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 1933.

(*Dr. R. BRIERCLIFFE.*)

AUGUST, 1934.

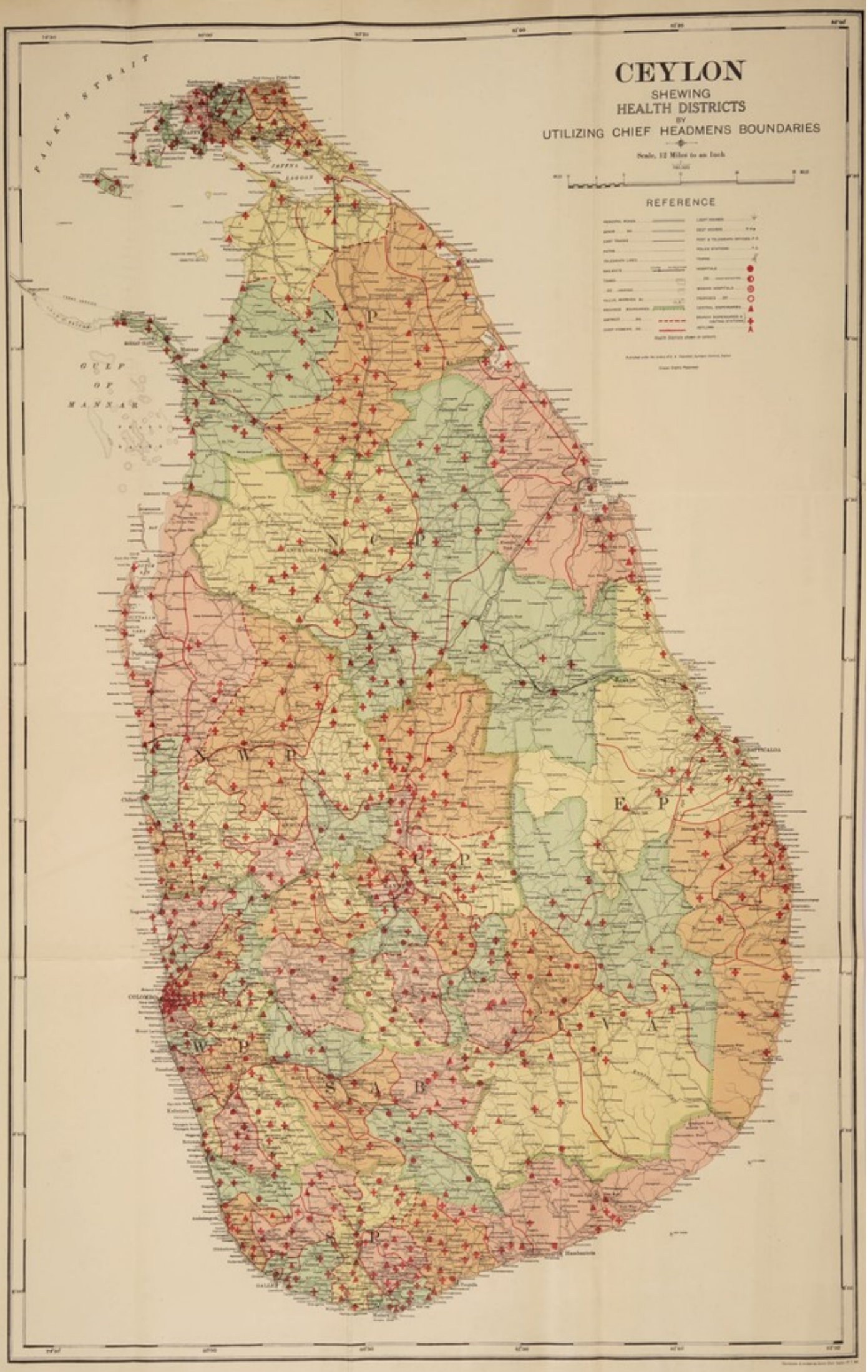
Printed on the Orders of Government.

PRINTED AT THE CEYLON GOVERNMENT PRESS, COLOMBO.

To be purchased at the GOVERNMENT RECORD OFFICE, COLOMBO ; *price Re. 1·50.*

1934.

J. N. 37588-377 (6/34)


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
N W P
C P
E P
W P
S A B
S P
U V A

DEPARTMENT OF MEDICAL AND SANITARY SERVICES.

REPORT OF THE DIRECTOR OF MEDICAL AND SANITARY SERVICES FOR THE YEAR 1933.

TABLE OF CONTENTS.

I.—ADMINISTRATION.

(*a*) (1) Establishment (including vacancies) on December 31, 1933.

Directorate.

1 Director of Medical and Sanitary Services.
1 Deputy 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 of Health.
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 Medical Officer-in-Charge, Lady Havelock and Lady Ridgeway Hospitals, Colombo.
1 Radiologist, General Hospital, Colombo.
1 Pathologist, General Hospital, Colombo.
1 Medical Officer-in-Charge, Dental Institute, Colombo.
62 Medical Officers in Grade I.
235 Medical Officers in Grade II. of whom 8 are women (38 vacancies).

Sanitary Side.

3 Inspecting Meidcal Officers of Estates.
2 Assistants to Inspecting Medical Officers of Estates (Medical Officers in Grade II.).
25 Medical Officers of Health (1 vacancy).
3 Medical Officers for Colombo Port Health Work.
1 Superintendent, Ankylostomiasis Campaigns (Medical Officer, Grade I.).
1 Superintendent, Anti-Malaria Campaign.
3 Medical Officers, Anti-Malaria Campaign (Medical Officers, Grade II.).
5 School Medical Officers (1 in Grade I. of Medical Officers and 4 in Grade II.).
1 Superintendent of Health Education Division.
5 Sanitary Engineers (including 3 Assistant Sanitary Engineers).
38 Sanitary Inspectors, Class I. (2 vacancies).
229 Sanitary Inspectors, Class II. (26 vacancies).
3 Draughtsmen (Sanitary Engineering Division).

Laboratory Staff.

1 Director of Bacteriological and Pasteur Institutes and Vaccine Establishment.
1 Bacteriologist (Medical Officer of Health).
1 Assistant Bacteriologist (Medical Officer, Grade II.).
30 Laboratory Assistants (6 vacancies).
1 Medical Entomologist.
4 Entomological Assistants (2 vacancies).
11 Laboratory Attendants.

Nursing Staff.

Recruited through the Overseas Nursing Association—

8 Matrons.
1 Assistant Matron.
28 Sisters (4 vacancies).

Recruited from Religious Orders—

7 Mothers.
128 Sisters (19 vacancies).

Recruited in Ceylon—

6 Sisters (1 vacancy).
1 Relieving Staff Nurse (1 vacancy).
19 Public Health Nurses (3 vacancies).
93 Matrons (10 vacancies).
236 Nurses (19 vacancies).
86 Pupil Nurses.
120 Hospital and Health Unit Midwives.
32 Pupil Midwives.

Clerical Staff.

Head Office—

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

Branch Offices—

72 Clerks in the various branch offices.

Apothecaries.

20 Apothecaries in Special Class (1 vacancy).
100 Apothecaries in Class I.
295 Apothecaries in Class II. (45 vacancies).
3 Acting Officers (2 vacancies).

Vaccination.

9 Inspectors of Vaccination (1 vacancy).
33 Male Vaccinators, Class I.
114 Male Vaccinators, Class II. (27 vacancies).
18 Female Vaccinators (5 vacancies).

Civil Medical Stores.

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

Opium Branch.

1 Opium Storekeeper.
5 Opium Clerks.
11 Opium Sellers.

Miscellaneous.

3 Hospital Stewards in Special Class.
6 Hospital Stewards in Class I.
31 Hospital Stewards in Class II.
1 Sister, X'Ray and Electrical Branch.
2 X'Ray Assistants, General Hospital.
4 Hospital Stores Clerks.
7 Hospital Admitting Clerks (1 vacancy).
4 Bookbinders.
4 Telephone Operators (1 vacancy).
2 Head Overseers (Sanitary Engineering Division and General Hospital).
9 Hospital Overseers.
2 Motor Ambulance Drivers.

Minor Employees.

Depôt Assistants and Cleaners Laboratory Cleaners Packers Peons Overseers Dispensary Orderlies Caretakers Male Attendants Female Attendants Opium Store Servants Disinfecting Orderlies Tappal Labourers Itinerating Labourers Latrine Labourers Garden Labourers Burial Labourers Nurses' Ayahs Barbers, Dhobies, &c.	about 3,500.

(2) (*a*) **Promotions, Appointments, &c.**

Dr. H. E. Ekanayake and Dr. P. H. Perera were appointed Provincial Surgeons with effect from February 20, 1933, and August 23, 1933, respectively. Dr. P. B. Fernando was appointed Medical Superintendent, Galle Hospital, with effect from September 1, 1933. The following Medical Officers in Grade II. were promoted to Grade I., viz., Drs. G. A. W. Wickremasuriya, K. Cathiravelu, H. F. Jayasuriya, L. G. Blazé, D. R. Seneviratne, V. Sivapragasam, and W. Van Cuylenberg. The following Medical Officers of Health in Grade II. were promoted to Grade I., viz., Drs. E. C. Gilles, H. N. C. V. Kelaart, A. M. Amarasinghe, and D. M. de Silva. Two Provincial Surgeons, Drs. S. P. Joseph and E. W. Scharenguivel, and two Medical Officers, Drs. A. E. Herat and V. Sinivasagam, retired from the service with effect from February 20, 1933, August 1, 1933, February 18, 1933, and October 19, 1933, respectively. The death of Dr. C. D. Wickramasinghe on January 18, 1933, is recorded with deep regret.

(*b*) **Honours.**—Reverend Mother Marie St. Jean de Kenty, Mother Superintendent of the General Hospital, Colombo, and Reverend Mother Marie St. Michael Bedford, Mother Superintendent of the Kurunegala Hospital, were admitted to the dignity of Serving Sister of the Venerable Order of the Hospital of St. John of Jerusalem.

His Excellency the Governor, in honour of the birthday of His Majesty the King, was pleased to appoint Mr. W. H. D. E. Pereira, Accountant, who retired on November 19, 1932, to be Justice of the Peace for the Western Province.

(3) Officers on Leave.

Twenty-two 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. L. A. E. de Zilva was admitted a Foundation Fellow of the College of Obstetricians and Gynaecologists.

Dr. D. J. T. Leanage obtained the degree of M.D. London (Branch VI., Tropical Medicine) and was awarded the University Medal.

Dr. V. P. de Zoysa obtained the degree of M.D. London (Branch I., Medicine).

Dr. E. M. Wijerama obtained the degree of M.D. London (Branch VI., Tropical Medicine).

Dr. A. S. Rajasingham obtained the diploma of F.R.C.S. (Eng.).

Dr. R. Caldera and Dr. (Mrs.) May Ratnayake obtained the diploma of F.R.C.S. (Edin.).

Dr. C. L. S. Ferdinands obtained the D.P.H. (Lond.) and Dr. T. K. Kuruwila and Dr. W. A. Gomes the D.P.H. (Edin.).

Nine officers of the Department obtained the diploma of L.R.C.P. and S. (Edin.), L.R.F.P.S. (Glas.).

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

Ordinance No. 6 of 1933, being an amendment to the Chanks Ordinance, 1890, designed to facilitate the enforcement of the proper sanitation of chank fishing camps on the North-Western coast was passed and brought into operation from April 25, 1933.

Ordinance No. 9 of 1933, being an amendment to the Medical Ordinance, 1927, intended to prohibit the use of the titles of dental surgeon or surgeon dentist by any persons without proper qualifications was passed and brought into operation from April 25, 1933.

Ordinance No. 17 of 1929—an Ordinance to amend and consolidate the law relating to Poisons, Opium, and Dangerous Drugs—which was passed by the Legislative Council and assented to by His Excellency the Governor—has not yet been proclaimed as the draft of the amending Ordinance has not yet been passed.

The draft of a Milk and Dairies Ordinance to prevent the adulteration of milk was considered by the Executive Committee of Health and is still with the Attorney-General.

The question of introducing a Pure Food and Drugs Ordinance has been deferred.

The draft of a Suburban Dairies and Aerated Water Factories Ordinance to provide for the licensing and control of bakeries and aerated water factories outside the limits of Local Authorities is under consideration.

The Ordinance for the prevention of the breeding and harbouring of mosquitoes was rejected by the State Council at the second reading.

The draft Ordinance to amend the Ordinance for the Better Preservation of Public Health and Suppression of Nuisances in Rural areas has been laid by as it was considered that there is sufficient authority in the existing Small Towns Ordinance to cover all the measures required.

The following Regulations were passed during 1933:—

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

(1) Regulation to provide for compulsory vaccination in areas infected with smallpox—*Ceylon Government Gazette* of March 10, 1933.

(2) Regulations to prevent entry into port of vessels having infectious disease on board and liable to be placed in quarantine, without the permission of the Port Surgeon or the Health Officer of the Port—*Ceylon Government Gazette* of January 16, 1933.

(3) Regulations to prevent the introduction and spread of plague within areas under Local Authorities—*Ceylon Government Gazette* of July 7, 1933.

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

Regulation to provide for the production, before registration, of a certificate of having passed an examination in dentistry to be held by the Ceylon Medical College Council—*Ceylon Government Gazette* of March 10, 1933.

(*c*) Financial.

Actual Revenue and Expenditure for the Financial Year ending September 30, 1933.

REVENUE.

		Rs.
1.	Hospital and dispensary receipts	352,511
2.	Sales of drugs, &c.	13,645
3.	Sales of drugs, &c., under the Medical Wants Ordinance ..	3,064
4.	Charges for maintenance under the Medical Wants Ordinance	88,118
5.	Opium sales	171,422
6.	Export duties under the Medical Wants Ordinance ..	1,315,995
7.	Payment by the Railway Department for Medical and Sanitary Services	60,000
	Total ..	2,004,755

EXPENDITURE.

		Rs.
1.	Personal Emoluments	6,037,062*
2.	Travelling	397,775
3.	Stationery, office furniture, and office requisites ..	12,206
4.	Electric current	76,478
5.	Rent	72,697
6.	Uniform	25,097
7.	Equipment and contingencies	393,710
8.	Diets	1,277,806
9.	Transport	37,184
10.	Drugs, dressings, disinfectants, and instruments ..	517,751
11.	Grants	41,137
12.	Rebates payable under the Medical Wants Ordinance ..	175,080
13.	Epidemics	104,409
14.	Destruction of rats	13,904
15.	Purchase of opium and general expenses	75,007
16.	Earthfilling, drainage, &c.	—
17.	Conservation of cemeteries	652
18.	Removing and relieving sick and destitute persons ..	78
19.	Incidental expenses	4,271
20.	Equipment for new hospitals and dispensaries ..	8,398
21.	Cultivation of land attached to the Lunatic Asylum, Angoda ..	1,679
22.	Ceylonese nurses in training in England	412
23.	Medical Services in connection with Minneriya Development Scheme	1,542
24.	Travelling expenses of Dr. R. G. Cochrane	1,224
		9,275,559

*Of this amount, Rs. 379,443 was returned to Government in the form of a levy on salaries.

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

	Budget Estimate. Rs.	Actual Expenditure. Rs.
1925–26	8,965,193 ..	8,598,923
1926–27	10,029,658 ..	9,104,455
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

The figures do not include the cost of new buildings and additions and improvements to, and maintenance of, existing ones.

The revenue of the Island during the financial year ending September 30, 1933, was Rs. 106,090,728.

II.—PUBLIC HEALTH AND GENERAL EPIDEMIOLOGY.

A.—GENERAL REMARKS.

In the Western Province the only serious epidemic was the smallpox outbreak which started at the end of 1932 and continued until August, 1933. There was a notable fall in the amount of malaria. This disease has shown a progressive decline during each of the past five years. There was comparatively little dysentery which is another disease that has steadily decreased in amount in recent years. In spite of these favourable factors the death rate of the Province increased from 16.8 per thousand to 18.8 and infantile mortality was also a little higher than in 1932.

The Central Province is another Province where malaria has declined progressively since 1928, and during 1933, there were no epidemic of this or any other disease. Dysentery continued to be prevalent but was less in amount than in any of the past four years. In four areas of the Province, parangi still existed to such an extent that it was necessary to maintain throughout the year an Itinerating Medical Officer specially to treat the disease.

In the Southern Province outbreaks of smallpox occurred in Galle and three other places during the first four months of 1933, but they were quickly brought under control. There was a sharp outbreak of pneumonic plague at Dondra with eleven fatal cases, dysentery was moderately prevalent and small outbreaks of typhoid occurred in several villages. There was more malaria than usual owing to the severity of the disease in the Hambantota District during the early months of the year, which necessitated the appointment of two special officers to distribute quinine in the affected villages.

The Northern Province suffered considerably from malaria though not so much as in 1932 which was an exceptionally bad year. Dysentery, as usual, was one of the most prevalent diseases and occurred chiefly during the second and third quarters of the year. There was an outbreak of 21 cases of typhoid at Valvetti turai and sporadic cases occurred throughout the Jaffna Peninsula. Smallpox broke out in January and 58 cases occurred.

The Eastern Province had much more rain than usual and experienced a healthy year. The death rate dropped from 31.5 to 27.6 and there was less malaria and much less dysentery than in 1932. Seven cases of smallpox occurred at the beginning of the year. The Leprosy Survey of this Province brought to light 46 new cases of leprosy—most of them early neural cases in children.

In the North-Western Province there was less malaria than in any of the previous five years and very much less than in 1932 which was an exceptionally bad year.

The North-Central Province is the Province with the highest general and infant death rates but both these rates were lower than in 1932. Thanks to the satisfactory distribution of the rainfall there was a large drop in the malaria incidence which was the lowest recorded for many years. Dysentery also was less prevalent than in any of the past four years.

The Uva Province received more rain than usual owing to the lateness of the north-east monsoon and the amount of malaria was little more than half that of the previous year and less than in any of the preceding five years. Most of the malaria occurred in the low-lying southern part of the Province but only at Buttala where there was deficient rainfall did an epidemic of the disease occur. Four cases of pneumonic plague occurred at Bandarawela.

The Province of Sabaragamuwa had a lower death rate and infantile mortality than any other Province. There was much less malaria and dysentery than there had been for five years, but typhoid was moderately prevalent. In the Ratnapura District there was an extensive outbreak of influenza but the disease was mild in type. Parangi is still sufficiently common in certain parts of the Province to necessitate a special Medical Officer to deal with it.

1.—GENERAL DISEASES.

The most prevalent general diseases of hospital in-patients have been 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 1929 to 1933:—

	1929.	1930.	1931.	1932.	1933.
Rheumatism—					
Cases	5,218	4,996	3,418	3,154	3,133
Deaths	38	42	26	11	12
Intestinal disorders—					
Cases	5,724	4,790	3,589	3,516	3,505
Deaths	1,022	861	640	647	723
Bronchitis—					
Cases	5,043	4,552	3,904	4,185	5,024
Deaths	183	214	193	167	256
Pneumonia—					
Cases	6,239	5,592	6,431	6,134	6,798
Deaths	2,288	2,069	2,195	2,043	2,297
Malignant growths—					
Cases	741	819	896	1,052	1,112
Deaths	126	107	93	128	113

The total number of deaths from " Cancer and other tumours " reported by the Registrar-General in respect of the whole Island was 483 during the year 1933, as compared with 449 in 1932, 468 in 1931, 460 in 1930, and 451 in 1929.

Most of the operable cases of cancer resort to the General Hospital, Colombo, for treatment; of a total of 1,112 cases of cancer dealt with in all the hospitals, 727 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.

2.—COMMUNICABLE DISEASES.

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

	1929.	1930.	1931.	1932.	1933.
Cases	80	46	50	77	57
Deaths	74	42	48	69	52
Fatality rates	92·5	91·3	96	89·6	91·2

Of the 57 cases 15 were pneumonic, 30 bubonic, and 12 septicaemic in type.

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

Localities.	Cases.	Deaths.
Colombo City	26	24
Nugegoda (Western Province)	1	1
Gampola (Central Province)	2	2
Nawalapitiya (Central Province)	11	8
Pussellawa (Central Province)	1	1
Bandarawela (Province of Uva)	4	4
Dondra (Southern Province)	11	11
Talaimannar (Northern Province)	1	1
Total	57	52

Colombo.—There were 26 cases with 24 deaths, as against 67 cases and 61 deaths in 1932.

Cancer Returns of In-patients in Hospitals for 1933.

SINHALESE.

Age.	Sex.	Cheek. C.	Cheek. D.	Tongue. C.	Tongue. D	Penis. C.	Penis. D.	Breast. C.	Breast. D.	Uterus. C.	Uterus. D.	Palate, Jaw, and Floor of Mouth. C.	Palate, Jaw, and Floor of Mouth. D.	Skin and Extremities. C.	Skin and Extremities. D.	Stomach. C.	Stomach. D.	Caecum. C.	Caecum. D.	Rectum. C.	Rectum. D.	Liver. C.	Liver. D.	Intestines. C.	Intestines. D.	Ovary. C.	Ovary. D.	Oesophagus. C.	Oesophagus. D.	Lymph Glands. C.	Lymph Glands. D.	Other Sites. C.	Other Sites. D.	Sites not specified on Notes. C.	Sites not specified on Notes. D.	Total. C.	Total. D.
20–30	Male	7	1	3	—	6	—	—	—	—	—	1	—	4	1	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	5	1	1	1	29	5
	Female	2	—	—	—	—	—	2	—	21	12	1	—	3	—	—	—	—	—	1	—	1	—	—	—	2	1	—	—	—	—	7	1	—	—	40	4
31–40	Male	17	1	11	3	15	—	—	—	—	—	3	—	4	—	7	2	1	—	1	—	1	1	—	—	—	—	—	—	—	—	5	1	1	1	66	9
	Female	5	—	—	—	—	—	10	1	51	3	1	—	—	—	—	—	1	1	—	—	—	—	—	—	2	1	—	—	2	1	7	1	—	—	79	8
41–50	Male	38	—	4	—	22	—	—	—	—	—	7	—	—	—	5	—	—	—	4	—	1	1	—	—	—	—	—	—	—	—	5	1	10	1	98	3
	Female	12	—	1	—	—	—	16	—	41	—	3	—	1	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	1	1	—	—	77	1
51–60	Male	29	2	16	2	26	2	—	—	—	—	8	2	3	—	4	1	—	—	4	—	—	—	2	—	—	—	2	—	—	—	4	—	3	—	101	9
	Female	14	2	—	—	—	—	14	2	38	3	2	1	2	1	3	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	6	1	—	—	84	10
61 and upwards	Male	28	2	9	—	25	3	—	—	—	—	6	—	1	—	1	—	—	—	3	2	—	—	—	—	—	—	—	—	—	—	9	2	1	—	86	10
	Female	6	1	1	—	—	—	4	1	16	3	4	1	1	—	2	1	—	—	1	1	1	1	—	—	—	—	—	—	—	—	1	—	—	—	37	9
Total		158	9	45	5	94	5	46	4	167	11	36	4	19	2	23	5	2	1	20	3	5	3	5	1	4	2	3	—	4	1	50	9	16	3	697	68

TAMILS.

Age.	Sex.	Cheek. C.	Cheek. D.	Tongue. C.	Tongue. D	Penis. C.	Penis. D.	Breast. C.	Breast. D.	Uterus. C.	Uterus. D.	Palate, Jaw, and Floor of Mouth. C.	Palate, Jaw, and Floor of Mouth. D.	Skin and Extremities. C.	Skin and Extremities. D.	Stomach. C.	Stomach. D.	Caecum. C.	Caecum. D.	Rectum. C.	Rectum. D.	Liver. C.	Liver. D.	Intestines. C.	Intestines. D.	Ovary. C.	Ovary. D.	Oesophagus. C.	Oesophagus. D.	Lymph Glands. C.	Lymph Glands. D.	Other Sites. C.	Other Sites. D.	Sites not specified on Notes. C.	Sites not specified on Notes. D.	Total. C.	Total. D.
20–30	Male	6	—	1	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	11	1
	Female	4	—	1	—	—	—	1	—	4	1	3	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	16	3
31–40	Male	14	—	4	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	25	3
	Female	4	—	—	—	—	—	1	—	10	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	18	5
41–50	Male	8	3	5	—	4	—	—	—	—	—	2	—	—	—	—	—	—	—	1	—	—	—	1	1	—	—	—	—	—	—	2	1	—	—	23	5
	Female	8	1	—	—	—	—	1	—	13	3	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	25	5
51–60	Male	9	3	4	—	3	—	—	—	—	—	—	—	—	—	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	21	5
	Female	1	—	2	—	—	—	3	—	4	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	11	2
61 and upwards	Male	5	2	3	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	1	—	13	2
	Female	—	—	—	—	—	—	2	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	1
Total		59	9	20	—	10	—	8	1	32	8	9	1	4	1	3	2	—	—	4	1	2	—	1	1	—	—	—	—	—	—	13	3	2	—	167	27

OTHER RACES.

Age.	Sex.	Cheek. C.	Cheek. D.	Tongue. C.	Tongue. D	Penis. C.	Penis. D.	Breast. C.	Breast. D.	Uterus. C.	Uterus. D.	Palate, Jaw, and Floor of Mouth. C.	Palate, Jaw, and Floor of Mouth. D.	Skin and Extremities. C.	Skin and Extremities. D.	Stomach. C.	Stomach. D.	Caecum. C.	Caecum. D.	Rectum. C.	Rectum. D.	Liver. C.	Liver. D.	Intestines. C.	Intestines. D.	Ovary. C.	Ovary. D.	Oesophagus. C.	Oesophagus. D.	Lymph Glands. C.	Lymph Glands. D.	Other Sites. C.	Other Sites. D.	Sites not specified on Notes. C.	Sites not specified on Notes. D.	Total. C.	Total. D.
20–30	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
	Female	—	—	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
31–40	Male	8	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	15	1
	Female	1	1	—	—	—	—	—	—	4	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	1
41–50	Male	6	1	1	—	1	—	—	—	—	—	1	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	1	—	14	2
	Female	3	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	1
51–60	Male	6	—	1	—	—	—	—	—	—	—	1	—	1	—	1	—	—	—	—	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	12	2
	Female	3	—	—	—	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	1	—	9	1
61 and upwards	Male	1	—	2	—	—	—	—	—	—	—	—	—	2	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	4	2
	Female	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	1	—	4	1	3	—	72	11
Total		28	3	4	—	3	—	2	—	11	1	5	1	3	1	3	2	1	—	—	—	2	1	—	—	2	1	—	—	1	—	4	1	3	—	72	11

C = cases. D = deaths.

Gampola.—The first case was detected on November 27, 1932, and local rat infection was found the next day. On January 13, 1933, a second case occurred in an adjoining area of the town; this was followed by another case, both cases ending fatally.

Vigorous action was taken to stamp out the disease and no further cases occurred. Seven infected rats were found in the course of the rat campaign. Houses and boutiques in the infected area were rendered sanitary and rat-free before they were allowed to be reoccupied.

The source of infection was probably Colombo as the first case and first infected rat were detected in a large rice store whose supplies came direct from the plague infected area of Colombo.

Nawalapitiya.—The first case occurred on January 6, 1933, and the last on March 23. In all there were 11 cases with 8 deaths; 6 of the cases were septicaemic and 5 bubonic; 3 of the latter recovered. The source of infection was probably Colombo. Seven infected rats were found.

Similar action to that at Gampola was taken.

Pussellawa.—One fatal case occurred in a Muslim who was stated not to have left town during the previous six months. The source of infection was not traced. The usual preventive measures were adopted.

Bandarawela and Dondra.—The special feature of this outbreak was that all the cases were of the pneumonic type and all ended fatally.

The first case was in a native of Dondra who was a trader in Bandarawela. He had visited Colombo and had lived in the infected Pettah area while making wholesale purchase for his boutique. On his return to Bandarawela he fell ill on February 28, 1933, and was removed to Dondra where he died on March 4. He gave the infection to 4 others at Bandarawela and to 10 at Dondra. The outbreak in the two towns lasted from February 28 to March 17.

Prompt and vigorous action was taken. The immediate hospitalization of patients and segregation of contacts prevented the spread of infection to others.

(2) **Cholera.**—There were no cases of cholera during the year in the Island. The following is a statement of cholera cases and deaths for the last five years:—

	1929.	1930.	1931.	1932.	1933.
Cases	31	—	6	—	—
Deaths	24	—	6	—	—

(3) **Smallpox.**—The first case of an outbreak of smallpox which assumed epidemic proportions was discovered in Colombo on November 30, 1932, and the last known case occurred on August 12, 1933.

Cases and Deaths.

	Whole Outbreak.	During 1932.	During 1933.
Cases ..	443	106	337
Deaths ..	78	16	62
Fatality rate ..	17·6 per cent.	15·0 per cent.	18·4 per cent.

Distribution of Cases.

	Whole Outbreak.		During 1933.	
	Cases.	Deaths.	Cases.	Deaths.
Colombo City ..	223	44	152	30
Western Province, outside Colombo ..	72	16	55	15
Southern Province ..	70	3	61	2
Northern Province ..	62	12	53	12
Eastern Province ..	5	—	5	—
Central Province ..	7	2	7	2
North-Western Province ..	3	1	3	1
North-Central Province ..	1	—	1	—
Total ..	443	78	337	62

Type of Disease.

	Whole Outbreak.	Percentage of Total Cases.
Discrete	252	57·0
Confluent	120	27·1
Modified	61	13·8
Haemorrhagic	7	1·6
Unknown	3	0·6

State of Vaccination.

	Whole Outbreak.	Percentage of Total Cases.	Fatality Rate Percentage.
Vaccinated	328	74·0	6·7
Unvaccinated	105	23·4	53·3
Unknown	10	2·6	—

Cases by Race.

	Whole Outbreak.	Percentage of Total Cases.
Sinhalese	177	40·0
Muslims	158	35·8
Burghers	7	1·6
Indian Tamils	22	4·6
Ceylon Tamils	71	16·0
Malays	7	1·6
Europeans	1	0·2

The first case to be discovered arrived from India on November 17, 1932, and developed the disease at Ward Place, Colombo, on November 22, but was not notified until the 30th. Some days later a few other cases were found in the neighbourhood of St. John's Market in the Pettah area of Colombo. They had no connection with the Ward Place case.

The disease was carried to various parts of the City by vagrants and others who frequented the St. John's Market area. The wards most affected were St. Sebastian, St. Paul's, Kotahena, Mutwal, New Bazaar, and Maradana North.

Outside Colombo cases occurred in the Western Province at 26 centres, in the Southern Province at 4 centres, and in the Northern Province at 21 centres—20 being in the Jaffna Peninsula and one outside it. There was one case in the North-Central Province at Anuradhapura and a few each in the North-Western, Eastern, and Central Provinces.

The infection was carried to places in the Western Province by people who came into the infected area in Colombo for the purposes of trade and to the Northern Province by traders in tobacco who frequented a particular godown in Chekku Street, Colombo. In the Southern Province labourers from Midigama who had been working in the neighbourhood of St. John's Market as coal labourers and hawkers introduced the disease to their village, a Muslim from Siripina Lane, Colombo, which was a hot-bed of the disease carried it to Galle, and the other two centres in this Province also received their infection from Colombo. Infection to the North-Central Province was taken from the Jaffna Peninsula, while to the Eastern, Central, and North-Western Provinces infection went from Colombo.

By the middle of December the disease had reached the size of an epidemic in Colombo and a rapid succession of cases occurred until towards the end of February. In March the epidemic abated, there being no cases from the 8th of that month to the 24th. On the latter date there was one case, and two cases occurred during April.

Infection spread from the City to most of the Provinces but by the middle of February the disease had subsided everywhere except in the Western and Southern Provinces. In the Southern Province, after infection had been dealt with in three places an outbreak was discovered at Galle Gravets in April. Infection was reintroduced into Colombo from Galle, and on June 14 a case was discovered in Siripina Lane and was followed by other cases up to the end of July.

A waiter at Isurudisi Bakery, Colombo, which had connection with Siripina Lane, carried the infection to Wadugama on June 2, 1933, and caused an outbreak near Neboda, which was discovered on June 30. This was the last centre of infection in the Western Province.

Six cases in a family in Hill Street, Colombo, were discovered on August 11, 1933, and were due to concealment of a case that had occurred on June 16.

The last case of the epidemic occurred at Avondale Road, Colombo, on August 12, 1933.

Concealment and lack of prompt notification accounted for the large number of cases that occurred.

Vaccination was the sheet anchor in the control of the disease. It was carried out on a large scale and the rapidity with which it was pursued at every centre accounted for the quick and complete suppression of the outbreak. The following were the numbers of vaccinators employed at three centres:—Colombo 105, Jaffna Peninsula 53, and Galle and Galle Gravets 34. The number of vaccinations done at various centres was as follows:—

	1932.	1933.
Colombo City	112,064 ..	149,206
Galle	— ..	36,162
Galle Gravets	— ..	20,153
Ratgama, Dodanduwa, and Hikkaduwa ..	— ..	17,846
Jaffna Peninsula	— ..	208,986
Neboda	— ..	26,796

Besides the above, vaccination was carried out in the chief towns of the Island as a precautionary measure. The people readily came forward and there was no serious opposition to the campaign anywhere.

The rapidity and the certainty with which the outbreak was controlled and the helpful co-operation of the people are in marked contrast with the state of affairs in Ceylon in 1755 as recounted in the following extract (kindly supplied by the Government Archivist) translated from the memorandum of instruction left by the Dutch Governor, J. G. LOTEN, for his successor:—

> "But this work of the Tombo, Landraad, and Garden-registration has been at a stand-still nearly all the time during my presence here, owing to the smallpox which has not raged here so severely during living memory and which has depopulated the country to a greater degree than that experienced anywhere else. It is not exactly because this disease is actually or naturally fatal, but it is the behaviour of the inhabitants themselves that renders it so terrible, anyone, even their nearest blood-relations who are attacked by it being allowed to perish miserably without help or medicine; and if anyone among them is found to be of a more compassionate and helpful a nature, that is still of little avail to the sufferers, as usually, owing to unsuitable medicine and a wrong method of treatment, they have to perish all the same. Consequently it would be very desirable for this country if people here would adopt the same treatment as that practised by the natives in Java, Macassar, and elsewhere, namely of washing their sick; for one hardly ever hears of a case of failure among those natives here in Ceylon, whilst the Sinhalese who are stricken with the disease rarely ever escape; and notwithstanding our frequent efforts at persuasion and the successful examples before their very eyes when the disease was raging most severely, they did not follow them, giving as their excuse the reason that the constitution of their bodies was different; and much less would they be willing to submit to the use of the so very salutary and universal remedy, which having originally come from Asia and passed into several countries in Europe and even to America, has had such happy and certain results in various climates temperate as well as tropical, but this only in passing."

Note.—The salutary and universal remedy mentioned in the extract above refers to direct inoculation.

(4) **Chickenpox.**—7,439 cases, as compared with 6,902 cases in 1932, were reported to the Sanitary Branch during the year with 5 deaths giving a fatality rate of .07 per cent. Of these cases 39.9 per cent. occurred in the Western Province, 22.4 per cent. in the Central Province, 13.4 per cent. in the Province of Sabaragamuwa, 11.1 per cent. in the Southern Province, 6.6 per cent. in the North-Western Province, and 6.6 per cent. in the other Provinces. On an average 620 cases were reported each month with the maximum 1,086 in January and the minimum 403 in October. The incidence shows two peaks, one during January and the other during March.

(5) **Diphtheria.**—The following table shows the number of cases and deaths in the past five years:—

	1929.	1930.	1931.	1932.	1933.
Hospital cases ..	35	34	27	36	60
Hospital deaths ..	11	9	11	14	21
Total number of deaths for the Island ..	17	19	18	22	30

Of the 60 cases treated, 21 were at the Infectious Diseases Hospital, Angoda, 11 at the Lady Havelock Hospital, 2 at the General Hospital, Colombo, 9 in Galle, 6 in Kandy, 2 each in Kurunegala, Jaffna, and Kahawatta, and 1 each in Ingiriya, Pimbura, Dikoya, Madulsima, and Puttalam hospitals. Most of the cases were children.

Seventy-two cases, as compared with 61 cases in 1932, were reported to the Sanitary Branch during the year with 18 deaths giving a fatality rate of 25.0 per cent. Of these cases 91.6 per cent. occurred in the Western Province. All the cases were of the faucal variety. On an average 6 cases were reported monthly with the maximum 11 in September and the minimum 1 in May.

(6) **Measles.**—9,101 cases, as compared with 3,700 in 1932, were reported to the Sanitary Branch during the year with 22 deaths giving a fatality rate of .24 per cent. Of the cases 39.0 per cent. occurred in the Western Province, 15.1 per cent. in the Central Province, 14.5 per cent. in the North-Western Province, and 10.7 per cent. in the Southern Province. On an average 758 cases per month have been reported with the maximum 1,331 in March and the minimum 471 in September.

(7) **Mumps.**—330 cases, as compared with 221 in 1932, were reported with one death giving a fatality rate of 0.3 per cent. Of these cases 41.9 per cent. occurred in the Western Province, 32.4 per cent. in the Central Province, and 12.4 per cent. in the Southern Province. On an average 27 cases were reported monthly. The incidence was almost evenly distributed throughout the year.

(8) **Whooping Cough.**—374 cases, as compared with 461 cases in 1932, were reported with 12 deaths giving a fatality rate of 3.2 per cent. Of these cases 37.4 per cent. occurred in the Western Province, 23.5 per cent. in the Central Province, 22.4 per cent. in the Northern Province, and 11.8 per cent. in the North-Central Province. The incidence shows a rise in the months of March, June, and October. On an average 31 cases were reported monthly with the maximum 85 in October and minimum 10 in November.

(9) **Enteric.**—The following table shows the number of cases and deaths for the past five years:—

	1929.	1930.	1931.	1932.	1933.
Hospital cases ..	2,010	2,478	2,354	2,791	2,745
Hospital deaths ..	472	601	631	595	606
Total number of deaths for the Island ..	736	843	796	783	794

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 13,776 deaths due to pyrexia in 1933, as against 14,514 in 1932.

2,638 cases were notified in 1933 to the Sanitary Branch of this Department, as compared with 2,510 in 1932 with 476 deaths giving a fatality rate of 18.04 per cent. Of these cases 46.8 per cent. occurred in the Western Province, 21.4 per cent. in the Southern Province, 13.8 per cent. in the Province of Sabaragamuwa, and 8.2 per cent. in the Central Province. On an average 220 cases were notified per month. Investigation of outbreaks points to the existence of carriers and contact infection. Anti-typhoid inoculation was administered as follows:—

1st dose	8,767	2nd dose	3,740

(10) **Dysentery.**—The following table shows the number of cases and deaths in the past five years:—

	1929.	1930.	1931.	1932.	1933.
Hospital cases ..	7,527	7,242	6,320	5,599	5,299
Hospital deaths ..	1,114	1,052	742	638	663
Total number of deaths registered for the Island	4,258	3,616	2,496	2,178	1,886

2,305 cases or 43.5 per cent. of the total number of cases were stated to be amoebic and 1,909 cases or 36.0 per cent. bacillary. 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 bacillary type greatly preponderated (*vide* Section IX.). The mortality rates of amoebic dysentery were 11.1 per cent. and of bacillary 11.3 per cent.

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

Western Province	2,855 cases with 410 deaths
Northern Province	622 cases with 42 deaths
Central Province	547 cases with 58 deaths
Province of Sabaragamuwa	380 cases with 43 deaths

22,614 out-patients were treated for this disease during the year, as against 26,216 during 1932. The distribution of out-patient cases is as follows:—

	1931.	1932.	1933.
Western Province ..	4,006	3,556	2,883
Central Province ..	3,554	3,046	2,958
Southern Province ..	2,472	2,375	2,456
Eastern Province ..	4,003	4,099	2,889
Northern Province ..	5,241	5,264	4,585
North-Western Province ..	2,400	2,283	2,180
North-Central Province ..	2,291	2,493	2,058
Province of Uva ..	1,219	1,046	1,038
Province of Sabaragamuwa ..	2,115	2,054	1,567

These figures show that this disease was prevalent as in the previous year, in sporadic form in all the provinces, but that it has decreased in nearly every province.

