117 were new cases and 42 were re-admissions. Amongst the new admissions, 95 were Ceylonese and 22 were Indian Immigrants. The admissions during the year represented the following types :—

N^1	—	—	8
N^2	—	—	24
N^3	—	—	25
C^1	—	—	37
C^2	—	—	59
C^3	—	—	4
Non-lepers		—	2
		Total	159

The new admissions were from the following provinces :—

	Ceylonese.		Indians.		Total.		Grand Total.
	M.	F.	M.	F.	M.	F.	
Western ..	67	13	7	2	74	15	89
Southern ..	23	3	—	—	23	3	26
Sabaragamuwa	11	1	4	1	15	2	17
Central ..	6	2	11	5	17	7	24
Northern ..	2	—	—	—	2	—	2
Uva ..	—	—	1	—	1	—	1
	109	19	23	8	132	27	159

From the above admissions it will be seen that about 81 per cent. were Ceylonese and 19 per cent. Indian immigrants.

During the year 79 patients were discharged and the number of deaths was 66, 59 males and 7 females. The percentage of deaths to total treated was 7.14.

There were 779 cases remaining and represent the following types :—

	N^1.	N^2.	N^3.	C^1.	C^2.	C^3.	Non-lepers.	Total.
Males	7	20	157	156	258	16	2	616
Females ..	4	10	25	49	58	5	—	151
Children (under 12 years)	2	6	—	3	—	—	1	12
Total ..	13	36	182	208	316	21	3	779

The School.—The school was established in 1920. The number on the roll is 65 with an average attendance of 37.71. English is taught up to the 5th standard Tamil to the 4th, and Sinhalese to the 6th.

The Scout Troop which was inaugurated in 1931 by the Chief Scout Commissioner for Ceylon for the boy-patients at the Asylum is making good progress. At present there are 22 scouts who form 3 patrols. Some of these scouts have been employed as labourers in wards and others have been given plots of ground to grow vegetables and flowers. The Scouts Association has its own funds, and each scout is in possession of a Savings Bank Book, and deposits part of his earnings, which he obtains by doing work for the Asylum, so that he is taught to be thrifty.

The General Condition of the Patients.—Special attention is given to exercise and good food, which are two of the most important adjuncts to treatment. Patients are encouraged to do manual work, such as pottery, carpentry, tailoring, sandal-making, mat-making, mat-weaving, and rattaning; most of the articles made are sold and the patients derive some pecuniary benefit. Patients trained as barbers work among the patients and receive a small sum from the Government for work for the Asylum. There are some who do vegetable gardening and others occcupy their time in flower gardening. Unfortunately, the patients who work are only a minority when compared with the large number who lead a more or less idle life.

Special Treatment of Leprosy.—During 1936 the treatment consisted of (1) Preliminary treatment, (2) Special treatment, (3) Treatment of complications, (4) Surgical treatment, and (5) Experimental treatment.

(1) Preliminary treatment consisted of examination of every new admission for predisposing conditions, viz., malaria, hookworm, yaws, scabies, &c., and appropriate treatment instituted.

(2) Special treatment consists of treatment with hydnocarpus oil or E.C.C.O. The male patients were treated with hydnocarpus oil while the females were treated with E.C.C.O.

Hydnocarpus Oil was administered by (*a*) intra-dermal injections for a large number of cases; (*b*) intra-muscular or subcutaneous injections for the rest; (*c*) inunctions of the oil as an adjunct to injections treatment was given to a great number; and (*d*) oral method also as an adjunct to injections in cases which desired it.

E.C.C.O. was given to females only as a subcutaneous injection. Those who desired inunctions or oral methods as adjuncts used the plain oil.

(3) *Treatment of Complications.*—Complications consist of nerve pains, inflammation of nerves, reaction fever, inflammatory patches, pruritis, haemoptysis and diarrhoea besides intercurrent diseases. Potassium iodide and iodine injections for nerve pains; potassium antimony tablets for lepra fever, and mercuro-chrome injections, 2 per cent., for cases with lepra fever on whom antimony injections failed, were given. Some of these conditions have benefited considerably under experimental treatment which is described under that head. Eye complications are very common and intractable. The Eye Surgeon visits the place once a quarter and advises in the treatment to be adopted.

(4) Surgical treatment consists of scraping the chronic and perforating ulcers, cleaning and applications of adhesive plaster, and excision of metatarsal bones in sinuses due to diseased bones, amputations and incisions in cellulitis.

(5) *Experimental Treatment.*—Several drugs have been experimented with to note if any have any particular action in these cases or in complications. They are as follows:—

(*a*) *Zymbal Copper.*—These are injections of irradiated copper and have been received as samples for trial. Twelve cases were treated with the drug. The injections were given intramuscularly and intravenously. The intramuscular route has been found to be very painful. The results have not been very satisfactory.

(*b*) *Eulykol.*—This is a double ester of Hydnocarpus oil whose chemical name is Phenyl Ethyl Ester of Hydnocarpus oil. It is a Burroughs and Welcome product sent as a sample. The dosage is very small ½ c.c. to 1 c.c. compared with 10 c.c. doses of hydnocarpus oil but it is very quickly absorbed and liable to produce severe reaction unless carefully given.

This was tried on 4 patients with very good results probably due to the concentrated ester.

(*c*) *Sheep serum.*—Two sheep were purchased to study the effect of sheep serum on leprosy. One sheep was bled and the serum injected to 4 patients. The results are not known.

(*d*) Boiled milk for lepra reaction has been tried in a few cases. Some beneficial results were obtained in a few cases while in other cases which appeared identically like the ones that benefited, it had no effect. The benefit experienced by some is due probably to protein shock than to any specific action.

Mantivu Leper Asylum.—The institution which has been in existence for 15 years is situated on an Island of about 160 acres, in a large lagoon near Batticaloa. Male patients are housed in 24 two-roomed cottages each with its own kitchen, and in a number of hospital wards. There is accommodation for 180 patients. The female patients all live under hospital conditions in wards. Although it was originally intended that the institution should be conducted as a leper colony, a large staff of attendants, garden labourers, &c., is maintained, but the Medical Officer-in-charge by encouraging the patients to engage in useful work and to become to some extent self-supporting, has been able to reduce his staff of attendants and labourers.

At the end of 1936 there were 185 lepers remaining in the Asylum. There were 57 admissions (including 6 re-admissions) during 1937 and 21 cases were discharged. There were 13 deaths and the percentage of deaths to total treated was 4.96. The daily average number of patients in 1937 was 187.65. There were 208 lepers remaining on December 31, 1937.

Treatment.—This is (1) general, (2) special, and (3) surgical.

(1) *General.*—More time is spent on the general treatment than on the special treatment and the results are better. What the patients require most are good food, healthy surroundings, and open air exercise.

(2) *Special Treatment.*—The specific drug used for treatment of leprosy is E.C.C.O. given intradermally. In some cases it was given twice weekly and in others once a week. Dosage ranged from ½ to 5 c.c. Initial dose is ½ c.c. and increased by ½ c.c. at each injection up to the maximum of 5 c.c. is given on four occasions and a period of rest allowed for two weeks and again commenced from the initial dose. No reaction or untoward symptoms developed.

A new treatment has been tried with sheep serum and the results are partially encouraging, especially in cutaneous cases. About 4 to 5 ounces of venous blood is withdrawn from jugular vein by a serum syringe and kept in a sterilized flask in ice for 24 hours. 10 c.c. serum is withdrawn and given at the anterior and lateral aspect of the thigh about its middle. This is a more satisfactory situation than the gluteal region. Very often there is pain and swelling and when this takes place in the gluteal region patients find it difficult to lie down comfortably. The experiment is still in its initial stage.

VIII.—METEOROLOGY.

The following report was prepared by the Superintendent, Colombo Observatory:—

Rainfall.—The rainfall for the year was below normal over the greater part of Ceylon, excess being mainly confined to the western districts. The largest deficits were 34.99 inches at St. Martin's and 30.25 inches at Galewela, while the largest excesses were 50.00 inches at Marambekande and 44.50 inches at Kenilworth. The highest totals for the year were 263.75 inches at Kenilworth and 240.53 inches at Carney, while the lowest totals were 22.09 inches at Palatupana and 28.23 inches at Venkalachchedikulam.

Temperature.—The low-country stations with the highest and lowest mean shade temperatures for 1937 were Trincomalee with 82.5°F., and Galle 80.1°F. The figures for Colombo and Kandy were 80.6°F. and 77.2°F., respectively, while Nuwara Eliya at an elevation of over 6,000 feet, had a mean shade temperature of 59.7°F. The highest shade temperature recorded during the year

was 99.3°F., at Anuradhapura, on July 14. The lowest shade temperature this year at low-country stations was 57.3°F., at Anuradhapura, on December 6. The lowest shade temperature recorded during the year at Nuwara Eliya was 30.2°F., on December 30. The highest shade temperature in Colombo in 1937 was 90.3°F., on April 3, and the lowest 63.3°F., on December 30. The mean daily range for 1937 (the difference between the mean of the maxima and the mean of the minima) was greatest at Nuwara Eliya and Badulla, 18.2°F., and lowest at Galle, 8.2°F.

Returns.—Meteorological returns for the towns of Colombo and Nuwara Eliya are given below:—

Colombo Observatory, 1937.

Month.	Temperature.					Rainfall.	Degree of Humidity		Winds.		
	Mean Solar Maximum.	Mean Minimum on Grass.	Mean Shade Maximum.	Mean Shade Minimum.	Mean Temperature.	Amount in Inches.			General Directions.		Average Force. Miles.
	°F.	°F.	°F.	°F.	°F.		Day.	Night. From Min	A.M.	P.M.	
January	144·2	70·2	85·5	73·0	79·2	3·43	72	88	NE	NNW	136
February	145·8	70·0	86·6	73·6	80·1	7·09	73	93	ENE	W	95
March	144·8	70·9	87·2	74·3	80·8	6·48	72	93	ESE	W	99
April	137·9	73·3	87·1	75·7	81·4	10·64	76	91	Var.	WSW	103
May	140·5	75·6	86·8	77·3	82·0	18·63	78	91	SW	WSW	145
June	138·6	75·6	85·3	78·7	82·0	6·17	77	84	WSW	WSW	166
July	139·3	73·8	84·7	76·9	80·8	3·98	79	86	WSW	WSW	119
August	139·5	74·9	85·3	78·5	81·9	2·12	74	84	WSW	WSW	148
September	139·6	73·4	85·9	76·3	81·1	14·97	74	86	WSW	WSW	134
October	143·6	72·7	85·0	75·2	80·1	·67	76	91	SW	WSW	106
November	141·4	72·2	84·7	74·1	79·4	18·00	80	95	Var.	Var.	79
December	141·7	65·7	85·0	70·6	77·8	2·63	67	90	NE	NW	103
Year	141·4	72·4	85·8	75·4	80·6	103·81	75	89			119

Nuwara Eliya, 1937.

Month.	Temperature.					Rainfall.	Degree of Humidity.		Winds.		
	Mean Solar Maximum.	Mean Minimum on Grass.	Mean Shade Maximum.	Mean Shade Minimum.	Mean Temperature.	Amount in Inches.			General Directions.		Average Force. Miles.
							Day.	Night. From Min	A.M.	P.M.	
Januray	—	44·4	68·8	47·8	58·3	10·39	76	93	—	—	—
February	—	41·9	70·5	45·8	58·2	2·56	72	93	—	—	—
March	—	39·8	71·6	44·4	58·0	3·75	61	93	—	—	—
April	—	48·8	71·3	52·0	61·6	4·39	79	88	—	—	—
May	—	51·2	71·0	53·9	62·4	4·40	77	94	—	—	—
June	—	53·6	66·2	56·1	61·2	4·56	84	88	—	—	—
July	—	54·4	64·7	55·6	60·2	12·77	88	94	—	—	—
August	—	50·9	68·3	53·1	60·7	6·33	81	94	—	—	—
September	—	47·9	68·7	50·9	59·8	6·18	78	90	—	—	—
October	—	47·2	68·4	50·5	59·4	6·42	80	90	—	—	—
November	—	51·2	68·0	53·2	60·6	8·30	84	94	—	—	—
December	—	40·4	68·1	44·3	56·2	2·13	70	93	—	—	—
Year	—	47·6	68·8	50·6	59·7	72·18	78	92			—

IX.—SCIENTIFIC.

(1) BACTERIOLOGICAL INSTITUTE

The examinations carried out at the Bacteriological Institute for the year were:—

Nature of Specimens.	Official.	Private.	Total.	Positive.	Negative.
Blood for examination for typhoid "H"	5,261	31	5,292	1,900	3,392
Do. "O"	796	—	796	300	496
Blood for examination for paratyphoid A "H"	3,208	15	3,223	114	3,109
Do. "O"	57	—	57	30	27
Blood for examination for B columbensis "H"	5,203	15	5,218	283	4,935
Do. "O"	110	—	110	62	48
Blood for examination for Weil Felix reaction	434	—	434	60	374
Blood for Wassermann Test	8,946	219	9,165	1,881	6,595
Blood for Khan test	192	12	204	44	160

Nature of Specimens.	Official.	Private.	Total.	Positive.	Negative.
Blood for malaria parasites	2,467	77	2,544	168	2,376
Human material for *B. pestis*	39	—	39	13	26
Rats for *B. pestis*	269	—	269	—	269
Sputa for tubercle bacilli	948	71	1,019	148	871
Sputa for pneumococci	19	—	19	8	11
Urine for bacteriological examination	326	31	357	—	—
Urine for chemical examination	1,661	58	1,719	—	—
Secretions for gonococci	1,822	40	1,862	267	1,595
Secretions for diphtheria bacilli	821	28	849	108	741
Secretions for *B. leprae*	7	2	9	1	8
Faeces for *B. dysenteriae* and *amoebae*	2,330	6	2,336	207	2,129
Faeces for *E. histolytica only*	94	166	260	22	238
Faeces for ova and intestinal parasites	1,091	57	1,148	733	415
Evacuations for cholera vibrio	8	—	8	—	8
Scrapings for spirochaetes	17	30	47	11	36
Faeces and urine for *B. typhosus*	4	—	4	3	1
Specimens for *B.* Anthrax	2	1	3	1	2
Miscellaneous specimens	1,141	30	1,171	—	—
Water for bacteriological examination	93	39	132	—	—
	37,366	928	38,294	—	—

The doses of vaccine prepared and issued were:—

Nature of Vaccine.	Official.	Private.	Total.
Autogenous vaccine (10 doses)	570	240	810
T. A. vaccine (doses)	84,185	822	85,007
Gonococcal vaccine (doses)	22,694	144	22,838
Anti-plague vaccine (doses)	2,350	20	2,370
Anti-cholera vaccine (doses)	26	3,329	3,355
B. coli vaccine (doses)	278	—	278
Staphylococcal vaccine (doses)	343	50	393
Streptococcal vaccine (doses)	386	—	386
Total	110,832	4,605	115,437

The following table shows the specimens of faeces received from four institutions for examination for *E. histolytica* and *B. dysenteriae*:—

Name of Institution.	No. of Specimens.	*E. histolytica.*	*B. dysenteriae.*	Mucus.	Blood and Mucus.	Giardia Flagellates, &c.	Percentage in which *E. histolytica* or *B. dysenteriae* were found when Mucus and Blood present.
Mahara Jail,	368	3	13	281	234	16	6·83
Prison Hospital, Colombo	757	6	27	585	471	30	7·01
General Hospital	225	17	35	201	183	12	28·41
Lunatic Asylum	744	59	124	681	667	42	27·43

A sum of Rs. 9,489 was received as fees for examination during 1937.

(2) PASTEUR INSTITUTE.

The number of persons who received preventive inoculation against rabies and treatment of the wound was 2,173; of these, 1,030 were in-patients. Those actually bitten were 1,680, *i.e.*, 77.31 per cent. of the total. The rest were either licked by or handled animals proved or suspected to be rabid.

The sources of infection (animal) of the 2,173 cases treated were dog 1,940; human 55; jackal 14; rat 129; cat 13; goat 1; monkey 5; cow 13 and bull 3. In 571 of these cases the biting animal was found positive by microscopic and inoculation tests, in 1 the animal was found to be clinically positive, in 1,457 it was only suspected to be rabid, and the balance 144 was not rabid.

