

Report of the Principal Civil Medical Officer and Inspector-General of Hospitals / [Ceylon].

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MEDICAL,

REPORT OF THE PRINCIPAL CIVIL MEDICAL OFFICER AND INSPECTOR-GENERAL
OF HOSPITALS FOR THE YEAR 1920.

I HAVE the honour to submit the following report on the health and sanitation in Ceylon and on the administration of institutions of the Ceylon Civil Medical Department for the year ended December 31, 1920.

SECTION I.—POPULATION.

2. The estimated population of Ceylon on December 31, 1920, inclusive of immigrant coolies (but exclusive of military and shipping), was 4,806,726 (of these, 7,428 were Europeans). This total is an increase of 49,130 on the previous year's estimate of population.

SECTION II.—PUBLIC HEALTH.

3. *Vital Statistics.*—163,720 births were registered, which is equivalent to a rate of 34.06 per 1,000 of the population per annum, as compared with 161,403 in the previous year, showing an increase of 2,317 births. The deaths registered in 1920 totalled 132,955 as compared with 168,323 (a decrease of 35,368 from the previous year), which is equivalent to 27.66 per 1,000. The total number of persons treated in the hospitals in 1920 was 151,969, of whom 13,570 died. The number for 1919 were 133,195 patients, of whom 12,637 died. At dispensaries 1,491,429 persons were treated, who paid 2,203,724 visits in 1920, as against 1,499,891 persons, who paid 2,254,162 visits in 1919.

4. With regard to the causation of deaths, the following table shows the same, registered under the several classes of disease, for the year under review :—

I.—General diseases—		VI.—Non-venereal diseases of genito-urinary system and annexa	..	1,562
(a) Epidemic diseases	..	10,948		
(b) Septic diseases	..	150	VII.—The puerperal state	..
(c) Tuberculosis diseases	..	3,370	2,893	
(d) Venereal diseases	..	244	VIII.—Diseases of the skin and cellular tissues	..
(e) Cancer or malignant diseases	..	424	8,642	
(f) Other general diseases	..	13,243	IX.—Diseases of bones and organs of locomotion	..
II.—Diseases of the nervous system and organs of special sense	..	14,425	21	
III.—Diseases of the circulatory system	..	975	X.—Malformations	..
IV.—Diseases of the respiratory system	..	11,288	9	
V.—Diseases of the digestive system	..	23,663	XI.—Diseases of early infancy	..
			7,064	
			XII.—Old age	..
			5,501	
			XIII.—Affections produced by external causes	..
			3,013	
			XIV.—Ill-defined diseases	..
			25,580	

5. The more notable causes of death were the following diseases :—

1. Diarrhoea	..	12,699	10. Anchylostomiasis and its sequelæ	..	3,261
2. Infantile convulsions	..	12,384	11. Puerperal septicæmia	..	1,231
3. Pneumonia	..	6,666	12. Malaria	..	1,107
4. Rickets	..	6,050	13. Enteric fever	..	871
5. Anæmia	..	5,244	14. Tetanus	..	269
6. Intestinal parasites	..	3,764	15. Rabies	..	36
7. Dysentery	..	4,220	16. Deaths attributed to pyrexia of unknown origin	..	18,582
8. Phthisis	..	3,136			
9. Dropsy	..	3,363			

6. Deaths due to preventable diseases, i.e., to diseases due to faulty sanitary conditions, overcrowding, soil infection, defective or infected water supplies, &c., amounted to over 12,000. This figure does not include infantile diarrhoea or infantile convulsions, though it is probable that a large number of deaths from infantile convulsions are due to malarial infection, and a large number of cases from infantile diarrhoea to improper dieting, defective sanitary surroundings, and neglect.

7. *Infantile Mortality.*—The infantile mortality in the 33 principal towns during the year was at the rate of 228 per 1,000, as compared with 259 per 1,000 in the previous year and 252 per 1,000 in the penultimate year. 12,384 deaths from infantile convulsions were registered during the year. During 1920 51 midwives were trained at the De Soysa Lying-in Home, Colombo. The number so trained since September 1, 1909, has been 311. The large number trained during the year is due to the increased accommodation made available at this institution. Midwives have been appointed to Government hospitals in large centres to try and decrease the infant mortality. A committee has recently reported to Government on the question of child welfare.

8. *Vital Statistics on Estates.*—The mean birth-rate on estates was 47·1 per 1,000, and the death-rate 52·0. The mean birth-rate during 1919 was 43·0 per 1,000, and the mean death-rate 58·5. The principal causes of death on estates were :—

Pneumonia	2,139	Infantile convulsions	1,517
Debility	4,041	Phthisis	290
Diarrhoea	2,255	Dropsy	308
Dysentery	2,204	Anaemia	77
Anchylostomiasis	2,212	Other diseases	6,387

9. *Influenza* was still prevalent in most districts in the Island in 1920, but not to the same extent as in 1919, and much less so than in the great epidemic of 1918. The type of the disease was also milder. There were two periods in the year when it was not prevalent, July and August and again in October and November. Its exact fatality is difficult to estimate, as in the death returns influenzal pneumonia is often not distinguished from ordinary pneumonia, which causes a considerable mortality every year.

10. *Malaria* was again very prevalent, there being 16,538 hospital admissions for this disease, as against 13,816 in 1919 and 8,154 in 1918. The increased number of admissions was mainly in the Central, Northern, and Western Provinces; in Uva and the North-Central Provinces the admissions were fewer. The deaths of hospital cases were fewer in proportion, being 245 in 1920 and 253 in 1919. The number of cases treated at Government dispensaries in 1920 was 488,832, as against 602,356 in 1919. Apart from these, a large number were treated at estate hospitals and dispensaries not under Government control. As pointed out in previous reports, the problem of malaria control is a very complicated one, and calls for much consideration before any extensive measures of control, necessarily very expensive, are adopted. The first step in investigation is to be taken in 1921 by the appointment of an Entomologist to make a study of the various anopheline mosquitoes concerned in the transmission of the disease.

The following table shows the hospital admissions in the different Provinces :—

General Hospital, Colombo	767	with 11 deaths, as against	849	cases with 18 deaths in 1919.
Western Province	2,807	do. 35	do. 2,377	do. 48
Province of Uva	2,002	do. 35	do. 1,513	do. 26
North-Western Province	1,754	do. 33	do. 2,127	do. 55
Northern Province	2,526	do. 24	do. 1,602	do. 12
Central Province	2,055	do. 26	do. 1,635	do. 25
Province of Sabaragamuwa	1,192	do. 22	do. 1,280	do. 23
North-Central Province	1,834	do. 40	do. 1,336	do. 32
Southern Province	1,038	do. 18	do. 731	do. 11
Eastern Province	563	do. 1	do. 366	do. 3
	16,538	245	13,816	253

11. *Plague.*—The total number of cases reported was 369 with 316 deaths, as against 89 cases with 83 deaths in 1919. Of these, 316 cases with 209 deaths occurred in Colombo, a marked increase over the previous two years' figures. Fresh centres of infection occurred in parts of the town other than the endemic area near the harbour. The percentage of rats found to be infected was double that in 1919. The rice shortage led to the storage of greater quantities of other grains in places quite unprotected against rats. A noticeable feature of 1920 was the occurrence of a severe outbreak in Kandy, in which town and its environs 120 cases occurred between April and November. Ten cases also occurred at Moratuwa and Koralawella.

12. *Cholera.*—Only 115 cases with 78 deaths were reported, as against 628 cases with 469 deaths in 1919. The distribution was as under :—Uva, 9 cases; Eastern Province, 56 cases in January and February; North-Central, 22 cases, also in January and February; Central Province, 28 cases in February.

13. *Smallpox.*—In all 126 cases occurred in 1920. Of these, 18 were ship cases, of whom 3 died. In the Colombo Municipality an outbreak occurred in August after the arrival from India of a Chetty, who was developing the disease, and who remained in concealment when the rash appeared. This case led to the infection of 70 others. A prosecution was entered against the offender and one other, and fines of Rs. 1,000 and Rs. 750, respectively, were ordered; more deterrent punishment might well have been awarded, as several patients died as a result of this wilful concealment. Previous to that outbreak 2 isolated cases occurred, due to infection also acquired in India. In the Provinces there were 2 cases in the North-Western and 2 in the Southern Province.

In the Infectious Diseases Hospital, Colombo, 104 of these cases were treated, with 22 deaths. The Medical Officer in charge reports that 5 of these deaths occurred in children who had never been vaccinated, and 14 of the deaths in cases showing no evidence of primary vaccination, though they were said to have been vaccinated in childhood. These figures afford a striking proof of the necessity for re-vaccination at puberty.

14. *Vaccination.*—The vaccinating staff of the Colony in 1920 consisted of 150 trained vaccinators under the supervision of the Provincial Surgeons. The total number of primary vaccinations performed was 118,706. Of these, 113,826 were successful, and in 5,948 cases the results were not determined. The percentage of successful primary vaccinations was 95·88. In Colombo 21,497 vaccinations were performed, of which 9,911 were done by the Municipal vaccinators and 11,586 by Government vaccinators, who are responsible for primary vaccinations in the Municipality.

15. *Government Vaccine Establishment.*—The officer in charge reports that 350 calves were received on hire from the contractor, and of these, 325 were returned to him. Seed lymph for vaccination of the calves was obtained from the Lister Institute of Preventive Medicine, London, and from the King's Institute Madras. A certain amount was also prepared locally in the vaccine station. The total number

of tubes of calf lymph issued during the year was 139,431; of this number, 5,043 were issued to the Colombo Municipality and 1,838 were sold realizing a sum of Rs. 1,691. A large quantity of lymph is also stored as a reserve supply.

16. *Enteric Fever*.—A larger number of cases of this disease were admitted to hospitals in 1920 than in 1919, the figures being 1,077, as against 770. The increase was especially noticeable in the Western and Southern Provinces. 319 cases were again admitted to the General Hospital, Colombo, from the Municipality and its environs. As pointed out before, the actual prevalence of the disease in the Island is uncertain, as many cases undoubtedly occur which are not recognized or reported as such.

