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FEDERATION OF MALAYA

REPORT

OF THE

MEDICAL DEPARTMENT

FOR THE YEAR

1949

By

R. B. MacGREGOR,
C.M.G., M.B., M.R.C.P.
Director, Medical Services

Malay school girls enjoy milk.

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FOREWORD.

The year 1949 has been the healthiest year on record in Malaya. In spite of communists and bandits, the death rate is lower than ever before, 14.2 per 1,000. The infantile mortality has reached a new low level of 81 per 1,000, while the birth rate remains high, 43.8 per 1,000 and the number of births is higher than ever before.

This Federal report will deal with the general trends of public health, and with an account in greater detail of the work of Federal Institutions and services, which include the Institute for Medical Research, hospitals and settlements for leprosy, mental diseases and tuberculosis, quarantine services, and the nurses' training school in Penang.

The account of work carried out under the State and Settlement administrations is not shown in detail, but the statistical tables in the appendices include the records from all parts of the Federation.

NEW DEVELOPMENTS.

Amongst the developments of special interest are the successful results in the treatment of typhoid fever with chloramphenicol and aureomycin, the use of the latter drug in tropical typhus, and the use of chloramphenicol as a prophylactic against tropical typhus (paras. 86-94).

The opening of a school for the training of dental nurses, following the system in use in New Zealand, is a new venture which already promises to be successful (paras. 83-85).

The work of the nurses' training school in Penang is developing steadily and is described in some detail (paras. 74-80).

A departmental factory for making artificial limbs and other orthopædic appliances is now passing out of the experimental stage, and good results are being produced (para. 116).

Orthopaedic Appliance Factory, Kuala Lumpur. Locally-made artificial limbs.

Orthopaedic Appliance Factory, Kuala Lumpur. Locally-made artificial limbs.

FEDERATION OF MALAYA.

REPORT OF THE MEDICAL DEPARTMENT FOR THE YEAR 1949.

PART I.

(1)—CLIMATE, AREA AND POPULATION.

1. CLIMATE.—The climate of Malaya is fairly healthy but it is monotonously warm with a high humidity. The average daily temperature is 80°-90°F. with a drop of 5°-20°F. at night. The average annual rainfall is approximately 100 inches.

Although the climate is equatorial, the incidence of diseases commonly associated with the tropics is relatively low. The large towns are almost entirely free from malaria and the use of mosquito nets is mainly for protection from nuisance mosquitoes. In some towns nets are hardly necessary. Water supplies, which are controlled by the Public Works Department, are of high quality in all the large towns and in most of the smaller ones.

2. AREA.—The land coming within the administration of the Federation of Malaya is a peninsula situated between 7° and 1° North and 100° and 104° East. No part of it is more than 100 miles from the sea. The area of the States and Settlements is shown below:

Kedah	3,648	sq. miles
Perlis	310	,,
Penang	110	,,
Province Wellesley	290	,,
Perak	7,980	,,
Selangor	3,160	,,
Negri Sembilan	2,580	,,
Malacca	640	,,
Johore	7,878	,,
Kelantan	5,870	,,
Trengganu	5,000	,,
Pahang	13,820	,,
Total Federation of Malaya ...	51,286	,,

3. POPULATION.—The estimated population of the Federation at the end of 1949 was 5,158,687. This total is 124,522 above the figure for 1948.

The estimated mid-year population was 5,081,848, comprising Malaysians 2,511,520, Chinese 1,952,682, Indians 550,684, and others 66,962.

By States and Settlements, the 1949 population is as follows:

States/Settlements.	Estimated population on 31-12-49.	Estimated mid-year 1949.	Estimated mid-year 1948.
Kedah	582,838 ...	574,808 ...	561,411
Perlis	74,077 ...	72,976 ...	71,308
Penang	467,789 ...	461,243 ...	454,043
Perak	1,006,038 ...	989,949 ...	962,379
Selangor	753,129 ...	740,337 ...	723,094
Negri Sembilan ...	283,987 ...	279,125 ...	272,937
Malacca	254,178 ...	250,054 ...	244,582
Johore	784,695 ...	771,686 ...	753,891
Kelantan	459,684 ...	454,976 ...	444,743
Trengganu	230,979 ...	228,673 ...	227,058
Pahang	261,293 ...	258,021 ...	241,547
Total Federation ...	5,158,687 ...	5,081,848 ...	4,956,993

(2)—ADMINISTRATION.

4. ORGANISATION.—The public health organisation follows the general pattern of the administration and comes under the headings of Federal and State or Settlement activities. The Federal division is responsible for the general guidance of public health policy and specifically for the enforcement of quarantine and the control of epidemic diseases.

Each State and Settlement has a medical headquarters from which the hospital and health services are jointly administered. On the health side there are medical officers of health in each State and working under them are Sanitary Inspectors attached either to the Town Boards or directly under the Health Officers in the rural areas. Each Sanitary Inspector is responsible for an area with a population varying between 5,000 and 10,000 persons. Hospitals exist in all the large towns and in many of the smaller ones.

Specialist officers are attached to the large hospitals and their services are available if required anywhere within the States or Settlements. Certain specialists officers are Federal and they may be called upon to visit and advise in any State or Settlement in the Federation.

In all the main towns, there is either a Municipality or a "Town Board" which is responsible for the control of sanitation and the prevention of infectious diseases within its boundaries. Government Health Departments in the different States exercise supervision over the labour forces employed on plantations and mines, and ensure that there is a reasonable minimal standard for housing, water supplies and the control of malaria, by draining, oiling or the administration of prophylactic drugs.

The staff employed throughout the country on public health work, excluding therapeutic work, is made up as follows:

Medical Officers of Health	26
Health Inspectors or Sanitary Inspectors ...	128
Public Health Sisters	28
Public Health Nurses	90

Considered against a population of approximately five millions, this public health staff is small by western standards, but it is probably higher than would be found in most of the eastern tropical territories.

5. Expenditure on Medical and Health Services.—The total direct expenditure by the Federal, State and Settlement Governments on Medical and Health Services was $22,954,696.09. In addition to this, account must be taken of the amounts expended on public health work in Municipalities and also on estates for their hospitals, medical practitioners, and anti-malaria control. An indication of the extent of the health services on estates is the fact that they have a total hospital accommodation of 5,992 beds.

6. Headquarters of the Medical Department of the Federation.—The Federal medical headquarters and the office of the Director of Medical Services were moved in July from Kuala Lumpur to Penang. The change was made because of the need to establish a base and training centre for the Federation. Penang was selected because it avoids the difficulties which are inevitable when Federal functions have to be carried out within the framework of State institutions. In Penang there is a large modern hospital, with room for expansion, facilities for training newly qualified doctors, and room for the expansion of the training school for nurses and hospital assistants. This hospital will be a Federal institution in 1950.

There is the further advantage that the shortage of house and office accommodation is much less acute.

7. Staff.—Shortage of medical officers, both European and Asian, has been a serious handicap to the development and even maintenance of work during the past year. At the end of the year the position in the Federation was that out of an establishment of 305 posts for medical officers 106 were unfilled and a further 35 were held by temporary officers, as compared with 87 unfilled and 37 held by temporary officers out of an establishment of 300 in 1948. There appears to be no prospect of any improvement in this position in the near future. The figures shown make no provision for leave reserve. Details of establishment and present staff are given in the Appendix (Table 15).

Considerable difficulty has been experienced in filling appointments of Nursing Sisters. At the end of the year there were 26 posts unfilled and 21 held by temporary appointments.

8. Legislation.—The only legislation affecting the Medical Department passed during the year was an Ordinance for the control of the use of Sodium Arsenite, which is used extensively as a weed killer on rubber estates.

PART II.

PUBLIC HEALTH—(1) VITAL STATISTICS.

9. The outstanding features of the Vital Statistics for 1949 are the highest number of births ever to be recorded in the Federation, the continued reduction in the number of deaths, and a further decline in infantile mortality. The general birth rate is 43.8 per 1,000 population at mid-year 1949. The general death rate is 14.2 per 1,000 the lowest ever to be recorded, while the infantile death rate declined to 81 per 1,000 live births. These rates reflect a steady improvement in the health of the population.

There is a reduction in almost every cause of death except violence.

10. Since the last report was issued, it has been found necessary, in accordance with the 1947 census report, to rename certain racial groups in the population. "Malaysians" in this report include Malays, other Malaysians and aboriginal tribes. "Indians and Pakistanis" include Afghans, but not Ceylonese or Burmese. "Eurasians" include Ceylon Burghers, Anglo-Indians, Macanese and certain Philippine and Dutch nationals, if they described themselves as Eurasians. "Others" include Ceylonese, Ceylon Tamils, Nepalese, Burmese and Philippinos. The statistics in this report are not substantially affected by the renaming of these groups.

11. Population.—The estimated population of the Federation at the end of 1949 was 5,158,687. Details are given earlier in the report (paragraph 3).

12. Births and Deaths.—The diagram from the report of the Registrar-General of Births and Deaths shows the general trend from 1940 to 1949.

The live births registered in 1949 were 222,782 (114,381 males and 108,401 females) compared with 201,712 in 1948. This is an increase on the 1948 figures and is the highest ever recorded.

The birth rate for all races was 43.8 per 1,000 (40.7 for 1948).

By races the birth rates were :

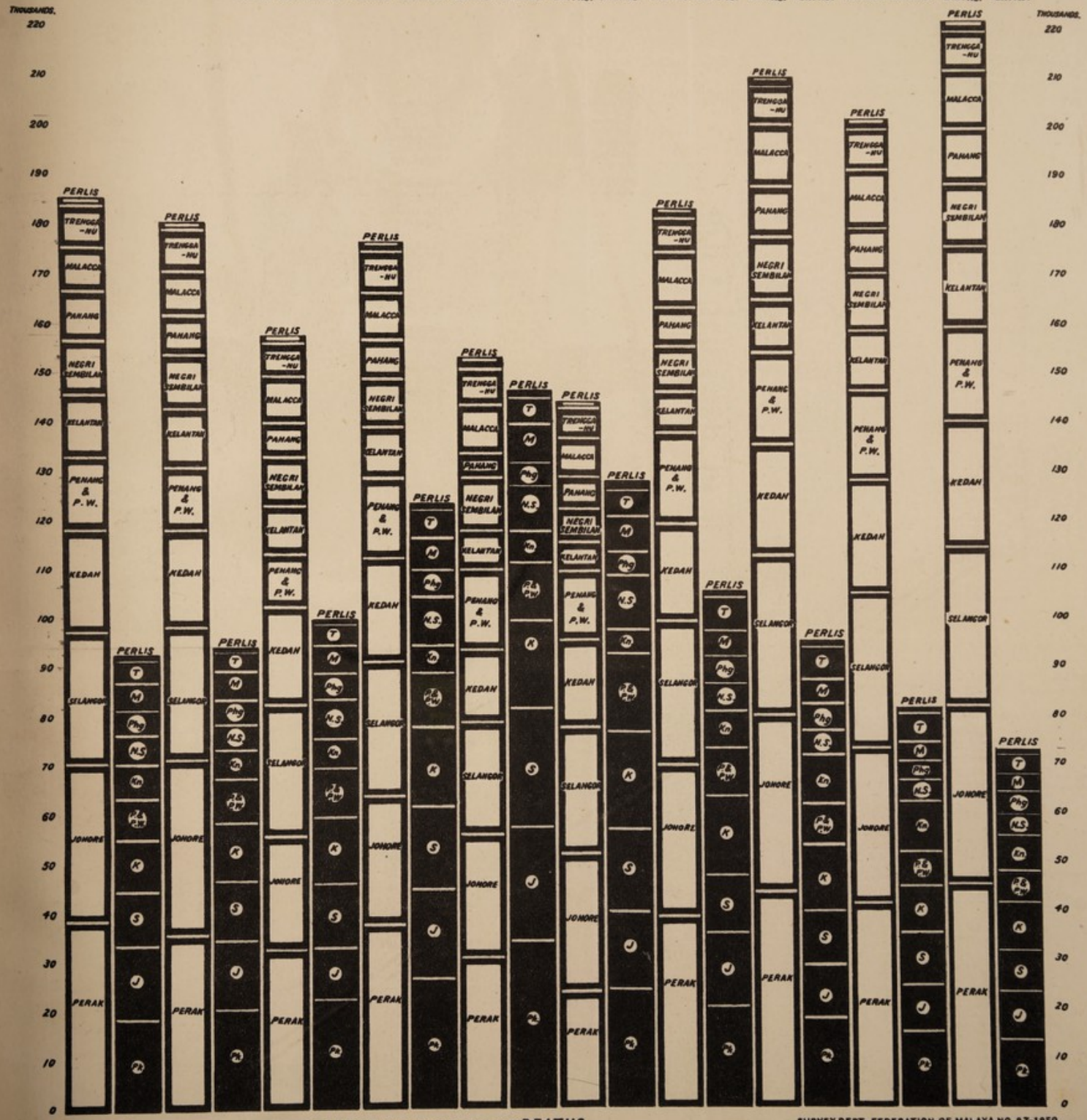
		1948 rates.
Malaysians	43.2 per 1,000	(37.5)
Chinese	46.6 ,,	(43.7)
Indians and Pakistanis ...	48.9 ,,	(44.8)

Deaths.—The deaths registered in 1949 were 72,412 which is 8,760 less than recorded for 1948 (81,172). The death rate for all races, calculated on the mid-year population, was 14.2 per 1,000, the lowest ever recorded. The corresponding death rate for 1948 was 16.4.

The death rates by races were:

Malaysians	16.6 per 1,000
Chinese	11.7 ,,
Indians and Pakistanis	12.3 ,,

DIAGRAM TO SHOW TOTAL BIRTHS AND DEATHS, IN THE STATES AND SETTLEMENTS NOW INCLUDED IN THE FEDERATION OF MALAYA: PERIOD 1940-1949.



NOTE: WHITE BLOCKS REPRESENT BIRTHS AND BLACK BLOCKS DEATHS.

SURVEY DEPT. FEDERATION OF MALAYA. NO. 97-1950.

Increase of Population.—The "natural" increase in the population from the end of 1948 until the end of 1949 is estimated to be 149,199. The decrease on migrational balance is 25,848 which includes 23,460 Chinese and 5,414 Indians and Pakistanis, and a migrational increase of 2,621 for other races.

13. INFANTILE MORTALITY.—The deaths of infants under one year numbered 17,953 out of 72,412 deaths at all ages. There were 222,782 live births, and the infantile mortality rate is 81 per 1,000 live births. The corresponding figures for 1948 were 18,073 deaths with an infantile mortality rate of 89.

The racial distribution of infantile mortality is as follows: (the corresponding figures for 1948 are in brackets).

Races.	Infant Deaths.		Births.		Infantile Mortality Rates.	
Malaysians	10,094	(10,126)	108,578	(91,165)	93	(111)
Chinese ...	5,451	(5,694)	85,134	(84,732)	64	(67)
Indians and Pakistanis	2,283	(2,139)	26,946	(24,144)	85	(88)
Europeans...	4	(3)	306	(336)	13	(8)
Eurasians ...	13	(17)	331	(336)	39	(50)
Others ...	108	(94)	1,487	(999)	73	(94)
All Races ...	17,953	(18,073)	222,782	(201,712)	81	(89)

14. There is no reason to think that these figures have been influenced by any statistical factors such as more complete registration. This is the first time that the infantile mortality rate for Malays has been under 100. The causes of the improvement, for all races, are complex. It is not due to a reduction in the size of the family. When there are fewer children, each child can be given more care; but this has not been a factor in the Federation of Malaya in 1949. There has been a reduction in mortality along with an increase in the production of children.

If these figures are regarded from the point of view of the children surviving at the age of one year, it will be seen that there are 204,829 children who survive the most vulnerable period of their lives: probably 200,000 children will attain school age each year.

15. The reduction in the incidence of malaria and improvements in nutrition resulting from a better balanced diet for mothers, are likely to be the most important factors. The raising of the standard of mother craft, because of the teaching given by public health nurses in welfare centres and in the mothers' homes, all over the Federation, is undoubtedly an important contributing cause.

Since the war, the diets of the poorer classes in the population have usually contained an adequate proportion of Vitamin B_1, because of the shortage of highly polished rice. Now such rice is becoming more easily available in the cheapest markets, and the vitamin value of the diet of the average woman is going down.

This may send the infantile mortality up. For many years past, the infantile mortality rate in Malaya has followed the price of rubber. In times of high prices more women are employed, and therefore more children are left without their mothers' care, and are injudiciously fed on tinned milk or less suitable foods. If high prices last long enough there are movements of population, the opening up of new or unhealthy areas, and more malaria. Infants seem to thrive best in times of adversity, so long as this does not approach famine conditions.

16. MATERNAL MORTALITY.—The total maternal deaths were 1,189 for 222,782 births, compared with 1,176 for 201,712 births in 1948.

The maternal mortality by race was:

Malaysians	7.2	per 1,000 births
Chinese	3.0	,,
Indians and Pakistanis ...	5.0	,,

17. PRINCIPAL CAUSES OF DEATH.—Out of a total of 72,142 deaths only 15,913, about 22 per cent. have been certified by a medical man. The classification is far from accurate. "Fever" of unknown origin accounts for 9,166 deaths. Malaria accounted for 1,184 deaths compared with 1,301 for 1948. The other principal causes are given below (1948 figures in brackets):

(*a*) Pulmonary tuberculosis ...	3,305	(3,515)
(*b*) Pneumonia	1,951	(1,738)
(*c*) Premature birth	1,914	(1,973)
(*d*) Violence	2,513	(2,204)

PUBLIC HEALTH—(2) SPECIAL DISEASES.

18. The public health problems of the Federation of Malaya are the prevention of malaria, the reduction of tuberculosis and venereal diseases, the eradication of yaws, the control of major infectious diseases, particularly smallpox and cholera and the treatment of leprosy. The prevention and treatment of the other common tropical diseases, particularly, tropical typhus, and the improvement of the general standard of nutrition and health, especially the care of mothers and young children, constitute an equally important part of the work of the Health Services.

19. MALARIA.—Malaya has for many years been a leader in the field of the control of malaria. The investigations which have been carried in the Malaria Research Division of the Institute for Medical Research have contributed fundamentally to the knowledge of malaria control for the past thirty years. The scientific work of the Institute is co-ordinated with the work which is being carried out by Government and Municipal agencies and by medical practitioners working on estates through the agency of the Malaria Advisory Board.

Research work in field investigations during the past year has been directed especially along the lines of the study of the value of chemical prophylactics and suppressive drugs and the value of residual spraying with insecticides. These are measures by which it is hoped to extend the scope of anti-malarial protection beyond the limits of the towns, villages and labourer's

homes on estates. In the latter places where the population is relatively dense, and the cost of measures directed against the breeding of mosquitoes is not too prohibitive, permanent malaria control by means of anti-larval measures is already well-established.

The incidence of malaria in the year 1949 was still lower than in previous years. There are indications in some parts of the country that the wave of incidence is tending to rise slightly, although for the country as a whole, it is lower than last year.

20. The cases of malaria treated in Government hospitals were 17,731 with 441 deaths, compared with 19,519 cases and 596 deaths in 1948. Blackwater fever remains very rare.

21. The Malaria Advisory Board.—The constitution of the Board is as follows:

Six Permanent members (Medical)	The Director, Medical Services (*Chairman*). The Director, Institute for Medical Research (*Vice Chairman*). The Senior Malaria Research Officer. The Entomologist, Institute for Medical Research. The Senior Medical Officer, Military Forces. The Principal Medical Officer, Royal Air Force.
Five Permanent members representing Government departments	Representing: Railways, Public Works, Drainage and Irrigation, Education, Agriculture.

Members nominated by His Excellency the Governor.

Five Medical Officers in the Public Service appointed by name	These include the Medical Officer of Health, Penang Municipality, the Deputy Director, Medical Services, and three State Heads of the Medical Department, with experience of anti-malarial work.
Five Medical Practitioners not in the Public Service	These are all Estate Medical Practitioners with anti-malarial experience.
Two representatives of planting interests nominated after consultation with the United Planting Association of Malaya	One Asian and one European planters' representative.
One member nominated to represent labour interests.	
Four other nominated members	One is an Administrative Officer and three are medical men.

The Secretary of the Board is either the Entomologist or the Malaria Research Officer, Institute for Medical Research.

In addition to members the following guests attended meetings: Dr. J. R. Busvine, Department of Entomology, London School of Hygiene and Tropical Medicine, Surgeon Lt. Commander A. W. Robinson, representing the Navy; representatives of the Director of Medical Services and the Municipal Health Officer, Singapore: Dr. J. H. Strahan, Professor of Social Medicine and Public Health in the Faculty of Medicine, University of Malaya; Dr. J. F. B. Edeson, Malaria Research Officer, and Mr. R. H. Wharton, Entomologist, of the Tampin Branch of the Institute for Medical Research: The Assistant Director of Hygiene, Malaya District (Army).

Meetings of the Board were held on 26th March and 6th August, 1949.

The following is a summary of the subjects discussed by the board in 1949.