Materials used in and Method of Treatment.—The material used is a carbolised vaccine consisting of 1 per cent. suspension of fixed virus brain and spinal cord of rabbits in ½ per cent. carbolic acid in normal saline—the strains of fixed virus used were Paris and Lindula. Those bitten on the head or severely on the body

were given 18—21 injections, others bitten or scratched 14, and those who were only licked by or had handled suspected animals 7 daily injections of 5 c.c. of the vaccine.

The following table gives the provinces from which the persons came who received treatment:—

Western Province	1,286
Central Province	190
Southern Province	408
Northern Province	83
North-Western Province	79
North-Central Province	2
Province of Uva	51
Province of Sabaragamuwa	64
Eastern Province	10
	2,173

The number of brains from dogs and other animals examined during the year was 478.

The following table gives the provinces from which the heads were received with the results of examination:—

Province.	Positive.	Negative.	Unfit.	Total.
Western Province ..	138	73	39	250
Central Province	22	31	15	68
Southern Province ..	22	16	25	63
Northern Province ..	3	5	10	18
North-Western Province ..	9	6	14	29
Province of Uva	13	9	5	27
Province of Sabaragamuwa ..	5	7	9	21
Eastern Province ..	—	2	—	2
	212	149	117	478

The statistics of failures of the preventive inoculation against rabies for 1936, are now complete; they are as follows:—

Number of persons treated	1,993
Number of fatal cases	9
Percentage of failures	0·45

(3) OUTSTATION LABORATORIES.

The following table gives the number of examinations reported from the laboratories attached to the Victoria Memorial Eye Hospital, the De Soysa Lying-in Home and to outstation hospitals:—

Name of Institution.	Urine.	Faeces Positive for Hookworm.	Faeces Negative for Hookworm.	Blood Positive for Malaria.	Blood Negative for Malaria.	Other Examinations.	Total.
Victoria Memorial Eye Hospital ..	2,512	41	2	6	149	6,377	9,087
Lying-in Home ..	5,512	2,065	1,210	39	488	493	9,807
Outstations.							
Anuradhapura ..	3,269	485	152	584	1,510	770	6,770
Batticaloa ..	1,760	916	516	111	212	531	4,046
Jaffna	2,692	969	747	206	720	1,089	6,423
Badulla ..	3,997	2,160	1,213	478	1,104	534	9,486
Galle	11,480	4,367	2,201	617	1,874	2,338	22,877
Kurunegala ..	6,163	2,671	776	1,002	1,659	1,888	14,159
Ratnapura ..	2,486	912	404	144	796	696	5,438
Kandy	15,001	1,968	2,931	762	4,785	5,325	30 772
Mandapam ..	220	57	51	89	132	8,677	9,226

Research Work.—A considerable amount of research work was done on nutritional matters. The details of this are found in the three publications, viz.—

(1) Report on nutrition in Ceylon. Sessional Paper II.—1937;

(2) Further report on nutrition in Ceylon. Sessional Paper XXIX.—1937;

(3) Vitamin A, as determined by the Blue Units of the antimony trichloride test, in the livers of malnourished children. Indian Medical Gazette, Vol. LXXII. No. 5. (1937).

(4) GOVERNMENT VACCINE ESTABLISHMENT.

The number of calves received on hire from the contractor amounted to 578.

During the twelve months 576 calves were used for vaccination and all these 576 were returned to the contractor.

As in previous years considerable difficulty was experienced in obtaining calves of a quality suitable for vaccination.

Seed lymph for the vaccination of calves was obtained at intervals from the Lister Institute of Preventive Medicine, London. A certain amount was also prepared in this establishment.

The glycerinated calf lymph was issued to vaccinators in sealed glass capillary tubes. Lymph was also issued in collapsible metal tubes to those stations where a large number of vaccinations are carried out daily.

The total number of tubes of calf lymph issued during the year amounted to 159,971, *i.e.*, sufficient for the vaccination of approximately 579,913 persons. Of this number 838 were sold, realizing a sum of Rs. 761. A large quantity of lymph was also stored in bulk as a reserve supply.

The weekly returns of the vaccinators received at this office show that a successful case percentage of 98 (primary vaccinations) was obtained with the lymph issued during the year.

(5) MEDICAL ENTOMOLOGY.

The activities of this Division during the year were again concerned chiefly with malaria research and control. Considerable extension of work, staff, equipment, and laboratory accommodation occurred in association with the continued development of the Malaria Control and Health Scheme inaugurated in 1936. The field staff at the end of the year consisted of 18 assistants of whom four were employed in a temporary capacity; these officers were distributed over a wide area of the country and were engaged chiefly upon work at the Malaria Observation Stations and Malaria Campaign Centres. All newly appointed officers were given a preliminary course of training (three months in the Colombo laboratory and one month at a field station) before proceeding to their stations. The Colombo laboratory staff included a Medical Officer (Dr. G. F. Bartholomeusz) attached as Assistant to the Medical Entomologist, and 9 laboratory assistants of whom two were serving in a temporary capacity. An additional temporary assistant was also seconded to the laboratory for work in connection with the filaria survey of the Island.

Building operations, to provide extensions to the Medical Laboratories at Torrington Square were commenced in April and completed in September. The extension to the Entomological section included a new wing to the laboratory, and a lecture and demonstration block. These extensions have greatly improved conditions, and have relieved the serious congestion which previously existed; they do not, however, allow for any further increase of staff.

Visitors to the laboratory during the year included Sir Malcolm Watson, and Dr. G. Macdonald of the Ross Institute; Prof. S. L. Brug of the Institute of Tropical Hygiene, Amsterdam; Dr. G. S. Morin and C. Toumanoff of the Pasteur Institute, Saigon; and Drs. W. P. Jacocks, M. A. Barber, and P. Russell of the Rockefeller Foundation. Several of these gentlemen accompanied the Medical Entomologist on tours of inspection to the malaria campaign centres and malaria observation stations.

The Medical Entomologist continued to act as Superintendent of Anti-Malaria Campaigns in addition to his own duties until February 5th, when that officer returned from long leave.

Teaching.—Lectures and demonstrations (field and laboratory) on Medical Entomology with special reference to malaria and Anopheline mosquitoes were given during the year to classes of Field Medical Officers, Sanitary Assistants, and Field and Laboratory Assistants. In all 84 officers attended courses of training extending over periods of from two weeks to four months; and upwards of 150 special lectures and demonstrations were given.

Malaria Campaigns.—The Medical Entomologist continued to serve as a member of the Malaria Committee, and in this capacity devoted considerable time. This included the preparation of memoranda relating to the more technical aspects of malaria and its control in Ceylon, and reports on the work at the Malaria Campaign centres. Several tours of inspection were made to these centres in the course of the year.

Entomological work at the malaria control stations was carried out whenever a trained Field Assistant was available; unfortunately it was not possible to attach such assistants to all the stations. These assistants (Entomological Assistants) were placed at the disposal of the Medical Officer of Health in charge of the campaigns and undertook investigations specified by him. They also performed routine examinations in respect of (*a*) Anopheline prevalence (adult and larval) at selected catching and dipping stations situated within and outside the control area, (*b*) secondary breeding places of *A. culicifacies* situated within the control area, but not under regular treatment, and (*c*) the areas and situations treated with oil, to determine the relative efficiency of the operations and the work of the labour gangs. Under head (*b*) above extensive secondary breeding places of *A. culicifacies* are kept under careful observation and are only brought under treatment if and when this mosquito appears; there can be no doubt that the adoption of this system has saved very considerable expenditure on oil during the past few years. In several of the campaign stations, the Field Assistants were also in charge of the work of controlling the breeding of *Anopheles* in wells by means of the larvivorous fish, *Lebistes reticulatus*. Further details of the work done in connection with the intensive campaigns are given in section III.

Malaria Observation Stations.—Details of the scheme of work under this head were given in my report for the year 1935 (pp. C. 93—C. 95). The chief objects of the work are—

(*a*) to extend the scope of malaria field studies, and to include so far as is possible areas representative of zones with varying climatic, physical, and economic conditions;

(*b*) to maintain close watch, on malaria conditions especially in the " epidemic " zones, and to obtain data which will allow detection of the approach of conditions liable to cause increased malaria prevalence or malaria epidemics;

(*c*) to notify the malaria control organization of the conditions present in the river-beds of the " epidemic " zones, and of the necessity or otherwise for preventive measures.

In respect of heads (*b*) and (*c*) above the observation stations are in reality " Key Stations ", and the results obtained are regarded in each case as being representative of rural areas of considerable extent. Monthly reports summarizing the essential findings and their practical bearings are sent to all officers associated with malaria control work. At present some 80 copies of these reports are sent out each month to Government Agents, Assistant Government Agents, Provincial Surgeons, Medical Officers of Health, and Field Medical Officers; and a copy is also forwarded to the Malariologist to the Estate Malaria Control Scheme. These reports usually reach the recipients during the second week of the month following the completion of field work, but should the findings indicate the necessity for emergency control measures the Malaria Committee takes immediate action. In such case the interval between the completion of laboratory work on the material from any particular station, notification, and action is only a matter of a few days. These emergency control measures in the " epidemic " zone are mainly directed to the reduction of Anopheline breeding in rivers and streams by oiling, and when indicated are extended to areas far beyond the confines of the observation stations. The limitation of emergency oiling to the river and stream beds is due essentially to the fact that in a large part of the zone under consideration *A. culicifacies*—the chief malaria carrying species—does not normally breed at all extensively in other types of situation. This emergency oiling is done by " mobile oiling squads " under the control of the Sanitary Engineer; and the system in force enables specially trained oilers to be drawn at a moment's notice from the malaria campaign centres and placed in charge of locally recruited gangs in the areas where emergency work is necessary. Supervision of the field work is subsequently carried out by the local Field Medical Officers. During the year notification of the existence of dangerous conditions in the river and stream beds was made on several occasions, but in

some instances heavy rain and flushing occurred and rendered oiling unnecessary. Emergency oiling was, however, carried out over approximately 350 miles of rivers and streams in the following areas:—

June	...	Hali-ela-Badulla-Taldena area.
July	...	Hali-ela-Badulla-Taldena area. Rattota area.
August	...	Hali-ela-Badulla-Taldena area. Nikaweratiya area.
September	...	Hali-ela-Taldena area. Rattota area.
October	...	Hali-ela-Taldena area.
December	...	Hali-ela-Taldena area.

Originally (1935) 33 malaria observation stations were established; 25 of these were situated in the epidemic zone and 8 in the non-epidemic or wet zone. The latter were selected for comparative purposes. Work at these stations was continued until January, 1937, when certain changes were deemed advisable. These changes included the suppression of one group of stations in the non-epidemic zone (Tebuwana, Mahagama, Matugama, Badureliya), and of portions of two groups on the Kelani-ganga (Hanwella and Yatiyantota in the lower catchment, and Pindeniya and Deraniyagala in the upper catchment). The station at Warakapola on the Ambepussa-oya (lower Maha-oya) was moved to Makandura some 20 miles below, on the main river. The following new stations were then opened:—

West Central Stations (Epidemic Zone).

Deduru-oya, intermediate catchment area: Kuliyapitiya, Hettipola, Nikaweratiya, Wariyapola.

Amban-ganga: Nalande, Galewela, Matale (1,200 feet), and Rattota (1,300 feet).

Southern Stations.

Nilwala-ganga: Akuressa, Kamburupitiya, Deiyandara, Beliatta.

Eastern Hill Country.

Badulla-oya: Badulla (2,225 feet), Hali-ela (2,300 feet), Taldena (1,000 feet).

Uma-oya: Welimada (3,300 feet).

Jaffna Peninsula: Manipay, Achchuveli, Chavakachcheri, Iddaikurichai, and Pallai.

From January, 1937, onwards, therefore, investigations were in progress at 46 observation stations. With the exception of those in the Jaffna Peninsula, all were situated in the west-central, south-western, southern, and hill districts of the Island. Later if circumstances allow, endeavour will be made to establish at least two groups of stations in the extensive hyper-endemic dry-zone jungle clad section of the country.

Some idea of the amount of work involved in connection with the investigations at these stations may be gained from an examination of the following table:—

Malaria Observation Stations.

Summary of Work, January-December, 1937.

Stations.	No.	Adult Mosquitoes.						Larvae.		
		Houses Examined.	Trapping Hours.	Mosquitoes collected and examined.		Mosquitoes dissected (Anopheles).	Mosquitoes infected with Malaria*.	Potential breeding places examined.	Samples taken.	Anopheles larvae collected and examined
				Anophelines.	Culicines					
Epidemic zone.										
(a) Western area ..	29..	16,674..	8,038..	58,034..	70,846..	23,578..	26..	21,413..	486,522..	233,107
(b) Southern area ..	4..	3,184..	1,124..	8,212..	18,006..	2,977..	6..	2,644..	74,333..	27,380
Non-epidemic zone. (Wet Zone) ..	4..	2,112..	1,197..	12,572..	20,221..	4,255..	— ..	4,503..	96,707..	22,842
Eastern Hill zone ..	4..	1,638..	999..	21,902..	7,660..	6,755..	7..	1,683..	82,906..	51,894
Jaffna Peninsula ..	5	3,885..	1,126..	7,811..	2,742..	2,616..	— ..	3,261..	31,222..	46,365
Total ..	46	27,493	12,484	108,531	119,475	40,181	39	33,504	771,700	381,588

* Infections with malaria parasites were found in *A. culicifacies* only.

Brief summaries of the more important findings from groups of stations in the various areas indicated in the table are given below. They may be compared with those given in the report for 1936 (page C 99).

A. *Epidemic Zone.*—West-central area.

In the upper catchment area the catch of adult Anophelines in dwellings and traps during the year was nearly 3,700. Twelve species were found of which area, and one in the lower catchment area a few miles from the coast.

In the upper catchment area the catch of adult Anophelines in dwellings and traps during the year was nearly 3,700. Twelve species were found of which *A. culicifacies* (29.4 per cent.), *A. hyrcanus* (27.8 per cent.), and *A. vagus* (19.6 per cent.) were the most prevalent. In the aggregate *A. culicifacies* was less prevalent than in the previous year when it found 42.5 per cent. of the total Anopheline catch. The majority (82 per cent.) of the catch was obtained from dwellings and human-baited traps. Approximately 22 per cent. of the *A. culicifacies* catch was obtained from animal baited traps, the most prevalent species in these traps being *A. hyrcanus*. Infections with malaria parasites were found in 0.8 per cent. of *A. culicifacies* (sporozoite rate 0.4 per cent.); they occurred in May, June, October, November, and December. Conditions in the river beds in this area varied considerably throughout the year and pool formation was extensive at times particularly in the Kimbulwana-oya at Hiripitiya. *A. varuna* was the predominant species present in the river and stream beds, and found 58 per cent. of the larvae identified. *A. culicifacies* larvae were at no time abundant except at Hiripitiya. In other types of potential breeding places in the vicinity of the observation stations, Anopheline larvae were often numerous, the predominant species being *A. hyrcanus* (32.4 per cent.), *A. varuna* (29 per cent.), and *A. vagus* (10.4 per cent.). *A. culicifacies* larvae were prevalent in a variety of types of situations (notably wells, pits, channels, and drains) in January, June, July, September, November, and December.

In the intermediate area (Deduru-oya, Karambala-oya, Kolamune-oya) *A. subpictus* (42.6 per cent.), *A. hyrcanus* (20.5 per cent), *A. vagus* (10.9 per cent.), *A. jamesi* (10.4 per cent.), and *A. culicifacies* (5.3 per cent.) were the most prevalent species caught in dwellings and traps. Only 5.1 per cent. of the *A. culicifacies* catch was obtained from the cattle baited traps, the remainder being collected from houses (chiefly at Nikaweratiya) and human-baited traps. Infections with malaria parasites were found in June, November, and December, the infection rate in *A. culicifacies* being 1.4 per cent. (sporozoite rate 0.7 per cent.). Over 28,000 Anopheline larvae were examined of which approximately 25 per cent. were collected from the river beds. In the latter *A. varuna* (48 per cent.) and *A. culicifacies* (28.4 per cent.) were the most prevalent species. Pool formation was extensive in the main river (at Nikaweratiya) and in the Kolamune-oya (at Hettipola) from March to May and August to September and was accompanied by much increased breeding of *A. culicifacies*. Larvae of this mosquito were, however, numerous along the margins of the river itself in April. *A. hyrcanus*, *A. varuna*, and *A. jamesi* were the predominant species found breeding in other types of situations in and around the observation station. *A. culicifacies* larvae formed approximately 4 per cent. of those obtained from situations other than the rivers and occurred chiefly in trenches, channels, quarries, pits, and wells, in June, October, November, and December.