The provincial hospital rates were as shown under :—

	1920	1919	1920	1919
General Hospital, Colombo	319 cases with 129 deaths	as against 338 cases with 126 deaths		
Western Province	274 do. 69	do. 177 do. 42		
Central Province	173 do. 20	do. 160 do. 17		
Northern Province	64 do. 6	do. 53 do. 3		
Eastern Province	10 do. 1	do. 5 do. 1		
Southern Province	153 do. 34	do. 45 do. 7		
North-Western Province	13 do. 5	do. 12 do. 3		
North-Central Province	23 do. 4	do. 5 do. 2		
Province of Uva	15 do. 2	do. 20 do. 2		
Province of Sabaragamuwa	33 do. 10	do. 12 do. 2		

17. *Dysentery*.—This disease as judged from hospital admissions was even more prevalent in 1920 than in 1919, in which year the admissions were almost double those of 1918. As this disease is associated with soil infection leading to polluted water supplies, the gravity of increase apart from its fatality is serious. It was unduly prevalent in all Provinces, except the Province of Sabaragamuwa and the Northern Province. The food difficulties may have exaggerated the incidence of this disease.

18. *Leprosy*.—The report of the Medical Officer in charge of the Leper Asylum at Hendala gives the following particulars as regards 1920 :—

	Males.	Females.	Total.
Remaining on December 31, 1919	331	81	412
Admitted	116	23	139
Discharged	27	2	29
Died	32	5	37
Remaining on December 31, 1920	383	97	485

Of the 139 admissions, 121 were new cases, and their classification as regards the form of the disease was tubercular 18, anaesthetic 44, mixed 59. The new admissions were from the following Provinces :—Western 79, Southern 17, Uva 7, Central 6, Northern 5, North-Central 2, North-Western 2, Sabaragamuwa 2, Eastern 1.

Twenty-nine patients were returned as " discharged "; of these, 23 absconded and 6 were allowed home isolation. Of the 23 absconders, 19 returned of their own accord, or were brought back by the police, whilst 4 were still at large at the end of the year. The Mother Superior and her 9 Religious Sisters continued their devoted care of these unfortunate sufferers.

In July a school was started with 3 leper patients as teachers, and there are 108 pupils, including men and boys, on the register. The expenses of the school are borne by the Education Department.

At Kalmunai, in the Eastern Province, 67 lepers were treated, of whom 11 were new cases admitted in 1920; there were 9 deaths.

The new asylum on Mantivu island, near Batticaloa, will be ready for use in 1921. During the past year or so serious claims of a material advancement in the way of curative treatment by the use mainly of derivatives of chaulmogra oil have been made, especially in Hawaii and in India. Endeavours to obtain these drugs for trial in Ceylon have not been successful so far, but are being continued. Prolonged experience will be needed before a reliable opinion as to their value can be arrived at.

19. *Anchylostomiasis*.—The following table indicates the relative prevalence of this disease in the various Provinces so far as can be gathered from hospital and dispensary returns :—

Province or Institution.	Number of Cases treated.			Mortality in Hospitals.		
	1920.	1919.	1918.	1920.	1919.	1918.
Western Province	1,831	1,776	6,925	285	317	184
Central Province	3,881	3,381	5,837	714	644	413
Southern Province	1,461	1,086	1,786	204	126	85
Province of Sabaragamuwa	1,579	1,362	1,685	292	192	180
North-Western Province	402	414	1,340	48	72	58
Province of Uva	1,076	743	1,153	255	132	144
Eastern Province	144	156	284	13	16	9
North-Central Province	112	74	102	13	6	4
Northern Province	138	137	76	6	10	5
General Hospital	790	655	576	111	99	66
Total	11,414	9,784	19,764	1,943	1,614	1,148

The above figures apply mainly to cases of uncomplicated anchylostomiasis, but owing to the almost universal infection with the parasite of hospital cases, and the tendency of the infection to predispose to other diseases, a large number of cases—whilst recognized in treatment—are entered on the registers under the heading of other diseases. The following report received from Dr. W. P. Jacocks of the Rockefeller Foundation, who has been in charge of the direction of the Anchylostomiasis Campaign in 1920, show the progress and activity in that direction during the year under review :—

During the year estate field campaigns were conducted wholly in the Central Province. With the exception of outlying estates in Dolosbage, Rangalla, and North Matala sections, all planting districts in this Province have had the benefit of campaigns. Province of Uva was completed at the end of 1919. The planting

districts embraced in the work included Kandy District, Galaha, Hewaheta, Wattagama, Panwila, Madulkele, Elkaduwa, Ambegamuwa, Kotmale, Dolosbage, Lower Dikoya, Agrapatana, Pundaluoya, Ramboda, Nuwara Eliya, Uda Pussellawa, and Maturata. Villages surrounding the estate districts were also included in the proclaimed area and were treated, special attention being given to these villages in getting latrines installed and used. In addition to estate work, organized village work on the community plan was undertaken in the Minuwangoda-Henaratgoda-Veyangoda section in the Western Province. The personnel needed to conduct the field work consisted of three regular Field Directors for the entire year, one extra Director from September 1, one post-campaign Director from September 1, four Assistant Directors, and a subordinate staff numbering 84, of whom 64 were regularly employed. During the year 126,529 persons were treated, and 96,477 were cured; 290,732 doses of vermifuge were given. These figures represent a considerable yearly increase in the amount of work done, and are greater than those mentioned in any preceding year. This increase was due in a great measure to the larger force employed. A comparison of the work by years follows:—

			Number treated.		Number cured.
1916-17	..	..	42,427	..	35,013
1918	..	..	50,374	..	44,812
1919	..	..	88,602	..	69,032
1920	..	..	126,529	..	96,477

To compare the work of previous years with that of the present year the following figures are submitted:—

			Number treated.		Number cured.
1916-1919	..	..	181,403	..	148,857
1920	..	..	126,529	..	96,477
Total	..	..	307,932	..	245,334

The work in the Central Province was divided into three general groups: That around Kandy, which extended towards Kadugannawa, Hewaheta, Galaha, Wattagama, and Madulkele; that around Nawalapitiya, which extended towards Gampola, Dolosbage, Kotmale, and Hatton; and that around Nuwara Eliya extending towards Uda Pussellawa, Maturata, Ramboda, and Pundaluoya, and including Agrapatana district. The work in the first section was directed by Dr. S. T. Gunasekera, Dr. R. W. Willenberg, Dr. Fitzroy Keyt, and Dr. J. B. Flamer-Caldera; that in the second section was directed by Dr. R. W. Willenberg and Dr. S. A. Winsor; and that in the third section by Dr. T. K. Jayaram and Dr. S. A. Winsor; community village work in the Minuwangoda-Henaratgoda-Veyangoda section was directed by Dr. Clark H. Yeager.

In February Dr. Fitzroy Keyt, who had conducted campaigns in the Province of Uva for the past two years, went on leave, and his place was taken by Dr. J. B. Flamer-Caldera. In March Dr. S. T. Gunasekera entered the Sanitary Department as Junior Sanitary Officer, and was succeeded by Dr. R. W. Willenberg. Dr. T. K. Jayaram was appointed later in the year to relieve another director for post-campaign work.

The work for 1920 by areas is as follows:—

Planting Districts.	Number treated.	Number cured.	Total treatment given.
Kandy District, Nawalapitiya, and Hatton ..	37,426	26,794	91,637
Galaha-Wattagama ..	33,136	26,144	76,665
Agrapatana, Nuwara Eliya, &c. ..	46,775	41,564	104,781
Henaratgoda villages (part of the year) ..	9,192	1,975	17,649
Total ..	126,529	96,477	290,732

Village Work around Estates.—An interesting and important feature of the work was shown in the continued effort made by Field Directors to secure the interest of villagers living near estates, both in the matter of treatment and in measures for prevention. Most of these villages were not sanitated, but, with the co-operation of Government, special lecturers and special sanitary inspectors were sent to many of the villages to instruct the inhabitants in matters pertaining to the erection, use, and maintenance of latrines. The Sanitary Inspectors were left in the villages till the end of the year, with instructions that they might remain longer if needed. For campaign reasons no special effort was made to continue treatment in these villages until cures were established by microscopic findings. Upon the whole, however, practically all of these people were given two treatments without subsequent microscopic examination. Treatment campaigns were conducted in all the villages in the Galaha-Hanguranketa section, and in many in the Kandy District and Nawalapitiya and Wattagama areas. Campaigns were also conducted in the towns of Kadugannawa, Peradeniya, Nawalapitiya, Wattagama, and Panwila. In the up-country districts there were very few villages, but all the bazaars were treated. Work of this character is considered most important by superintendents, who fear that villages, unsanitated and untreated, will increase the re-infection percentage of their own coolies; and while this fact has not yet been established satisfactorily, still the treating of villages around estates is most important, and answers the criticisms which have been made in this connection. In Dr. Willenberg's area alone 1,559 latrines were erected in villages, 23 of the bucket type and 1,536 pit. Figures for the other areas were not furnished, but can be obtained from the Sanitary Department.

Difficulties encountered.—The difficulties met with during the year which tended to interfere with the work were distinctly unlike those of 1919. It is true that the rice situation gave trouble in the beginning of the year, but this was soon relieved when large supplies of rice began to arrive from India. The continued high price of rice, however, made the cost of the work to estates somewhat higher than in previous years, and interfered with village work considerably.

During the latter part of the year the market price of tea and rubber, staple estates products, fell to very low figures, and in some instances to less than the cost of production. This disaster reduced the earning power of estates, and made it necessary for them to curtail all possible expenditure. In doing the work it is customary to ask estates to contribute a certain amount of extra rice, tea, and other small items to facilitate the work of the campaign. In view of the depression, the estates claimed that they were no longer able to furnish this small sum of money for the extra tea and rice and the day's name. As a result the programme was much shortened on some estates and entirely abandoned on others. Fortunately this crisis did not make itself seriously felt until very late in the year, but the future seemed so uncertain that, with the advice of the Anchylostomiasis Committee, estate work was abandoned at the end of the year, and was not included in the programme for 1921. The depressed financial situation explains why remote portions of the Rangalla and Dolosbage districts were omitted.