22. Paludrine Resistance.—Early in the year reports were received of "Paludrine resistance" in strains of *Plasmodium falciparum* from Africa. A high degree of resistance to the drug had already been produced experimentally in certain animal plasmodia. Very soon after that patients with *falciparum* infections resistant to Paludrine began to be encountered in the clinical trials conducted by the Malaria Research Division of the Institute at Tampin. An account of some of these cases was given to the Board and one of the interesting features was that the patients all came from estates where Paludrine prophylaxis had been in progress for some time. For a fuller account *see Brit. Med. J. (1950) I. 147.* It is too early to say yet whether resistance will become common enough to impair seriously the great value of Paludrine as a prophylactic. Pending further developments, the desirability of reinforcing Paludrine prophylaxis with some other drug is under consideration. It is already recommended that when used for treating clinical attacks of malaria, Paludrine should be reinforced with mepacrine, chloroquine or quinine. A suggested treatment for attacks of falciparum malaria is 300 mgm Paludrine daily for 7-10 days, reinforced on the first day only with 600 mgm mepacrine in two doses of 300 mgm each, or with 2.0 grammes of quinine in divided doses.

23. DDT and BHC (Gammexane).—Following on a report from Africa that adult *Anopheles gambiæ* were resistant to DDT though susceptible to BHC, trials of these two insecticides were made by the Institute at Tampin against *A. maculatus*. After many initial difficulties a successful technique was found, using the trap hut principle employed in Africa. These trials showed that *A. maculatus* is killed by both DDT and BHC, but the latter is more potent though not so long lasting. BHC also has the important advantage of killing the common nuisance mosquito, *Culex fatigans*, which DDT does not kill. These results augur well for the experiments in rural malaria control by the use of these two insecticides, now in progress in Negri Sembilan, with the aid of funds from a Colonial Development and Welfare research scheme.

PREVENTION OF MALARIA.

Examining infants for malaria.

Children in Malay School receiving Paludrine.

PREVENTION OF MALARIA.

Paludrine distribution to Malay householder.

VACCINATION.

Vaccination at Infant Welfare Clinic, Kuala Lumpur.

Experiments on estates in Kedah also indicated that *A. maculatus* was susceptible to both insecticides, but BHC was the more active. The substitution of DDT house spraying for anti-larval oiling on a rubber estate between Kuala Lumpur and Klang gave rather disappointing results. These experiments were carried out by private medical practitioners on estates.

24. Eradication of Anopheles.—Dr. J. R. Busvine, who was visiting Malaya working at the Institute in the division of Entomology, gave the Board a most interesting illustrated account of the anopheline and malaria eradication schemes which he had seen in progress in Cyprus and Sardinia. In his view the difficulties of carrying out eradication schemes in Malaya would be very great, entailing unusually heavy expenditure.

25. Malaria Control on Estates.—An enquiry similar to that reported last year was made by the Health Department among estates in the inland district of Selangor. Replies once again showed the great diversity of control methods now employed which reflects our present lack of certainty of their relative merits, prolonged by the continued low incidence of malaria.

The methods used by 80 estates which replied to the questionnaire are summarised below:

Methods.	No. using.
1. Oiling alone	17
2. Oiling plus DDT spraying of lines	14
3. Oiling plus Paludrine 2 tablets weekly ...	11
4. Oiling plus Paludrine 1 tablet weekly ...	5
5. Oiling plus DDT spraying plus Paludrine 2 tablets weekly	7
6. Oiling plus DDT spraying plus Paludrine 1 tablet weekly	2
7. Oiling plus Atebrin 2 tablets weekly	1
8. Paludrine 2 tablets weekly	6
9. Paludrine 1 tablet weekly	2
10. DDT spraying plus Paludrine 2 tablets weekly	9
11. DDT spraying plus Paludrine 1 tablet weekly	3
12. DDT spraying only	2
13. No anti-malarial measures (no resident labour force)	1
	80

Oiling was used by 71 per cent., but oiling alone by only 21 per cent. Paludrine was used by 56 per cent. most giving 2 tablets weekly, but Paludrine alone by only 10 per cent.

26. Further references to malaria are contained in Part VII of this report dealing with the work of the Institute for Medical Research. An extract from a very interesting report on Malaria on Tioman Island, by Dr. J. W. Field, M.D., is included as an Appendix. This report deals particularly with the problem of control in an isolated community exposed to intense endemic malaria. The observation of conditions on this island is likely to be important in future years.

27. Cholera.—Cholera has not appeared in Malaya during 1949. There are two sources of introduction of cholera, from Siam across the northern border and by immigrants from India.

There was an outbreak of cholera in the northern states in 1946 as a result of the spread of an infection from Siam. This was brought under control and since then no cases have been reported. Immigration from India has been on a reduced scale and throughout the year there was no introduction of infection from this source.

28. Plague.—No cases of plague have been reported for several years. There were none in 1949.

29. Smallpox.—This disease has occurred sporadically but there have been no major outbreaks. More than half of the total population has been re-vaccinated since the war and infant vaccination is now fully established again.

There was a limited outbreak of smallpox in north-west Johore in the early part of the year. The outbreak was immediately localised and no cases occurred outside the area. There were 46 cases with four deaths.

Vaccinations performed were 374,733.

30. Tropical Typhus.—Tropical typhus is still prominent as a condition where dramatic advances have been made in the method of treatment. The new drugs which have been introduced through the agency of the American Research teams working in the Institute for Medical Research, Kuala Lumpur, have made the cure of this condition certain in all the cases that are not too far advanced before they are brought for treatment. The prevention of tropical typhus infection is still under active investigation.

There were 489 reported cases during the year, with only eight deaths.

Further references to tropical typhus are made in the section of this report dealing with the Institute for Medical Research.

31. Enteric Fever.—This disease is endemic in Malaya. The number of cases reported was 864 with 142 deaths. There was a small outbreak in Johore involving school children. The use of chloramphenicol in the treatment of enteric fever is giving very encouraging results.

32. Dysentery and Diarrhoea.—These diseases are not notifiable. Hospital statistics show admissions as 6,231 with 662 deaths. There is nothing to indicate that these diseases were more prevalent than normally.

33. Diphtheria.—Six hundred and fifty-seven cases of diphtheria occurred with 170 deaths.

34. Cerebro-Spinal Meningitis.—Twelve cases were reported with three deaths. There was no epidemic of either diphtheria or cerebro-spinal meningitis, cases occurring sporadically.

35. Poliomyelitis.—Fifty-eight cases were reported with six deaths.

36. YAWS.—Yaws in Malaya is a disease of the rural population, particularly Malays. Before the war, it was under control in the places which were easy of access. During the war all treatment stopped and the incidence increased to such an extent that in some parts of the country, particularly on the East Coast, almost every child was affected. This condition has been treated chiefly by arsenical injections and the disease is now approaching its pre-war proportions. It is still common amongst Malay children in nearly all areas away from the larger towns, but the epidemic incidence of florid cases has ceased. It is still very common in the places that are out of reach of the travelling dispensaries.

The number of cases treated throughout the Federation was 61,377—of these 30,357 were children under the age of 10 years.

37. PULMONARY TUBERCULOSIS.—Tuberculosis is now the disease which has become most prominent in the minds of the public, and this is stimulating an active advance on the part of government public health agencies.

There has been little, if any, real increase in the incidence of tuberculosis, but it has become more prominent because of the reduction of malaria and also because of a change in the age incidence, which is the effect of the changing age distribution in the population.

The population of Malaya, so far as Chinese and Indian elements are concerned, is changing from one where there was a large immigration of young adults and emigration of older people to a settled population which contains the normal proportion of adolescents and of people in the older age groups. The number of adolescents and young adults who suffer from tuberculosis is therefore apparently higher, because of the higher number at risk in this age group.

The provision of hospital accommodation for the treatment of tuberculosis has been increased and is being steadily improved. Active treatment, principally with pneumoperitoneum, is now being carried out on a fairly wide scale over the whole of the country. The total number of beds available for the treatment of tuberculosis is now 2,628.

The tuberculosis wards in the General Hospital, Malacca, have been brought up to the standard of a modern specialised hospital for tuberculosis. There is an out-patient department with an excellent X-ray equipment, and the hospital has good facilities for thoracic surgery. The Settlement at Pulau Jerejak, Penang, has been extended to provide accommodation for 250 cases of the more advanced type, under good conditions.

Hospital statistics show 6,510 admissions for tuberculosis, with 1,916 deaths, compared with 7,328 admissions and 2,182 deaths in 1948. The effect of providing more and better accommodation is that patients with tuberculosis are staying in hospital longer. Most of them are advanced chronic cases, but the number of early cases coming for active treatment is increasing. Good facilities for modern active treatment are provided in Penang, Malacca and Johore Bahru and, to a less specialised degree, in all the larger hospitals.

Much of the X-ray equipment lost during the war years has now been replaced. Investigations into the tuberculin reactions in school children were continued, and screening of positive reactors was introduced.

38. Deaths in the Federation registered as due to pulmonary tuberculosis numbered 3,305. This represents a death-rate of 65 per 100,000 of population. Diagnosis of the cause of death is still very far from complete, and the true figure is estimated to be about double this rate.

The use of B.C.G. vaccination is still under consideration, but it has not been possible to introduce it up to the present. Tuberculin reactions in school children are still being investigated. X-ray and clinical examination of all school teachers has been started, in an attempt to reduce that particular element of risk in schools.

TUBERCULOSIS ADVISORY BOARD.

39. There is an official Tuberculosis Advisory Board containing both medical representatives and members from all sections of the public, and there is also a voluntary unofficial Association for the Prevention of Tuberculosis which has branches or affiliated societies in every State and Settlement.

The Board was constituted in 1947 and its membership was expanded in 1948. The membership now is as follows :

Director, Medical Services, Federation of Malaya—(*Chairman*).

Ten members—one from each State or Settlement. (Kedah and Perlis sending one representative).

Four members from the Federal Legislative Council appointed by the High Commissioner.

One member nominated by the Rotary Clubs.

One member nominated by the Central Welfare Council.

Four medical members—one nominated by the British Medical Association (Malaya Branch), one member nominated by the Alumni Association of the College of Medicine, and two medical officers in the public service.

Three Departmental Officers representing, Education, Public Relations and Welfare.

Two meetings were held during the year.

40. The control of Streptomycin was reviewed at both these meetings, but this has now ceased to be a matter calling for the special attention of the Board, as the value and the limitations of Streptomycin have become better known amongst the members of the medical profession and the public. There is no longer a need for the special measures of control which were discussed by the Board during the earlier part of the year.

The Board has urged on the Government the need to provide more beds for the treatment and isolation of patients suffering from tuberculosis. It was concerned especially with the action which is being taken to expand the accommodation for patients at Pulau Jerejak, and to bring hospital and clinic facilities at Malacca to a high standard.

The possibility of introducing B.C.G. vaccination was discussed at both meetings of the Board. The Board is keen to proceed with the protection of vulnerable sections of the population by inoculation with B.C.G. vaccine as soon as it becomes available.

41. The Board considered the question of the notification of cases of tuberculosis, and it recommended unanimously that tuberculosis should be made a notifiable disease throughout the Federation and that no fee should be paid to medical practitioners for making notifications.

The Board also considered the production of an educational film on the prevention and control of tuberculosis, for exhibition to the general public. This film is being produced and paid for by the Malayan Association for the Prevention of Tuberculosis. The Board appreciates the action of the Association in consulting the Board in the preparation of this film and has expressed its agreement with the action which the Association has taken.

42. Dr. A. J. Morland, M.D., F.R.C.P., who visited the Federation at the invitation of the Government to advise on the problem of tuberculosis, attended the meeting of the Board which was held in March, 1949. The main points covered in Dr. Morland's discussion with the Board are included in his report which has been published separately.

43. Leprosy.—The incidence of leprosy remains the same as it has been over the past few years and there are now 2,897 cases of leprosy under treatment in Government institutions. This figure does not represent the total incidence of leprosy in Malaya, but it is rare to see a leper who is not under treatment. During the year the use of sulphone preparations, particularly 4 :4 diaminodiphenyl sulphone has been greatly extended and this is now the routine method of treatment. The results have been excellent. A new problem is arising because of the difficulty of finding a place in society and a means of livelihood for those patients who are discharged from the Leper Settlement free from infection and apparently cured, but still bearing the scars of the disease, and still known to their former friends as lepers. This reluctance to accept the cured leper back into society will doubtless pass, as the fear of the disease has already passed to some extent. Although in law the policy of compulsory segregation is still in force, nearly all the patients in the leper settlement come in voluntarily, and they are not under physical restraint. A report of the work of the leper settlements is given in a later section (paras. 107 and 108).

44. Venereal Diseases.—The incidence of venereal disease is still high, but it is lower than it was before the war. At the end of the Japanese occupation, it was found that there was a great increase, due to the lack of any facilities for treatment and to the deterioration of moral standards during the occupation.

The number of cases applying for treatment during the years 1945 and 1946 was above the pre-war average. Since 1947 there has been a steady decline. The causes are both social and medical. The most important social cause is the change in the pattern of the population. In the Indian and Chinese communities there are no longer large numbers of immigrant males. The

population is more settled, the sex ratio in Indians and Chinese is more nearly normal in the young adult age groups, and the proportion of males who are married and who have their wives living with them in Malaya is increasing steadily.

The medical reasons for the decrease are the improvements in methods of treatment and the efficacy of modern drugs. The most important single factor is the rapidity with which gonorrhoeal infections subside under treatment with the sulpha drugs and with penicillin. To a considerable extent sulpha drugs are used indiscriminately for self-medication, and cases with resistant strains of gonococci are common, but there are many cases who are cured by this kind of treatment, which may be the only immediate treatment available in remote places. The incidence of syphilis is declining, though less rapidly. Women are coming in for treatment more readily, including married women infected by their husbands.

The incidence of venereal infections is indicated in the following figures for new cases applying for treatment at Government Clinics and Hospitals in 1948 and 1949:

New Cases.	1948.	1949.
Syphilis	12,386 ...	10,960
Gonorrhœa	8,146 ...	5,651
Other V.D.	2,536 ...	1,866
Total ...	23,068 ...	18,477

These figures do not show the total incidence, but in places where conditions regarding facilities for treatment have been constant for many years it is clear that the incidence is declining.

A detailed return of Venereal Diseases treated in Government Hospitals and Clinics, showing diagnosis and distribution by race and sex, is included in the Appendix (Table 12).

PUBLIC HEALTH (3)—NUTRITION.

45. Nutrition.—The general state of nutrition in the country has improved since the end of the war and is now at least as good as the pre-war standard. Many factors have contributed to this improvement. Economically, Malaya has been fairly prosperous. The available supplies of rice have improved in quantity and quality.

The use of alternative articles of diet, because of the relative shortage of rice, has led to an improvement in nutrition and a reduction in nutritional diseases, particularly beri-beri. There are, however, still sections of the population and parts of the country where the economic level is so low that nutrition is below the desired minimal standard.

46. The following are returns from hospitals of admissions for diseases wholly or partly due to malnutrition.

	1946.	1947.	1948.	1949.
Beri-beri ...	1,396 ...	939 ...	551 ...	505
Anæmia ...	7,982 ...	6,063 ...	5,420 ...	4,490
Skin Ulcers ...	14,182 ...	7,273 ...	5,063 ...	3,835

Clinical examination of groups of children, throughout the country, provides further evidence of this improvement. Frank signs of deficiency disease, common in 1946 and 1947, are now difficult to find in most areas and a general improvement of the physique of children is apparent.

It is interesting to note that the infantile mortality rate amongst Malays in Malacca, which in 1940 was 257 per mille, has dropped in 1949 to 113 per mille. The great part of this population lives in an area where there is no malarial transmission, and there appears to be little doubt that the high death rate amongst infants was largely caused by beri-beri. At the present time the diet is not likely to produce beri-beri: the relatively high price of rice is an important factor in the change in the diet compared with the pre-war period. The amount of rice consumed is reduced, and other cereals partially replace it.

47. Supplementary Feeding.—Direct action to deal with nutritional deficiencies has taken the form of supplementary meals for school children. These have been given on a wide scale throughout the country, usually in the form of skimmed milk and yeast biscuits rich in vitamin content. The number of children who have benefited from these schemes is 246,538.

The supplementary feeding of children has been continued throughout the year. The administration of this scheme has been transferred to the Medical Department and this change was completed in June. The head of the Medical Department in each State or Settlement is now responsible for the administration of the scheme. The Education Department co-operates and in certain areas assistance is also given by the Social Welfare Department. In one area in Selangor the administration is in the hands of the District Officer.

The schemes have remained essentially the same as in the previous years. The supplementary meals are given in the form of a daily issue of skimmed milk and cocoa mixture, with yeast biscuits, or a cooked midday meal with a balanced ration of rice, vegetables and fish. Full cream milk is given to younger children at the Infant Welfare Centres.

48. Milk-Cocoa and Food Yeast Biscuits.—The supply of milk-cocoa and biscuits has been developed considerably. The milk is given in the form of "National Milk-Cocoa"—a beverage developed during the war in England. It is constituted as follows:

Skimmed Milk Powder	70 parts
Cocoa Powder	14 ,,
Sugar	16 ,,

Skimmed milk reconstituted from powder is not very palatable; when mixed with cocoa it is more acceptable and also easier to mix. Over 186,500 children are receiving milk-cocoa and approximately 49,000 are receiving milk only. In addition to cocoa and milk some 80,000 school children now receive daily an ounce of biscuits containing 10 per cent. of food yeast powder.

49. Cooked Meals.—The provision of cooked meals has been extended considerably. At the beginning of the year there were 2,663 children in this scheme. The number at the end of

the year was 11,038. There are three main areas in which cooked meals are supplied, the Klang District in Selangor, four districts in Negri Sembilan and two districts in Malacca.

Selangor.—The scheme in Klang is administered by the District Officer. There are 1,072 children from six schools and the cost is 10½ cents per child per day. The meals here differ somewhat from those in the other areas; they are based on well known Malay dishes with certain additions to improve their nutritive value.

Negri Sembilan.—The schemes in Negri Sembilan are administered by the State Medical and Health Officer. The number of children being fed has increased from 1,750 to 5,690. Three new areas—Kuala Pilah, Port Dickson and Jelebu have been opened, each with its own kitchen. The kitchens are in the Government hospital in the district, and by utilising the staffs of the hospitals to some extent an efficient and cheap scheme has been evolved. The cost per meal is 10 cents.

Malacca.—The schemes in Malacca territory were started in the course of the year. The first was at Kampong Alai in the central district, and was begun in May when four schools were fed from this kitchen. In August two further centres were opened, one at Kampong Tanjong Kling in Malacca central district, and the other at Merlimau in the southern district. At the end of the year 4,276 children from 18 schools were being fed. The kitchens in these schemes were paid for by the Department of Social Welfare, as are also the salaries of the three supervisors. The administration is in the hands of the Chief Medical Officer, Malacca, and this scheme differs from the others in that it is done on a contract arrangement. The cost per meal in the beginning was high but when the last two centres were opened it dropped to 11 cents and a contract signed in December dropped to 10 cents. In this scheme, vitamin reinforced rice "Premix" is used in some of the schools. It is still too early to draw any conclusions from the use of this "Premix", but there are indications that some of the nutritional defects which were believed to be due to lack of riboflavin do not respond to the administration of riboflavin in the supplementary meals.

50. Milk for Children of pre-school Age—Kampong Schemes.—It is recognised that the need for supplementary feeding is greatest amongst the children who are too young to come within the scope of meals in schools. This is more difficult to organise, but a start has been made, and centres have been organised in Pulau Tuba in the Langkawi group, in Perlis, in Malacca and in Province Wellesley. Altogether 1,590 of the younger children are now receiving supplementary meals.

Milk distribution in Infant Welfare Centres.—Full cream milk and humanised milk are supplied to all Infant Welfare Centres. The issue is at the discretion of the Lady Medical Officer, or the Sister in charge of the Centre. Where the mother is unable to breast feed her infant this scheme provides food on which the child can thrive. Humanised milk was largely used during 1949. It is purchased in a 25 lb. pack and issued in special paper bags or other containers. During the year 10 tons in all were issued to Infant Welfare Centres throughout the Federation.

PUBLIC HEALTH (4)—ESTATES, MINES, RAILWAYS, QUARANTINE.

51. HEALTH ON ESTATES.—The general health of labourers has improved, the outstanding feature being the low incidence of malaria. Added to that is an improvement in labourers' diets. The danger of attack by bandits while visiting estates has made the work of the estate medical practitioners more difficult.

The estate hospital position is not entirely satisfactory. There is a tendency to close some hospitals and the effect of this is to throw an additional strain on the Government hospitals. The rationalisation of the hospital position is overdue and will have to be considered as part of the plan for the improvement of rural health generally.