In the lower catchment area (one station only—vicinity of Chilaw), Anopheline mosquitoes were most prevalent during the later months of the year (north-east monsoon). In all, over 7,000 were caught and examined of which approximately 50 per cent. were obtained from the animal baited traps. *A. culicifacies* (35 per cent.), *A. hyrcanus* (31.6 per cent.), and *A. subpictus* (28.5 per cent.) were the most abundant species present. The first named was obtained chiefly from dwellings, approximately 32 per cent. being collected from the animal traps. Infections were found in *A. culicifacies* in June (1), July (7), August (1), and December (1); the infection rate in this species was 0.6 per cent, and the sporozoite rate 0.1 per cent. In July the infection rate rose to 2.2 per cent. Moderate to intense breeding of Anophelines occurred in the river bed in every month except

January when the volume and velocity of the water was considerable. *A. subpictus* and *A. vagus* together formed 56 per cent. of the total larvae collected from the river bed and *A. culicifacies* 20.2 per cent. *A. varuna*, *A. barbirostris*, and several other species also occurred. *A. culicifacies* was found breeding heavily both along the margins and in sand pools in the bed in June, July, September, and December, but was continuously present from March to the end of the year. At this station, however, the breeding of *A. culicifacies* was widespread and was by no means confined to the river bed. Larvae were found almost continuously in a great variety of situations in the vicinity of the station.

2. *Maha-oya Area.*—Seven observation stations are associated with this river, four are situated in the upper catchment area and three in the lower.

In the upper catchment a total of 8,123 Anopheline mosquitoes were collected and examined; the great majority (95.8 per cent.) were obtained from animal baited traps. For the most part Anophelines were scanty in the dwellings and in the human-traps. Fourteen species were represented of which the most prevalent were *A. vagus* (39.7 per cent.), *A. hyrcanus* (34.5 per cent.) and *A. jamesi* (12 per cent.) *A. culicifacies* only formed 1.1 per cent. of the total catch, but constituted 23.4 per cent. of the catch made from dwellings. It occurred in moderate numbers in houses at Rambukkana in December. A single infection with malaria parasites (sporozoites) was found. The infection rate for this species for the year was 1.4 per cent. Over 40,000 larvae, of which 45 per cent. were obtained from the river-beds were examined. In the river *A. varuna* (60.9 per cent.), *A. vagus* (12.8 per cent) and *A. culicifacies* (10.4 per cent.) were the predominant species; but the last named was abundant only in December at Rambukkana. *A. culicifacies* larvae were at no time numerous in any other types of potential breeding places.

In the lower catchment stations, the great majority (89.8 per cent.) of the adult Anophelines (6,706) collected were again obtained from the animal traps. *A. hyrcanus* (42.2 per cent.) *A. vagus* and *A. subpitus* (27.3 per cent), *A. jamesi* (13.0 per cent), and *A. varuna* (10 per cent.) were the commonest species. *A. culicifacies* constituted 1.3 per cent. of the total catch, and 9.4 per cent. of the catch from dwellings. Two infections in *A. culicifacies* (infection rate 3.4 per cent.) occurred in May and June. Of the larvae collected and identified (29,814), approximately 17 per cent. were obtained from the river beds. *A culicifacies* larvae formed 21 per cent. of those found in the rivers, but were very scanty elsewhere. This species however become abundant only in March and April, and in the latter month was particularly numerous at Alawwa. River training works at this station were instituted about this time by the Sanitary Engineer with the object of controlling Anopheline breeding. *A. varuna* were relatively abundant in the river-beds and in various other types of breeding places in this area.

3. *Kelani-ganga Area.*—As stated above certain changes were made in the observation stations in this area at the beginning of the year. Previously 9 stations (including the station situated on the Attanagala-oya) existed, of which five were in the uppper catchment of the river and four were in the lower catchment. Work at three stations (Yatiyantota, Pindeniya and Deraniyagala) in the upper catchment, and one station (Hanwella, in the lower catchment was discontinued. The present stations are Kitulgala and Bulathkohupitiya in the upper catchment; Pugoda and Avissawella in the lower catchment; and Attanagala on the Attanagala-oya. Owing to the death of the officer (Mr. A. C. J. de S. Jayasinghe) in charge of the field investigations in this area, the work was interrupted for several months from May to August.

During the period of work in the upper catchment stations 2,150 Anophelines were caught of which 97.9 per cent were obtained from cattle-baited traps. Anophelines were extremely scanty and difficult to find in the dwellings. Twelve species were represented, *A. hyrcanus*, *A. vagus* and *A. jamesi* being predominant, and together forming nearly 80 per cent. of the total catch. *A culicifacies* was extremely scanty, only four adults being obtained throughout the whole period. No infections with malaria parasites were found. Anopheline breeding in the river and stream beds (chiefly *A. varuna* at the margins) was somewhat severe from January to April at Bulathkohupitiya, but *A. culicifacies* was found on two occasions in sand and rock pools in February and April. Over 10,000 Anopheline

larvae were obtained from potential breeding places other than river streams, the predominant species being *A. varuna* (29.7 per cent.), *A. hyrcanus* (20.1 per cent.), *A. vagus* (18.9 per cent.), and *A. jamesi* (13.4 per cent.). *A. culicifacies* larvae were were found in small numbers in April (Kitulgala, in borrow-pits) and November (Bulathkohupitiya, in a cement cistern).

In the lower catchment area the percentage of the total catch (1,430) obtained from the animal baited traps was again very high viz., 98.9 *A. jamesi*, *A. hyrcanus*, *A. vagus* and *A. tesellatus* were the predominating species. No specimens of *A. culicifacies* were captured and no infections with malaria parasites were found. Breeding of Anophelines in the river bed was negligible throughout the period of observation but in other types of situations in the vicinity of the station was often severe. Nearly 7,000 larvae were examined, *A. varuna* (41.3 per cent.), *A. jamesi* (21.3 per cent.) and *A. hyrcanus* (14.2 per cent.) being the most prevalent species. Two larvae of *A. culicifacies* only were found.

The results obtained from Attanagala were similar to those obtained from the nearby stations in the lower catchment of the Kelani. Adults were very scanty in the dwellings and *A. culicifacies* was rarely found in either the adult or larval stages. *A. varuna* formed 90 per cent. of the total larval catch from the river bed.

4. *Mahaweli-ganga Area.*—Four stations situated in the western catchment area—Kandy District.

Nearly 11,000 adult Anopheline mosquitoes were collected in the course of the year from the four stations in this district; over 98 per cent., however, were obtained from animal baited traps, the numbers caught in dwellings being extremely small. Thirteen species were represented, but the bulk of the catch was composed of *A. hyrcanus* (56.2 per cent.) and *A. vagus* (29.9 per cent.) *A. culicifacies* and *A. maculatus* were seldom found. No infections with malaria parasites were observed. The rivers associated with the stations in this area are the Mahaweli-ganga proper (at Katugastota and Getambe), the Hulu-ganga (at Teldeniya) and the Talatu-oya (at the station of that name). River training works were instituted by the Sanitary Engineer at Teldeniya in February. In the main river Anopheline larvae were at no time abundant, but *A. culicifacies* was found scantily in rock pools in March, April and December. In the Hulu-ganga breeding was heavier and more continuous, the predominant species being *A. varuna* and *A. vagus*. *A. culicifacies* was breeding in sand pools in February, May, September and October, but was numerous only in May. The Talatu-oya—a smaller river with a rock strewn bed—supported *A. vagus*, *A. varuna*, *A. maculatus*, *A. culicifacies* and occasionally other species, but the last named was at no time abundant. Its larvae were found chiefly in the rock pools in June, August and September. In situations other than the river bed *A. culicifacies* rarely occurred; its larvae were, however, found in fair numbers in pits associated with brick making at Katugastota (in November) and in a small stream at Getambe (in December).

5. *Amban-ganga Area.*—Four stations are included in the catchment of this river which is a major tributary of the Mahaweli-ganga. Two of the stations (Galewela and Nalanda) are situated in the dry-zone and two (Matale and Rattota) in the north-western hills of the intermediate climatic zone. A large tributary of the Amban-ganga—the Sudu-ganga—flows through Matale.

From the two dry-zone stations 5,217 Anophelines were obtained, the collections from dwellings and from animal baited traps being almost equal in numbers. *A. culicifacies* (33.9 per cent.). *A. subpictus* (22 per cent.), *A. vagus* (20.9 per cent.), and *A. hyrcanus* (13.2 per cent.) were the predominant species, the first named being captured chiefly (95 per cent.) in houses during September to December. Three infections were observed in *A. culicifacies* from Galewela in June (2) and July (1). Anopheline larvae were very prevalent in the river (Nalanda-oya) in sand and rock pools and also along the margins from April to June, and in September, October and December. Of approximately 4,500 larvae collected from the river bed at Nalanda. *A. culicifacies* formed 44.4 per cent. and *A. varuna* 43.6 per cent. *A. culicifacies* was present in every month of the year except January, February and November. Oiling was carried out in September and October. At both Nalanda and Galewela *A. culicifacies* occurred in a variety of

situations within and around the villages; it was prevalent in wells, drains, temporary pools, and fallow paddy fields from August to November. *A. varuna*, *A. vagus* and *A. hyrcanus* were also breeding heavily in the various types of water collections in and around the villages.

From the hill stations in this area the Anopheline catch amounted to 2,400 mosquitoes of which only 5.3 per cent. were obtained from dwellings. The commonest species were *A. vagus* (45.5 per cent. and *A. hyrcanus* (29.8 per cent.). *A. culicifacies* was at no time abundant and formed only 1.9 per cent. of the total catch. No infections with malaria parasites were observed. In the Sudu-ganga and associated streams at Matale, Anopheline larvae became prevalent only from April to June and in August. *A. varuna* (69.8 per cent. of the catch) was the predominant species present, but larvae of A. vagus (19.8 per cent.) also occurred in considerable numbers. *A. culicifacies* was breeding in sand and rock pools in the river and stream beds in April and May, and to a less extent in the stream pools from October to December—its larvae were at no time numerous. At Rattota-oya and Kuruwewa-oya) larvae were present from March to July in sand and rock pools and also along the river margins. Oiling was commenced about the middle of July and continued until the rains at the end of September. From July onwards larvae were extremely scanty. *A. varuna* (45.7 per cent. of larval catch—2226), *A. culicifacies* (36.7 per cent.) and *A. vagus* (11.6 per cent.) were the chief species present. From situations other than the rivers and streams 8,364 Anopheline larvae were identified the predominant species being *A. varuna* (35.2 per cent.) *A. vagus* (32.3 per cent.) and *A. hyrcanus* (22.2 per cent.). *A. culicifacies* larvae formed only 1.9 per cent. of the catch and were obtained mainly from quarries at Matale in October and November, and from wells and borrow-pits at Rattota in May and September. *A. maculatus* was surprisingly scarce at these two hill stations during the year. Only 13 adults of this species were captured although from July to December trapping was done later on one evening each week (from 8—10.30 p.m. instead of from 6—8.30 p.m.) in an endeavour to increase the catch. Larvae also were relatively scanty and constituted a small proportion (3.7 per cent.) of the total catch from all types of situations; they occurred chiefly in wells, sand and rock pools in the river and stream beds and borrow-pits.

B. *Epidemic Zone—Southern Area.*—This area involves a relatively narrow belt of country extending from the coast in the vicinity of Tangalle and Matara northwards to the hills in the neighbourhood of Balangoda. The change in climatic conditions in this part of the low country of Ceylon takes place with remarkable abruptness, and in some areas the normal boundaries of the wet and dry zones are separated by a matter of some five or six miles only. Four observation stations were opened in the coastal zone of this area in February. Akuressa, the most westerly station, lies just within the wet zone; Kamburupitiya, Deiyandara and Beliatta are situated in the intermediate climatic zone, although the last named—the most easterly station—is closed to the dry-zone boundary. Spleen rates in 1937 (March) were—Akuressa area 19.4; Kamburipitiya and Deiyandara area 27.3; Beliatta area 45.3. There is some evidence to show that in the Akuressa and Kamburupitiya areas, the factor of imported malaria (from the adjoining hyper-endemic dry-zone districts) exerts considerable influence.

A total of 6,664 Anopheline mosquitoes was obtained from Akuressa, Kamburupitiya and Deiyandara during the period February to December; 96.2 per cent. of these were caught in the animal baited traps. Twelve species were represented the predominant one being *A. hyrcanus* (60.1 per cent.), *A. vagus* (23.1 per cent.), and *A. jamesi* (11.2 per cent.). No specimens of *A. culicifacies* and no infections with malaria parasites were found. At Beliatta (1,548 Anophelines collected) the catch from houses was appreciable (10.3 per cent.) and the percentage distribution of the species different. A. subpictus (35.9 per cent.) was the commonest Anopheline found, but *A. varuna*, *A. jamesi* and *A. hyrcanus* (each forming approximately 13 per cent. of the catch) were also prevalent; *A. vagus* (8 per cent.), and *A. culicifacies* (5.5 per cent.) were also not uncommon at certain examinations. Approximately 25 per cent. of the *A. culicifacies* were caught in the cattle traps; where it formed, however, only 1.6 per cent. of the total catch from these traps. It was most prevalent in May, June and July. Six infections with malaria parasites were observed in 635 Anophelines dissected. All infections occurred in

A. culicifacies, the infection rate in this species being 9.2 per cent. (sporozoite rate 6.1 per cent.); the infections were found in May (1), June (2) and July (3).

Examination of the river and stream beds at Akuressa (Nilawala-ganga), Kamburupitiya and Deiyandara (both situated on the Kirama-aru, a tributary of the Nilwala-ganga) gave a total of 3,457 Anopheline larvae. Breeding in the main river was relatively low throughout, but larvae were somewhat more numerous in August and September when slight pool formation occurred. In the Kirama-aru breeding occurred chiefly from March to October, and was heaviest in August and October. *A. varuna* (approximately 90 per cent. of the catch) was over-whelmingly predominant, the only other species found at all frequently being *A. hyrcanus* (6 per cent.). *A. culicifacies* was not found. At Beliatta (on an independent stream, the Kirama-oya) larvae were plentiful in the stream bed during every month of the examination period with the exception of February and October. *A. varuna* (62.4 per cent. of 2,862 larvae examined) was again the predominant species, but *A. culicifacies* (approximately 25 per cent.) was also prevalent particularly from April to June and in September. Larvae of the latter species occurred both in sand pools and in the stream bed and along the margins. Totals of 14,741 and 4,423 Anopheline larvae were obtained from the various types of potential breeding places in and around the stations at Akuressa, Kamburupitiya and Deiyandara (taken together), and Beliatta respectively. Fifteen species were represented in the collections obtained from the first three stations, and eleven in that from Beliatta. Among the former *A. hyrcanus* (49 per cent.), *A. varuna* (28.1 per cent.), and *A. jamesi* (10.3 per cent.) were predominant; among the latter *A. varuna* (34 per cent.), *A. subpictus* (21.2 per cent.), *A. jamesi* (21 per cent.), and *A. hyrcanus* (13.9 per cent.) were the most prevalent. In the first group of stations *A. culicifacies* was found on one occasion only—a single larva from a pool at Deiyandara in April. At Beliatta it was more plentiful, but its breeding sites were restricted to a cement tank where larvae were present in fair numbers in April, June, September and October), wells (chiefly in October), and irrigation channels (where it occurred in small numbers in July).

C. Non-epidemic Zone (Wet Zone).—

Four observation stations were included in this zone during the year; they were all situated in the Galle District in the catchment of the Gin-ganga. The stations were—Labaduwa, Baddegama, Nagoda and Udugama.