It is interesting to note that of the total deaths registered in the whole Island from dysentery the percentage among Indian immigrant labourers on estates has decreased considerably in recent years as the following table shows:—

	1928.	1929.	1930.	1931.	1932.	1933.
Total number of deaths registered for the Island ..	3,446..	4,258..	3,616..	2,496..	2,178..	1,886
Total number of deaths among Indian immigrant labourers	1,723..	1,384..	1,028..	706..	445..	330
Percentage of deaths of Indian immigrant labourers to the total number of deaths from dysentery in the Island ..	50·0..	32·5..	28·4..	28·2..	20·4..	17·5

These figures appear to show that the policy of providing protected supplies of good water on estates and the proper removal of latrine deposits is continuing to achieve satisfactory results.

2,559 cases as compared with 2,729 in 1932 were notified to the Sanitary Branch of the Department during the year with 261 deaths giving a fatality rate of 10.2 per cent. Of these cases 48.8 per cent. occurred in the Western Province, 13.7 per cent. in the Southern Province, 11.1 per cent. in the Eastern Province, 8.4 per cent. in the Province of Sabaragamuwa, and 7.7 per cent. in the Northern Province. On an average 213 cases were reported monthly—the largest number 366 in November and the smallest 102 in April. The type of 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.

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

	1929.	1930.	1931.	1932.	1933.
Number of cases treated at dispensaries ..	107,742	114,056	169,125	142,556	192,413
Hospital cases ..	4,424	4,374	7,877	5,059	6,762
Hospital deaths ..	94	96	178	111	104
Total number of deaths for the Island	1918	2,074	2,393	1,602	1,920

(12) **Tuberculosis of the Lungs.**—The following table shows a comparison between the figures for 1933 and the figures for the previous four years:—

	1929.	1930.	1931.	1932.	1933
Hospital cases ..	4,239	3,985	4,245	4,508	4,229
Hospital deaths ..	648	1,056	1,071	1,087	1,108
Total number of deaths registered for the Island ..	3,532	3,318	3,174	2,966	3,118

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. A large number of advanced and chronic cases also are treated in the tuberculosis wards of the General Hospital, Colombo. The number of cases treated at the out-door dispensaries in the Island was 1,709.

(13) **Leprosy.**—During the year 1,227 cases with 76 deaths, as against 1,216 cases with 96 deaths in 1932 were treated at the 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.—Two Medical Officers carried out a survey of the known cases of leprosy in Ceylon. The object of this survey was to determine the number of known cases, the endemic areas, the incidence by age, sex, race, locality, &c., and to give the officers a starting point for the general leprosy survey in Ceylon.

The number of known cases has been found at that time to be as follows:—

Lepers segregated in the two asylums	796
Lepers on parole or absconders	353
Lepers in home isolation	340
	1,489

The same two officers began the survey proper of Ceylon starting with the Eastern Province in February, 1933, and completing this province in August, 1933. Forty six fresh cases (42 in Batticaloa District and 4 in Trincomalee District) were detected in 20 villages in the province. A detailed record of these fresh cases has been kept and a fairly complete organization has been outlined for the observation of contacts and arrested cases and for the treatment locally of non-infective cases and the hospitalization of infected cases at Mantivu.

A detailed report on this survey has been published as Sessional Paper II. of 1934.

The two officers started in August, 1933, the survey of the Colombo City and a report will be published in due course.

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

	1929.	1930.	1931.	1932.	1933.
Hospital cases ..	2,111	1,640	1,200	1,352	1,043
Hospital deaths ..	4	5	4	4	3
Number of cases treated at dispensaries	24,841	23,684	24,708	23,208	18,368
Total number of deaths for the Island	10	10	4	9	5

During the year under review 5,577 Novarsenobillon injections were given to 3,328 patients, as against 11,948 injections and 5,963 patients in 1932. Most of the patients attended a second and third time for injections, but some, perhaps satisfied and contented with the immediate relief effected by the first injections, did not attend for the subsequent injections essential to obtain a cure.

The continued decrease in the number of cases coming for treatment testifies to the success of the work of the Parangi Campaign and during the year the Itinerating Medical Officers who numbered 13 in 1930 were further reduced from four to two. The two remaining officers were stationed in the Central and Sabaragamuwa Provinces. The disease is now well under control everywhere and has almost disappeared in certain provinces.

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.

Diseases.	Cases.	Deaths.	Fatality Rate. Percentage.
Chickenpox	7,439	5	0·07
Diphtheria	72	18	25·00
Dysentery	2,559	261	10·20
Enteric fever	2,638	476	18·04
Measles	9,101	22	0·24
Mumps	333	1	0·30
Pulmonary tuberculosis ..	1,972	840	42·60
Whooping cough	374	12	3·20
Plague	57	52	91·22
Smallpox	337	62	18·39

TABLE II.

Distribution by Months of Notified Communicable Diseases.

Months.	Chicken-pox.	Diph-theria.	Dysen-tery.	Enteric.	Measles.	Mumps.	Pulmo-nary Tubercu-losis.	Whooping Cough.	Cholera.	Plague.	Small-pox.
January ..	1,086	6	282	180	881	23	182	25	—	20	169
February ..	935	8	203	240	808	32	174	28	—	8	77
March ..	1,076	4	156	204	1,331	39	127	43	—	22	12
April ..	524	5	102	209	596	14	123	23	—	1	49
May ..	467	1	130	208	637	27	157	39	—	—	1
June ..	497	6	158	218	1,089	35	233	44	—	2	14
July ..	463	9	145	223	748	32	176	29	—	1	7
August ..	435	2	202	183	486	33	194	22	—	—	7
September ..	464	11	272	264	471	18	172	13	—	1	—
October ..	403	8	286	236	580	27	177	85	—	1	—
November ..	563	6	366	249	857	36	160	10	—	1	—
December ..	526	6	257	224	617	14	97	13	—	—	1*

* Port case.

TABLE III.

Distribution by Provinces of Notified Communicable Diseases.

Provinces.	Chicken-pox.	Diph-theria.	Dysen-tery.	Enteric.	Measles.	Mumps.	Pulmo-nary Tubercu-losis.	Whooping Cough.	Cholera.	Plague.	Small-pox.
Western ..	2,971	66	1,251	1,234	3,549	138	1,196	140	—	27	207
Central ..	1,664	3	145	218	1,377	107	246	88	—	14	7
Southern ..	828	1	352	565	973	41	224	5	—	11	61
Eastern ..	139	—	285	22	138	8	16	5	—	—	5
Northern ..	240	—	198	102	498	10	31	84	—	1	53
North-Central ..	31	—	35	32	235	10	16	44	—	—	1
North-Western ..	487	—	74	37	1,327	8	84	2	—	—	3
Sabaragamuwa ..	998	—	216	355	813	8	159	3	—	—	—
Uva ..	81	2	3	73	191	—	—	3	—	4	—

3.—VACCINATION.

The total number of primary vaccinations performed during the year under review was 93,533; of these 75,825 were successful and 1,457 were failures. In 16,251 cases the results were not determined. The percentage of successful primary vaccinations was 98.1 in 1931, 98.9 in 1932, and 98.7 in 1933.

Vaccination is carried on 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.

The above figures do not include those of the vaccination campaign which was started in December, 1932, on account of the epidemic of smallpox.

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

B.—VITAL STATISTICS.

Table I.

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

	Average Annual Estimated Population (Mid-year Estimates for 1924–1933).	Average Annual Number of Births registered (Actual Numbers for 1924–1933).	Average Annual Number of Deaths registered (Actual Numbers for 1924–1933).	Excess of Registered Births over Deaths.	Excess of Immigrants over Emigrants.	Average Annual Birth Rate per 1,000 (Annual Rates for 1924–1933).	Average Annual Death Rate per 1,000 (Annual Rates for 1924–1933).	Average Annual Infant Mortality *i.e.*, Deaths of Children under 1 Year of Age per 1,000 Births (Annual Rates for 1924–1933.)
1871–1880	2,584,780	70,815	58,836	11,979	23,862	27·4	22·8	—
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
1924	4,765,578	178,867	122,958	55,909	25,363	37·5	25·8	186
1925	4,846,850	193,261	117,543	75,718	5,554	39·9	24·3	172
1926	4,928,122	206,888	124,884	82,004	*732**	42·0	25·3	174
1927	5,009,394	205,469	113,003	92,466	*11,194**	41·0	22·6	160
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	117,452	81,718	*31,581**	37·4	22·1	158
1932	5,386,106	199,370	110,649	88,721	*28,837**	37·0	20·5	162
1933	5,415,516	209,032	114,690	94,342	*58,170**	38·6	21·2	157

* Excess of emigrants over immigrants.

Table II.

Vital Statistics by Provinces.

	Population.	Number of Births.	Number of Deaths.	Birth Rate per 1,000 of the Population.	Death Rate per 1,000 of the Population.	Infant Mortality Rate per 1,000 Births registered.
Western Province	1,469,513	47,459	27,659	32·3	18·8	135
Central Province	993,777	39,127	19,287	39·4	19·4	167
Southern Province	782,920	33,923	17,511	43·3	22·4	138
Northern Province	398,543	14,186	11,038	35·6	27·7	200
Eastern Province	213,818	9,211	5,909	43·1	27·6	204
North-Western Province	551,554	22,649	12,993	41·1	23·6	192
North-Central Province	96,122	4,139	3,549	43·1	36·9	257
Province of Uva	314,802	13,793	6,791	43·8	21·6	149
Province of Sabaragamuwa	594,459	24,545	9,953	41·3	16·7	126

TABLE III.

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

Races and Communities.	Estimated. Population, 1933.	Births. Number registered, 1933.	Births. Rate per 1,000 Persons living, 1933.	Deaths. Number registered, 1933.	Deaths. Rate per 1,000 Persons living, 1933.	Infant Deaths. Numberd. registered, 1933.	Infant Deaths. Rate per 1,000 Births registered, 1933.
*(A) By Races**—							
1. All races ..	5,415,500 ..	209,032 ..	38·6 ..	114,690 ..	21·2 ..	32,866 ..	157
2. Europeans ..	9,800 ..	123 ..	12·6 ..	67 ..	6·9 ..	4 ..	33
3. Burghers and Eurasions	35,400 ..	1,063 ..	30·0 ..	515 ..	14·5 ..	98 ..	92
4. Sinhalese ..	3,630,900 ..	147,016 ..	40·5 ..	75,167 ..	20·7 ..	20,916 ..	142
5. Tamils ..	1,348,400 ..	47,000 ..	34·9 ..	30,080 ..	22·3 ..	9,264 ..	197
6. Moors ..	343,000 ..	12,366 ..	36·0 ..	7,918 ..	23·1 ..	2,331 ..	189
7. Malays ..	16,100 ..	770 ..	47·7 ..	447 ..	27·7 ..	132 ..	171
8. Others ..	31,900 ..	694 ..	21·8 ..	496 ..	15·6 ..	121 ..	174
(B) By Communities†—							
1. Ceylonese (*i.e.*, total population less Europeans and Indians) ..	4,844,182 ..	184,574 ..	38·6 ..	102,935 ..	21·5 ..	28,465 ..	154
2. European (including officials) ..	9,859 ..	123 ..	12·5 ..	67 ..	6·8 ..	4 ..	33
3. Indian immigrant population on estates ..	609,170 ..	24,335 ..	39·4 ..	11,688 ..	18·9 ..	4,397 ..	181

* Estimated population (in round figures) at mid-year. † Estimated population at end of the year.

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, cacao, cardamoms, camphor, pepper or cinchona". The Indian population of such estates has declined greatly during the past five years as the result of trade depression. The difference between the amount of immigration and emigration of Indian estate labourers each year influences considerably the rate of increase of the general population of Ceylon.

TABLE IV.

Indian Population on Estates, with Immigration and Emigration Figures, for the past Five Years.

Year.	Population on December 31.	Immigrants.	Emigrants.
1929 ..	741,289 ..	105,095 ..	104,411
1930 ..	733,981 ..	91,422 ..	106,190
1931 ..	681,842 ..	68,337 ..	91,573
1932 ..	650,153 ..	50,869 ..	72,495
1933 ..	609,170 ..	32,898 ..	88,969

TABLE V.

Maternal and Infant Deaths in Towns and Rural Areas.

	Maternal Deaths. Number registered. Average 1923–1932.	Maternal Deaths. Number registered. 1933.	Maternal Deaths. Rate per 1,000 Live Births. Average 1923–1932.	Maternal Deaths. Rate per 1,000 Live Births. 1933.	Deaths of Children under One Year of Age. Number registered. Average 1923–1932.	Deaths of Children under One Year of Age. Number registered. 1933.	Deaths of Children under One Year of Age. Rate per 1,000 Births registered. Average 1923–1932.	Deaths of Children under One Year of Age. Rate per 1,000 Births registered. 1933.
In the 36 principal towns ..	730..	738..	30·9..	28·5..	4,536..	4,576..	206..	177
In the rural areas ..	3,363..	3,144..	18·6..	17·2..	30,311..	28,290..	166..	154
In the whole Island..	4,093..	3,882..	20·1..	18·6..	34,847..	32,866..	172..	157

Causation of Deaths.—The registration of births and deaths is compulsory throughout the Island, but the causes of death 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 Registrar-General compiles separately the vital statistics of the 36 principal towns in Ceylon and these figures are more reliable as regards the cause of death, since most of them are based on the certificates of medical practitioners.

TABLE VI.

Causes and Numbers of Deaths in the 36 Principal Towns for the past Three Years.

Causes.	Number of Deaths. 1931.	1932.	1933.
I.—*Infant Mortality* ..	4,175	4,082	4,576
(A) One Week and under.			
1. Prematurity ..	487	524	567
2. Debility	795	701	817
3. Convulsions ..	174	136	159
4. Tetanus	19	17	11
5. Bronchitis	3	4	1
6. Pneumonia ..	2	4	4
7. Other causes ..	50	93	72
(B) Over One Week and under One Year.			
1. Prematurity ..	80	88	119
2. Debility	720	693	833
3. Convulsions ..	380	360	466
4. Diarrhoea	57	59	65
5. Enteritis	274	291	373
6. Tetanus	18	7	18
7. Bronchitis	133	134	106
8. Pneumonia ..	433	437	460
9. Syphilis	36	37	35
10. Other causes ..	514	497	470
II.—*General Mortality (One Year and over)*	15,781	15,561	16,659
1. Plague	32	44	15
2. Smallpox	1	2	17
3. Chickenpox.. ..	—	1	1
4. Measles	1	7	8
5. Influenza	523	373	412
6. Enteric fever ..	509	535	529
7. Malaria and malarial cachexia	788	852	704
8. Cholera	1	—	—
9. Diarrhoea	431	368	499
10. Enteritis	591	528	630
11. Dysentery	564	516	505
12. Ankylostomiasis ..	766	669	699
13. Diseases due to other intestinal parasites ..	601	568	686
14. Cancer	211	227	244
15. Pulmonary tuberculosis ..	1,177	1,176	1,282
16. Other tuberculous diseases..	98	94	111
17. Anaemia	64	60	86
18. Diabetes Mellitus ..	198	166	233
19. Paralysis	293	367	368
20. Convulsions ..	242	220	218
21. Tetanus	120	105	91
22. Heart disease ..	456	581	663
23. Bronchitis	314	316	342
24. Pneumonia ..	2,334	1,973	2,293
25. Other diseases of the respiratory system ..	117	166	174
26. Bright's disease and nephritis	783	808	733
27. Puerperal eclampsia ..	98	106	101
28. Puerperal septicaemia ..	365	348	361
29. Accidents of childbirth ..	239	251	276
30. Accidents and negligence ..	411	465	440
31. Homicide	88	108	76
32. Suicide	74	73	88
33. Execution	25	44	42
34. All other causes ..	3,266	3,444	3,732
Total, all causes ..	19,956	19,643	21,235

TABLE VII.

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

	1932.	1933.
I.—Infectious and parasitic diseases—		
(*a*) Infectious and parasitic diseases (less tuberculous and venereal diseases) ..	13,525 ..	13,552
(*b*) Tuberculous diseases	3,275 ..	3,446
(*c*) Venereal diseases	191 ..	171
II.—Cancer and other tumours	466 ..	483
III.—Rheumatic diseases, nutritional diseases, diseases of the endocrine glands, and other general diseases	6,672 ..	7,296
IV.—Diseases of the blood and blood-making organs	1,823 ..	2,400
V.—Chronic poisonings and intoxications ..	8 ..	13
VI.—Diseases of the nervous system and of the organs of special sense	13,774 ..	14,533
VII.—Diseases of the circulatory system ..	1,439 ..	1,610
VIII.—Diseases of the respiratory system ..	11,039 ..	11,582
IX.—Diseases of the digestive system ..	7,336 ..	8,079
X.—Non-venereal diseases of the genito-urinary system and annexa	1,769 ..	1,804
XI.—Diseases of pregnancy, childbirth, and the puerperal state	3,821 ..	3,882
XII.—Diseases of the skin and cellular tissue ..	10,151 ..	10,016
XIII.—Diseases of the bones and organs of locomotion	31 ..	20
XIV.—Congenital malformations	37 ..	41
XV.—Diseases of early infancy	9,335 ..	9,554
XVI.—Old age	5,648 ..	6,188
XVII.—Violent and accidental deaths ..	2,917 ..	2,900
XVIII.—Ill-defined causes of death	17,392 ..	17,120

TABLE VIII.

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

	1929.	1930.	1931.	1932.	1933.
1. Dysentery ..	4,258 ..	3,616 ..	2,496 ..	2,178 ..	1,886
2. Pulmonary tuberculosis ..	3,229 ..	3,318 ..	3,174 ..	2,966 ..	3,118
3. Infantile convulsions ..	16,788 ..	15,445 ..	12,135 ..	10,867 ..	11,666
4. Diarrhoea ..	9,662 ..	9,428 ..	6,930 ..	5,978 ..	6,609
5. Pneumonia ..	8,979 ..	7,963 ..	7,626 ..	6,307 ..	6,900
6. Ankylostomiasis ..	2,172 ..	2,330 ..	2,247 ..	1,955 ..	1,877
7. Dropsy	2,048 ..	2,101 ..	1,738 ..	1,819 ..	2,051
8. Anaemia ..	2,750 ..	2,711 ..	1,787 ..	1,805 ..	2,217
9. Intestinal parasites ..	4,326 ..	4,159 ..	3,995 ..	3,562 ..	3,689
10. Puerperal Septicaemia ..	1,466 ..	1,597 ..	1,474 ..	1,328 ..	1,336
11. Malaria	2,326 ..	2,387 ..	1,661 ..	1,681 ..	1,409
12. Enteric fever ..	736 ..	843 ..	796 ..	783 ..	794
13. Marasmus ..	4,958 ..	4,629 ..	3,860 ..	4,300 ..	4,696
14. Tetanus	320 ..	338 ..	333 ..	270 ..	248
15. Rabies	62 ..	58 ..	47 ..	52 ..	56
16. Cholera	19 ..	— ..	6 ..	1* ..	1*
17. Influenza.. ..	1,918 ..	2,074 ..	2,393 ..	1,602 ..	1,920
18. Leprosy	95 ..	108 ..	68 ..	96 ..	89
19. Plague	71 ..	42 ..	48 ..	70 ..	53
20. Scarlet fever ..	—	— ..	— ..	— ..	—
21. Anthrax	1 ..	2 ..	— ..	1 ..	—
22. Smallpox.. ..	2 ..	6 ..	3 ..	4 ..	87
23. Diphtheria ..	17 ..	19 ..	18 ..	22 ..	30
24. Parangi	10 ..	10 ..	4 ..	9 ..	5
25. Pyrexia	18,744 ..	19,106 ..	16,553 ..	14,514 ..	13,776

* These were cases of acute choleraic diarrhoea.

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

Table IX.

Deaths among the Indian Population on Estates for the past Five Years.

		1929.	1930.	1931.	1932.	1933.
1.	Dysentery ..	1,384	1,028	706	445	330
2.	Debility	2,817	2,661	2,398	2,558	2,513
3.	Diarrhoea and enteritis ..	1,349	1,080	846	663	523
4.	Pneumonia ..	2,589	2,077	1,949	1,422	1,508
5.	Ankylostomiasis ..	1,237	1,186	1,019	878	709
6.	Infantile convulsions ..	1,538	1,166	1,023	967	889
7.	Dropsy	94	74	60	32	29
8.	Pulmonary tuberculosis ..	327	306	283	254	236
9.	Anaemia	63	45	60	33	24
10.	Other diseases ..	6,984	6,723	5,887	5,179	4,927

The notable feature of this table is the large and progressive decrease in deaths from dysentery and other intestinal diseases. The decrease in population during the same period should however be taken into consideration (*vide* Table IV.).

III.—HYGIENE AND SANITATION.

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

A number of vacancies occurred in the grade of Sanitary Inspectors but were not filled as a retrenchment measure; as a result of this it was found necessary to combine the ranges of certain rural Sanitary Inspectors giving them larger areas. The work in the enlarged areas had to be restricted to control of infectious disease and supervision of sanitation in the more important villages.

In maternity and child welfare work satisfactory progress has been reported from all centres and the work is becoming more and more popular with the people.

General sanitation has been maintained satisfactorily both in urban and rural areas in spite of the reduction of personnel. The extension of the hours of field work of Sanitary Inspectors helped considerably in this direction.

School medical work has been entrusted to Medical Officers of Health, thus bringing a large number of schools under the scheme. Satisfactory work has been reported from all centres.

During the latter part of the year under review the new squatting plate was introduced into latrine construction. Many existing latrines which had mud platforms have been replaced by the cement squatting slabs.

Sixteen Urban District Councils were proclaimed under the Local Government Ordinance and the task of writing sanitary survey reports of these towns was entrusted to Medical Officers of Health. The reports were completed during the year and submitted to the President, Local Government Board, who forwarded a copy to the Council concerned drawing its attention to the more important recommendations made.

1.—PREVENTIVE MEASURES.

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

(1) **Malaria.**—Malaria is the most prevalent disease in the Island. There were 23,101 cases admitted as in-patients to hospitals and 1,199,075 cases were treated at dispensaries and out-patient departments of hospitals. Benign tertian malaria was the common form of the disease. The mortality among the hospital admissions was much lower than last year. There were 379 deaths as contrasted with 640 in 1932 from the disease in its acute stages—usually the cerebral type of malignant tertian malaria—and 105 deaths as contrasted with 158

in 1932 were attributed to malarial cachexia. The number of malaria cases treated annually in hospitals and dispensaries for 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.
1924 ..	26,856	15·2	925,476	37·0
1925 ..	22,600	12·0	785,903	33·3
1926 ..	29,334	14·2	1,061,457	36·9
1927 ..	25,146	12·5	865,594	31·4
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

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

	1931.		1932.		1933.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
General Hospital, Colombo ..	623	45	1,646	70	976	42
Western Province ..	2,774	72	2,175	38	1,498	30
Central Province ..	3,869	73	3,703	57	3,153	59
Northern Province ..	2,266	50	3,800	81	3,251	67
Eastern Province ..	876	16	1,264	19	944	16
Southern Province ..	2,474	61	2,497	73	2,700	81
North-Western Province ..	2,702	90	3,431	102	2,650	86
North-Central Province ..	1,468	26	2,071	20	1,260	20
Province of Uva ..	4,280	52	6,391	74	3,305	31
Province of Sabaragamuwa ..	6,344	125	5,683	102	3,339	51
Lunatic Asylum ..	48	5	35	4	25	1
	27,714	615	32,696	640	23,101	484

Many cases of malaria in villages remote from hospitals and dispensaries were treated by Itinerating Medical Officers of the Parangi Campaign whose scope of work was extended in 1927 when they were provided with drugs, &c., for the treatment of prevalent diseases.

12,014 pounds and 2,012,290 tablets of quinine, which cost Rs. 306,503 were issued free through various agencies for curative and preventive purposes.

Anti-Malaria Campaigns.—The same anti-malarial measures as in 1932, with the addition of malaria control at Minneriya, were carried out in the various centres of work, details of which are given below.

Anuradhapura.—The slow but steady progress in the reduction of malaria has been maintained during the eleventh year of activities of the Anti-malaria Campaign in Anuradhapura. The incidence of malaria in the town has been decidedly less than in previous years, as revealed by the lower spleen rates, lesser number of cases of malaria treated at the hospital and in the Jail, and the improved attendance of children in schools and of officers and minor employees in Government departments.

Staffs, &c.—The staff consisted of one Medical Officer, two Sanitary Inspectors, and two Entomological Assistants. The labour force consisted of one overseer, one head labourer, 33 labourers, and two field attendants. The convicts lent from the local Jail were employed in minor filling. The strength of this brigade was considerably reduced since April, but improved in December.

Spleen Examinations.—The spleen rate among children not attending schools was 22.8 per cent. for the whole town; 16.8 per cent. for the control area, and 9.2 per cent. for what may be considered to be the " protected " zone (sections 1 and 2). The corresponding figures for 1932 were 28.6 per cent., 20.8 per cent., and 13.2 per cent.

A noteworthy reduction in the incidence of malaria in the local Jail is shown by the figures obtained in regard to the average daily strength and the number of cases of malaria treated. In 1923, 506 cases of malaria were treated at the Jail while in 1933 only 25 cases were treated, the percentage of incidence of malaria in relation to strength being 325.3 in 1923 and 16.9 in 1933.

Activities.—Anti-larval measures were carried out as in the previous year, but with a view to reducing the expenditure " species control " on a small scale was introduced during the latter part of the year when the oiling of some of the permanent breeding places was discontinued but careful observation was made for the breeding of *A.culicifacies* and *A.listoni.* Whenever larvae of these two species of Anopheles were detected, the breeding places were promptly treated. Further reduction in the consumption of oil was effected by the filling of numerous minor breeding places. The cost of maintenance work was reduced from November 1 by maintaining the Halpanu-ela and the Totuwila-ela once a fortnight instead of once a week as had been done previously. It was thus possible to maintain both the channels with one gang of labourers working on alternate weeks in each channel.

Quinine Distribution.—The administration of prophylactic doses of quinine to school children and to the labourers of this department was carried out as usual on two consecutive days each week during the first three and last three months of the year. Quinine was also administered to the labour force of the Experimental Station of the Department of Agriculture at Puliyankulam. 9,276 five-grain tabloids and 11,713 three-grain tabloids were administered during the year.

Prophylactic doses of quinine were also administered to the mothers and children attending the Maternity and Child Welfare Clinic during the first three and last three months of the year.

Minor Filling.—The convicts brigade lent for anti-malaria work from the local prison was utilized throughout the year for the filling of minor breeding places. Minor filling was also carried out by the maintenance gang. 133 breeding places were filled with 906 cubes of earth. A large pond adjoining the pipe factory of the Irrigation Department was filled with earth that had been excavated by the Archæological Department in the reservation at Green Path road. A section of the pond in front of the hospital was filled by the Archæological Department with earth obtained during the restoration of the old Sacred road. Several borrow pits that had been created by the Urban District Council along Arippu road were filled as a result of representations made to the Chairman. No licences were issued during this year for the manufacture of bricks within the area of control and the old pits were all drained or filled. It was also possible to get some borrow pits in private premises, created during building operations, filled before recommending the issue of the certificates of conformity.

The Chairman of the Urban District Council was very helpful in this respect as well as in refusing to allow brick kilns within the area of control.

Halpanu-ela.—The damaged portions of the Halpanu-ela near its commencement, which had been repaired, did not prove satisfactory. The first portion of this channel has become broader by erosion of the sides. No action has been taken to repair this part of the channel as it is hoped to effect some permanent improvement. The rest of the channel has been maintained in good condition. The maintenance of this channel has been carried out once a fortnight, and the total cost of such work was Rs. 988.20.

Totuwila-ela.—The Totuwila-ela has been maintained in good condition and its usefulness as a waste water channel is being realized by the landowners in its vicinity. All the old swamps along its sides have now been converted

into either paddy fields or vegetable plantations. Eight crossings for cattle were constructed at intervals over the channel during the year. The construction of the crossings has considerably reduced the damage caused by cattle to the sides of the channel, but some people still persist in leading their cattle through the channel in spite of the presence of crossings close by. The maintenance of this channel has been carried out once a fortnight and the cost of such work totalled Rs. 928.77½.

Maintenance Work.—The drains cut by this department have been regularly maintained in good condition. The maintenance of the fish nursery has been abandoned as several natural fish nurseries have been established in different parts of the town. The edges of the drinking, bathing, and washing ponds were periodically cleared of vegetation and débris. The cost of general maintenance work was Rs. 3,728.93½.

Oiling.—The results of oiling of breeding places were very satisfactory. From June, 1933, an anti-malaria mixture supplied by the Shell Company was substituted for the mixture made locally of Diesel oil and kerosene oil. It has the same larvicidal effects as the old mixture and its use has eliminated the risk of any possible theft of kerosene oil. 64,450 situations were oiled at a total cost of Rs. 8,127.27½, labour costing Rs. 3,194.71½ and materials, Rs. 4,932.56.

Fish Control.—All the wells in the area of control have been stocked with " millions " and satisfactory results have been obtained. In December, 1933, there were 137 built and 40 earth wells within the area of control and " millions " were found to be thriving in 75.6 per cent. of the wells. Big fish were breeding in the other 24.4 per cent. of the wells and they had devoured the " millions " that had been introduced. Anopheline larvae were found breeding in only 11.8 per cent. of the wells. These results are very encouraging, and, if co-operative action could be taken to remove the big fish from the wells and prevent their reintroduction by the landowners, one dangerous and widely prevalent source of Anopheline breeding could be efficiently controlled.

Propaganda.—Propaganda work concerning malaria was carried out during the health exhibition, where great prominence was given to malaria. A separate malaria section was fitted up with a laboratory and demonstrations were daily given to the large crowds. Particular attention was paid to school children, teachers, and headmen, who were taken round in batches and instructed on all matters connected with malaria control. An instructive lecture on malaria illustrated with magic lantern slides and a cinematograph film was delivered. Literature on malaria control in English, Sinhalese, and Tamil was distributed to the visitors to the exhibition.

Lantern lectures on malaria were delivered during the year at the following places:—The town, the railway area, the Jaffna road junction, Alankulame, and Pankuliya. This form of instruction appeared to be quite popular and large numbers were attracted to these shows. Talks on malaria were also given in all the schools in the town during the year. A lecture on malaria was included in the syllabus for the training of school teachers in " Health Education in Elementary Schools ". Fifty-two teachers from different parts of the North-Central Province attended the course of training and the Assistant Inspector of Schools in charge of the district reports that some minor anti-malaria measures, *i.e.*, drainage or filling of swamps, pools, and puddles, &c., and clearing of scrub jungle, have been carried out by the children of some of the schools under the guidance of their teachers in and around the premises of their respective schools. Posters illustrating the causation and prevention of malaria were prepared by children from various schools and these were exhibited in the school hygiene section of the health exhibition and are now displayed in the different schools for the instruction of the pupils. Malaria formed the subject of four health songs and of six health plays rendered by children from different schools at the health exhibition.

Five village boys who were undergoing a course of training in agriculture at the Puliyankulama Experiment Station and who hope to be appointed minor headmen later on were given demonstrations on various aspects of malaria

control at the office and the laboratory of the Anti-malaria Campaign. A second batch of eight boys commenced their training in rural sanitation on December 16, 1933, when they were given a talk on malaria. It is hoped that these prospective headmen will put into practice the knowledge of malaria control they have acquired when they assume their official duties.

Kurunegala.—Malaria control measures have been in force at this centre since February, 1928. A remarkable feature of the year under review was the marked increase in the rainfall which amounted to 119.9 inches—an increase of 46.7 inches over that of the previous year. This was the highest recorded since the inception of the campaign.

Staff, &c.—The work was supervised by the Medical Officer of Health, Health Unit, and was carried out by two Sanitary Inspectors and an Entomological Assistant. One overseer, two kanganies, and 26 labourers and one field attendant formed the minor employees.

Spleen Examinations.—750 school children examined in March yielded a spleen rate of 4.0 per cent., as against a spleen rate of 37.0 per cent. in 1928 when the campaign was started.

Oiling.—This was the principal anti-larval measure adopted. The Diesel-kerosene mixture was replaced by the Shell Company's anti-malaria mixture in June. Breeding places, such as pools, borrow pits, quarry pits, trenches, drains, &c., were systematically oiled and the efficiency rate for this measure was satisfactorily maintained between 90 per cent. and 95 per cent. A total of 88,272 breeding places were treated and 8,696 gallons of oil were used for the purpose.

Maintenance and Clearing.—All drains were periodically cleaned prior to being oiled. The Bu-ela, Wella-ela, and Teliyagonna-ela were cleared of vegetation from time to time and the larvae of *A.culicifacies* were not found breeding in them. A total of 3,114 breeding places amounting to 841,935 linear feet were cleared at a cost of Rs. 2,857.20.

Filling.—A total of 225 breeding places consisting of marshes, trenches, borrow pits, and drains were permanently filled during the first half of the year. It was not possible to carry on this work systematically after June because of the indiscriminate creation of breeding places by the public in areas where filling had already been done. However, 43 breeding places were filled during the second half of the year. The total cost of this work for the year was Rs. 728.07.

Fish Distribution.—Systematic fish distribution was carried on from April and 484 wells were stocked with " millions " from time to time. In April, 48 out of the 484 wells were breeding Anopheline larvae while an examination in December revealed that only 4 of the wells were positive.

Quinine Distribution.—Throughout the year, all children attending the schools in town were given quinine. The labour force of the campaign and the public too were treated. 343,467 grains of quinine were used for this work.

General.—Indiscriminate digging of borrow pits and the opening up of trenches in several parts of the town constitute a serious set-back to anti-malaria work. The town has derived much benefit from anti-malaria work but with more co-operation from the public greater benefits will accrue. The Urban District Council is considering the payment of a sum of money towards permanent anti-malaria work.

Chilaw.—The year under review is the sixth year of anti-malaria activities in Chilaw town.

Staff, &c.—The staff consisted of one Medical Officer of Health, two Sanitary Inspectors, and one Entomological Assistant; the labour force of one field attendant, two kanganies, and 35 labourers.

Spleen Examinations.—Periodical examinations of school children were made during the year under review. The results have been very satisfactory. The spleen rate of 5.9 per cent. (755 examined with 45 positives) was got in February, 1933, as against 4.6 per cent. in 1932, 12.1 per cent. in 1931, and 12.3 per cent. in 1930.

Oiling.—This work was carried out at a total cost of Rs. 7,235.24, the cost of labour being Rs. 3,172.27 and of materials Rs. 4,062.97. Shell Company's anti-malaria mixture was substituted for the Diesel and kerosene mixture from June. The efficiency rate for oiling was never below 95.9 per cent.

Paris Green.—Spraying was done on gala wells as in the previous year. In addition to the gala wells treated, a few ponds were also included. These latter do not include the untreated breeding places. There are still a few gala well owners who refuse to permit this larvicide being used, and efforts, as in the past, to persuade them proved unsuccessful. The total cost of this work was Rs. 1,337.72, materials costing Rs. 58.50.

Filling of abandoned Gala Wells.—Towards the end of the year the Urban District Council voted a sum of Rs. 2,000 for permanent anti-malaria work in this town. This sum was utilized in filling 51 of the abandoned gala wells with a mixture of sea sand and coir dust. The labour employed for this work was paid from the departmental funds.

In addition to the 51 wells closed by the campaign, 7 such wells in the new college premises were filled by the Rev. Bro. Director, thus bringing the total to 58.

Maintenance.—417 minor borrow pits in all sections of the town were filled. The maintenance gang was also engaged in clearing scrub jungle and regrading existing anti-malaria drains. 18,282 situations were attended to at a cost of Rs. 4,917.09 for labour.

Quinine Distribution.—This work was carried out as usual. 7,487 five-grain tabloids and 15,220 three-grain tabloids were distributed during the year.

Fish Distribution.—All the wells including gala wells were stocked with " millions " whenever necessary from a nursery in sub-section 5A. The efficiency rate for this work ranged between 93.2 per cent. and 100 per cent. during the year.

Badulla: *Staff, &c.*—The staff consisted of one Medical Officer, two Sanitary Inspectors, two Entomological Assistants, and the labour force of two field attendants, one overseer, and 14 labourers.

Spleen Examinations.—Examination for enlarged spleens of children attending the various schools was carried out in May and November. The total numbers were 599 and 396 respectively, with rates of 3.33 per cent., as against 1.9 per cent. and 3.63 per cent. in 1932. A spleen index of children not attending school but resident within the " protected " zone was taken in May and November. The numbers examined were small, 53 and 48 respectively, giving rates of 7.54 per cent. and 10.4 per cent. respectively. The numbers examined in the schools were 599 and 396 respectively.

Oiling.—This work was carried out at a total cost of Rs. 4,491.41—the cost of labour being Rs. 2,980.48 and materials Rs. 1,510.93. The Badulla-oya, Kuda-oya, and Rambukpota-oya were also treated in addition to the breeding places of *A.culicifacies*.

Maintenance.—This work was mainly confined to the trimming of edges of rivers and filling of sandpools in river beds and pools and pits in various sub-sections. 5,243 pools and borrow pits were filled at a cost of Rs. 2,018.77 for labour.

Quinine Distribution.—The schools in the town, the campaign labour force, and the public were given quinine during the year. 10,035 five-grain tabloids and 6,315 three-grain tabloids were distributed.

Puttalam: *Staff, &c.*—The staff at this centre consisted of one Sanitary Inspector in charge, another Sanitary Inspector, one Entomological Assistant. The minor employees were the field attendant and peon, while the labour force comprised of two kanganies and 30 labourers.

Spleen Examinations.—The schools were examined for enlarged spleen in February, 1933—a rate of 14.2 per cent. of 469 examined being got. The rates (February) for 1930 and 1932 were 49.5 per cent. and 16.2 per cent. respectively. The reduction has been extremely satisfactory and with the present system of Anopheline control in wells a further reduction and improvement can be confidently expected.

Oiling.—This anti-measure was carried on as in the other centres. The mixture used up to the end of July was that of Diesel and kerosene oil, but from August, the " Shell " mixture was substituted. 16,031 breeding places were treated at a cost of Rs. 1,144.50 for labour.

Fish Distribution was satisfactorily carried out as in the previous year, 425 wells have been periodically stocked with " millions ". In 4 per cent. of the wells, carnivorous fish were found. " Millions " were introduced into some of these after the water was bailed out, while others were not stocked with " millions ". The total cost of this item was Rs. 166.80 for labour.

Filling.—A number of pools, borrow pits, and coconut trenches were filled. The total number of breeding places so eliminated was 1,117, and the labour cost Rs. 2,841.71.

Maintenance.—All ponds, pools, and other breeding places were cleared prior to oiling. A number of drains and ditches were also cleared and maintained in good condition. The total cost of this work was Rs. 1,651.98 for labour.

Semi-permanent Drainage.—The schemes outlined by the Sanitary Engineering division were carried out and the resultant benefits are considerable. Quite a number of breeding places were thus eliminated and the saving in oil is considerable.

The following works were taken in hand during the year:—

(*a*) Cutting of a flood outlet channel from section 4B and passing through sections 3A, 3B, 3C and ending in the lagoon. The length of this channel is 4,596 feet and the cost Rs. 1,415.09.
(*b*) Reopening of the blocked channel in section 1A and 15.
(*c*) Widening the flood outlet channel in section 15.
(*d*) Cutting a drain in Omerikulam tank in section 3C.
(*e*) Cutting a drain in swamp Nos. 65 and 68 in section 3D.

The total cost of the last three items amounted to Rs. 109.80.

Quinine Distribution.—Quinine was distributed to the schools, the campaign labourers, and the public—23,500 tabloids being used.

Trincomalee.—The Urban District Council voted a sum of Rs. 3,706.50 from time to time for the maintenance of anti-malaria work in this town.

Drains, channels, tanks, ponds, kernies, quarry pits, and borrow pits were maintained in good order.

Oiling work was satisfactorily carried out, the efficiency rate ranging between 86 per cent. and 100 per cent.