52. ESTATE HOSPITALS.—The following table is a summary of the provision made by employers for the treatment of sick labourers and their dependants on estates:

States/Settlements.	No. of estate hospitals.	No. of beds.	All Diseases.		Malaria.	
			Admissions.	Deaths.	Admissions.	Deaths.
Kedah	13	1,014	14,677	258	2,818	15
Perlis	—	—	—	—	—	—
Penang and Province Wellesley	3	240	1,283	20	7	1
Perak	34	1,179	13,638	322	461	12
Selangor	31	1,385	18,093	456	968	10
Negri Sembilan ...	23	1,039	10,205	308	544	5
Malacca	14	304	4,359	45	469	2
Johore	19	645	5,433	228	243	8
Kelantan	5	82	1,566	53	139	—
Trengganu	—	—	—	—	—	—
Pahang	4	104	1,068	17	65	2
Total ...	146	5,992	70,322	1,707	5,714	55

The following table is a summary of the statistics relating to mortality amongst labourers on estates:

	Population.	All Diseases.		Malaria.	
		Deaths.	Death rate per mille.	Deaths.	Death rate per mille.
Labourers and dependants—All nationalities	543,244	3,134	5.8	96	0.2
Labourers only—All nationalities	351,968	940	2.7	40	0.1
Labourers and dependants—Indians	330,507	2,384	6.6	58	0.2
Labourers only—Indians ...	202,518	694	3.4	24	0.1

53. The low incidence of disease and the low mortality amongst labourers on estates is now taken as a matter of course. It is interesting to look back and examine the conditions that existed only 30 to 40 years ago. The table below shows the comparison.

ESTATE MORTALITY RATES.

F.M.S.	Total number of estate labourers.	Deaths.	Death rate per mille.
1911 ...	143,614 ...	9,040 ...	62.9
1912 ...	171,968 ...	7,054 ...	41.02
1913 ...	182,937 ...	5,592 ...	29.6
1914 ...	176,226 ...	4,635 ...	26.3
1915 ...	169,100 ...	2,839 ...	16.78
*	*	*	*
1918*a* ...	213,425 ...	9,081 ...	42.55
1919 ...	216,573 ...	3,384 ...	16.16
1920 ...	235,156 ...	4,367 ...	18.57
1921 ...	175,649 ...	3,195 ...	18.19
*	*	*	*
F. of M.			
1949 ...	351,968 ...	940 ...	2.7

54. Health on Mines.—Only a few mines have their own hospitals and medical practitioners. There are notable exceptions in the case of two large mining undertakings on the East Coast, and some tin mines make arrangements for visits by medical practitioners. In most cases sick labourers are sent to Government hospitals. The provision of adequate hospital arrangements for mine labourers, and the sanitary control of mining lands and houses will have to be considered in the plan for rural health services.

55. Railway Sanitation.—The health work of the Malayan Railway is under the charge of a Medical Officer seconded from the Government service. His staff consists of 16 Hospital Assistants, three Health Inspectors, 18 Anti-Malarial Inspectors and a labour force of 123 men. The duties of this officer and his staff comprise the medical treatment of Railway staff and their dependants, sanitation in railway areas, and anti-malarial work on railway property. The anti-malarial measures are oiling, DDT barrier spraying and personal chemical prophylaxis.

Thirteen railway dispensaries functioned during the year and 68,508 attendances of Railway staff and their dependants were recorded. First aid instruction based on St. John Ambulance handbook was given to 281 employees. First aid boxes and stretchers are available on all passenger trains, workshops and at all stations.

PORT HEALTH WORK.

56. During the year one hundred and sixteen immigrant ships from India, sixty-three from China, four pilgrim ships from Jeddah and one hundred and sixty-two ships from other infected ports arrived, carrying 48,280 passengers.

Outgoing Pilgrim Ships—Four pilgrim ships carrying 3,042 pilgrims left the port during the year. The pilgrims ranged from infants in arms to very old men and women. None of them were rejected because of infectious disease.

Incoming Pilgrim Ships—Four pilgrim ships carrying 4,011 pilgrims arrived. There were 27 deaths on these ships, most of them due to senile debility.

a. Influenza epidemic.

57. SUMMARY OF PORT HEALTH WORK.—

Number of visits of inspection to ships.		Total Passengers.		Total Examined.		Passengers.		
		Cabin.	Deck.	Crew.	Passengers.	U	Q	R
Penang	345	11,655	36,625	33,721	48,280	8	25	25,314
Port Swettenham ..	101	1,383	4,281	7,969	5,664	—	—	4,984
Total ..	446	13,038	40,906	41,690	53,944	8	25	30,298

U = Signed undertaking to report.
Q = Removed to Quarantine Station.
R = Remained in ship.

58. QUARANTINE STATION.—The Quarantine Station, Pulau Jerejak, ceased to function after the end of July, 1948. The Station is now being used as a detention camp under the supervision of the Prisons Department. The former Quarantine Station at Port Swettenham has not been fit for use since the war, and it is unlikely that it will be put into service again. The only quarantine station available in Malaya now is at St. John's Island, Singapore.

59. VACCINATIONS AND INOCULATIONS PERFORMED AT THE PORT HEALTH OFFICE.—During the year 14,378 vaccinations and 13,200 inoculations were performed: 287 were primary vaccinations and 14,091 were re-vaccinations for purposes of International Certificates.

The use of forged vaccination and inoculation certificates has ceased, after the various prosecutions and convictions of the passengers found in possession of these certificates.

60. INSPECTION OF AIRCRAFT.—During the period 59 planes were inspected at the Bayan Lepas aerodrome. A total of 288 crew and 502 passengers were examined: no cases of infectious diseases were detected.

PART III.

MATERNITY AND CHILD WELFARE.

61. The care of women and children takes a prominent place in the work of the Medical Department of the Federation. There are maternity hospitals run by the Government in all the large towns. In addition, there are voluntary charitable maternity hospitals in some places, run for the benefit of the Chinese, and financed by subscriptions from that community. There are separate maternity blocks in the Government hospitals at Penang and Johore Bahru, and maternity wards with well equipped labour rooms in all Government hospitals. These are the training centres for nurses and midwives.

Admissions to all maternity hospitals and wards numbered 37,741 and there were 280 deaths. The figures for the previous year were 32,615 admissions and 273 deaths. The number of deliveries was 32,182 out of a total of 222,782 births in the Federation.

The supply of trained midwives in the urban areas is fairly adequate, but there is need for many more in the country districts.

62. Child Welfare Clinics under the guidance of Lady Medical Officers and specially trained nursing sisters and nurses exist in all the large towns, and this service is being extended throughout the country. The attendances of mothers and children at these centres amounted to 633,638, and 271,553 visits were paid to mothers and children in their homes.

A tabulated statement of welfare centres is given in the Appendix (No. 13). Further details are included in the State and Settlement reports.

PART IV.

HOSPITALS AND DISPENSARIES.

63. There are 72 Government hospitals in the Federation, not including the special institutions for mental diseases and leprosy. The hospitals range from the large modern buildings in Penang, Malacca and Johore Bahru, all with over 500 beds, through the less modern pavilion types of hospitals such as those in Alor Star, Taiping, Ipoh, Kuala Lumpur and Seremban, still in the 350 to 600 bed category, to small district hospitals. The total number of available beds was 13,124.

During the year 204,608 patients were treated. The daily average number of in-patients was 10,063. The figures for the previous year were 203,279 admissions and a daily average of 10,188 in-patients.

The general condition of the wards and equipment is now reasonably good in all the hospitals, although there are still deficiencies in equipment. The replacements of X-ray apparatus during 1949 have been extensive.

64. A summary of the distribution of hospitals and beds is given below. A tabular statement of hospitals, with daily averages, admissions and deaths, is given in the Appendix (Table No. 1A) and further particulars will be found in the State and Settlement reports.

Summary of Hospital Accommodation.

State or Settlement.	Number and category of beds.				Remarks.
	General.	Obstetrics.	Tuberculosis.	Infectious.	
Kedah	736	78	202	36	—
Perlis	114	12	16	8	—
Penang and Province Wellesley	1,004	150	524	38	—
Perak	2,095	212	350	—	—
Selangor	1,335	181	238	29	—
Negri Sembilan ...	686	88	321	28	—
Malacca	385	63	293	22	—
Johore	1,523	237	488	108	—
Kelantan	352	10	26	26	—
Trengganu	227	14	26	34	—
Pahang	570	60	144	35	—
Total ...	9,027	1,105	2,628	364	13,124

Total excluding special institutions		13,124
Special Institutions:		
Leper Settlement, Sungei Buloh, Selangor ...	2,300	
,, Pulau Jerejak, Penang ...	396	
,, Johore Bahru, Johore ...	302	
Total Leper Settlements ...		2,998
Mental Hospital, Tanjong Rambutan, Perak		3,000
Total—All Beds ...		19,122

65. Out-patients.—All hospitals have out-patient departments. There are dispensaries in many of the smaller towns and travelling motor dispensaries operate on the main roads. Hospital Assistants in charge of fixed dispensaries travel by bicycle throughout their areas to deal with places which the travelling dispensary cannot reach. In Johore, Pahang, Trengganu and Kelantan travelling is also done by river. The absence of suitable craft has prevented the complete resumption of the pre-war service on the rivers. An excellent motor launch was provided this year for service on the Pahang River. The emergency has restricted in the use of travelling dispensaries, though the demand for their services is great.

The total of out-patient attendances was 1,991,576. This figure does not include attendances at Infant Welfare Centres and Venereal Disease Clinics: 642,768 attendances were at Travelling Dispensaries. The figures are slightly higher than in 1948, which showed 1,975,009 attendances, with 632,929 at Travelling Dispensaries.

Details of the distribution of dispensaries and of the patients treated are given in the Appendix (Table No. 5).

NOTES ON CONDITIONS TREATED IN HOSPITALS, CLINICS AND DISPENSARIES.

66. Full details are given in Table 1 of the Appendix. The following gives an indication of the commoner conditions treated in hospital:

Disease.	Admissions.	Deaths.	Mortality per cent.
Malaria	17,731	441	2.49
Pulmonary Tuberculosis	6,510	1,916	29.43
Dysentery	1,951	74	3.79
Diarrhoea and Enteritis	4,280	588	13.74
Pneumonia and Bronco-Pneumonia	3,649	867	23.76
Bronchitis	6,652	86	1.29
Beri-beri	535	59	11.03
Venereal Diseases	4,996	77	1.54
Enteric Fever	810	124	15.31
Injuries due to external causes ...	19,264	551	2.86

67. Racial Distribution of Hospital Admissions and of Common Diseases.—The figures below are an indication of the racial differences in patients seeking admission to hospital, and give little true information about the racial incidence of disease. The number of Indians is disproportionately high,

because so many are employed by estates and are sent to hospital whenever this is necessary. Chinese patients tend to come to hospital for more serious or more longstanding illness, or when they are driven by inability to work and destitution. Malays, apart from those employed in the police and other Government departments, are generally reluctant to seek admission to hospital, although they willingly accept treatment as out-patients.

RACIAL DISTRIBUTION OF HOSPITAL ADMISSIONS.

Race.	Malaysians.		Chinese.		Indians.		Others.	
Population ..	2,511,520		1,952,682		550,684		66,962	
Total admissions to hospital ..	50,627		84,182		68,201		4,345	
Disease.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Malaria ..	6,242	48	5,642	280	5,456	104	391	9
Dysentery and Enteritis ..	1,401	57	2,494	430	2,118	157	218	18
Pulmonary Tuberculosis	1,221	186	3,719	1,268	1,463	441	107	21
Pneumonia ..	465	67	1,593	507	1,508	275	83	18
Beri-beri ..	92	4	283	40	148	14	12	1
Appendicitis..	137	2	675	26	382	5	131	—

68. MALARIA CASES IN HOSPITALS.—The number of cases treated in Government Hospitals was 17,731, a reduction of 1,788 from 1948. The distribution of types of malaria, diagnosed microscopically was subtertain 65 per cent, benign tertian 30 per cent, mixed 4 per cent and quartan 1 per cent.

The seasonal incidence of malaria followed the usual course, the rise beginning in April and reaching its peak in May and June. Details showing the malaria admissions reported monthly for each State are given in Table 2 of the Appendix.

69. SURGICAL WORK.—Surgical operations numbered 31,439: details are given in Table 3 of the Appendix.

70. OPHTHALMIC WORK.—Forty-nine thousand five hundred and sixty-five patients were treated for diseases and injuries of the eye and 2,347 eye operations were performed. Details are given in Table 4 of the Appendix.

71. RADIOLOGICAL WORK.—Radiological equipment was replaced and augmented on a fairly large scale, but there are still no facilities for deep X-ray therapy. A supply of radium amounting to 250 milligrammes was received in the early part of the year and is under the control of the Radiologist, Selangor. X-ray examinations numbered 54,846 and 1,207 patients were treated in the X-ray and electric-therapeutic departments.

72. VENEREAL DISEASES.—Cases treated as in-patients numbered 4,966 and 77 deaths in hospital are recorded as due to venereal diseases: this includes 47 cases of congenital syphilis. Further particulars are given in the section on special diseases (para. 44) and in Table 12 of the Appendix.

73. LABORATORY WORK.—Much of the pathological work is done in the laboratories of the Institute for Medical Research and in the Pathological Laboratory, Penang; the simpler routine examinations are carried out in the hospitals. In the laboratories

excluding the Institute for Medical Research, 277,187 blood films were examined for malaria. One hundred and eighty-two thousand five hundred and eighty-five examination of stools were made: 37.2 per cent of the specimens examined showed worm infestation. Round worms were present in 20.9 per cent and hookworms in 9.3 per cent of the cases examined.

Two thousand eight hundred and twelve post-mortem examinations were performed. Details of these examinations are to be found in Tables 9, 10 and 11 of the Appendix.

PART V.

TRAINING OF NURSES.

74. Since 1946 the training of nurses has been brought back gradually to a standard which is now higher than that accepted before the war. In the earlier post-war years, there was a very grave shortage of suitable candidates for training, because of the lack of education during the Japanese occupation. There were also many other openings, financially more attractive, for girls with a good English education. During 1949 the position has improved, as the schools are turning out more educated girls.

Facilities for training nurses vary greatly in different hospitals. In the larger hospitals like Johore Bahru, Malacca, Seremban, Kuala Lumpur and Ipoh, they are fairly good, although not yet up to the standard desirable in a complete training school. In Penang a complete training school has been established, to serve the needs of the northern part of Malaya. This school has developed steadily and has reached the stage when it is ready to expand.

The following paragraphs are taken from a report prepared by the Sister Tutor and the Medical Officer in the training school.

PENANG REGIONAL NURSING TRAINING SCHOOL.

75. Staff.—A qualified Sister Tutor from Britain opened the School in March, 1947, with nineteen student nurses. At the beginning of 1949, one of the medical officers of the Hospital was attached to the School on a part time basis and a permanent assistant to the Sister Tutor began to work full time, and has continued up to the present. She is a European Nursing Sister fully qualified in Nursing and Midwifery.

Buildings.—Originally two rather small classrooms were used. At the beginning of this year, as the school had grown in numbers, a move was made into a block of buildings which had previously comprised four sixteen bedded hospital wards. One ward has been used for living quarters for hospital assistants, while nurses have been housed in a nearby hospital building. This has left three wards, two of which have been used as lecture rooms and one as a practical work room. They have proved very suitable and sufficient for present numbers. As the school expands and accepts students from a wider area, it is hoped later to obtain a properly designed building.

Courses.—The "Block" System is in use and to fit in with school leaving arrangements in this country, the year is divided into three terms of three months each. These are as follows—January to March: Seniors—Block II, May to July: Intermediate—Block I, September to December: Preliminary Training School for new students. In addition two post graduate schools of three weeks and four weeks duration are held in April and August. These are specially helpful to students whose training was interfered with by the Japanese occupation.

76. Enrolment.—Nurses and Hospital Assistants are taken for training from North Malaya, comprising Perak, Penang and Province Wellesley, Kedah, Kelantan, Trengganu and Perlis. The numbers acceptable from these States make a total of sixty-four in each Block. To cover adequately training in North Malaya, about one hundred students should be taken each term. This year the average was thirty nurses and twenty hospital assistants in each school term, with a smaller number for the two post-graduate courses. Hospital assistants have been included in the courses since January, and though their examination syllabus varies slightly from that of the nurses, it has been possible to combine a large part of their tuition with that of the nurses.

Two local fully qualified nurses were given a preparatory tutor's course from May to July and are now studying at the Royal College of Nursing in London for their Sister Tutor's Diploma. Two more entered in October and are attending lectures and obtaining practice in teaching.

Educational Standards of Entrants.—This varies from as low as Standard Three up to the Senior Cambridge Examination. In the case of candidates who can attend locally, simple tests for suitability are used. In general, candidates from the less developed areas find difficulty in both theoretical and practical work, particularly in the former.

77. Examinations are held in April and August. In the nursing examinations, the theoretical standard is equal to that in England and there has been an average pass rate in the whole examinations of 92 per cent.

Teaching.—The recommendations of the Colonial Office Working Party on the Recruitment and Training of Nurses (1947) are accepted as a guide throughout the course of training. Geographical and social factors make the application of British methods only partly possible; and modifications are required to lay emphasis on local needs. The object of attaining reciprocity with Britain is kept constantly in mind and examinations are set on the British syllabus.

Teaching of Science.—Students here readily assume the "parrot" fashion of learning and it is slow and hard work to teach them to think for themselves. This tendency is increased by the difficulty of mastering numerous new words of Latin or Greek origin and by the deficiency in knowledge of the basic sciences of Chemistry, Physics and Biology. These latter subjects have been introduced into the Preliminary Training School course. The headmaster and chief science master of the Penang Free School have lent scientific apparatus and afforded much helpful

VACCINATION.

Vaccination of a Sakai Girl.

Nutrition—Malay School—weighing and measuring.

Maternity Hospital, Penang.

advice. The chief science master is training two selected hospital assistants, who will be able to help in the demonstration of experiments in Chemistry, Physics, and Biology. The science master and his assistants have staged some special demonstrations at the Penang Free School which have been much appreciated. At present girls have very few facilities for obtaining school education in Science, and this affects the training of nurses.

78. *Lectures and Educational Visits.*—About three hundred lectures are given in each three months' course, by the Tutors and Staff of the Medical Department and outside lecturers.

Visits are arranged each week to centres of interest from the point of view of preventive medicine or general education. Throughout the course an endeavour is made to interest the student in natural history, and environment in relation to health, with a view to attaining a wider outlook, particularly on the preventive side. Help was given by a member of the Social Welfare Department, in showing the relationship of this department to public health and the care of the sick.

79. Practical training is commenced in the school and continued by daily visits to the wards. The staff nurses in training are particularly helpful for this aspect of the work. This type of training must be supplemented by routine work by small groups of nurses attached to wards for convenient duty periods, and under the constant care of well-qualified ward sisters, who are interested in the practical education of the nurses or hospital assistants.

80. The courses given in the training school in 1949 comprised one preliminary course with 47 pupils, two "block" courses with 90 pupils, and "post graduate" training for 28 nurses and nine hospital assistants. The total numbers passing through the school were 136 nurses and 38 hospital assistants. The number of nurses who passed their final examination in General Nursing in 1949 was 66.

PART VI.

DENTAL.

81. Dental Surgery.—The number of Dental Officers employed on 31st December 1949 was 27: this is still seven short of the authorised establishment.

Returns of Work.—Table 8 gives a full return of the work done by the Department over the year. The number of attendances is 118,063, an increase of 7,898 over the previous year. The number of fillings done rose from 33,085, amalgam and 7,183 silicate in 1948 to 37,755 and 7,733 in 1949. The proportion of extractions to fillings is still far too high but this is inevitable in dealing with large numbers of school children with an inadequate staff.

Equipment.—The supply of dental equipment has improved and during the year most of the indents on the Crown Agents, which have been awaiting delivery since 1947, have been received.

Heavy equipment, particularly electrical apparatus, is still in short supply and delay is experienced in bringing clinics up to the desired standard.

New Clinics.—Two new Dental Clinics were opened during the year; one in Port Dickson and one in Sungei Patani. These clinics serve areas hitherto receiving little or no dental treatment. This brings the total number of dental clinics in the Federation of Malaya to twenty-two.

82. Post-graduate Study Overseas.—During 1949 two locally qualified Dental Officers went overseas for higher studies.

Through the generosity of the Australian Government, who awarded a scholarship for the purpose, one Malay dental officer was able to undertake a course of one years' duration at the Dental Department, University of Melbourne.

Another Malay dental officer proceeded to England: he has succeeded in passing examinations for the Fellowship in Dental Surgery of the Royal College of Surgeons of England.

83. Training of Dental Nurses.—The urgent need to expand dental treatment in the schools and the improbability of obtaining a sufficient number of fully qualified dental officers for this service, made it necessary to introduce a radical change in policy. It was decided to introduce treatment by trained nurses along the lines of the system which has been operating successfully in New Zealand for the last twenty-five years. With this object, a training school for Dental Public Health Nurses has been started in Penang. This is a new development which is probably unique in the territories under the administration of the Colonial Office.

It was realised that the amount of work required for the dental care of children could never be accomplished in the reasonably near future unless the dental surgeons had trained assistants to do the simpler part of the work. There are approximately 600,000 school children in the Federation of Malaya and it was considered improbable that the country could ever afford or recruit the dental surgeons necessary to care for this number of children.

The objective now is to have five trained dental public health nurses to work with each dental surgeon. With this in mind five nurses already trained in general nursing were selected from Kedah, Penang, Selangor, Malacca and Perak. Three of these were Chinese, one Malay and one Singhalese. Penang was chosen as the site of the school as there were good clinical facilities and room for further expansion. There are also many schools on the island within easy reach of the Dental Clinic thus ensuring a readily available reservoir of patients.