The investigations were carried out on lines exactly similar to those in the epidemic zones. Over 12,500 adult Anophelines were collected during the year, and of these only nine were found in dwelling houses. *A jamesi* and *A. hyrcanus* together formed 90 per cent. of the catch although 10 other species were represented. Anopheline breeding in the river and stream beds was at no time prolific, but in other types of situations in and around the villages was frequently severe. Of 22,842 larvae collected, approximately 4 per cent. were obtained from the rivers; the majority (94 per cent.) were referable to the species *A. hyrcanus*, *A. jamesi* and *A. barbirostris*. A single larva of *A. culicifacies* was found at Nagoda in May.

D. Eastern Hill Zone.

Four stations (Badulla, Haliela, Taldena and Welimada were established in this area at the beginning of the year. The first three of these stations are situated on the Badulla-oya, while Welimada is on the Uma-oya; both rivers are tributaries of the Mahaweli-ganga. The elevations range from approximately 1,000 feet at Taldena to 3,000 feet at Welimada; and all the stations are situated on the eastern side of the main mountain range and receive most of their rainfall during the north-east monsoon period—October to January. At Taldena malaria is severely endemic, but at the remaining stations the endemicity is normally low; they are, however, liable to epidemics of greater or less intensity at intervals of several years.

Upward of 22,000 Anophelines were caught and identified during the year; and except at Taldena the majority were obtained from cattle baited traps. *A. vagus* (49.7 per cent. of the total catch), and *A. hyrcanus* (33.6 per cent.) were the

commonest species but *A. culicifacies* was much more prevalent at Taldena from July to November where it formed 10.5 per cent. of the catch. Ninety one per cent. of the *A. culicifacies* catch at Taldena was obtained from the village houses. At the remaining stations *A. culicifacies* was very scanty throughout, and occasional specimens only were obtained. Infections with malaria parasites occurred in *A. culicifacies* at Taldena in May, July, September, and November, and at Haliela in July. The combined infection rate for this species for July was 6.5 per cent. (sporozoite rate 3.2 per cent.). Eleven species of Anophelines were found breeding in the rivers, the most prevalent being *A. vagus* (40.1 per cent. of larval catch), *A. varuna* (24 per cent.), and *A. culicifacies* (22.4 per cent.). The last named was found chiefly in sand and rock pools in the river bed at Taldena, and was breeding prolifically during June, July and August; it was, however, also breeding in the river and in rocky streams at Haliela in June and July. In potential breeding places other than the river and stream beds, the most abundant Anophelines were *A. vagus* (48.3 per cent. of total catch of 33,816 larvae from such situations), *A. hyrcanus* (23.3 per cent.), and *A. varuna* (14.1 per cent.). *A. culicifacies* was uncommon and was found only occasionally in pits (used for brick-making), wells, temporary pools, channels and paddy fields (at Taldena in October and November).

E. Jaffna Peninsula.—

Five stations (Manipay, Achchuveli, Chavakachcheri, Idaikurichchi and Pallai) were selected for investigation work in this district. From the malaria point of view the peninula is of considerable interest since great variations in endemicity occur within a comparatively small area of country and are not accompanied by any notable changes in climate or physiographical conditions. In the western and northern portions of the peninsula, the spleen rates are low and less than 5 per cent.; but they increase progressively towards the east and south where they average over 60 per cent., and frequently reach much higher figures. With a view to investigating the matter and especially, in the first instance, to obtaining data on the relative prevalence and habits of *A. culicifacies* the stations were selected with reference to the different endemic zones. Manipay and Achchuveli are situated in the relatively non-malarious zone, Chavakachcheri and Idaikkurichchi in the more or less intermediate zone with spleen rates of from 10—30 per cent., and Pallai in the hyper-endemic zone. The peninsula is in the dry-zone of Ceylon, and possesses no river or streams other than the large flood outlet channel in the western portion, known as the Valuki-aru.

Nearly 4,000 adult Anophelines were collected from Manipay and Achchuveli during the period February to December inclusive. Approximately 69 per cent. of these were obtained from dwellings, and the rest from animal baited traps. The predominant species in both the houses and the traps was *A. subpictus* which formed 83.3 per cent of the total catch. *A. culicifacies* was very scanty at Achchuveli, but was distinctly more prevalent at Manipay where it formed 23 per cent. of the catch; over 60 per cent. of the catch from Manipay was, however, obtained from a village in the outskirts of the town situated on the Valuki-aru. This mosquito was prevalent only in November and December. A total of 1,125 mosquitoes (including 323 *A. culicifacies*) was dissected—no infections were found. The potential breeding places examined each month included wells, tanks, ' kernies ' (stone built tanks), ponds, borrow-pits, drains, the Valuki-aru and the Lagoon (at Achchuveli). Many of these contained no water throughout a large part of the year, and the Valuki-aru was dry from June to September inclusive. Nearly 14,000 larvae were examined. These were referable to eleven species of which the most prevalent were *A. varuna* (41.7 per cent.), *A. subpictus* 34.5 per cent.) and *A. culicifacies* (18.8 per cent.). *A. varuna* was largely confined to wells, *A. subpictus* showed widespread breeding and *A. culicifacies* larvae occurred most frequently in wells, a temple tank, and the Valuki-aru at Manipay. The last named species was breeding consistently throughout the year its larvae being most plentiful from February to May and October to December. With the onset of the monsoon, breeding became more widespread and larvae of *A. culicifacies* were, in addition to the above mentioned breeding places, also prevalent in unbuilt drains

and paddy fields where the rice was in the early stages of growth. At Achchuveli, *A. culicifacies* larvae were much less numerous and were only found in considerable numbers in a ' Kernie ' in May.

At Chavakachcheri and Idaikurichchi, 2,847 Anophelines were collected, they were obtained in almost equal numbers from dwellings and traps. The predominant species was again *A. subpictus* (87.6 per cent.), others found being *A. culicifacies*, *A. varuna*, *A. aconitus*, *A. jamesi*, *A. fuliginosus*, *A. pallidus*, *A. tessellatus* and *A. barbirostris*. *A. culicifacies* was not found abundantly in either station, but showed definite increase in prevalence in November and December. No infections with malaria parasites were observed. The potential breeding places examined were of similar types to those noted at Manipay and Achchuveli, except that no flood outlet channel was present. Anopheline breeding persisted throughout the year, although it was restricted in extent during the drier months. Of 17,508 larvae examined, *A. subpictus* formed 56.3 per cent., *A. varuna* (chiefly in wells) 25.3 per cent., and *A. culicifacies* 10.8 per cent. The latter was breeding in almost all of the types of situations present when conditions were favourable; in general, however, it was more prevalent in wells, ponds, tanks and borrow-pits in November and December. At Idaikurichchai its larvae also became particularly numerous in ponds and tanks in March and April.

At Pallai nearly 1,000 Anophelines were obtained; approximately 60 per cent. of these were caught in the animal baited traps. *A. subpictus* formed 65.5 per cent. of the catch, *A. culicifacies* 13.8 per cent., and *A. jamesi* 11.5 per cent.; *A. vagus*, *A. varuna*, *A. aconitus*, *A. pallidus*, *A. fuliginosus*, *A. barbirostris*, *A. hyrcanus* and *A. tessellatus* also occurred. The great majority (91.2 per cent.) of the *A. culicifacies* catch was obtained from the village houses; the adults were most prevalent in February and December. No infections with malaria parasites were seen in 488 mosquitoes dissected. Over 10,000 larvae were collected from breeding places in and around the station. *A. subpictus* (62.5 per cent.), *A. culicifacies* (15.3 per cent.) and *A. varuna* (14.2 per cent.) were, the predominant species. *A. culicifacies* was particularly numerous in pits used for water storage for gardening purposes, in unbuilt drains and in wells from February to May and in November and December.

The entomological data at present obtained affords no information in respect of the factors governing the distribution of malaria in the peninsula. *A. culicifacies*, the chief carrier in other parts of Ceylon, was prevalent in most of the stations especially during November and December; and at Achchuveli only, was there any apparent difference in the relative prevalence of this species. The work will be continued during 1938, and will be associated with parasitological and other lines of investigation.

Mosquito Survey.—During the year surveys of the Agricultural Experiment stations at Anuradhapura (Puliyankulam) and Wariyapola, and of the Aerodrome site and its vicinity at Ratmalana, were made and reports on the findings submitted.

The first two surveys mentioned were undertaken at the request of the Department of Agriculture. Both stations are situated in the Dry Zone, although Wariyapola is considerably further south and well within the malaria epidemic zone as defined by Gill. The main objects of the surveys were—

(*a*) to ascertain the types of Anopheline mosquitoes present at the stations and more particularly to obtain data on the relative prevalence of the important malaria carrying species, *A. culicifacies*.

(*b*) to determine the nature and extent of the breeding places of *A. culicifacies* within, and in the vicinity of the experiment stations; and

(*c*) to determine the lines upon which malaria control measures should be directed.

Agricultural Experiment Station, Anuradhapura.— Collections of *Anopheles* from dwellings and traps (using animal bait) indicated that the most prevalent species at the time of the survey were *A. hyrcanus*, *A. culicifacies*, *A. subpictus*

and *A. vagus*. *A. culicifacies* was found chiefly in the houses where it formed 62.5 per cent. of the Anopheline catch; whereas in the traps it formed only 0.3 per cent. of the catch. Nearly 600 Anophelines were dissected, and a single female of *A. culicifacies*—caught in a bungalow—was found infected with malaria parasites. The larval survey involved the examination of (*a*) every potential breeding place within the station premises, and (*b*) a large proportion of those situated on adjoining lands within a distance of ¼ mile of the station boundaries. In all 376 potential breeding places were sampled, and in both areas over 80 per cent. contained Anopheline larvae. Approximately 5,000 larvae were examined, the numbers obtained from each area showing no great disparity. The species distribution in the two collections was however, widely different, particularly in respect of the relative prevalence of *A. culicifacies* which was shown to be definitely more prevalent in the station premises than in the surrounding area. In the experiment station premises, larvae of this mosquito formed 19.5 per cent. of the catch, whereas in the adjoining lands it constituted only 1.8 per cent. Breeding places of this species were also more numerous on the experiment station (19.8 per cent of situations examined) than on the adjoining lands (5.8 per cent. of the situations examined). The chief breeding places of *A. culicifacies* (during the survey) were the unbuilt drains particularly the terraced drains—and the irrigation channels, but larvae were also found in transient pools, unbuilt wells, and occasionally in the rice fields. The importance of the terraced or reverse-sloped drains at this station as sources of *A. culicifacies* can scarcely be over-emphasized; they were by far the most prolific breeding places present during the survey. It would indeed appear that, in Dry Zone districts at least, the practice of terracing the bottoms of the drains to reduce soil erosion is one which is apt to be very productive of malaria unless great care is taken to minimize breeding by constant oiling or by placing the whole of each drain under heavy shade. Recommendations for the control of malaria at the station were made, and a map and register giving all details of the survey were appended to the report.

Experiment Station, Wariyapola.—This survey was carried out on lines similar to the above, but unfortunately very dry conditions prevailed before the work could be completed, and the results cannot therefore be considered comprehensive. Anopheline mosquitoes were very scanty during the survey period, a total of 108 only being obtained from the dwellings and traps. *A. culicifacies* formed approximately 18 per cent. of the total catch, and was collected almost entirely from the houses. *A. hyrcanus*, *A. vagus*, and *A. pallidus* were the predominant species caught by trapping. No infections with malaria parasites were observed. A total of 95 potential breeding places were found of which 59 were situated in the station premises and 36 in the adjoining lands. Anopheline larvae were present in approximately 90 per cent. of the situations examined in each area; 3,389 larvae were obtained from the station premises and 1,581 from adjoining lands. *A. culicifacies* formed 4.3 per cent. of the former and occurred in 20.4 per cent. of the situations examined; and 0.7 per cent. of the latter in 8.3 per cent of the situations sampled. The most prolific sources of Anophelines at the time of the survey were the open, unshaded trenches cut between the different experimental plots, unbuilt drains and borrow pits. *A. culicifacies* was again distinctly more prevalent in the station premises than in the surrounding area. Appropriate control measures were recommended.

Ratmalana Aerodrome Site.—The scope of the investigations made in the course of this survey was similar to that of a previous survey made in 1934 (*vide* Administration Report for that year), but more particular attention was given to the mosquitoes of the *Aëdes* (*Stegomyia*) group. Since the earlier survey considerable changes due to constructional work at the site had taken place and it was, therefore, considered advisable to extend investigations.

The survey was carried out in October, following the early rains, over an area with radius 1½ miles from the centre of the aerodrome premises. This area included the site itself, three adjacent villages and the Railway premises at Ratmalana. Collections of mosquitoes caught in houses and traps included 24 different species. Of these eight were Anophelines, five belonged to the *Aëdes*

group, ten to the *Culex* group, and one to *Mansonia*. The most prevalent species were: *Anopheles hyrcanus*, *A. jamesi*, *A. subpictus*, *A. vagus*, *A. barbirostris*, *Aëdes* (*Stegomyia*) *aegypti*, *Aëdes* (*Stegomyia*) *albopicta*, *Armigeres obturbans*, *Culex fatigans*, *Culex gelidus* and *Culex tritaeniorhynchus*. *A. culicifacies* was not found during the survey, although it had been recorded from this area in 1936; and previous work had shown that normally this important mosquito was not prevalent in the district. The Anophelines mentioned were breeding in a variety of ground water collections, including streams and channels, borrow-pits, trenches, drains, pools, low-lying swampy areas, paddy fields and wells. *A. hyrcanus*, *A. jamesi* and *A. subpictus* were also found in a large pit used for soaking coconut husks where the water was heavily polluted with organic matter. Of the Culicine mosquitoes *Aëdes* (*Stegomyia*) *albopicta*, *Armigeres obturbans*, and *Culex fatigans* were the most abundant 'domestic' species, and were plentiful in every locality where artificial receptacles occurred. The last named species was also breeding in borrow-pits, trenches, drains and the soakage pit referred to above. *Aëdes* (*Stegomyia*) *aegypti* was scanty in the aerodrome premises, but was abundant in some areas (Ratmalana village and the railway premises) in the vicinity. The opportunities for the breeding of this mosquito—and of the other domestic Culicines named above—in the area covered by the survey are, however, innumerable and from the evidence available it is reasonable to assume that the species at times becomes plentiful throughout the district. Recommendations for mosquito control in the area were submitted.

Filariasis.—Reference to previous work on the epidemiology of this disease in Ceylon was made in my reports for the years 1932 and 1936. Extensive investigations are now in progress, the preliminary field work being in charge of a Medical Officer of Health specially detailed for the purpose. The associated entomological and parasitological work is being carried out in this laboratory.

The scheme of work undertaken provides for the following:—

1. *Preliminary Filaria Survey of the Island.*—The main object of this survey is to obtain, within a limited period, as much information as possible with regard to the distribution of the disease, and the variations in incidence and endemicity in different parts of the country. The work includes (*a*) the identification and registration of cases on clinical data under the various administrative areas (chief headmen's divisions), (*b*) the determination of endemic and hyper-endemic areas or foci, (*c*) an examination of the data collected in relation to racial, physiographical, climatic, and economic conditions, (*d*) identification of microfilaria and determination of the microfilaria index of infected villages and of villages in the vicinity and (*e*) clinical studies.
2. Specific research in particular areas.—The areas where intensive investigations are to be undertaken will be selected later on the results of the preliminary survey. Such investigations will be largely of an entomological and parasitological nature, and will be carried out both in the field and in the laboratory.
3. Experimental Control of Filariasis.

An attempt is being made to control the disease by eradication of *Pistia stratiotes* in a selected group of villages situated in a severely endemic area in the North-Western Province.