Post-Campaign Work.—The post-campaign staff, which had been working some time in the Matale District, was withdrawn in May, and the dispensers were assigned temporarily to the regular campaigns pending a re-organization of working methods. Plans were made to undertake post-campaign work in the Dikoya area in September on lines corresponding in general to those of the regular campaigns. Unfortunately at that time the crisis in the tea market became acute, and it was deemed advisable not to undertake new estate work until financial matters become more settled. Consequently, while this staff was not used for post-campaign work, the organization is intact and ready to undertake such work when conditions become suitable.

Post-campaign work is most important. Considered from the point of view of permanent results, it is just as important as the regular campaigns, and should be given special attention at the earliest possible moment. In doing post-campaign work, the main consideration, until sanitary conditions are well established and well enforced, should be the reduction of mass infection, rather than attempting to obtain cures. In planning this work, it was proposed to make short visits to estates every six months for a period of 1½ to 2 years, giving one treatment to old labourers and two treatments to labourers not previously treated. After that time yearly visits should be sufficient, if, in the meantime, proper attention had been given to controlling soil pollution, which would take care of chance re-infection and uncured cases.

Community Village Work.—A most important phase of the work, from the point of view of extending our efforts to the permanent population of the Colony, was undertaken when the community village work was started in the Minuwangoda area in May, and extended to the Henaratgoda and Veyangoda areas late in August. During the past four years campaigns have been conducted wholly, generally speaking, on estates, and very little attention has been given to the village areas unless the villages adjoined estates. Hence no previous organized effort had been made to standardize a plan of campaign for villages which would be economical and efficient. The towns of Minuwangoda and Henaratgoda were especially favourable points for beginning such work. They are situated in the Western Province about 20 miles north-east of Colombo. In the matter of town planning and sanitary arrangements they have received special attention from the Government Agent of the Western Province, who extended every courtesy and assistance in furthering the work. The towns have broad, clean, and well-kept streets, roomy boutiques, and a large number of satisfactory latrines. The population is keen, and the attendances at schools, which are numerous, is good. Advance information indicated that if village campaigns could be conducted successfully in Ceylon, the logical place to begin was in and around Minuwangoda. The success which attended this work confirmed the prediction made. The campaign was received by the villagers with much enthusiasm. The general population attended treatment at dispensaries in large numbers. The school children were a well-organized group and were treated at the school houses with the aid and consent of schoolmasters and parents. It was early realized that the success of the work would depend in a large measure upon the amount of co-operation which was obtained at schools, and it is gratifying to state that the schoolmasters upon the whole gave almost universal and active support. One of the most effective propaganda agencies for the work is the word of mouth information carried by school children to their parents, and it is most desirable, from a humanitarian and economic point of view, to treat the disease while the patient is young. The relief given by the treatment prevents dwarfing of the mind and body, which so usually accompanies this disease. After the children had been treated at the schools, it was a regular thing for villagers to offer themselves for treatment in increasing numbers with each succeeding week. The interest of the villagers was due in part to the influence of the headmen and the schoolmasters, and in part to the demonstration of the efficacy of the treatment by curing many severe cases, who came early to the dispensaries, and who would have succumbed to the disease if treatment had not been provided.

It should be understood that village work in order to be successful must be preceded by a vigorous campaign of education, which should explain clearly the symptoms of the disease and the reasons for advising treatment. At the same time definite instructions should be given about prevention. The educational campaign should precede the organized work at least six months, if possible. The Minuwangoda work was begun gradually, but extended with rapidity after the procedure was well understood. The educational work should be confined to two main ideas. To persuade the villager to take treatment by imparting accurate information which will overcome any prejudice which he has gained through ignorance and through improper reports; and to make known to him the advantages of prevention. In May a post-campaign dispenser was placed in the Minuwangoda town, who was instructed to mingle with the people and make them acquainted with the work and instruct them how to co-operate. The medical side in the beginning was taken care of by the Government apothecary, who was located in the town. Late in August it was deemed advisable to extend the scope of the work. Two additional dispensers were accordingly placed at Henaratgoda and Veyangoda respectively, and Dr. Clark H. Yeager was put in charge as Director. Dr. Yeager secured the co-operation of the people by obtaining the support of village headmen and village schoolmasters. The Government Agent, Western Province, circularized his headmen on the subject, instructing them to give every assistance, and the Mudaliyars and village headmen are to be commended for their hearty co-operation. The Director of Education circularized his headmasters, instructing them to offer every assistance in carrying out the treatment, and this was done very efficiently by them. The interest of local influential citizens was secured, and they were most helpful in explaining details to villagers who did not understand the purpose of the work, or who had been misinformed either ignorantly or advisedly by others. Lectures, illustrated by lantern slides or enlarged photographs, were given by the Director at schools and public gatherings whenever it was thought expedient. Much literature was distributed also. As a result of these methods of procedure the work became very popular, and villagers, both young and old, offered themselves in large numbers for treatment at dispensary points and at schools. The figures follow:—

Number treated	..	..	..	..	9,192
Number cured	..	..	..	..	1,975
Number treatments given	..	..	..	..	17,649

These figures, while small in comparison with what was usually done on estates, are very encouraging when one understands that there were only three dispensers at work, and that the area was not proclaimed. In noting the small percentage of cures it should be stated that low-country infections are usually more severe, and hence more difficult to cure. Since it has been shown scientifically and experimentally that 95 per cent. to 97 per cent. of the worms are removed by two treatments of oil of chenopodium, patients were advised that it was not necessary to persist in treatment until a microscopic negative finding was obtained, but to return after some months for another series of treatments. At the same time many lightly infected people who came for treatment did not return for the microscopic examination to see if a cure has been effected. Microscopic examinations revealed the fact that 95 per cent. to 99 per cent. of the ordinary villagers, old and young, are infected.

Two outstanding facts should be mentioned in connection with this work:—

(a) The curing of a large number of persons who otherwise would have undoubtedly succumbed to the disease. Many persons came for treatment who were too ill to walk, and had to be carried by parents or relatives. Some of the severest cases of the disease were to be seen at the various dispensary points.

(b) Increased interest in sanitary arrangements at schools and in villages. Figures showing the number of latrines erected by months for the year 1920 for the town of Henaratgoda, Veyangoda, and Minuwangoda are appended herewith. Active attempts to increase the sanitation of the district began in September :—

Month.	Henaratgoda.	Veyangoda.	Minuwangoda.
January	—	7	87
February	14	10	52
March	13	8	53
April	8	7	64
May	9	27	91
June	7	10	83
July	5	14	31
August	7	27	—
September	5	28	—
October	30	122	11
November	40	199	10
December	35	66	6
Total	173	525	488

With reference to Minuwangoda, it should be stated that the installation of latrines had been in progress for some time, and that a total of 4,289 latrines had been built up to the end of 1920. All these latrines, except 488, were erected prior to 1920. No definite figures are obtainable at the present time for the schools. A rather high percentage of schools had either inadequate sanitary arrangements, or no sanitary arrangements at all. As soon, however, as this condition of affairs was brought to the attention of the proper authorities, active measures to take care of this situation were immediately undertaken through the Medical Department and the Director of Education. The Medical and Sanitary Departments, the Education Department, and the Government Agent, Western Province, gave invaluable assistance in the matter of sanitation. The Medical Department allotted additional sanitary inspectors, who resided permanently in the districts, and who were directly responsible for the large increase in the number of latrines installed in the towns and villages. The Sanitary Department furnished also a special lecturer, who visited the districts and gave talks, illustrated by lantern slides, on the prevention of soil pollution. It is undoubtedly true that before the end of 1921 campaign work in villages will be quite as well established as methods for working on estates. After that period it will only be a question of time before all of the inhabitants of Ceylon can have this important matter brought to their attention.

Sanitation.—In the 1919 report it was stated that if the matter of sanitation could be viewed as a five-year period considerable advance would be noted. The advances would not be manifested entirely in the erection and use of latrines, but to a great extent in the education of all classes to the need of controlling soil pollution and its accompanying diseases. Considerable progress was made during the year looking towards securing better methods of sanitation in conjunction with anchylostomiasis work. It should be understood, however, that a great deal remains to be done in the way of controlling soil pollution both on the estates and in the villages, and in obtaining and holding the interest of responsible persons in this very important matter, before it could be said definitely or with accuracy that sanitation in connection with anchylostomiasis work was well in hand. Hopeful measures, however, for meeting the situation are enumerated as follows :—

- The appointment of an additional Inspecting Medical Officer who worked in the Central Province, and the appointment of three additional Sanitary Inspectors who worked in conjunction with the Inspecting Medical Officer in visiting estates prior to the work and subsequently.
- A bill making soil pollution a nuisance has been presented to the Legislative Council, and will undoubtedly be enacted into law in due course.
- Individual attempts by certain superintendents to put into operation a set of rules which were devised to assist them in controlling this matter.
- The forwarding by the estate agents to their superintendents of a set of rules devised to assist them in controlling soil pollution, with instructions to put those rules into operation as early as possible.

A distinct advance, looking towards the better utilization of the work, was made during 1920 when Government appointed an Inspecting Medical Officer to visit estates in advance of the anchylostomiasis campaigns, and advise superintendents as to the sanitary precautions they should take in order to obtain the greatest benefits from treatment campaigns. Inspections were made in the Central Province and were continued throughout the year until the financial crisis appeared. Not all estates were visited, as there were too many to be reached by a single officer, but it is true that estates which he was able to visit benefited greatly thereby, and the returns to them were undoubtedly increased. It is gratifying to state that the entire sympathy of all concerned in this procedure was obtained. Unfortunately, however, simultaneously with the appointment of the Additional Inspecting Medical Officer and the Sanitary Inspectors, the financial crisis in tea and rubber appeared, and all inspections on estates by medical officers was confined to the advising of sanitary improvements. As soon, however, as conditions justify the inspections will be undertaken again. The reports of the Inspecting Medical Officer reveal the fact, however, that much remains to be done on many of the estates in the matter of sanitation.

It might be well to quote from the 1919 report as to the very important position which sanitation has in work of this character :—

“The experience in Porto Rico again makes concrete proof that our policy is sound in not encouraging hookworm measures, unless soil sanitation has been carried out at least six months in advance, and unless arrangements have been made by Government for maintenance and inspection to see that latrines are properly used. Although Porto Rico has a population of approximately one million, and has already spent \$347,000 on hookworm control, we found an infection rate of over 90 per cent. in 2,000 examinations at various test points among the rural population. Fully 80 per cent. of the houses have no latrines. The trouble is that all the money was spent on relief measures, and very little effective sanitation was accomplished.”