All the wells in the town were stocked with " millions " from time to time and the efficiency rate of this work was satisfactorily kept up.

The Urban District Council issued notices to owners of low-lying lands to fill up such places and supplied town rubbish to those who applied for it. A number of pools and swamps were filled during the year.

The total cost of all anti-malaria work done in this town was Rs. 3,562.18.

A sum of Rs. 3,500 has been voted for anti-malaria work during the year 1934.

Railway Anti-Malaria Work.—The work done was confined to Maho Station and the area within a quarter mile radius of this place.

A Sanitary Inspector is in charge and the labour force of one kangany and fourteen labourers are engaged in anti-malaria and general sanitation work. Of the fourteen labourers, four were engaged in scavenging, three in oiling, and the rest in trenching, filling, and clearing work.

Oiling.—A total of 5,427 breeding places were oiled, 971¼ gallons of kerosene-Diesel mixture and 526 gallons of " Shell " mixture were sprayed.

Drainage, Filling, and Clearing.—2,124 feet of drains were constructed in addition to the drains cut to take off the stagnant water from a number of shallow pools. The soakage pits of the railway labourers' quarters were found to be breeding larvae and although repairs were effected these did not function satisfactorily. All drains within the area were maintained in satisfactory condition.

Quinine Distribution was done among the labourers, the railway labourers, and the general public.

Scavenging.—The scavenging of the railway station premises and the town was carried out under the supervision of the Sanitary Inspector and the place is cleaner than it was a couple of years ago.

The substitution of dry-earth latrines for the existing pit latrines will help much towards the abatement of the mosquito nuisance. The cost of all work was Rs. 5,278.43.

Mahara Jail.—The usual measures which were adopted in previous years were maintained satisfactorily. The monthly rate of malaria cases among the prisoners was 9.1 per cent., as against 9.8 per cent. in 1932 and 37.4 per cent. in 1922.

Kataragama.—Anti-malaria measures in connection with the Esala festival at Kataragama were started on June 9 and were continued till the end of the festival on August 6. Clearing of scrub jungle around the devale, cleaning and oiling the banks of the river and distribution of quinine formed the main measures adopted. In addition, " Shell-Tox " was sprayed in the sleeping rooms of houses and in maddams as a preventive measure.

Minneriya Colonization Scheme.—This is a major Colonization Scheme to settle agriculturists from Kandy and Kurunegala on some 2,500 acres of jungle land at Minneriya in the dry zone. It was formally opened by the Minister of Agriculture and Lands on April 30, 1933, on which day a large number of selected colonists arrived at Hatamune.

The whole district is very malarious during the rains of the north-east monsoon —from November to April. A large tank of ancient construction, several miles to the west, supplies the land with water through an irrigation canal and its subsidiaries and a stream running through the lowest part of the area acts as the main outlet drain. Temporary collections of rain water (particularly in borrow pits along the agricultural road and irrigation channels) and one spring are the only other possible breeding places for mosquitoes. The land to be settled lends itself to permanent measures for the prevention of mosquito breeding since there are no swamps and good gradients exist from the main irrigation channel to the stream. It, therefore, needed only a carefully designed and constructed system of irrigation and drainage to keep the area free from Anopheline breeding with a minimum of supervision.

As however it had been decided to place the colonists on the land immediately, the malarial control measures adopted were of a temporary nature and consisted of (*a*) the provision of facilities (hospital and dispensary) for the immediate treatment of cases of malaria, (*b*) an attempt at drug prophylaxis, and (*c*) larva destruction by the oiling of breeding places near the camp area where the main body of the colonists was housed.

The new hospital at Polonnaruwa was opened and a Medical Officer with training in malariology put in charge. A temporary dispensary was opened near the colonists' camps and an Apothecary and a Sanitary Inspector detailed to the area.

Prophylactic drugs were distributed to the colonists and others connected with the scheme or residing near by. Some were treated with quinine and others with quino-plasmoquine. The dosage administered during the earlier months was one five-grain quinine tablet or one quino-plasmoquine tablet, as the case might be, on two successive evenings every week. In September, as the fever season was approaching, the dosage was increased. Those on quinine were given two five-grain tablets each on three successive evenings and those on quino-plasmoquine were given one tablet each on three successive evenings every week. In the case of casual labourers, such as the Irrigation Department contractors' labourers, only two treatments a week (each of two five-grain quinine tablets on two successive days each week) were administered. From March to the end of October during the dry part of the year there was little mosquito breeding and little malaria. After the jungle was cleared the colonists moved into huts on their allotments and many instances of missed treatments occurred. This was due to the distributing officer missing some of the huts on his rounds (there being no pathways and the huts being irregularly scattered in partly cleared jungle patches) and the allottees themselves being away sometimes from their huts at the time of visits. Owing to the difficulty and inconvenience of meeting the people at the time of

treatment, parades at appointed times and places were attempted on various occasions but had to be abandoned for want of co-operation. The experience gained in this work brings out forcibly how difficult it is to carry out successfully over a long period a regular and systematic prophylactic drug distribution amongst a free people. The allottees received 3,222 treatments with quino-plasmoquine and 1,254 treatments with quinine, while 4,309 treatments with quino-plasmoquine and 26,098 treatments with quinine were given to the others.

Anti-larval Measures.—Oiling of breeding places around the camp area was carried out weekly from the commencement of the scheme. The oil used was "Shell" anti-malaria mixture. The area oiled during the dry months at the start was approximately 1⅛ miles long and ¼ mile broad. When the malarial season was approaching, this area was gradually extended and towards the last quarter of the year, the oiling area extended ¼ mile to the north, ½ mile to the south, ⅛ mile to the east, and ¼ mile to the west of the camp area proper which was a narrow strip of land ½ a mile long.

Filling and draining were not undertaken pending the drawing up of a definite scheme of work after the settling down of colonists in the selected settlement areas. Some of the breeding places where oiling was found to be not fully effective, such as water channels, streams, &c., were cleared of weeds and floatage in order to increase the efficiency.

3,166 breeding places and 19 miles of stream were oiled. 734 gallons of the "Shell" mixture costing Rs. 278.92 were used for the purpose. The wages (minus levy) of the labour force engaged on anti-malarial and general sanitary measures during this period amounted to Rs. 901.97.

Maintenance Clearing.—About 1 mile of Ulpat-ela and 1⅓ miles of channels and 30 breeding places were cleared and maintained.

Entomological Investigations.—Entomological investigations carried out by the Medical Entomologist have revealed large numbers of *A.culicifacies* breeding places. The number of such places is bound to increase considerably when water is let into the several irrigation channels that are under construction now. When that happens, malaria control will be a far more difficult problem.

Rainfall.—1933 was an unusually wet year. The total rainfall for the year, as recorded at Polonnaruwa, was 90.83 inches, whilst the average annual rainfall is only about 65 inches.

Malaria Statistics.—The following table shows the number of cases of malaria treated at the Polonnaruwa Hospital and at the camp dispensary:—

	Malaria Cases in Polonnaruwa Hospital.		Malaria Cases treated at Camp Dispensary.
	Colonists.	Others.	Colonists.
Period May, 1933, to September 30, 1933	15 ..	32 ..	49
Period October 1, 1933, to February, 1934	30 ..	62 ..	125

The number of colonists at any one time never exceeded 200 and often fell below 100 since they did not remain continuously in the area but made occasional visits to their homes.

It is not possible to say how many colonists contracted malaria since a distinction between new infections and relapses was not attempted. Further, a number of colonists who fell sick made their own arrangements and returned home or entered hospital at Dambulla, Kurunegala, or Kandy.

Blood films were taken from some patients and all those found positive showed Benign Tertian infection.

There was only one death among the colonists till the end of February, 1934.

It may be said that the work of colonization was not seriously affected by malaria or any other disease during the year, but it is difficult to say how far the measures taken prevented malaria. Weather conditions favoured a low incidence, and

throughout the North-Central Province generally there was less malaria than there had been for at least eight years. Further, malaria rates of the local villagers and the colonists were not available for comparison and in any case a true comparison between an indigenous and an exotic population cannot be made in the case of malaria.

The value of the drug prophylaxis undertaken remains in doubt. The anti-larval control round the camp was of little value since very few of the colonists remained in the camp once the malaria season set in. The hospital and dispensary facilities which allowed of immediate treatment were probably the most useful measure but they were not availed of or appreciated to their full extent by the colonists.

Colombo.—In association with the Medical Entomologist an inquiry into the possibility of a malaria epidemic in the Kelani Valley flood area was made in June and July. One demonstration on anti-malaria work was given to medical students.

(2) **Dengue.**—There was no epidemic of dengue during 1933. Sixteen cases were admitted to hospitals (of which 11 were in the General Hospital), as against 11 in the previous year.

(3) **Filariasis.**—Twenty-five cases of filarial diseases were admitted to hospitals during the year 1933, and 337 cases were treated as out-patients (of which 118 were in the Southern Province, 76 in the Northern Province, 106 in the North-Western Province, and 37 in the other Provinces).

(*b*) Helminthic Diseases.

Ankylostomiasis.—The following table shows a comparison of the 1933 figures with the figures for the previous five years:—

	1928.	1929.	1930.	1931.	1932.	1933.
Number of cases at dispensaries ..	177,372	178,041	171,375	246,620	303,769	271,564
Cases admitted to hospitals ..	12,921	12,129	10,288	9,902	12,421	13,674
Total number of deaths in hospitals ..	941	849	857	724	679	723
Total number of deaths registered for the Island ..	2,161	2,172	2,330	2,247	1,955	1,877

Ankylostomiasis Campaign: *Introduction.*—During the year 1933, the work of the Ankylostomiasis Campaign proceeded satisfactorily. In spite of difficulties, such as the outbreak of smallpox and plague, and the vaccination campaign interfering somewhat with the work, the number of treatments administered has not been much less than that of the previous year.

In 1933 there were 1,877 deaths from ankylostomiasis, as against 1,955 in 1932. The number of cases of ankylostomiasis has also dropped considerably, 316,190 having been treated in hospitals and dispensaries throughout the Island in 1932 and 285,238 in 1933.

Administrative Organization: Personnel.—The campaign staff remained the same as during the last year, viz., one Superintendent, two clerks, thirty-two dispensers, eight microscopists, one office peon, and two laboratory attendants.

On March 7, Dr. C. F. Deutrom succeeded Dr. A. T. Kuriyan as Superintendent of the campaign.

Procedure of the Campaign.—The same procedure was carried out as in the previous year—" Anky " dispensers being attached to the Medical Officers of the department for varying periods to give treatment under their supervision in the schools, villages, and estates of the Island; one dispenser was stationed at Mandapam Camp to help in the treatment of immigrants to estates before they landed in Ceylon. Officers in charge of Government hospitals and dispensaries were expected to give ankylostomiasis treatment with the help of their own staff to as many as possible of those attending their institutions for treatment for

other diseases. Sanitary Inspectors were trained to carry out mass treatment under the supervision of the Medical Officers of Health; special training in mass treatment was given to estate dispensers to enable them to assist in the work on the estates. By these means the volume and quantity of work have been considerably increased.

Work Accomplished.—The work was as in previous years carried out through the following agencies:—

(1) Medical Institutions,
(2) Campaign Dispensers,
(3) Health Units,
(4) Mandapam Camp,
(5) Estate Medical Staff.

TABLE I.

Treatments by all Agencies in 1933 and 1932.

Agencies.	Treatments, 1933. First.	Subsequent.	Total.	1932. Total
Government Institutions:—				
(1) At Institutions	1,169,838	94,882	1,264,720	1,327,62
(2) Outside	43,294	395	43,689	
Campaign Dispensers:—				
(1) School children	103,177	—	103,177	80,85
(2) Estate labourers	117,988	—	117,988	86,60
(3) Villagers	87,665	217	87,882	69,82
Health Units	36,618	3	36,621	26,82
Mandapam Camp	31,456	—	31,456	49,27
Estate Medical Staff	116,950	21,966	138,916	186,21
Total	1,706,986	117,463	1,824,449	1,827,23

Though there is a decrease of 2,789 from the figures of last year, which held th highest record of treatments given, the number of different individuals who re ceived treatment during 1933 was greater than last year by 26,697.

Table II. gives the treatments given by all agencies according to Provinces an the average egg-count per gram of faeces before and two weeks after treatmen It also shows the percentage of reduction in egg-counts obtained after treatmen It will be seen that the average egg-count for the Island has been reduced b treatment from 1,600 to 900, a reduction of 43.8 per cent. The infestation rat too, on the result of Stoll's method was reduced from 74.1 per cent. before trea ment to 58 per cent. after treatment.

TABLE II.

Ankylostomiasis Treatments given by all Agencies according to Provinces, ar Average Egg-Count per Gram of Faeces per Person on the Basis of formed Stools and Percentage infected before and after Treatment for the Year 1933.

Province.	Treatments			Microscopical Examinations by Stoll's Method. Before Treatment.			After Treatment.			Percent. of Reduct in Egg coun after Treat men
	First.	Subsequent.	Total.	Number examined.	Average Egg-count.	Percentage infected.	Number examined.	Average Egg-count.	Percentage infected.	
North-Western	193,618..	6,670..	200,288..	2,637..	2,000..	80·8..	647..	700..	66·7..	65·
Eastern	83,338..	2,313..	85,651..	1,165..	1,900..	79·3..	146..	1,000..	61·6..	47·
Western	312,781..	20,725..	333,506..	6,307..	1,700..	71·0..	979..	800..	48·1..	52·
North-Central	58,707..	1,874..	60,581..	115..	1,700..	66·1..	52..	1,000..	63·5..	41·
Southern	256,112..	25,505..	281,617..	3,661..	1,600..	78·8..	389..	1,000..	66·1..	37·
Central	354,447..	30,426..	384,873..	4,102..	1,600..	70·4..	681..	1,000..	59·3..	37·
Sabaragamuwa	184,221..	13,645..	197,866..	1,941..	1,500..	75·4..	191..	1,000..	63·4..	33·
Northern	135,319..	10,839..	146,158..	1,292..	1,300..	69·8..	84..	600..	44·1..	53·
Uva	96,987..	5,466..	102,453..	1,772..	1,000..	62·6..	22..	200..	27·3..	80·
Mandapam Camp	31,456..	— ..	31,456..	— ..	— ..	— ..	— ..	— ..	— ..	—
Total	1,706,986	117,463	1,824,449	22,992	1,600	74.1	3,191	900	58.0	43.

(1) *Medical Institutions.*—Table III. gives the figures of treatments at Government institutions.

TABLE III.

Ankylostomiasis Treatments at Government Institutions during the Year 1933.

Province.	First Attendance.	Treatments.			Percentage of Total Treatments to 1st Attendance.
		First.	Subsequent.	Total.	
Sabaragamuwa ..	332,225	124,959	9,451	134,410	40·5
Central ..	425,496	142,230	17,128	159,358	37·5
Northern ..	325,579	108,988	10,839	119,827	36·8
Southern ..	690,777	218,962	24,505	243,467	35·2
Uva ..	140,089	44,410	2,459	46,869	33·5
Western ..	857,283	249,658	19,693	269,351	31·4
North-Central ..	212,744	55,619	1,874	57,493	26·9
North-Western ..	647,637	162,338	6,620	168,958	26·2
Eastern ..	250,863	62,674	2,313	64,987	25·9
Total for 1933 ..	3,882,693	1,169,838	94,882	1,264,720	32·6
Total for 1932 ..	4,022,010	1,210,848	166,778	1,327,626	33·0

Table IV. shows the treatments given by officers of the Department outside their institutions without the aid of campaign dispensers and without prejudice to their own daily routine work. It is pleasing to note that a large number of schools, estates, and villages have been thus treated, the excess over last year in the numbers treated being 7,448.

TABLE IV.

Treatments given by the Medical Officers of the Department outside their Institutions without the Aid of Campaign Staff during 1933.

Province	Schools.		Estates.		Villages.		Total.	
	Number.	Number treated.	Number.	Number treated.	Number.	Number treated.	Number.	Number treated.
Central ..	2	96	54	20,404	—	—	56	20,500
Uva ..	6	351	31	9,939	12	883	49	11,173
Southern ..	21	1,535	20	2,756	6	109	47	4,400
North-Western .	18	1,038	4	170	5	1,221	27	2,429
Northern ..	24	949	—	—	15	531	39	1,480
Eastern ..	5	142	—	—	2	63	7	205
North-Central ..	19	960	—	—	14	812	33	1,772
Sabaragamuwa .	—	—	7	1,502	—	—	7	1,502
Western ..	1	45	2	183	—	—	3	228
Total, 1933 ..	96	5,116	118	34,954	54	3,619	268	43,689
Total, 1932 ..								36,241

(2) *Campaign Dispensers.*—The following is the statement of the work done by the campaign dispensers during the year:—

TABLE V.

Ankylostomiasis Treatments given by the Campaign Dispensers in Schools, Estates, and Villages during 1933.

Province.	Census of School Children.	Treatments.				Percentage of School Children treated to Census.
		School Children.	Estate Labourers.	Others	Total.	
Central ..	31,617	20,986	74,782	23,190	118,958	
Western ..	46,052	24,501	5,743	10,818	41,062	
Sabaragamuwa .	14,721	7,872	17,555	8,719	34,146	
Uva ..	3,051	1,678	18,794	5,094	25,566	
Northern ..	33,582	16,090	—	8,761	24,851	
Southern ..	25,200	12,251	712	10,776	23,739	
North-Western .	21,121	13,944	352	8,232	22,528	
Eastern ..	7,548	5,436	50	11,395	16,881	
North-Central ..	682	419	—	897	1,316	
Total for 1933 ..	183,574	103,177	117,988	87,882	309,047	56·2
Total for 1932 ..	139,879	80,858	86,607	69,829	237,294	57·8

The census represents the average daily attendance in schools during the three months preceding the month of treatment.

This work has been supervised by the officers in charge of institutions, the Medical Officers of Health of Districts, the Assistant Inspecting Medical Officers, and the School Medical Officers. The work of the campaign staff in Health Unit areas is not shown here but is included in the work of the Health Units. The number of treatments by the dispensers during the year exceeds by 71,753 that of the previous year, the excess consisting of 22,319 school children, 31,381 estate labourers, and 18,053 villagers.

The table below gives a list of the different supervising officers with the number of units supervised.

TABLE VI.

Number of Schools, Estates, and Villages treated by Campaign Dispensers under the Supervision of Various Officers of the Department during the Year 1933.

Supervising Officers.	Schools.	Estates.	Villages.
District Medical Officers and Assistants ..	497	403	625
Apothecaries-in-charge of dispensaries ..	351	46	509
School Medical Officers	343	—	24
Medical Officers of Health of districts ..	265	—	63
Assistant Inspecting Medical Officer, Kandy	2	50	1
Assistant Inspecting Medical Officer, Bandarawela	—	15	—
Superintendent, Ankylostomiasis Campaign	8	—	—
Total for 1933 ..	1,466	514	1,222
Total for 1932 ..	1,199	399	1,004

In Table VII. is shown the work on estates by the campaign staff and by whom this was supervised.

TABLE VII.

Treatments given by Campaign Dispensers on Estates during 1933.

Supervising Officers.	Number of Estates treated.	Census	Number Treated.
District Medical Officers and Assistants ..	403 ..	114,953 ..	92,411
Apothecaries-in-charge of dispensaries ..	46 ..	10,840 ..	7,758
Assistant Inspecting Medical Officer, Kandy	50 ..	17,270 ..	13,580
Assistant Inspecting Medical Officer, Bandarawela	15 ..	5,015 ..	4,239
Total for 1922 ..	514	148,078	117,988
Total for 1932 ..	399	107,601	86,607

(3) *Health Units.*—The number of treatments aimed at during the year was 40,000. The number attained did not fall far short of that, viz., 36,621, which exceeds last year's figure by 9,795. The treatments were carried out mainly with the help of the campaign staff.

TABLE VIII.

Ankylostomiasis Treatments given by Health Units in 1933.

Health Unit.	1933.	1932.
Kadugannawa	5,274 ..	4,554
Kurunegala	5,242 ..	1,302
Matara	4,973 ..	4,807
Kegalla	4,616 ..	3,225
Panadure	4,610 ..	3,160
Kalutara	4,165 ..	3,014
Dehiwala	4,163 ..	3,314
Trincomalee	3,578 ..	3,450
Total ..	36,621	26,826

(4) *Mandapam Camp.*—The number of arrivals has been fewer than last year and consequently the number of treatments less. During the last three months of the year, however, there has been an improvement. The percentage of treatments to arrivals has dropped slightly. This is stated to be due to continuous rain in November and disinclination of labourers to take treatment in such weather.

TABLE IX.

Ankylostomiasis Treatments at Mandapam Camp in 1933.

	Number arrived.	Number treated.	Percentage treated.
January	904 ..	849 ..	93·9
February	1,014 ..	987 ..	97·3
March	1,733 ..	1,664 ..	96·0
April	1,377 ..	1,322 ..	96·0
May	1,598 ..	1,550 ..	97·0
June	2,537 ..	2,442 ..	96·2
July	2,829 ..	2,701 ..	95·5
August	2,219 ..	2,133 ..	96·1
September	3,629 ..	3,473 ..	95·7
October	4,544 ..	4,197 ..	92·4
November	5,627 ..	5,060 ..	89·9
December	5,487 ..	5,078 ..	92·5
Total for 1933 ..	33,498	31,456	93·9
Total for 1932 ..	51,428	49,276	95·8

(5) *Estate Medical Staff.*—The number of treatments given by the Estate Medical Staff had dropped considerably due to some extent to the order that only estate dispensers possessing a certificate of competency may administer mass treatment and then under medical supervision. This was done so that more efficient treatments might be administered. There is, however, a corresponding increase in the number of treatments given under medical supervision—152,942 in 1933, as against 109,000 in 1932.

Table X.

Ankylostomiasis Treatments reported as given by the Estate Medical Staff during 1933.

Province.	Census.	Treatments.		
		First.	Subsequent.	Total.
Central ..	214,364	67,919	12,864	80,783
Sabaragamuwa ..	61,572	18,998	4,194	23,192
Uva	69,994	16,016	2,829	18,845
Western	19,558	8,898	1,029	9,927
Southern	7,795	4,038	1,000	5,038
North-Western ..	2,376	1,081	50	1,131
Total for 1933 ..	375,659	116,950	21,966	138,916
Total for 1932 ..	404,856	156,179	30,037	186,216

Casualties after Treatment.—One case of death was reported after mass treatment, at a school near Matara. The patient, a boy of ten years of age, was given the combined treatment. He was heavily infested with roundworms, and the fatal result seems to have been contributed to by both the oil of chenopodium and carbon tetrachloride.

All officers were circularized to inform the Director of Medical and Sanitary Services immediately by telegram of any deaths following hookworm treatment so that proper investigation may be made.

Educational Work.—Campaign dispensers gave short talks on hookworm to patients awaiting treatment at out-door dispensaries and paid house to house visits in villages on propaganda work. Hookworm pamphlets were also freely distributed. Chart lectures were delivered at schools by dispensers and Medical Officers, and lantern lectures by Medical Officers. Posters, charts, specimens of intestinal parasites, and drugs used in anthelmintic treatment were sent to the various Health Exhibitions held in different parts of the Island, and often a dispenser was sent to help in the work, and to demonstrate eggs and larvae under the microscope.

Laboratory Work.—The same technique of egg-counting was followed as during the previous years, viz., Stoll's method, the specimens being classified according to the consistency of the stool, and all counts being reduced to the basis of formed stools. Not more than five days elapsed between the collection of a specimen and its examination. Specimens were collected from all parts of the Island, and so the results of laboratory examination gives a fair idea of the intensity of infection.

The following table gives the result of the Island-wide survey of 1924-25, worked out on the basis of formed stools and the before treatment egg-counts of 1933. The intensity of infection in the Island is shown to have been reduced from 2,200 to 1,600, *i.e.*, a reduction of 600 eggs per gram of faeces:—

TABLE XI.

The Average Egg-counts found during 1924-25 Survey and during the Year 1933 on the Basis of Formed Stools.

Province.	1924–25 Survey.		1933.	
	Number examined.	Average Egg-count per Gram per Person.	Number examined.	Average Egg-count per Gram per Person.
North -Central ..	1,301 ..	3,100 ..	115 ..	1,700
North-Western ..	3,408 ..	3,100 ..	2,637 ..	2,000
Northern	2,476 ..	2,700 ..	1,292 ..	1,300
Sabaragamuwa ..	3,879 ..	2,400 ..	1,941 ..	1,500
Eastern	3,396 ..	2,300 ..	1,165 ..	1,900
Southern	3,207 ..	1,900 ..	3,661 ..	1,600
Central	7,363 ..	1,900 ..	4,102 ..	1,600
Western	3,902 ..	1,900 ..	6,307 ..	1,700
Uva	3,575 ..	1,600 ..	1,772 ..	1,000
Total ..	32,507	2,200	22,992	1,600

The next table shows the different intestinal parasites found during the course of microscopical examinations. The specimens found negative by Stoll's method were also examined by Wills' method. A number of light infections missed by the former method were thus discovered, as evidenced by the fact that 79.9 per cent. of those examined were found to be infected with hookworm, before treatment, as against 74.1 per cent. in Table II., which shows the results given by Stoll's method only. The high percentage of infestation by roundworms will also be noticed.

TABLE XII.

The Percentage Infestation by the different Intestinal Worms.

	Before Treatment.		After Treatment.	
	Number.	Percentage infected.	Number.	Percentage infected.
Total examinations: 31,099				
Persons examined ..	27,851 ..	— ..	3,248 ..	—
Infected with—				
Necator americanus ..	22,259 ..	79·9 ..	2,086 ..	64·2
Ascaris lumbricoides ..	21,811 ..	78·3 ..	1,337 ..	41·2
Trichuris trichiura ..	22,089 ..	79·3 ..	2,515 ..	77·4
Enterobius vermicularis ..	712 ..	2·6 ..	56 ..	1·7
Taenia (Sp.) ..	38 ..	·14 ..	2 ..	·06

TABLE XIII.

Multiple Parasitic Infection.

	Before Treatment. Analysis of 27,851 Examinations.		After Treatment. Analysis of 3,248 Examinations.	
	Number.	Percentage.	Number.	Percentage.
Harbouring no parasite ..	1,269 ..	4·6 ..	193 ..	5·9
With one kind of parasite ..	3,709 ..	13·3 ..	576 ..	17·7
With two kinds of parasite .	6,941 ..	24·9 ..	1,011 ..	31·1
With three kinds of parasite	15,547 ..	55·8 ..	1,453 ..	44·7
With four kinds of parasite	385 ..	1·3 ..	15 ..	·46
Total infected with some kind of parasite ..	26,582 ..	95·4 ..	3,055 ..	94·1

The above table shows the wide prevalence of infestation with some form or other of intestinal parasite. Only 4.6 per cent. of the general population is found to be free of infection.

Research Work.—(1) Work was continued on complicated cases of ankylostomiasis at the General Hospital and Lying-in Home, and a microscopist is stationed at the General Hospital to do egg and worm counts. The following table shows the results of the egg-counts done on specimens from hospital patients during the year:—

Table XIV.

Results of Microscopical Examinations made using Stoll's Method at General Hospital and Lying-in Home during 1933.

Before Treatment.			After Treatment.		
Number examined.	Average Egg-count per Gram per Person.	Percentage infected.	Number examined.	Average Egg-count per Gram per Person.	Percentage infected.
1,864	4,200	75·2	48	500	35·4

(2) With a view to deciding whether tetrachlorethylene should be used instead of carbon tetrachloride in mass treatment, a series of treatments under field conditions were given in the Welikada Jail, in schools, estates, and in the Mandapam Camp, and the effects observed. This drug, which is reported to be less toxic than carbon tetrachloride, was tested in 1928 at the Welikada Jail and found to be just as effective as the latter against hookworm. The uniformly favourable reports on the drug led to the decision being made of using tetrachlorethylene instead of carbon tetrachloride in the future.

(3) Work has been started to determine with accuracy the percentage reduction in egg-count to be expected after a single mass treatment. A number of before and after treatment egg-counts have been made for this purpose.

(4) A start has been made to work out the effect of sewerage in reducing the incidence of hookworm in Colombo.

Anthelmintics used in the Campaign.—The anthelmintics used during the year were oil of chenopodium and carbon tetrachloride, either singly or combined. As mentioned above, it has been decided to use tetrachlorethylene instead of carbon tetrachloride in future.

The following are the quantities of the drugs expended during the last three years:—

	1931. lb.	1932. lb.	1933. lb.
Carbon tetrachloride	1,290	2,121	2,336
Oil of chenopodium	788	1,094	1,208

Conference on Ankylostomiasis.—Quarterly conferences were held during the year under the chairmanship of the Director of Medical and Sanitary Services. Quarterly reports of the progress of the campaign were submitted by the Superintendent, and matters connected with its advancement discussed.

Conclusion.—It is pleasing to note that the work of the campaign is going steadily forward, the effects being shown by an improvement in the general health of the population and the diminution in the number of those advanced cases of ankylostomiasis which were so commonly seen in former years.

Tables IV. to VIII. show that the reorganization of the campaign at the end of the year 1930 when the itinerating units were disbanded has been a great success in that apart from the fact that considerable economy has resulted the treatments given have greatly increased in number and improved in quality and larger number of villagers than ever in the past, amongst whom the highest degree of infection is seen, availed themselves of the facilities for treatment. Further, of greater importance is the fact that officers of the Department in general have undertaken the responsibility in the control of hookworm disease in their respective areas of their jurisdiction and worked whole-heartedly toward that end.

2.—GENERAL MEASURES OF SANITATION.

Conservancy: (1) *Public Latrines.*—During the financial year 1932-33, 13 public latrines were built by the Sanitary Boards and Village Committees throughout the Island as tabulated below:—

Province.	Number of Latrines.
Western	3
Central	—
Southern	5
Northern	5
Eastern	—
Sabaragamuwa	—
North-Western	—
Uva	—
	13

Government allowed a grant of Rs. 10,000 to the Government Agents towards the cost of these latrines for the financial year 1932-33.

(2) *Private Latrines.*—The following is a statement of work in this connection throughout the Island:—

(*a*) Number of notices served during the year—		
(1) To construct latrines		10,024
(2) To repair latrines		2,862
(3) To convert pits into dry-earth latrines		151
(*b*) Number of latrines—	Pit Latrines.	Dry-earth Latrines.
(1) Completed	6,441	876
(2) Repaired	2,438	827
(3) Pit latrines converted into dry-earth latrines ..	—	65
(*c*) Number of persons who failed to comply with the requirements of the notices		5,002
(*d*) Number of prosecutions entered		1,454
(*e*) Number of convictions obtained		870

The figures tabulated below show the work done on latrines in the various Provinces during the year 1933:—

Province.	Latrines completed.		Latrines repaired.		Pit Latrines converted into Dry-earth Latrines.
	Pits.	Dry-earth.	Pits.	Dry-earth.	
Western ..	2,736	284	1,572	517	5
Central ..	1,098	98	316	100	22
Southern ..	1,086	50	134	31	10
Northern ..	310	276	5	5	10
North-Western .	359	88	115	64	9
Uva ..	118	—	32	—	—
Sabaragamuwa .	730	43	255	28	—
North-Central ..	4	37	9	82	9
	6,441	876	2,438	827	65

Appended below is a statement as to the progress made regarding improvement of latrines according to recent instructions:—

Number of new latrines with cement concrete squatting plates	Bucket ..	136
	Bored-hole ..	129
	Pit ..	1,361
Number of old latrines improved by introduction of cement concrete squatting plates	Bucket ..	48
	Pit ..	472
Number of cement squatting plates made ..		2,043
Number of cement squatting plates sold ..		1,043

In Sanitary Board towns almost all the latrines are of the dry-earth type. Apart from these, there are a few bazaar areas and villages where dry-earth latrines have been put up voluntarily and conservancy is being done by Village Committees or on a co-operative basis.

In most areas the latrines are of the pit system.

Bored-hole latrines which had been introduced recently are functioning satisfactorily in places where such latrines are possible. 129 of them have been installed in rural areas.

Towards the latter part of the year under review, the new cement squatting plate was introduced in latrine construction to eliminate the insanitary wooden platforms which in themselves were a source of danger both directly and indirectly. Results achieved in this short period were encouraging. Very good work was done in some of the villages in the Negombo District.

It is recorded with gratitude that the Rockefeller Foundation has granted a sum of Rs. 5,000 to be used as a " Revolving Fund ' for making squatting plates for bored-hole latrines and for selling them to poorer householders on an instalment system.

The progress made in latrine construction during the year has been satisfactory considering the financial depression which has affected all classes of the community.

Disposal of Night Soil.—In the Sanitary Board towns and some of the rural areas where dry-earth conservancy is in vogue, night soil is disposed of by trenching on sites specially selected. The trenching grounds are regularly inspected and maintained in good order. In Talaimannar and Diyatalawa the night soil is incinerated.

As an experiment compost making with night soil was carried out in Jaffna, Kurunegala, Panadure, Nawala, and Wadduwa. Here the results have been successful and it is hoped to adopt this method of disposal of night soil and town refuse in other towns.

Scavenging and Disposal of Refuse.—Scavenging was carried out in all Sanitary Board towns under the supervision of Sanitary Inspectors. An adequate labour force is employed for this purpose and the work was satisfactorily done. The refuse from residential and trade premises, which is collected in dust bins or left in heaps by the roadside, is removed in scavenging carts to be ultimately disposed of by one of the following methods:—

(*a*) dumping, (*b*) burial in trenches, (*c*) incineration. Dumping in hollows and swamps serves a useful purpose but needs constant supervision. By this process, potential mosquito breeding places are gradually got rid of, but unless the work is properly supervised and the rubbish is evenly spread and covered with earth it can become a menace to health by increasing fly-breeding.

When composting is introduced to these towns it would help to dispose of soil and refuse in a profitable and satisfactory manner.

Water Supplies.—The question of a pure and adequate water supply is a very important one and much work has been done in the investigation of existing and proposed supplies.

The majority of towns in the low-country obtain their water supply from wells, the greater number of them, however, are shallow unprotected wells and action was taken to protect them whenever possible.

The work of the Sanitary Engineering Division in connection with water supplies of towns and hospitals is described in the section dealing with Sanitary Engineering.

Public Wells.—119 public wells were built during the year as shown below:—

Province.	Number built.
Western	11
Central	74
Southern	4
Northern	9
Eastern	5
Sabaragamuwa	8
North-Central	5
North-Western	3
	119

Private Wells.—

(*a*) Number of inspections made	124,450
(*b*) Number of wells found unprotected	57,882
(*c*) Number of notices served for improvement ..	103
(*d*) Number of wells improved	801
(*e*) Number of persons prosecuted	11
(*f*) Number of persons convicted	9

Examination of Water Supplies.—

Number of samples sent for—

(1) Bacteriological examination	45
(2) Chemical examination	33

Number of samples found unfit for drinking purposes—

(1) Bacteriologically	1
(2) Chemically	1

Whenever unsuitable supplies of water were detected the sources of such supply have been improved.

Safeguarding of private water supplies in rural areas still continues to be a difficult problem for lack of proper legislation. Tactful persuasion and education have been responsible for whatever has been done in this direction.

Licensed Trades.—The following is a statement of the applications for licensed trades dealt with :—

	Number of Applications.		
	Received.	Recommended.	Not Recommended.
(1) *Food and Drink Handling Trades.—*			
(1) Bakeries	566	515	51
(2) Tea and coffee boutiques ..	1,533	1,501	32
(3) Eating-houses	496	488	8
(4) Dairies	319	262	57
(5) Butchers' stalls	244	226	18
(6) Fish stalls	86	78	8
(7) Pork stalls	14	10	4
(8) Aerated water manufactories ..	12	10	2
(2) *Licensed Trade Premises.—*			
(1) Public galas	64	61	3
(2) Manure stores	16	15	1
(3) Soap manufactories ..	5	4	1
(4) Hide stores	9	2	7
(5) Lime kilns	31	23	8
(6) Brick kilns	11	8	3
(7) Laundries	93	70	23
(8) Cabook quarries	1	1	—
(9) Metal quarries	3	3	—
(10) Public bathing places ..	8	8	—
(11) Pits for soaking coconut husks ..	35	30	5
(12) Fibre mills	5	5	—
(13) Desiccating mills	12	12	—
(14) Tanneries	2	1	1
(15) Salt fish stalls	37	37	—

Maintenance of Sanitary Conditions of Licensed Trade Premises.—

(*a*) Number of premises inspected	7,301
(*b*) Number of notices served for breach of rules	1,646
(*c*) Number of notices voluntarily complied with (including some served in 1932)	1,852
(*d*) Number of persons prosecuted	311
(*e*) Number convicted	236
(*f*) Number warned and discharged	57

Sanitary Inspections.—The following is a statement of inspections done:—

(a) Private Premises.

Number of inspections made during the year	716,060
Number of premises found insanitary	230,577
Number of mosquito breeding places detected	31,012
Number of notices served to abate nuisances	6,013
Number of nuisances abated without prosecution	15,926
Number of persons prosecuted	477
Number of persons convicted	262
Number warned and discharged	134

(b) Railway Premises.

	Inspected.	Defective.	Defects remedied.
(1) Of Stations—			
Premises	1,337 ..	24 ..	20
Drains	627 ..	6 ..	6
Latrines	1,125 ..	11 ..	5
Mosquito breeding places ..	11 ..	6 ..	6
Water supplies	54 ..	2 ..	2
Scavenging	340 ..	41 ..	40
Conservancy	380 ..	17 ..	17
(2) Of Bungalows—			
Premises	3,117 ..	38 ..	26
Drains	2,767 ..	18 ..	16
Latrines	3,014 ..	22 ..	14
Mosquito breeding places ..	102 ..	42 ..	38
Water supplies	163 ..	18 ..	8
Scavenging	574 ..	67 ..	66
Conservancy	552 ..	45 ..	44
(3) Of Lines—			
Premises	8,613 ..	142 ..	90
Drains	8,556 ..	45 ..	18
Latrines	2,478 ..	67 ..	39
Mosquito breeding places ..	67 ..	21 ..	18
Water supplies	93 ..	12 ..	2
Scavenging	487 ..	110 ..	102
Conservancy	469 ..	63 ..	52

In Sanitary Board towns, all food handling trades (viz., bakeries, tea and coffee boutiques, eating houses, dairies, vegetable, fish, and meat stalls) are licensed yearly by the Chairman of the Board on the recommendation of the Medical Officer of Health.

The Sanitary Inspectors in the area visit the trade premises regularly and see that they are maintained in a clean and sanitary state. A separate trade register is kept by each Inspector and the findings on their inspection are entered therein regularly. All the trade premises in the area are visited at least twice a month—in the Sanitary Board towns more often.

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

The following statement gives particulars of offences against sanitary regulations which have not already been mentioned:—

Offences.	Number prosecuted.	Number convicted.
Erection of unauthorized buildings	200 ..	129
Alterations to buildings without permit ..	32 ..	26
Failing to demolish temporary sheds	1 ..	1
Occupying buildings after compulsory closure ..	16 ..	16
Occupying buildings without certificate of conformity	20 ..	12

Offences.	Number prosecuted.	Number convicted.
Failing to improve insanitary houses	7 ..	4
Deviating from approved plan	45 ..	32
Failing to provide drains	1 ..	—
Sinking wells without the permission of the Chairman, Sanitary Board	3 ..	2
Faecal pollution	193 ..	147
Carrying on trades without licence	424 ..	326
Depositing rubbish in drains	20 ..	18
Throwing rubbish on public roads	27 ..	21
Failing to clear rank vegetation	73 ..	54
Failing to provide dust bins	49 ..	16
Failing to fill in insanitary pits	37 ..	34
Exposing for sale food on roadside	31 ..	23
Exposing food to the contamination of flies ..	20 ..	15
Exposing for sale food unfit for human consumption ..	84 ..	70
Leaving infected area without permission ..	2 ..	2
Failing to notify cases of infectious diseases ..	146 ..	134

3.—SCHOOL HEALTH WORK.