Under heads 1 and 3 above a considerable amount of work has now been done. The Medical Officer in charge of the survey has completed the preliminary work in the North-Western Province (Kurunegala, Chilaw, and Puttalam districts), and is now continuing the survey in the Southern Province. In the Kurunegala district 179 villages were found where cases of Filariasis were present. A total of 340 cases showing clinical manifestations of the disease was registered; and of these 273 in 120 villages occurred in the Katugampola and Dewamedi hatpattus. The area most severely affected was approximately 175 square miles in extent, but even within this area the distribution of the disease was erratic. Many small and usually sharply circumscribed foci of high endemicity were present in areas where the neighbouring villages showed a low incidence or apparent absence of the disease. It was observed that these endemic foci were invariably associated with a luxuriant growth of *Pistia* which was seemingly dependent upon inadequate

agricultural drainage. The village tank overgrown with weeds, including *Pistia*, the irrigation channels and drains in poor condition resulting in much siltage and water-logging of the low-lying lands in the vicinity, and the people themselves ill-nourished and poverty stricken. From the two hatpattus mentioned above, 2,210 blood films were examined and 959 or 45.3 per cent. showed microfilariae. All microfilariae observed conformed to the *Mf. malayi* type. In the Chilaw and Puttalam districts similar foci of high endemicity associated with *Mf. malayi* were found, but the detailed findings are not yet available.

The experimental control of filariasis is being undertaken in a group of adjoining villages (Ellegedera, Wellegedera, Pallegama, Andiyakotuwa) forming one of the highly endemic foci referred to above. The selected villages were included in an ' Inner Control ' or ' Protected ' zone, but the removal of *Pistia* plants was extended to a surrounding ' Outer Control ' zone of approximately one mile in width. This portion of the work was in charge of the local Field Medical Officer who registered and mapped out all *Pistia* bearing situations. The initial clearing of *Pistia* from the control zones was done by a gang of 25 labourers, and subsequent maintenance was carried out by a smaller force as necessity arose. This work was commenced in June 1937, and with a view to estimating results arrangements were made to carry out regular observations (*a*) in the experimental area and (*b*) in a near-by village (Magulagama) where conditions were similar, but where no control measures were in progress.

The initial examination of the experimental villages gave the following data—population 364; dwellings 85; cases with clinical manifestations of Filariasis 20; microfilaria index (129 blood films) 49.6 per cent. Within the outer control zone night blood was taken from 156 persons in seven villages; the microfilaria index was 41.7 per cent. At Magulagama the data obtained were—population 334; dwellings 94; clinical cases 15; microfilaria index (92 blood films) 21.8 per cent. Entomological observations were made in June and were continued each month until the end of the year. At the time of the original survey *Pistia* was abundant in certain situations in each area, and egg masses of *Mansonia* species were numerous. Counts made at the time gave: Protected zone 28 egg-masses per 100 plants (small plants only present). Outer Control zone 61 egg-masses per 100 plants, Magulagama village 26 egg-masses per 100 plants. *Mansonia* larvae, though present in all situations examined, were not abundant and showed considerable variation in prevalence. The results obtained in respect of adult mosquitoes by (*a*) examination of dwellings in the early mornings and (*b*) night trapping using human and animal bait, are summarized in the table below:—

Mosquito Prevalence.

Experimental villages (*Pistia* control area)—Magulagama (No *Pistia* control).

Locality.	Mosquito catch per hour.						Mansonia catch per hour.					
	June.	July.	August.	Sept.	Oct.	Nov.	June.	July.	August.	Sept.	Oct.	Nov.
Experimental area—												
(*a*) Inner Control Zone (Protected area) ..	45·3..	6·9..	7·0..	1·5..	27·7..	50·7..	11·3..	2·4..	0·5..	— ..	— ..	0·08
(*b*) Outer Control Zone ..	40·0..	12·4..	5·2..	6·6..	45·9..	65·7..	10·5..	2·9..	0·7..	— ..	— ..	—
Magulagama— ..												
(*a*) Village ..	20·8..	18·1..	7·6..	23·6..	72·9..	37.5..	11·8..	7·9..	2·7..	0·3..	0·5..	0·3
(*b*) Outside village ..	42·2..	6·7..	17·8..	19·3..	48·4..	48.2..	20·0..	3·8..	10·0..	0·9..	1·3..	1·1

The total catch amounted to 6,649 mosquitoes of which 3,008 were obtained from the control zones, and 3,641 from Magulagama. The most prevalent species were *Anopheles subpictus*, A. *hyrcanus*, A. *jamesi*, *Aëdes pipersalatus*, *Aëdes pallidostriatus*, *Culex gelidus*, *C. tritaeniorhynchus*, *C. fuscocephalus*, and *Mansonia uniformis*. Infections with immature worms similar to larval forms of filaria were as follows:—

(*a*) Inner Control Zone: Dissections 1,189, *Mansonia* 174. Infections 6. (*M. uniformis* 4, ***Aëdes pipersalatus* 1, *Culex tritaeniorhynchus*** 1).

(*b*) Outer Control Zone: Dissections 593, *Mansonia* 64. Infections nil.

(*c*) Magulagama: Dissections 2,571, *Mansonia* 678. Infections 14 (*M. uniformis* 9, *M. indiana* 1, *Anopheles subpictus* 1, *Aëdes pallidostriatus* 1, *Culex tritaeniorhynchus* 1, and *C. fuscocephalus* 1).

It will be noted that whereas the general catching rates (all mosquitoes) rose considerably during the later months of the year, the *Mansonia* catching rates remained low and were much less than at the time of the original survey in June. Since this reduction in the prevalence of *Mansonia* was common to *all* the areas investigated, it is possibly a normal circumstance in this locality at this time of the year; and at present affords no indication of the value of the control measures in the experimental areas.

Mosquito collections made from April to December at nine different stations within the same province (North-Western)—but not within the endemic area—also showed decreased prevalence of *Mansonia* from August to November; but two stations showed an increase in December. These collections included 27,975 mosquitoes of which 55.6 per cent. were Anopheles and 7.9 per cent *Mansonia*. All three of the indigenous species of the latter genus were found, but *M. uniformis* greatly predominated. Of the Culicine mosquitoes obtained from these stations 7,204 were dissected and examined for worms. Thirty-seven infections with Filaria-like forms were found; these infections occurred in *Mansonia* spp. (1,565 dissected, 18 infected) *Banksinella lineatopennis* (280 dissected) 6 infected *Aëdes* sp. incert, (941 dissected, 8 infected); *Aëdes pallidostriatus* (886 dissected 4 infected), *Aëdes pipersalatus* (78 dissected, 1 infected).

Rat-Flea Surveys.—The identification of rat-fleas collected in the course of surveys conducted by Medical Officers of Health in various parts of Ceylon was continued. In the course of the year 4,402 rat-fleas were received at the laboratory. These were obtained from Haputale, Haldummulla, Koslanda, Welimada, Passara, and Lunugala (Province of Uva, elevations from 2,250 ft. to 4,800 ft.) Talawakelle (Central Province, elevation 3,900 ft.) Anuradhapura (North-Central Province), and Galle (Southern Province).

Summaries of the results obtained from each of these towns are given in the table below.—

Town.	Date of Survey (1937).	Number of Premises.	Number of Rats.	Number of Fleas.	Gross Flea Index.	*X. cheopis* Index.
Haputale	March / April	30	90	231	2·57	1·34
Haldummulla	do.	22	63	171	2·71	2·05
Koslanda	do.	21	32	153	4·78	4·41
Welimada	do.	16	33	73	2·21	1·7
Passara	do.	28	105	211	2·01	1·82
Lunugala	do.	33	145	324	2·23	1·79
Talawakelle	June	14	24	148	6·17	5·13
Anuradhapura	July-October	22	61	145	2·38	0·48
Galle	Sept., 1936-Sept. 1937	145	580	2,946	5·1	0·9

Haputale.—*Xenopsylla cheopis*—the plague flea—formed 52.4 per cent. of the total flea catch. Other fleas present were *Stivalius phoberus* (22.9 per cent.), *Leptopsylla segnis* (22.1 per cent.), and *Nosophyllus tamilanus* (2.6 per cent.), No *X.astia* were found, although Hirst commented upon their presence at this station in 1931. The *X.cheopis* index (1.34) was less than that (2.10) found by Hirst.

Haldummulla.—There are no previous records from this station. *X.cheopis* formed 75.9 per cent. of the total catch, *L.segnis* 12.9 per cent., and *S. phoberus* 11.3 per cent.

Koslanda.—No previous records. *X.cheopis* formed 92.8 per cent. of the flea catch. *L.segnis* (3.3 per cent.), *S.phoberus* (3.3 per cent.), and *X.astia* (0.6 per cent.) were also represented. The *X.cheopis* index (4.41) was unusually high.

Welimada.—No previous records. The number of fleas submitted was relatively small, but the four species named in the preceding paragraph formed in the order given 76.7 per cent., 19.2 per cent., 1.4 per cent., and 2.7 per cent. of the catch.

Passara.—No previous records. The fleas present included *X.cheopis* (91.4 per cent.), *X.astia* (5.7 per cent.), *S.phoberus* 2.4 per cent., and *L.segnis* (0.5 per cent.).

Lunugala.—No previous records. With the exception of a single specimen of *S.aporius*, the collection consisted entirely of *X.cheopis* (81.0 per cent.), and *X.astia* (18.7 per cent.).

Talawakele.—The collection consisted of *X.cheopis* (83 per cent. and *L.segnis* (17 per cent.). The gross flea index (6.17) was unusually high, and of similar order to that found by Hirst at Ragala and Nuwara Eliya in 1929. The *X.cheopis* index (5.13) was the highest yet recorded from any locality in Ceylon.

Anuradhapura.—The fleas submitted were collected during the period July to October, 1937, the greater part of which was hot and dry. *X.cheopis* and *X.astia* only were present, the former constituting 20 per cent. of the total catch. Although the number of fleas examined was relatively small, the results indicated that the decline in the proportion and specific index of *X.cheopis* noted in the last report had continued. Previous results from this town are given below for comparison.—

Date of Survey.	Number of Fleas.	Gross Flea Index.	*X. cheopis* Index.	*X. cheopis* Per Cent.
August 1931 (Hirst)	322	2·48	1·17	47·4
November, 1932–December, 1933	2,328	4·52	2·18	48·3
January-December, 1934	3,213	3·02	1·69	56·1
January-June, 1935	803	2·53	1·65	65·0
May-December. 1936	144	3·43	0·52	15·3
July-October, 1937..	145	2·38	0·48	20·0

Galle.—This survey was carried out under the direction of the Medical Officer of Health of the Municipal Council, Galle, during the period September, 1936, to September, 1937. By arrangement with the Director of Medical and Sanitary Services all fleas collected in the course of the survey were forwarded to this laboratory for identification. A detailed report on the findings was subsequently submitted to the Municipal authorities.

The survey revealed the existence of a considerable plague flea population in the commercial sections of Galle Town. The localities most severely infested were Pettigalawatta, Dangedara road (lower section), and High street; the area involved was practically identical with that in which previous outbreaks of plague had occurred. In these areas the *X.cheopis* index ranged from 1.5 to 2.6. Comparison with the results of a survey carried out by Hirst in 1929, indicated that a definite increase in the prevalence of the plague flea had taken place in the intervening years. In that year Hirst examined a large collection of rat-fleas (1,964 fleas), but did not discover a single specimen of *X.cheopis*. The allied rat-flea—*X.astia*—however gave the exceptionally high index of 5.67 for commercial premises. The mean flea indices found in commercial and residential premises in the present survey were very similar to those found by Hirst. But in several of the commercial areas the *X.astia* indices were considerably higher than the mean, and in addition the plague flea was much more prevalent forming as much as 17.5 to 29.5 per cent. of the rat-flea population.

Vigorous, plague preventive measures were immediately instituted by the Municipal authorities.

Bugs.—Definite infestation of primitive houses by the large " cone-nosed " bug *Triatoma rubrofasciata* has been observed in towns and villages in the Southern Province, notably Akuressa, Kamburupitiya, Deiyandera and Walasmulla. The bugs appear to be most prevalent in mud-walled houses where there are numerous cracks and crevices for concealment. The inhabitants of these areas are well acquainted with the insect and refer to it as " Lay-boiya " or " blood-drinker "; the adult villagers state that the bite is painless and gives no reaction. No evidence of house infestation by this bug in other parts of the Island is yet available although the adult insect is not uncommon and appears to be widely distributed.

(6) PUBLICATIONS.

The following papers and books were published during the year:—

Blazé, John R.: Fatal Coronary Thumbosis in a man aged 23 years, Brit: Med: Vol. II p. 14.

Gunewardane, S. R: Book in Sinhalese on " Care of the Sick " for the use of the hospital attendants.

Nicholls, Lucius: A short review of a Colonial Report concerning statistics and Hippelates flavipes, Annals of Tropical Medicine and Parasitology, Vol. 30 No. 3.

The following publications by officers of the department appeared in the Journal of the Ceylon Branch of the British Medical Association for 1937:—

Attygalle, N: The problem of Carcinoma of the Uterus in Ceylon.
Blazé, John R.: Heart disease in Ceylon.
Fernando, P. B: Notes on a case of Encephalitis Lethargica.
Gunewardene, H. O: Cardiovascular Autonomic Dystonia.
Jayasuriya, J. H. F: A case of Advanced Lymphosarcoma.
Jayawardene, M. D. S: A case of Congenital Heart Disease.
Paul, Milroy: Cure of a large Aneurysm by direct repair of the Arterial wall.
Ramanathan, S: Notes on an interesting case of Acute Abdomen.
Ramanathan, S: A fatal case of Malignant Melanoma.
Senanayake, I. A: Evolution of Mental Treatment.
Silva, Stanley de: Malaria in the child.
Silva, C. C. de: Hereditary Ectodermal Dysplasia.
Van Rooyen, C. A: Reflections on the malaria epidemic, 1934-35.
Wijerama, E. M: The mode of onset of the malaria epidemic in Ceylon, 1934-35.

X.—MISCELLANEOUS.

(1) MEDICAL EDUCATION.

The Ceylon Medical College was established in 1870. In 1888 recognition was granted by the General Medical Council of the United Kingdom and the diploma became registrable in Great Britain and all parts of the Empire.

In 1924 the complete extended curriculum of one year's pre-medical study (chemistry, physics, botany and zoology) which is followed at the University College, and a five years' course in the Medical College was adopted. At the end of the course, the diploma in Medicine, Surgery, and Midwifery is conferred under the designation of L.M.S. (Ceylon).

The College also provides a two years' course of instruction for apothecary students.

The following relevant extracts are taken from the report of the Registrar, Ceylon Medical College, for the year 1937:—

The programme of improvements begun on the recommendations of Sir Richard Needham, continues to be fulfilled.

During the year under review extra courses of teaching have been started in Surgical Applied Anatomy for second year students, two lectures weekly being given illustrated on the living subject by a member of the Surgical Staff of the General Hospital, Dr. G. S. Sinnatamby.

Ward classes in Gynaecology and classes in Gynaecological Pathology have been instituted, one weekly during the first and second terms of the fourth year. These are given by the Gynaecologist of the General Hospital, Dr. N. Attygalle.

Appointments to the Professorships of Medicine and Surgery were made at the beginning of the year, Dr. P. B. Fernando, M.B., M.R.C.P. (Lond.), D.T.M. & H. (Eng.), L.M.S. (Ceylon) being made Professor of Medicine, and Dr. Milroy Paul, M.S., M.B. (Lond.), F.R.C.S. (Eng.), M.R.C.P. (Lond.) being made Professor of Surgery.

The organization of all clinical teaching is now in the hands of a Medical Committee consisting of the teachers of Medicine, Dermatology, Infectious Diseases, Diseases of Children, Psychological Medicine, Tuberculosis and Leprosy, and a Surgical Committee consisting of the teachers of Surgery, Midwifery, Gynaecology, Diseases of the Eye, Ear, Nose, and Throat, Venereal Diseases, Anaesthetics, Dental Surgery, Radiology, and Electrotherapeutics, the Chairman of the Committees being the Professors of Medicine and Surgery respectively. The scheme has now been in force a full year and considerable benefits to the teaching generally have been apparent from it.

During the month of January Mr. Sherwood Washbourne from the Museum of Comparative Zoology and the Department of Physical Anthropology at Harvard attended at the Anatomy Department of the College and worked with Prof. W. C. O. Hill on Primate Anatomy for research purposes.

During the absence of Dr. Lucius Nicholls from April, Dr. E. K. Wolff, the Municipal Microbiologist, acted as lecturer in Bacteriology and Dr. E. M. Wijerama as lecturer in Parasitology.