84. It was fortunate that an experienced dental nurse from New Zealand was available when training was commenced in June, 1949. The trainees have shown remarkable aptitude for the work and the children treated have evinced much less fear of dental treatment at the hands of these nurses than they do when treated by male dental officers. Though only six months have elapsed since the training commenced, the Chief Dental Officer is convinced that the experiment is already a success.

Eight more nurses will begin the course in January, and it is intended when the course is fully established to admit twenty nurses for training each year. The school is under the direct supervision of the Chief Dental Officer. The training differs from that given in New Zealand in that all the entrants to the course have already completed three years training and have passed the final qualifying examination in general nursing. The dental training comprises one year in the school, followed by one year of work in a clinic under the close supervision of a qualified dental surgeon.

85. The treatment given by these nurses is to be limited to school children and the two years course of study will specialise in the narrow but important field of preventive dentistry. The focus of training is on the early cavities and infected fissures in the teeth of children. By this method it is hoped to stop the waste of teeth which is so prevalent amongst Malaya's children.

The school is proving very successful and gives hope that in the reasonably near future, there will be an adequate dental service for all school children.

PART VII.

SPECIAL INSTITUTIONS.

INSTITUTE FOR MEDICAL RESEARCH.

(From a Report by the Director, I.M.R.).

86. The Institute to-day is a branch of the Malayan Medical Services, with a central group of laboratories in Kuala Lumpur, organised as divisions of bacteriology, biochemistry, entomology, malaria, nutrition, pathology and serology, and a lymph station for the production of small-pox vaccine. There are branch laboratories in the States of Perak and Negri Sembilan. Restricted in the early years to medical research alone, the Institute has now an added responsibility to the Medical Service for the manufacture of vaccines and the laboratory diagnosis of disease. Rather more than one-half of the resources of the Institute are absorbed by research activities, but research is not restricted to the Malayan Staff. Laboratory hospitality is given to colonial and foreign research workers, and some of the most useful work of the past few years has come from collaborative research with teams from America and the United Kingdom. During the past two years the Institute has welcomed, among others, two groups of eminent research workers from the United States Army, Sir Howard Florey, the co-discoverer with Sir Alexander Fleming of Penicillin, Dr. J. L. O'Connor, a virus expert from the Commonwealth Serum Laboratories of Australia, Dr. Farinaud of the Pasteur Institute, Saigon, and Dr. J. R. Busvine from the London School of Hygiene and Tropical Medicine; while a typhus team from the United Kingdom, financed by the Colonial Welfare and Development Fund has been attached to the Institute for a three-year programme of work since August, 1947.

87. The New Antibiotics.—The antibiotic chloromycetin or chloramphenicol is obtained from a mould originally isolated from Venezeulan soil. It is a crystaline substance first prepared as a natural extract in the research laboratories of Parke, Davis & Co., in 1947 and produced synthetically in 1948. The interest aroused by the activity of chloromycetin against the rickettsial organisms of typhus fever led to clinical trials by American workers, who co-operating last year with the Institute staff in Kuala Lumpur, demonstrated the dramatic success with which scrub typhus could be cured. Further work has shown that the activity of chloromycetin is not restricted to scrub typhus, for the drug has a wide range of action on many bacteria. The most recent studies have tried to define this range.

88. Chloromycetin in Bacterial and other Diseases.—Work during the year in the Division of Bacteriology has shown that chloromycetin inhibits the growth of some of the common disease-producing bacteria in Malaya. Bacteria of at least 15 genera are so effected and the drug has not only a proved clinical value in typhoid fever, but at least a potential value on bacillary dysentery, cholera, diphtheria, pneumonia, melioidosis, meningitis, pyelitis, endocarditis, gonorrhœa, plague and other diseases. The laboratory results are promising but clinical confirmation is still necessary in most diseases.

The value of chloromycetin in typhoid fever, already indicated by the work in Malaya of the U.S. Army Research Team, has been generally confirmed by reports reaching the Institute from the Medical Services. But the drug is no panacea, for deaths may still occur when treatment begins late. The drug inhibits the growth of typhoid bacilli in the bowel but does not prevent intestinal hæmorrhage or perforation of the bowel. There is a tendency, moreover, to relapse of infection when treatment stops, particularly in children.

89. Diphtheria carriers have been shown to become "negative" after repeated local application of saturated chloromycetin solution to the fauces and tonsils. Instilled into the conjunctival sac, the drug is stable and non-irritating and has been found useful in the common Parinaud's conjunctivitis, and for rendering the conjunctival sac free from bacteria before operation for cataract. Three cases of kerato-conjunctivitis, treated by the Senior Pathologist in conjunction with the Consulting Ophthalmologist, showed a dramatic improvement within 24 hours after the installation into the conjunctival sac of chloromycetin in distilled water. The normal duration of the infection is three to five weeks. Cases of sub-acute bacterial endocarditis were improved by the bacteriostatic action of the drug. Three cases—two due to Streptococcus fæcalis—were relieved when treated with chloromycetin but relapsed when the drug was withdrawn. Large doses failed to reduce the numbers of viable bacilli excreted from a case of tuberculosis of the kidney. Tested in the Division of Pathology in experimental vaccinal infection in the rabbit chloromycetin was inactive; nor was there any demonstrable effect in a chloromycetin-treated case of myeloid lenkæmia. The drug seemed also to be inert in *falciparum* and *vivax* malaria.

90. Antibiotic substances from Malayan Streptomyces.—The search in Malayan soils for moulds of the genus *Streptomyces* which might have wide-range antibiotic

activity has continued. This search has for its object not only the exploration of antibiotics produced by Malayan fungi but also the possible discovery of antibiotic substances acting on the smaller particle viruses of rabies and small-pox, against which chloromycetin is inert. Malayan strains of antibiotic-producing *Streptomyces* have been referred for further investigation to Dr. John Ehrlich—one of the discoverers of chloromycetin—and to the Commonwealth Serum Laboratories of Australia.

91. Typhus.—Research on typhus, for many years almost restricted to the Division of Pathology, has widened in range with the merging of the typhus work of this division with that of British and American Typhus teams.

The British Scrub Typhus Unit.—The Colonial Medical Research Committee, a joint committee of the Colonial Office and the Medical Research Council, has generously assisted the recent typhus research work of the Institute by a financial grant which assures the continuity in Malaya of studies made during the war in Burma by entomologists of the Allied Armies.

The British Typhus Unit is making a long-term study of the mites which carry scrub typhus and the animal hosts on which they normally feed. The principal object is to discover the factors concerned in the spread and establishment of the infection in waste land, but wider issues, such as the establishment of rodent pests, are being followed.

92. About one-quarter of the original Malayan forest has been destroyed, giving way to plantations, waste land, and occupied land. Most of the original forest animals and mites have disappeared, but a few, joined by some species introduced from outside Malaya, have multiplied in the new conditions. Among these are the scrub typhus mite and its chief hosts. In Malaya, scrub typhus is associated primarily with a field rat common in waste land and clearings, but other small animals and also birds such as quail enter into a secondary but important partnership. There is evidence that the disease may become more widespread, until almost every patch of waste land must be suspect. It is clear, also, that relatively small climatic changes influence the risk of infection. It is among the purposes of this team to study such possibilities.

93. Over 9,000 animals have so far been examined in Malaya, and collections are being received from India, Hongkong and Sarawak. The effects of deforestation are reflected by the finding of some 40 species of rodents and insectivores in the forests, but only eight species in the rural areas and six species in Kuala Lumpur town, some of the last having been introduced. A preliminary survey of the animals, an account of the economically important rats of Malaya, and studies of the bionomics of important rats, are in the press. A topographical survey of scrub typhus is being undertaken, and a preliminary general account has recently been published. The technique of breeding mites is now efficient, and precise experiments on infection are being carried out.

The training of staff and the mere taxonomic study of the 75 odd species of vertebrate hosts and the 80-100 species of parasites, including many new and ill-studied members and groups, has taken up much time and effort. The field is now

sufficiently clear for several promising investigations to be planned on fresh lines, and the research programme is consequently entering its most efficient phase.

94. The U.S. Army Medical Research Team.—A medical research team from the United States Army arrived in Malaya in March, 1948. Led by Dr. Joseph E. Smadel, Director of the Department of Virus and Rickettsial Diseases, Army Medical School, Washington, and working in collaboration with the staff of the Institute in Kuala Lumpur, this team demonstrated last year the dramatic cure of scrub typhus with the new antibiotic, chloromycetin.

A second team from the U.S. Army, led by Dr. Charles A. Bailey and attached to the Institute between November, 1948, and April, 1949, extended the work on chloromycetin to a wider field, a welcome liason with American workers which is to be continued by a third team due to visit Kuala Lumpur early in 1950. The following, in brief, are some of the more important findings.

Chloromycetin in the Treatment of Scrub Typhus.—A total dosage of 6.0 grammes of chloromycetin over 24 hours reduced scrub typhus from a severe illness with an appreciable mortality to a short benign febrile episode. Cases treated very early on the illness tended to relapse, but relapses responded to the drug equally well.

Chloromycetin in the Prophylaxis of Scrub Typhus.—Three field trials in which 135 local volunteers took part were made in highly-infected territory near Kuala Lumpur. The results showed that a daily dose of 1.0 gramme for three weeks from the first day of exposure delayed the onset of scrub typhus until about ten days after the last dose; and that a weekly dose of 4.0 grammes given for six weeks suppressed infection long enough for the subjects to develop immunity.

Chloromycetin in Typhoid Fever.—Thirty-five cases of typhoid fever were treated by the team while in Malaya and fifteen more on their return to the States. Improvement in the clinical conditions began within 48 hours, and as a rule the fever fell within three or four days. Relapses occurred, particularly when the duration of treatment fell short of the 14 days finally recommended. The drug did not prevent complications, for intestinal hæmorrhage occurred in six of the 50 patients and probable perforation of the bowel in three others. Hæmorrhage and perforation of the intestine led to the death on the 18th day of a boy of ten years who had received 5.0 grammes.

Synthetic Chloromycetin.—The synthesis of chloromycetin was accomplished in the research laboratory of Parke, Davis & Company early in 1948. The first two patients treated with the synthetic compound, two Ghurkas who contracted scrub typhus on active services with the security forces, were quickly cured. Further work has continued to show that the two forms of chloromycetin, natural and synthetic, are equally efficacious.

95. Malaria.—The Colonial Welfare and Development Fund continues to finance much of the work of the Division of Entomology and Malaria. Research during the year on the British drug paludrine broadly confirms the great value of the

drug for malaria prophylaxis but emphasises its limitations in treatment. Malaria control based on the spraying of kampong houses with DDT or Gammexane began early in the year. A three-year programme of experimental control is planned from which, it is hoped, may come the scientific basis for future control policy in kampongs.

96. The New Insecticides.—Field experiments at the Tampin branch of the Institute have shown that both DDT and Gammexane are highly lethal to adult anopheles maculatus. Both insecticides are now being used in an experimental attempt to control malaria due to *a. maculatus* in two valleys in Negri Sembilan, populated by Malay padi planters. The houses are being sprayed once in three months with DDT in one valley and with Gammexane in the second. The work proceeds smoothly and both valleys have now had two sprayings. The effect of the insecticides on the malaria is being compared with that of the drug paludrine, which is distributed for personal prophylaxis in a third valley. This work is aided by a grant from the Colonial Welfare and Development Fund.

Experiments continue in Kuala Lumpur on the use of DDT as a larvicide. Using a method for testing residual insecticides against adult mosquitoes, the order of toxicity with fresh films of insecticide was—Gammexane, Chlordan, DDT; while the order of residual activity was DDT, Gammexane, Chlordan. Fresh films of these insecticides have a fumigant effect, most marked with Gammexane and least with DDT. Gammexane also has a repellant effect.

97. Anopheline vectors of Malaria.—An account of the systematics and biology of the umbrosus group of anopheles has been completed. Descriptions of two new species are included and the specific name *letifer*, proposed by Gater, has been adopted.

98. Paludrine.—This valuable British drug continues to give excellent results in malaria control and is much used by the Security Forces and estates. Field experiments during the year on a malarious estate have shown no falling off in the prophylactic activity of the drug, though early in the year there were disquieting reports on the ease with which the malaria parasites of birds and monkeys could be made resistant under the artificial conditions of laboratory experiments.

This resistance has appeared in Malaya though not yet on a scale to cause alarm. Recent observations in Tampin have shown that paludrine-resistant strains of P. falciparum, the parasite of malignant malaria, are beginning to emerge. The conditions which have produced this resistance are under investigation.

Squirrel malaria.—An interesting malaria parasite occurs in several species of Malayan squirrel. The parasite is probably the same as that seen in 1905 by Vassal in Indo-China, and named by Laveran, *P. vassali*. A probable stage in the life history has been found in the cells of the liver. The biological significance of this liver development of the parasite is not yet clear. The liver stage closely resembles that of *Hepatocystis kochi* found by Garnham in the liver of lower African monkeys. The parasite has been provisionally named *Hepatocystis vassali* var. *Malayensis*.

99. NUTRITION.—The Division of Nutrition, created after the war, has continued investigations into the health, diet and economic conditions of racial and occupational groups at the lower income levels. The Malay small-holder and fisherman in the selected groups live at a lower level than the estate labourer. The fisherman is worse off, on the whole, than the small-holder. His income from day to day is uncertain and he is seldom in a position or has foresight enough to put something away to feed himself when his income falls. The small-holder has a more steady income and can better organise his day to day living. The income and diet, both of small-holder and fisherman, compare unfavourably with those of the estate labourer, even in times of plenty. In one investigation it was found that the labourer and his family spent on the average as much money on food as the mean total household income in a group of fishermen.

100. The diet of the Malay in the groups investigated tended to be deficient both in quality and quantity. The people were often thin, hungry and lacking in initiative. They were inclined to work less than the estate labourer, a tendency which may partly account for the lower income; but more important was the lack of a business sense, the irresponsibility with which they became indebted and the unsatisfactory terms they were prepared to accept, factors which might reduce the potential income by a half or more. The medical side of the problem, the diet and the standard of health, is important but equally important are the economic and sociological aspects.

A large experimental feeding scheme has started in Malacca. Selected groups, each of more than 1,000 children are receiving vitamin-reinforced rice. The benefits to health of this supplementary feeding will be assessed in due course; other feeding schemes for children are proceeding smoothly and have apparently improved their health.

101. FILARIASIS.—Filariasis is a worm infection common in the lower reaches of some of the Malayan rivers, and in certain low lying coastal areas in Kedah, Province Wellesley and Penang. The disease causes bursts of fever in its early stages and is later often symptomless, but sometimes leads to the disfiguring swelling of the legs known as elephantiasis. Until recently no cure was known. The new drugs recently introduced may change the outlook. Clinical trials made in endemic areas of the disease in Kedah have confirmed the remarkable action of "Hetrazan" in clearing the blood of microfilariæ, though administration causes a sharp febrile reaction which is likely to discourage mass administration.

The mosquitoes which carry filariasis to man in the coastal areas seem to breed in association with water hyacinth, and in Province Wellesley the Medical Department is attempting control by the removal of this plant. The sections of mosquitoes from the control areas, made in the Division of Entomology, seem to show that this measure is proving effective.

102. MISCELLANEA.—Observations of some interest have been made during the year on the disease of hair known as "piedra", on leucoderma, a patchy de-pigmentation of the skin occurring mainly among Indians, and on the anthropological relations of the Sakai.

Piedra (trichosporosis) in Malaya.—This disease of hair has been known in South East Asia for some 30 years. The causative fungus has usually been regarded as a Trichosporon but the organism isolated from a recent case observed in the Division of Bacteriology produced ascospores under conditions which occur naturally, or may be produced by mucilaginous hair fixatives, and was thus considered to belong to the genus Piedraia. The local species differs in spore size from the American species *Piedriaia hortai* and has been given the provisional name *Piedriaia malayi.*

Leucoderma (vitiligo)—a deficiency disease.—Leucoderma is a patchy, unsightly white disfiguration of the skin occurring mainly among Indians. Observations made in the Division of Bacteriology during the year suggest that the disease may be due to a dietary deficiency. Additions to the diet of "Hepovite" and milk with the object of supplying high-class protein and the theoretically-missing amino acids seemed to produce a complete re-pigmentation in one case and partial but progressive re-pigmentation in two others. Bouchi oil from the small fruits of *Psorales corylifolia* was applied locally as a rubifacient; the oil is regarded as a useful though not essential adjunct to treatment.

Anthropological blood-grouping of Sakai.—From the Division of Bacteriology also comes an interesting observation on the anthropological relationship of the Semai from Cameron Highlands with other primitive peoples of South East Asia. By plotting the gene frequencies of the blood group factors "A" and "B" the Semai are shown to occupy a unique position on Snyder's chart which plots the blood group frequencies. Adjacent to the Semai on this chart are the Tho (Indo-China), Tobas (Sumatra), Taiwan (Formosa), Muongs (Indo-China) and the Sulu (Philippines).

103. Routine.—The institute maintains a diagnostic service for the Federation, and manufacture some of the more important biological products. Nearly one half of its resources are diverted to these ends. During the year 39,433 routine examinations, pathological, bacteriological, biochemical, were made in the parent laboratories, in Kuala Lumpur, and 21,282 in the branch laboratory in Perak, while 4,246 mosquitoes or mosquito larvæ were identified for the Health Department and private doctors. Prophylactic vaccines prepared by, and issued from, the Institute included 1,305,000 doses of vaccine lymph, 37,500 cc of cholera vaccine, 44,250 cc of typhoid vaccine, 48,200 cc of rabies vaccine for human prophylaxis and 4,630 cc for canine prophylaxis. Supplies of these biological products, though primarily for the Federation of Malaya, are sent to Sarawak and Borneo and occasionally further afield.

104. The Division of Biochemistry, co-operating with the Sungei Buloh Leper Settlement, has undertaken the chemical estimations of sulphone drugs in the tissues and body fluids. The new drugs of the sulphone group are being studied at the settlement with results which seem to hold great promise. Plasma estimation of the anti-malaria drug paludrine have brought to light technical difficulties which are being investigated.

105. Towards the end of the year the scope of the Division of Pathology was extended to include a diagnostic section for some of the virus diseases of Malaya, the possible nucleus of

a later Division of Virus Diseases. The resources of the virus section are still small but the Institute is now in a position to undertake routine laboratory diagnosis of small-pox, virus pneumonias and virus encephalitis.

Yellow Fever.—Swifter air transport demands that precautions should be taken against the entry of yellow fever into Malaya. A large stock of the specific vaccine prepared in South Africa, is held ready for immediate use. The control of yellow fever vaccine, exercised by the World Health Organisation, involves specialised biological tests in laboratory animals: the Institute is recognised by this Organisation as a laboratory authorised to make these tests, and also to administer the vaccine to those travelling to yellow fever areas. Penang also is now an authorised centre for yellow fever inoculation.

106. RABIES.—Canine rabies is still prevalent in the Northern States, but no infections are recorded south of Perak. Brains from 275 suspected animals, nearly all dogs, were examined during the year: 120 were rabid. Just before the war rabies had almost disappeared, excepting in the States bordering Siam. One reason advanced for the prevalence of rabies to-day is that the owners do not muzzle their dogs at night on account of bandit activity.

The potency of rabies vaccine prepared in the Institute for human prophylaxis is now tested on mice before issue, a new departure which, so far as we are aware, is standard practice only in the United States.

LEPER SETTLEMENTS.

107. There are three Leper Settlements in the Federation, Sungei Buloh in Selangor with 2,130 inmates, Pulau Jerejak in Penang with 396 and the Leper Hospital, Johore Bahru, with 371, a total of 2,897 patients in leper institutions at the end of the year.

Sungei Buloh Settlement is situated in a valley some 16 miles from Kuala Lumpur in attractive surroundings. Part of the settlement is laid out as a hospital with wards for the treatment of the acute cases, and the rest is a village settlement consisting of small semi-detached houses each with one room, a kitchen, a verandah and a bathroom. Married couples who have been admitted to the settlement are allowed to live together and a number of marriages take place each year amongst the settlement inmates. About forty infants are born each year in the settlement and these are removed as soon as possible to a creche in the uninfected area where they are looked after till they are adopted or taken care of by the social welfare organisations.

Leper Settlement, Sungei Buloh.—During the year the number of patients in the settlement increased from 1,888 to 2,130: the distribution of the population is:

	Men.	Women.	Boys.	Girls.	Total.
Chinese ...	1,022	483	82	67	1,654
Indians ...	210	28	8	3	249
Malays ...	157	44	12	2	215
Others ...	9	2	—	1	12
	1,398	557	102	73	2,130

108. Treatment has progressed in a very encouraging manner. Over 1,600 patients are receiving sulphones in one form or another.

The majority receive 4:4 diaminodiphenyl sulphone in oil in doses of half gramme weekly. Work has been done on excretion rates, blood levels and tissue levels of this drug. These suggest that a three-day interval between injections is the optimum period but that in seven days the blood level has by no means reached zero—an important point when considering out-patient clinics.