During and prior to 1932 School Health Work was carried out by five full-time School Medical Officers—two stationed at Colombo, one each at Jaffna, Kandy and Galle. The whole Island was thus divided into four inspectorates. Of the two School Medical Officers at Colombo one was a woman to deal with Girls' Schools and Colleges. The areas assigned were far too large for carrying out any effective scheme of work.

During the early part of 1933 School Health Work was reorganized on the following basis:—

(*a*) The areas assigned to the whole-time School Medical Officers were reduced to what could reasonably be dealt with by them as follows:—

Colombo School Medical Officers ...	Colombo Municipal Area
Jaffna School Medical Officer ...	Jaffna Urban District Council Area.
Kandy School Medical Officer ...	Kandy Municipal Area and Harispattu and Tumpane
Galle School Medical Officer ...	Galle Municipality and Galle Gravets.

(*b*) Schools in Health Unit Areas were handed over to Health Unit Medical Officers of Health.

(*c*) Schools in towns where District Medical Officers of Health were resident and schools coming within their itineraries were dealt with by these officers. For dealing with the latter type of schools 3 additional days per month were provided for in their travelling.

(*d*) Schools coming within easy reach of hospitals were to be dealt with by District Medical Officers. Definite instructions were drawn up and issued for the guidance of officers carrying out School Health Work to develop and ensure uniformity throughout the Island. Work during the year has consisted largely in organizing and developing the necessary routine in various matters.

School Health Work includes the following:—

(*a*) Medical Inspection of School Children.
(*b*) Correction of Defects.
(*c*) School Sanitation.
(*d*) Health Education.
(*e*) Control of Communicable Diseases.

The number of schools in the Island amounts to *8,148* (not including special types of schools and unregistered schools) and the school population to about *600,000*. The work at present does not embrace the whole Island but is being fully developed in definite small areas from which it can expand.

The *personnel* engaged in the work during the year has consisted of 5 whole-time School Medical Officers, 25 Medical Officers of Health, 6 Medical Officers, and 5 nurses as follows:—

Province.	School Medical Officers.	Medical Officers of Health.	Medical Officers.	Nurses.
Western Province ..	2	7	1	2
Central Province ..	1	4	—	1
Southern Province ..	1	3	2	1
Northern Province ..	1	1	2	1
Eastern Province ..	—	2	1	—
North-Central Province ..	—	1	—	—
North-Western Province ..	—	3	—	—
Province of Uva ..	—	1	—	—
Province of Sabaragamuwa ..	—	3	—	—
Total ..	5	25	6	5

In addition Public Health Nurses attached to Health Units have also carried out a limited amount of School Nursing.

Schools and School Population.—The schools assigned for health work amount to 990, of which 270 are boys', 203 girls', and 517 mixed; 695 are primary and 295 secondary; 373 Government, 571 aided, and 46 unaided as follows:—

Province.	Boys.	Girls.	Mixed.	Primary.	Secondary.	Government.	Aided.	Unaided.
Western Province ..	105..	89..	165..	309..	50..	98..	241..	20
Central Province ..	62..	39..	106..	127..	80..	103..	88..	16
Southern Province ..	32..	28..	109..	98..	71..	78..	88..	3
Northern Province ..	10..	12..	35..	33..	24..	6..	51..	—
Eastern Province ..	24..	7..	27..	53..	5..	18..	40..	—
North-Central Province	1..	—..	7..	8..	—..	—..	7..	1
North-Western Province	15..	11..	36..	11..	51..	34..	25..	3
Province of Uva ..	4..	4..	5..	8..	5..	4..	9..	—
Province of Sabaragamuwa ..	17..	13..	27..	48..	9..	32..	22..	3
Total ..	270	203	517	695	295	373	571	46

The school population of these 990 schools totals 186,831, of which 59,446 are in boys' schools, 37,682 in girls' schools, and 89,683 in mixed schools; 115,583 in primary schools, and 71,248 in secondary schools; 70,108 in Government schools, 113,843 in aided, and 2,880 in unaided as follows:—

Province.	Boys.	Girls.	Mixed.	Primary.	Secondary.	Government.	Aided.	Unaided.
Western Province ..	26,374..	20,914..	34,170..	61,438..	20,020..	22,142..	58,594..	722
Central Province ..	11,769..	5,934..	16,420..	20,435..	13,688..	17,884..	14,694..	1,545
Southern Province ..	6,320..	4,069..	18,824..	12,612..	16,601..	12,559..	16,427..	227
Northern Province ..	2,933..	2,382..	5,262..	3,704..	6,873..	955..	9,622..	—
Eastern Province ..	3,546..	731..	2,192..	5,735..	734..	2,347..	4,122..	—
North-Central Province ..	126..	— ..	621..	747..	— ..	— ..	712..	35
North-Western Province ..	3,137..	1,450..	6,629..	1,485..	9,761..	6,631..	4,496..	119
Province of Uva ..	1,120..	671..	479..	1,126..	1,144..	606..	1,664..	—
Province of Sabaragamuwa.	4,141..	1,501..	5,086..	8,301..	2,427..	6,984..	3,512..	232
Total ..	59,466	37,682	89,683	115,583	71,248	70,108	113,843	2,880

Visits to Schools.—Of the 695 primary schools 623 have been visited and of the 295 secondary schools 203 have been visited. 3,011 visits or 3.7 visits per school were made.

Medical Inspection of School Children.—Children in 529 schools out of the 990 assigned for work have been medically examined. The proposal is to examine a child 3 times during its school career, at entrance, in the 4th standard, and the 7th standard. The time taken for the examination of each child is about 5 minutes.

60,791 children have been medically examined, of whom 40,607 or 66.5 per cent. were boys and 20,184 or 33.5 per cent. girls; 40,753 or 66.5 per cent. were from primary schools and 20,038 or 33.5 per cent. from secondary schools as follows:—

Province.	Scholars examined.				
	Total.	Boys.	Girls.	Primary.	Secondary.
Western Province ..	17,456	10,107	7,349	9,542	7,914
Central Province ..	8,762	5,802	2,960	6,486	2,326
Southern Province ..	21,139	15,412	5,727	16,431	4,708
Northern Province ..	3,481	2,017	1,464	1,540	1,941
Eastern Province ..	2,462	2,883	79	2,145	317
North-Central Province ..	596	344	252	596	—
North-Western Province ..	2,505	1,752	753	1,090	1,415
Province of Sabaragamuwa ..	3,580	2,288	1,292	2,626	954
Province of Uva ..	810	502	308	347	463
Total ..	60,791	40,607	20,184	40,753	20,038

57,162 of the children examined received a first examination, 3,590 a second, and 39 a third. Of 60,791 examined 31,605 or 52.5 per cent. have been found to be defective with 48,813 defects or 1.5 defects per defective child as follows:—

Province.	Schools examined.	Number First Examination.	Number Second Examination.	Number Third Examination.	Total examined.	Number Defective.	Percentage Defective	Number of Defects.	Defects per Defective Child.
Western Province ..	194..	15,356..	2,083..	17..	17,456..	10,074..	57·3..	15,986..	1·5
Central Province ..	96..	8,732..	30..	— ..	8,762..	4,938..	56·4..	10,239..	2·0
Southern Province ..	54..	20,640..	499..	— ..	21,139..	7,860..	37·0..	7,117..	0·9
Northern Province ..	60..	3,481..	— ..	— ..	3,481..	2,333..	67·0..	3,678..	1·6
Eastern Province ..	24..	2,435..	27..	— ..	2,462..	1,212..	49·2..	1,438..	1·1
North-Central Province ..	9..	277..	319..	— ..	596..	419..	70·3..	957..	2·1
North-Western Province ..	25..	2,505..	— ..	— ..	2,505..	1,743..	69·5..	4,401..	2·5
Province of Sabaragamuwa ..	54..	3,036..	522..	22..	3,580..	2,421..	67·6..	3,864..	1·6
Province of Uva ..	13..	700..	110..	— ..	810..	605..	77·4..	1,133..	1·9
Total ..	529	57,162	3,590	39	60,791	31,605	52·5	48,813	1·5

The examinations by the different groups of Medical Officers were as follows:—

Province.	School Medical Officers.	District Medical Officers of Health.	Health Unit Medical Officers of Health.	Medical Officers.
Number	5 ..	25 ..	8 ..	5
Western Province	8,929 ..	3,292 ..	5,235 ..	—
Central Province	6,349 ..	2,038 ..	375 ..	—
Southern Province	17,212 ..	1,374 ..	619 ..	1,934
Northern Province	3,212 ..	82 ..	— ..	187
Eastern Province	— ..	2,324 ..	138 ..	—
North-Central Province	— ..	596 ..	— ..	—
North-Western Province	— ..	1,602 ..	903 ..	—
Province of Sabaragamuwa ..	— ..	1,607 ..	1,973 ..	—
Province of Uva	— ..	810 ..	— ..	—
Total ..	35,702	13,725	9,243	2,121

Correction of Defects.—The following tables show the defects found in children at inspection, defects corrected, and their percentages:—

TABLE I.

Defects.	Total.	Percentage each Defect, Forms of Total Defects.	W. P.	C. P.	S. P.	N. P.	E. P.	N. C. P.	N. W. P.	Sab.	Uva.
Malnutrition	4,377	10	1,045	369	1,169	1,255	31	108	155	222	23
Unvaccinated	997	2·3	228	229	169	85	—	15	65	145	34
Eyes	687	1·6	253	176	45	—	18	—	11	184	—
Ears	198	0·45	78	37	9	2	1	1	28	42	—
Defective vision	1,268	3·11	670	175	187	66	34	—	25	93	18
Defective hearing	200	0·45	81	38	14	8	7	—	50	2	—
Enlarged glands	2,423	5·5	740	354	107	469	1	2	63	187	—
Teeth and gums	10,563	24·0	5,455	1,288	1,468	830	296	—	512	714	—
Nose	158	0·38	62	29	20	—	1	—	44	2	—
Adenoids	49	0·11	20	1	1	—	—	—	2	—	25
Tonsils	5,374	12·2	1,573	1,429	503	73	26	123	799	590	258
Heart	166	0·4	56	11	22	3	—	8	56	10	—
Lungs	60	0·02	14	11	4	—	1	1	6	23	—
Hernia	12	0·03	—	—	—	1	1	—	9	1	—
Orthopaedic	87	0·2	17	41	8	1	2	—	6	12	—
Nervous system	18	0·04	1	13	1	—	—	1	—	2	—
Skin	952	2·2	289	116	311	31	22	30	103	50	—
Scalp	60	0·02	16	—	4	1	4	—	30	4	1
Rickets	59	0·13	15	11	5	4	—	—	24	—	—
Hookworm	9,619	22·0	3,334	1,953	1,731	126	663	377	932	207	296
Malaria	647	1·5	11	91	56	118	10	—	333	19	9
Abnormal behaviour	5	0·01	—	—	—	1	—	—	4	—	—
Mental defects	4	·009	1	1	—	1	—	—	—	1	—
Pediculosis	3,952	9·0	911	1,035	541	39	45	35	564	686	96
Scabies	553	1·3	209	15	39	171	68	29	12	9	1
Ringworm	69	0·15	5	17	24	1	6	—	14	1	1
Other defects	1,487	3·0	120	211	541	364	45	—	89	36	81

TABLE II.

Defects.	Total found.	Total corrected.	Percentage corrected.	Defects corrected at W. P.	C. P.	S. P.	N. P.	E. P.	N. C. P.	N. W. P.	Sab.	Uva.
Malnutrition	4,377	651	15	134	46	121	245	6	87	—	12	—
Unvaccinated	997	528	53	41	167	118	19	—	15	24	110	34
Eyes	687	107	16	90	—	2	—	15	—	—	—	—
Ears	198	33	17	—	—	3	—	—	1	—	29	—
Vision	1,268	205	16	94	62	39	—	—	—	2	—	8
Hearing	200	29	14·5	22	4	1	2	—	—	—	—	—
Enlarged glands	2,423	15	0·6	—	3	10	—	—	2	—	—	—
Teeth and gums	10,563	1,316	12	1,056	72	132	21	—	—	—	35	—
Nose	158	29	17	12	—	3	14	—	—	—	—	—
Adenoids	49	—	—	—	—	—	—	—	—	—	—	—
Tonsils	5,374	635	12	232	212	54	—	—	123	—	8	6
Heart	166	9	0·5	—	—	1	—	—	8	—	—	—
Lungs	60	1	1·6	—	—	—	—	—	1	—	—	—
Hernia	12	—	—	—	—	—	—	—	—	—	—	—
Orthopaedic	87	—	—	—	—	—	—	—	—	—	—	—
Nervous system	18	—	—	—	—	—	—	—	—	—	—	—
Skin	952	326	34	34	89	145	—	19	30	5	4	—
Scalp	60	8	13	—	—	4	—	—	—	—	3	1
Rickets	59	—	—	—	—	—	—	—	—	—	—	—
Hookworm	9,619	3,826	40	907	571	982	13	542	377	70	95	269
Malaria	647	51	8	4	6	13	9	10	—	—	—	9
Abnormal behaviour	5	—	—	—	—	—	—	—	—	—	—	—
Mental defects	4	—	—	—	—	—	—	—	—	—	—	—
Pediculosis	3,952	1,907	48	60	730	281	39	—	35	90	585	87
Scabies	553	251	45	115	14	7	28	68	—	11	7	1
Ringworm	69	51	74	—	—	3	—	3	29	14	1	1
Other defects	1,487	383	36	20	86	182	67	6	—	15	7	—

The more common defects found at inspection have been dental caries (24 per cent. of total defects), hookworm infestation (22 per cent.), tonsils (12 per cent.), malnutrition (10 per cent.), and pediculosis (9 per cent.). These five defects constitute 77 per cent. of all the defects.

Dental caries is the most common defect that has to be dealt with in school children. Out of 60,791 children examined 10,563 or 17 per cent. have been noted to have some defect of the teeth or gums, and it constitutes nearly one quarter of all the defects found. The School Medical Officer, Kandy, finds that the condition is more common among the urban than the rural children and more among the children attending secondary schools than primary schools. The School Medical Officer, Colombo, who is a dental surgeon, carrying out a very careful dental survey of Colombo school children has found the percentage of children with dental defects to be 76 per cent.

Of the 10,563 defects found, only 1,316 or 12 per cent. have been corrected, most of which have been in the Western Province (Colombo) where only facilities for correction are available. A scheme for providing dental care to school children was discussed by managers and principals of Colombo schools at the instigation of the School Medical Officer whereby children would be requested to subscribe Re. 1 per term and with it the principal of the school would make arrangements with private dentists to provide children with the necessary preventive care. It was the intention that schools should group themselves together and engage the services of a dentist. This arrangement did not prove satisfactory and during the year the School Medical Officer, Colombo, has embarked on a different plan and that is to get the school to provide for the pupils a dental room properly equipped in the school premises so that children could be attended to in the school itself instead of having to visit the dentist at his chamber, which often involved a long journey and more than one journey. During the year one such dental room has been established at the Kotahena Convent and arrangements are on foot to establish others.

This arrangement will meet to an extent the dental needs of the Colombo school children but those of the remainder of the Island are unprovided for. During the year matters were discussed at Galle between the School Medical Officer, Provincial Surgeon, and school principals to organize dental care on the original Colombo plan and three schools have agreed to make use of the service of the one available dentist.

Dental care which is a very important need of the school child calls for urgent attention, not only for the sake of the child but also for the officers doing school health work who may lose heart on finding themselves against a blank wall when they discover a defect which is very common and cannot do anything for it. A school dental service is required at Galle, Jaffna, Kandy, and other provincial towns. For rural schools such a service is also needed and would be especially useful in health unit areas.

Hookworm infestation is the next most common defect. Out of 60,791 children examined 9,619 or 16 per cent. have been noted with this condition. This does not in any way give a correct picture of hookworm infestation as the diagnosis is made on the anaemia noted and not on microscopical diagnosis. This condition constitutes 22 per cent. of total defects. Of the 9,619 who had obvious signs of the disease only 3,826 or 40 per cent. have been treated. The systematic mass treatment that is being carried out should produce useful results.

Tonsils.—Enlarged tonsils constitute 12 per cent. of the total defects and 9 per cent. of the children examined suffer from it. Of the numbers found only 12 per cent. have had the condition corrected.

Malnutrition is the next most common defect. It constitutes 10 per cent. of the total defects and 7 per cent. of children examined are under-nourished. This again is not a correct picture because the diagnosis is not made on any standard. This group constitutes the obviously under-nourished so that in fact there will be a larger number coming into it.

This condition is being dealt with in some of the Colombo schools by the provision of a midday meal at the expense of the Colombo Municipality who provide a sum of Rs. 15,000 annually. At Jaffna the School Medical Officer has been successful in inducing the Urban District Council to provide Rs. 1,500 to start the work in one school. Effort is being made to get the Galle Municipal Council to make similar provision. In rural areas the provision of a midday meal is being arranged for by voluntary effort by contributions from the parents of the children themselves. This has been commenced in a few rural schools but the problem of malnutrition cannot be met entirely by these simple meals which in rural schools are not complete. The subject of nutrition from a practical point of view is being stressed in schools and attention focussed as one of the health habits, namely, the eating of three proper meals a day.

Of the 4,377 children found to be under-nourished only 651 or 16 per cent. were corrected.

Pediculosis constitutes 9 per cent. of total defects and 6 per cent. of children examined had this condition. 1,907 of the cases found or 48 per cent. have been treated and freed from lice.

Unvaccinated Children.—997 children out of 60,791 examined, *i.e.*, 1.6 per cent., were found to be without marks of vaccination. Of these 528 or 53 per cent. were vaccinated.

Ophthalmic Defects.—687 or 1 per cent. of the children examined have some defect of the eye. The Medical Officer of Health, Health Unit, Paranakuru korale, in the course of his inspection discovered a number of cases of trachoma distributed throughout his area. Arrangements have been made for treatment at the local hospitals during the earlier stages of the disease and at the Kandy Eye Institute when more advanced treatment was required. Of the 687 children found with defects, 107 or 16 per cent. had them attended to.

1,268 or 2 per cent. of these examined had defective vision which constitute 3 per cent. of total defects. 205 or 16 per cent. provided themselves with glasses. Out of the funds allotted by the Education Department the School Medical Officers spent during 1933 a sum of Rs. 424.50 for the free supply of spectacles to poor children.

Malaria is a problem in the Island. At inspection only 647 or 1 per cent. showed evidence of it, which constitutes 1.5 per cent. of total defects. Fifty-one or 8 per cent. had the condition dealt with. Free quinine is available at every dispensary and hospital in the Island and prophylactic quinine is administered in schools situated in hyper-endemic areas.

Scabies.—553 or 0.9 per cent. of the children examined had this condition which constitutes 1.3 per cent. of the total defects. 251 or 45 per cent. had this defect corrected. Sulphur ointment is made available in schools for the treatment of this condition.

Ringworm.—Sixty-nine or 0.1 per cent. of the children examined had this defect which constitutes 0.15 per cent. of total defects. Fifty-one or 74 per cent. had this defect corrected.

The most important part of school health work is the correction of defects. A routine has been set up for their correction and it requires the co-operation of parents, teachers, and pupils to obtain the maximum results. It is recognized that at present specialist treatment for dental defects can be given only in Colombo; for enlarged tonsils in Colombo, Kandy, Jaffna, and Galle; and for defects of vision in Colombo, Kandy, Galle, Jaffna, Badulla, and Batticaloa. Such conditions as malaria, hookworm, scabies, pediculosis, and ringworm are dealt with in the school clinics while other conditions are referred to the nearest hospital or dispensary where free treatment is provided.

The following statement shows the total defects, defects corrected, and percentage corrected by Provinces:—

Province.	Defects found.	Defects corrected.	Percentage corrected.
Western Province	15,760	3,001	19·0
Central Province	8,819	2,212	25·0
Southern Province	7,328	2,868	39·0
Northern Province	3,618	449	12·0
Eastern Province	1,438	669	0·5
North-Central Province ..	957	502	55·5
North-Western Province ..	4,401	217	5·0
Province of Sabaragamuwa ..	3,247	896	28·0
Province of Uva	1,133	442	39·0
Total ..	46,701	11,256	24·0

The correction of defects through school clinics is being developed especially in rural areas where health centres are available.

Well established clinics in Colombo and Kandy have continued their work. A new clinic was established by the School Medical Officer, Galle, at the out-door dispensary there.

In health units clinics have been held at the schools and later arrangements made to assemble the children of several schools at health centres so that at one session children of several schools could be dealt with.

In addition to this arrangements have been made for the holding of school clinics at hospitals and dispensaries on Saturday mornings. The following statement shows centres at which clinics have been held, the number of clinics held, and the conditions dealt with at them, by Provinces:—

	W.P.	C.P.	S.P.	N.P.	E.P.	N.C.P.	N.W.P.	Sab.	Uva.	Total.
Number of centres	26	5	2	1	5	—	2	—	—	41
Number of clinics held	360	12	103	36	52	—	51	—	—	614
Defects dealt with.										
Scabies	31	2	4	23	126	—	3	—	—	189
Ulcers	8	—	33	—	—	—	2	—	—	43
Wounds	—	—	—	—	—	—	3	—	—	3
Skin disease	520	—	—	2	—	—	4	—	—	526
Pediculosis	55	62	—	—	—	—	36	—	—	153
Otorrhoea	—	—	—	—	—	—	3	—	—	3
Hookworm	1,029	27	241	13	—	—	—	—	—	1,310
Vaccination	5	22	—	17	—	—	—	—	—	44
Stomatitis	—	30	—	—	—	—	—	—	—	30
Keratomalacia	—	2	—	—	—	—	—	—	—	2
Defective vision	—	—	—	2	—	—	—	—	—	2
Dental caries	2,888	—	32	14	—	—	—	—	—	2,934
Enlarged tonsils	—	—	3	21	—	—	—	—	—	24
Rheumatism	—	—	3	—	—	—	—	—	—	3
Unclean	—	—	—	60	—	—	—	—	—	60
Influenza	—	—	8	—	—	—	—	—	—	8
Malaria	—	—	—	9	—	—	—	—	—	9
Bronchitis	—	—	8	—	—	—	—	—	—	8
Malnutrition	194	—	148	235	—	—	—	—	—	577
Sore mouth	—	—	24	—	—	—	—	—	—	24
Yaws	568	—	—	—	—	—	—	—	—	568
Scars	467	—	—	—	—	—	—	—	—	467
Eczema	—	—	2	—	—	—	—	—	—	2
Other defects	—	—	30	7	—	—	—	—	—	37
Total	5,765	145	536	403	126	—	51	—	—	7,026

Sanitation.—The aim is to have in every school—

(*a*) adequate sanitary latrines,
(*b*) adequate urinals,
(*c*) proper storage of boiled water in a covered vessel provided with a tap in rural schools and where running water is available provision of drinking fountains,
(*d*) individual drinking cups.

In addition to improvement of school furniture and provision of dust bins, attention is being paid not only to the provision of these sanitary facilities but also to their proper maintenance and use.

Health Education.—Stress is being paid to health education in schools as part of the school health programme. It is no use correcting defects if children are not taught how to prevent their occurrence or recurrence. This work is carried out in association with the Education Department and as a first step the training of teachers in health education is undertaken by the School Medical Officers and Medical Officers of Health. During the year 29 training classes for teachers were held at which 1,191 teachers attended as follows:—

Province.	Training Classes.	Number of Teachers trained.
Western Province	9	420
Central Province	2	126
Southern Province	3	102
Northern Province	5	133
Eastern Province	3	100
North-Central Province	1	32
North-Western Province	5	257
Province of Sabaragamuwa	1	21
Province of Uva	—	—
Total	29	1,191

The following routine health education procedures are being introduced into schools without in any way interfering with the school curriculum.

Daily morning inspection for—

(*a*) cleanliness,
(*b*) early signs of infectious disease,
(*c*) stressing some particular health habit, scoring of the health habit training booklet, and maintenance of class room charts.

Use of the handkerchief.

Use of the individual drinking cup when storage of water is in covered cisterns.

Provision of a midday meal for which purpose individual drinking cups are useful.

Weighing of children each term and measuring them once in six months.

Maintenance of a class room chart showing age, height, average weight for age and height and actual weight of each child.

Provision of a first aid cabinet.

Maintenance of a health log book.

Pupil participation in the maintenance of sanitary facilities and general sanitation of school and surroundings through school organizations called health boards, health councils, &c.

Direct teaching.

Teaching of health by correlation.

Field visits.

Instruction and demonstration in mother craft and home nursing.

Organized and supervised play.

The following is a statement prepared from reports from School Medical Officers and Medical Officers of Health as to the schools carrying out these routine school health activities:—

Health Education Procedures.	W.P.	C.P.	S.P.	N.P.	E.P.	N.C.P.	N.W.P.	Sab.	Uva.	Total.
Daily morning inspection	333	6	94	—	62	7	49	31	8	590
Health habit training	107	2	32	—	36	6	16	9	—	208
Weighing and measuring	69	9	15	—	15	—	25	35	13	181
Use of handkerchief	40	1	21	—	17	1	3	—	—	83
Midday meal	33	—	13	—	—	—	—	—	—	46
Pupil participation	5	1	7	—	2	—	3	—	—	18
Health log book	11	1	7	1	62	—	13	—	—	95
Direct teaching	235	1	65	2	62	7	70	55	13	510
Correlation	70	—	16	1	62	7	33	19	—	208
Field visits	15	1	65	—	1	—	3	9	—	94
Mother craft and home nursing	17	2	6	—	2	—	3	2	—	32
Organized and supervised play	72	9	62	2	11	7	54	48	13	278

Control of Communicable Diseases.—The reported incidence of communicable diseases in schools by Provinces is as follows:—

Provinces.	Chickenpox.	Dysentery.	Enteric.	Measles.	Mumps.	Phthisis.	Whooping Cough.
Western Province	104	—	—	553	—	—	7
Central Province	124	—	2	76	1	—	20
Southern Province	12	—	—	239	—	—	—
Northern Province	—	—	—	—	—	—	—
Eastern Province	22	3	1	15	—	—	—
North-Central Province	—	—	—	—	—	—	—
North-Western Province	142	15	7	493	4	2	1
Province of Sabaragamuwa	68	—	1	99	1	—	—
Province of Uva	8	—	—	13	—	—	—
Total	480	18	11	1,488	6	2	28

Fifty-five schools have been closed on account of communicable diseases as follows:—

W.P.	C.P.	S.P.	N.P.	E.P.	N C.P.	N. W.P.	Sab.	Uva.	Total.
4	7	14	2	1	—	7	20	—	55

In the control of communicable diseases steps have been taken to set up a outine by which head teachers of schools would report to the nearest Sanitary nspector or Medical Officer of Health the absence of children over three days n account of illness and of children sent away for suspicious signs of infectious isease. On receipt of this information the Sanitary Inspector would go and in-estigate and take necessary action. This routine has been set up in 7 schools the Western Province, 3 schools in the Eastern Province, 37 schools in the orth-Western Province, 11 schools in the Province of Sabaragamuwa, and 13 chools in the Province of Uva.

Quinine is administered during the malaria season as a prophylactic in schools hyper-endemic areas and the following is a statement of the number of schools which they were administered and the number of children who received it:—

Province.	Schools.	Children.
Western Province	—	—
Central Province	—	—
Southern Province	48	6,514
Northern Province	50	1,509
Eastern Province	35	2,956
North-Central Province	8	637
North-Western Province	54	10,705
Province of Sabaragamuwa	2	200
Province of Uva	8	1,521
Total	205	24,042

Quinine was administered in 7 Provinces to 24,042 children in 205 schools.

Hookworm Treatment.—Administration of hookworm treatment is a routine rocedure in schools. It was administered by School Medical Officers and Medi-al Officers of Health in 957 schools to 68,668 children as follows:—

Province.	Number of Schools.	Number of Children.
Western Province	362	23,148
Central Province	112	10,399
Southern Province	101	9,584
Northern Province	48	3,679
Eastern Province	167	7,222
North-Central Province	8	343
North-Western Province	92	8,696
Province of Sabaragamuwa	53	4,823
Province of Uva	14	774
Total	957	68,668

Anti-typhoid inoculation is given to school children when cases occur in the ommunity. A total of 2,495 first doses and 2,040 second doses have been dministered as follows:—

Province.	First Dose.	Second Dose.
Western Province	613	465
Central Province	523	395
Southern Province	273	271
Northern Province	962	794
Eastern Province	35	26
North-Central Province	—	—
North-Western Province	11	11
Province of Sabaragamuwa	—	—
Province of Uva	78	78
Total	2,495	2,040

Anti-Smallpox Vaccination.—29,570 school children were vaccinated. This large number is due to the epidemic of smallpox that prevailed during the early part of 1933. The vaccinations done by Provinces is as follows:—

Provinces.	Number vaccinated.
Western Province	19,024
Central Province	101
Southern Province	3,316
Northern Province	2,228
Eastern Province	13
North-Central Province	359
North-Western Province	2,862
Province of Sabaragamuwa	962
Province of Uva	705
Total ..	29,570

During the course of 1934 it is proposed to get the work already taken in hand better established and to get District Medical Officers to take up for work schools located close to their hospitals.

4.—LABOUR CONDITIONS.

It is satisfactory to be able to record a considerable recovery in the world prices of tea and rubber during the last few months of 1933. It is significant that no less than 241 rubber estates were reopened during the course of the year. The price of tea has recovered distinctly and has maintained its upward tendency even since the usual " peak " period in August. This recovery of the market prices has been reflected already in the movements of immigrant labour. During the earlier part of 1933 the closure of estates, or the cutting down of expenses in working them, had resulted in the repatriation by the Controller of Labour of a very large number of immigrant labourers. The effect of the rise in prices was to stem the efflux of labour, and from September onwards there has been immigration.

It is to be hoped that this more favourable financial situation may enable estates generally to effect some of the essential improvements in the housing and general sanitary conditions of their labourers which it was considered unreasonable and indeed impossible to insist on during the very unfavourable conditions which prevailed in 1933.

MEDICAL WANTS ON ESTATES IN 1933.

The only change in the number of Government hospitals scheduled to estates was the closure, on grounds of economy, of the Lindula Hospital. There remained therefore at the end of the year 65 scheduled Government hospitals (exclusive of 4 infectious diseases hospitals which are reckoned as part of the local district hospitals) and 107 Government dispensaries. Eighty-four estates maintained their own private hospitals, as against 87 in 1932. 727 estate dispensaries were maintained in 1933, as against 720 in 1932.

Rebates payable to estates which maintained their own hospitals amounted to Rs. 175,080 in 1933, as against Rs. 191,400 in 1932. The value of drugs supplied to estates fell from Rs. 247,594.96 to Rs. 237,603.35.

The statement of the revenue and expenditure of the administration of the Medical Wants Ordinance for the year ended September 30, 1933, is as follows:—

REVENUE.	Rs.	c.
(*a*) Surplus brought forward from previous statement	2,378,279	8
(*b*) Amount of all sums recovered as visiting or maintenance fees under section 10.	88,117	6
(*c*) Amount of all fines recovered in respect of all offences against the Ordinance ..	28	8
(*d*) Amount of all sums recovered as the cost price of drugs supplied to Superintendents under section 9 (*d*)	3,064	
(*e*) Amount of export duty collected under—		
Section 28 .. .. .. Rs. 1,315,994 94		
Less rebates paid 175,080 0		
	1,140,914	9
(*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	116,872	7
	3,727,278	1

EXPENDITURE.

	Rs.	c.
Any deficiency brought forward from previous statement	—	
Pro rata share of the actual expenditure (including salaries of staff) of all hospitals in which immigrant labourers have been treated.. ..	420,063	41
Ditto of all dispensaries ditto..	23,199	4
Ditto Ankylostomiasis Campaigns	27,930	85
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 primarily constructed for the accommodation of immigrant labourers 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	—	
Annual amount calculated on the same basis in respect of all other expenditure properly chargeable to a capital account upon such hospitals and dispensaries primarily maintained for the accommodation of immigrant labourers ..	965	95
Cost of drugs supplied to Superintendents under section 9 (*d*)	3,064	9
Miscellaneous expenses incidental to the administration of the Ordinance—		
(1) Issue of free drugs to estates under section 9 (*c*) of the Ordinance ..	237,603	35
(2) Cost of paper, &c., in connection with the preparation of type plans for estate hospitals	—	
(3) Annual subscription for upkeep of telephone and other incidental expenses connected with the telephones attached to hospitals and dispensaries	561	80
(4) Full cost of salaries and allowances of Inspecting Medical Officers ..	64,774	37
(5) Salary of Clerk, Civil Medical Stores, for pricing estate requisitions for drugs	989	0
rplus	2,948,126	31
	3,727,278	17

Inspecting Officers.—There was no change in the system of inspection nor in he number of officers. In all 505 estates were visited in 1933.

Estate Sanitation: General.—The Inspecting Medical Officers report that the anitary conditions of the estates visited were satisfactory.

Of the 146 estates inspected in the Central Province Inspectorate the general anitary condition of 7 was reported to be bad; in the Uva Province Inspectorate he sanitary condition of 1 out of 190 estates inspected was bad; in the Colombo nspectorate the sanitary condition of 5 out of 169 estates inspected was bad.

Line Maintenance.—Lime washing had been badly neglected on most estates, specially of lines which were only partly occupied or were entirely unoccupied. he deterioration of unoccupied lines referred to in the previous reports should o longer occur owing to the improving economic conditions and the partial ccupation of the previously untenanted lines.

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

Line Construction.—There was very little new building.

Government requirements were met by 10,431 out of 11,992 rooms inspected in he Colombo Inspectorate, by 16,580 out of 23,182 in the Central Inspectorate, nd by 12,475 out of 29,155 in the Uva Inspectorate. 24,843 line rooms did not each the standard required. Some of these particularly on small privately owned states were unfit for housing labour. A fair percentage of these are beyond epair and will eventually have to be demolished.

Lines constructed with concrete bricks, which are desirable both from a sanitary nd economic point of view, have been popular in recent years.

Lack of incinerators for groups of lines resulting in rubbish being inadequately isposed of and insufficient ventilation to admit of smoke being carried off are efects which require to be remedied.

Line Accommodation.—There was very little overcrowding (the lines of only 6 out of 505 estates inspected were overcrowded) owing to the reduction in labour forces. The following are the figures for the past four years:—

	Not overcrowded.				Slightly overcrowded.				Overcrowded.			
Inspectorate.	1930.	1931.	1932.	1933.	1930.	1931.	1932.	1933.	1930.	1931.	1932.	1933.
Colombo ..	326..	389..	312..	169..	12..	3..	1..	— ..	— ..	— ..	— ..	—
Central ..	170..	245..	166..	145..	5..	3..	1..	1..	13..	11..	2..	—
Uva ..	183..	151..	161..	181..	10..	5..	11..	3..	11..	8..	10..	6
	679	785	639	495	27	11	13	4	24	19	12	6

Latrines.—The Inspecting Medical Officer, Western Inspectorate, reported that nearly all the lines inspected by him are now sufficiently provided with latrines. More use too is being made of the concrete squatting plate which has obvious sanitary advantage over any other kind. In the Uva Inspectorate there is still a considerable number of estates possessing insufficient latrine accommodation, and structures generally were only moderate. In the Central Inspectorate about 25 per cent. had insufficient latrine accommodation. The Inspecting Medical Officer notes that the labourers evinced a decided preference for the bucket type of latrine. In all the three Inspectorates it was observed that sufficient attention is not being given to the provision of chamber utensils for the use of children in creches and elsewhere, and an opportunity of educating the labour force at its most impressionable age in the adoption of proper sanitary habits is thereby being wasted.

The following table shows the progress made in latrine construction in the past four years on the estates inspected:—

	Provided a Sufficient Number of Latrines.				Provided an Insufficient Number of Latrines.				Provided no Latrines.			
Inspectorate.	1930.	1931.	1932.	1933.	1930.	1931.	1932.	1933.	1930.	1931.	1932.	1933.
Colombo ..	270..	305..	293..	160..	26..	54..	11..	7..	8..	5..	10..	
Central ..	59..	48..	89..	108..	122..	107..	74..	34..	12..	8..	6..	
Uva ..	143..	124..	146..	145..	43..	21..	30..	33..	18..	19..	6..	1
	472	477	528	413	191	182	115	74	38	32	22	1

Water Supply.—The Inspecting Medical Officer, Western Inspectorate reported a very considerable improvement in this very important aspect of sanitation, an improvement which he considered had been obtained more rapidly than in the case of any other sanitary measure. In the Uva Inspectorate the water supplies of half the estates inspected were fully protected and over one-third partially protected. In the Central Inspectorate only ten sources out of 13 remained altogether unprotected.

In 1933, 348 of the estates visited had an entirely protected supply; in 1932 463 of the estates visited had protected supplies. The number of unprotected supplies formed about 12 per cent. of the total number of supplies inspected and were usually on estates owned by private individuals.

Maternity and Child Welfare.—The infantile mortality rate dropped from 21 in 1929 to 194 in 1930 and to 184 in 1931, rose to 188 in 1932 and again dropped to 181 in 1933. The infantile mortality rate for the whole Island dropped from 187 in 1929 to 175 in 1930 and to 158 in 1931, rose to 162 in 1932 and dropped to 154 in 1933.

In 1933, 2,331 male infants and 2,066 female infants died on estates, a total of 397, as against a total of 4,576 in 1932. The infant death rates of the different tate districts for 1929, 1930, 1931, 1932, and 1933 are given below:—

	1929.	1930.	1931.	1932.	1933.
Kandy ..	229	200	212	223	202
Matale ..	235	234	175	175	153
Nuwara Eliya ..	240	223	219	233	213
Badulla ..	231	185	163	165	171
Ratnapura ..	184	164	138	126	134
Kegalla ..	147	136	127	128	112
Colombo ..	134	138	124	135	110
Kalutara ..	144	159	126	81	127
Galle ..	169	215	164	163	137
Matara ..	231	213	234	228	194
Kurunegala ..	215	247	106	164	182

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

Causes.	Infant Deaths under One Year.				Percentage of Deaths to Total Infant Deaths on Estates.				Corresponding Percentage for the Island.			
	1930.	1931.	1932.	1933.	1930.	1931.	1932.	1933.	1930.	1931.	1932.	1933.
nvulsions ..	778..	700..	723..	662..	16·2 ..	16·3 ..	15·8 ..	15·1 ..	25·7..	26·1..	23·1..	25·1
tanus ..	2..	1..	2..	2..	·04..	·001..	·05 ..	·04..	·1..	·1..	·1..	·1
arrhoea ..	58..	53..	51..	41..	1·2 ..	1·2 ..	1·1 ..	·9 ..	1·4..	1·0..	1·0..	1·0
onchitis ..	107..	87..	118..	114..	2·3 ..	2·0 ..	2·6 ..	2·6 ..	·7..	0·9..	1·1..	·9
eumonia ..	185..	195..	236..	196..	3·8 ..	4·5 ..	5·1 ..	4·5 ..	2·1..	2·4..	2·5..	·7
teritis ..	15..	8..	7..	9..	·36..	·2 ..	·15 ..	·2 ..	·9..	·9..	·9..	1·2
bility ..	2,661..	2,398..	2,558..	2,513..	55·4 ..	55·8 ..	55·9 ..	57·1 ..	21·0..	21·9..	21·7..	21·4
ematurity ..	707..	628..	642..	637..	14·7 ..	14·6 ..	14·0 ..	14·5 ..	6·5..	6·7..	6·6..	6·6
her causes ..	291..	233..	239..	223..	6·0 ..	5·4 ..	5·3 ..	5·06..	41·6..	40·0..	43·0..	43·0

Debility and convulsions are the chief causes of death. The rate of mortality attributed to inadequate skilled ante-natal attendance at the confinement and fter the birth. Comparatively few estates retain the services of trained mid-ives, this being to some extent due to the difficulty in securing the services of uitable women. The ideas and methods of the labourers themselves on the ubject of maternity and child welfare are not calculated to increase the infants' hances of life, and the remedy appears to be in the training of suitable estate omen as midwives as soon as estate funds permit of this being done.