In May, Dr. V. Gabriel, the lecturer in Systematic Surgery and Junior Ward Class Surgery, went on leave for four months to Europe. During the absence of Dr. V. Gabriel from May, the lectures in Systematic Surgery were given by Dr. G. S. Sinnatamby and the Junior Ward Class lectures by Dr. M. V. P. Peiris.

The following figures showing the work in the College during the academic year 1936-37 are given below:—

Medical.

Number of students qualified for L.M.S.	27
Number of students admitted who have passed the Pre-medical	31
Total number of medical students on the rolls on October 1, 1936	133
Total number of medical students on the rolls on January 1, 1937	128
Total number of medical students on the rolls on May 1, 1937	118
Total number of medical students on the rolls on September 1, 1937	105

Results of Examinations—Medical.

	1936. December.		1937. March.		1937. June.		1937. July.		1937. September.		Total.	
	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.
Pre-medical	—	—	—	—	42	17	—	—	28	9	70	26
1st Professional, Part I.	—	—	18	8	—	—	—	—	14	5	32	13
1st Professional, Part II.	23	17	5	4	—	—	—	—	—	—	28	21
2nd Professional, Part I.	—	—	12	10	—	—	15	14	—	—	27	24
2nd Professional, Part II.	—	—	9	8	—	—	14	10	—	—	23	18
Final	10	4	21	10	—	—	19	13	—	—	50	27

Apothecaries.

Number on the rolls in October, 1936	86
Number on the rolls in May, 1937	53

Results of Examinations.

	1936. December.		1937. March.		1937. July.		Total.	
	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.
1st Apothecaries	—	—	7	3	35	19	42	22
2nd Apothecaries	10	8	3	2	15	4	28	14
Pharmacists	22	12	—	—	—	—	22	12

Results of Midwives' examinations.

	1936. December.		1937. March.		1937. June.		1937. September.		Total.	
	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.
Class I.	13	10	11	5	17	13	3	2	44	30
Class II.	35	27	32	31	9	6	5	1	81	68

Revenue and Expenditure.

	Rs. c.
Revenue for the financial year	55,582 63
Expenditure	178,121 88

(2) KING EDWARD VII. (MEMORIAL) ANTI-TUBERCULOSIS FUND.

The Anti-Tuberculosis Institute in Colombo, the Kandana Sanatorium, and the Kankesanturai Sanatorium were built and equipped from the fund. A children's ward at Kandana has been built from this fund and it is proposed to transfer any balance left to the King George V. Memorial Fund.

(3) CIVIL MEDICAL STORES.

The following are extracts from the report of the Superintendent, Civil Medical Stores:—

The expenditure on drugs, including quinine during the year under review shows a slight reduction. The expenditure on surgical instruments, appliances, &c., has increased by about Rs. 24,000, *i.e.*, about 33 per cent. over that of 1935-36. This is chiefly due to special instruments for the General Hospital and other hospitals and the increased demand for X'Ray apparatus. Hospitals are being provided with improved equipment with consequential increase in expenditure. Much difficulty was experienced in the stocking and issuing of drugs, &c., owing to lack of accommodation, but every effort was made to comply with the requisitions as expeditiously as possible.

During the year the Malaria Control Scheme was started and 55 Field Medical Officers, besides other subordinate staff, were stationed in different parts of the Island. It was with the greatest difficulty and much anxiety that the additional work thrown on this establishment was carried out.

Provision for a new building has been sanctioned and a site is being selected.

The allocation system has worked satisfactorily and institutions are conforming to the requirements without much difficulty. With a view to a more accurate check on the consumption of drugs it was decided to give the suggestion of a scale system a trial. A few hospitals have been requested to try it for a specified period and furnish reports.

The amount of quinine issued this year was lb. 19,091, as against lb. 25,855 last year. The number of quinine tablets issued for the corresponding periods is 5,545,525 and 4,557,725 respectively. The consumption of the powder had decreased considerably. The increase on tablets probably indicates a wider distribution through the various distributing centres.

The Surgical Instruments Inventories of all hospitals and dispensaries are periodically sent to be checked with duplicate inventories maintained here.

The number of items in the estates schedule was increased by about 40 per cent., which necessitated a change in the system of dealing with estate requisitions at this establishment. There are over 700 estates which make demands and the effect of the increasing demands is already felt in the various sections, particularly the manufacturing section, which has been working at its peak capacity for some time. Under existing conditions estates may apply for unlimited

quantities and send unlimited requisitions. This establishment cannot function efficiently under such conditions and in endeavouring to meet such demands, the requirements of the civil institutions are adversely affected.

Galenical preparations were manufactured during the period at a cost of Rs. 43,557. The imported cost would have been Rs. 75,267 a saving of Rs. 31,710. Manufacturing on a much larger and more up-to-date scale, with still greater profit to Government, could be undertaken if proper accommodation is available. On this account further development is held up.

The stationery section supplies stationery and printed forms to all medical institutions and printed forms to estates. The number of printed forms has increased from 419 to 700. A scheme for the issue of forms direct to large institutions by the Government Printer is under consideration.

The maximum output, consistent with the existing accommodation, in the despatch section was obtained. An improved procedure in packing and despatch was adopted this year and is working satisfactorily.

In spite of the fact that the repair section is only equipped for minor repairs to furniture of Colombo institutions, heavier and more intricate jobs are frequently sent for execution and several applications had to be referred to the Factory Engineer and the Prisons Department.

The following statistics which are for the financial year, October, 1936, to September, 1937, are of interest:—

Expenditure: drugs, dressings, &c., Rs. 465,512; quinine Rs. 451,761; instruments Rs. 78,447; local purchases including those for paying patients Rs. 83,646; opium Rs. 6,010; stationary Rs. 9,642; printed forms Rs. 41,717; transport of drugs Rs. 1,595.

The number of requisitions received was—

Civil.—Drugs 8,463; instruments 2,313; stationery and forms 3,982; *Estate.*—Drugs 2,881; stationery and forms 1,322, *Naval.*—Drugs 54; Total—19,015.

Quinine.—19,091 pounds of quinine and 5,545,525 tablets were issued. The value of quinine issued to estates was Rs. 44,700 and the value of drugs issued on payment was Rs. 1,722.

(4) SALE OF OPIUM TO REGISTERED CONSUMERS AND AYURVEDIC PHYSICIANS.

There are 48 opium depôts, of which, all but two are housed in Government hospitals and dispensaries. Maradana and Moratuwa depôts are housed in private buildings rented by Government for the purpose. No depôts were closed during the year.

The total number of registered consumers who obtained their supplies from the depôts was 2,030, as against 2,175 in 1936 and 6,591 in 1927. Since new consumers are not registered, the decline in the number is due mostly to deaths. 1,827 consumers obtained eating opium while there were 203 smokers who obtained smoking opium during the year, as against 1,940 and 235 respectively in 1936, and 6,042 and 549 respectively in 1927.

3,564 registered ayurvedic physicians obtained opium for medicinal purposes this year, as compared with 3,465 in 1936 and 3,419 in 1935. While the number of registered consumers is decreasing annually, the number of licensed ayurvedic physicians is on the increase.

458 pounds of eating opium were sold to registered consumers and 215 pounds to vederalas which realized a total of Rs. 70,789, as against 433 and 178; and Rs. 77,110 in 1936 respectively.

Eighty-one pounds of smoking opium were sold to consumers during the year which realized Rs. 11,307, as compared with 92 pounds in 1936 which realized Rs. 12,908.

The total amount realized by the sale of eating and smoking opium was Rs. 82,096, as against Rs. 90,019 in 1936.

(5) BUILDING REQUIREMENTS.

Of the major building schemes, that for the Bacteriological Institute and the first stage of the new Nurses' Home were completed in 1937, and the second stage of the latter has been started. The first stage of the extensions to the De Soysa Lying-in Home, viz., the Home for Pupil Midwives, has been completed and the second stage has been started.

Provision to rebuild the hospitals at Kalutara and Hambantota has been made and the building work of the latter is in progress. Balapitiya hospital will be taken up early.

Provision for the improvement and or re-modelling other important hospitals, viz., Trincomalee, Kandy, Badulla, and Jaffna has been made and work at Badulla and Trincomalee has been started.

As mentioned in last year's report, there are five items of building, the cost of which is to be charged to loan funds. Of these, the acquisition of lands for the (1) New Out-patients' Department; (2) Mental Hospital; (3) Home for Incurables; and (4) Quarters for General Hospital staff is in progress. The New Leper Hospital to be built at Urugaha on available Crown lands will be started early.

(6) GENERAL REMARKS.

Malaria Control and Health Scheme.—The details of this scheme have been fully explained in last year's report. The training of Field Medical Officers selected in 1937 was improved by a four weeks' course in Malariology at the Medical Laboratories at Torrington square thus increasing their training period from six weeks to ten weeks as follows:—Two weeks lectures in Colombo, four weeks at the Medical Laboratories, and four weeks either at the Kalutara or Panadure Totamune Health Units. During the year 42 were trained and appointed bringing the total of Field Medical Officers to 55. The areas taken up for work under the scheme are the whole of North-Western Province, the Province of Sabaragamuwa with the exception of Kukul and Kolonna korales, Kandy and Matale Districts of the Central Province, the whole of the Mannar and Mullaittivu Districts and the Chief Headmen's divisions of Tenmaradchi, Pachchilaipallai and Karachchi in the Jaffna District of the Northern Province, Hurulu, Kalagam palatas and Tamankaduwa division of the North-Central Province, whole of Matara and Hambantota Districts and Gangaboda Pattu of the Galle District of the Southern Province, major portion of the Batticaloa District of the Eastern Province, Wellawaya Division of the Uva Province and the Chief Headmen's Divisions of Alutkuru korale south and Pasdun korale east and west of the Western Province.

These officers along with 12 Medical Officers of Health total 67 all doing one type of work, with the difference that the Field Medical Officers still lack the background of adequate training which the Medical Officers of Health possess through their diploma in public health. It has been recognized that Field Medical Officers would need continuous guidance in their work. This is being provided through periodical conferences of Field Medical Officers of each province, monthly visits by special supervising officers and periodical visits by the Assistant Director of Sanitary Services.

All Field Medical Officers have not been adequately staffed with Sanitary Assistants, Nurses and Midwives for the proper training of whom special arrangements have been made. During the year 77 Sanitary Assistants and 60 midwives were trained. As more and more of the auxiliary staff gets provided and the work taken in hand gets consolidated, encouraging results of the work will be discernible. As it is at present, where adequate staff has been provided, any situation that may arise can be promptly dealt with.

Filariasis.—A complete survey of the North-Western Province has been made and a detailed report is given under Section III. 577 cases with obvious clinical signs and symptoms of filariasis and 333 early gland cases have been detected in this province. In the Kurunegala District 3,256 blood films have been examined, out of which 1,116 (34 per cent.) were positive for *Microfilaria malayi*

which is transmitted by mansonia mosquitoes for the propagation of which the presence of the water plant *pistia stratiotes* is responsible. This Department is preparing regulations under the Quarantine and Prevention of Diseases Ordinance and is also taking other steps for the removal of the pistia plant. From November 1937 the survey of the Southern Province commencing from the Hambantota District has been taken up.

Nutrition.—Investigations into the subject of diets and nutritional deficiencies of the local population were started in 1933 by the Director of the Bacteriological Institute. His report was published in the Ceylon Journal of Science, Volume IV., Part I. A review of the present knowledge and of further studies of human nutrition and the reports of the results of the examination of the Ceylon vegetables and other foodstuffs sent to the laboratories of the Pharmaceutical Society of London and to the Imperial Institute have been published in the Ceylon Sessional Papers II. and XXIX. of 1937 respectively.

Overcrowding in Hospitals.—As a means of relieving acute overcrowding of patients in certain hospitals, six light construction wards, containing 32 beds each, have been built for use in six hospitals. Provision for a further five such wards has been made in the 1937-38 estimates.

Cottage Hospitals.—Provision for cottage hospitals of 14 beds each to be built adjoining suitable central dispensaries situated in remote rural areas was included in the 1936-37 estimates. Five such hospitals are in course of construction. Each of these consists of a single storey hospital of 14 beds for males and females with kitchen and sanitary annexe, mortuary and cart shed, and quarters for Medical Officer. These hospitals will considerably help to promote medical relief in areas, where the population is scanty and dispersed.

Provision for an additional six cottage hospitals has been made in the 1937-38 estimates, and the buildings are in progress.

Practice of Dentistry.—The Medical Council decided that only persons registrable under the English Dentists' Act, and persons who had been apprenticed for five years to a qualified Dental Surgeon in Ceylon, and at the end of that period passed an examination in dentistry to be arranged by the Medical College Council, should be registered. The necessary regulations to implement this decision was passed in 1933. The number of names on the Ceylon Dental Register is only 24, and of these only 17 are Licentiates of Dental Surgery of a British licensing body. The need exists therefore for a local School of Dentistry. This question received due consideration and arrangements have been made to start a Dental Hospital and School to give a two years' course of post-graduate instruction to those who are Licentiates of Medicine and Surgery of the Ceylon Medical College.

River Training.—Colonel Gill, in his report in Sessional Paper XXIII. of 1935, stated that " in the case of rivers and river beds on Crown lands, which are responsible for the insalubrity of the villages and estates in their vicinity, it is recommended that Government should assume responsibility for carrying out such measures as may be found, after investigation, to be practicable to control mosquito breeding in these rivers ".

The Sanitary Engineering Division of this Department concentrated its attention from the year 1936 upon devising permanent measures for controlling anopheline breeding in river beds based upon experimental work carried out.

The results of these experiments have been very encouraging and have shown that the main breeding places of the anopheline mosquito in pools and shallows in river beds can be enormously reduced and in certain situations entirely eradicated by the adoption of suitable engineering devices.

A programme of river improvement works covering many of the river sections in the epidemic zone has been drawn up and further experimental control work has been undertaken during 1937 with a view to arriving at definite conclusions as to the adaptability of certain experiments carried out on the Badulla Oya to other river sections.

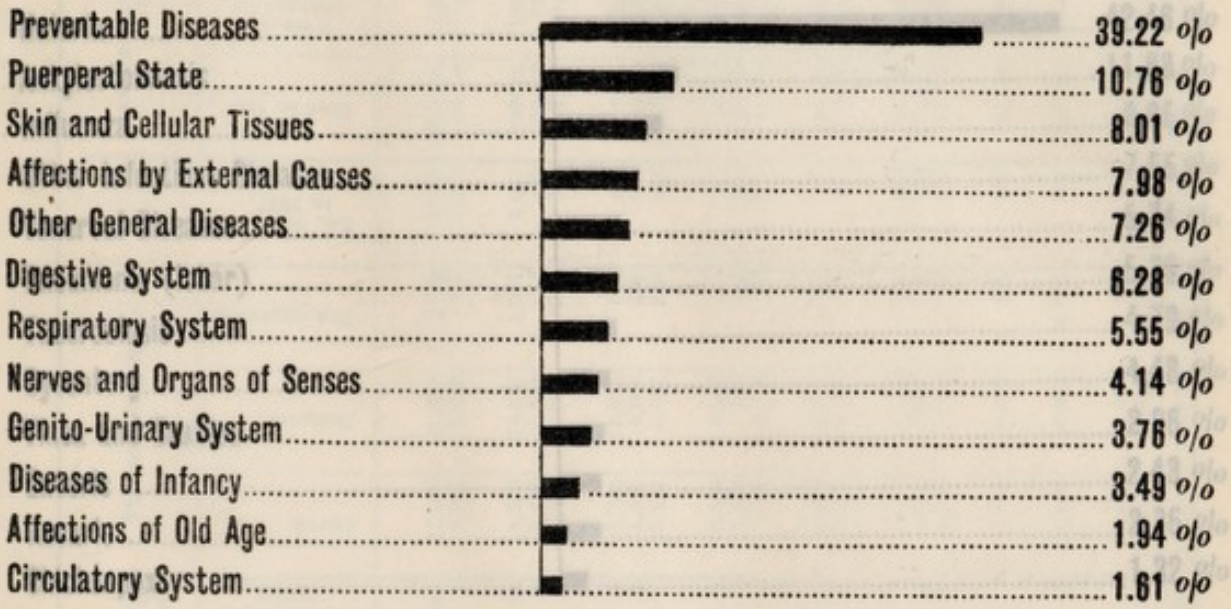
Nursing Staff.—The supply of trained nurses falls far short of the demand and it has not been possible to maintain the nursing staffs at many hospitals at full strength. Qualified nurses who left the Department have had to be engaged temporarily to meet the demand from various hospitals. It is to be regretted that it has not been possible to start the training school in the New Nurses' Home without the second stage of the building programme, which is now in progress, being completed.