Oral Sulphetrone gives good results but it has a tendency to produce a mild toxæmia with malaise, headache and vertigo. It appears that a much higher blood level is maintained, which may account for this. To overcome this, sulphetrone by injection is being tried. At first a 20 per cent. suspension of sulphetrone in oil was tried, and though it gave good results, technical difficulties made it unsatisfactory. A 50 per cent. aqueous solution is now being tried, but it is too early for results to be known. One hundred lepromatous cases have completed 12 months treatment with diamino-diphenyl-sulphone and the results have shown 96 improved and four remaining stationary. The patients keenly appreciate this form of treatment.

HOSPITAL TREATMENT IN THE LEPER SETTLEMENT, SUNGEI BULOH.

There were 1,753 admissions to hospital for treatment. The main cause of death apart from the leprosy factor was pulmonary tuberculosis which accounted for 12 deaths out of a total of 54.

The general morale of the Settlement is high: the improvement in the appearance of patients as a result of treatment has had a very good effect.

Welfare work in all the leper establishments was actively carried on during the year. The patients themselves take an active part in entertainments, gardening and in staffing and running the institutions.

MENTAL HOSPITALS.

109. The Mental Hospital at Tampoi, Johore Bahru, is still leased to the Army.

The Central Mental Hospital at Tanjong Rambutan deals with all cases of mental disease from the Federation of Malaya. Some of the new wards which had been used temporarily as a police training depôt were brought into use in September: 404 patients were occupying these wards at the end of the year. Four rooms for first class patients have been provided and have proved their usefulness for both European and Asian patients. The number of patients on December 31st, 1949, was 2,750 as compared with 2,139 at the end of the previous year, an increase of 611.

110. The admissions during the year were 2,132, compared with 1,844 in the previous year. There were 1,203 discharges, graded as recovered 662, relieved 410, and 131 not improved. Deaths numbered 307, with a death rate of 7.19 per cent. of the 4,271 patients treated.

Occupational therapy was carried on as in the previous year. Deep Insulin and Electric Convulsive Therapy continued to be used, with many dramatic recoveries: of the former 137 cases were treated and of the latter 803, compared with 106 and 599 in 1948.

111. Central Mental Hospital, Tanjong Rambutan, Return of Inmates for the Year 1949.—

Summary by Nationalities.

	Remaining at end of December, 1948.	Admissions.	Deaths.	Total treated.	Remaining at end of December, 1949.
Europeans ...	1	6	—	7	—
Eurasians ...	14	6	3	20	13
Chinese ...	1,332	1,249	221	2,581	1,718
Indians ...	306	409	35	715	371
Malays ...	481	458	48	939	641
Japanese ...	1	—	—	1	1
Others ...	4	4	—	8	6
Total ...	2,139	2,132	307	4,271	2,750

Summary by Sex.

Men	1,402	1,422	206	2,824	1,801
Women ...	708	694	82	1,402	930
Children (1-10 years) ...	28	16	18	44	19
Infants (under one year) ...	1	—	1	1	—
Total ...	2,139	2,132	307	4,271	2,750

Daily Average Number of Inmates for 1949—2,477.6.

Number of beds—3,000.

112. The cost of maintaining the mental hospital is indicated below:

(i) Personal Emoluments	$348,512.81
(ii) Clerical Service	12,840.00
(iii) Other Charges, Annually Recurrent ...	579,755.71
(iv) Other Charges, Special Expenditure ...	18,806.00
	$959,914.52

Capital expenditure, and pension and leave charges are not included. The nett maintenance cost is $387.43 per annum per patient treated.

113. Farms.—The situation during 1949 was very satisfactory. The number of patients working increased from 204 to 286 at the end of the year. The two tractors have given excellent service. Two more temporary farms have been completed with hospital labour and new pig styes are in course of construction. Stocks of pigs have been maintained and now number 290. The farm formerly occupied by the Police Department has now been opened up and fair success has been obtained with green peas, bananas, tomatoes, lettuce and spring onions.

The estimated value of farm produce at market prices was $144,900 as compared with $81,520 in 1948. The main items produced were 14,554 katties of pork, 3,899 katties of beef, 20,570 katties of maize, 3,783 coconuts, 137,155 katties of sweet potatoes, 39,050 katties of tapioca and 444,696 katties of vegetables (1 katty is 1⅓ lbs.).

MEDICAL STORES.

114. The store position is still rendered difficult by the need to use several separate buildings in widely scattered localities. Concentration at the port of entry, when it becomes practicable, could reduce costs and increase efficiency. The supply position has improved during the year.

Stock Pricing.—Every effort was made to keep all issue prices at the lowest possible level, so that the State Departments could obtain maximum quantities of supplies with their vote. Where market prices of stocks were known to have fallen, sanction was obtained for a reduction in the issue prices. On the other hand, market prices of a large range of goods have advanced during the year, partly due to increased manufacturing costs and partly due to devaluation of sterling. It was fortunate that stocks were heavy at the time of devaluation. The State Medical Departments will have the advantage of these lower prices.

115. Pharmaceutical Laboratory.—Despite limited facilities an increase in the manufacture of medicinal preparations was possible. The production of Sulphone preparations for the treatment of leprosy was raised to 167,000 doses, and 491,000 doses of other preparations for injection were produced. The equipment of the laboratories is still incomplete but machinery for tablet manufacture was being installed towards the close of the year.

ORTHOPÆDIC APPLIANCES CENTRE.

116. The manufacture of orthopædic appliances, such as artificial limbs and spinal frames, was commenced in 1948. Before this date appliances were made on a small scale by local workmen, but there was no organised effort for the local production of the more complicated appliances, such as articulated artificial limbs.

In the years immediately after the war, the need for the local supply of such appliances became very evident, because of the increased demand as the result of war injuries and the difficulty and expense involved in obtaining appliances from overseas. Manufacture of orthopædic appliances was begun on a small scale under the direction of a British superintendent, who is a skilled appliance maker, and is also expert in teaching people the use of their appliances and in giving them physical education for the restoration of function.

Throughout 1949 the factory has worked in buildings which have been improvised for the purpose, and it still suffers from the lack of adequate accommodation. This is being provided in 1950. In 1949 the staff consisted of the Superintendent with seven appliance makers, an apprentice, two clerks, a storekeeper and a servant.

The work produced in 1949 included 40 articulated legs and arms, 71 "peg legs", 36 tuberculosis frames, 25 walking callipers, 20 pairs surgical boots, 11 spinal jackets and over 200 metal splints and other appliances.

CONCLUSION.

117. Malaya has been fortunate since the end of the war in the low incidence of malaria and of the other diseases that follow in its trail. Although the death rate and the infantile mortality are lower than they have ever been, there is no justification for complacency. The infantile mortality is still too high, there are many problems to be solved in malaria, and there is still a need for maintaining and extending all the measures of malaria control.

Tuberculosis is a deadly menace. There is no quick road towards the reduction of this disease and whatever may be done by the provision of better facilities for treatment, and by protective inoculation, it is essential to strive for improvement in the standards of housing and nutrition.

On the other hand progress is being made. The introduction of Sulphone drugs for the treatment of leprosy, and the discovery of Chloramphenicol (Chloromycetin) as a powerful therapeutic agent in the treatment of tropical typhus are outstanding examples of this progress. There is an increasing demand for modern medical treatment amongst all classes of the community. This can only be met when the problem of staffing the Medical Department has been solved.

The aim is to build up a staff consisting largely of local men and women. Special attention, therefore, is paid to schemes for the training of staff, doctors and dentists in the University and in post-graduate courses overseas, and nurses and hospital assistants, sanitary inspectors and midwives in the local training schools. The main difficulty is the shortage of experienced staff, to serve as teachers and at the same time to carry on the work in the field.

Appendix.

MALARIA ON TIOMAN ISLAND.

A report on a visit to Tioman Island in April, 1949, by Dr. J. W. Field, Director, Institute for Medical Research, Federation of Malaya.

Foreword.—"Were a man in search of a lovely and secluded paradise in which to lay him down to rest his tired bones, he could find few spots upon this earth more suited to his purpose than this island. From the blue ripples of the China Sea the land runs upward, in undulating slopes, till the summit of the mountain, which is the heart of the island, is reached. The heavy Malayan jungle, a closely-woven warp and woof of greenery covers all the land and fringes the sides of the twin peaks which crown the whole".

"On the eastern side of the island, at a spot where a ruddy dawn paints a lane of light along a vast stretch of uninterrupted sea, there lies a tiny bay, tucked snugly away between two rocky head lands. The sand is almost white, dazzling to look upon, and strewn with marvellous shells. Fifty yards inland the fronds of the coconut palms nod gracefully over the thatched roof of a village; and all about the beach fishing boats, nets and tackle lie in the sun light, bearing testimony to the manner in which the Tioman folks earn their scanty livelihood".

Thus does Sir Hugh Clifford in "Heroes of Exile" describe the beautiful island of Tioman and the little village of Juara on the eastern shore.

Here it was in the early days of the British Administration that Marie David de Mayrena, Comte de Ray, "King of the Sedangs" sought refuge; and here, beneath the sudu-plants and the spear grass this nineteenth century knight-errant lies buried.

Medical History.—The history of Pulau Tioman is vague and shadowy. The old men speak of settlements in their childhood bigger than those we see to-day. They seem to know little of their origin but the early settlers came, they think, from the mainland. Medical records begin in 1924 with the building of a small attap dispensary in the village of Juara. The first dispensary dresser, Said Hamid, an Indian, still lives and trades on the island. He speaks of a great epidemic in 1926, the year of the Pahang flood. Many died and the eastern side of the island was almost abandoned. The epidemic at its worst does not seem to have been investigated and the cause is not known for certain. Beri-beri seems most likely but a virulent outbreak of *falciparum* malaria is not excluded. The present dispensary in Tekek on the western side of the island was opened in 1930. Sometime about 1936 there seems to have been a proposal by the District Officer, Pekan, to open up the scenic charms of the island by building a rest-house for visitors from the mainland and Dr. E. D. B. Wolfe, then Health Officer, Pahang East, in September of that year, surveyed an area around Ayer Batang, the site proposed. Why the project was not followed we do not know—possibly because of the malarious condition which the survey revealed. The first significant attempt to reduce the malaria seems to have been made by the Pahang Medical Department during the years 1937 to 1942 when there was more

or less systematic clearing and oiling of the main streams in Tekek and Juara. The problem was evidently one of special difficulty for when one of us (J.W.F.) visited the island in August, 1941, the malarial endemicity was still higher than we had ever observed elsewhere in Malaya.

There was no record that the Japanese made any serious attempt to improve the health of the island. A strategic garrison of sixty troops was quartered in the dispensary and school and the islanders thus deprived of education and medical aid. Some fled to the hills, there to plant paddy and create the clearings which to-day add complexity to the malaria problem. They drove their cattle to the mountains where some, evading recapture, still roam wild along the dense jungle-covered slopes.

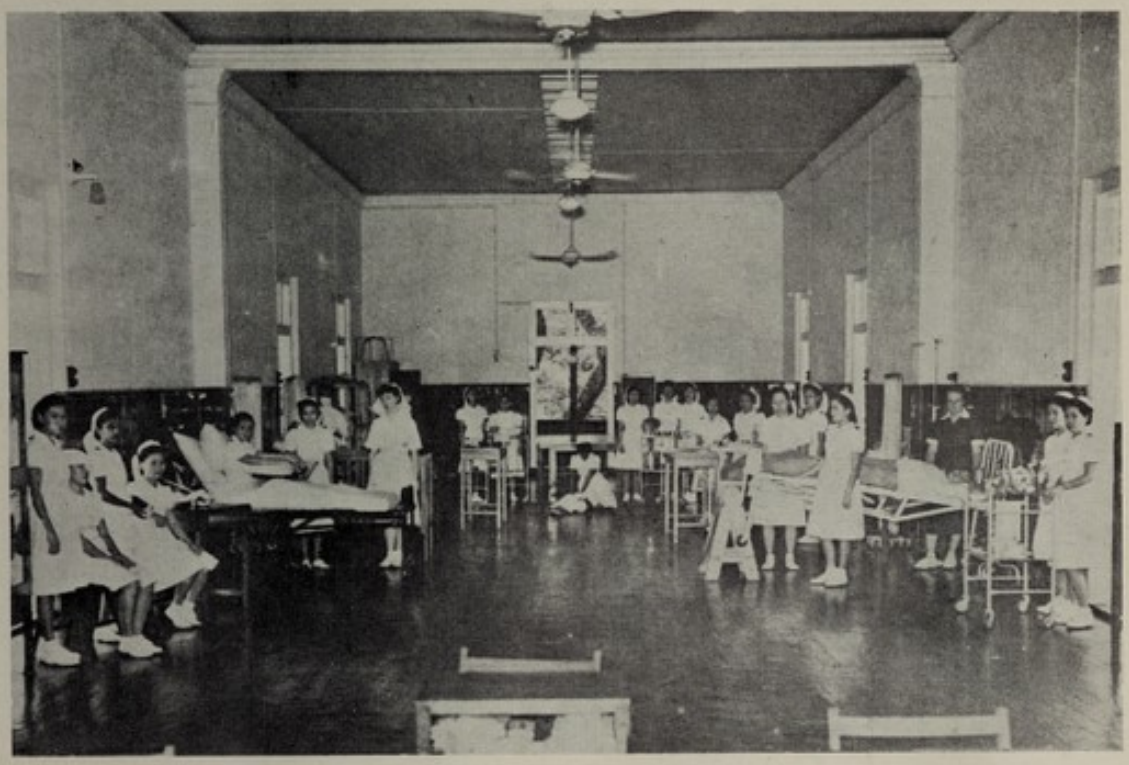
Medical work after the war began with a visit to the island by Dr. McGarity, Health Officer, East Pahang, early in 1947; and with the re-opening of the dispensary in June of that year. There was much general sickness, with a high malaria incidence, and subnutrition due perhaps to the shortage of rice in 1946. Paludrine was distributed throughout the island between August, 1947, and March, 1948, with an improvement in the malaria situation, particularly among the school children; though a malaria survey was made by Dr. J. H. Strahan and Dr. J. F. McGarity in July, 1947, still disclosed severe malaria among the young children, many of whom became infected before they were a year old.

The present brief survey was made in April, 1949.

Topography.—Pulau Tioman is a small densely forested and mountainous island, 14 miles long and six miles wide, lying in the China Sea and some 30 miles from the nearest point on the mainland. The inland peaks tower to a height of over 3,000 feet, with steep, rocky slopes which fall abruptly to the sea, leaving here and there a narrow strip of coastal plain. Here, along a ribbon of sandy plain, seldom a mile wide and more often but a few hundred yards, among the coconut palms, are strung out the settlements of the villagers with the sea ahead and precipitous rocks behind. Tumbling through the rocks and meandering through the plain are the many small overgrown streams, soon in their short course to mingle with the salt of the sea—a scenic joy but a topographical misfortune which favours the breeding of the two probable malaria carriers of the island, *A. maculatus* in the lower foothills and *A. sundaicus* near the foreshore. Sungei Ayer Hantu ("the haunted stream") is the name of one of the streams and any who are not disposed to accept the story of one of the islanders that the lights seen over the water by night are the eyes of the Devil may perhaps seek a more rational explanation in the fevers that come from the waters on the wings of these twin pests.

People.—The islanders are Malays who seem to have come in the first place from the mainland. There is one Indian trader and a small family of Chinese shop-keepers. The Penghulu, Che Ahmad bin Ishak, estimates the present population at 748. They are scattered in small settlements around the coast but concentrated mostly at Tekek (300), Mokut (180) and Juara (80). For their livelihood they depend on fishing and on a meagre island trade in copra, birds-nests and turtles eggs. On the steep

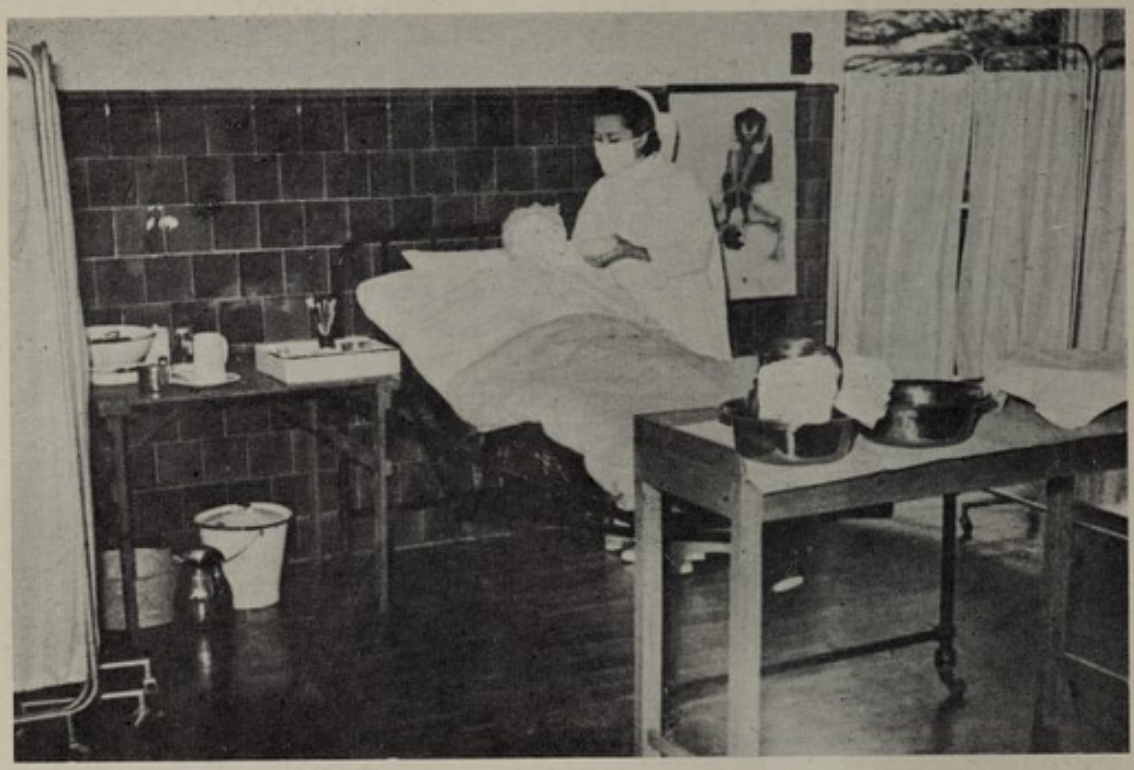
NURSES' TRAINING SCHOOL, PENANG.



Practical Room.

First aid practice.

NURSES' TRAINING SCHOOL, PENANG.



Training with "dummy".

CHILDREN'S DENTAL CLINIC, PENANG.

Cleaning teeth with sugar-cane.

slopes behind the villages they grow a little hill paddy and tapioca. They are now hard hit, we were told, from the drop in the copra yield to a quarter of that before the war—a misfortune due to the depredation of monkeys and squirrels, and the absence of shot guns. They give the impression of a hardy, happy folk who have come to terms with whatever hazards to health there may be in their environment, seemingly unaware that their surroundings carry any particular discomfort or danger.

Tolerant though most of the grown-ups seem to be to the diseases of the island, there is much sickness and suffering among the children, and the signs of oft-repeated malaria—the drawn cachectic appearance, the pallor, the emaciation and the large prominent bellies filled with enormous spleens, had their own story to tell of the hazards of the slow immunising process whereby the adults gain their immunity. We heard tell of islanders born and bred, said to be a hundred years old; but the mothers who told of their dead children and proudly displayed the survivors, unwittingly gave the probable explanation for survival to this great age under the Tioman conditions—the progressive "salting" to the local malaria which comes of infection repeated year after year.

Vital Statistics.—The death-rate is high; so is the birth-rate and it is probable that a natural balance has been struck for there is no clear evidence that the population is declining.

There were 231 deaths at all ages recorded in the 14 years of which we have records: forty per cent. of these deaths may have been due to malaria but in the absence of accurate microscopic diagnosis, this figure must be accepted with reserve.

Ninety deaths from all causes are recorded in the same period among children of five years or under—nearly 40 per cent. of the total deaths.

Random enquiries among the mothers have much the same story to tell of the hazards of early life. This is a haphazard method of enquiry but we can scarcely dismiss as entirely unreliable the admission of the mothers that less than half of the children born to them are now surviving.

Malaria.—"According to the fisherman-invaders, fishermen of Tioman itself and other dwellers of Tioman, the sickness which struck the immigrant fishermen was a yearly happening. As a matter of fact they even have a name for it. They call it the 'Penyakit Pulau' ('The Island Sickness'). The only strange thing about it was the majority, if not all of the victims of that sickness were the immigrant fishermen". (From a report of the Fisheries Department, dated March 18th, 1949).

There are no surviving records known to us which accurately assess the amount of malaria on Pulau Tioman before the war. One of us (J.W.F.) with the Senior Medical and Health Officer, Pahang, made a brief survey in August, 1941. The malaria was hyperendemic, the level of endemicity greater than we had seen elsewhere in Malaya. Most of the children were infected before they were two years old; many within a few months of birth: but no figures from this survey survived the Japanese occupation.