As regards maternal welfare, the maternal mortality rate, which was 23.0 in 930, dropped to 20.4 in 1931, to 17.2 in 1932 and to 16.9 in 1933. This high ate is probably largely due to the stubborn conservatism of the Indian labourers hich prevents their utilizing freely the medical benefits now provided on estates r lying-in women. The maternity wards on estates are not much used and it s only by the gradual education of the female labourers and through their personal xperience of the advantages to be derived by treatment in estate maternity wards hat any considerable improvement can be expected.

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

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

Epidemic Diseases.—There were no special outbreaks of epidemics in 1933 on states.

5.—HOUSING AND TOWN PLANNING.

Before any building can be constructed or alterations effected to existing build-ngs in Sanitary Board and in Urban District Council areas, application for ermission has to be made to the local authority who refers them to the Medical Officer of Health. Permission is given provided the building or alteration con-orms to the Housing Ordinance.

The following is a statement of work done under the Ordinance referred to:—

(1) *New and Reconstructed Buildings.*

	New.	Reconstruction and Repairs.
Number of applications received in respect of—		
(*a*) Dwelling houses	1,227 ..	556
(*b*) Other buildings	567 ..	97

(2) *Insanitary Buildings.*

(*a*) Number of insanitary buildings reported upon during the year ..	437
(*b*) Number of closing orders obtained	181
(*c*) Number of buildings improved	58
(*d*) Number of demolition orders obtained and extended ..	36
(*e*) Number of buildings voluntarily demolished	63

6.—FOOD IN RELATION TO HEALTH AND DISEASE.

The inspection of all food exposed for sale and the control of food handling establishments are in the hands of the local authority which may be a Sanitary Board, Local Board, or an Urban District Council. All such trades have to be licensed. These licences are renewed yearly. The renewal of licence is usually done on the recommendation of the Medical Officer of Health.

Milk Supply.—In the absence of a Pure Food Act the present unsatisfactory control of sale of milk will continue.

There is no control of sale of milk in rural areas owing to lack of suitable legislation.

The following is a statement of work done in connection with milk control:—

(*a*) Number of samples taken and sent for analysis	255
(*b*) Number of samples found adulterated	149
(*c*) Percentage of water varied from	5 per cent. to 75 per cent.
(*d*) Average adulteration	34 per cent.
(*e*) Number of persons prosecuted	112
(*f*) Number convicted	74
(*g*) Number warned and discharged	6
(*h*) Amount of fines realized	Rs. 1,822

Meat Inspection.—All cattle slaughtered were inspected before slaughter which is carried out in slaughter-houses provided by the local authorities. All meat stalls have to be licensed.

For sale of meat, fish, vegetables, and fruits, markets are generally provided in areas under local bodies. They have been supervised and maintained satisfactorily by the Inspectors in charge of the areas concerned.

All foodstuffs exposed for sale were regularly inspected and prompt action was taken, where necessary, under the provision of the general law dealing with food unfit for human consumption.

The storage of rice is controlled by specific regulations in all the towns as a precautionary measure against plague.

7.—HEALTH UNITS.

During the year, no new health units were added. There are 8 units in operation, the last being established in 1931. Three of these are in the Western Province and one each in the Southern, Sabaragamuwa, Eastern, Central, and North-Western Provinces. The tendency to carry out district health work as far as possible on health unit lines continues.

Area.—Galboda korale which was added to the Paranakuru korale health unit reverted to the district type of health work owing to inadequacy of trained personnel and the area carrying out health unit work was therefore reduced from 960 square miles to 913 square miles.

Population.—By the deletion of Galboda korale from the health unit area, the population has decreased from 522,750 or 9.8 per cent. of the Island population in 1932 to 494,241 or 9.2 per cent. in 1933. Of this population, 89,542 or 18 per cent. is urban and 404,699 or 81.9 per cent. is rural.

Personnel.—The personnel employed has been as follows:—

	1932.	Added.	1933.
Medical Officer of Health	8	—	8
Medical Officer	1	—	1
Supervising Sanitary Inspector ..	1	1	2
Sanitary Inspectors	55	—	55
Public Health Nurses	16	3	19
Midwives	48	22	70
Clerks	9	—	9
Peons	8	—	8
Orderlies and labourers	11	—	11

We regret to have to record the deaths of two of our Public Health Nurses ationed one at Trincomalee and the other at Matara Gravets.

A training class for Public Health Nurses was commenced in October when three urses were in training for health unit work.

In addition to the above personnel, there were employed one Entomological ssistant and one Field Attendant at Paranakuru korale health unit and each nit had for certain periods of the year the services of a hookworm dispenser.

Work.—The type of work carried out has continued to be as originally planned. uring the year, special stress was placed on latrine construction, hookworm eatment, organization of school health work, and the development of separate ntenatal clinics.

Births and Birth Rates.—The births amount to 17,959 giving a birth rate of 5.3, as compared with 14,518 births and a birth rate of 32 in 1932, and a birth te of 38.6 for the Island. It will be noted that there has been an increase of 441 births which is partly accounted for by the population of the areas newly lded in 1932 the births of which had not been taken into the total in that year. he birth rates in the different units are as follows:—

Dehiwala division 29.1, Panadure totamune 31.1, Yatinuwara 36.7, Kalutara tamune 37.8, Trincomalee District 39.8, Paranakuru korale 41.2, Matara ravets and Wellaboda pattu 42.4, and Weudawili hatpattu 45.4

Deaths and Death Rates.—The deaths amount to 9,142 giving a crude death te of 18.5, as compared with 15 in 1932 and 21.2 for the Island. The death tes in the different units for the year as compared with 2 previous years are as llows:—

	1931.	1932.	1933.
Kalutara totamune	23	18	20
Panadure totamune	19	16	16
Weudawili hatpattu	28	19	22
Matara Gravets, &c.	20	14	18
Paranakuru korale	20	16	16
Trincomalee	29	27	26
Yatinuwara	16	17	14
Dehiwala division	12	12	16

Infant Mortality.—The infant deaths amount to 2,348 giving an infant mortal- y rate of 130, as compared with 135 in 1932 and 157 the rate for the Island. he infant deaths form 25.7 per cent. of the total deaths. The rates in the fferent units for the year as compared with 2 previous years are as follows:—

	1931.	1932.	1933.
Kalutara totamune	128	118	119
Panadure totamune	106	109	102
Weudawili hatpattu	190	160	173
Matara Gravets, &c.	107	108	107
Paranakuru korale	128	124	116
Trincomalee	268	219	181
Yatinuwara	135	166	129
Dehiwala division	134	117	140

Maternal Mortality.—The maternal deaths amount to 288 giving a maternal mortality rate of 16.0, as compared with 17 in 1932 and 18.6 the rate for the Island. The rates in the different units for the year as compared with 2 previous years are as follows:—

	1931.	1932.	1933.
Kalutara totamune	16	19	16
Panadure totamune	20	16	12
Weudawili hatpattu	38	28	30
Matara Gravets, &c.	6	14	12
Paranakuru korale	15	14	14
Trincomalee	24	24	24
Yatinuwara	16	13	11
Dehiwala division	15	15	10

Stillbirths and Stillbirth Rates.—Figures for stillbirths are available for urban areas only of the different units. There have been a total of 136 stillbirths giving a stillbirth rate of 52, as compared with 51 in 1932.

Expenditure.—The cost to Government of this work for the year is Rs. 240,205 or 2.6 per cent. of the Department's actual expenditure, as compared with Rs. 228,019 in 1932. The per capita cost (including expenditure by local authorities) for all the units is Re. 1.03; while for the individual units it is as follows:—

	Rs. c.		Rs. c.
Kalutara totamune ..	0 93	Trincomalee	1 48
Weudawili hatpattu ..	1 59	Yatinuwara	0 66
Matara Gravets, &c. ..	0 72	Panadure totamune ..	0 86
Paranakuru korale ..	0 67	Dehiwala division ..	1 34

Health Education.—The following work has been carried out:—

	1932.	1933.
Lectures—		
With lantern	98	93
Without lantern	147	166
With cinema	2	27
Talks—		
School	1,292	1,676
Village	2,329	2,880
Clinic	987	1,166
Health weeks	4	4

reaching an estimated population of 262,000 or 53 per cent. of the health unit population, as compared with 51.5 per cent. in 1932 and 34 per cent. in 1931.

375 conferences with health unit staffs were held, as compared with 372 in 1932, and training in health habits was carried out in 187 schools, as compared with 20 in 1932.

Health Survey.—Health surveys were carried out in four units, in two of which they were in the nature of resurveys. A total of 14,596 homes were surveyed.

Communicable Diseases.—3,829 cases of communicable diseases were notified and investigated, as compared with 2,088 cases in 1932 and 1,746 in 1931. Ayurvedic physicians have not notified a single case in three of the units, viz., Paranakuru korale, Trincomalee, and Yatinuwara as in 1932. While reporting by them is better at Panadure totamune and Dehiwala division, it continues to be poor at Kalutara totamune, Weudawili hatpattu, and Matara Gravets and Wellaboda pattu.

2,553 first and 1,299 second doses of anti-typhoid vaccine were administered, as compared with 2,316 and 1,516 respectively in 1932.

12,862 primary and 55,052 secondary vaccinations against smallpox were done, as compared with 14,431 and 14,605 respectively in 1932. The increase in secondary vaccination is due to the outbreak of smallpox that commenced in 1932 and continued in the first half of 1933.

Hookworm treatment received special attention and 36,764 persons were treated, as compared with 26,590 in 1932 and 17,687 in 1931.

12,718 laboratory examinations were carried out, as compared with 12,410 in 932 and 13,359 in 1931. Of this number 6,215 were done in Colombo and 6,247 n health unit offices, as compared with 7,206 and 5,204 respectively in 1932.

In the matter of tuberculosis control, 133 notifications were received, as ompared with 174 in 1932 and 160 in 1931. 663 home visits were made and 3,241 ontacts were kept under observation and received 1,007 periodical examinations nd 23 patients were placed in institutions.

Malaria is a problem in three units, viz., Weudawili hatpattu, Trincomalee, and 'aranakuru korale; in the last mentioned unit only in a part of it. Anopheline nvestigative work was carried out in a part of the rural section of Paranakuru orale. Control work in Trincomalee town and Kurunegala was supervised by the Medical Officers of Health of the units concerned. Quinine was distributed as prophylactic in the schools of Trincomalee and Weudawili hatpattu units during he malarial season. Quinine mixture was made available to villagers as a relief neasure during the fever season in the rural section of Weudawili hatpattu unit nd the area of this work was extended.

Anti-Plague Measures.—8,265 commercial premises were inspected for rat holes, s compared with 12,096 in 1932 and 7,873 in 1931. 2,131 had a total of 6,910 at holes, of which 3,795 or 54.3 per cent. were filled, as against 54.5 per cent. in 932 and 42 per cent. in 1931.

Anti-Fly Measures.—3,034 fly breeding places were found and dealt with, as ompared with 2,233 in 1932.

Maternity, Infant, and Pre-school Hygiene.—The number of centres for child elfare work was increased from 34 in 1932 to 44 in 1933. The number of clinics eld at them is 1,855, as compared with 1,595 in 1932 and 1,276 in 1931. To hese centres, 1,473 expectant mothers paid 2,983 visits, as against 936 expectant nothers and 2,223 visits in 1932; 1,992 infants paid 14,142 visits, as against ,330 infants and 11,598 visits in 1932; 1,828 pre-school children paid 10,023 isits, as against 1,294 pre-school children and 9,558 visits in 1932.

Seventy trained midwives made 74,160 antenatal visits to 12,910 expectant nothers, as against 63,544 antenatal visits to 9,871 expectant mothers in 1932 at he rate of 5.9 visits per mother, as against 6.4 in 1932. They attended at the elivery of 6,623 mothers, as against 5,587 in 1932 and 4,985 in 1931, and paid 4,476 post partum visits at the rate of 5.9 visits per confined case, as against 6.7 isits in 1932 and 6.9 in 1931. The deliveries by health unit midwives amount o 37 per cent. of the total births.

Nineteen Public Health Nurses, of whom five were in training and two died, aid 34,162 visits to 28,676 homes, as against 31,531 visits in 1932 and 15,810 isits in 1931.

School Hygiene.—8,795 children were medically examined, as against 3,655 in 932 and 5,669 in 1931. 6,659 or 75.7 per cent. were found to be defective with total of 11,892 defects or 1.8 defects per defective child. 1,769 or 14.9 per cent. f the defects found were corrected.

Consultation at Office.—There have been 1,701 consultations at the offices of Medical Officers of Health, as against 1,834 in 1932. Of these, 1,065 were adults nd 636 children.

Periodic Health Examination.—Nineteen out of 183 persons who are attached o health units received a complete physical examination and advice during the ear, as compared with 9 in 1932 and 46 in 1931.

Latrine Construction.—144 public latrines in all the units received a total of 0,339 inspections; 142 defects were found and 10 latrines were newly built.

82,450 dwellings are provided with 34,805 latrines at the rate of one latrine o 2.4 houses. During the year 2,424 new latrines were constructed, as against ,724 in 1932, and 908 latrines were rendered to sanitary type, as against 1,305 in 932.

345 schools are provided with 563 latrines, *i.e.*, 1.6 latrines per school, as against .2 latrines in 1932. During the year, 81 new latrines were constructed.

Water Supply.—163 public wells received 3,525 inspections. Three new wells were constructed, 26 partially improved, and 5 radically improved.

23,256 private wells received 54,159 inspections. 219 new wells were constructed. 343 were partially and 155 radically improved.

350 springs and spouts received 450 inspections.

Licensed Trades.—There are 199 bakeries, 1,463 tea and coffee boutiques, 205 eating-houses, 7 aerated water manufactories, 72 meat stalls, 90 fish stalls, 199 vegetable stalls, 145 dairies, 278 laundries, 155 galas and cattle sheds, 2 soap manufactories, and 103 lime and brick kilns. All these have been inspected and received a total of 93,587 inspections.

32,726 defects were found and 14,826 were remedied, *i.e.*, 45 per cent., as against 48.6 in 1932 and 46 per cent. in 1931.

Food Sanitation.—8,487 head of cattle were inspected and 7,952 were passed for slaughter, as against 8,826 and 8,388 respectively in 1932. 6,547 goats were inspected and 6,274 passed for slaughter, as against 6,636 and 6,381 respectively in 1932.

127 samples of milk were examined, as against 218 in 1932.

Meat, fish (fresh, dried, and salted) were seized as unfit for human consumption on five occasions, as against 25 in 1932 and 31 in 1931.

Housing.—216,267 inspections of private premises were made, as against 193,559 in 1932 and 154,524 in 1931. 114,501 defects were found and 73,008 or 63 per cent. were rectified, as against 56 per cent. in 1932.

156 public premises received 5,395 inspections. 1,282 defects were found and 671 or 52.3 per cent. were corrected, as against 55.6 per cent. in 1932.

345 schools received 4,031 inspections. 1,985 defects were found and 905 or 45.6 per cent. were corrected. Eighty-one new latrines were installed. 271 out of 345 schools or 78.6 per cent. are provided with adequate latrine accommodation.

1,637 applications for new buildings were received and 1,564 were reported on; 822 for additions and alterations and 773 were reported on; 766 for certificates of conformity and 713 were reported on.

Estate Health Work.—In 1932, there were 73 estates possessing resident labour in three of the units. In 1933, the number of such estates increased to 91 by the addition of a number of estates in a fourth unit. Of the 91 estates, 68 are considered to be co-operative and have received 264 visits, as against 43 estates and 241 visits in 1932. 485 defects were found at the visits and 46 were corrected, as against 126 defects and 44 corrections in 1932.

102 expectant mothers and 59 infants were kept under care, as against 143 expectant mothers and 88 infants in 1932. 107 prenatal visits have been made, as against 136 in 1932, and 83 mothers delivered by health unit midwives, as against 53 in 1932.

Public Health Nurses in the Kalutara totamune and Yatinuwara units have paid 29 visits to estates.

6,718 vaccinations against smallpox and 1,875 hookworm treatments have been given. Fifty-one cases of communicable diseases were reported and dealt with.

Training of Health Personnel.—The Kalutara totamune health unit is utilized for the training of health personnel. During the year six local Medical Officers of Health, four Medical Officers, four Public Health Nurses, and three Health Officers, two from Mysore and one from Travancore, received training.

8.—SANITARY ENGINEERING.

Owing to the necessity for continued retrenchment all major schemes of anti-malaria drainage at the campaign centres were held over and minor works of a permanent or semi-permanent nature carried out, as far as possible, by the maintenance gangs.

At Puttalam, the cutting of drainage channels was continued by the maintenance labour and some very good work done, particularly on the new channel from the Nedun Kulam tank to the lagoon and in the realignment of channels in the Poles Road area. These works have proved of great value during the wet season where

extensive swampy areas have now been effectively dealt with and it is proposed to continue the work on similar lines in the remaining sections during the present year.

At Chilaw a considerable improvement was made in the malaria conditions by the filling in of some forty gala wells. With the continuation of this work and the filling and draining programme by maintenance labour the extent of Anopheline breeding has been considerably reduced.

At Anuradhapura, improvements were effected along the Totuwila-ela by the construction of further permanent inlet channels and by the erection of foot-bridges over the channel to minimize damage to the banks caused chiefly by cattle.

Surveys were carried out at Trincomalee in the Maniyawila quarry area and the scheme prepared for the filling and draining of this area with town refuse was commenced.

Settlement areas were blocked out and housing schemes drawn up for allottees in the Hatamune and Yoda-ela areas in connection with the Minneriya Development Scheme. Water supply investigations were also made and a scheme prepared for a pipe-borne supply to the temporary camp.

A number of water supply investigations were undertaken during the year including those at Badulla, Negombo, Chilaw, Bogawantalawa, Mailapitiya, Kahawatta, &c. Surveys were carried out and plans prepared for gravity supplies for Ragalla and Ampitiya.

A scheme for the augmentation of the water supply for Nuwara Eliya was completed and plans and estimates prepared. This scheme which is designed to meet the town's requirements for many years, provides for the construction of a reservoir of two million gallons capacity on the Bambarakelle stream and for the raising of the level of the intake at Waterfield.

Preliminary investigations were made on the Kelani river in order to ascertain the characteristics of the water with a view to its utility as a source of public supply. Sampling points were selected between the $7\frac{1}{4}$ and $16\frac{1}{2}$ mile from Colombo.

Under semi-flood conditions these investigations showed that an appreciable difference in the turbidity readings between these points existed and although turbidity was not high, being slightly in excess of 100 at the upper point and 30 at the lower, natural settlement of 18 hours' duration reduced these turbidities to 70 and 15 respectively; and that no considerable improvement could be obtained beyond this under natural conditions for a considerable time.

Coagulation experiments indicated that the best results were obtainable with the addition of alumino ferric and lime with a pH of 6.3 to 6.5, complete settlement being obtainable after about 14 hours and that the water could be treated suitably for subsequent rapid filtration after a period of 8 hours from the time of mixing. It was estimated that the cost of chemicals would be approximately Rs. 10 per million gallons treated.

The proposals made for improving the intake arrangements at the Talawakele supply were carried out, the chlorinator put into commission and the operator instructed in the general management.

Investigations for a water supply to Panadure showed the necessity for a soil survey being made, and this is at present being carried out by the Sanitary Engineering Division.

Experiments were continued at Chilaw into the means of improving this supply and a final report of the results submitted.

Various water supplies to hospitals and other institutions were reported upon and plans prepared for their improvements including those at Pussellawa, Trincomalee, Kotmale, Alutnuwara, Batumulla, and Deltota. Proposals were also framed for the conservation of the town supply at the Angoda Asylum and for the use of outside sources for washing and flushing purposes.

Schemes for the improvement of drainage and the disposal of sullage were drawn up for the following hospitals and other institutions:—Chilaw, Puttalam, Walasmulla, Watupitiwela, Marawila, and Deltota and the construction of similar schemes was put in hand at Vavuniya, Tangalla, Balapitiya, Jaffna, and Mantota.

Drainage schemes were prepared for the towns of Moratuwa and Maskeliya and surveys taken up for the drainage of Gampola, Ambalangoda, and Kalutara North. Construction on the scheme for Kalutara South was in hand.

Surveys were carried out and plans prepared for the Kurunegala plague area in connection with proposed improvements to the congested areas and the drainage of these areas.

Demonstrations were given at a number of centres in the method of sinking and construction of bored-hole latrines. Additional equipment was procured for the purpose of extending the use of these latrines. The repair and maintenance of this and all other field equipment were undertaken by the Division as hitherto.

Experiments were conducted at the Nawala Market Gardens on the treatment by the compost method of town refuse and night soil with a view to the substitution of this method for the trenching system of night soil disposal in Urban District and Sanitary Board areas, provided results indicated that composting could be done profitably and hygienically.

Briefly the object of the compost system is to treat the night soil and town refuse together by a process of fermentation so that the whole, when completely broken down into a state of humus, may be utilized for agricultural purposes within these areas.

So far, these experiments have shown that a product of valuable manurial value can be obtained with the minimum of labour and equipment which is practically free from offensive features.

Town refuse is heaped on the experimental site in regular piles of standard size; night soil, emulsified with 1 part of water, is then applied to the upper portion of the piles, and covered with refuse. The piles are kept in a slightly damp condition by daily watering and thermometer readings are taken daily throughout the piles. At definite periods the piles are completely turned over and additional applications of the emulsion added as before. Tests have also been made to ascertain the minimum time required to attain the optimum heat in the piles by utilizing portions of the activated material with fresh supplies of town refuse and night soil, but these are incomplete. It has, so far, been ascertained that the maximum heat attained is around 70° C which is usually obtained about 4 days after the second application of the emulsion or from 11 to 12 days after the initial piling. Temperature is maintained at an average of 60° for 8 weeks by additional applications of emulsion and turning over of the piles. Thereafter no further applications of emulsion are added but the piles continue to be turned weekly for a period of about 4 weeks. The temperature during this time remains around 45° and the compost is then ready for disposal. Best results appear to be obtained when the emulsion on first application is 10 per cent. of the pile by bulk, and when subsequent applications of 5 per cent. are added weekly up to a total of 40 per cent. during the process.

Analysis of compost samples have been made as to its manurial value and these show that the average nitrogen content is .56, moisture 46 per cent., organic matter 13.8, and ash 39.8.

Over 450 plans, tracings, and enlargements were made by the drawing office staff, and some 13,000 photo prints of plans were taken off.

The Sanitary Engineer while on leave from February to December was granted an opportunity of studying malaria and sanitary problems in Palestine.

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

General.—The Superintendent of the Health Education Division was granted 3 months' special leave to proceed to Europe in charge of the Boy Scout Contingent to the World Jamboree. He took the opportunity to establish contact with several organizations dealing with Health Education both in Great Britain and the Continent. He read a paper on " The Health Training of Teachers in Ceylon " at the fifth biennial conference of the World Federation of Education Associations in Dublin and spent some time at the Advertising Convention London, the Dresden Hygiene Museum, the London School of Hygiene and Tropical Medicine, the Folk Museum of Munich, the College of Physical Educatio

n Budapest and the Fascist Exhibition in Rome studying modern developments n the technique of exhibition and popular education. On his return to the Island he furnished reports of the sixth English speaking conference of maternity and child welfare, school health work in the district of Zeged, and maternity and child welfare work in Fascist Italy for the information of the Department.

Work in the Schools.—With the co-operation of the Department of Education teps were taken to introduce a complete programme of practical health work nto the vernacular schools of the Island.

On the invitation of the Director of Education the Superintendent of the Health Education Division assisted in developing the health side of the new Rural Scheme of Education by preparing a series of health talks and by helping Inspectors of Schools and teachers to carry out the scheme in their respective areas. The Department conducted a comprehensive health demonstration at Gampaha n connection with the vacation course for Inspectors of Schools and teachers engaged in Rural Scheme work. The Superintendent of Health Education ddressed staff meetings of the Educational Inspectorate at Kandy and Colombo nd visited schools of all divisions with Inspecting Officers of the respective areas n order to give them an idea of modern Health Education methods.

The Training of Teachers.—A new scheme of health training for training chools was adopted by the Education Department bringing that work into line ith the latest developments in teacher training. The special features of the cheme are the co-operation of Medical Officers of Health with school staffs, nedical inspection of all student teachers twice during their period of training, he assignment of three pupils of the practising school to each student teacher for ealth training, the building up of a health record book, and the special emphasis aid on practical application.

Training courses for teachers were completed during the year at Kegalla, Horana, Ratnapura, Kadugannawa, Gampaha, Ambalangoda, Dehiwala, Anuradhapura, Trincomalee, and Chilaw and new classes were formed at Bomiriya, Matugama, nd Kuliapitiya.

The conditions for the award of certificates were tightened up thus securing hat only those who successfully applied their knowledge for the benefit of their upils ultimately received recognition. The final test of practical application was onducted by Inspectors of Schools who were associated with the Superintendent f Health Education or the Medical Officer of Health concerned.

Publications.—Health News has completed the third year of its existence. As n educational journal it has maintained a fair position among health workers oth in Ceylon and elsewhere. The letters of appreciation received from educaional authorities overseas, and the numerous applications from local doctors and nspectors of Schools for copies of the magazine, reprints, and translations show hat it is meeting a real demand.

Six numbers of the journal were issued during the year, as against four during he previous year.

The first number of the Ceylon Nurses' Journal was edited by the Superintenent of the Health Education Division.

Press.—The weekly health articles continued to receive prominence both in he Sinhalese and Tamil newspapers. Thirty-seven articles in Sinhalese and 42 n Tamil papers were published during the year.

The Education Gazette published health articles in all its issues. As in the revious years the English Press gave generous space to articles describing health ctivities throughout the Island.

Radio Talks.—Forty radio talks were given in English, Sinhalese, and Tamil. Of these 6 were given under the Schools Broadcasting Scheme. Some of the alks were reproduced in the English and Vernacular papers. The English talks ere planned in order to bring home to the public certain definite aspects of ealth work and they were correlated to the special articles published in the Press nd in Health News.

Lectures.—The Medical Officers of Health gave 171 lectures illustrated with lantern slides or cinema films in their respective areas as a part of their routine activities.

Health Exhibitions.—During the year health weeks were celebrated at Anuradhapura, Matara, Ratnapura, Ampitiya, Polgahawela, Gampaha, Point Pedro, Trincomalee, Horana, and Kolonnawa.

The Guneratne Shield for the best Health and Baby Week during 1932 was awarded to Dondra Health and Baby Week Committee.

Certificates of commendation were received from the Imperial Baby Week Committee by Yatinuwera, Dondra, and Polgahawela Health Weeks.

Health Education Material.—3,000 copies of an original poster on Mouth Hygiene with an explanatory note in Sinhalese was turned out by the Survey Department and a Tamil edition of the same is under preparation.

A series of 20 posters on Maternity and Child Welfare was duplicated.

A panel illustrating Health Habits was turned out by a local artist.

Cinema films on " Fly Danger ", " Rat Menace ", and " the Might of Pure Milk " were purchased during the year to meet the increasing demand for films resulting from the importation of a Homelite Generator that enables films to be exhibited in places where there is no permanent supply of electricity.

A collection of posters on Nutrition and Infant Nursing, wax models on the development of human teeth, lantern slides on the care of teeth, care of the infant, the Physical Education of the School Child, Animal parasites and transmitters of disease, Hygiene in Daily Life and the Fly Pest were purchased from the Dresden Museum. Ten books on Health Education were purchased from England and the United States of America and they will make the nucleus of a reference library on the subject.

Special Groups.—In pursuance of the policy of organizing educational work among special groups a complete health education plan was prepared for the Women's Institutes of Ceylon whose Central Board adopted the scheme. The Board has made copies of the same available to all its members and the Department has offered its co-operation and assistance through its Medical Officers of Health, Public Health Nurses, and Sanitary Inspectors.

A similar programme of work has been prepared for the Workmen's Society in Colombo.

The possibilities of encouraging Health Education through Parent-Teacher Associations were explored during the year and a complete census of existing associations was made through the officers of the Education Department.

The Superintendent of the Health Education Division read a paper on " Home and School Co-operation " at an education conference which accepted his suggestions. These are being adopted as an experiment in one group of Associations in the Southern Division.

Dr. Anantha Rao, Superintendent of the Bureau of Health Education in the State of Mysore, worked for 4 weeks to acquaint himself with methods of Health Education in the Island.

C.—TRAINING OF SANITARY PERSONNEL.

Five Public Health Nurses completed their training in midwifery at the Lying-in Home and three more entered the training class at Kalutara.

No training class for Sanitary Inspectors was held during the year.

D.—RECOMMENDATIONS FOR FUTURE WORK.

Owing to the lack of trained personnel and funds no development of Public Health work is possible, and as vacancies are not being filled even the maintenance of existing services cannot be carried out satisfactorily.

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 came 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. Usually more than 200,000 persons a year enter Ceylon by these two routes which are protected by the Quarantine Camps of Mandapam and Tataparai respectively, but the number has been falling for some years and in 1933 was only 121,251.

The technical work of the Quarantine Department is performed by medical officers, apothecaries, and vaccinators of the Department of Medical and Sanitary Services. The port of Colombo has a whole-time staff of four medical officers, while at the fifteen 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.—2,449 British and foreign vessels and 207 Indian sailing crafts called at the port, as against 2,588 and 228 respectively in 1932. One vessel arrived infected with smallpox. The patient was landed and sent to the Infectious Diseases Hospital and the ship kept in quarantine until vaccination, disinfection, and other control measures had been completed.

During 1933, 26 cases of human plague were recorded in Colombo, as against 67 in 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. All ships are moored away from the shore, unauthorized persons are not allowed on board, third class and deck passengers are medically inspected before embarkation and the harbour lighters are subjected to fortnightly deratisation with sulphur dioxide. Clayton gas apparatus is available for the deratisation of vessels up to 5,000 tons with empty holds, but the port does not possess the means of dealing with larger ships or of carrying out fully the provisions of Article 28 of the International Convention.

The harbour water boats were cleaned and cement-washed every quarter and inspected by one of the Port Health Officers before use.

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.—514 steamers and 1,977 sailing vessels called at the fifteen minor ports. 366 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 districts of Southern India where smallpox and cholera are more or less endemic, while a few boats bring rice from Burmese ports.

Mandapam Quarantine Camp.—The continued depression in trade contributed to the further decrease in the number of persons who passed through the Camp *en route* for Ceylon.

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

Year.	Estate Labourers.	Passengers.	Total.
1929	105,095 ..	70,923 ..	176,018
1930	91,422 ..	62,162 ..	153,584
1931	68,337 ..	50,474 ..	118,811
1932	50,869 ..	45,972 ..	96,841
1933	32,898 ..	42,468 ..	75,366

All estate labourers remain 5 days in the Camp, where they are disinfected vaccinated, treated for ankylostomiasis, and subjected to a careful medical inspec tion. First class and many second class passengers and their personal servant are medically inspected at all railway station and usually allowed to proce but are vaccinated if necessary and are subjected to surveillance for 12 days afte arrival in Ceylon. The majority of third class passengers pass through the Camp

Fourteen passengers and 8 estate labourers were rejected on account of lepros and 8 estate labourers were rejected for other diseases, viz., 2 smallpox con valescence, 2 whooping cough, 2 advanced pregnancy, 1 cancer, and 1 insanity.

The general hospital of the Camp has accommodation for 20 patients and ther were 536 admissions of which 16 proved fatal.

The infectious diseases hospital has 12 beds for smallpox and 16 for cholera No cases of cholera or smallpox occurred during the year, but there were 24 case of other infectious diseases, viz., chickenpox 10, measles 13, and mumps 1, all which recovered.

6,634 persons who paid 12,448 visits were treated at the outdoor dispensary the Camp.

Treatment for ankylostomiasis was given to 31,459 labourers out of 33,49 examined.

30,103 passengers and 33,203 estate labourers were vaccinated against smallpox

The sanitary condition of the Camp remained excellent throughout the year The Camp has its own water supply which is carefully protected and subjecte to frequent laboratory examinations, its own electric lighting plant, and a wate carriage system of drainage and sewage disposal. The food supply and kitchen were carefully supervised and remained satisfactory.

The examination for cholera carriers which was started in September, 1930, wa continued throughout 1933 in the Camp laboratory. 20,776 specimens wer examined and from 29 of them cholera vibrios were isolated. 570 other specimen were examined; of these 31 were water samples and 117 were for leprosy, 15 the latter proved positive.

Tataparai Quarantine Camp.—45,885 passengers proceeding from India v Tuticorin to Colombo passed through the Camp, as against 46,923 in 1932 ar 50,771 in 1931. Most of the passengers were petty traders and bungalow, garde and rickshaw pullers, and the majority (35,137) came from the Tinnevelly distri where cholera prevailed most of the year.

There were 55 rejections—48 for leprosy, 4 for recent smallpox, 1 for insanit and 2 for other diseases.

42,890 passengers were vaccinated, 30,042 at the Camp and 12,848 at Tuticori

2,670 persons were treated at the Camp dispensary.

The Camp has an area of 33.82 acres.

The sinking of trial bores for water was continued and a large supply w tapped at a depth of 150 feet. This water can be used for most purposes b owing to its high mineral content is slightly bitter and so does not make a go drinking water supply. The construction of rain water cisterns to provide drinki water is, therefore, under consideration.

There is a school in the Camp for children of the resident staff and there a 50 day scholars and 21 night scholars on the roll.

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

The Camp was maintained in a clean condition and the health of its personn was satisfactory.

Surveillance.—99.39 per cent. of the 44,145 persons from Southern In entering Ceylon under surveillance reported at their destinations and complet the 12 days' period of surveillance. Among these persons 3 cases of smallp and 4 of chickenpox 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 1933, 1932, and the average for 10 years 1923 to 1932:—

	Average, 1923–1932.	1932.	1933.
Infant deaths—			
Whole Island	34,847	32,356	32,866
Urban areas	4,536	4,112	4,576
Rural areas	30,311	28,244	28,290
Infant mortality rates—			
Whole Island	172	162	157
Urban areas	206	178	177
Rural areas	166	160	154
Ceylonese	165	159	154
Indian immigrant	205	188	181
European	35	86	33

Of the 32,866 infant deaths convulsions have been responsible for 8,254 or 25 per cent. and debility for 7,050 or 21.5 per cent. As in previous years these conditions have been the two chief causes of deaths among infants. The number of infant deaths recorded for 1933 shows an increase of 530 deaths over the deaths in 1932 in which year there were 816 deaths fewer than in 1931. The 1933 deaths are well below the average for the 10 years 1923 to 1932.

The infant mortality rate for 1933 shows a decrease of 5 per 1,000. There is a decrease in the rates for the urban as well as rural areas.

Maternal Mortality.—The following table sets out the number of maternal deaths and the maternal death rates for 1933, 1932, and the average for 10 years 1923 to 1932:—

	Average, 1923–1932.	1932.	1933.
Maternal deaths—			
Whole Island	4,093	3,821	3,882
Urban areas	730	712	732
Rural areas	3,363	3,109	3,150
Maternal mortality rates—			
Whole Island	20·1	19·2	18·6
Urban areas	30·9	31·3	28·5
Rural areas	18·6	17·6	17·2

The number of maternal deaths recorded for 1933 shows an increase of 61 deaths of mothers at childbirth as compared with the deaths for 1932 and a saving of 260 lives compared with the deaths for 1931.

The maternal mortality rate for the year is 18.6, which shows a reduction of 0.6 per 1,000 over the rate for 1932.

Puerperal sepsis and puerperal convulsions contribute 81.6 per cent. of the total deaths at childbirth, as compared with 82.7 in 1932. Of the 3,882 deaths, 1,336 or 34.4 per cent. have been caused by puerperal sepsis and 1,834 or 47.2 per cent. by puerperal convulsions, as compared with 34.7 per cent. and 47.9 per cent. respectively in 1932.

Stillbirths.—Stillbirths are registered only in urban areas. During 1933 there were 1,852 stillbirths, as compared with 1,749 in 1932 and 1,643 in 1931 and 1,609 the average for the years 1923 to 1932.

The stillbirth rate for 1933 is 76.9 per 1,000 live births, as compared with 76.8 in 1932, 73.5 in 1931, and 72.5 the average for 10 years 1923 to 1932.

There is an increase in stillbirths by 103 over the 1932 figures and by 243 over the average for 10 years.

While the infant and maternal mortality rates show a tendency to come down the stillbirth rate shows no such tendency and continues to be high.

Antenatal and Baby Clinics.—At the antenatal clinics held at the De Soysa Lying-in Home 3,499 mothers paid 4,575 visits, as against 2,860 mothers and 3,724 visits in 1932.

In addition to these 3,199 combined antenatal and baby clinics were held i various parts of the Island at 73 centres, as against 2,493 clinics at 54 centre in 1932. Visits paid to these clinics during the year as compared with those i 1932 are as follows:—

	1932.	1933.
Expectant mothers	2,894	4,850
Infants	20,583	30,424
Pre-school children	11,929	15,753

Midwifery.—120 trained midwives under supervision were provided by Gov ernment (68 at hospitals and 52 at Health Units), as against 111 in 1932; 90 b Local Authorities and 86 by estates, as against 64 and 89 respectively in 193 making a total of 296 midwives, as against 264 in 1932. There is about an equa number of trained midwives doing private work.

The registration of midwives under Ordinance No. 26 of 1927 is at present com pulsory only in the city of Colombo where the number registered amounts to 33 as against 284 in 1932. During 1933 the areas of two Local Authorities, viz Kalutara and Nuwara Eliya Urban District Councils, were notified to be brough under the operation of section 57 of the Medical Ordinance, 1927, with effe from July 1, 1935,—the object being to prohibit practice by untrained an uncertificated midwives.

The examination of pupil midwives is controlled by the Ceylon Medical Colle Council. Training is carried out at the De Soysa Lying-in Home in Colomb Green Hospital, Manipay, and the McLeod Hospital at Inuvil. Duri the year 95 women as compared with 86 in 1932 received instruction at t De Soysa Lying-in Home, 46 being Government stipend pupils and 25 non-stipe pupils and 24 trained nurses.

Maternity Beds in Hospitals.—At the De Soysa Lying-in Home in Colom there were 99 beds. Of the remaining 106 Government hospitals with a to of 11,378 beds 73 had maternity wards with a total of 451 beds in 1932. T other hospitals, although not provided with maternity wards, take maternity cas into their general wards. During 1933 owing to lack of funds it was possible add only 4 beds—at Batticaloa Hospital—to the number of maternity beds.

Public Health Nursing.—At the end of 1932 there were 16 Public Hea Nurses: 11 trained and 5 in training. During 1933 3 more nurses were selec and given their training at the Kalutara Totamune Health Unit thus bringing the total of Public Health Nurses at the end of 1933 to 19 of whom 2 died duri the year. During the year every Health Unit was provided with at least Public Health Nurse.

Voluntary Associations and Child Welfare Work.—The assistance of Volunt Associations continues to be received in connection with the carrying out of Ch Welfare Work. There are in the Island 35 such associations under the nam of Social Service Leagues, Health Leagues, Child Welfare Leagues, &c., activ associated with the work, as compared with 28 Associations in 1932.

The total income of these societies as far as is known has been Rs. 18. during the year, of which Rs. 12,110 or 66 per cent. has been expended on Ch Welfare Work.

Thirteen Local Authorities, viz., those of Panadure, Beruwala, Matale, Jaff Kalutara, Gampola, Hambantota, Ratnapura, Kandy, Trincomalee, Nuw Eliya, Batticaloa, and Dehiwala, contribute to the finances of these Volunt Associations.

Work of Lady Doctors.—There were 4 lady doctors stationed at the follow towns, viz., Beruwala, Batticaloa, Trincomalee, and Puttalam, for work am women and children chiefly of the Muslim population. They attend to women and children at the dispensary, visit in the homes, free of charge in case of the poor, those who cannot attend at the dispensary, hold antenatal baby clinics and do a certain amount of educational work. The doctors at Be wala and Trincomalee work in conjunction with the local Health Units. others work without adequate staff for effective work under difficulties.