S. T. GUNASEKARA,
Director of Medical and Sanitary Services.

Colombo, 9th April, 1938.

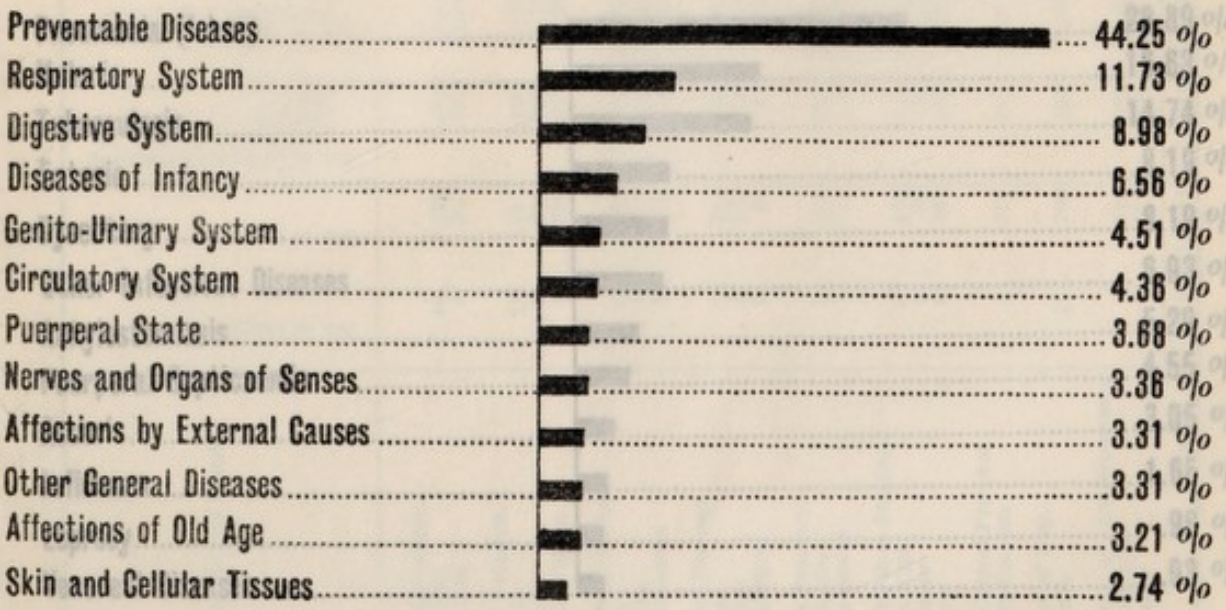
A--Chart showing the General Systemic and Preventable Diseases treated at the Government Hospitals during the year 1937.

Total Cases 343,442.



B--Chart showing deaths from General Systemic and Preventable Diseases treated at the Government Hospitals during the year 1937.

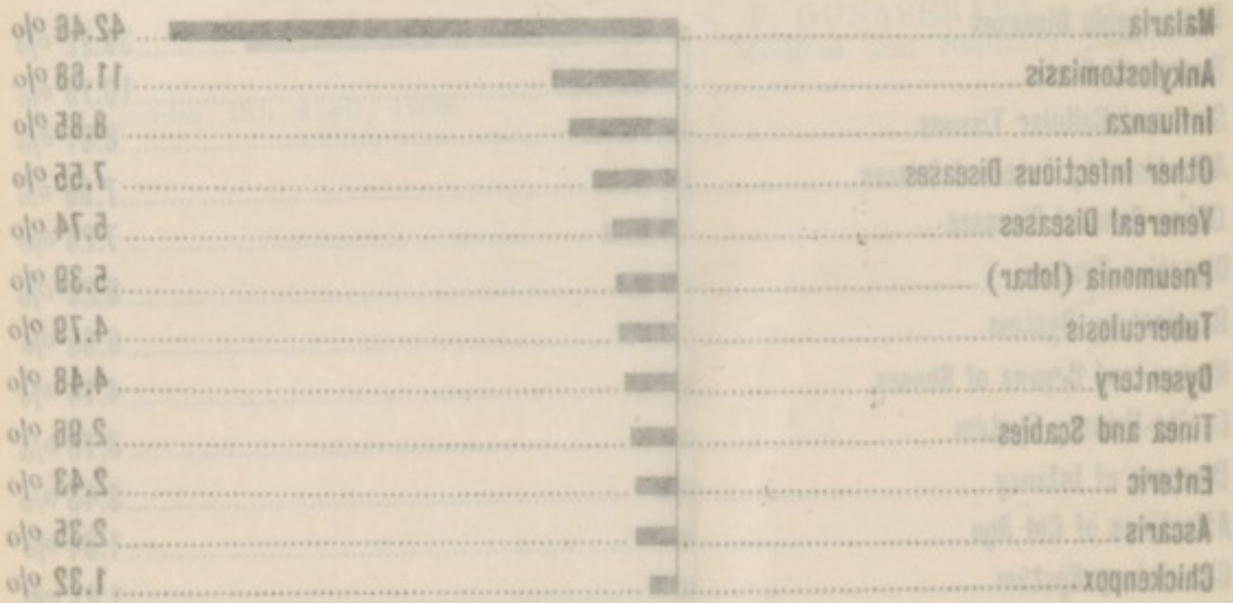
Total Deaths 19,723.



SURVEY DEPT. CEYLON.
30. 9. 38.

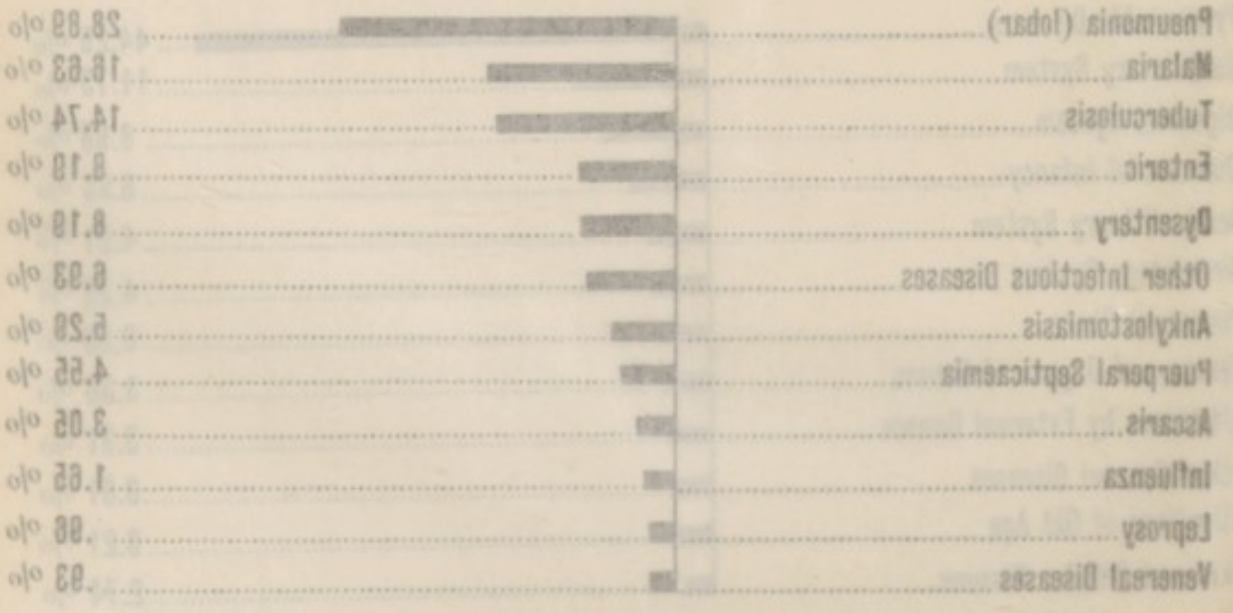
C--Chart showing cases of Infectious Diseases treated at the Government Hospitals during the year 1937.

Total Cases 134,885.



D--Chart showing deaths from Infectious Diseases at the Government Hospitals during the year 1937.

Total Deaths 8,727.



I.—Hospital Returns.

Province and District.	No. of hospitals.	No. of beds.	No. of patients remaining in hospital at the beginning of the year 1937.	No. of patients admitted during the year 1937.	Daily average No. of patients in hospital during the year 1937.	Attendants.					Patients discharged.			No. of patients who died in 1937.	Average stay of patients, who			Specify the longest period for which any one inmate has stayed.
						Nurses doing no other work.		Servants partially or not at all employed as nurses.										
						Day nurses.	Night nurses.	Not nurses.	Partial day nurses.	Partial night nurses.	Cured.	Relieved.	Not improved.		Died in 1937.	Were discharged in 1937.	Were remaining in 1937.	
Western Province.																		
Colombo ..	19	5,199	3,848	85,995	4,294·33	546	92	578	195	664	32,733	41,934	3,839	6,262	1,603·10	882·59	660·96	4,762
Kalutara ..	5	382	323	15,902	407·27	12	1	39	8	1	6,967	7,393	449	1,032	52·38	78·66	69·94	365
Central Province.																		
Kandy ..	13	1,157	1,150	37,313	1,194·18	74	13	71	36	20	14,309	19,672	1,317	2,027	159·88	183·22	182·42	146
Matale ..	2	261	227	7,774	242·87	4	—	16	5	5	1,497	5,624	124	499	16·91	21·19	24·51	204
Nuwara Eliya ..	8	389	315	13,229	373·48	10	2	37	—	2	7,209	5,264	219	569	81·17	104·38	111·98	993
Southern Province.																		
Galle ..	5	498	508	22,495	534·91	31	6	105	—	1	8,724	11,915	654	1,245	25·43	62·98	31·87	325
Matara ..	2	177	263	11,959	279·89	4	—	17	—	4	4,042	6,906	376	592	15·30	19·70	15·30	122
Hambantota ..	4	207	205	8,102	212·40	2	1	22	—	—	2,481	4,622	283	659	37·28	44·69	39·37	93
Northern Province.																		
Jaffna ..	7	350	282	11,963	335·57	11	2	50	—	1	6,348	4,591	511	371	31·33	139·15	151·93	390
Mannar ..	3	130	58	3,326	100·59	2	—	25	—	—	2,468	591	59	209	25·63	62·95	36·88	139
Mullaittivu ..	2	62	42	2,028	45·69	—	—	6	7	—	481	1,416	19	105	14·83	15·27	22·58	78
Eastern Province.																		
Batticaloa ..	5	346	333	4,292	345·79	13	3	24	1	—	2,580	20,438	1,081	277	184·74	449·88	359·15	365
Trincomalee ..	1	111	113	5,565	135·34	5	—	14	—	—	3,875	1,469	36	180	9·53	9·74	8·93	90
North-Western Province.																		
Kurunegala ..	5	573	697	22,463	692·19	3	—	29	—	—	8,372	11,550	705	1,744	37·09	46·17	39·99	340
Puttalam ..	2	82	97	2,830	71·31	7	—	9	—	—	154	2,298	93	196	18·27	23·24	15·36	94
Chilaw ..	2	167	176	5,843	176·63	—	—	3	14	2	2,282	3,038	94	471	18·01	22·27	22·94	164
North-Central Province.																		
Anuradhapura ..	4	210	241	8,663	207·87	4	1	34	—	2	3,374	4,269	495	509	25·13	39·53	19·22	105
Province of Uva.																		
Badulla ..	12	700	593	22,625	636·58	12	2	48	22	7	55,385	49,362	4,663	901	94·98	114·92	107·03	483
Province of Sabaragamuwa.																		
Ratnapura ..	7	524	522	19,095	522·64	12	—	52	—	4	8,646	9,367	101	982	65·52	86·63	75·39	168
Kegalla ..	6	521	501	21,486	590·56	8	—	24	32	7	8,148	12,353	357	893	39·21	52·87	56·28	179
Total ..	114	12,046	10,494	332,948	11,400·09	760	123	1,203	320	720	180,075	224,072	15,475	19,723	127·78	123·02	104·11	4,762

II.—Cases treated according to Diseases.

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
I.—Epidemic, Endemic, and Infectious Diseases.					
Enteric Group—					
(a) Typhoid Fever	121	2,461	619	2,582	102
(b) Paratyphoid A	5	125	18	130	7
(c) Paratyphoid B	—	6	1	6	4
(d) Type not defined	15	545	77	560	32
Relapsing Fever	—	5	—	5	—
Undulant Fever	3	99	10	102	5
Typhus	—	44	7	44	3
Malaria—					
(a) Tertian	1,126	48,185	843	49,311	1,155
(b) Quartan	33	1,020	13	1,053	15
(c) Aestivo-autumnal	6	691	12	697	14
(d) Cerebral Malaria	9	702	318	711	25
(e) Cachexia	206	5,157	262	5,363	86
(f) Blackwater	—	55	3	55	1
Smallpox	1	2	—	3	—
Measles	29	885	12	914	26
Whooping Cough	5	275	5	280	4
Diphtheria	3	253	25	256	8
Influenza	185	11,572	141	11,757	170
Mumps	11	654	5	665	55
Cholera	—	3	—	3	—
Dysentery—					
(a) Amoebic	109	2,984	337	3,093	89
(b) Bacillary	34	1,530	191	1,564	54
(c) Undefined or due to other causes	20	1,360	200	1,380	56
Plague—					
(a) Bubonic	—	11	10	11	1
(b) Pneumonic	—	1	1	1	—
(c) Septicaemic	1	25	19	26	—
(d) Undefined	—	—	—	—	—
Leprosy	957	335	84	1,292	1,006
Erysipelas	9	461	34	470	10
Acute Poliomyelitis	—	54	3	54	4
Encephalitis Lethargica	—	49	4	49	2
Epidemic Cerebro-spinal Fever	—	—	—	—	—
Other Epidemic Diseases—					
(a) Rubeola (German Measles)	—	6	—	6	—
(b) Varicella (Chickenpox)	32	1,739	5	1,771	61
(c) Kala-azar	—	—	—	—	—
(d) Dengue	—	10	—	10	—
(e) Yaws	20	924	1	944	27
Rabies	—	27	22	27	—
Tetanus	15	678	179	693	15
Tuberculosis, Pulmonary and Laryngeal	608	3,946	1,169	4,554	604
Tuberculosis of the Meninges or Central Nervous System	6	247	27	253	12
Tuberculosis of the Intestines or Peritoneum	10	183	32	193	13
Tuberculosis of the Vertebral Column	—	134	3	134	—
Tuberculosis of Bones and Joints	8	161	1	169	8
Tuberculosis of other organs—					
(a) Skin or Subcutaneous Tissue (Lupus)	4	51	—	55	—
(b) Bones	—	88	—	88	—
(c) Lymphatic System	13	176	5	189	12
(d) Genito-urinary	—	19	—	19	—
(e) Other organs	—	9	4	9	—