Drs. J. H. Strahan and J. F. McGarity repeated the survey in April, 1948, one month after an experimental trial of Paludrine had been suspended. Among the children of 12 years or under there was still a spleen rate of 56 per cent. and a parasite rate of 23 per cent.; a quarter of the children under one year were already infected, and more than half of the two-year olds.

Spleen Rates.—The present survey confirms the high endemicity of the malaria. More than five hundred of the islanders were examined. The overall spleen rate was 68 per cent. with a peak incidence approaching 100 per cent. in the three to four years age group. Nearly one-third of the enlarged spleens approached the umbilicus, falling into the Schuffner 4 grouping.

There seems to have been an appreciable increase in average spleen size since the last survey in April, 1948, reflecting perhaps the improvement with Paludrine administration in 1947 and deterioration with the suspension of prophylactic treatment in March, 1948.

Endemicity.—It is unfortunate that the remoteness of Tioman makes exact studies of the hyperendemic malaria which prevails there so difficult. There is on this small isolated community the paradox of intense malaria with the illusion of comparative freedom. The infants are infected early and clearly suffer much in the early years of childhood. Many die, and those who pass through their initial "salting" slowly and painfully come to terms with their malaria. The survivors reach adult life with a high level of malarial immunity. Wilson, from a careful study of communities in East Africa with an intensity of malaria such that all the infants are infected before they are a year old, and were re-infected and super-infected at the same rate throughout their lives, recognises three stages in this immunising process:

(1) The infants suffer badly: the infections are heavy; many die and the rest have repeated attacks of fever, become anaemic and develop big spleens. This stage he calls the stage of *acute infestation.*

(2) The children of school age still get attacks of fever and have big spleens but the attacks become milder as they get older and they seldom die from uncomplicated infection. This is the stage of *semi-immune infestation.*

(3) The adults seldom get fever: when they do it passes quickly and harmlessly. The blood infections are light and the spleens are smaller though perhaps still bigger than normal. The women are fertile and the men healthy and vigorous. This is the stage of *immune infestation.*

We suspect that this is the state of affairs which prevails among the Tioman islanders. The data is fragmentary but the clear indication of a heavy wastage of life in infancy, the big spleens and the high incidence of splenic enlargement among the young children, and the tolerance to malaria of the grown-ups, all point to the slow mutual adjustment of parasite and human

host, the slow immunising or "salting" process, which is known to take place when malaria infection, re-infection and super-infection are repeated often enough.

The Mosquito Carrier Problems.—All records made before the war of the malaria-carrying mosquitoes of the island are lost. Che Hussain bin Hassan, the larvæ collector who accompanied us, had taken part in mosquito surveys made in 1941 and was able to remember fairly well what species were found at that time. This information, supplemented by observations made on the present visit, is summarised in the tables below.

The tables show that *sundaicus* and *maculatus* have predominated in the adult night catches—the record of one *leucosphyrus* adult caught is a little uncertain—and in the absence of evidence to the contrary we must presume that these two species are the vectors responsible for the high transmission rate.

Anopheles maculatus.—At the time of our visit, conditions were dry and there was little water except in the permanent streams. Larvæ of *maculatus* were hard to find, though the night's catching produced 18 adults, seven caught by the trapper on his bare legs and 11 from goats.

ADULT MOSQUITOES TRAPPED.

Place.	Year.	No. of nights trappings.	*Leucosphyrus.*	*Maculatus.*	*Subpictus.*	*Sundaicus.*
Tekek	1941	3	?1	++	+	+++
	1949	2	—	18	0	1
Juara (and Tanjong Ruit)	1941	3	—	+	—	++
	1949	—	—	—	—	—
Mokut	1941	1	—	+	—	++
	1949	—	—	—	—	—

LARVAL SURVEYS.

Place.	Year.	*Aitkeni.*	*Barbirostris.*	*Hyrcanus.*	*Kochi.*	*Leucosphyrus.*	*Maculatus.*	*Subpictus.*	*Sundaicus.*	*Umbrosus.*	*Vagus.*	*Watsoni.*
Ayer Batang ..	1936	+	—	—	—	—	+	+	+	—	—	—
Tekek	1936	—	—	+	—	—	—	—	—	+	—	—
	1941	+	+	—	—	+	+	+	+	—	—	+
	1949	23	58	—	—	1	10	+	50	—	—	—
Juara (and Tanjong Ruit)	1941	+	—	—	+	+	+	—	+	—	+	—
	1949	22	—	2	—	—	—	—	—	—	—	—
Mokut ..	1941	+	—	—	—	—	+	—	+	—	—	—
	1949	14	15	—	—	—	6	—	7	—	—	—

It seems likely that during the wet season there are numerous seepages along the steep rocky hillfoot which lies close behind each kampong. Dr. Wolfe expresses the same opinion in his report and the inhabitants affirmed that this is so. The method of clearing the hillfoot and lower slopes on a three-year rotation for planting hill paddy, ensures that there are always

fresh clearings which would expose such seepages, in which *maculatus* may be expected to breed. It appears that *maculatus* also breeds in the seepages which trickle down the bare rock faces that are found in various places; this occurred in Tanjong Ruit at the north end of Juara Bay where a signal station was built in 1941, and the breeding places were dealt with by filling with cement.

Some of these bare granite precipices are quite inaccessible as they occur on the mountain sides at heights of about 1,000 feet above sea level, and may be several hundred feet high; all have sheets of moisture seeping down them at various points.

Anlpheles sundaicus.—This species is locally abundant where floating beds of green alga occur in the still water that lies just behind the mouths of many of the streams. The protection afforded by this alga allows the larvæ of *sundaicus* and *barbirostris* which is often present also, to resist quite considerable tidal ebb and flow.

Comment.—Whilst it seems a fair assumption on the evidence available that *A. maculatus* and *A. sundaicus* are the important vectors of malaria on Tioman, the entomological data are still very scanty. We are driven to assume the appearance of seepages along the rocky hillfoot in the wet weather, associated with clearing for hill paddy cultivation leading to *maculatus* breeding intense enough, when combined with an unknown amount of *sundaicus* breeding, to account for the state of hyperendemic malaria which prevails.

The Control Problem.—The malaria control problem on Pulau Tioman is unusual but not unique. The population is small and isolated, the malaria is severe; there are grave dangers for infants and immigrants; but few risks to the native islanders beyond late childhood. The people are poor and can do little for themselves while the economic value of the island to the Pahang Government is small. Many questions arise. Is it possible to eradicate the malaria? If it is, would the cost be justified either by the improvement to health which would follow or for the knowledge which would be gained thereby? If not, what are the prospects of effective reduction by drainage, oiling, and other methods of larval control? What value would DDT or Gammaxane spraying of the houses be likely to have? Would an attack on the parasites by the prophylactic use of paludrine do any good? Are there any risks? We may perhaps attempt a provisional answer to some of these questions.

Eradication.—A new philosophy of malaria control is arising. The success of malaria eradication in Brazil, Upper Egypt and other parts of the world has encouraged all-out attempts to rid large areas of malaria. What are the prospects for Tioman Island? There is good topographical isolation and once freed from malaria the problem of preventing new invasion from the mainland or neighbouring islands should not be insuperable. Success would depend on the destruction of all the carrier mosquitoes of the island—of the larvæ in their breeding places and of the adults in the houses. This might be technically possible, but a glance at the precipitous rocks, high above the villages, wet with seepage and potential breeding haunts of *A. maculatus*, leaves no doubt how exceedingly difficult this

would be, and how high the probable cost. With the present resources of trained personnel in the State of Pahang the task would be too great and the cost far beyond the present budget of the Health Department, and disproportionate to the size of the population protected.

Larval Control.—Limited attempts at larval control were made before the war between 1937 and 1941. They were restricted to stream clearance and oiling in Tekek and Juara for which work a mandor and twelve oiling coolies were employed. Judged by the results of a parasite survey made in August, 1941, they were not successful.

Larval control is possible but is likely to be difficult and expensive. *Maculatus* control in the high rocks and seasonal clearings would involve great technical difficulties. There would be a need, moreover to protect more than the Juara and Tekek areas. Mokut also has a sizeable population. Protection by this means of the small but heavily infected people of Kampongs Lallang, Paya and Salang would be economically indefensible.

Parasite Control.—Drug prophylaxis based on paludrine seems to us to offer the best chance of easing the present load of malaria borne by the Tioman population. The cost would not be great—about fifty cents per person per year—nor are the administrative problems beyond the training and the resources of the dispensary staff. Well-organised and thoroughly applied, paludrine prophylaxis is a very useful means of giving quick clinical relief to heavily infected peoples though, of course, the basic problem remains once this measure is slackened off. The potential benefits are:

(*a*) a big reduction in the size of the spleens,

(*b*) a saving of child life and a relief from much suffering,

(*c*) a marked drop in malaria transmission and hence in the danger of fatal *falciparum* infection which is a real problem at the present time for "unsalted" visitors from the mainland.

The effects of paludrine prophylaxis, unfortunately, are felt only while the drug is being taken and for a short time afterwards. This is one drawback. Another is that protected populations tend, in time, to lose the immunity which is such a useful possession of the adults living under hyperendemic condition. Prophylaxis having once started must therefore continue, for cessation exposes formerly protected population after a while to the risks of serious epidemic spread of infection.

Residual house-spraying with DDT or Gammexane.—It is possible that house spraying with one of the new insecticides will finally prove to be the form of control best suited for the conditions of Tioman Island. No elaborate organisation beyond the resources of the Medical Services is necessary, the technique is simple and the cost is unlikely to be high. The method has proved efficient against malaria vectors in other countries and may well be equally efficient in Malaya. But there is no proof yet that the important Malayan vectors *A. maculatus* and *A. sundaicus* are destroyed by residual insecticides in sufficient numbers to control malaria. House spraying has been most

effective in countries where the malaria carrying mosquitoes habitually rest in houses. The probable Tioman vectors, *A. maculatus* and *A. sundaicus* do not; and it is still to be determined that a big proportion of these species pick up a lethal dose when they enter houses to feed. Because of this uncertainty it would be premature to give house spraying an unqualified recommendation; and wiser to wait for a year until more is known of the results of large-scale DDT experiments against *A. maculatus* now being carried out by the Institute in kampong areas of Negri Sembilan.

Comments.—The reality of the malaria problem on Pulau Tioman is beyond doubt. The islanders bear a heavy burden of malaria and if the men and women are unconscious of it the reason is that they have paid the price as children and are now immune. We believe that malaria takes heavy toll in early life. The dangers to the "unsalted" immigrant are beyond question. The problem is not a simple one and no permanent solution is in sight. We see no prospect of ridding the island of malaria by mosquito eradication at a cost which the Pahang, or even the Federal Administration, could bear. Drainage and oiling on a scale adequate to control the breeding of *A. maculatus* and *A. sundaicus* are possible only at a cost likely to be disproportionate to the size of the population and the modest economy of the island. Better prospects, we believe, are possible from DDT spraying of the houses and an intensive use of paludrine. Based on these measures we venture to make the following suggestions for the consideration of the Pahang Health Department:

(*a*) *Paludrine.*—

(*a*) The administration to every infant from birth and up to two years of age of 50 mgm. (half a tablet) of paludrine every week.

(*b*) The administration to every child over two years and under fourteen years of 100 mgm. (one tablet) of paludrine every week.

This is the important age group of the population. Here most of the heavy infections occur, and from this group most of the mosquito infections are likely to arise.

(*c*) The administration to such adults over 14 years as wish to be protected of 100 mgm. (1 tablet) of paludrine every week.

Most of the adults are to some extent immune and a campaign to ensure regular prophylaxis is less imperative.

(*d*) The administration to all visitors to the island of 100 mgm. (1 tablet) of paludrine daily during their stay and daily for one week afterwards. (One tablet) twice a week would probably be enough but the bigger dose gives a greater margin of safety.

This will protect visitors from the only dangerous infection—that due to *P. falciparum*.

These measures may fairly be expected:

(i) to reduce the wastage of child life;

(ii) to reduce spleen rates;

(iii) to protect visitors from serious *falciparum* infection.

They should be continued for one year. The problem of paludrine distribution is a local one; but we would point out the advantage which better mobility of the dispensary dresser would have to offer. He can reach outlying parts of the island only by sea, and a small launch would greatly simplify inspection and distribution of the drug. Propaganda leaflets issued with the drug might be useful.

(*b*) *House-spraying with DDT.*—

DDT as a residual house spray might, we consider, be given a trial. Next year when the results of DDT spraying in Negri Sembilan kampongs are known it may be possible to assess the prospects, but a provisional programme of one year house spraying to begin about mid 1950 might be planned.

Meanwhile we suggest the advantage of collecting more information on the anopheline situation. The assumption that *A. maculatus* and *A. sundaicus* are the only vectors is probable but unproved. Trapping of adult mosquitoes during the wetter seasons of the year when they are probably most numerous, would be valuable.

Table 1.

IN-PATIENTS.

Return of Diseases and Deaths for the Year 1949.

(All Hospitals including Special Institutions.)

Diseases.	Remaining at end of Dec., 1948.	Yearly Total.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
I.—Infectious and Parasitic Diseases.					
1. Typhoid fever	71	810	124	881	74
2. Paratyphoid fever	1	39	1	40	2
3. Typhus—					
(1) Typhus exanthematicus	..	..	..	..	..
(2) Tropical typhus	19	427	8	446	12
(3) Japanese river fever	..	..	..	..	..
(4) Other rickettsia infections	..	3	..	3	1
4. Relapsing fever	..	..	..	..	..
5. Undulant fever	..	..	..	..	..
6. Small-pox	..	3	..	3*a*	
7. Measles	3	340	2	343*a*	8
8. Scarlet fever	..	1	..	1	..
9. Whooping cough	..	28	2	28	4
10. Diphtheria	25	585	170	610	25
11. Influenza—					
(1) with pneumonia	1	61	1	62	..
(2) with other respiratory complications	9	635	2	644	17
(3) without respiratory complications	114	5,364	..	5,478	103
12. Cholera	..	..	..	..	..
13. Dysentery—					
(1) Amœbic	63	1,205	48	1,268	48
(2) Bacillary	10	312	10	322	2
(3) Mixed	2	1	..	3	..
(4) Undefined or due to other causes	19	433	16	452	12
14. Plague—					
(1) Bubonic	..	..	..	..	..
(2) Pneumonic	..	..	..	..	..
(3) Septicæmic	..	..	..	..	..
(4) Undefined	..	..	..	..	..
15. Erysipelas	3	58	1	61	1
16. Acute poliomyelitis—					
(1) Acute poliomyelitis	6	54	4	60	3
(2) Acute polioencephalitis	..	3	1	3	..
17. Encephalitis lethargica	1	..	..	1	..
18. Cerebro-spinal fever	..	9	5	9	..
19. Glanders	..	..	..	..	..
20. Anthrax	..	..	..	..	..
21. Rabies	1	4	5	5	..
22. Tetanus—					
(1) Tetanus of the newly born	1	231	204	232	..
(2) Other forms of tetanus	6	212	99	218	11
23. Tuberculosis of the respiratory system	1,915	6,510	1,916	8,425	2,328
24. Tuberculosis of the central nervous system	6	131	92	137	10
25. Tuberculosis of the intestines or peritoneum	5	42	15	47	2
26. Tuberculosis of the vertebral column	46	148	13	194	51
27. Tuberculosis of other bones and joints	61	152	7	213	49
28. Tuberculosis of the skin or subcutaneous tissue (lupus)	..	19	..	19	3
29. Tuberculosis of the lymphatic system (abdominal and bronchial glands excepted)	9	94	5	103	4
30. Tuberculosis of the genito-urinary system	..	13	3	13	1
31. Tuberculosis of other organs—					
(1) Adrenal	..	..	..	..	..
(2) Other sites	6	39	9	45	5
Carried forward	2,403	17,966	2,763	20,369	2,776

The form shows in the main the arrangement of diseases in the *International Nomenclature, 1931 Edition*. To save space the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the class.

a. This does not include cases not treated in hospitals.

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(*All Hospitals including Special Institutions*)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	2,403	17,966	2,763	20,369	2,776
I.—INFECTIOUS AND PARASITIC DISEASES—(*cont.*)					
32. Tuberculosis disseminated—					
(1) Acute	..	1	..	1	..
(2) Chronic	..	..	..	..	..
(3) Not distinguished as acute or chronic ..	..	5	..	5	..
33. Leprosy	2,629	732	96	3,361*a*	2,919
34. Syphilis—					
(1) Primary	14	463	..	477	11
(2) Secondary	92	1,267	4	1,359	76
(3) Tertiary	35	451	15	486	38
(4) Hereditary	4	164	47	168	7
(5) Period not indicated ..	23	358	8	381	13
35. Other venereal diseases—					
(1) Soft chancre	4	216	..	220	3
(2) Gonorrhœa and its complications ..	62	1,517	2	1,579	35
(3) Gonorrhœal ophthalmia	3	81	..	84	2
(4) Gonorrhœal arthritis ..	12	171	..	183	7
(5) Granuloma venereum ..	..	55	1	55	..
(6) Tropical bubo	8	253	..	261	12
36. Purulent infective septicæmia—					
(1) Septicæmia	1	78	57	79	..
(2) Pyæmia	1	25	10	26	..
(3) Gas gangrene	1	1	1	2	..
37. Yellow fever	..	..	..	..	..
38. Malaria—					
(1) Tertian (benign) ..	51	2,680	38	2,731	40
(2) Quartan	6	90	3	96	4
(3) Aestivo-autumnal (Subtertian) ..	111	5,859	205	5,970	102
(4) Mixed infections ..	8	318	19	326	3
(5) Unclassified	144	7,326	138	7,470	131
(6) Cachexia	54	1,458	38	1,512	32
(7) Blackwater fever ..	..	9	2	9	1
39. Other diseases due to Protozoa—					
(1) Yaws (framboesia) ..	126	1,452	3	1,578	103
(2) Spirochætosis icterohæmorrhagica	..	4	2	4	..
(3) Leishmaniasis (dermal)	..	..	..	..	..
(4) Kala azar	..	1	..	1	..
(5) Other diseases	..	5	1	5	..
40. Ankylostomiasis	48	1,536	4	1,584	54
41. Hydatid cysts	..	3	..	3	..
42. Other diseases due to helminths—					
Cestodes.					
(1) Tænia solium	..	3	..	3	..
(2) Tænia saginata	..	..	..	..	..
(3) Other cestodes	..	..	..	..	..
Nematodes.					
(4) Filaria	3	136	..	139	6
(5) Ascaris	58	2,871	12	2,929	45
(6) Trichuris trichiura ..	..	7	..	7	1
(7) Oxyuris vermicularis ..	..	4	..	4	..
(8) Dracunculus medinensis	..	..	..	..	..
Trematodes.					
(9) Schistosomum japonicum	..	..	..	..	..
(10) Clonorchis sinensis ..	..	1	..	1	..
(11) Other helminths ..	..	..	..	..	..
(12) Undefined	3	193	3	196	3
43. (1) Sprue	1	20	..	21	..
(2) Actinomycosis	1	4	..	5	..
(3) Other mycotic infections excluding purely dermal mycosis	..	3	..	3	..
Carried forward ..	5,906	47,787	3,472	53,693	6,424

a. Admissions to Leper Settlements.