A large investment has already been made by Government and by estates in this matter, and if the greatest benefits are to be obtained thereby, the ground which has already been covered by treatments should be held. Steps should be taken to see that the latrines are properly built, properly maintained, and properly used. While treatment campaigns will relieve the suffering and save the lives of a great many, still its benefits are only transient if proper attention is not given to prevention.

General.—Anchylostomiasis operations have been in progress in Ceylon since 1916. The demonstration of methods which was undertaken has been completed for estate work, and the treatment of labourers and the taking of measures to prevent re-infection have, in addition to its humanitarian aspect, proved a sound

business proposition for employers of labour. Under the circumstances, it is presumed that the work will be continued in the future, and as methods are well understood, outside aid should no longer be required. With the help of the estate dispenser superintendents should be able to conduct their own campaigns. Where an estate dispenser was not employed, a campaign dispenser could be made available upon request. Further assistance could be had from Government in the way of drugs and equipment. The central laboratory in Colombo could take care of all necessary microscopic examinations. General supervision of the work could be given by an administrative medical officer living in Colombo, in addition to his own duties. Such a procedure would be more economical, would interfere less with estate routine, and would represent work undertaken on a large scale and over a more extended area than could be attempted by organized campaigns working in restricted districts.

Commenting on the above report, it must be regretfully admitted that on some estates the latrine accommodation provided has been either allowed to fall into disrepair, or is not used as carefully as should be the case. Soil pollution is still far too prevalent. The utmost vigilance of local authorities in towns and villages where latrines have been or are being constructed will need to be exercised to see that such latrines are maintained in good repair, kept clean, and properly utilized. As pointed out, treatment of the affected is very necessary, but prevention of fresh infection or re-infection is equally and indeed more important.

20. *Diphtheria*.—Only 6 cases were treated in Government hospitals, as against 4 cases in 1919.

21. *Parangi (Frambasia, or Yaws)*.—The number of hospital admissions was 6,189 in 1920, as against 5,270 in 1919, and the deaths were 24, as against 23. The local prevalence of the disease as judged from hospital admissions is shown in the following table:—

	1920.	1919.	1918.
Western Province ..	601	439	318
General Hospital, Colombo ..	102	120	117
Central Province ..	1,275	673	926
Northern Province ..	157	168	141
Eastern Province ..	749	470	502
Southern Province ..	783	725	377
North-Western Province ..	659	712	1,002
North-Central Province ..	301	455	455
Province of Uva ..	733	760	704
Province of Sabaragamuwa ..	824	748	669

It will be seen that the disease is widespread throughout the Island, and that the Northern Province is the least affected part. Apart from the hospital admissions, a large number of cases was treated at the various dispensaries in all Provinces.

The injection of salvarsan (and its homologues) results in a rapid improvement even with a single injection, and two or three injections usually suffice to effect a cure. Those drugs are expensive, and were very difficult to procure in quantity in 1920, but are now more freely available. The technique of the injections requires study and care, and increasing numbers of the medical officers of the Department are being trained in its use. Apart from special centres of hospital treatment at Dambulla, Kalmunai, and Trincomalee, an itinerating medical officer was engaged in visiting centres of infection and giving the necessary treatment. From what has been said above, it will be seen that this loathsome disease is eminently curable, provided that trained medical officers can be brought into contact with the sufferers, and the additional expense entailed on a campaign against this disease ought to yield brilliant lasting results. It must not be forgotten that centres of infection are often isolated villages whose inhabitants have to be encouraged to permit of modern methods of treatment being adopted. However, the striking result of proper treatment should and does win many converts. The problem is to make such treatment available in isolated places. This can only be done by appointing itinerating medical officers.

22. *Cancer and Sarcoma*.—The number of cases of malignant disease treated in the various hospitals was 617 with 76 deaths, as compared with 401 cases with 71 deaths in 1919. More than half the cases were treated at the General Hospital, Colombo. Unfortunately the disease is far advanced before many victims enter hospital, so that any hope of successful treatment is out of the question.

23. *Tubercular Disease of the Lungs (Pulmonary Phthisis)*.—The number of hospital admissions was 2,655 with 643 deaths, as compared with 2,656 cases and 801 deaths in 1919 and 2,781 cases with 615 deaths in 1918. The provincial distribution of these hospital cases was as under:—

	1920.	1919.	1920.	1919.	
Western Province ..	1,186	1,175	Southern Province ..	155	164
General Hospital, Colombo ..	602	576	North-Western Province ..	97	97
Central Province ..	217	192	North-Central Province ..	—	21
Northern Province ..	76	60	Province of Uva ..	132	136
Eastern Province ..	21	72	Province of Sabaragamuwa ..	90	100

Apart from the cases of phthisis admitted to the General Hospital, there are three special institutions dealing with cases of this disease: The Anti-Tuberculosis Institute in Colombo, the Sanatorium for early cases at Kandana, and the hospital for advanced cases at Ragama.

At the Institute in Colombo, the total number of attendances was 5,258, of which 2,196 were first visits, as compared with 3,321 and 1,558 attendances in 1919 and in 1918 respectively. Of the 2,196 new cases, 1,399 were found to be suffering from phthisis, the others being cases of bronchitis and other chest troubles. At the Institute 967 more advanced cases were advised to enter the chronic hospital at Ragama, and 615 were admitted there, and 152 admitted to the General Hospital, Colombo, for want of accommodation at Ragama. Some 226 early cases were recommended for admission to Kandana, and 162 of these were admitted. Public attention has been drawn to the tuberculosis problem by lectures delivered at various places, viz., Moratuwa, Panadure, Kalutara, Negombo, and Matale in English, and at Panadure, Matale, and Ambalangoda in Sinhalese.

At Kandana Sanatorium (48 Beds).—185 patients were admitted during the year 1920; of these, 100 were males and 85 females. Out of the 170 cases admitted from the Western Province, 127 were from within the Colombo Municipal limits. Additional accommodation will be shortly provided. The

number discharged was 168, 14 were transferred to Ragama hospital, and 2 died. Of the 185 admissions, 128 were classed as being in the first (early) stage of the disease, 22 in the second stage, and 35 were in the third stage. The average duration of stay in hospital was 96 days. The results of treatment may be summarized as under :—

	Stage.		
	First.	Second.	Third.
Cases	128	22	35
Disease arrested	83	9	6
Much improved	28	8	9
Improved	6	2	4
Stationary	4	2	6
Worse	—	1	5
Died	—	—	2

At the Ragama Hospital for Advanced Cases (159 Beds).—765 cases were admitted in 1920, as against 830 cases in 1919; but the duration of stay of each case in 1920 was 69 days for males and 86 days for females, as against 49 for males and 61 for females. Of the admissions, 416 were residents of Colombo. This increased duration of stay was due to the fact that patients realized that a more prolonged stay was necessary for their own good. Additional beds were provided in 1920 to the extent of 50 beds, bringing up the total accommodation to 159 beds. Two other wards are now being erected, and will enable more cases, now necessarily kept in the chronic wards of the General Hospital, to be transferred to Ragama.

24. *Port Health Precautions.*—During the year 2,682 British and foreign steamers and 348 native sailing craft called at the port of Colombo and were medically inspected. Of these, 20 vessels were kept in strict quarantine until the sick were landed and disinfection performed. Eighteen vessels were found infected with smallpox, and 19 patients were sent to the Infectious Diseases Hospital with that disease. One case of typhus fever was landed; infection contracted at Malta. One case of plague was landed from a Japanese vessel. One Maldivian sailing boat had 3 deaths on board from plague, the infection being contracted in Colombo. Cases of measles and chickenpox were isolated on board.

Disinfection.—Tally clerks 3,636, cargo coolies 58,284, coal coolies 51,215, deck passengers 46,583.

SECTION III.—METEOROLOGICAL CONDITIONS.

Rainfall.—Out of the 267 rain gauges that reported to the Colombo Observatory, the extreme figures for the year were from Watawala railway station with 257·98 inches in 203 wet days, and from Hambantota with 31·40 inches in 121 wet days. The longest drought occurred at Puvarasankulam lasting for 157 days, May 4 to October 7. The longest wet period occurred at Holmwood estate lasting for 53 days, June 10 to August 1. June and November were the two months in which the rainfall was most noticeably above average, but examination of the annual totals show that this year there is no one phrase that summarizes them. The areas with more than their average rainfall include roughly the Northern Province, most of the North-Western Province, the western face of the hill country, and the low-country west of it (*i.e.*, parts but not the whole of Western Province, Central Province, and Province of Sabaragamuwa). Galle and Batticaloa were both above their average, but the greater number of stations in the Southern and Eastern Provinces were not, and both Uva and the North-Central Provinces can show offsets in both directions.

Temperatures.—The station showing the highest mean shade temperature for the year was Trincomalee with 83·7° F., and the lowest Nuwara Eliya with 59·3° F. The figures for Colombo and Kandy were 80·5° F. and 76·2° F., respectively. The highest shade temperature recorded during the year was 98·5° F. at Trincomalee on June 23.

SECTION IV.—THE SANITARY BRANCH OF THE MEDICAL DEPARTMENT.

26. *Staff of the Sanitary Branch.*—A Senior Sanitary Officer, a Junior Sanitary Officer, 4 Assistant Sanitary Officers, a Sanitary Engineer, a Sanitary Superintendent, 81 Sanitary Inspectors, 10 disinfecting coolies, 4 survey coolies, 4 rat-catching coolies.

Additional Appointments and Transfers.—Dr. S. T. Gunasekara was drafted to the Sanitary Branch on March 1, 1920, and was definitely appointed Junior Sanitary Officer, with effect from April 16, 1920, and Dr. G. W. R. Fernando reverted to his substantive post as Assistant Sanitary Officer. Dr. K. R. Perera, Assistant Sanitary Officer, who was in charge of the Post-Anchylostomiasis Campaign in Matale District, reverted to the Medical Department proper, and Dr. J. R. Blazé was appointed to succeed him at Matale, with effect from March 22, 1920. Dr. D. C. de Fonseka was appointed Assistant Sanitary Officer in charge of Railway Sanitation, with effect from March 1, 1920.