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES—*contd.*					
Tuberculosis disseminated—					
(*a*) Acute	8	332	12	340	14
(*b*) Chronic	10	439	33	449	19
Syphilis—					
(*a*) Primary	40	1,131	2	1,171	35
(*b*) Secondary	17	579	—	596	27
(*c*) Tertiary	14	249	10	263	11
(*d*) Hereditary	—	97	17	97	3
(*e*) Period not indicated	9	246	2	255	11
Soft Chancre	6	260	—	266	13
A.—Gonorrhoea and its complications	140	3,885	29	4,025	88
B.—Gonorrhoeal Ophthalmia	1	35	2	36	—
C.—Gonorrhoeal Arthritis	33	933	19	966	44
D.—Granuloma Venereum	—	—	—	—	—
Septicaemia	8	95	55	103	—
Filarial Diseases	6	128	2	134	5
Acute Rheumatic Fever	4	211	4	215	7
Other Infectious Diseases	9	126	1	135	1
II.—GENERAL DISEASES NOT MENTIONED ABOVE.					
Cancer or other malignant Tumours of the Buccal Cavity	8	303	33	311	9
Cancer or other malignant Tumours of the Stomach or Liver	8	137	22	145	8
Cancer or other malignant Tumours of the Peritoneum, Intestines, Rectum	6	149	23	155	8
Cancer or other malignant Tumours of the Female Genital Organs	14	292	46	306	9
Cancer or other malignant Tumours of the Breast	6	114	8	120	2
Cancer or other malignant Tumours of the Skin	4	148	3	152	6
Cancer or other malignant Tumours of Organs not specified	6	317	31	323	13
Tumours non-malignant	23	495	10	518	16
Chronic Rheumatism	83	4,558	5	4,641	94
Scurvy (including Barlow's Disease)	1	36	2	37	1
Pellagra	—	2	—	2	—
Rickets	6	311	108	317	7
Diabetes (not including Insipidus)	24	787	67	811	30
Beri-Beri	—	—	—	—	—
Anaemia—					
(*a*) Pernicious	3	293	28	296	10
(*b*) Other Anaemias and Chlorosis	45	1,722	77	1,767	37
Diseases of the Pituitary Body	—	10	—	10	1
Diseases of the Thyroid Gland—	—	—	—	—	—
(*a*) Exophthalmic Goitre	4	64	2	68	2
(*b*) Other diseases of the Thyroid Gland, Myxoedema	3	73	5	76	2
Diseases of the Para-Thyroid Glands	—	5	—	5	—
Diseases of the Thymus	—	32	1	32	2
Diseases of the Supra-Renal Glands	—	4	—	4	1
Diseases of the Spleen	—	149	3	149	5

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
II.—General Diseases not mentioned above—*contd.*					
Leukaemia—					
(*a*) Leukaemia	—	42	5	42	2
(*b*) Hodgkin's Disease	3	88	—	91	8
Alcoholism	5	90	2	95	2
Corrosive Acids	—	105	15	105	—
Metallic Poisons	—	14	—	14	—
Vegetable Alkaloids	—	43	3	43	—
Ptomaine Poisoning	—	31	—	31	9
Other Acute Poisonings	2	161	8	163	—
Other General Diseases—					
Auto-intoxication	33	550	23	583	—
Purpura Haemorrhagica	7	137	2	144	7
Haemophilia	4	81	3	85	4
Diabetes Insipidus	12	180	3	192	—
Undefined	32	854	7	886	16
III.—Affections of the Nervous System and Organs of the Senses.					
Encephalitis (not including Encephalitis Lethargica)	3	90	18	93	5
Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis)	5	226	111	231	9
Locomotor Ataxia	2	24	4	26	1
Other affections of the Spinal Cord	—	52	4	52	1
Apoplexy—					
(*a*) Haemorrhage	10	363	72	373	12
(*b*) Embolism	4	118	20	122	4
(*c*) Thrombosis	7	275	62	282	13
Paralysis—					
(*a*) Hemiplegia	22	414	55	436	26
(*b*) Other Paralysis	17	336	22	353	24
General Paralysis of the Insane	—	10	1	10	—
Other forms of Mental Alienation	6	174	9	180	3
Epilepsy	26	373	28	399	14
Eclampsia, Convulsions (non-puerperal) 5 years or over	2	69	8	71	5
Infantile Convulsions	7	650	189	657	5
Chorea	2	22	2	24	—
A.—Hysteria	9	426	—	435	14
B.—Neuritis	22	753	7	775	28
C.—Neurasthenia	11	283	1	294	11
Cerebral Softening	—	83	12	83	3
Other affections of the Nervous System, such as Paralysis Agitans	10	402	7	412	13
Affections of the Organs of Vision—					
(*a*) Diseases of the Eye	116	2,251	1	2,367	129
(*b*) Conjunctivitis	27	1,355	—	1,382	19
(*c*) Trachoma	2	64	—	66	8
(*d*) Tumours of the Eye	2	28	1	30	5
(*e*) Other affections of the Eye	216	4,000	8	4,216	273
Affections of the Ear or Mastoid Sinus	41	1,140	19	1,181	23

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM.					
Pericarditis	10	266	45	276	9
Acute Endocarditis or Myocarditis	14	486	109	500	17
Angina Pectoris	6	142	22	148	6
Other Diseases of the Heart	—	—	—	—	—
(*a*) Valvular—Mitral	24	825	215	849	30
Aortic	8	246	54	254	10
Tricuspid	—	2	—	2	—
Pulmonary	6	70	6	76	1
(*b*) Myocarditis	18	709	219	727	27
Diseases of the Arteries—					
(*a*) Aneurism	1	41	4	42	1
(*b*) Arterio-Sclerosis	4	190	18	184	11
(*c*) Other diseases	—	39	4	39	1
Embolism or Thrombosis (non-cerebral)	5	141	33	146	11
Diseases of the Veins—					
Haemorrhoids	21	924	25	945	37
Varicose Veins	4	110	—	114	6
Phlebitis	2	164	4	166	8
Diseases of the Lymphatic System—					
Lymphangitis	10	249	9	259	14
Lymphadenitis, Bubo (non-specific)	12	383	14	395	19
Other	—	—	—	—	—
Haemorrhage of undetermined cause	—	141	32	141	12
Other affections of the Circulatory System	6	248	44	254	13
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM.					
Diseases of the Nasal Passages—					
Adenoids	8	327	2	335	15
Polypus	2	125	—	127	6
Rhinitis	9	156	—	165	13
Coryza	—	27	1	27	—
Affections of the Larynx-Laryngitis	4	204	6	208	7
Bronchitis—(*a*) Acute	103	4,221	158	4,324	72
(*b*) Chronic	91	4,031	200	4,122	117
Broncho-Pneumonia	82	4,562	1,285	4,644	106
Pneumonia—(*a*) Lobar	164	7,090	2,521	7,254	166
(*b*) Unclassified	41	1,444	464	1,485	44
Pleurisy, Empyema	24	901	101	925	32
Congestion of the Lungs	4	81	16	85	4
Gangrene of the Lungs	—	69	35	69	4
Asthma	63	2,521	42	2,584	48
Pulmonary Emphysema	8	103	7	111	4
Pneumothorax	—	56	13	56	1
Other affections of the Lungs—Pulmonary Spirochaetosis	3	85	19	88	2
VI.—DISEASES OF THE DIGESTIVE SYSTEM.					
A.—Diseases of Teeth or Gums—					
Caries, Pyorrhoea, &c.	14	715	5	729	18
B.—Other affections of the Mouth—					
Stomatitis	12	328	5	340	5
Glossitis, &c.	1	50	1	51	1

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
VI.—DISEASES OF THE DIGESTIVE SYSTEM—*contd.*					
Affections of the Pharynx or Tonsils—					
Tonsillitis	17	810	14	827	19
Pharyngitis	12	340	39	352	9
Affections of the Oesophagus	1	84	10	85	2
A.—Ulcer of the Stomach	4	172	14	176	12
B.—Ulcer of the Duodenum	7	153	13	160	7
Other affections of the Stomach—	—	—	—	—	—
Gastritis	29	1,500	36	1,529	29
Dyspepsia, &c.	28	1,367	4	1,395	33
Diarrhoea and Enteritis—					
Under two years	57	1,828	307	1,885	39
Diarrhoea and Enteritis—					
Two years and over	90	4,756	627	4,846	155
Colitis	76	3,081	254	3,157	81
Ulceration	—	42	6	42	—
Sprue	—	35	—	35	—
Ankylostomiasis	437	15,296	462	15,733	457
Diseases due to Intestinal Parasites—					
(*a*) Cestoda (Taenia)	—	20	3	20	3
(*b*) Trematoda (Flukes)	—	—	—	—	—
(*c*) Nematoda (other than Ankylostoma)—	1	4	—	5	—
Ascaris	40	3,128	266	3,168	42
Trichocephalus Dispar	—	4	—	4	—
Trichina	—	1	—	1	—
Dracunculus	—	—	—	—	—
Oxyuris	—	9	—	9	1
(*d*) Coccidia	—	—	—	—	—
(*e*) Other parasites	—	43	1	43	—
(*f*) Unclassified	1	79	3	80	18
Appendicitis	25	635	36	660	12
Hernia	16	517	31	553	—
A.—Affections of the Anus Fistula, &c.	21	526	9	547	22
B.—Other affections of the Intestines	—	—	—	—	—
Enteroptosis	9	148	21	157	3
Constipation	21	990	3	1,011	14
Acute Yellow Atrophy of the Liver	—	46	16	46	—
Hydatid of the Liver	—	4	1	4	1
Cirrhosis of the Liver—					
(*a*) Alcoholic	9	248	43	257	12
(*b*) Other forms	12	366	66	378	15
Biliary Calculus	3	204	4	207	5
Other affections of the Liver—					
Abscess	14	252	26	266	12
Hepatitis	19	536	30	555	9
Cholecystitis	10	217	9	227	13
Jaundice	3	221	25	224	5
Diseases of the Pancreas	—	26	9	26	3
Peritonitis (of unknown origin)	2	185	81	187	5
Other affections of the Digestive System	37	1,852	79	1,889	33

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (non-venereal).					
Acute Nephritis	52	1,766	312	1,818	84
Chronic Nephritis	76	1,666	325	1,742	57
A.—Chyluria	—	5	—	5	—
B.—Schistosomiasis	—	2	2	2	—
Other affections of the Kidneys, Pyelitis, &c.	26	1,204	95	1,230	35
Urinary Calculus	4	355	10	359	12
Diseases of the Bladder-Cystitis	17	737	37	754	14
Diseases of the Urethra—					
(*a*) Stricture	14	480	8	494	21
(*b*) Other	24	752	13	776	15
Diseases of the Prostate—					
Hypertrophy	—	33	—	33	6
Prostatitis	3	150	5	153	3
Diseases (non-venereal) of the Genital Organs of Man—					
Epididymitis	9	412	8	421	19
Orchitis	20	477	7	497	14
Hydrocele	13	341	6	354	14
Ulcer of Penis	11	370	10	381	19
Other	—	—	—	—	—
Cysts or other non-malignant Tumours of the Ovaries	5	221	13	226	7
Salpingitis	—	16	—	16	1
Abscess of the Pelvis	5	501	14	506	11
Uterine Tumours (non-malignant)	9	169	8	178	9
Uterine Haemorrhage (non-puerperal)	8	175	2	183	4
A.—Metritis	3	224	1	227	2
B.—Other affections of the Female Genital Organs—	1	67	1	68	3
Displacement of Uterus	34	920	9	954	31
Amenorrhoea	16	178	1	194	3
Dysmenorrhoea	4	279	—	283	4
Leucorrhoea	12	384	—	396	17
Other undefined	—	45	—	45	—
Diseases of the Breast (non-puerperal)—					
Mastitis	5	111	—	116	4
Abscess of Breast	17	312	—	329	8
VIII.—PUERPERAL STATE.					
A.—Normal Labour	721	24,670	226	25,391	743
B.—Accidents of Pregnancy—					
(*a*) Abortion	31	1,683	16	1,714	40
(*b*) Ectopic Gestation	—	93	9	93	1
(*c*) Other accidents of Pregnancy	129	3,582	175	3,711	160
Puerperal Haemorrhage	9	217	25	226	11
Other accidents of Parturition	6	573	113	579	8
Puerperal Septicaemia	49	2,014	397	2,063	70
Phlegmasia Dolens	—	24	—	24	—
Puerperal Eclampsia	8	412	94	420	9
Sequelae of Labour	21	745	62	766	23
Puerperal affections of the Breast	—	16	—	16	—
Pregnancy (ante-natal)	84	4,163	—	4,247	—

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
IX.—Affections of the Skin and Cellular Tissues.					
Gangrene	14	431	115	445	21
Boil	—	—	—	—	—
Carbuncle	29	662	21	691	21
Abscess	—	—	—	—	—
Whitlow	124	3,284	41	3,408	114
Cellulitis	190	5,911	288	6,101	297
A.—Tinea	—	110	—	110	1
B.—Scabies	123	3,755	3	3,878	112
Ulcer	190	5,884	25	6,074	232
Other Diseases of the Skin—					
Brythema	3	133	1	136	3
Urticaria	6	317	—	323	9
Eczema	58	2,204	4	2,262	72
Herpes	4	179	—	183	2
Psoriasis	6	297	—	303	13
Elephantiasis	—	129	1	129	4
Myiasis	—	11	—	11	—
Chigoes	46	8	—	54	—
Cutaneous Leishmaniasis	162	4,060	23	4,222	160
Other undefined	92	1,935	18	2,027	100
X.—Diseases of Bones and Organs of Locomotion (other than Tuberculous).					
Diseases of Bones—Osteitis	13	276	5	289	21
Diseases of Joints—Arthritis	44	1,127	26	1,171	50
Synovitis	10	301	2	311	14
Other Diseases of Bones or Organs of Locomotion	6	157	6	163	1
XI.—Malformations.					
Malformations—Hydrocephalus	—	29	6	29	—
Hypospadias	—	2	—	2	—
Spina Bifida, &c.	—	20	1	20	1
XII.—Diseases of Infancy.					
Congenital Debility	173	10,297	900	10,470	196
Premature Birth	5	493	276	498	7
Other affections of Infancy	20	898	82	918	17
Infant neglect (infants of three months or over)	1	144	27	145	25
XIII.—Affections of Old Age.					
Senility—Senile Dementia	120	6,706	636	6,826	182
XIV.—Affections produced by External Causes.					
Suicide by Poisoning	—	14	3	14	—
Corrosive Poisoning (intentional)	—	31	9	31	—
Suicide by hanging or strangulation	—	2	1	2	—
Suicide by drowning	—	5	1	5	—
Suicide by firearms	—	4	1	4	—
Suicide by cutting or stabbing instruments	—	2	1	2	—
Suicide by jumping from a height	—	6	—	6	—
Suicide by crushing	—	—	—	—	—
Other Suicides	—	—	—	—	—
Food Poisoning—Botulism	3	46	1	49	—

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1936.	Admissions in 1937.	Deaths in 1937.	Total Cases treated in 1937.	Remaining in Hospital at end of 1937.
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—*contd.*					
Attacks of Poisonous Animals—					
Snake Bite	1	45	2	46	—
Insect Bite	—	39	1	39	—
Other accidental Poisonings	5	151	17	156	5
Burns (by Fire)	31	941	141	972	57
Burns (other than by Fire)	11	293	19	304	11
Suffocation (accidental)	—	7	3	7	—
Poisoning by Gas (accidental)	—	3	—	3	—
Drowning (accidental)	—	13	1	13	—
Wounds (by Firearms)	25	348	21	373	8
Wounds (by cutting or stabbing instruments)	106	4,217	60	4,323	101
Wounds (by Fall)	159	6,433	44	6,592	160
Wounds (in Mines or Quarries)	25	614	13	639	38
Wounds (by machinery)	30	598	5	628	15
Wounds (crushing, *e.g.*, Railway accidents, &c.)	34	1,227	19	1,261	51
Injuries inflicted by Animals, Bites, Kicks, &c.	18	785	8	803	31
A.—Over fatigue	2	47	1	49	1
B.—Hunger or Thirst	2	9	1	11	—
Exposure to Heat—					
Heatstroke	—	—	—	—	—
Sunstroke	—	—	—	—	—
Lightning Stroke	—	7	—	7	—
Electric Shock	—	32	—	32	—
Murder by Firearms	—	—	—	—	—
Murder by cutting or stabbing instruments	—	3	1	3	—
Murder by other means	—	1	1	1	—
Infanticide (murder of an infant under 1 year)	—	—	—	—	—
A.—Dislocation	16	395	2	411	18
B.—Sprain	10	348	1	358	13
C.—Fracture	100	2,743	226	2,843	117
Other external Injuries	146	7,076	43	7,222	128
Deaths by violence of unknown cause	—	21	2	21	—
XV.—ILL-DEFINED DISEASES.					
Sudden deaths (cause unknown)	—	1	1	1	—
A.—Diseases not already specified or ill-defined—	35	3,443	11	3,478	86
Ascites	33	957	23	990	41
Oedema	15	170	17	185	5
Asthenia	46	1,108	9	1,154	12
Shock	1	246	68	247	12
Hyperpyrexia	3	186	3	189	4
Other	44	2,441	33	2,485	80
B.—Malingering	7	425	1	432	12