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(All Hospitals including Special Institutions)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	5,906	47,787	3,472	53,693	6,424
I.—INFECTIOUS AND PARASITIC DISEASES—(*cont.*)					
44. Other infectious or parasitic diseases—					
(1) Vaccinia including post vaccinal encephalitis..	..	1	1	1	..
(2) Other sequelæ of vaccination	..	5	..	5	..
(3) Rubella	..	..	..	..	..
(4) Varicella (chicken-pox)	9	608	..	617	18
(5) Mumps and its complications	12	122	..	134	10
(6) Dengue	1	51	..	52	2
(7) Melioidosis	..	..	..	..	..
(8) Myiasis	..	..	..	..	..
(9) Glandular fever.. ..	..	1	..	1	..
10) Others	..	..	..	..	..
(11) Pyrexia of unknown origin	..	192	16	192	6
II.—CANCER AND OTHER TUMOURS.					
45. Cancer or other malignant diseases of the buccal cavity, and pharynx	9	138	46	147	11
46. Cancer or other malignant tumours of the digestive organs and peritoneum—					
(1) Stomach	8	143	78	151	3
(2) Liver (primary).. ..	..	184	100	184	2
(3) Other digestive organs..	5	128	50	133	7
47. Cancer or other malignant tumours of the respiratory organs	3	54	28	57	1
48. Cancer or other malignant tumours of the uterus	2	108	21	110	7
49. Cancer or other malignant tumours of other female genital organs	5	126	26	131	3
50. Cancer or other malignant tumours of the breast	8	59	10	67	2
51. Cancer or other malignant tumours of the male genito-urinary organs	1	29	14	30	2
52. Cancer or other malignant tumours of the skin	3	88	15	91	5
53. Cancer or other malignant tumours of organs not specified ..	14	221	69	235	13
54. Tumours non-malignant—					
(1) Of female genital organs	2	66	3	68	1
(2) Of other sites	13	429	8	442	17
55. Tumours of undetermined nature—					
(1) Female genital organs ..	..	14	..	14	..
(2) Other sites	10	142	9	152	1
III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES.					
56. Rheumatic fever—					
(1) With cardiac involvement	3	65	14	68	3
(2) Without cardiac involvement	13	150	2	163	11
57. Chronic rheumatism and osteoarthritis	32	800	2	832	26
58. Gout	1	7	..	8	..
59. Diabetes (not including diabetes insipidus)	34	534	39	568	47
60. Scurvy (including Barlow's disease)	4	4	..	8	..
Carried forward ..	6,098	52,256	4,023	58,354	6,622

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(*All Hospitals including Special Institutions*)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	6,098	52,256	4,023	58,354	6,622
III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES—(*cont.*)					
61. (1) Beri-beri including epidemic dropsy	34	516	55	550	37
(2) Beri-beri associated with pregnancy or labour ..	..	19	4	19	..
62. Pellagra	1	7	..	8	..
63. Rickets	1	20	3	21	3
64. Osteomalacia	..	..	..	..	..
65. Diseases of the pituitary gland ..	3	6	2	9	..
66. Diseases of the thyroid and parathyroid glands—					
(1) Simple goitre	1	33	2	34	6
(2) Exophthalmic goitre ..	1	31	..	32	1
(3) Myxœdema, cretinism	..	5	2	5	1
(4) Tetany	..	3	..	3	..
(5) Other diseases of the thyroid glands ..	5	77	2	82	3
67. Diseases of the thymus	..	1	1	1	..
68. Diseases of the adrenal glands (excluding tuberculosis) ..	..	1	..	1	..
69. Other general diseases—					
(1) Acidosis	..	6	..	6	2
(2) Other diseases of metabolism	25	388	44	413	16
IV.—DISEASES OF THE BLOOD AND BLOOD FORMING ORGANS.					
70. Hæmorrhagic conditions—					
(1) Purpura	1	3	1	4	..
(2) Hæmophilia	..	4	2	4	..
71. Anæmia and chlorosis—					
(1) Pernicious anæmia ..	3	40	6	43	1
(2) Splenic anæmia ..	1	9	..	10	..
(3) Chlorosis	..	1	..	1	..
(4) Secondary anæmia ..	238	2,699	178	2,937	221
(5) Others	81	1,703	127	1,784	88
72. Leukæmia—					
(1) Leukæmia	..	25	14	25	1
(2) Hodgkin's disease ..	1	12	2	13	2
73. Diseases of the spleen—					
(1) Banti's disease	..	10	2	10	..
(2) Others (not including diseases of the spleen due to malaria or leukæmia)	1	30	4	31	..
74. Other diseases of the blood and blood forming organs	2	41	8	43	1
V.—CHRONIC POISONING.					
75. Alcoholism (acute or chronic) ..	2	244	1	246	2
76. Chronic poisoning by other organic substances—					
(1) Opium	14	756	4	770	13
(2) Morphia, cocaine ..	..	..	..	..	..
(3) Others	1	30	1	31	1
77. Chronic poisoning by mineral substances—					
(1) Lead poisoning	..	2	..	2	..
(2) Arsenical dermatitis ..	2	81	2	83	2
(3) Others	..	71	5	71	2
Carried forward ..	6,516	59,130	4,495	65,646	7,025

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(All Hospitals including Special Institutions)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	6,516	59,130	4,495	65,646	7,025
VI.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.					
78. Encephalitis (not including encephalitis lethargica)—					
(1) Cerebral abscess ..	..	17	12	17	..
(2) Other forms of encephalitis..	1	33	19	34	3
79. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)	..	155	115	155	5
80. Tabes dorsalis (Locomotor ataxia)	8	27	..	35	12
81. Other diseases of the spinal cord..	9	48	6	57	5
82. Apoplexy and paralysis—					
(1) Cerebral hæmorrhage ..	6	162	131	168	7
(2) Cerebral embolism ..	1	18	12	19	1
(3) Cerebral thrombosis ..	15	125	49	140	12
(4) Hemiplegia, cause not determined	73	305	26	378	81
(5) Other paralysis ..	29	178	15	207	40
83. General paralysis of the insane ..	..	7	4	7	2
84. Other forms of insanity—					
(1) Dementia præcox ..	2	310	..	312	..
(2) Others	2,151	1,915	309	4,066a	2,758
85. Epilepsy	14	187	19	201	18
86. Infantile convulsions .. .. (age under 5 years)	1	191	89	192	..
87. Other diseases of the nervous system—					
(1) Chorea	1	10	1	11	..
(2) Neuritis and neuralgia..	44	1,374	2	1,418	44
(3) Paralysis agitans ..	6	22	2	28	6
(4) Disseminated sclerosis ..	3	10	1	13	2
(5) Neurasthenia	9	170	..	179	1
(6) Hysteria	1	120	..	121	5
(7) Others	13	467	5	480	17
88. Diseases of the eye—					
(1) Conjunctivitis	57	2,249	..	2,306	38
(2) Trachoma	20	157	..	177	7
(3) Corneal ulcer	13	320	..	333	10
(4) Other diseases of the eye	266	2,206	4	2,472	231
89. Diseases of the ear and or the mastoid sinus—					
(1) Otitis externa	5	144	..	149	2
(2) Otitis media	6	280	4	286	8
(3) Mastoiditis	7	74	4	81	4
(4) Others	2	128	..	130	4
VII.—DISEASES OF THE CIRCULATORY SYSTEM.					
90. Pericarditis	..	28	9	28	4
91. Acute endocarditis—					
(1) Malignant	..	4	2	4	..
(2) Others	1	37	13	38	2
92. Chronic endocarditis: valvular disease—					
(1) Aortic valve disease ..	2	44	15	46	3
(2) Mitral valve disease ..	24	288	58	312	26
(3) Aortic and mitral ..	1	21	5	22	2
(4) Others	6	106	23	112	5
93. Diseases of the myocardium—					
(1) Acute myocarditis ..	20	205	79	225	9
(2) Chronic myocardial degeneration	20	345	115	365	21
Carried forward ..	9,353	71,617	5,643	80,970	10,420

a. Cases admitted to Mental Hospital.

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(*All Hospitals including Special Institutions*)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	9,353	71,617	5,643	80,970	10,420
VII.—DISEASES OF THE CIRCULATORY SYSTEM—(*cont.*)					
94. Diseases of the coronary arteries—					
(1) Angina pectoris	1	21	4	22	..
(2) Coronary thrombosis ..	1	33	13	34	2
(3) Coronary sclerosis ..	..	4	1	4	..
95. Other diseases of the heart—					
(1) Auricular fibrillation ..	8	63	14	71	2
(2) Heart block	..	18	7	18	..
(3) Others	19	474	210	493	18
96. Aneurysm—					
(1) Aneurysm of aorta ..	4	27	9	31	1
(2) Aneurysm of other arteries	..	12	..	12	1
97. Arterio-sclerosis	13	88	14	101	11
98. Gangrene	3	76	12	79	9
99. Other diseases of the arteries ..	..	16	3	16	..
100. Diseases of the veins—					
(1) Varicose veins	3	81	..	84	4
(2) Hæmorrhoids	33	892	1	925	25
(3) Phlebitis	2	63	2	65	3
(4) Thrombosis	..	16	1	16	..
(5) Others	1	29	..	30	..
101. Diseases of the lymphatic system—					
(1) Lymphangitis	4	117	..	121	7
(2) Lymphadenitis	24	596	3	620	17
(3) Bubo (non-specified) ..	8	180	..	188	4
102. Abnormalities of blood pressure—					
(1) High blood pressure ..	19	442	58	461	32
(2) Low blood pressure ..	..	4	..	4	..
103. Other diseases of the circulatory system—					
(1) Epistaxis	..	42	..	42	1
(2) Others	..	45	3	45	1
VIII.—DISEASES OF THE RESPIRATORY SYSTEM.					
104. Diseases of the nasal fossæ and its annexa— ..					
(1) Diseases of the nose ..	10	381	1	391	6
(2) Diseases of the accessory nasal sinuses	5	298	1	303	6
105. Diseases of the larynx—					
(1) Laryngismus stridulus ..	..	3	3	3	..
(2) Laryngitis	..	99	4	99	..
(3) Other diseases of the larynx	..	28	3	28	
106. Bronchitis—					
(1) Acute	55	2,154	9	2,209	48
(2) Chronic	79	1,623	66	1,702	84
(3) Not defined as acute or chronic	68	2,875	11	2,943	74
107. Broncho-pneumonia	31	1,821	604	1,852	44
108. Lobar-pneumonia	41	1,143	147	1,184	36
109. Pneumonia (not otherwise defined)	28	685	116	713	23
110. Pleurisy—					
(1) Empyema	8	104	14	112	6
(2) Other pleurisy	27	445	16	472	25
111. Congestion and hæmorrhagic infarction of lung, etc.—					
(1) Hypostatic congestion of lung	..	5	3	5	..
(2) Massive collapse ..	..	2	..	22	..
(3) Pulmonary embolism ..	..	19	16	19	..
(4) Others	1	64	9	65	1
112. Asthma	127	3,015	39	3,142	117
113. Pulmonary emphysema	1	25	7	26	3
Carried forward ..	9,977	89,745	7,067	99,722	11,032

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(*All Hospitals including Special Institutions*)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	9,977	89,745	7,067	99,722	11,032
VIII.—DISEASES OF THE RESPIRATORY SYSTEM—(*cont.*)					
114. Other diseases of the respiratory system—					
(1) Chronic interstitial pneumonia (including occupational diseases of the lung)	..	..	..	..	..
(2) Gangrene of the lung ..	..	5	3	5	1
(3) Abscess of the lung ..	2	63	15	65	7
(4) Bronchiectasis	5	132	14	137	9
(5) Others	10	347	7	357	5
IX.—DISEASES OF THE DIGESTIVE SYSTEM.					
115. Diseases of the buccal cavity, pharynx, etc.—					
(1) Pyorrhœa	6	148	..	154	3
(2) Dental caries	10	433	..	443	5
(3) Stomatitis	2	129	2	131	2
(4) Ludwig's angina ..	1	37	6	38	..
(5) Diseases of the tonsils ..	13	983	4	996	20
(6) Others	10	873	6	883	19
116. Diseases of the œsophagus ..	2	76	10	78	2
117. Ulcer of the stomach or duodenum—					
(1) Ulcer of the stomach ..	49	661	66	710	36
(2) Ulcer of the duodenum ..	20	190	18	210	12
118. Other diseases of the stomach—					
(1) Gastritis	49	1,756	4	1,805	53
(2) Others	19	832	12	851	24
119. Diarrhœa and enteritis— (under 2 years)	25	1,428	429	1,453	29
120. Diarrhœa and enteritis— (2 years and over)					
(1) Colitis	9	583	33	592	14
(2) Otherwise defined ..	54	2,269	126	2,323	41
121. Appendicitis	31	1,325	33	1,356	36
122. Hernia, Intestinal obstruction—					
(1) Hernia	43	919	5	962	27
(2) Strangulated hernia ..	4	132	21	136	3
(3) Intestinal obstruction .. (including intussusception)	5	149	64	154	5
123. Other diseases of the intestines—					
(1) Constipation, intestinal stasis	5	418	..	423	5
(2) Diverticulitis	1	60	1	61	2
(3) Others	9	768	11	777	18
124. Cirrhosis of liver— (non-syphilitic)					
(1) Alcoholic	1	11	2	12	2
(2) Not returned as alcoholic	28	401	105	429	21
125. Other diseases of the liver—					
(1) Acute yellow atrophy ..	1	20	8	21	..
(2) Toxic hepatitis	8	202	11	210	11
(3) Amœbic abscess and hepatitis	33	681	40	714	29
(4) Others	14	402	37	416	18
126. Biliary calculi—					
(1) With cholecystitis ..	1	40	4	41	2
(2) Without mention of cholecystitis	2	28	1	30	..
Carried forward ..	10,449	106,246	8,165	116,695	11,493

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(*All Hospitals including Special Institutions*)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	10,449	106,246	8,165	116,695	11,493
IX.—DISEASES OF THE DIGESTIVE SYSTEM—(*cont.*)					
127. Other diseases of the gall bladder and ducts—					
(1) Cholecystitis without record of calculi ..	1	126	4	127	5
(2) Others	8	154	15	162	6
128. Diseases of the pancreas (excluding diabetes mellitus) ..	..	16	6	16	..
129. Peritonitis, without stated cause	9	157	91	166	6
X.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).					
130. Acute nephritis	23	376	55	399	27
131. Chronic nephritis	30	442	99	472	34
132. Nephritis (undefined as acute or chronic)..	44	421	45	465	31
133. Other diseases of the kidney and annexa—					
(1) Pyelitis	12	550	6	562	18
(2) Others	12	345	21	357	8
134. Calculi of the urinary passages—					
(1) Calculi of the kidney and ureter	3	162	..	165	8
(2) Calculi of the bladder ..	5	81	1	86	5
(3) Calculi of unstated site..	2	21	1	23	1
135. Diseases of the Bladder—					
(1) Cystitis	7	320	4	327	8
(2) Others	4	144	4	148	6
136. Diseases of the urethra—					
(1) Stricture..	19	256	..	275	10
(2) Others	2	331	..	333	7
137. Diseases of the prostate	6	84	6	90	2
138. Diseases of the male genital organs—					
(1) Epididymitis	..	120	..	120	3
(2) Orchitis	8	192	..	200	6
(3) Hydrocele	11	271	..	282	18
(4) Others	6	440	1	446	10
139. Diseases of the female genital organs—					
(1) Diseases of the ovary ..	3	184	3	187	6
(2) Diseases of the fallopian tube	3	211	2	214	2
(3) Diseases of the parametrium	..	19	..	19	1
(4) Diseases of the uterus ..	20	661	13	681	11
(5) Diseases of the breast ..	4	190	..	194	3
(6) Other diseases of the female genital organs	16	732	6	748	15
XI.—CONDITIONS ARISING IN PREGNANCY, CHILDBIRTH AND THE PUERPERAL STATE.					
140. Post abortive sepsis—					
(1) Septic abortion ..	2	35	2	37	..
141. Abortion not returned as septic—					
(1) Hæmorrhage following abortion	9	332	5	341	4
(2) Abortion without record of hæmorrhage	27	1,390	5	1,417	27
142. Ectopic gestation	1	140	16	141	4
143. Other accidents of pregnancy ..	55	731	9	786	7
Carried forward ..	10,801	115,880	8,585	126,681	11,792

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

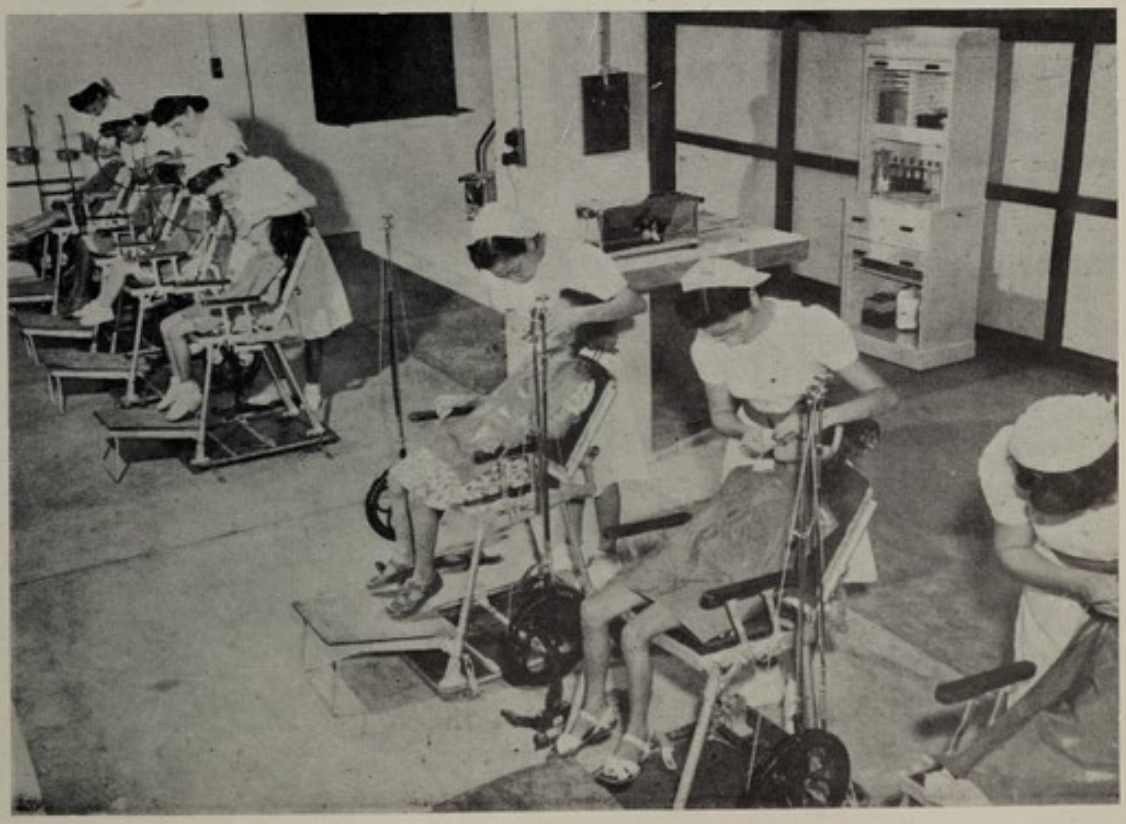
RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

(*All Hospitals including Special Institutions*)—(cont.)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	10,801	115,880	8,585	126,681	11,792
XI.—CONDITIONS ARISING IN PREGNANCY, CHILDBIRTH AND THE PUERPERAL STATE—(*cont.*)					
144. Puerperal hæmorrhage—					
(1) Placenta prævia ..	3	153	29	156	..
(2) other puerperal hæmorrhage	4	357	55	361	4
145. Puerperal sepsis—					
(1) Puerperal septicæmia ..	..	32	8	32	..
(2) Puerperal sepsis, not including septicæmia..	3	142	13	145	4
146. Puerperal albuminuria and convulsions—					
(1) Ante-partum eclampsia	5	104	28	109	3
(2) Intra-partum eclampsia	..	15	8	15	..
(3) Post-partum eclampsia	..	22	9	22	..
(4) Albuminuria of pregnancy	6	179	5	185	5
(5) Pyelitis of pregnancy ..	..	19	..	19	..
(6) Otherwise defined ..	..	106	6	106	8
147. Other Toxæmias of pregnancy—					
(1) Hyperemesis gravidarum	..	77	1	77	3
(2) Others	4	318	10	322	21
148. Puerperal phlegmasia, embolism—					
(1) Puerperal phlegmasia ..	..	3	..	3	..
(2) Puerperal embolism ..	..	..	..	..	..
149. Conditions associated with Labour—					
(1) Normal labour	525	31,039	..	31,564	625
(2) Abnormal labour ..	35	1,882	49	1,917	39
(3) Labour complicated with intercurrent disease ..	7	385	13	392	2
(4) Accidents of childbirth..	10	214	9	224	4
150. Other or unspecified conditions of the puerperal state—					
(1) Puerperal insanity ..	1	15	..	16	..
(2) Puerperal disease of the breast	..	3	..	3	2
(3) Others	..	48	..	48	1
XII.—DISEASES OF THE SKIN AND CELLULAR TISSUES.					
151. Carbuncle, boil	24	886	1	910	34
152. Cellulitis, acute abscess—					
(1) Cellulitis	61	1,489	30	1,550	68
(2) Acute abscess	172	4,193	10	4,365	115
(3) Otherwise defined ..	8	581	..	589	28
153. Other diseases of the skin and its annexa—					
(1) Ulcers	425	5,582	10	6,007	301
(2) Dermal mycoses ..	16	736	..	752	34
(3) Herpes	8	254	..	262	4
(4) Scabies	85	2,044	..	2,129	56
(5) Others	169	4,433	4	4,602	151
XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.					
154. Acute infective osteomyelitis and periostitis	22	284	5	306	24
155. Other diseases of the bones ..	37	735	5	772	66
156. Diseases of the joints and other organs of locomotion—					
(1) Diseases of the joints ..	70	1,067	2	1,137	72
(2) Diseases of the other organs of locomotion	26	886	..	912	47
Carried forward ..	12,527	174,163	8,895	186,690	13,513

DENTAL NURSES' TRAINING SCHOOL, PENANG.

Instruction on dummies.



Treatment of school children.

Prevention of malaria. D.D.T. Spraying in Malay house.