Dr. K. McGahey took ill suddenly and went on leave on June 17, 1920, and Dr. S. T. Gunasekara acted as Senior Sanitary Officer from that date until the end of the year. Dr. G. W. R. Fernando was again appointed to act in the capacity of Junior Sanitary Officer.

27. *The Post-Anchylostomiasis Campaign* in Matale District was suspended, and Dr. J. R. Blazé was transferred to Kalutara in charge of the Sanitary Inspectors in Kalutara and Galle Districts. With the extension of the anchylostomiasis campaign to Kandy District, 4 Additional Inspectors were stationed to sanitize the villages in Tumpane, Harispattu, Udunuwara, Yatinuwara, Uda Bulatgama, and Pata Bulatgama districts. This campaign was latterly suspended owing to the rubber and tea crisis, and the staff was transferred to the Western Province. One Sanitary Inspector was dismissed, and one Inspector was discontinued. Inspector J. M. Ponniah, whose services were lent to Local Board, Nawalapitiya, died, and Inspector D. A. Fonseka succeeded him. Two Inspectors were transferred to the Galle District to deal with a serious epidemic of enteric there. Eight Additional Inspectors were detailed to the Western Province, to expedite the latrine construction in the villages in view of the transfer of the anchylostomiasis campaign to this Province.

A *Training Class* was started in February with 37 returned soldiers and members of the Mesopotamia Sanitary Corps. Sixteen of these passed the examination, and 9 have been appointed as Probationary Inspectors in this Department. Two have secured billets under the Galle Municipality, and five are awaiting appointments. Another training class with a programme for six months was started on December 1, with 30 students.

Summary of Work.—129,896 premises were inspected during the year, of which 20,597 premises were found insanitary. 3,653 mosquito-breeding places were detected and dealt with. 2,678 prosecutions were entered in respect of breaches of sanitary rules and regulations, and the fines amounted to Rs. 10,191.55. 6,415 notices were served for remedying sanitary defects, of which 3,719 were voluntarily complied with.

New or Reconstructed Buildings.—2,057 building applications were dealt with, and 1,159 new buildings have been approved and built in the Sanitary Board towns of Western, Central, Sabaragamuwa, Northern, and Eastern Provinces during the year.

Infectious Diseases.—The following cases of infectious diseases were reported and prophylaxis carried out :—

Enteric ..	.. 932	Measles ..	.. 708
Dysentery ..	.. 305	Smallpox ..	.. 29
Chickenpox ..	.. 888	Plague ..	.. 14

Cholera Epidemic at Karunkoditivu.—An epidemic of cholera broke out at Karunkoditivu and the neighbouring villages in the Eastern Province during December, 1919, which continued up to February, 1920. Dr. S. F. Chellappah, Assistant Sanitary Officer, Central Province, was in charge of the epidemic, and was assisted by 4 Sanitary Inspectors and a gang of disinfecting coolies. A clean bill was declared on February 19, 1920. Fifty cases occurred during this epidemic, of which 31 died and 19 recovered. A definite source of infection could not have been traced in this epidemic, as the original cases were not reported in time. The Assistant Sanitary Officer, however, reported after inquiry that though the source of infection could not have been directly traced, the evidence pointed to the fact that the disease had been introduced from Uva, where there was an epidemic during December, 1919. Two sources have been suspected, viz. :—

- (1) Tissamaharama, through people who had gone there for paddy cultivation.
- (2) Uva, through cattle traders who do not use the roads, but jungle paths.

One of the victims amongst the original cases was a Moorman who frequented Tissamaharama in connection with his business as a cattle trader. The epidemic was of the chain type, showing that the infection was acquired by contact, and not of the explosive type, due to infected water.

Epidemic of Enteric Fever at Hikkaduwa, Dodanduwa, and neighbouring Villages.—A serious epidemic of enteric fever broke out at Hikkaduwa, Dodanduwa, and the adjoining villages during March. There were no Sanitary Inspectors in this area, and the cases were not reported till the epidemic assumed serious proportions. The Acting Junior Sanitary Officer with two Inspectors were detailed to deal with the epidemic, and in June Dr. J. R. Blazé was specially appointed to take charge of the work. From March 10 to the end of the year there were 393 cases with 35 deaths, and with the rigid prophylactic measures adopted the epidemic began to abate rapidly during the latter part of the year. The disease was chiefly communicated by contact infection, and satisfactory home isolation was impracticable owing to the insanitary and crowded condition of the houses and the dirty habits of the people. The most successful preventive measure was anti-typhoid inoculation. Unfortunately it could only be carried out as a voluntary measure, and much persuasion was necessary to induce the people to be inoculated. Altogether 517 subjects were inoculated. The water supply in all the cases was inspected and disinfected, and all infected material was carefully attended to. Gardens were cleaned at Government expense, and disinfectants were distributed and used under the supervision of the Inspectors.

Enteric Epidemic at Mount Lavinia and Dehiwala.—An outbreak of enteric occurred in Dehiwala and Mount Lavinia in May, and lasted during May, June, and July, but owing to the prompt notification of cases to the Sanitary Inspectors and the special prophylactic measures adopted by this Department it did not assume serious proportions. The source of infection was traced to Colombo. This outbreak was chiefly confined to the most thickly populated and insanitary quarters of Dehiwala and Mount Lavinia, where conservancy and water-supply are unsatisfactory. In some places wells were found in the vicinity of cesspits, which were well filled.

It is not possible to introduce dry-earth conservancy owing to want of access by road to the majority of the houses, which are situated far out of the main road. The Sanitary Board is taking steps to improve matters in this direction.

In dealing with this outbreak, too, we relied chiefly upon anti-typhoid inoculation and disinfection of infected material. It is gratifying to note that 80 people voluntarily subjected themselves to inoculation.

Houses and compounds were cleaned at Government expense. Wells, cesspits, and all the infected houses were disinfected. Special arrangements were made for the safe disposal of infected excreta. Disinfectants were distributed to the infected houses to be used under the supervision of two special Inspectors who were temporarily appointed to help the permanent Inspectors during the epidemic.

In all 53 cases occurred, with 14 deaths. Dr. M. de Costa, Assistant Sanitary Officer, Colombo, was in charge of this outbreak.

Outbreak of Plague at Moratumulla.—What would have become a serious outbreak of plague was averted at Moratumulla, one of the insanitary parts of Moratuwa town, during October, 1920, by the prompt notification of original cases and the initiation of preventive measures by this Department at the instance of Hon. Mr. J. G. Fraser, Chairman, Local Board, Colombo.

The Acting Senior Sanitary Officer with the Sanitary Superintendent and two special Inspectors dealt with this outbreak. Eight cases were reported within 24 hours, and all these cases occurred in very insanitary and crowded huts. The source of infection was traced to Colombo, but the first case,

which had proved fatal, had not been reported. It is noteworthy that 8 human cases (with 6 deaths) occurred within a radius of a quarter of a mile, but although a rat campaign was started and continued long after the epidemic had subsided, not a single infected rat was found.

Sanitary Conveniences: Public Latrines.—Three public latrines of an approved type were constructed at Government expense in the Sanitary Board towns of Alutgama, Mount Lavinia, and Dehiwala, and two public wells were constructed at Peliyagoda and Nugegoda.

Private Latrines.—The following is a list of private latrines installed during the year :—

	Cesspits.	Dry-earth.
Western Province	6,488	412
Central Province	4,056	6
Southern Province	1,125	—
Province of Sabaragamuwa	6	4
Total	11,675	422

Hookworm Disease.—At the Hookworm Dispensary at Kalutara 2,278 patients were treated, with 1,731 cures. At Moratuwa 1,960 patients were treated, with 536 cures. These dispensaries were closed in August, 1920, and the dispensers transferred to the Minuwangoda area.

The anchylostomiasis campaign, which is watched over by the Local Anchylostomiasis Committee of Control, was extended to the Western Province, and assistance is being rendered by the members of the Sanitary Branch in sanitating villages and educating people by lantern lectures, distribution of leaflets, &c. It is pleasing to record that no resistance or serious obstruction was encountered by the Directors as in previous campaigns, a fact largely attributable to the valuable assistance and loyal co-operation of the local police headmen and the Sanitary Staff. The Hon. Mr. J. G. Fraser, Government Agent, Western Province, and his Assistant, Mr. Newnham, visited these areas and impressed upon the Mudaliyars and their subordinates the importance of their co-operation. Eight Additional Sanitary Inspectors were detailed for campaign work, whose principal duty was the supervision of latrine construction.

Domestic Water Supplies.—12,161 wells were inspected during the year, of which 7,650 were found unprotected from pollution. 320 wells were improved. 16 samples of water were examined chemically and bacteriologically by the Government Analyst and the Director, Bacteriological Institute, respectively, at the request of this Department. Ten of the samples examined were found unfit for drinking purposes, and 6 were found to be good.

Scavenging.—Scavenging of public and domestic refuse was carried out by the Local and Sanitary Boards in towns declared under Ordinances No. 13 of 1893 and No. 18 of 1892 where funds are available.

Licensed Trades.—Where Inspectors of the Sanitary Branch are stationed, the regulations relating to the licensing of trades were enforced in order to improve existing conditions, but it is regrettable to note that in certain towns outside the Western Province there was no uniformity in their enforcement.

The following is a tabular statement of applications received by Inspectors in the Western Province :—

Name of Trade.	No. of Applications—		
	Received.	Recommended.	Not Recommended.
Laundries	126	108	18
Bakeries	221	189	32
Dairies	18	13	5
Tea boutiques	91	87	4
Fish stalls	5	5	—
Eating-houses	13	12	1
Manure works	1	1	—

Milk Supply.—Ninety-six samples of milk were analysed by the Government Analyst at my request, of which 74 were found adulterated and 22 were found to be genuine milk. Offenders within the Sanitary and Local Board limits were prosecuted under the respective by-laws, but unfortunately there is no law to punish culprits outside towns unless they supply to residents within town limits.