The 4 doctors paid 4,155 home visits and attended to, both in the home and at the dispensary, 182 mothers at child birth, 326 puerperal cases, 1,463 sick expectant mothers, 2,150 sick infants, and 8,615 sick pre-school children. They have held 574 clinics at 10 centres at which 546 expectant mothers paid 1,644 visits; 654 infants paid 3,621 visits and 2,792 pre-school children paid 7,456 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 (939 beds), Lying-in Home (99 beds), Eye Hospital (56 beds), Women's Hospital (45 beds), Children's Hospital (82 beds), Female Venereal Diseases Hospital (29 beds), Police Hospital (32 beds), Tuberculosis Hospital (349 beds), Tuberculosis Sanatorium (72 beds), and Infectious Diseases Hospital (168 beds). Elsewhere there are 89 Government hospitals with 6,506 beds and a Tuberculosis Sanatorium with 44 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. Three hospitals, viz., Lindula in the Central Province, Kilinochchi in the Northern Province, and Mahaoya in the Eastern Province, were closed during the year. Two hospitals, viz., Walasmulla in the Southern Province and Polonnaruwa in the North-Central Province, were opened during the year.

The number of central and branch dispensaries and visiting stations maintained by Government was 626 in 1933, against 628 in 1932. 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 hospitals.

During the year under review there was a decrease in the number of estate hospitals maintained by the proprietors of estates from 86 to 84 and an increase in the number of estate dispensaries from 720 to 727.

207,028 in-patients with 13,930 deaths, giving a mortality rate of 6.71 per cent., were treated in the various Government hospitals. The figures for the previous year were 207,922, 13,011, and 6.25, respectively. In the Government dispensaries and out-patient departments attached to Government hospitals 3,765,231 patients who paid 5,734,560 visits were treated, as against 3,965,209 and 6,184,281 visits the previous year.

The diseases treated at hospital out-patient departments and dispensaries were as follows:—

I.—*Communicable Diseases.*

Enteric fever	444
Fevers of obscure causation	6,227
Malarial fever	1,101,463
Cerebral malaria	1,184
Malarial cachexia	96,385
Malarial cirrhosis	43
Measles	961
Whooping cough	1,860
Diphtheria	7
Influenza	192,413
Mumps	127
Dysentery (all forms)	22,614
Amoebic hepatitis and liver abscess	64
Leprosy	38
Erysipelas	77
Chickenpox	231
Dengue	1
Yaws	18,638

Hydrophobia	5
Tetanus	29
Pulmonary tuberculosis	1,709
Other tuberculous diseases	423
Syphilis (all varieties)	6,566
Soft chancres	254
Gonorrhoeal complications (arthritis, rheumatism, &c.)	2,843
Gonorrhoea (acute and chronic)	17,833
Filarial diseases	337
Acute rheumatic fever	1,152
Puerperal fever	2,662

II.—*General Diseases.*

Malignant tumours—carcinoma, sarcoma	52
Non-malignant tumours	1,031
Chronic rheumatism	241,373
Arthritis (acute and chronic)	6,455
Diabetes mellitus	881
Anaemias (of unknown causation)	21,539
Goitre	61
Leukaemias	446
Acute poisonings	146
Other general diseases	3,711

III.—*Local Diseases.*

Diseases of the nervous system	33,781
Diseases of the eye	64,703
Diseases of the ear	38,663
Diseases of the heart and blood vessels	5,009
Diseases of the lungs and pleura	180,994
Diseases of the gastro-intestinal tract	431,155
Diseases of the liver and gall bladder	4,217
Diseases of the urinary system	20,499
Diseases of the generative systems	35,670
Diseases of the spleen	4,172
Diseases of the lymphatic system	5,165
Diseases of the skin and cellular tissues	205,689
Diseases of the bones and joints	4,837
Ankylostomiasis	271,564
Other helminthic diseases	356,906
Ulcers	186,380
General injuries	18,695
Local injuries	111,947
Other local diseases	33,324

REPORT ON COLOMBO HOSPITALS.

A brief summary of the work done in the chief Colombo hospitals is giv below:—

General Hospital, Colombo.—The number of patients treated in the hospi during 1933 was 21,237 (1,191 paying and 20,046 non-paying patients), as co pared with 20,343 (1,221 paying and 19,122 non-paying) in the previous year There were 2,377 deaths, as against 2,206 in 1932. The daily average s in hospital was 974.59.

The maximum and minimum number of patients in hospital on any one during the year was as under:—

	Maximum.	Minimum.
Paying section	79 on 8.6.33	40 on 31.12.33
Non-paying section	1,027 on 14.7.33	804 on 15.4.33

The number of operations performed was 4,453 of which 4,073 were perform in the hospital and 380 (minor operations) at the out-patients' department, against a total of 3,371 (3,013 in hospital and 358 on out-patients) in previous year.

The total number of patients treated at the out-patients' department amoun to 40,752, as compared with 34,445 in 1932. The number of visits paid patients was 210,640 with a daily average of 673.

No new buildings were constructed during the year.

Pathological Department.—The staff consists of a full-time Pathologist and wo qualified assistants. The following number of specimens was examined and eported upon during 1933:—

Urines	10,860
Faeces	9,927
Gastric contents	614
Sputa	2,833
Bloods	8,095
Cerebro spinal fluids	791
Ascitic pleural and other fluids	102
Smears	493
Special tests	77
Tissue Sections, General Hospital	445
Tissue sections, Outstation Hospitals	260
Tissue sections, Post-mortem room	99
Total, 1933	34,596

The number of specimens examined during 1932 was 31,181 and during 1931, 1,305.

X'ray Department.—4,755 patients in the non-paying section and 792 patients the paying section, making a total of 5,547 patients, underwent X'ray xamination, as against a total of 4,669 in 1932. In the electro-therapeutic ection 9,500 sittings were given to non-paying patients (including patients om the 2nd class paying wards from whom no charges are recovered) and 100 sittings to paying patients, making a total of 11,600, as compared with 177 the previous year.

Ninety-five cases had radium treatment for different diseases, chiefly cancer, compared with 106 cases in 1932.

Dental Institute, Colombo.—The professional staff consists of one qualified ental Surgeon, two Apothecary Assistants, a Matron, and a Nurse.

19,899 new patients were treated during the year under review, as against ,931 in 1932. The total number of visits made by the new and old patients as 34,604.

The number of patients was made up as follows:—

Patients sent from hospital wards	1,104
Children attending the school clinic	2,899
Other patients	15,896
	19,899

The following treatments were given:—

Extraction	16,189
Cleaning and filling	9,736
Temporary relief	3,456
Dressing	5,223

Twelve cases were operated on at this Institute.

The Ear, Nose, and Throat Department.—The Grenier Ear, Nose, and Throat inic is held at the out-patient department, General Hospital, on three ernoons a week—Tuesdays, Thursdays, and Saturdays—from 1 to 4 o'clock d the Surgeon-in-charge is allotted eight beds in the wards of the hospital cases requiring in-patient treatment. 6,591 new out-patients were treated ring the year. The total number of visits made by the new and old patients s 13,481.

In addition, there is the school children's clinic which is held on Tuesdays and ursdays in the afternoons. 498 children attended the clinic and paid 760 its.

The number of patients treated in the wards was 277 (males 139 and females 8).

Operations—both major and minor—were performed on two days a week ondays and Fridays) at the Paying Section Theatre commencing at 1 P.M.

Minor operation cases were sent to the ward and detained there for a few hours until fit to go home. The total number of operations performed during the year amounted to 504.

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 1933 was 6,476, as against 5,65 in the previous year and 5,716 in 1931. The daily average number of bed occupied was 132.78 and the mortality rate was 3.0, as compared with 119.9 and 2.2 respectively the previous year.

There were 191 maternal deaths and of these 50 were due to accidents childbirth, 45 to puerperal causes, and 96 to general causes, such as ankylostomias dysentery, heart failure, pyelitis, &c.

The number of live births was 4,040. Of these infants, 3,728 left the hospit alive while 312 died after delivery, as against 3,255 and 271 respectively 1932. 631 obstetric operations were performed during the year, necessitatin the use of forceps in 186 cases, craniotomy in 39 cases, decapitation in 3 case cephalic (10) and podalic (53) version in 63 cases, evacuation of the uterus 56 cases, cleidotomy in 1 case, and other minor operations in 283 case Labour was classified as normal in 3,954 cases. In 52 cases of placenta praev 24 infants were born alive and 28 were born dead; 34 mothers recovered a 18 died. In 7 cases of puerperal eclampsia 6 mothers recovered and 1 die 1 infant was born alive, 4 were born dead and 2 were delivered before admissio In 16 cases of contracted pelvis 9 infants were born alive, 7 were born dead; mothers survived and 3 died.

With a view to limiting the number of admissions and lessening the state overcrowding in the wards, a start was made to provide an external midwife service in the area of Colombo round about the Lying-in Home.

The institution continued to be the chief training school for midwives in t Island. The professional staff consisted of one Medical Superintendent, o Assistant Obstetrician, and three qualified House Officers and during the y an Obstetric Registrar was appointed.

The Victoria Memorial Eye Hospital.—There are 7 beds and 1 cot in paying section and 43 beds and 5 cots in the non-paying section of t hospital.

22,605 new out-patients were treated during the year, as against 25,097 o patients in 1932. The total number of visits made by the new and old patie were 64,646.

There were 94 in-patients remaining in hospital at the beginning of the y and 1,741 patients were admitted during the year, as compared with 107 1,735 respectively in the previous year. 1,731 patients were discharged four died.

The total number of ophthalmic operations performed on in-patients during year was 637 and on out-patients 2,250, the corresponding figures for previous year being 709 and 2,251 respectively. 290 individual cases of cata were operated on during the year. 3,082 refraction cases were attended to, against 2,045 in 1932.

The School Clinics which are held on Tuesdays and Fridays at 2.30 continued to be well attended. 566 children (1,277 visits) received treatm An ultra violet ray apparatus was obtained late in the year and a diathe apparatus is on order.

The Lady Havelock Hospital for Women and Lady Ridgeway Hospital Children.—The total number of patients admitted during the year was 3, and with 131 patients remaining from 1932, 4,006 patients (women 1, children 2,732) were treated, as against 3,157, 121, and 3,278 patients respecti in 1932.

The daily average sick was 149.13, as against 130.05 in 1932 and 126.9 in 1931. The number of paying patients treated was 134, as against 131 in 1932.

The total number of deaths was 179; of these 75 were women and 104 were children, showing a mortality rate of 5.9 per cent. for women and 27.2 per cent. for children. The high death rate in the case of children was due to the fact that many children were brought to the hospital in a moribund condition and died within a few hours of admission.

The number of surgical operations performed was 764. Of these 590 were major and 174 minor operations. The operation mortality rate was 1.9 per cent., as against 3.4 in 1932.

In the training school for nurses there were 49 pupils of whom 20 were first year pupils. The professional staff of this hospital consists of the Lady Doctor-in-Charge and two Lady House Officers.

A recreation room for nurses was under construction during the year by the Association for Promoting Nursing as a Profession in Ceylon.

Female Venereal Diseases Hospital.—The total number of patients admitted during the year was 327 and with 21 patients remaining from 1932, 348 patients were treated in 1933, as against 386 in 1932. The daily average of patients was 21.37, as against 22.53 in 1932. The total number of deaths was 2 showing a mortality rate of 0.58 per cent. The principal diseases treated were syphilis, 126 cases with 2 deaths, and gonorrhoea, 163 cases with no deaths.

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 Clinics page 79) 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 26,887 patients who paid 50,157 visits were dealt with. Malaria, influenza, ankylostomiasis, venereal, digestive and skin diseases were the most prevalent ailments treated.

The Infectious Diseases Hospital (Angoda), Colombo.—Owing to the smallpox epidemic which started at the end of November, 1932, and continued until August, 1933, the hospital was kept very busy for the first few months of the year treating the cases of smallpox and dealing with large number of contacts, sent in from Colombo and the surrounding districts. Large temporary wards were used to supplement the two permanent smallpox wards and extra staff was employed.

There remained 162 patients in hospital at the end of 1932 and 2,411 patients were admitted during the year, making the total treated 2,573, as against 2,203 during the previous year. Of these 268 cases proved fatal, giving a mortality rate of 7.47 per cent., as against 9.16 per cent. during the previous year.

The following are some of the infectious diseases treated and the number of deaths in 1933:—

	Number treated.	Deaths.
Pneumonia	30 ..	12
Dysentery	391 ..	63
Smallpox	270 ..	52
Enteric fever	276 ..	76
Measles	334 ..	7
Whooping cough	34 ..	2
Diphtheria	21 ..	8
Mumps	18 ..	—
Plague	16 ..	14
Chickenpox	778 ..	2

Sixty-seven plague contacts and 1,352 smallpox contacts were kept under observation. No one of the plague contacts developed the disease, but 45 of the smallpox contacts developed smallpox.

REPORT ON OUTSTATION HOSPITALS.

Of the provincial hospitals those of Kandy and Galle are the largest and most important.

Kandy Hospital.—There are 276 beds and the medical staff consists of a Medical Superintendent, Physician, Surgeon, Ophthalmic Surgeon, and 5 House Officers. The hospital is a nurses' training school and 78 pupils were under training during the year.

There were 8,647 admissions in 1933, as compared with 7,995 in 1932. Of these 7,957 were cured and discharged, 651 died; the corresponding figures for 1932 were 6,995 and 576 respectively. The daily average sick in hospital was 345.41, as against 306.91 in 1932; the percentage of deaths to total treated was 7.3, as against 6.9 in 1932.

The following table gives the principal diseases treated and the number of deaths:—

	Admissions.	Deaths.
Enteric fever	130	29
Malaria	658	12
Dysentery	61	7
Influenza	298	2
Pulmonary tuberculosis ..	122	38
Ankylostomiasis ..	622	68
Pneumonia	164	69
Eye diseases	862	3

There were 572 operations performed, 479 major and 93 minor with 32 and 3 deaths respectively.

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. The number of eye operations performed was 1,365 of which 448 were major operations and 917 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 279 patients.

The staff consists of a Medical Superintendent, Visiting Physician, Visiting Surgeon, Eye Surgeon, and 3 House Officers. The 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 8,743 with a daily average of 259.2. Out of these 533 died giving a percentage of 6.09 deaths.

The following were the chief diseases treated:—

Diseases.	Cases.	Deaths.
Dysentery	72	4
Pulmonary tuberculosis ..	169	50
Enteric fever	217	47
Malaria	508	3
Ankylostomiasis ..	485	22

There were 422 major surgical operations performed during 1933.

In the casualty room 589 cases were attended to and 1,011 injections were given for parangi and syphilis. In the laboratory 13,104 specimens were examined; of these 442 were blood, 35 malarial parasites, and 741 sputa, &c.

In the Eye Institute 8,226 cases (19,797 visits) were treated, and 1,100 minor and 261 major operations were carried out.

Mr. L. O. E. de Silva, Merchant, Galle, built and donated a ward of 4 beds (and equipment) at the Galle Hospital for the exclusive use of the Buddhist priests. The ward was opened on July 1, 1933.

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 Edwrad VII. Sanatorium at Kandana, and the 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. 2,645 out-patients who paid 4,400 visits were treated at the Institute.

In order to popularize the Institute patients suffering from lung conditions other than tuberculosis were treated and nearly half the attendances were by such patients. Now, however, that the Institute is well established, an attempt is being made to restrict the work principally to tuberculosis.

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 349 beds and is intended for the treatment of advanced or moderately advanced cases of pulmonary tuberculosis.

The following are the statistics for the year:—

The number of patients remaining at the end of 1932 was 288 and the number admitted during 1933 was 688. There were 260 deaths (of which 152 died within one month of admission) showing a percentage of 21.5 to the total number treated. 335 patients were discharged of whom 85 left hospital relieved within one month, 177 left hospital relieved within 6 months, 58 were transferred to Kandana Sanatorium and 15 left cured. The number remaining in hospital on December 31, 1933, was 274, which includes 34 patients remaining for over one year. The daily average number of patients in the hospital was 277.

Usually the cases admitted are in the 3rd stage of the disease (according to Terban Gerhardt's classification) and only rarely are 2nd stage patients seen. The average case showed bilateral involvement below the 4th rib, frequently with localized excavations.

Treatment is based on—

(1) Rest.
(2) Graduated exercise.
(3) Symptomatic treatment.
(4) (*a*) Artificial pneumothorax.
(*b*) Artificial light.
(5) Education.

The staff is gradually being trained to maintain discipline among the patients with regard to *rest and graduated exercises*. The patients are given regular talks about the benefit of these methods of treatment. Besides walks, patients have regular breathing exercises and odd jobs in the wards and gardening.

Sixty patients received artificial pneumothorax treatment. Out of these, 7 patients died, 7 became worse, 7 improved, 8 much improved, in 4 the disease became arrested and among the remainder the treatment was discontinued. In 8 cases artificial pneumothorax was induced to stop hæmorrhage. Those requiring artificial light treatment are sent to the General Hospital, Colombo.

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 the 1st and 2nd stages of graduated labour.

Patients are given regular talks on—

(1) How to avoid spreading tuberculosis.
(2) How to avoid getting it.
(3) How to preserve children from it.
(4) The earliest signs and the importance of early diagnosis and treatment.
(5) How to live on returning home from hospital.

Owing to long drought, the supply of water ran short more than once last year, but thanks to the new wells, electrically driven pumps, the larger water mains and the new water tower, the supply was much better than in any previous year.

The two old corrugated iron wards put at the time of the Boer War for the prisoners-of-war were replaced by a new open ward of 40 beds.

General Hospital, Tuberculosis Wards.—The number of patients treated during the year was 1,098 and there were 361 deaths. These wards may be considered at present as an annexe of the Ragama Tuberculosis Hospital. They are generally crowded with advanced cases of pulmonary tuberculosis, the majority of whom remain in the hospital till they die. The position is an unsatisfactory one as the cases are not under the care of a staff specially trained in tuberculosis work and the wards were not built or equipped as tuberculosis wards. They are a makeshift till proper accommodation is available for the large number of chronic cases who are unable to get accommodation at the Ragama Hospital. The treatment of these cases is mainly symptomatic.

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 1932 was 57 and the number admitted during 1933 was 146 (138 new admissions and 8 readmissions). There was no death. In 111 of the 159 patients discharged the disease was arrested, 12 patients were much improved, 6 were improved, 1 was not improved, 5 were in the same condition, 7 sent for observation were found to be free from tuberculosis and 17 were unsuited for Sanatorium treatment. The number remaining in the Sanatorium on December 31, 1933, was 44 and the daily average number of patients was 63.37.

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.

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 was opened on January 16, 1932, and has accommodation for 44 patients. A fee of Rs. 2 per day is charged.

The number of patients remaining at the end of 1932 was 19 and the number admitted during the year was 50 (36 males and 14 females). Of the 53 patients discharged during the year 40 were fit to pursue their ordinary vocations. Nearly 20 of them were Government employees who were passed fit by medical board to return to duty. There were no deaths. The number remaining in the Sanatorium on December 31, 1933, was 15.

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), and one in Kandy.

Venereal Diseases Clinic, General Hospital, Colombo.—The following table gives comparative figures of the cases treated at the clinic for the past three years:—

Cases.	1931.	1932.	1933.
Syphilis ..	.. 526	.. 447	.. 382
Soft sores ..	.. 300	.. 394	.. 402
Gonorrhoea ..	.. 725	.. 749	.. 812
Yaws ..	.. 26	.. 48	.. —
Other diseases ..	.. —	.. 239	.. —
	1,577	1,877	1,596

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.

Two cases of syphilis were treated and treatment is free. 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 cases treated in the clinic for the past three years were as follows:—

Cases.	1931.	1932.	1933.
Syphilis	236	223	349
Gonorrhoea	262	457	694
Yaws	1	7	11
Other diseases	—	3	125
	499	690	1,179

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 objection to injections or other forms of treatment and who are on the whole very appreciative and willing to carry out instructions.

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:—

	Cases.
Syphilis	142
Gonorrhoea	272
Gonorrhoea and syphilis	20
Yaws	14
Skin diseases	49
	497

Besides the particulars given in respect of the four clinics, 6,645 in-patients (with 91 deaths) in the various hospitals and 27,496 out-patients at dispensaries and out-patients' department of hospitals in the Island were treated for venereal diseases during the year, as against 6,537, 79, 21,823, respectively, in 1932.

MEDICAL INSTITUTIONS AIDED BY GOVERNMENT.

The following institutions received financial aid from Government during the year:—

(1) The Victoria Home for Incurables.
(2) Wiseman Hospital, Welimada.
(3) McLeod Hospital, Inuvil.
(4) Green Hospital, Manipay.
(5) Jevon's Dispensary, Puttur.
(6) The Wesleyan Medical Mission Hospital, Batticaloa.
(7) The Wesleyan Medical Mission Branch Dispensary at Kattankudi.
(8) The Denepitiya Medical Mission Hospital, Southern Province.

Numbers (1) and (8) are for males and females; numbers (2) to (6) are for females and children only.

HOSPITAL RETURNS, &c.

Charts and returns of hospitals will be found at the end of this report.

VII.—PRISONS AND ASYLUMS.

PRISONS.

During the year 1933, 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, 1932, there were in all the prisons a total of 3,874 convicted prisoners (3,817 males and 57 females). During the year under review 15,486 males and 438 females were admitted and 15,411 males and 433 females were discharged. 130 male and no female prisoners died. On December 31, 1933, 3,816 male and 62 female convicted prisoners remained in all the prisons.

On the whole the health of the prisoners in all prisons was satisfactory. In Jaffna Prison owing to the several sanitary improvements made the number of cases of dysentery fell from 144 in 1932 to 45 in 1933 and every effort is being made to eradicate this disease. Thirty cases of chickenpox occurred. At Kandy there were 101 cases of dysentery, 177 of acute catarrhal conjunctivitis, 16 of measles, and 11 of chickenpox. At Negombo there was a mild epidemic of chickenpox. At Matara there were 41 cases of dysentery and 36 cases of chickenpox. At Welikada there were 808 cases of dysentery and 263 cases of chickenpox. At other prisons there were very little sickness.

Anti-typhoid inoculations were given at Jaffna, Batticaloa, Mahara, and Welikada.

All new admissions to the Mahara Jail and 84 prisoners in Batticaloa Jail were given treatment for ankylostomiasis during the year.

The sanitary condition of the prison hospitals was generally good. The inadequate hospital accommodation at Jaffna has been relieved by converting the section allotted to women prisoners and the adjoining block into a prison hospital. At Mahara Prison, under the new building programme, modern fly-proof latrines, water cisterns, and overhead water cisterns for pipe supply, and a new roof to a hospital ward have been completed during the year.

For prisoners suffering from vitamin deficiency diseases, the Medical Officer, Badulla, reports that rice bran was given with good results; and the Medical Officer, Mahara Prison, reports that green peas, small beans, and vegetable leaves were given with definite improvement to their health. Section IX. of this report contains a reference to the investigation which is being made into this matter.

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 ..	1,558·85	192	101·7	1,866	—	87	4·66	1, 2, 3, 4, 5, 6, 9, 11, 13, 14, and 16
Mahara ..	897·81	53	10·01	333	17,903	16	4·8	1, 2, 3, 5, 9, 11, 12, and 16
Bogambara ..	585·77	35	23·9	935	11,763	3	·32	1, 2, 3, 5, 8, 9, 10, and 16
Jaffna ..	393·55	12	11·59	463	719	—	—	1, 3, 5, and 16
Negombo ..	188·46	16	10·29	158	4,443	19	12·02	1, 2, 3, 5, 7, 9, and 16
Galle ..	251·02	12	·66	54	2,842	2	3·7	1 and 7
Anuradhapura ..	137·56	12	2·60	120	4,289	—	—	1 and 16
Badulla ..	46·38	4	·52	34	650	—	—	1, 2, and 3
Batticaloa ..	57·40	5	1·32	48	—	—	—	1, 2, and 3
	4,116·80	341	162·59	4,011	42,609	127	5·1	

* 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 1933 the average daily number of patients was 2,524, the largest number on any one day being 2,619 and the lowest number 2,417.

The following table shows the daily average number of patients in the Asylum for the last ten years:—

1924	..	1,272	1929	..	2,267
1925	..	1,362	1930	..	2,350
1926	..	1,480	1931	..	2,357
1927	..	1,717	1932	..	2,426
1928	..	2,017	1933	..	2,524

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. There are no paying wards for better class patients and no facilities for modern treatment. In 1931 two temporary wards to accommodate 300 quiet male patients were added.

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 status 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 statistics for 1933 are as follows:—

Asylum—

	Males.	Females.	Total.
Remaining at beginning of the year ..	1,560	773	2,333
Admitted	694	352	1,046
Total treated	2,254	1,125	3,379
Discharged	549	220	769
Died	259	133	392
Remaining at the end of the year ..	1,446	772	2,218

House of Observation—

	Males.	Females.	Total.
Remaining at beginning of the year ..	154	98	252
Admitted	1,248	615	1,863
Total treated	1,402	713	2,115
Transferred to Asylum	632	334	966
Discharged	574	262	836
Died	36	15	51
Remaining at end of the year ..	160	102	262

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.
Acute nephritis	1	2	3
Ankylostomiasis	1	2	3
Chronic septicaemia	—	1	1
Bronchitis	—	5	5
Cellulitis of neck	—	1	1
Colitis	1	6	7
Diarrhoea	—	2	2
Dysentery	20	182	202
Empyema	—	2	2
Enteritis	—	3	3
Epilepsy	—	3	3
Gangrene of lungs	1	2	3
General debility	4	35	39
Influenza	2	3	5
Leprosy	—	1	1
Murdered by patient Pata Banda ..	—	2	2
Myocardial degeneration	1	11	12
Pulmonary tuberculosis	3	96	99
Pleurisy	—	3	3
Pneumonia	8	14	22
Sunstroke	—	1	1
Typhoid fever	1	2	3
Volvulus	—	1	1
Other diseases	8	12	20
Total ..	51	392	443

Infectious Diseases.—The following table shows the number of cases of infectious diseases occurring during 1932 and 1933:—

	Inmates.		Attendants.	
	1932.	1933.	1932.	1933.
Dysentery	465	768	2	17
Chickenpox	30	61	—	5
Pulmonary tuberculosis ..	177	135	—	—
Influenza	125	121	6	15
Erysipelas	1	3	—	1
Enteric fever ..	6	7	—	—
Leprosy	2	2	—	—
Parangi	1	3	—	—
Measles	—	55	—	7
Mumps	—	3	—	—

Dysentery and Pulmonary Tuberculosis.—Of the 443 deaths which occurred in the Asylum, 202 were due to dysentery and 99 to pulmonary tuberculosis. An epidemic of dysentery broke out during the early part of the year. A total of 785 patients contracted the disease, of whom 203 died. Experimental investigations as to the efficacy of bacteriophage as a prophylactic and therapeutic measure against bacillary dysentery were carried out. There were 135 cases of tuberculosis of whom 98 died. The spread of this disease 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 detection difficult.

Accidents.—The number of cases of injury to patients by themselves was 140, by other patients 147, and by attendants nil.

Restraint and Seclusion.—There have been no cases of restraint and seclusion during the year under review.

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 two 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.—5,235 simple laboratory examinations of blood, sputum, faeces, and urine were made. All other examinations are done 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.		
	Males.	Females.	Males.	Females.	Total.
Remaining on December 31, 1932	435	102	62	7	606
Admitted during 1933 ..	131	32	42	15	220
Discharged during 1933 ..	52	11	30	9	102
Died during 1933 ..	40	11	6	—	57
Remaining on December 31, 1933	474	112	68	13	667

Of the 220 admissions, 181 were new cases and 39 were readmissions. Amongst the new admissions, 126 were Ceylonese and 55 were Indian Immigrants. The admissions during the year represented the following types:—

N^1 — 20	N^1C^3— 1
N^2 — 35	C^1— 11
N^1C^1— 23	C^2— 21
N^2C^2— 20	C^3— 1
N^1C^2— 37	N^3C^1— 4
N^2C^1— 32	
N^2C^3— 3	220
N^3 — 12	

The new admissions were from the following Provinces:—

	Ceylonese.		Indians.		Total.		Grand Total.
	M.	F.	M.	F.	M.	F.	
Western ..	46	16	12	2	58	18	76
Southern ..	38	3	1	—	39	3	42
Sabaragamuwa ..	10	2	5	5	15	7	22
Central ..	4	1	23	7	27	8	35
Northern ..	1	—	—	—	1	—	1
North-Western ..	1	2	—	—	1	2	3
Eastern ..	1	—	—	—	1	—	1
Uva ..	1	—	—	—	1	—	1
	102	24	41	14	143	38	181

From the above admissions it will be seen that about 70 per cent. were Ceylonese and 30 per cent. Indian immigrants.

Of the 102 patients discharged, 53 were discharged as non-infective after 3 consecutive bacteriological examinations, 28 were repatriated to India, 1 was transferred to the Lunatic Asylum, Angoda, 10 absconded, 8 overstayed leave, and 2 were granted home isolation.

The number of deaths during the year was 57-46 males and 11 females. The percentage of deaths to total treated was 8.69.

The School.—The school was established in 1920. The number on the roll is 80 with an average attendance of 50. English is taught up to the 5th Standard, Tamil to the 4th, and Sinhalese to the 6th. During the year the school was examined by the Government Inspector of Schools and 96 per cent. of those presented for examination passed.

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. Besides the monthly outing by the sea, they spent a month at Mantivu where they took part in several competitions of Scout Craft, &c. 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 some manual work. There are fitters, carpenters, masons, tailors, and shoemakers. Some patients do rattanning, mat-weaving, and ornamental flower pot-making out of cement and sand; most of these articles 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 done for the Asylum. There are some who do vegetable gardening and others occupy 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 lazy life.

Special Treatment of Leprosy.—During 1933 Hydnocarpus oil with 4 per cent. double distilled creosote, E. C. C. O., Solganol B., and Trichlor acetic acid were used in this institution.

Hydnocarpus Oil.—This drug was used intramuscularly and subcutaneously in the majority of the cases, the dose being from ½ c.c. to 5 c.c., injections being given twice a week. The general reaction with this drug was nil. In some cases there was local reaction and irritation lasting 3 or 4 days which was allayed by hot fomentation and massage. In a very few cases abscesses developed at the site of injection and had to be lanced. The injection was followed usually by loss of appetite and lassitude for a day or two.

Early cutaneous cases were given intradermal injections, the initial dose being ½ c.c. increased to 3 c.c. The intradermal injections are very painful during the operation but the sting of it passes off in a few minutes. With intradermal injections the general reaction of lassitude and loss of appetite which is manifested with subcutaneous and intramuscular injections is much less.

Chaulmoogra oil was administered orally in a large number of cases. It was used as an adjunct to the injection but a few who refused injections received this as the sole treatment. The dose being 5-30 minims in milk or gelatine capsules. This treatment occasionally caused some abdominal pain and discomfort and nausea which necessitated withholding the administration of the drug for some days.

Out of the 667 inmates, 386 males and 132 females were treated by injections. Number of days on which injections were given was 75.

The summary of the results of treatment with Hydnocarpus oil is as follows:—

	Number of Patients.	Marked Improvement.	Slight Improvement.	No Improvement.
Males—				
Over 50	19	8	8	3
25–50	109	41	52	16
1–24	258	12	69	177
Females—				
Over 50	2	2	—	—
25–50	44	12	16	16
1–24	86	8	38	40
Total ..	518	83	183	252

E. C. C. O.—The dose and method of administration of this drug was similar to that of Hydnocarpus oil. Besides the local reaction, the general reaction was severe. This drug was used in 12 selected cases and the result was in no way more encouraging than the Hydnocarpus oil.

Solganol.—This drug was given intramuscularly—a course of 12 injections being given in 3 cases with eye complications. The results were very good, the eye complications cleared up and the general condition too improved.

Trichlor Acetic Acid.—This was used diluted 1-5 for the face and 1-3 for the other parts of the body as a local application for infiltrated patches and nodules. The immediate effect is that of a caustic followed by an astringent effect.

There was an increase over the previous year in the number of those who took injections. The results especially in the early cases were encouraging and would be better if most of the cases admitted were not advanced cases.

Out of the 53 patients discharged on parole as non-infective after having been examined bacteriologically thrice at intervals of a month with negative results, 16 returned with fresh outbreak of ulcers and 6 of these were found to be bacteriologically positive. Out of the 16 returned 1 was discharged in 1929, 6 in 1931, 6 in 1932, and 3 in 1933.

The type of the cases remaining are as follows:—

	N1.	N2.	N3.	N1C1.	N1C2.	N1C3.	N2C1.	N2C2.	N2C3.	N3C1.	C1N1.	C1N2.	C1N3.
Males ..	6	47	82	34	17	2	69	54	22	14	18	63	—
Females ..	5	15	21	11	3	2	11	10	3	3	10	6	3
Total ..	11	62	103	45	20	4	80	64	25	17	28	69	3

Mantivu Leper Asylum.—The institution which has been in existence only ten years is situated on an Island of about 160 acres, in a large lagoon near Batticaloa. Male patients are housed in twenty-four two-roomed cottages each with its own kitchen, and in a number of hospital wards. The female patients all live under hospital conditions in wards. There is accommodation for 176 patients. Although it was originally intended that the institution should be conducted as a leper colony, a large staff of attendants, garden coolies, &c., is maintained, but the Medical Officer-in-charge is encouraging the patients to engage in useful work and to become to some extent self-supporting, and so has been able to reduce his staff of attendants and labourers.

At the end of 1932 there were 202 lepers remaining in the Asylum. There were 49 admissions during 1933 and 47 cases were discharged. There were 15 deaths and the percentage of deaths to total treated was 5.97. The daily average number of patients in 1933 was 193.15. There were 189 lepers (144 males and 45 females) remaining on December 31, 1933.

Specific Treatment.—Chaulmoogra oil is given orally and E. C. C. O. injections are given subcutaneously and intramuscularly. All except 20 patients took the oil orally with milk. E. C. C. O. is given in doses of ½ to 5 c.c. and special

cases who tolerate it well are given bigger doses up to a maximum of 10 c.c. A total of 2,937 injections were given on 45 days during the year. Trichlor acetic acid is used to paint skin patches. 156 patients were treated with the result that 17 showed marked improvement, 36 slight improvement, 93 no improvement, and 10 got worse.

Boy Scouts are taking Anti-Leprol which is doing much good. Padutin is being tried for trophic ulcers.

Boy Scout Movement.—The troop which was started about 2½ years ago has 11 Boy Scouts. Weaving is being taught to them and some adult patients and it is expected that all the necessary checked and tray cloths can be supplied for the use of the asylum.

Cost.—The cost of maintaining the institution was Rs. 327 per patient a year. Of this sum Rs. 117 was for diet.

Malaria.—There have in the past been outbreaks of malaria at Mantivu but during 1933 there were only nine mild cases among patients and staff. The reduced incidence is probably due to the drainage and improvement of the land which the Medical Officer has effected.

VIII.—METEOROLOGY.

The following report was prepared by the Superintendent, Colombo Observatory :—

Rainfall.—The chief features of the year were the exceptionally heavy north-east monsoon rains of January, and unusually heavy south-west monsoon rains in May, which were mainly responsible for a south-west monsoon rainfall appreciably above the average.

The rainfall totals for the year were generally above average, except in the north of the Island and at a few stations along the west coast. The highest totals recorded were 309.96 inches at Padupola and 300.04 inches at Kenilworth. Other stations reporting over 250 inches were Watawala, Carney, Hendon, Upper St. Martin's, Blackwater, and Theydon Bois. The greatest excess above average was at Hendon, over 101 inches. Other excesses over 80 inches were recorded at Patiagama, Padupola, Upper St. Martin's, Kabaragalla, and New Forest. The highest averages (10 years and over) are Ingoya 232.11 inches, and Carney 229.54 inches. Other yearly averages over 200 are at Blackwater, Kenilworth, Watawala, Padupola, and Maliboda. In January, there were recorded monthly totals of 123.09 inches at Upper St. Martin's and 122.20 inches at Hendon. These are the highest monthly totals on record for any Ceylon station.

The lowest totals for the year were 33.76 inches at Battulu-oya, 35.31 inches at Kankesanturai, and 36.34 inches at Yala, while the stations with greatest deficits were Denagama 25.42 inches, Battulu-oya 19.36 inches, and Kebitigollewa 18.43 inches. The lowest rainfall averages are Marichchukkadi 35.55 inches, Yala 37.54 inches, and Mannar Waterworks 38.46 inches.

Temperature.—The low-country stations with the highest and lowest mean shade temperatures for 1933 were Mannar, with 81.4°F. and Galle with 79.3°F. The figures for Colombo and Kandy were 79.8°F. and 75.8°F. respectively, while Nuwara Eliya, at an elevation of over 6,000 feet, had a mean shade temperature of 59.2°F. The highest shade temperature recorded during the year was 96.8°F. at Batticaloa on June 17 and August 4, while the highest on record is 103.7°F. at Trincomalee on May 12, 1890. The lowest temperature this year at low-country stations was 63.3°F. at Kurunegala on December 28, while 31.6°F. was recorded at Nuwara Eliya on February 17, at which station 27.1°F. was recorded on February 8, 1914. The highest shade temperature in Colombo in 1933 was 90.5°F. on April 29, and the lowest 65.7°F. on December 28. The mean daily range for 1933 (the difference between the mean of the maxima and the mean of the minima) was greatest at Badulla 15.8°F., and Nuwara Eliya 15.5°F., and lowest

at Galle 8.6°F. The absolute range for the year (the difference between the highest and the lowest readings recorded at any one station) was greatest at Nuwara Eliya 43.3°F., and lowest at Galle 20.2°F.

Returns.—Meteorological returns for the towns of Colombo and Nuwara Eliya are given below:—

Colombo.

Month.	Sunshine. Mean Solar Radiation.	Temperature. Mean Minimum on Grass.	Mean Shade Maximum.	Mean Shade Minimum.	Mean Temperature.	Rainfall. Amount in inches.	Degree of Humidity. Mean of Maximum and Minimum.	Mean of 9.30 A.M. and 3.30 P.M.	Winds. General Direction A.M.	General Direction P.M.	Average Force. Miles.
January	145·4	70.4	85·6	73·0	79·3	6·57	76	80	NE	N	131
February	150·0	68·6	86·2	72·0	79·1	2·60	72	78	NE	W.NW	112
March	141·5	70·0	87·2	73·6	80·4	2·40	70	81	Var.	W	103
April	147·3	73·3	88·0	76·0	82·0	3·25	72	81	Var.	W.SW	107
May	142·0	73·9	85·7	75·9	80·8	20·89	79	83	Var.	W.SW	147
June	147·5	74·3	84·7	76·5	80·6	10·12	78	82	SW	SW	152
July	139·2	74·6	83·5	76·6	80·0	6·58	80	82	W.SW	W.SW	159
August	140·3	73·2	83·2	75·3	79·2	14·64	81	84	W.SW	W.SW	120
September	144·6	73·6	83·2	76·5	79·8	4·13	80	82	SW	W.SW	158
October	143 9	72·4	83·1	75·1	79·1	8·43	79	84	W.SW	W.SW	140
November	145·4	69·1	84·2	72.3	78·2	8·72	76	83	Var.	Var.	97
December	146·1	67·2	84·8	71.7	78·2	1·16	70	79	NE	W.NW	130
Year	144·4	71·7	85·0	74.5	79·7	7·46	76	82	—	—	130
Nuwara Eliya.											
January	—	51·2	63·5	53.3	58·4	25·38	85	89	—	—	—
February	—	42·5	69·4	45.4	57·4	1·71	68	—	—	—	—
March	—	42·6	70·7	45.6	58·2	5·16	60	79	—	—	—
April	—	46·4	71·8	49.0	60·4	5·54	72	82	—	—	—
May	—	52 8	67·0	54.4	60·7	34·81	86	88	—	—	—
June	—	52·3	65·9	55.1	60·5	8·30	83	84	—	—	—
July	—	52·8	63·4	54.6	59·0	13·46	85	86	—	—	—
August	—	51·7	66·7	54.3	60·5	11·64	84	87	—	—	—
September	—	51·3	64·9	54.4	59·6	9· 4	83	86	—	—	—
October	—	50·2	65·3	53.1	59·2	10·68	86	—	—	—	—
November	—	46·8	67·0	50.1	58·6	7·63	76	—	—	—	—
December	—	43·7	67·3	47.4	57·4	2·39	72	—	—	—	—
Year	—	84·7	66·9	51.4	59·2	1311·	78	85	—	—	—

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 typhoid agglutination	3,578	23	3,601	1,282	2,319
Blood for paratyphoid A agglutination	1,834	18	1,852	124	1,728
Blood for paratyphoid B agglutination	1,833	10	1,843	11	1,832
Blood for Wassermann test	6,982	212	7,194	—	—
Blood for Khan test	105	—	105	39	66
Blood for malarial parasites	40	27	67	9	58
Human material for *B. pestis*	55	—	55	18	37
Rats for *B. pestis*	149	—	149	10	139
Sputa for tubercle bacilli	616	20	636	91	545
Sputa for pneumococci	6	—	6	5	1
Urine for bacteriological examination	372	3	375	—	—
Urine for chemical examination	21	11	32	—	—
Secretions for gonococci	162	5	167	79	88
Secretions for diphtheria bacilli	229	15	244	84	160
Faeces for *B. dysenteriae*	3,146	3	3,149	580	2,569
Faeces for *E. histolytica*	26	53	79	3	76
Faeces for ova of intestinal parasites	7	9	16	5	11
Secretions for *B.Leprae*	417	—	417	180	237
Evacuations for cholera vibrio	29*	—	29	29	—
Scrapings for spirochaetes	25	8	33	3	30
Faeces and urine for *B. typhosus*	14	—	14	1	13
Miscellaneous specimens	474	9	483	—	—
Water for bacteriological examination	51	30	81	—	—
	20,171	456	20,627	—	—

* Cholera cultures from Mandapam Camp.