Town Planning.—Town planning and improvements were carried out by the respective Local and Sanitary Boards, and the services of the Sanitary Engineers were lent to carry out the following work :—Surveys (cadastral) were made of—(a) Kandana (about 400 acres); (b) area comprising Kawdana, Galkissa, Wattarappola, &c. (about 200 acres); (c) demarcation of boundaries of land to be acquired for the proposed new road from Dehiwala market to Karagampitiya.

Levels were taken along the line of old channel between sea and the Galle road, from Dehiwala Canal to St. Thomas's College, Mount Lavinia.

Type Plans were drawn of (a) bakeries; (b) cattle galas.

Education.—Nineteen lantern lectures on hookworm disease and on general sanitation were delivered by the Sanitary Superintendent during the year.

28. *Railway Sanitation.*—The staff consisted of an Assistant Sanitary Officer and 6 Inspectors. Work was started in April, 1920, and the following is a summary of the work that was done :—

During the eight months, from May, 1920, to December, 1920, 989 latrines were found defective, of which 787 were attended to. 1,759 mosquito-breeding places were discovered, of which 1,020 were dealt with. In 205 cases the water supply has been found defective, of which 87 were attended to. In 465 cases the conservancy were at fault, of which 386 were improved. In 499 cases the scavenging were found defective, of which 388 were improved. 1,757 premises were found defective, of which 1,554 were improved.

The following infectious diseases were reported and necessary action taken :—

Plague ..	..	1	Measles ..	..	18
Enteric fever ..	..	3	Phthisis ..	..	2
Chickenpox ..	..	16	Dysentery ..	..	1

Eighty-two inspections were made by Dr. D. C. de Fonseka, Assistant Sanitary Officer, during this period. Large stations like Nanuoya, Nawalapitiya, Kandy, Kadugannawa, and Anuradhapura were visited by him on three occasions.

Twenty-one communications were addressed to the various Railway authorities drawing attention to the deficiencies on which improvements were made, on the others action was deferred or is pending for various reasons. Seven reports were supplied at the request of the Railway authorities.

Local Sanitary authorities, like Colombo Municipal Council, Kandy Municipal Council, Local Boards of Hatton, Jaffna, Nawalapitiya, &c., were communicated with regarding improvements.

Thirteen written notices were sent to the officers of the Railway requesting them to improve premises, bungalows, &c. These notices are only sent after the Inspector has reported that repeated requests have failed to get the necessary work done.

SECTION V.—GENERAL.

37. *Hospitals, Asylums, and Dispensaries.*—Apart from the Lunatic Asylums at Colombo and Matara and the Leper Asylum at Hendala, which have accommodation for 520 and 419 patients, respectively, there were in 1920 no fewer than 87 Government hospitals with accommodation varying from 12 beds in smaller outstations to 687 beds in the General Hospital, Colombo. At 58 hospitals, besides a medical officer or officers, a matron and nurses are provided. At many hospitals there were patients in excess of the number of beds during the whole year, and at all there were times when this state of affairs existed.

The following new buildings were completed during the year :—Additional female ward, General Hospital, Colombo; new ward and administration block, De Soysa Lying-in Home; quarters for Medical Officer, Uda Pussellawa; quarters for attendants, and additional quarters for nurses, Nuwara Eliya; a ward of twenty-four beds at Galle; smallpox hospital at Mandapam Camp, with quarters for attendants. New hospital buildings were started at Elpitiya and Udugama, and are expected to be completed by October, 1920; also a temporary hospital at Kilinochchi and a dispensary and apothecary's quarters at Madulsima. A new hospital at Ridigama and a new dispensary at Nachchaduwa were also commenced.

38. The following is a summary of the chief features of the report of the Acting Medical Superintendent, General Hospital, Colombo :—

On December 31, 1919, there were left in hospital 638 patients, 45 in the paying section and 593 in the non-paying section. During 1920 the total number of admissions was 14,771; of these, 1,050 were admitted to the paying wards and 13,721 to the non-paying wards. Of the total of 1,095 under treatment in the paying wards, 986 were discharged, 66 died, and 43 remained on December 31, 1920. Of the 14,314 under treatment in the non-paying wards, 11,841 were discharged, 1,786 died, and 687 remained on December 31, 1920. The average daily sick in hospital was 53·28 in the paying wards and 778·65 in the non-paying wards.

The maximum and minimum numbers on any one day are shown as under :—

<i>Non-paying Section.</i>	<i>Paying Section.</i>
Maximum : 830 on November 13, 1920.	Maximum : 63 on May 7, 1920.
Minimum : 613 on June 8, 1920.	Minimum : 39 on January 1, 1920.

Of the 13,721 cases admitted to the non-paying wards, 5,741 were surgical cases and 7,980 medical cases.

The number of surgical operations performed in 1920 was 2,404 (exclusive of 325 minor operations done in the Out-patient Department); of these 2,404 operations, 260 were done in the paying section theatre.

The table below gives a comparison with recent years as regards the number of cases under treatment, the percentage mortality, and the daily average sick in hospital in the paying and non-paying sections respectively. The marked increase in the daily average sick in the non-paying section is striking, and represents a large excess over the actual number of beds provided showing the urgent need for the provision of extra accommodation and the extra strain imposed on the staff during the year. The years 1919 and 1920 show the effect on the hospital admissions due to food shortage and general increased cost of living. A good many cases were more suitable for admission to the Homes for the Aged and for Incurables, and many others were vagrants suffering from mal-nutrition :—

Year.	PAYING SECTION.				NON-PAYING SECTION.			
	Number under Treatment.	Deaths.	Percentage Mortality.	Daily Average Sick.	Number under Treatment.	Deaths.	Percentage Mortality.	Daily Average Sick.
1916	909	63	6·9	41·18	12,310	1,415	11·49	622·27
1917	814	35	4·2	41·30	12,136	1,256	10·34	670·49
1918	913	60	6·5	43·18	10,698	1,432	13·4	610·45
1919	1,026	69	6·7	51·19	13,845	1,732	12·5	717·45
1920	1,095	66	6·0	53·25	14,314	1,786	12·4	778·65

As regards particular diseases, the following table shows their comparative prevalence and mortality during the past few years as shown by hospital admissions.

	1917.		1918.		1919.		1920.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Acute pneumonia	358	136	1,176	389	605	365	532	274
Pulmonary phthisis	319	178	569	207	546	282	602	294
Anchyllostomiasis	408	55	576	66	655	99	700	11
Malaria	764	15	535	13	849	18	781	11
Dysentery	222	29	138	29	286	56	272	73
Enteritis and diarrhoea	490	112	332	84	475	142	324	121
Enteric fever	174	42	163	53	338	126	319	129
Appendicitis	144	2	110	6	170	2	178	3

New Buildings.—A new female medical ward of twenty-four beds in the non-paying section was completed and put into use in October, and this has to some extent relieved the pressure on the female side.

Fees and Charges.—From July 1 the scale of charges for accommodation in the paying wards was slightly increased on account of the general increase in the cost of living. Further, a scale of charges was laid down for surgical operations, and during the half-year a sum of Rs. 4,466 was realized on account of 100 operations.

Accommodation.—As stated above, there has been constant overcrowding in the non-paying section, and even in the paying section there have been times when it has not been possible to admit promptly all the cases seeking admission.

Expenditure and Receipts.—The receipts in the paying section amounted to Rs. 108,119·92, while the expenditure was Rs. 67,130·80, exclusive of the salaries of sisters, nurses, medical officers, or stewards. In the pauper section the expenditure amounted to Rs. 139,887, while the receipts were Rs. 5,072·50.

Staff.—In October an additional physician and an additional surgeon were added to the hospital visiting staff, and now there are 4 in-patient physicians, 4 in-patient surgeons, and 1 physician and 1 surgeon attached to the Out-patient Department. Dr. P. J. Kelly, Registrar of the Medical College, has acted as Medical Superintendent of the Hospital, in addition to his own duties, during the whole year.

39. *The Colombo Lunatic Asylum.*—The shortage of accommodation is still marked, in spite of the relief afforded to some extent by the use of the old jail at Matara as a temporary asylum, where 150 male convalescent cases are housed. Work in the new asylum at Angoda has progressed but slowly, owing to the limited vote allotted during 1920. It is very desirable that the female portion of this new institution be completed with as little delay as possible. On December 31, 1919, there were 676 males and 393 females left in the Asylum, and during the year 192 males and 128 females were admitted, being 37 males and 3 females less than were admitted in 1919. During this period 233 males and 52 females were discharged, including 152 chronic male cases transferred to Matara. Owing to the lack of accommodation and consequent overcrowding, relations and friends are encouraged to take away patients on security, but many of those so discharged are re-admitted. There were 161 deaths during the year (85 males and 76 females), as compared with 166 in 1919 and 157 in 1918. The principal causes of death were dysentery, phthisis, and pneumonia. The largest number present on any one day was 10,701, the lowest 911, being 48 and 139 less, respectively, than in 1919. Some 5,096 articles of clothing were made and supplied to various hospitals. Coir rope and rugs and other articles were also made, and a large amount of vegetable grown for the use of the Asylum.

40. *The House of Observation.*—247 male cases and 119 female cases were dealt with in 1920, as compared with 249 males and 107 females in 1919. Of these, 116 males and 75 females were transferred to the Asylum.

41. *The Infectious Diseases Hospital.*—As usual, cases were admitted from Colombo and its environs and from infected ships arriving at the harbour. On December 31, 1919, there were left 18 patients in the hospital, and during 1920 a total of 959 cases were admitted, as against 528 in 1919. Of the 977 under treatment, 124 died, and these were chiefly plague cases, many admitted in a moribund condition. An equal number, viz., 104 of plague and smallpox cases were admitted. 22 of the smallpox cases died. Amongst the fatal cases of smallpox were 3 children who had not even undergone primary vaccination, and who developed the confluent type of the disease. Of the other 19 fatal cases, no fewer than 16 showed no visible marks of previous vaccination, although they were said to have had primary vaccination in childhood, a clear example of the necessity of re-vaccination at puberty. Of the 104 plague cases, 88 died, 94 were from Colombo town, 9 from outside, and 1 was an imported ship case. As regards the type of disease, 92 were bubonic and 12 septicæmic; 16 of the bubonic cases recovered.

Cholera.—No cases of cholera were admitted, whereas 10 were admitted in 1919.

Typhus.—One imported case was admitted and died.

Diphtheria.—Only 2 cases were admitted, of which 1 died.

Measles.—No fewer than 267 cases were admitted, as against 84 cases in 1919. Only 3 deaths occurred, and these were debilitated children.

Mumps.—Twenty-six cases were admitted.

Whooping Cough.—Twenty cases were admitted.

A sum of Rs. 3,452·99 was recovered from paying patients. There are three wards of a permanent type used for paying patients; the rest of the accommodation is in temporary wards. The new Infectious Diseases Hospital so long talked of has not been started yet. It is hoped that a new up-to-date infectious diseases hospital will be built shortly.

42. *The Victoria Memorial Eye Hospital.*—There were 1,041 admissions in 1920, as compared with 909 in 1919, and the daily average sick was 68·89, the same number as in 1919. The number of operations performed was 549, of which 273 were for cataract and 18 for glaucoma. In the Out-patient Department 11,057 eye cases and 2,161 ear, throat, and nose cases were attended to, and 1,022 minor operations performed. Amongst the in-patients, 7 operations were done on the nose, but the majority of such ear, throat, and nose cases were transferred for operative purposes to the General Hospital. In-patients were received from all parts of the Island, although cases from outside were not quite so numerous as Eye Departments are now established at Kandy and Galle Hospitals.

43. *Convict Hospitals* consist as before of the Borella Convict Hospital (213 beds), Mahara Jail Hospital (49 beds), and Welikada Jail Hospital (8 beds for females). In addition, jail hospitals are attached to sixteen other outstation jails. The daily average sick at the Borella Convict Hospital was 86·67 as against 88·63 in 1919, and 3,336 cases were treated there with 89 deaths. At Mahara 4,495 cases were treated with 35 deaths, and at Welikada 115 cases with 3 deaths. Thus, at the three convict hospitals a total of 7,946 cases were treated with 127 deaths, a death-rate of 1·59 per cent.

44. *The Police Hospital, Borella.*—The number of in-patients was 364, and the daily average sick was 19·64. Only 1 case died. Some 2,900 cases were seen at the outdoor dispensary attached.

45. *De Soysa Lying-in Home*.—100 beds, of which 2 are for paying patients able to pay a small daily charge. The total number of in-patients treated in 1920 was 2,556 as against 1,950 in 1919, and the deaths numbered 77 as against 82 in 1919, or 3·01 per cent. as against 4·2 per cent. in 1919. Of the 77 deaths, only 49 were due to the accidents of childbirth and purely puerperal causes, the other deaths were due to some intercurrent disease, particularly influenzal pneumonia. The number of births was 1,982, and of these, 219 were stillbirths, and 40 died very shortly after birth. A total of 164 operations were performed. Additional accommodation to the extent of 30 beds out of the above 100 was available from October 23. 59 pupil midwives were admitted for training, and of these 51 passed their examination and received certificates.

46. *The Lady Havelock Hospital for Women (34 Beds, 6 for Paying Cases)*.—The number of patients treated was 849, and the daily average sick was 29·05. The number of paying patients was 50, and of these, 9 were maternity cases. The number of operations performed was 289. 25 pupil nurses were admitted for training in 1920.

47. *The Lady Ridgeway Hospital for Children (50 Beds)* adjoins the Lady Havelock Hospital for Women, and is under the same Lady Medical Officer. The total number of cases treated was 1,037, and the daily average sick was 48·74. The mortality was heavy (35·43), but this is due to the fact that unfortunately so many children are only taken to the hospital by their parents as a last resource when they are moribund.

48. *Victoria Home for Incurables*.—87 patients remained on December 31, 1919, and 33 were admitted in 1920, making a total of 120 under treatment, 14 died, 19 were discharged, and 87 remained on December 31, 1920.

49. *Bacteriological Institute*.—The total number of specimens bacteriologically examined was 8,677, as against 5,928 in 1920. The income from fees received was Rs. 7,867.

50. At the Pasteur Institute attached the number of patients treated was 272, and 74 specimens were examined for rabies, of which 41 were positive. The fees received for inoculation against rabies was Rs. 1,478. At the Institute 1,303 blood tests were made for enteric fever and 274 for syphilis. Over 5,000 rats were examined for plague, and over 50,000 doses of rinderpest serum made.

51. *The Ceylon Medical College*.—The following table gives the statistics of the Medical College:—

Number of Medical Students on December 31, 1919	201
Number of Apothecary Students on December 31, 1919	70
Number of Medical Students joining the College in 1920	51
Number of Apothecary Students admitted in 1920 for training as estate dispensers	18
Number of Medical Students who passed out in 1920	11
Number of Apothecary Students who passed out in 1920	21
Number of Medical Students who left in 1920	1
Number of Apothecary Students who left in 1920	2

Since October, 1920, no students have been admitted for training as Government apothecaries, as there are at present no vacancies in the Department for apothecaries, and no such vacancies are likely to occur for some time beyond those available for apothecaries in training who joined in 1919. On the other hand, there is a demand for better trained estate dispensers not in Government employ, and hence students were admitted in 1920 to be trained for this purpose.

The revenue of the College from October, 1919, to September 30, 1920, was Rs. 39,859, and the expenditure for the same period was Rs. 65,753.

52. *Civil Medical Stores, Colombo*.—Considerable difficulty was experienced in getting out supplies of drugs, &c., from England; prices, too, varied, some being lower and others higher than 1919. The cost of articles obtained in 1920 amounted to Rs. 774,024, and the cost of transport of supplies to civil and estate institutions amounted to Rs. 3,928; incidental expenditure, including stationery, printed forms, binding, &c., amounted to Rs. 172·72, the total expenditure being Rs. 795,224. The sum of Rs. 2,351 was realized by the sale of drugs to estates, the sale of unserviceable articles, and the value recovered for loss or damage of articles issued to hospitals. The supply of quinine received during the year was 196,358 ounces, costing Rs. 310,803, and the issues amounted to 93,710½ ounces, of value Rs. 267,073. Drugs to value of Rs. 41,492 were supplied free to Government Departments other than medical. Opium and preparations to value of Rs. 362,946 were purchased.

SECTION VI.—MEDICAL AID TO IMMIGRANT COOLIES.

53. During the year the Mandapam Emigration Depôt was under the charge of Dr. Colonel Van Langenberg. In 1920 some 57,809 persons passed through the camp, as compared with 165,555 in 1919; of these, 45,912 were estate labourers, as compared with 112,195 in 1919. The estate cooly immigration was much reduced owing to the shortage of rice in Ceylon in the early part of the year, and to the cessation of recruiting owing to financial troubles in the latter part of the year. Various additions and improvements were effected, viz., completion of Public Works Department staff quarters, the cholera hospital, five cooly wards, and eight segregation wards. Further additions and improvements await Government sanction. The question of water supply causes some anxiety, but further use is being made of sea water for latrine flushing, and when this is extended, it will be possible to realize if the fresh-water supply is sufficient. A Sanitary Inspector was appointed in April, and the general sanitation of the camp is strictly supervised. An abnormal rainfall (25 inches) occurred in November, and led to a serious breach in the South Indian Railway. No case of plague or smallpox occurred. An outbreak of cholera occurred in May affecting 22 cases, leading to 13 deaths. In the general hospital 414 cases were admitted, of whom 23 died. Over 5,000 cases were treated at the outdoor dispensary. Births numbered 33, of which 27 were in the families of the camp staff. Vaccination for smallpox was performed on 73,483 persons, including 32,385 miscellaneous passengers and 41,098 estate labourers. Re-vaccination of the

whole of the camp staff and dependents was also carried out. The only refusal of the vaccination offered was on the part of a gang of wandering jugglers from Afghanistan. The number of persons not passed through the camp but stopped for medical reasons was 106 coolies and 7 passengers. The health of the camp was generally very satisfactory, but the Medical Officer (Dr. Godlieb) points out that malaria contracted on the spot is on the increase, and 388 cases occurred amongst the camp staff and their dependents. Uncovered wells and the large stretch of water which accumulates in front of the camp after rains afford breeding places for the mosquitoes concerned in the production of malaria. Apart from disease, the mosquitoes are a source of much annoyance to the staff and inmates of the camp for about five months in the year. Very favourable comments on the camp have been made by His Excellency the Governor of Ceylon and by His Excellency the Governor of Madras.

54. *Government District Hospitals and Dispensaries in Planting Areas.*—There are 54 such hospitals with accommodation for 4,508 patients. These hospitals are staffed with qualified medical officers, nurses, and attendants. In addition to the out-patient department attached to each of these hospitals, there are 81 outdoor dispensaries not connected with hospitals.

55. *Estate (Rebate) Hospitals.*—There are 63 such hospitals built, staffed, and maintained by the estate proprietors. A sum of Rs. 89,075 was paid by Government as a rebate of export duty (under the provisions of section 27 of Ordinance No. 9 of 1912) on the produce of these estates from October, 1919, to September, 1920. There has been continued improvement in the management and equipment of these hospitals, but it is to be regretted that the training and proficiency of many estate dispensers leaves much to be desired. Since October, 1920, apothecary students were admitted for training in Colombo only on a written assurance that they would take up the work of estate dispensers, as there were no vacancies likely to occur for some time in the Government apothecary staff, and such apothecary students are now being trained for estate work only. In time, with an increase of available qualified medical officers and a continued training of estate dispensers, the old class of estate dispensers should be gradually superseded, at any rate on estates where a hospital is maintained.

56. Free grant of drugs to the value of Rs. 158,023 was given to estate dispensaries during the year October 1, 1919, to September 30, 1920. At times difficulty was experienced in meeting the demand for drugs from estates owing to difficulty in getting sufficient supplies from England and the increased consumption of drugs on estates.

57. *Medical Inspection of Estates.*—Three special officers are available for this work, and 197 new inspections of estates have been carried out in the Western, Southern, and Central Provinces, in addition to subsequent visits to estates previously reported upon. Sanitary shortcomings and requirements were brought to the notice of the proprietors and action urged upon them. On many estates progressive improvement in the sanitary welfare of the labourers is evident, but in others conditions are still far from satisfactory, and the financial crisis in the latter part of the year tended to stop improvements in this direction, although in some cases apathy on the part of those responsible is too much in evidence. Useful work is being done on some estates in "crèches" established for the tending and dieting of young children, and an extension of this system is strongly urged.