The doses of vaccines prepared and issued were—

Nature of Vaccine.	Official.	Private.	Total.
Autogenous vaccines	90	6	96
T. A. B. vaccines (doses)	27,666	384	28,050
Gonococcal vaccines (doses) . ..	9,034	292	9,326
Staphylococcal vaccines (doses) ..	210	100	310
B. coli vaccines (doses)	36	—	36
Cholera vaccines (doses)	—	111	111
Plague vaccines (doses)	1,296	21	1,317
Pneumococcal vaccines (doses) ..	—	—	—
Streptococcal vaccines (doses) ..	12	—	12
	38,344	914	39,258

The following table shows the specimens of faeces received from four institutions for the 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 Blood and Mucus present.
General Hospital ..	197	16	33	127	80	9	61·2
Mahara Jail, Ragama ..	431	26	87	293	199	40	56·8
Prison Hospital ..	866	18	119	492	325	46	42·2
Lunatic Asylum, Angoda ..	864	84	233	708	558	69	56·8
Total ..	2,358	144	472	1,620	1,162	164	

(2) PASTEUR INSTITUTE.

The number of persons who received preventive inoculation against rabies and treatment of the wound was 990; which is 51 less than in 1932 and with the exception of 1931, is the lowest for 7 years.

The number of brains from dogs and other animals examined during the year was 272; two less than in 1932.

Table I. gives the provinces from which the persons came who received treatment :—

TABLE I.

Western Province	563
Central Province	75
Southern Province	47
Northern Province	170
North-Western Province	31
North-Central Province	20
Province of Uva	25
Province of Sabaragamuwa	59
	990

Table II. gives the provinces from which the dogs' heads were received with the results of examination :—

TABLE II.

Province.	Positive.	Negative.	Unfit.	Total.
Western Province ..	89	61	9	159
Central Province	8	17	5	30
Southern Province ..	9	1	—	10
Northern Province ..	2	3	8	13
North-Western Province ..	3	6	4	13
North-Central Province ..	4	1	—	5
Province of Uva . ..	5	6	3	14
Province of Sabaragamuwa ..	13	7	8	28
	133	102	37	272

The statistics of failures of the preventive inoculation against rabies for 1932 are now complete; they are as follows:—

Number of persons treated	1,041
Number of fatal cases	6
Percentage of failures	0·58

(3) OUTSTATION LABORATORIES.

The following table gives the number of examinations reported from the laboratories attached to the Victoria Memorial Eye Hospital and the Lying-in Home in Colombo and to outstation hospitals:—

Name of Institution.	Urine.	Faeces Positive for Hookworm.	Faeces Negative for Hookworm.	Blood Positive.	Blood Negative for Malaria.	Other Examinations.	Total.
Victoria Memorial Eye Hospital	1,294	4	7	—	27	2,677	4,009
Lying-in Home	3,854	7	6	2	64	171	4,104
Outstations.							
Anuradhapura	2,605	1,438	646	426	895	167	6,177
Badulla	3,232	2,532	587	76	485	318	7,230
Batticaloa	1,191	654	432	20	172	420	2,889
Galle	7,563	3,180	1,143	14	21	1,183	13,104
Jaffna	3,518	2,160	671	165	272	1,095	7,881
Kandy	8,207	2,248	1,103	462	1,195	2,956	16,171
Kurunegala	5,023	3,829	948	268	1,402	12,957	24,427
Ratnapura*	989	833	81	5	93	260	2,261
Mandapam Camp	236	29	45	15	31	20,990	21,346

* This laboratory was closed for 4½ months as the laboratory assistant was on plague duty.

Research Work: (*a*) *V. Cholerae and other Vibrios.*—Mr. K. M. M. Michael has continued his investigations of the number of persons passing through Mandapam Camp who harbour *V. cholerae* and other vibrios.

It has been customary to examine mixed samples of faeces from several persons, and during 1933 samples from 16,000 persons were examined by this method. But it is more satisfactory to examine the samples from each person separately, and during 1933, he examined 15,370 such samples.

The total number of mixed or single samples he examined was 20,776, and these were collected from 31,370 persons, of whom 29 proved to be carriers of agglutinable *V. cholerae.*

He has done some work on bacteriophage. The strain of bacteriophage used was obtained from the Pasteur Institute, Shillong. He tested this on 66 cultures of agglutinable vibrios which were isolated consecutively between May 14, 1931, and November 26, 1933.

The following table gives the result:—

Number of Colonies.	Degree of Lysis in 24 Hours.
9	+++++
9	+++
22	++
14	+
12	—
Total 66	

It will be seen from this that 9 of them showed more or less complete lysis, 12 showed no lysis, and 45 showed lysis in varying degrees.

It is proposed to collect for publication all the work done by Mr. Michael during the last 3 years.

(*b*) *Vitamin Deficiencies.*—During the first half of the year work was being carried out on certain non-specific immunity reactions, but this was interrupted by starting an investigation into the signs of food deficiency diseases occurring among prisoners, patients in asylums and hospitals, and the school children throughout Ceylon.

Since last August nearly 10,000 children, prisoners, and patients have been examined. Numerous statistics have been collected. Pathological material has been obtained. A detailed inquiry has been made concerning dietaries; and it is proposed to continue this with the aid of the Education Department.

The signs of vitamin deficiencies so far discovered are—

(1) A skin eruption caused by blocking and enlargement of the sebaceous glands, named phrynoderma. It is due to vitamin A deficiency.

(2) " Sore Mouth ", affecting principally the tongue, takes the form of superficial erosion; probably two factors are concerned; one is deficiency of vitamin A, and the other is deficiency of a thermo-labile member of the vitamin B complex.

(3) Eye symptoms and signs: night blindness, xerophthalmia, keratomalacia and its sequelae.

(4) Nerve signs: burning feet and hands followed by a slightly spastic paresis were at first thought to be due to neuritis; but evidence is accumulating to show that they are due to degeneration of the posterior columns of the cord due to vitamin A deficiency and perhaps a thermo-labile, vitamin B complex deficiency.

(5) Hypoplastic teeth; this affects principally the non-permanent teeth, and is present in 20 to 30 per cent. of all young children in the vernacular schools. This secondarily affects the permanent teeth; and the contracted jaws and irregular protruding teeth so common among the poorer classes follows the hypoplastic non-permanent teeth.

(6) Lack of resistance to dysentery is due to vitamin A deficiency affecting the epithelium of the alimentary tract.

There are indications that there are other signs of vitamin deficiency prevalent in Ceylon.

Investigations will continue and reports will be published in due course—one has already appeared in the Indian *Medical Gazette* of December, 1933.

(4) GOVERNMENT VACCINE ESTABLISHMENT.

The number of calves received on hire from the contractor amounted to 94 and there remained 24 calves from previous year.

During the twelve months 946 calves were used for vaccination and 961 were returned to the contractor after the collection of lymph.

" Seed lymph " for the vaccination of calves was obtained at intervals from the Lister Institute of Preventive Medicine, London. About half the calves were vaccinated with this seed lymph and the rest of the calves with seed lymph prepared in this establishment. Human vaccination with the lymph pooled from the two sources appears to give better vesiculation than when either of them is used separately.

The glycerinated calf lymph was issued to vaccinators in sealed glass capillary tubes. Where a large number of vaccinations were carried out daily the lymph was issued in collapsible metal tubes of varying capacity.

The total number of tubes of calf lymph issued during the year amounted to 666.077, *i.e.*, sufficient for the vaccination of approximately 1,998,231 persons. Of this total 2,105 tubes were sold realizing a sum of Rs. 1,987; 28,000 were issued to Mandapam Camp; 21,700 to Tataparai Camp, Tuticorin; 6,675 to the Port Surgeon, Colombo.

The weekly returns of vaccinators received at this establishment show that a successful case percentage of 98.7 (primary vaccination) was obtained with the lymph issued during the year.

(5) MEDICAL ENTOMOLOGY.

The work carried out during the year was of a similar nature to that described in the report for 1932. Research on various lines was continued and several of the field staff were attached to the malaria campaigns and assisted in the investigatory work and control operations.

A considerable amount of time was also given to the collection and preparation of specimens for exhibition and teaching purposes. With the assistance of a draughtsman, who was appointed for a period of six months, a series of cases intended to serve as an introduction to the Medical Entomology of Ceylon was prepared and installed in the Museum attached to the laboratory. Other cases demonstrating the structure and life-histories of some of the more important disease-carrying insects have also been arranged. This work is being continued.

The Medical Entomologist was granted duty leave from August 15 to September 14, to study the research and control work which was being done on malaria and filariasis by the Governments of Travancore and Mysore. The visit was made possible by the kindness and generosity of the Rockefeller Foundation to whom sincere thanks are offered.

Malaria Campaigns.—A large amount of work, including much of a more or less routine nature, has been done during the year by the field staff attached to the campaigns. Apart from specific investigations and mosquito surveys this work consisted mainly of (*a*) the systematized checking of the field operations by examination of all Anopheline breeding places under treatment and determination of the efficiency of these operations, (*b*) the regular examination—for presence of larvae of malaria-carrying Anophelines—of all potential breeding places which are not under treatment, and (*c*) the control of wells by means of the larvivorous fish *Lebistes reticulatus* (' Millions ').

The introduction of the checking system some years ago has proved of considerable value especially in connection with oiling and distribution of Paris green. It has raised the standard of work of the labour gangs very greatly and now ensures a high degree of efficiency being maintained.

In almost all the malaria campaign centres there exist permanent or semi-permanent pools, tanks, swamps, and similar situations which at present have not—or have seldom—been found to act as breeding places of malaria-carrying mosquitoes. Such situations are not treated but are regularly examined by the field assistants and the larvae collected identified. Should larvae of a known malaria-carrying species be found, the breeding place is brought under treatment (oil or Paris green if no permanent measures are possible) for a period of three months. Subsequently it is again placed on the list of uncontrolled situations and carefully watched. By this means relatively large quantities of oil or Paris green have been saved.

The prevention of mosquito breeding in wells is an important problem at almost all the malaria campaign centres. An account of this work was given in last year's report. The results continue to be very satisfactory and except at one centre the proportion of wells harbouring Anopheline larvae has been reduced from the order of 30-50 per cent. to less than 2 per cent. To maintain such results, however, intensive work is necessary, and for the present a system involving the examination of each well for presence of Anopheline larvae and larvivorous fish once every month or every two months has been adopted. Fresh supplies of fish are introduced into all wells in which they appear to be absent or reduced in number.

At Chilaw an investigation was carried out to ascertain whether any invasion of the protected zone by *A. culicifacies*—the chief malaria-carrying mosquito in this district—occurred. Within the campaign area the most favoured breeding places of this mosquito are the wells and water storage pits (' gala ' wells). Beyond the control area *A. culicifacies* breeds prolifically during favourable periods in the river (Deduru-oya) and associated pools, and from October to January in subsidiary collections of water—chiefly exposed trenches and borrow pits—in coconut plantations particularly when these are situated near the river. The latter is distant approximately 1,400 yards in a direct line from the northern

boundary of the peripheral control zone, and some 2,200 yards from that of the protected zone. The breeding places of *A. culicifacies* situated within the campaign area are all regularly examined and treated. Collections of mosquitoes from selected huts and houses situated at varying distances from the river and extending into the protected zone were made twice each month from October, 1932, to September, 1933. The huts selected were all of similar construction. The time spent in catching was noted, the usual period being 15 minutes in each hut. The results may be grouped in five categories:—

1. Huts 50-200 yards distant from river.
2. Huts approximately 500 yards from river.
3. Huts 1,000-1,300 yards from river.
4. Huts 2,000-2,200 yards from river-control or peripheral zone.
5. Huts 2,500-3,000 yards from river—protected zone.

Mosquitoes, and particularly Anophelines, were very scanty in all the stations during the hot dry season from May to September. They were most numerous at other times in huts situated within 500 yards of the river (categories 1 and 2 above), within this distance Anophelines formed from 70-80 per cent. of the mosquitoes obtained, and *A. culicifacies* 50 per cent. or over. In both the peripheral and protected zones Anophelines were scanty throughout, but Culicines —notably *Culex fatigans*, and *Mansonioides annuliferus* increased. The results are summarized below:—

Prevalence of Mosquitoes in Huts—Chilaw vicinity.

Category.	No. of Huts.	Total catching Hours.	Mosquitoes per catching Hour.		
			Anophelines.	A. culicifacies.	Culicines.
1 ..	5 ..	14·7 ..	26·8 ..	16·3 ..	5·8
2 ..	2 ..	6·7 ..	12·3 ..	9·9 ..	5·3
3 ..	4 ..	10·5 ..	0·8 ..	0·7 ..	2·6
4 ..	3 ..	15·2 ..	1·6 ..	0·5 ..	9·1
5 ..	6 ..	33·7 ..	0·4 ..	0·06 ..	5·3

The results for category 3 (1,000-1,300 yards from the river) are not satisfactory. Three of the huts selected comprised a small set of labourers' lines and after the first few visits, circumstances occurred which frequently changed the conditions. The results for the remaining hut in this category are probably more representative, viz.:—Anophelines 3.3, *A. culicifacies* 2.7, Culicines 7.4. Potential breeding places in the vicinity of the huts were also regularly examined. In those situated within the campaign area (categories 4 and 5), larvae were rarely present. In the remaining areas larvae were continuously present except during the period March to May. *A. culicifacies* larvae were found in large numbers in October and November, and in pools in the river in June. The evidence obtained showed that at Chilaw *A. culicifacies* was most prevalent in huts situated within 500 yards of the river, and that during the period of investigation no invasion of the protected zone by this mosquito occurred.

At Badulla, entomological work similar to that described in last year's report was continued. The treatment of selective breeding places of *A. culicifacies* did not appear to result in any extension of its breeding habits. Rice fields, irrigation channels, streams, swampy areas, wells, and other possible breeding places of the mosquito which were left untreated within the campaign area were kept under constant observation, but larvae of this mosquito were extremely scanty throughout—a total of 7 out of approximately 12,000 Anopheline larvae collected and examined only being found. The effects of control measures on the selective breeding places of *A. culicifacies* at this town continued to be satisfactory. Complete control over breeding in the pools associated with the river and in borrow-pits was obtained, no Anopheline larvae being found at any time during the year; in similar situations outside the campaign area, however, larvae were plentiful except during December and January when the river was in flood. In the river (Badulla oya) and its tributaries the degree of control obtained was not complete but—except in June—was satisfactory when estimated by larval findings. The average

larval rate (per 100 dips) for the year was 6.0 and ranged from zero (during six months) to 34.5 in June. Larvae were much more abundant in June than at any other time. Prior to treatment, in 1930-31, the average larval rate for the same stretch of the river was 16.5, ranging from 1.0 to 72.8 in August; and outside the campaign area during the present year the average rate was 13.0 and ranged from zero (during two months when the river was in flood) to 56.6 in June.

A mosquito survey of the area selected for land development in the vicinity of Minneriya was carried out towards the end of the year. A considerable amount of ground water was present; rain pools were numerous and the water in the river (Minneriya-oya) and in most of the streams was flowing rapidly. The area examined included all lands allocated to the poorer classes of colonists, many of whom had settled on their allotments and had cultivated portions where clearing and burning had been done. Anophelines were breeding extensively throughout the area, the larvae of *A. varuna*, *A. culicifacies*, *A. subpictus and A. hyrcanus* being the most prevalent. *A. culicifacies* was breeding in variety of situations including borrow pits, rain-pools, irrigation channels and drains, and in the streams and the river. Its larvae were most abundant in channels under construction and in cement basins constructed below dams in the channels. Collections of mosquitoes from the colonists' camps, tents, lines, boutiques, &c., were made at night (8 P.M.-9.30 P.M.) and in the mornings from September to December inclusive. *A. culicifacies* and *A. fuliginosus*, the latter caught chiefly at night, were the species most commonly obtained. *A. culicifacies* was the only mosquito found infected with malaria parasites.

Systematic work on the *A. funestus* group of Ceylon Anophelines is being carried out in the Colombo laboratory; this involves the collection, rearing (by the isolation method), and the examination of large series of specimens obtained from the different parts of the Island and different types of breeding places. This work is still in progress.

Rat Fleas.—The anti-rat campaign instituted at Anuradhapura in November, 1932, was continued throughout the year, and the fleas collected were forwarded by the Medical Officer of Health to Colombo for identification; and a rat flea survey of Badulla was carried out in collaboration with the Medical Officer of Health during the period January to April, 1933.

Anuradhapura.—The gross results obtained since the inauguration of the rat campaign (November, 1932-December, 1933 inclusive) were as follows:—

	No. of Premises yielding Rat Fleas.	No. of Rats trapped.	No. of Fleas.	General Flea Index.	No. of X. astia.	No. of X. cheopis.	Per cent. X. cheopis.	X. astia Index.	X. cheopis Index.
C*	194	398	1,760†	4·43	885	873	49·6	2·22	2·19
R	68	117	568	4·85	318	250	45·0	2·72	2·13
T	262	515	2,328	4·52	1,203	1,123	48·3	2·34	2·18

C* = Commercial premises. R = Residential premises. T = Total premises.
† Includes 2 *Ctenocephalides felis*.

The actual number of separate premises involved was 139 (commercial 80, residential 59); in a considerable number of each type of premises rats were trapped only once during the period of examination. Infestation with *X. cheopis* occurred in 92.5 per cent. of the commercial premises and in 64.9 per cent. of the residential premises. The general flea index and the specific indices for *X. astia* and *X. cheopis* were all higher than those obtained by Hirst during the dry season (August) of 1931. Monthly variations in these indices were somewhat considerable. The extremes were: General index 2.68 (April) to 5.73 (August) *X. astia* index 1.30 (December 1932) to 3.27 (March); *X. cheopis* index 1.15 (April) to 3.26 (December 1932). The latter flea is now well established in Anuradhapura and shows a specific index exceeding that of the plague endemic area of Colombo and similar to that obtained in Kurunegala prior to the plague epidemic of 1932. The position demands careful attention and continuation of preventive measures.

Badulla—January to April, 1933.

	No. of Premises Yielding Rat Fleas.	No. of Rats trapped.	No. of Fleas.	General Flea Index.	No. of X. astia.	No. of X. cheopis.	Per cent. X. cheopis.	X. astia Index.	X. cheopis Index.
C ..	53 ..	141 ..	405 ..	2·87 ..	123 ..	280 ..	69·5 ..	0·87..	1·99
R ..	142 ..	348 ..	711 ..	2·04 ..	73 ..	632 ..	89·8 ..	0·21..	1·82
T ..	195	489	1,116*	2·28	196	912	82·4	1·87	0·40

* Includes also *Leptosylla segnis* 1♀ 1♂ ; *Stivalius phoberus* 1 ♂ ; *Ctenocephalides canis* 1♀ ; and *Xenopsylla* sp. incert.—damaged—4.

Hirst examined a sample of 422 rat fleas from this town in 1931. He recorded a General Flea index of 3.87, and *X. astia* and *X. cheopis* indices of 1.16 and 2.20 respectively; *X. cheopis* formed 56.9 per cent. of the fleas examined. He found an increased incidence of *X. astia* (30.1 per cent.) and of *L. segnis* (11.6 per cent.)

House and Bazaar Frequenting Flies.—Research on these and allied flies has been continued and much time has been given to the study of material received from Colombo and the outstations. Thanks are due to Professor W. S. Patton of the Liverpool School of Tropical Medicine for help in identification.

The investigations in connection with the fly-nuisance at Nuwara Eliya (altitude 6,100 feet) which were commenced in December, 1932, were continued until November, 1933. The severe prevalence of these insects, particularly during the visiting season from March to May, constitutes an important public health problem at this resort. The popular belief is that the nuisance is caused by the increased activities—notably the influx of race horses—which occur during the " season " accompanied by invasion of flies from the wooded slopes of the neighbouring hills. This belief is not correct although there is little doubt that before the Turf Club instituted preventive measures the existence of large accumulations of horse manure augmented the output of flies at this period of the year. The investigations have shown that house-flies breed continuously at Nuwara Eliya, chiefly in the heaps of cattle manure which are stored promiscuously throughout the town for use in connection with the market-garden industry; and that it is only by regulating or controlling the storage and use of such material, and by improving the methods of storage that any permanent relief from this nuisance can be obtained. A vigorous anti-fly campaign has been instituted by the local authorities, and the Medical Officer of Health has enlisted the co-operation of the Turf Club and of the more prosperous market gardeners and dairymen. Later it is hoped that methods of storage of manure suitable for the smaller classes of market-gardener and for private gardens will be adopted.

The investigations undertaken included (*a*) the distribution and relative prevalence of the various species of house-frequenting flies, their periodicity, and breeding habits, (*b*) experiments with inexpensive methods of storing cattle manure with a view to reducing fly-breeding, and (*c*) a survey of the town for permanent or semi-permanent breeding places of flies, and preparation of a register and map showing the positions of all such breeding places. A detailed report on the results of these investigations is being prepared.

Insecticidal Sprays.—Experiments designed to test the toxic powers of various proprietary sprays, samples of which were submitted by the Colonial Storekeeper, were undertaken in the laboratory from time to time throughout the year. Reports were submitted.

(6) PUBLICATIONS.

The following papers were published during the year:—

Gunewardena, H. O.: Cardiac complications of Ankylostoma infection with special reference to a presystolic murmur occurring in these cases. *J. Trop. Med.*, XXXVI., (4), 49.

Gunewardena, H. O.: Treatment and Control of Essential Hypertension. *Brit. Med. J.*, 1933, (3806), 1115.

Hill, W. C. O.: Lorain's Infantilism. A report on the systematic dissection of a subject who had been affected by this condition. *Ceylon J. Sci.* (*D*), May, 1933, Vol. III., Pt. 2.

Nicholls, L.: Report on Phrynoderma. *Ind. Med. Gaz.*, Dec., 1933, LXVIII., (12), 681.

Spaar, E. C.: The Treatment of Malaria in Ceylon with Plasmoquine—quinine Compounds. *J. Trop. Med.*, XXXVI., (11), 158.

Spaar, E. C.: Oedematous Nephritis in the Child. *J. Ind. Pediatrics*, Oct., 1933, Vol. I., 1.

The following publications by officers of the Department appeared in the Journals of the Ceylon Branch of the British Medical Association for 1933:—

Arndt, E. W.: Preliminary and further notes on Retinitis Pigmentosa.

Attygalle, N.: (1) Injection treatment of Internal Piles, and (2) Perforation of Peptic Ulcers.

Balendra, W.: Necrosis of the mandible due to Typhoid fever.

Fernando, B. E.: A Renal Calculus of extraordinary size.

Fernando, P. B.: Notes on two cases of spontaneous Subarchnoid Haemorrhage.

Fernando, S. E.: (1) A case of Pinta in Ceylon, and (2) Xeroderma Pigmentosum.

Gunewardene, T. H.: Advantages of treatment with petroleum and allied preparation in cases of acute bacillary dysentery in children.

Jayasuriya, J. H. F.: (1) Clinical Pathology of Thoracic Puncture Fluids, and (2) The toxic effects of Arseno Benzene compounds, their prevention and treatment.

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 spent 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 extracts from the report of the Registrar, Ceylon Medical College, for the year 1933, are given:—

" During the year 1933 the reorganization of the college was continued in order to comply with the recommendations of the General Medical Council of the United Kingdom. A detailed scheme of improvements was drawn up by the College Council and submitted to the Minister for Health with a view to its sanction by the State Council.

The old experimental Physiology Laboratory was refitted to serve as a temporary laboratory for pathology and bacteriology. The old histology preparation room was refitted as a Pathology Museum and an extra class room for lectures.

An extra sum of over Rs. 30,000 was voted by the State Council to the Medical College to provide for a Professor of Pathology, a Pathology Technician, an additional Laboratory Assistant in the Anatomy Department, for laboratory expenses and alterations in connection with instructions in Anatomy, Materia Medica, Public Health, Pathology and Midwifery, and for training a lecturer in Forensic Medicine. Dr. N. Sinnadurai has been selected for training for the latter post.

The following are the statistics of the year's work in the College:—

Medical.

Number of students for L.M.S.	19
Number of students admitted who have passed the pre-medical	14
Total number of students on the rolls on January 1, 1933 ..	160

Results of Examinations—Medical.

	1932. December.		1933. March.		1933. June.		1933. July.		1933. September.		Total Passed.
	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	
Pre-medical	—	—	—	—	32	8	—	—	23	7	15
1st Professional	—	—	34	19	—	—	24	12	—	—	31
2nd Professional, Parts I. and II.	—	—	35	12	—	—	49	36	—	—	48
Final	9	3	16	7	—	—	19	9	—	—	19
											113

Apothecaries.

Number on the rolls on January 1, 1933	61
Number admitted during 1933	29

Results of Examinations.

	1932. December.		1933. March.		1933. July.		Total Passed.
	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	
1st Apothecaries	—	—	13	12	29	15	27
2nd Apothecaries	11	10	4	3	15	12	25
							52
Pharmacists	5	3	—	—	—	—	

Results of Midwives' Examinations.

	1932. December.		1933. March.		1933. June.		1933. September.		Total.	
	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.	Sat.	Passed.
Class I.	9	6	9	8	10	10	10	10	38	34
Class II.	15	14	18	17	20	16	31	25	84	72
									122	106

Revenue for the financial year was Rs. 62,356 and Expenditure Rs. 103,436. The cost to Government per student for the year 1932-33 is as follows:—

	Average No. of Students on roll.	Gross cost per Student. Rs. c.	Fees per Student. Rs. c.	Net cost to Government per Student. Rs. c.
(*a*) Medical students	156	597 45	399 71	197 74
(*b*) Apothecary students	63	162 34	—	162 34

The annual budget of the Medical College was Rs. 106,000, of which Rs. 62,00 was repaid to Government in students' fees. The College offers no post-gradua courses of instruction.

The Royal College of Surgeons of England awarded the Hallett Prize f Anatomy and Physiology to Ananda Nimalasuriya, a student of the Ceyl Medical College and of King's College, London, on the results of the Prima Examination for the Fellowship.

(2) KING EDWARD VII. (MEMORIAL) ANTI-TUBERCULOSIS FUND.

The Anti-tuberculosis Institute in Colombo, the Kandana Sanatorium, and t Kankesanturai Sanatorium were built and equipped from the fund. The balan of the fund—a sum of some Rs. 20,000—has been earmarked for building children's ward at Kandana, but until Government is in a position to mainta such a ward the money has been placed in fixed deposit at the bank.

It was decided not to close the fund until this ward was erected.

(3) CIVIL MEDICAL STORES.

The following extracts from the report of the Superintendent, Civil Medical Stores, are given:—

The working of this establishment during the past year has been very satisfactory.

Requisitions were complied with within the due dates, although at times there was much congestion in the despatch section on account of the large number of intermediate requisitions received, which show an increase over the previous year.

The stock ledgers were kept up to date all through the year. This is particularly satisfactory in as much as the drug ledgers are kept up to date by three clerks, whereas previously the ledgers were always much in arrears when kept by five clerks.

The verification of stocks was satisfactory and the report was completed in January. There was additional work in the report this year as all stocks over two years old had to be recorded and priced.

The post of additional storekeeper was abolished and the work is being done by an apothecary.

The question of the accounting for drugs received by institutions was raised and steps are being taken to maintain a half-yearly record of the amount of every drug consumed and the total cost of drugs received at each dispensary.

The preparation section is hampered by congestion which it is hoped to relieve by taking over the premises of the Government Analyst.

The following statistics are of interest:—Expenditure: drugs, dressings, &c., Rs. 359,354; quinine Rs. 172,326; instruments Rs. 40,900; local purchase by General Hospital Rs. 16,772 and by other institutions Rs. 1,995.

The number of requisitions received was—

Civil—Drugs 6,115; instruments 1,565; stationery and forms 3,093; other departments 393.

Estate—Drugs 2,205; stationery and forms 1,175. Total 14,546.

Quinine: 12,014 pounds of quinine and 2,012,290 tablets were issued costing Rs. 306,503.

87,516 lb. of spirituous preparations were prepared at a cost of Rs. 32,486, which if imported would have cost Rs. 68,046, and thereby a saving of Rs. 35,560 was effected.

(4) SALE OF OPIUM TO REGISTERED CONSUMERS AND VEDARALAS.

Three depôts were closed during 1933. There are now 48 depôts in existence. No new consumers were registered during the year.

The total number of registered consumers served from the depôts in the Island during the year was 3,566, as against 4,108 in 1932 and 8,647 in 1923.

3,214 consumers obtained eating opium and 352 obtained smoking opium, as against 3,724 and 384 respectively in 1932 and 7,981 and 666 respectively in 1923.

There were 3,464 registered vedaralas entitled to buy opium for medicinal purposes, as compared with 3,443 in 1932 and 3,642 in 1931.

1,053 pounds of eating opium were sold to registered consumers and 255 pounds to vedaralas which realized a total of Rs. 137,356.49, as against 1,280,237, Rs. 159,363.13 in 1932 respectively.

167 pounds of smoking opium were sold to consumers during the year which realized Rs. 23,393.56, as compared with 199 pounds in 1932 which realized Rs. 27,870.08.

The total amount realized by the sale of eating and smoking opium was Rs. 160,750.05, as against Rs. 187,233.21 in 1932. The decrease in the sales is due to the 5 per cent. annual reduction in the opium allowed to consumers and to deaths among opium consumers.

The selling price of opium—eating opium 1½ cents per grain and smoking opium 2 cents per grain—remained unchanged.

The above figures show clearly that the number of consumers and the quantity consumed are decreasing year by year.

(5) BUILDING REQUIREMENTS.

Owing to the uncertain state of the country's finances at the beginning o 1933, no major item of the Department's extensive building programme wa undertaken. The most urgent and important of the larger requirements i Colombo still remain—a new Bacteriological Institute, a Nurses' Home at th General Hospital, and the extension of the De Soysa Lying-in Home. It is however, gratifying to record that since the close of the year a start has bee made on the last of these items and that there are now prospects of th first two being commenced next year. Additional buildings at the Medica College have also become an important and urgent requirement.

Although it appears unnecessary to establish new hospitals anywhere at th present time, in many districts the population has grown to such an exten that a number of the old hospitals are now much too small, have becom chronically overcrowded, and need to be rebuilt or extended. The Civil Hospita Kandy, is the most important of the hospitals in this category and an extensiv rebuilding scheme for it is under consideration. In the Western Province the Kalutara and Panadure hospitals are now obsolete and quite inadequat for the needs of their districts, in the Southern Province, Balapitiya and Hambar tota Hospitals require to be rebuilt on new sites and in the Eastern Provinc land has been acquired and plans prepared for a large extension to the Trinco malee Hospital.

The continued development of hospital maternity work makes necessary th building of maternity wards at many more hospitals and the needs of th Negombo and Nawalapitiya hospitals in this respect are particularly urgen The time has come when X'ray facilities must be provided at the larg provincial hospitals and a suitable type plan for buildings to house such install tions has been prepared.

When new buildings are being planned consideration should be given to th installation of " air conditioning " plant. In operating rooms, laboratories, &c fans cannot be used and the conditions under which work has to be done in th low-country are usually very trying owing to high temperature and excessiv humidity. Air conditioning in Ceylon would be a comparatively simple matt now that electricity is almost everywhere available, since the only processes nece sary are cooling to a temperature of about 8°F. below that of the outside a and reduction of humidity to about 40 per cent., but once adopted it will lea to far-reaching alterations in the design of buildings.

(6) GENERAL REMARKS.

1933, like its two predecessors, was a healthy year. Although the gener death rate (21.2) was a fraction higher than the record low death rate (20. of the previous year, the infant mortality rate (157 infant deaths per 1,0 births) was the lowest there has yet been, the birth rate increased from to 38.6 and the excess of births over deaths (94,342) was greater than any previous year.

Apart from smallpox and plague there were no serious outbreaks of infectio disease, though the typhoid rate still remained comparatively high. Owing favourable climatic conditions malaria was less prevalent than in any of t past ten years with the possible exception of 1927.

Smallpox, introduced from India in November, 1932, was epidemic Colombo from the middle of December, 1932, to the beginning of March, 19 From Colombo it spread to various parts of the Island, the last case occurri in August. Thanks to the vigorous measures of hospital isolation of cas segregation of contacts, and mass vaccination of the public and to the co-operati of local authorities and the general population, the total number of cases w limited to 443 but the cost of the outbreak to Government and local bodi was considerable. The outbreak showed that some tightening up of the quaranti surveillance of passengers after they arrive from India was necessary if simil outbreaks are to be avoided in the future. The great bulk of the populati

of Ceylon has been vaccinated in infancy and the value of vaccination was again demonstrated by the fact that the death rate among vaccinated persons who contracted the disease was only 6.7 per cent. while among unvaccinated cases it was 53.3 per cent.

The significant fact with regard to plague during 1933 was that most of the cases occurred outside Colombo. In every instance, however, the infection originated in Colombo; in other words, if there had been no plague in Colombo there would have been none in Ceylon. Both Government and Urban District Councils have been put to great expense in dealing with the outbreaks which occurred in the interior of the Island, and the Regulations of July, 1933, to prevent the introduction and spread of plague within areas under local authorities, imply structural requirements in grain and similar stores which will necessitate still further expense. One of the most dangerous centres in Colombo for the dissemination of plague to the interior is the Government granaries where rat plague continues to exist. Proposals for keeping these granaries rat free by a combination of minor structural alterations and periodic cyanide fumigation were made after extended experimental work and can be carried out at moderate cost.

On account of the outbreaks of smallpox and plague the Department's expenditure from its epidemic Vote which was only Rs. 6,363 in 1932 rose to 104,409 in 1933 and this sum does not by any means represent the total expenditure by the Department in dealing with these two diseases.

At the end of the year a grant of Rs. 6,000 was kindly given by the International Health Division of the Rockefeller Foundation to enable an epidemiological investigation of typhoid fever to be made in the area of the Kalutara Health Unit. This investigation has since been started. The Department is also indebted to the Rockefeller Foundation for a grant of Rs. 5,000 to be used as a " Revolving Fund " for supplying cement concrete squatting plates of standard design for latrines in rural areas. The plates are sold at cost price to villagers who pay for them in small monthly instalments collected by the headmen or Co-operative Societies. From the end of March, 1933, Rs. 1,800 had been loaned from this fund and 3,362 latrine plates provided. A Rockefeller Fellowship was awarded to a Government Medical Officer in October, 1933, to allow him to undergo a scientific training in helminthology at the Calcutta School of Tropical Medicine and the Imperial Institute of Veterinary Research, Muktesar.

The leprosy survey of Ceylon, for which two officers had been trained and preparations made in 1932, started in the Eastern Province. Thanks to a visit of six weeks by Dr. R. G. Cochrane, Secretary of the Empire Leprosy Relief Association, the leprosy problem in Ceylon has received a very thorough review and the policy now adopted as the result of his investigations and advice, should in the course of one or two decades bring about a very material diminution in the amount of the disease. The two Survey Officers are doing much more than merely finding new cases. In each area that they survey they train the Department's Medical Officers, Apothecaries, and Sanitary Inspectors to recognize and deal with early cases of the disease, they arrange for the isolation in one of the two leper asylums of infective cases and they leave behind a local organization for the care and treatment of non-infective cases, for the " follow-up " of old arrested cases and for the periodic examination of contacts. Since completing the survey of the Eastern Province where 46 new cases were discovered, the two officers have made a survey of Colombo and found there 230 new cases. The reports of Dr. Cochrane and of the Leprosy Survey Officers have been published by Government in the form of a Sessional Paper II. of 1934.

Valuable progress has been made in school medical and health work during the year under review. Reference to Section III. A (3) will show that a policy for future work has been formulated and the machinery for putting that policy into effect arranged, and though the actual numbers of schools and school children dealt with may be small when compared with the total numbers in Ceylon (8,000 schools and 600,000 school children) an organization has been

provided which is capable of progressive development. In the towns denta trouble is the commonest cause of absenteeism and in Colombo a carefu dental survey of school children has been made by the School Medical Officer who possesses qualifications in dentistry as well as in medicine. He has found that 76 per cent. of the children in Colombo schools have dental defects which require attention and through his influence some of the larger schools and colleges have recently arranged excellently equipped dental clinics within their own buildings. Another important investigation started during the year has been the inquiry by the Director, Bacteriological Institute, into the signs of dietary deficiencies in school children (Section IX.). The Department of Education working in conjunction with the Health Education Section of the Medical Department, has established a very practical system of health educa tion in the vernacular schools of the Island—the pupil throughout his whole school course is made to practice the health habits which he has been taught.

The Indian population on estates decreased from 741,289 in December, 1929 to 609,170 in December, 1933, as the result of the depression, but during this period, in spite of lower wages and unsettled conditions of work, the health of the estate population has steadily improved. In 1933, the death rate was 2.3 lower than that of the general population, the birth rate of 39.4 was much above the average of the past few years and the infant death rate of 181 is the lowest yet recorded. In September, 1933, however, with improving trade conditions, the recruitment of labour from India began to revive and recently the rate of immigration has been almost 5,000 a week. With this large influx of new labour, health conditions on estates are likely to be adversely affected and higher sickness and death rates are to be anticipated for the next few years. During the period of depression the inspecting medical staff have made very limited demands on estates for the improvement of lines and sanitation; but with the return of prosperity and the increase in labour force the requirements of the Medical Wants Ordinance and of the Diseases (Labourers) Ordinance will have to be more vigourously enforced. Temporary lines and old permanent lines on many estates have so deteriorated during the period of depression that they are unfit for further occupation and their replacement by well built standard type lines is needed, many more estates require to employ trained midwives and, as vacancies occur, partially trained estate dispensers should be replaced by qualified Apothecaries.

On January 1, 1933, the number of Urban District Councils was increased from 11 to 27 with a view to developing local government. The Department has been anxious to assist Urban District Councils as far as possible in all technical matters of health, hygiene, and sanitation. As none of the new Councils was large enough to engage the services of a full-time Medical Officer of Health, each of the Department's Medical Officers of Health made a detailed sanitary survey of the new Council areas within his district. Further, each Council has been permitted to appoint as its executive officer under the administrative control of its Chairman, the Department's Medical Officer of Health of the district, subject only to payment of his car expenses when engaged on work for the Council. Trained Sanitary Inspectors have also been lent to the Urban District Councils against a fixed monthly payment to Government which is irrespective of the salary and allowances actually drawn by the Inspector. The Assistant Director of Sanitary Services and the Senior Medical Officers of Health have paid numerous visits to Urban District Councils to advise and assist them with regard to health matters, and the Sanitary Engineer's Division has investigated problems of water supply, drainage, refuse disposal, &c., and prepared plans and estimates for local schemes.