Estate Latrines.—Unfortunately the Inspecting Medical Officers report many cases of neglect in the matter of repair and maintenance and the enforced use of latrines. Proprietors should insist on their superintendents doing their duty in this respect, both for the sake of the health of the labourers and the financial benefits from decreased sickness.

58. *School Medical Inspection in Ceylon.*—In 1919 a start was made as regards the medical inspection of children of school age and of the buildings in which they were being educated by the appointment of a Medical Inspector of Schools, and this officer has submitted a report dealing with both the English and the Anglo-vernacular and vernacular schools in the town.

Increasing attention has been given in the past twenty years in Europe and America to that branch of public medicine called school hygiene, which is concerned with all that effects the healthy physical development of the child of school age. The foundations of that branch of medicine are laid in (a) a system of education conducive to sound physical growth; (b) an appropriate school environment; (c) medical supervision of the individual child. Ceylon is late in making a start in this important work, but this late start, at any rate, should enable us to utilize the experience of others and adopt many of the methods of organization and practice found most serviceable elsewhere.

Those interested in the subject are advised to read the annual reports of the Chief Medical Officer of the Board of Education in England. In that country examination had revealed the disconcerting fact that one-sixth of the children of school age were so physically or mentally defective or diseased as to be unable to derive proper benefit from the education which the State provides. The medical examination of recruits needed for service in the recent great war showed a lamentably large proportion of men with serious physical defects and disabilities that could have been prevented or remedied during childhood. No figures are available as yet as regards children in general in Ceylon, but a start has been made, as stated above, by the examination of school children in Colombo.

The problem is being taken in hand in a very comprehensive fashion in England (and in other countries) both by the Central Board of Education and by each Local Educational Authority, for its vital importance to the nation is now fully realized. It is to be hoped that extended provision for this very necessary work may be increasingly forthcoming in Ceylon.

The report of the School Inspecting Medical Officer for 1920 deals both with the English schools and with the Anglo-vernacular and vernacular schools. As regards the English schools, 4,523 scholars were medically inspected. Defective vision in 312 and 96 cases of other eye diseases, 140 cases of enlarged tonsils and adenoids, defective teeth (dental caries) in 220 cases, hookworm in 37 cases, defective hearing in 10 cases, and verminous infection of the skin in 34 cases were found. It was reported that the sanitary arrangements in the smaller English schools in the more crowded parts of the town call for considerable improvement and, above all, for actual supervision. A few of such schools are even now not provided with latrines at all.

As regards the vernacular schools, it is regretted that the Medical Inspector reports that there is little or no attempt to maintain any standard of personal hygiene amongst the scholars by the teachers. It is recognized, of course, that many of the scholars of these schools are drawn from a class whose home

surroundings leave much to be desired. The sanitary provision made in many of these schools is very defective, and in that respect and in the school buildings themselves the contrast between these schools and the Government vernacular school in Dematagoda, Maradana, and Green street is very striking. In these vernacular and Anglo-vernacular schools 7,232 children were medically inspected. 337 cases of defective vision and 169 cases of other eye diseases, 357 cases of enlarged tonsils and adenoids, 304 cases of dental caries, 72 cases of hookworm, and 40 cases of verminous skin affections were found.

Where physical defects and ailments are found, it is obviously necessary to afford means of treatment for those not able to pay for private medical aid. Steps are being taken to open a clinic at the Eye Hospital for diseases of the eye, ear, nose, and throat, and a clinic for general diseases at the Anti-Tuberculosis Institute. The energetic co-operation of teachers and parents will be needed to ensure that advantage is taken of these facilities for treatment; following up, and after care will be required, and here the necessity for school nurses (of which one has since been appointed) is obvious. It is hoped to appoint a Medical Inspectress of Girls' schools shortly.

Sanitation in general, and personal hygiene in particular, is in a deplorably backward state in the East, and it is to the satisfactory establishment of a well-thought-out system of school hygiene that an enlightened public opinion will emerge as the scholars of to-day become the men and women of the next generation, provided they have been brought up in proper school environments, which will make them demand the same standards of hygiene in their own homes and carry out in their own personal mode of life.

SECTION VII.—REVENUE AND EXPENDITURE, 1919-20.

59. The following statement shows the expenditure and receipts of the Department, inclusive of Medical Aid, Estates Branch, for the financial year 1919-20 :—

EXPENDITURE.			Rs.	c.
Personal emoluments	..	..	1,777,021	92
Other charges	..	..	1,848,770	77
Hospitals and dispensaries	..	..	1,661,448	58
		Total	3,510,219	35
		Grand Total	5,287,241	27

REVENUE.			Rs.	c.
Hospital and dispensary receipts	..	..	181,347	17
Sale of drugs, &c.	..	..	4,052	29
Sale of drugs under Medical Warrants Ordinance	..	..	5,868	62
Medical aid dues, maintenance and visits	..	..	220,663	74
Rent of buildings, sale of unserviceable and superfluous articles, and rent of trees and garden produce	..	..	18,347	32
			430,279	14

60. *Strength of the Medical Department.*—The following was the strength of the Medical Department during the period: 1 Principal Civil Medical Officer; 1 Assistant Principal Civil Medical Officer; 1 Accountant; 3 Inspecting Medical Officers; 4 Medical Superintendents at the General Hospital, Colombo, Lunatic Asylum, Leper Asylum, and the De Soysa Lying-in Home; 9 Provincial Surgeons; 1 Medical Officer, Anti-Tuberculosis Institute; 184 Medical Officers, including the Medical Superintendent, De Soysa Lying-in Home; 2 Anaesthetists; 1 Female Medical Practitioner; 328 Apothecaries; 9 Inspectors of Vaccination; 141 Vaccinators, including 8 Female Vaccinators; 1 Hospital Assistant; 37 Hospital Stewards; 1 Director, Bacteriological Institute; 1 Bacteriologist and 1 Assistant (a Medical Officer); 1 Superintendent, Civil Medical Stores; 1 Assistant Superintendent; 1 Senior Sanitary Officer; 1 Junior Sanitary Officer; 5 Assistant Sanitary Officers; 1 Sanitary Engineer; 1 Sanitary Superintendent; 88 Sanitary Inspectors; 32 European Matrons and Trained Nurses; 65 European Religious Sisters; 203 Ceylonese Matrons, Nurses, and Pupil Nurses; 2 Pay Agents; 1 Opium Storekeeper; 40 Opium Clerks and Sellers.

61. *Officers on Leave.*—Dr. G. Thornton, M.D., Assistant Principal Civil Medical Officer and Inspector-General of Hospitals, went on leave on June 17, 1920, and was away for the rest of the year. Fifteen medical officers went on leave during the year, while 6 others who were previously on leave returned during the year.

62. *Changes in the Department.*—Dr. G. S. van Rooyen, Provincial Surgeon, was promoted an Inspecting Medical Officer in June, and Dr. L. C. Brohier, Provincial Surgeon, who was on leave in England, retired in July owing to ill-health. Drs. J. C. Cooke and A. Rode of Grade I. were promoted Provincial Surgeons. Dr. K. Eapen of Grade I. retired from the service, Dr. H. Ludovici, Medical Officer, Grade I., was confirmed as an Inspecting Medical Officer, and Dr. S. T. Gunasekara of Grade I. was appointed Junior Sanitary Officer. The five vacancies in Grade I. were filled by Dr. A. E. Herat, S. A. Vairakiam, H. E. Ekanayaka, V. A. Goonetilaka, and W. E. de Silva.

Grade II.—Dr. K. Chittampalam retired in April. Drs. C. Candiah, A. Suppiah, T. Ramasamy, T. K. Jayaram, M. D. Carolis, and A. B. Jayasuriya were promoted from Grade III. to Grade II.

Mudaliyar J. A. Gunaratna, Chief Clerk, was promoted to the Fifth Class of the Civil Service, and was succeeded by Mr. J. A. Dharmakiriti from the Audit Office.

G. J. RUTHERFORD,
Principal Civil Medical Officer and
Inspector-General of Hospitals.

Colombo, June 2, 1921.

APPENDIX.

OPIUM.

SINCE the previous report there have been no amendment to, or alterations of, the Ordinance.

2. The selling price of opium remains the same as last year, viz., eating opium 1½ cents per grain and smoking opium 2 cents per grain.
3. The number of opium depôts in the Island, too, remains the same as last year, viz., 54.
4. During the year 64 new opium consumers were registered, as against 71 during the previous year.
5. A statement of opium sold and the amount realized during each quarter of the year is appended. It will be noticed that the total quantity of opium sold for the year is less than that of the previous year, which is inserted for comparison :—

Statement of Opium sold and Amounts realized during each Quarter from January 1, 1920, to December 31, 1920.

During the Quarter ended	Eating Opium.		Smoking Opium.		Total realized.	
	Quantity sold, Grains.	Amount realized, Rs. c.	Quantity sold, Grains.	Amount realized, Rs. c.	Rs.	c.
March 31, 1920 ..	10,786,508 ..	162,020 87 ..	1,219,550 ..	24,391 0 ..	186,411	87
June 30, 1920 ..	10,390,093 ..	156,072 63 ..	1,233,800 ..	24,676 0 ..	180,748	63
September 30, 1920 ..	10,450,941 ..	156,969 82 ..	1,272,475 ..	25,449 50 ..	182,419	32
December 31, 1920 ..	10,022,303 ..	150,530 48 ..	1,264,150 ..	25,283 0 ..	175,813	48
Total for 1920 ..	41,649,845	625,593 80	4,989,975	99,799 50	725,393	30
Total for 1919 ..	44,921,416	674,494 84	4,707,275	95,945 50	770,440	34

6. The amount realized out of the sale of opium preparations during the year was Rs. 9,216·78.

7. During the year 1920 60 chests of opium were purchased from India (approximately) Rs. 347,349·21, as against 60 chests during the previous year for Rs. 248,211·47.

G. J. RUTHERFORD,
Principal Civil Medical Officer and
Inspector-General of Hospitals.

Colombo, June 2, 1921.

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