The maternal mortality rate falls very slowly. In 1933, there were 15 maternal deaths for every 1,000 live births, as compared with an average of 20.1 for the preceding ten years. The rate in towns (28.5) is much greater than in rural areas (17.2) and contrasts very unfavourably with the English maternal death rate of 4.3 which is considered unduly high. How far the Ceylon rates can be accepted as accurate is a matter for doubt. There is often a great and unaccountable difference between the rates of neighbour

egistration districts. The Medical Officer of Health, Matara Health Unit, fter an inquiry into each reported death found the rate in his area to be 5.2 or the year 1933.

The infant death rate on the other hand appears to be declining more rapidly nd steadily and the improvement must be attributed in some measure to the radual dissemination of knowledge about infant care and hygiene from the umerous Health Centres and Child Welfare Clinics now established in Ceylon. great deal of attention is undoubtedly being given to maternal and infant are. During the past four years the number of Public Health Nurses in the Health Units has increased from 6 to 19, the Colombo Municipality now ossesses 21 Health Nurses and several of the older Urban District Councils ave recently begun to employ their own Health Nurses, all of whom have eceived a thorough training in the Kalutara Health Unit. During 1933, the umber of Health Unit midwives increased from 48 to 70. They paid 74,000 sits to 13,000 expectant mothers and were present at 6,623 deliveries. Maternity wards were added to the Neboda, Marawila, Batticaloa, and Nuwara liya hospitals bringing the number of Government hospitals which possess uch wards to 76.

The first stage of the extension of the De Soysa Lying-in Home, Colombo, as been started and will provide facilities for training one hundred midwives year. A beginning was also made at the Lying-in Home to develop a district aternity service in association with the Municipal Midwifery Service. Motor mbulance facilities have been provided and senior medical students resident the Home, whose period of clinical training in obstetrics has now been reatly extended, will help to work the district service.

The Colombo Municipal Council made a generous offer of Rs. 200,000 towards e second stage of the extensions to the Lying-in Home but as Government as unable to give an undertaking to start building by a particular date, the fer fell through.

The draft Mosquitoes Ordinance after revision by the Departmental Committee Malaria was considered by the Executive Committee of Health and presented the State Council as a bill. There are at present no direct statutory powers deal with mosquitoes, such powers as exist being in virtue of by-laws made nder the small Towns Sanitary Ordinance, 1892, and the Local Government rdinance, 1920. The draft Ordinance had been under consideration for the st twelve years but there has always been the fear that anti-mosquito legisla-on, however much good it might do for the general public, would occasionally irksome and annoying to individuals. The bill, therefore, was rejected at second reading.

The practice of dentistry in Ceylon is governed by the Medical Ordinance 27. Persons who are registrable under the English Dentists Acts, or who ld a dental qualification recognized by the Ceylon Medical Council or who d been apprenticed for five years to a registered (not necessarily qualified) ntist in Ceylon; have in the past been permitted to practice. During the ar, the Medical Council decided that in the future only persons registrable der the English Act and persons who had been apprenticed for five years a qualified dental surgeon in Ceylon and at the end of the five years passed examination in dentistry to be arranged by the Medical College Council, uld be registered, and the necessary legislation to implement this decision s passed. The number of names on the Ceylon Dental Register is only and of these only 18 are Licentiates of Dental Surgery of a British licensing dy. The need exists, therefore, for a local school of dentistry and the ssibility of arranging a four years' course of instruction at the Medical llege, the Dental Institute, and the General Hospital is receiving consideration.

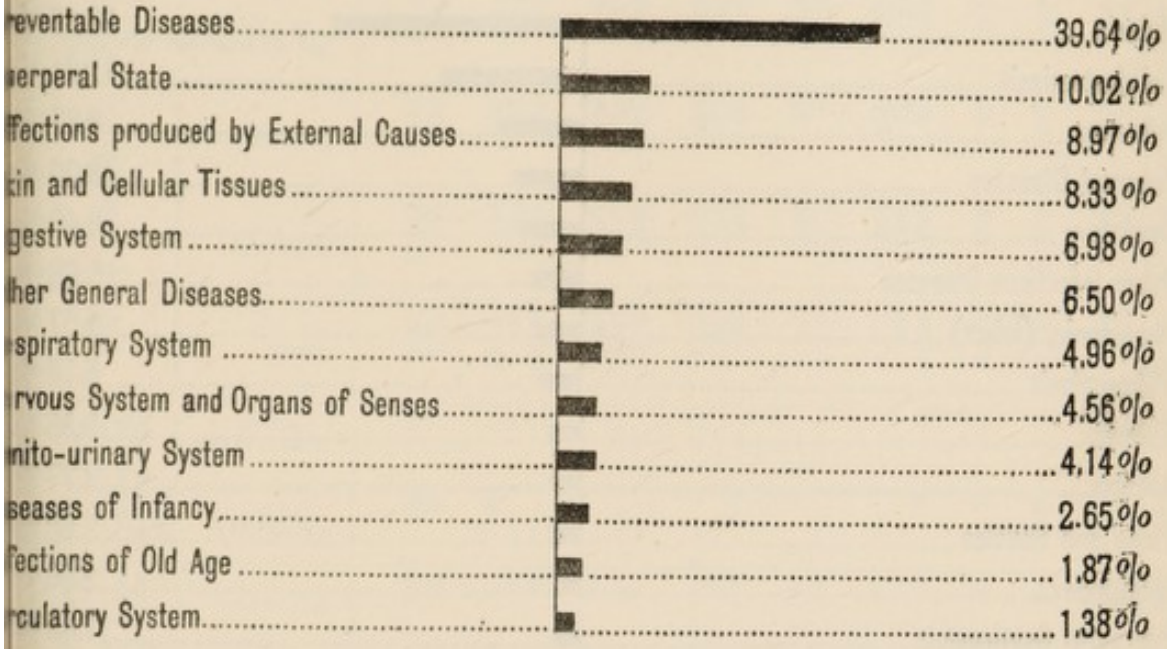
Definite improvements have continued to take place in teaching arrangements d facilities at the Ceylon Medical College and the hospitals associated with The reports and correspondence on the College since Sir Richard Needham's it of inspection in March, 1932, have been published by Government as a ssional Paper VI.—1934. The important influence which a good standard of ining not only for doctors but for apothecaries, nurses, sanitary inspectors,

and midwives will have on the quality of the work and services to be rendered by the Medical Department in the future cannot be too strongly emphasized. The training given to medical students has undoubtedly improved recently and is likely to improve still further as additional staff and buildings are provided. It is also encouraging to note the commencement of the building of the Home for 26 nurses and 100 pupil midwives at the De Soysa Lying-in Home and the better prospects for an early start with the building of the Nurses Home at the General Hospital. The two years' course of training given to Apothecaries is all too short and the Government Apothecaries' Association have for some years been pressing for a longer and more intensive course of instruction for future entrants. Owing to the cessation of recruitment since 1930, the courses of training for Sanitary Inspector candidates were discontinued but consideration is being given to the questions of re-starting them and of conducting the examinations under a Local Board of the Royal Sanitary Institute.

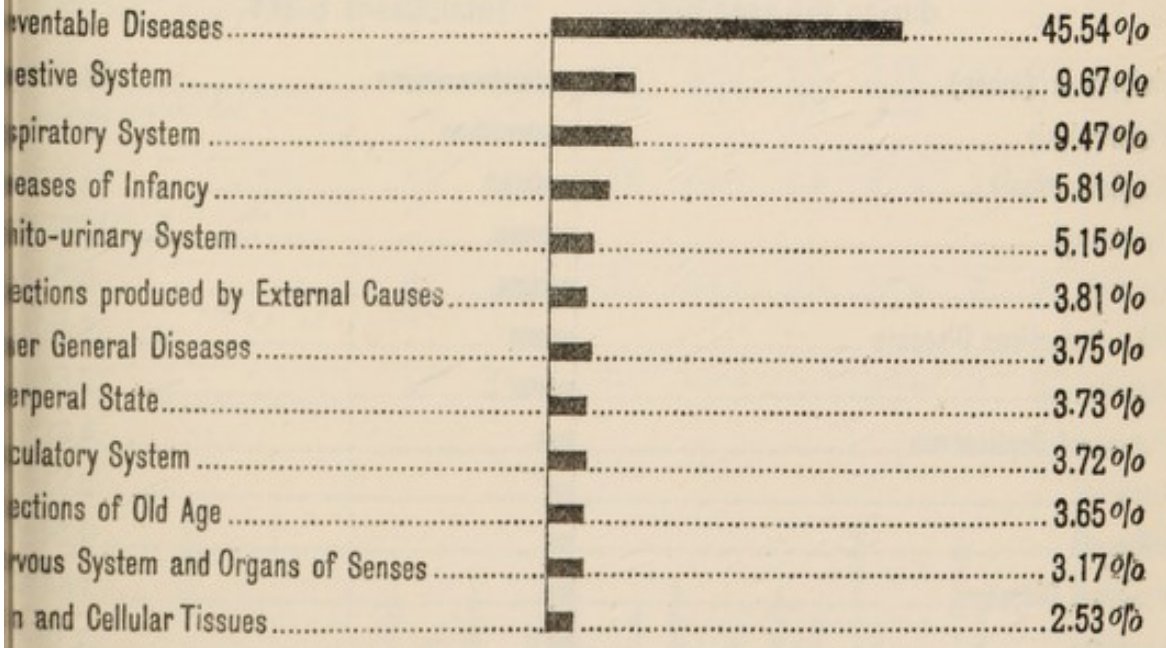
R. BRIERCLIFFE,
Director of Medical and Sanitary Services.

Colombo, May 23, 1934.

A-Chart showing the General Systemic and Preventable Diseases treated at the Government Hospitals during the year 1933.
Total Cases 207,018.

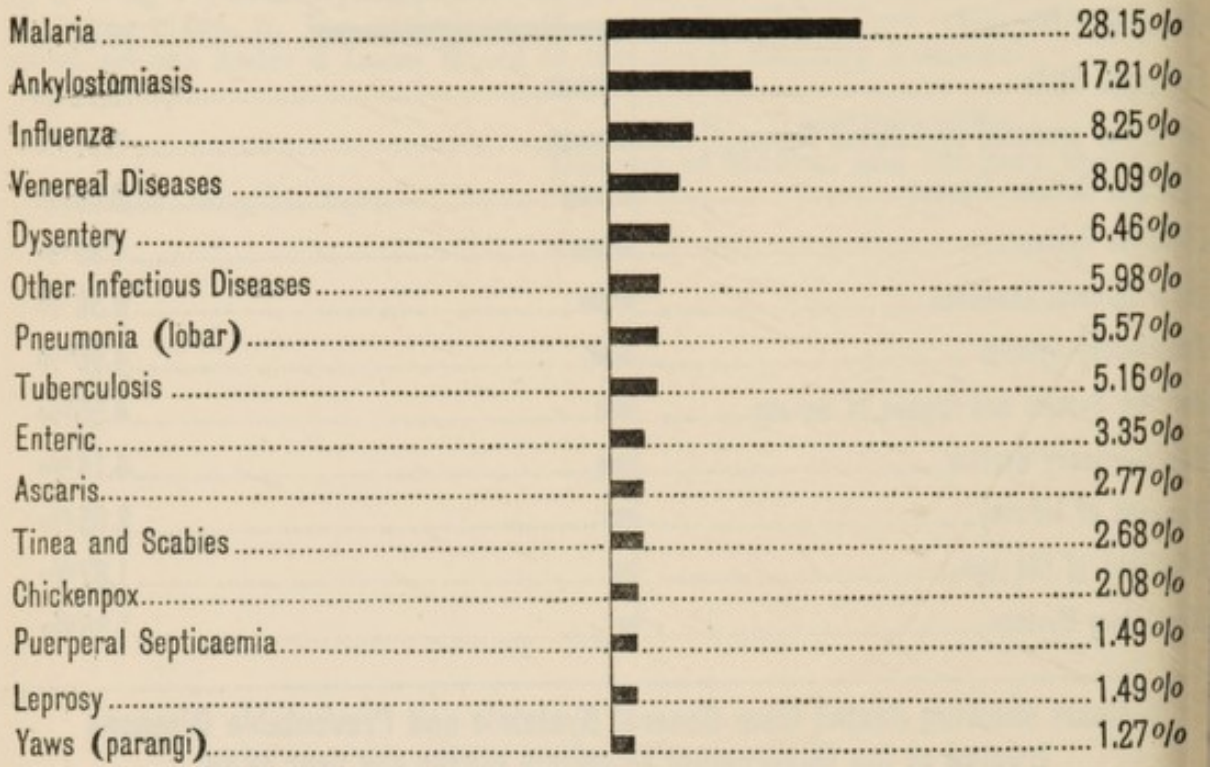


B-Chart showing deaths from General Systemic and Preventable Diseases treated at the Government Hospitals during the year 1933.
Total Deaths 13,930.

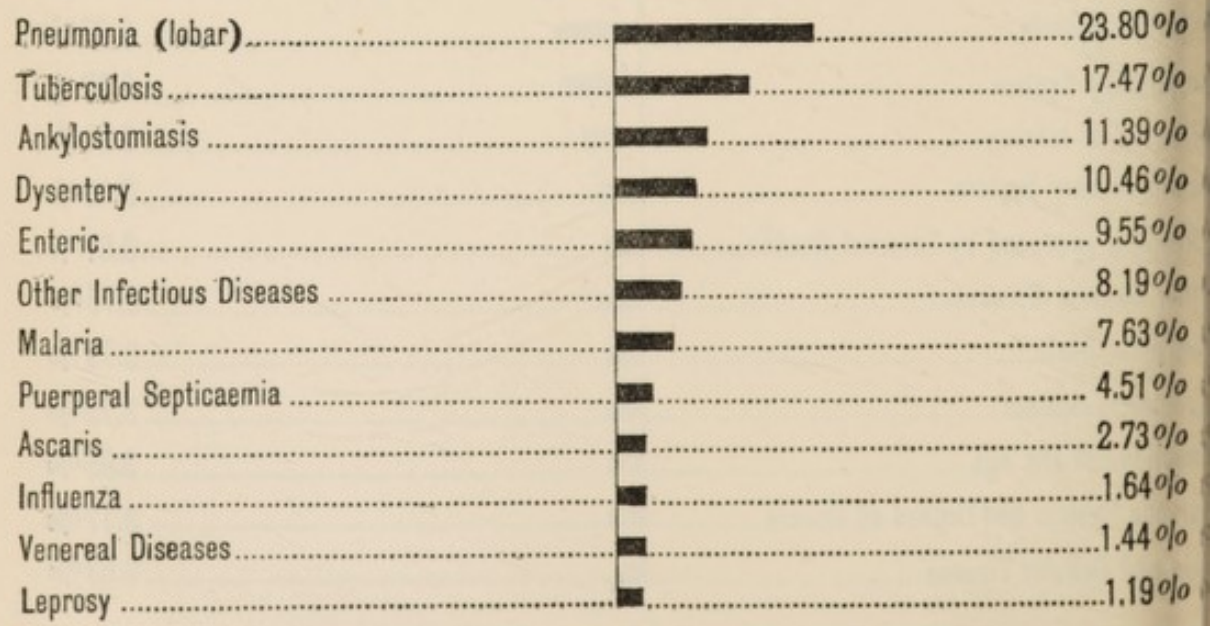


C–Chart showing cases of Infectious Diseases treated at the Government Hospitals during the year 1933.

Total Cases 82,054.



D–Chart showing deaths from Infectious Diseases treated at the Government Hospital during the year 1933. Total Cases 6,344.



Province and District.	No. of hospitals.	No. of beds.	No. of patients remaining in hospital at the beginning of the year 1933.	No. of patients admitted during the year 1933.	Daily average No. of patients in hospital during the year 1933.	Attendants.					Patients discharged.			No. of patients who died in 1933.	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.							Died in 1933.	Were discharged in 1933.	Were remaining in 1933.	
						Day nurses.	Night nurses.	Not nurses.	Partial day nurses.	Partial night nurses.	Cured.	Relieved.	Not improved.					
Western Province.																		
Colombo ..	18	3,129	2,699	51,515	2,984·85	220	81	346	216	72	20,300	21,944	5,365	4,813	26·31	31·13	42·54	929
Kalutara ..	5	374	331	10,621	340·83	8	2	26	20	2	3,613	6,072	168	770	8·61	11·41	13·53	130
Central Province.																		
Kandy ..	13	1,021	649	20,885	737·66	70	14	68	36	20	12,144	6,102	1,158	1,436	11·99	13·44	12·70	365
Matale ..	2	238	147	5,116	142·43	4	—	21	—	5	887	3,283	652	278	9·93	9·98	9·63	103
Nuwara Eliya ..	8	400	278	7,675	266·67	12	1	38	—	2	3,981	3,021	242	425	7·83	11·16	13·90	324
outhern Province.																		
Galle ..	5	491	318	12,631	393·37	29	4	61	—	1	5,887	5,571	399	766	11·66	14·71	8·26	117
Matara ..	2	169	140	5,747	156·26	6	—	14	—	3	2,815	2,417	94	353	8·69	9·52	9·77	92
Hambantota ..	4	134	139	4,504	136·97	7	—	11	—	—	2,567	1,509	106	383	8·14	9·30	12·05	92
Northern Province.																		
Jaffna ..	7	379	279	9,190	202·16	10	2	46	—	1	4,150	4,247	437	379	9·40	18·20	21·45	360
Mannar ..	3	130	46	2,759	73·29	2	—	24	—	—	1,926	678	27	132	4·97	11·90	9·47	105
Mullaittivu ..	2	62	29	1,225	30·61	—	—	6	7	—	637	507	29	51	5·72	8·92	6·43	82
Eastern Province.																		
Batticaloa ..	5	351	267	2,277	248·34	12	3	21	1	—	626	1,445	95	126	577·07	297·60	121·30	365
Trincomalee ..	1	57	40	1,929	48·74	3	—	9	—	—	448	1,371	8	69	8·75	11·21	9·77	189
North-Western Province.																		
Kurunegala ..	5	430	390	11,896	377·55	12	2	56	—	—	4,377	7,058	336	791	8·25	12·27	12·23	129
Puttalam ..	2	82	57	2,563	67·38	6	1	9	—	—	839	1,534	24	160	6·0	9·86	13·65	93
Chilaw ..	2	115	120	3,363	110·51	2	—	3	13	2	2,036	1,035	44	223	13·57	12·24	16·57	91
North-Central Province.																		
Anuradhapura ..	3	174	103	4,003	111·73	4	1	32	3	1	3,176	529	23	272	7·29	9·29	15·60	111
Province of Uva.																		
Badulla ..	12	717	468	15,982	483·43	16	2	36	30	7	6,738	18,602	517	726	9·73	10·46	10·90	134
Province of Sabaragamuwa.																		
Ratnapura ..	7	512	436	11,906	408·58	15	1	49	1	4	7,348	3,748	202	748	7·67	11·06	13·14	236
Kegalla ..	6	483	363	11,848	357·81	11	—	27	17	24	4,905	6,155	309	586	7·97	10·36	10·81	94
Total ..	112	9,448	7,329	197,635	7,679·17	449	114	903	344	144	89,400	96,828	10,235	13,487	38·47	26·70	19·18	929

II.—Cases treated according to Diseases.

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES.					
Enteric Group—					
(*a*) Typhoid Fever	153	2,309	565	2,462	171
(*b*) Paratyphoid A	6	46	8	52	1
(*c*) Paratyphoid B	—	4	1	4	—
(*d*) Type not defined	19	209	32	228	8
Relapsing Fever	2	60	2	62	1
Undulant Fever	4	25	4	29	1
Malaria—					
(*a*) Tertian	520	19,497	201	20,017	346
(*b*) Quartan	9	351	2	360	3
(*c*) Aestivo-autumnal	1	246	8	247	4
(*e*) Cerebral Malaria	4	246	168	250	3
(*e*) Cachexia	70	2,157	105	2,227	47
(*f*) Blackwater	—	—	—	—	—
Smallpox	72	320	70	392	1
Measles	54	989	8	1,043	3
Whooping Cough	12	188	7	200	7
Diphtheria	2	58	21	60	1
Influenza	91	6,671	104	6,762	187
Mumps	6	83	1	89	3
Cholera	—	—	—	—	—
Dysentery—					
(*a*) Amoebic	102	2,203	257	2,305	53
(*b*) Bacillary	96	1,813	215	1,909	62
(*c*) Undefined or due to other causes	10	1,075	191	1,085	18
Plague—					
(*a*) Bubonic	1	23	17	24	—
(*b*) Pneumonic	—	4	2	4	—
(*c*) Septicaemic	—	2	2	2	—
(*d*) Undefined	—	2	1	2	—
Leprosy	816	411	76	1,227	863
Erysipelas	1	155	20	156	5
Acute Poliomyelitis	—	5	1	5	—
Encephalitis Lethargica	4	20	5	24	—
Epidemic Cerebro-spinal Fever	—	2	1	2	—
Other Epidemic Diseases—					
(*a*) Rubeola (German Measles)	—	5	—	5	—
(*b*) Varicella (Chickenpox)	77	1,630	3	1,707	19
(*c*) Dengue	—	16	—	16	—
(*d*) Yaws	42	1,001	3	1,043	2
Rabies	—	14	11	14	—
Tetanus	9	344	132	353	16
Tuberculosis, Pulmonary and Laryngeal	620	3,609	1,108	4,229	52
Tuberculosis of the Meninges or Central Nervous System	—	19	12	19	
Tuberculosis of the Intestines or Peritoneum	1	62	17	63	
Tuberculosis of the Vertebral Column	1	37	6	38	
Tuberculosis of Bones and Joints	7	22	1	29	
Tuberculosis of other organs—					
(*a*) Skin or Subcutaneous Tissue (Lupus)	3	31	6	34	
(*b*) Bones	—	25	4	25	
(*c*) Lymphatic System	19	181	9	200	
(*d*) Genito-urinary	—	11	1	11	—
(*e*) Other organs	—	26	6	26	—

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES—*contd.*					
Tuberculosis disseminated—					
(*a*) Acute	—	11	1	11	—
(*b*) Chronic	—	62	11	62	1
Syphilis—					
(*a*) Primary	31	983	—	1,014	37
(*b*) Secondary	27	699	3	726	28
(*c*) Tertiary	6	163	8	169	6
(*d*) Hereditary	5	152	49	157	4
(*e*) Period not indicated	3	200	2	203	—
Soft Chancre	6	155	—	161	6
—Gonorrhoea and its complications	107	3,176	14	3,283	87
—Gonorrhoeal Ophthalmia	—	57	2	57	2
—Gonorrhoeal Arthritis	38	813	12	851	29
—Granuloma Venereum	—	24	1	24	1
Septicaemia	2	126	38	128	2
Filarial Diseases	—	25	4	25	1
Acute Rheumatic Fever	7	243	2	250	9
Other Infectious Diseases	7	128	9	135	2
II.—GENERAL DISEASES NOT MENTIONED ABOVE.					
Cancer or other malignant Tumours of the Buccal Cavity	14	391	33	405	7
Cancer or other malignant Tumours of the Stomach or Liver	1	50	13	51	4
Cancer or other malignant Tumours of the Peritoneum, Intestines, Rectum	2	47	5	49	2
Cancer or other malignant Tumours of the Female Genital Organs	3	235	29	238	1
Cancer or other malignant Tumours of the Breast	—	62	4	62	4
Cancer or other malignant Tumours of the Skin	3	41	4	44	—
Cancer or other malignant Tumours of Organs not specified	9	254	25	263	18
Tumours non-malignant	26	690	11	716	16
Chronic Rheumatism	80	3,053	12	3,133	102
Scurvy (including Barlow's Disease)	—	3	—	3	—
Pellagra	—	—	—	—	—
Rickets	10	210	47	220	4
Diabetes (not including Insipidus)	12	420	33	432	15
Beri-Beri	—	—	—	—	—
Anaemia—					
(*a*) Pernicious	2	46	4	48	2
(*b*) Other Anaemias and Chlorosis	19	1,143	39	1,162	37
Diseases of the Pituitary Body	—	5	—	5	1
Diseases of the Thyroid Gland—					
(*a*) Exophthalmic Goitre	3	29	3	32	1
(*b*) Other diseases of the Thyroid Gland, Myxoedema	1	74	4	75	4
Diseases of the Para-Thyroid Glands	—	5	—	5	1
Diseases of the Thymus	—	1	—	1	—
Diseases of the Supra-Renal Glands	—	—	—	—	—
Diseases of the Spleen	1	30	—	31	1

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
II.—General Diseases not mentioned above—*contd.*					
Leukaemia—					
(*a*) Leukaemia	—	17	5	17	—
(*b*) Hodgkin's Disease ..	—	4	—	4	—
Alcoholism	1	30	—	31	—
Corrosive Acids	1	32	8	33	—
Metallic Poisons	—	10	4	10	—
Vegetable Alkaloids	1	14	2	15	1
Ptomaine Poisoning	—	17	1	17	—
Other Acute Poisonings ..	—	41	7	41	2
Other General Diseases—					
Auto-intoxication	20	531	21	551	12
Purpura Haemorrhagica ..	1	7	1	8	—
Haemophilia	—	4	—	4	1
Diabetes Insipidus	2	14	3	16	—
Undefined	14	851	20	865	21
III.—Affections of the Nervous System and Organs of the Senses.					
Encephalitis (not including Encephalitis Lethargica)	—	14	8	14	—
Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis)	4	99	66	103	1
Locomotor Ataxia	6	39	2	45	—
Other affections of the Spinal Cord ..	9	109	7	118	3
Apoplexy—					
(*a*) Haemorrhage	7	101	67	108	—
(*b*) Embolism	1	26	10	27	—
(*c*) Thrombosis	8	108	31	116	2
Paralysis—					
(*a*) Hemiplegia	21	312	57	333	33
(*b*) Other Paralysis.. ..	11	200	25	211	9
General Paralysis of the Insane ..	1	14	—	15	—
Other forms of Mental Alienation ..	8	133	6	141	3
Epilepsy	5	387	33	392	11
Eclampsia, Convulsions (non-puerperal) 5 years or over	3	56	12	59	2
Infantile Convulsions ..	8	328	129	336	5
Chorea	—	13	—	13	1
A.—Hysteria	6	271	1	277	4
B.—Neuritis	13	478	4	491	8
C.—Neurasthenia	7	286	1	293	8
Cerebral Softening	1	7	3	8	—
Other affections of the Nervous System, such as Paralysis Agitans ..	6	422	59	428	10
Affections of the Organs of Vision—					
(*a*) Diseases of the Eye ..	43	1,918	4	1,961	107
(*b*) Conjunctivitis	26	930	3	956	18
(*c*) Trachoma	—	16	—	16	3
(*d*) Tumours of the Eye ..	—	20	—	20	—
(*e*) Other affections of the Eye ..	182	2,206	5	2,388	121
Affections of the Ear or Mastoid Sinus	23	542	8	565	22

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM.					
Pericarditis	1	56	21	57	4
Acute Endocarditis or Myocarditis	3	82	29	85	—
Angina Pectoris	1	40	11	41	—
Other Diseases of the Heart	—	32	—	32	—
(*a*) Valvular—Mitral	31	639	160	670	29
Aortic	—	43	10	43	—
Tricuspid	7	5	1	12	1
Pulmonary	2	33	10	35	—
(*b*) Myocarditis	22	520	202	542	17
Diseases of the Arteries—					
(*a*) Aneurism	—	27	7	27	—
(*b*) Arterio-Sclerosis	1	66	4	67	1
(*c*) Other diseases	—	81	15	81	2
Embolism or Thrombosis (non-cerebral)	3	29	12	32	—
Diseases of the Veins—					
Haemorrhoids	11	458	2	469	17
Varicose Veins	1	31	—	32	—
Phlebitis	3	71	5	74	—
Diseases of the Lymphatic System—					
Lymphangitis	1	103	—	104	—
Lymphadenitis, Bubo (non-specific)	16	261	1	277	8
Other	1	2	—	3	1
Haemorrhage of undetermined cause	—	30	7	30	—
Other affections of the Circulatory System	—	199	22	199	7
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM.					
Diseases of the Nasal Passages—					
Adenoids	—	79	—	79	—
Polypus	3	55	—	58	1
Rhinitis	—	82	2	82	—
Coryza	2	61	—	63	1
Affections of the Larynx-Laryngitis	2	85	5	87	2
Bronchitis—(*a*) Acute	54	2,322	58	2,376	59
(*b*) Chronic	33	2,615	298	2,648	80
Broncho-Pneumonia	57	2,174	787	2,231	71
Pneumonia—(*a*) Lobar	77	4,186	1,428	4,263	144
(*b*) Unclassified	34	270	82	304	8
Pleurisy, Empyema	26	641	65	667	27
Congestion of the Lungs	2	14	8	16	—
Gangrene of the Lungs	1	20	13	21	—
Asthma	32	1,691	43	1,723	43
Pulmonary Emphysema	—	17	3	17	—
Pneumothorax	—	52	7	52	3
Other affections of the Lungs—Pulmonary Spirochaetosis	3	153	30	156	4
VI.—DISEASES OF THE DIGESTIVE SYSTEM.					
A.—Diseases of Teeth or Gums—					
Caries, Pyorrhoea, &c.	12	533	1	545	10
B.—Other affections of the Mouth—					
Stomatitis	13	320	19	333	12
Glossitis, &c.	—	37	1	37	—

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
VI.—Diseases of the Digestive System—*contd.*					
Affections of the Pharynx or Tonsils—					
Tonsillitis	16	714	9	730	8
Pharyngitis	—	114	2	114	1
Affections of the Oesophagus	—	29	3	29	2
A.—Ulcer of the Stomach	5	110	25	115	5
B.—Ulcer of the Duodenum	—	46	4	46	3
Other affections of the Stomach—					
Gastritis	18	858	21	876	23
Dyspepsia, &c.	16	974	1	990	13
Diarrhoea and Enteritis—					
Under two years	38	886	160	924	34
Diarrhoea and Enteritis—					
Two years and over	75	2,506	563	2,581	48
Colitis	39	1,279	77	1,318	23
Ulceration	—	26	5	26	2
Sprue	3	36	—	39	1
Ankylostomiasis	450	13,674	723	14,124	473
Diseases due to Intestinal Parasites—					
(*a*) Cestoda (Taenia)	1	8	1	9	—
(*b*) Trematoda (Flukes)	—	—	—	—	—
(*c*) Nematoda (other than Ankylostoma)—					
Ascaris	47	2,224	173	2,271	56
Trichocephalus Dispar	—	2	—	2	—
Trichina	—	—	—	—	—
Dracunculus	—	—	—	—	—
Oxyuris	—	4	—	4	1
(*d*) Coccidia	—	—	—	—	—
(*e*) Other parasites	—	225	18	225	5
(*f*) Unclassified	1	29	—	30	—
Appendicitis	15	554	21	569	12
Hernia	23	678	27	701	10
A.—Affections of the Anus Fistula, &c.	15	512	12	527	16
B.—Other affections of the Intestines—					
Enteroptosis	2	238	42	240	3
Constipation	21	1,137	8	1,158	14
Acute Yellow Atrophy of the Liver	—	12	9	12	—
Hydatid of the Liver	—	—	—	—	—
Cirrhosis of the Liver—					
(*a*) Alcoholic	9	261	59	270	8
(*b*) Other forms	5	178	48	183	5
Biliary Calculus	2	74	1	76	—
Other affections of the Liver—					
Abscess	9	210	34	219	11
Hepatitis	8	392	10	400	10
Cholecystitis	3	80	8	83	3
Jaundice	3	213	25	216	3
Diseases of the Pancreas	—	9	2	9	—
Peritonitis (of unknown origin)	4	169	85	173	—
Other affections of the Digestive System	17	1,732	76	1,749	28

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (non-venereal).					
Acute Nephritis	71	1,377	295	1,448	52
Chronic Nephritis	52	1,145	260	1,197	63
A.—Chyluria	—	1	—	1	—
B.—Schistosomiasis	—	1	—	1	—
Other affections of the Kidneys, Pyelitis, &c.	10	495	46	505	7
Urinary Calculus	5	354	4	359	9
Diseases of the Bladder-Cystitis	15	453	25	468	13
Diseases of the Urethra—					
(*a*) Stricture	9	307	3	316	11
(*b*) Other	8	562	10	570	23
Diseases of the Prostate—					
Hypertrophy	2	95	8	97	5
Prostatitis	3	61	2	64	2
Diseases (non-venereal) of the Genital Organs of Man—					
Epididymitis	5	161	1	166	6
Orchitis	8	276	8	284	4
Hydrocele	8	306	5	314	4
Ulcer of Penis	6	240	—	246	8
Other	6	220	—	226	9
Cysts or other non-malignant Tumours of the Ovaries	3	135	7	138	4
Salpingitis	—	53	1	53	3
Abscess of the Pelvis	3	161	10	164	9
Uterine Tumours (non-malignant)	4	88	6	92	4
Uterine Haemorrhage (non-puerperal)	2	120	3	122	3
A.—Metritis	14	145	2	159	4
B.—Other affections of the Female Genital Organs—					
Displacement of Uterus	19	565	14	584	19
Amenorrhoea	—	109	—	109	1
Dysmenorrhoea	—	141	—	141	2
Leucorrhoea	3	186	1	189	2
Other undefined	9	334	6	343	22
Diseases of the Breast (non-puerperal)—					
Mastitis	5	59	—	64	2
Abscess of Breast	6	128	—	134	6
VIII.—PUERPERAL STATE.					
A.—Normal Labour	395	14,837	70	15,232	458
B.—Accidents of Pregnancy—					
(*a*) Abortion	43	750	9	793	13
(*b*) Ectopic Gestation	4	45	6	49	2
(*c*) Other accidents of Pregnancy	119	3,084	244	3,203	95
Puerperal Haemorrhage	3	58	11	61	—
Other accidents of Parturition	7	426	59	433	11
Puerperal Septicaemia	32	1,193	286	1,225	19
Phlegmasia Dolens	1	41	3	42	3
Puerperal Eclampsia	14	332	73	346	15
Sequelae of Labour	13	373	44	386	11
Puerperal affections of the Breast	8	31	1	39	1
Pregnancy (ante-natal)	4	157	—	161	14

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
IX.—Affections of the Skin and Cellular Tissues.					
Gangrene	28	359	114	387	36
Boil	48	1,144	8	1,192	58
Carbuncle	45	512	10	557	36
Abscess	61	1,022	18	1,083	35
Whitlow	82	1,876	15	1,958	53
Cellulitis	165	3,656	147	3,821	164
A.—Tinea	13	192	1	205	3
B.—Scabies	59	2,030	4	2,089	56
Ulcer	57	881	9	938	2
Other Diseases of the Skin—					
Brythema	15	245	4	260	8
Urticaria	4	167	—	171	1
Eczema	46	1,531	2	1,577	43
Herpes	1	89	1	90	4
Psoriasis	4	140	1	144	2
Elephantiasis	3	78	2	81	4
Myiasis	—	200	1	200	17
Chigoes	—	894	8	894	65
Cutaneous Leishmaniasis	89	2,564	16	2,653	99
Other undefined	19	596	4	615	25
X.—Diseases of Bones and Organs of Locomotion (other than Tuberculous).					
Diseases of Bones—Osteitis	9	200	3	209	14
Diseases of Joints—Arthritis	23	640	4	663	34
Synovitis	3	165	2	168	6
Other Diseases of Bones or Organs of Locomotion	13	202	10	215	14
XI.—Malformations.					
Malformations—Hydrocephalus	2	14	4	16	1
Hypospadias	—	—	1	—	—
Spina Bifida, &c.	—	20	1	20	2
XII.—Diseases of Infancy.					
Congenital Debility	53	3,134	358	3,187	109
Premature Birth	1	253	142	254	5
Other affections of Infancy	9	760	214	769	24
Infant neglect (infants of three months or over)	12	278	96	290	12
XIII.—Affections of Old Age.					
Senility—Senile Dementia	123	3,760	508	3,883	82
XIV.—Affections produced by External Causes.					
Suicide by Poisoning	—	6	6	6	—
Corrosive Poisoning (intentional)	—	45	10	45	—
Suicide by hanging or strangulation	—	1	1	1	—
Suicide by drowning	—	—	—	—	—
Suicide by firearms	—	2	2	2	—
Suicide by cutting or stabbing instruments	—	1	1	1	—
Suicide by jumping from a height	—	1	1	1	—
Other Suicides	—	2	2	2	—
Food Poisoning—Botulism	4	76	2	80	—

II.—Cases treated according to Diseases—*contd.*

Diseases.	Remaining in Hospital at end of 1932.	Admissions in 1933.	Deaths in 1933.	Total Cases treated in 1933.	Remaining in Hospital at end of 1933.
XIV.—Affections produced by External Causes—*contd.*					
ttacks of Poisonous Animals—					
Snake Bite	— ..	29 ..	— ..	29 ..	1
Insect Bite	2 ..	70 ..	— ..	72 ..	4
ther accidental Poisonings ..	3 ..	112 ..	19 ..	115 ..	5
urns (by Fire)	52 ..	798 ..	115 ..	850 ..	39
urns (other than by Fire) ..	10 ..	318 ..	24 ..	328 ..	11
affocation (accidental) ..	— ..	10 ..	3 ..	10 ..	—
oisoning by Gas (accidental) ..	— ..	4 ..	1 ..	4 ..	—
rowning (accidental) ..	— ..	7 ..	2 ..	7 ..	—
ounds (by Firearms) ..	7 ..	259 ..	23 ..	266 ..	6
ounds (by cutting or stabbing instruments)	106 ..	3,514 ..	42 ..	3,620 ..	95
ounds (by Fall)	104 ..	4,234 ..	36 ..	4,338 ..	137
ounds (in Mines or Quarries) ..	2 ..	38 ..	— ..	40 ..	—
ounds (by machinery) ..	11 ..	660 ..	5 ..	671 ..	21
ounds (crushing, *e.g.*, Railway accidents, &c.)	4 ..	465 ..	9 ..	469 ..	15
juries inflicted by Animals, Bites, Kicks, &c.	12 ..	365 ..	8 ..	377 ..	6
.—Over fatigue	— ..	4 ..	— ..	4 ..	—
.—Hunger or Thirst ..	— ..	9 ..	3 ..	9 ..	—
xposure to Heat—					
eatstroke	— ..	1 ..	— ..	1 ..	1
nstroke	— ..	2 ..	— ..	2 ..	—
ghtning Stroke	— ..	2 ..	— ..	2 ..	—
lectric Shock	1 ..	6 ..	— ..	7 ..	—
urder by Firearms	— ..	2 ..	2 ..	2 ..	—
urder by cutting or stabbing instruments	— ..	4 ..	4 ..	4 ..	—
urder by other means ..	— ..	3 ..	3 ..	3 ..	—
nfanticide (murder of an infant under 1 year)	— ..	1 ..	1 ..	1 ..	—
.—Dislocation	2 ..	234 ..	1 ..	236 ..	1
.—Sprain	11 ..	287 ..	— ..	298 ..	4
.—Fracture	115 ..	2,420 ..	194 ..	2,535 ..	116
ther external Injuries ..	87 ..	4,087 ..	13 ..	4,174 ..	106
eaths by violence of unknown cause ..	3 ..	44 ..	2 ..	47 ..	1
XV.—Ill-defined Diseases.					
.—Diseases not already specified or ill-defined—					
Ascites	13 ..	612 ..	34 ..	625 ..	25
Oedema	1 ..	9 ..	— ..	10 ..	—
Asthenia	14 ..	703 ..	29 ..	717 ..	23
Shock	— ..	61 ..	25 ..	61 ..	—
Hyperpyrexia	— ..	49 ..	6 ..	49 ..	2
Other	67 ..	1,992 ..	66 ..	2,059 ..	29
—Malingering	6 ..	288 ..	— ..	294 ..	6