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

Diseases.	Remaining at end of Dec., 1948.	Yearly Total.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	12,527	174,163	8,895	186,690	13,513
XIV.—CONGENITAL MALFORMATIONS.					
157. Congenital malformations—					
(1) Congenital hydrocephalus	2	30	9	32	..
(2) Spina bifida and meningocele	2	13	7	15	2
(3) Congenital malformation of the heart	1	19	8	20	..
(4) Monstrosities	..	..	..	..	..
(5) Congenital hypertrophic pyloric stenosis ..	..	2	..	2	..
(6) Cleft palate, harelip ..	1	124	..	125	2
(7) Imperforate anus ..	1	38	15	39	3
(8) Other congenital malformations ..	7	73	31	80	4
XV.—DISEASES OF EARLY INFANCY.					
158. Congenital debility	3	84	47	87	..
159. Premature birth	18	1,169	564	1,187	17
160. Injury at birth	..	44	25	44	..
161. Other diseases peculiar to early infancy—					
(1) Atelectasis	..	91	54	91	..
(2) Icterus neonatorum ..	..	41	20	41	..
(3) Affections of the umbilicus	..	38	14	38	1
(4) Pemphigus neonatorum	..	18	3	18	..
(5) Others	4	318	144	322	6
XVI.—CONDITIONS ASSOCIATED WITH OLD AGE.					
162. (1) Senile dementia	4	55	16	59	1
(2) Other forms of senile decay ..	534	1,282	322	1,816	453
XVII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.					
163. Suicide, or attempted suicide, by poisoning (including corrosive poisoning)	2	144	54	146	4
164. Suicide, or attempted suicide, by gas poisoning	..	..	..	..	..
165. Suicide, or attempted suicide, by hanging or strangulation ..	1	12	6	13	..
166. Suicide, or attempted suicide, by drowning	..	3	..	3	..
167. Suicide, or attempted suicide, by firearms..	1	3	2	4	1
168. Suicide, or attempted suicide, by cutting or piercing instruments	3	33	8	36	1
169. Suicide, or attempted suicide, by jumping from a height ..	1	9	8	10	..
170. Suicide, or attempted suicide, by crushing	..	..	..	..	..
171. Suicide, or attempted suicide, by other means	..	19	3	19	..
172. Infanticide	..	..	..	..	..
173. Assault or homicide, by firearms	50	567	73	617	57
174. Assault or homicide, by cutting or piercing instruments	19	389	9	408	21
175. Assault or homicide, by other means	16	1,098	5	1,114	28
176. Attacks by venomous animals—					
(1) Snake bite	4	256	7	260	2
(2) Insect bite	2	113	1	115	1
(3) Others	6	170	..	176	5
Carried forward ..	13,209	180,418	10,350	193,627	14,122

TABLE 1—(*cont.*)

IN-PATIENTS—(*cont.*)

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1949—(*cont.*)

Diseases.	Remaining at end of Dec., 1948.	YEARLY TOTAL.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Brought forward ..	13,209	180,418	10,350	193,627	14,122
XVII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—(*cont.*)					
177. Food poisoning	..	150	..	150	4
178. Accidental absorption of irrespirable or poisonous gas	..	1	..	1	..
179. Other acute accidental poisoning	8	112	9	120	..
180. Injuries due to conflagration ..	..	..	..	..	..
181. Accidental burns—(Conflagration excepted)					
(1) Burns by fire	18	496	33	514	35
(2) Scalds	26	488	16	514	19
(3) Burns by corrosive substances	1	35	..	36	..
(4) Dermatitis due to exposure to sun ..	2	27	..	29	..
(5) Dermatitis due to exposure to other forms of radiation ..	4	75	..	79	..
182. Accidental mechanical suffocation	..	1	..	1	..
183. Accidental immersion or drowning	..	17	3	17	..
184. Accidental injury by firearms ..	15	295	32	310	22
185. Accidental injury by cutting or piercing instruments	37	1,521	4	1,558	58
186. Accidental injury by fall, crushing, etc.—					
(1) By fall	233	5,324	79	5,557	185
(2) By machinery	6	315	4	321	30
(3) By motor vehicles ..	70	1,667	137	1,737	65
(4) By railway vehicles ..	5	33	4	38	5
(5) By other means ..	147	5,169	39	5,316	174
187. Cataclysm—(tidal waves, cyclones, etc.)					
188. Injury by animals .. .. (except poisoning by venomous animals)	13	576	5	589	15
189. Hunger or thirst	..	..	..	..	..
190. Excessive cold	..	..	..	..	..
191. Excessive heat	..	4	1	4	..
192. Lightning	..	6	..	6	..
193. Electricity	..	17	1	17	..
194. Other unstated forms of violence—					
(1) Inattention at birth ..	..	3	..	3	..
(2) Others	6	91	1	97	4
195. Violence of an unstated nature (i.e., suicidal, homicidal, or accidental)	1	25	7	26	1
196. Wounds of war	..	..	..	..	..
197. Execution of civilians by belligerent armies..	..	..	..	..	..
198. Execution	..	..	..	..	..
XVIII.—ILL-DEFINED CONDITIONS.					
199. Sudden death (cause unknown)..	..	1	1	1	..
200. Cause of death unstated or ill-defined	..	86	86	86	..
201. Diseases not included in this classification which have caused no deaths	168	3,569	..	3,737	109
202. Malingering	1	70	..	71	..
203. Cases admitted to hospital for observation as to mental condition	120	1,629	2	1,749	134
204. Cases admitted for observation (not mental)	370	5,134	3	5,504	268
Total ..	14,460	207,355	10,817	221,815	15,250
205. Persons accompanying patients..	189	10,642	..	10,831	256
GRAND TOTAL ..	14,649	217,997	10,817	232,646	15,506

Table 1—(*cont.*)

IN-PATIENTS—(*cont.*)

Return of Diseases and Deaths for the Year 1949—(*cont.*)

Nationalities.	Remaining at end of Dec., 1948.	Yearly Total.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Europeans	61	2,459	26	2,520	63
Eurasians	65	1,037	39	1,102	60
Chinese	8,291	84,182	7,094	92,473	9,036
Indians	3,153	68,201	2,508	71,354	3,166
Malays	2,747	49,072	1,016	51,819	2,803
Javanese	95	1,555	90	1,650	84
Japanese	1	9	5	10	1
Others	47	840	39	887	37
Total ..	14,460	207,355	10,817	221,815	15,250
Persons accompanying patients	189	10,642	..	10,831	256

Summary According to Men, Women and Children.

—	Remaining at end of Dec., 1948.	Yearly Total.		Total cases treated.	Remaining at end of Dec., 1949.
		Admissions.	Deaths.		
Men	9,623	112,047	5,314	121,670	10,364
Women	4,079	73,517	2,021	77,596	4,106
Children (1 to 10 years)	561	13,173	1,119	13,734	575
Infants (under 1 year)	197	8,618	2,363	8,815	205
Total ..	14,460	207,355	10,817	221,815	15,250

Summary According to Hospitals and Average Daily Number of Patients.

Hospitals.	Remaining at end of Dec., 1948.	Yearly Total.		Total cases treated.	Remaining at end of Dec., 1949.	Average Daily No. of Patients.	No. of Beds.
		Admissions.	Deaths.				
1. Kedah	761	19,863	686	20,624	732	853	1,052
2. Perlis	81	2,559	91	2,640	100	91	150
3. Penang and Province Wellesley	1,619	21,826	1,186	23,445	1,714	1,720	2,112
4. Perak	1,833	44,668	2,458	46,501	1,824	1,923	2,657
5. Selangor	1,481	30,279	1,730	31,760	1,474	1,513	1,783
6. Negri Sembilan ..	1,005	19,123	957	20,128	884	945	1,123
7. Malacca	516	9,380	571	9,896	587	589	763
8. Johore	1,966	31,545	1,784	33,511	1,979	2,139	2,658
9. Kelantan	333	6,522	192	6,855	306	643	414
10. Trengganu	222	4,207	136	4,429	208	136	301
11. Pahang	616	14,781	665	15,397	562	591	809
12. Sungei Buloh Settlement	1,888	470	54	2,358	2,130	2,119	2,300
13. C. M. H., Tanjong Rambutan ..	2,139	2,132	307	4,271	2,750	2,478	3,000
Total ..	14,460	207,355	10,817	221,815	15,250	15,740	19,122

TABLE 1A.

STATEMENT OF GENERAL HOSPITALS, DISTRICT AND MATERNITY HOSPITALS.

State or Settlement.	Average daily No. of patients.	Patients remaining at the end of the year.	Patients admitted.	Deaths.	Death rate per 100 patients treated.
KEDAH.					
Alor Star Hospital ..	414	382	8,524	270	3.0
Sungei Patani Hospital	189	143	5,761	191	3.2
Kulim Hospital ..	197	189	4,479	197	4.2
Baling Hospital ..	17	8	682	14	2.0
Langkawi Hospital ..	36	39	417	14	3.1
PERLIS.					
Kangar Hospital ..	91	81	2,559	91	3.4
PENANG AND PROVINCE WELLESLEY.					
General Hospital ..	587	606	7,943	714	8.3
Maternity Hospital ..	74	69	4,100	35	0.8
Perak Road Hospital	85	53	18	12	16.9
Balik Pulau Hospital	17	18	219	2	0.8
Pulau Jerejak Detention Hospital ..	38	20	575	7	1.2
Pulau Jerejak T.B. Hospital	169	104	278	68	17.8
Butterworth Hospital	105	121	2,407	115	4.5
Bukit Mertajam Hospital	135	126	3,426	112	3.1
Sungei Bakap Hospital	101	90	2,458	100	3.9
Prison Hospital ..	15	18	362	—	—
PERAK.					
Parit Buntar Hospital	32	34	1,378	39	2.8
Taiping Hospital ..	356	365	7,907	486	5.9
Kuala Kangsar District Hospital	89	74	2,586	81	3.0
Kuala Kangsar Women's Hospital..	71	83	2,446	116	4.6
Ipoh Hospital ..	507	442	11,003	744	6.5
Batu Gajah Hospital	226	220	4,654	213	4.4
Kampar Hospital ..	184	211	2,263	156	6.3
Tapah Hospital ..	105	83	3,200	136	4.1
Tanjong Malim Hospital	40	35	1,686	44	2.6
Telok Anson Hospital	164	143	4,246	255	5.8
Lumut Hospital ..	139	135	2,964	179	5.8
Grik Hospital.. ..	10	8	335	9	2.6
Carried forward ..	4,193	3,900	88,876	4,400	—

TABLE 1A—(*cont.*)

STATEMENT OF GENERAL HOSPITALS, DISTRICT AND MATERNITY HOSPITALS—(*cont.*)

State or Settlement.	Average daily No. of patients.	Patients remaining at the end of the year.	Patients admitted.	Deaths.	Death rate per 100 patients treated.
Brought forward ..	4,193	3,900	88,876	4,400	—
SELANGOR.					
Bungsar Hospital ..	33	31	1,167	26	2.2
General Hospital ..	372	345	9,101	838	8.9
Tanglin Hospital ..	128	134	2,366	61	2.4
Pudu Road Maternity	95	129	6,826	145	2.1
Tuberculosis Hospital	110	102	202	59	19.4
Sentul Decrepit Hospital	414	422	192	95	15.5
Police Depôt Hospital	11	12	410	—	—
Klang Hospital ..	204	195	5,403	322	5.7
Kajang Hospital ..	89	71	2,912	113	3.8
Kuala Kubu Bharu Hospital	57	40	1,700	71	4.1
NEGRI SEMBILAN.					
General Hospital ..	385	412	8,299	534	6.1
Kuala Pilah Women's Hospital	102	116	2,082	112	5.1
Kuala Pilah District Hospital	208	218	3,154	97	2.9
Port Dickson Hospital	99	83	1,936	71	3.5
Tampin Hospital ..	73	85	1,994	70	3.4
Jelebu Hospital ..	74	85	1,592	73	4.3
Prison Hospital ..	4	6	66	—	—
MALACCA.					
General Hospital ..	534	451	8,858	567	6.1
Alor Gajah Hospital	25	50	28	3	3.8
Prison Hospital ..	2	2	31	1	3.0
Quarantine Camp Hospital	1	—	5	—	—
Detention Camp Hospital	27	13	458	—	—
JOHORE.					
General Hospital ..	709	693	8,751	637	6.7
3rd Mile (Chronic Wards) Hospital ..	176	159	125	32	11.3
Pontian Hospital ..	43	65	1,260	46	3.5
Batu Pahat Hospital	154	122	3,398	164	4.7
Muar Hospital ..	203	160	5,359	273	4.9
Tangkak Hospital ..	67	82	1,455	64	4.2
Segamat	122	105	3,303	181	5.3
Kluang Hospital ..	188	161	4,706	264	5.4
Kota Tinggi Hospital	81	73	1,877	61	3.1
Mersing Hospital ..	33	29	1,206	43	3.5
Carried forward ..	9,016	8,551	179,098	9,423	—

TABLE 1A—(*cont.*)

STATEMENT OF GENERAL HOSPITALS, DISTRICT AND MATERNITY HOSPITALS—(*cont.*)

State or Settlement.	Average daily No. of patients.	Patients remaining at the end of the year.	Patients admitted.	Deaths.	Death rate per 100 patients treated.
Brought forward ..	9,016	8,551	179,098	9,423	—
KELANTAN.					
Kota Bharu Hospital	275	282	4,567	160	3.3
Kuala Krai Hospital	43	51	1,808	32	1.7
Pasir Mas Government Emergency Ward ..	2	—	147	—	—
TRENGGANU.					
Kuala Trengganu Hospital	90	147	2,382	77	3.0
Dungun Hospital ..	15	29	845	35	4.0
Kemaman	31	46	980	24	2.3
PAHANG.					
Kuala Lipis Hospital	121	108	3,292	119	3.5
Kuantan Hospital ..	126	147	2,454	136	5.2
Raub Hospital ..	83	92	2,889	108	3.6
Bentong Hospital ..	93	111	1,846	145	7.4
Mentakab Hospital ..	108	100	3,384	129	3.7
Pekan Hospital ..	60	58	916	28	2.9
TOTAL ..	10,063	9,722	204,608	10,416	—
SPECIAL INSTITUTIONS.					
Leper Settlement, Sungei Buloh ..	2,119	1,888	470	54	2.3
Central Mental Hospital, Tg. Rambutan	2,478	2,139	2,132	307	7.2
Leper Settlement, Pulau Jerejak ..	394	394	40	21	4.8
Leper Camp, J. Bahru	363	317	105	19	4.5
	5,354	4,738	2,747	401	—
TOTAL ..	15,417	14,460	207,355	10,817	—

TABLE 2.

MALARIA ADMISSIONS BY STATES AND MONTHS FOR 1949.

State or Settlement.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Kedah	119	113	160	295	219	304	208	147	102	119	123	150
Perlis	48	38	47	42	66	63	43	32	41	45	36	65
Penang and P. Wellesley	130	102	131	137	141	152	102	128	87	103	99	73
Perak	317	255	300	313	409	364	371	323	250	265	280	288
Selangor	69	60	81	182	209	140	106	69	83	42	73	68
Negri Sembilan	157	106	109	190	221	239	134	159	121	161	113	123
Malacca	50	32	47	50	105	137	63	62	64	70	71	73
Johore	201	184	157	221	315	312	217	179	145	145	155	163
Kelantan	106	83	112	183	124	142	101	88	64	49	44	39
Pahang	159	119	116	175	203	266	247	213	150	134	131	121
Trengganu	46	41	54	58	76	59	55	50	39	47	22	37
	1,402	1,133	1,314	1,846	2,088	2,178	1,647	1,450	1,146	1,180	1,147	1,200

TABLE 3.

SURGICAL OPERATIONS FOR 1949.

State or Settlement.	Operations.	Deaths.
Kedah	1,269	8
Perlis	476	—
Penang and Province Wellesley ...	2,254	35
Perak	11,676	89
Selangor	5,248	67
Negri Sembilan	1,579	9
Malacca	1,161	20
Johore	5,662	45
Kelantan	682	10
Trengganu	653	1
Pahang	779	5
Total ...	31,439	289

TABLE 4.

OPHTHALMIC PATIENTS FOR 1949.

State/Settlement.	Eye diseases proper.	Eye injuries.	Refraction.	General diseases affecting eyes.	Disorganised eyes.	Total.	Operations.
Kedah	2,231	114	275	68	14	2,702	357
Perlis	1,647	52	..	..	..	1,699	30
Penang and Province Wellesley	2,319	184	416	723	36	3,678	184
Perak	20,757	1,101	1,841	100	118	23,917	743
Selangor	5,475	410	732	..	189	6,806	663
Negri Sembilan	2,161	70	773	..	7	3,011	60
Malacca	476	21	405	40	17	959	46
Johore	1,588	97	2,627	40	8	4,360	252
Kelantan	1,730	..	59	..	..	1,789	12
Trengganu	63	..	188	..	..	251	..
Pahang	303	24	58	8	..	393	..
Total ..	38,750	2,073	7,374	979	389	49,565	2,347

TABLE 5.

SUMMARY OF OUT-PATIENTS TREATED IN EACH STATE AND SETTLEMENT FOR 1949.

(Excluding those who were treated at Infant Welfare Centres, School Inspections and Special Clinics.)

Hospitals and Dispensaries.	Adult Males.	Adult Females.	Children under 10 years.	Total.
KEDAH.				
At Hospitals and Dispensaries ..	72,521	42,782	51,531	166,834
By Travelling Dispensaries ..	15,741	5,933	7,954	29,628
Total ..	88,262	48,715	59,485	196,462
PERLIS.				
At Hospitals and Dispensaries ..	12,755	6,677	8,552	27,984
By Travelling Dispensaries ..	3,762	1,677	2,472	7,911
Total ..	16,517	8,354	11,024	35,895
PENANG AND P. WELLESLEY.				
At Hospitals and Dispensaries ..	42,183	23,036	18,985	84,204
By Travelling Dispensaries ..	19,008	12,175	28,194	59,377
Total ..	61,191	35,211	47,179	143,581
PERAK.				
At Hospitals and Dispensaries ..	154,398	80,842	78,756	313,996
By Travelling Dispensaries :				
1. Road	44,568	19,554	26,381	90,503
2. River	1,605	1,098	1,079	3,782
Total ..	200,571	101,494	106,216	408,281

TABLE 5—(*cont.*)

SUMMARY OF OUT-PATIENTS TREATED IN EACH STATE AND SETTLEMENT FOR 1949—(*cont.*)

(*Excluding those who were treated at Infant Welfare Centres, School Inspections and Special Clinics*)—(*cont.*)

Hospitals and Dispensaries.	Adult Males.	Adult Females.	Children under 10 years.	Total.
SELANGOR.				
At Hospitals and Dispensaries ..	90,505	46,267	49,788	186,560
By Travelling Dispensaries ..	22,287	14,530	16,331	53,148
Total ..	112,792	60,797	66,119	239,708
NEGRI SEMBILAN.				
At Hospitals and Dispensaries ..	53,295	23,483	26,426	103,204
By Travelling Dispensaries ..	26,411	17,108	17,078	60,597
Total ..	79,706	40,591	43,504	163,801
MALACCA.				
At Hospitals and Dispensaries ..	27,811	10,097	10,688	48,596
By Travelling Dispensaries ..	8,692	6,604	10,177	25,473
Total ..	36,503	16,701	20,865	74,069
JOHORE.				
At Hospitals and Dispensaries ..	62,819	17,405	25,021	105,245
By Travelling Dispensaries :				
1. Road	29,212	15,323	32,564	77,099
2. River	6,764	4,139	8,424	19,327
Total ..	98,795	36,867	66,009	201,671

TABLE 5—(*cont.*)

SUMMARY OF OUT-PATIENTS TREATED IN EACH STATE AND SETTLEMENT FOR 1949—(*cont.*)

(*Excluding those who were treated at Infant Welfare Centres, School Inspections and Special Clinics*)—(*cont.*)

Hospitals and Dispensaries.	Adult Males.	Adult Females.	Children under 10 years.	Total.
KELANTAN.				
At Hospitals and Dispensaries ..	56,013	26,589	24,348	106,950
By Travelling Dispensaries:				
1. Road	24,137	15,847	43,476	83,460
2. River	6,576	4,289	3,292	14,157
Total ..	86,726	46,725	71,116	204,567
TRENGGANU.				
At Hospitals and Dispensaries ..	38,746	15,772	27,489	82,007
By Travelling Dispensaries ..	25,485	16,941	24,910	67,336
Total ..	64,231	32,713	52,399	149,343
PAHANG.				
At Hospitals and Dispensaries ..	58,102	30,137	34,989	123,228
By Travelling Dispensaries:				
1. Road	19,095	9,393	18,116	46,604
2. River	713	3,332	321	4,366
Total ..	77,910	42,862	53,426	174,198

Table 6.

OUT-PATIENTS.

Return of Diseases for the Year 1949.

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
I.—Infectious and Parasitic Diseases.								
1. Typhoid fever	4	3	2	9	..	..	..	..
2. Paratyphoid fever	..	..	..	..	..	..	..	..
3. Typhus—								
(1) Typhus exanthematicus	..	..	..	..	..	..	..	..
(2) Tropical typhus	1	..	1	2	..	..	..	..
(3) Japanese river fever	..	..	..	..	..	..	..	..
(4) Other rickettsia infections	..	..	..	..	..	..	..	..
4. Relapsing fever	..	..	..	..	..	..	..	..
5 Undulant fever	..	..	..	..	..	..	..	..
6. Smallpox	1	..	..	1	..	..	..	..
7. Measles	23	3	165	191	..	..	2	2
8. Scarlet fever	..	..	..	..	..	..	..	..
9. Whooping cough	1	6	587	594	..	..	8	8
10. Diphtheria	4	3	15	22	..	..	..	..
11. Influenza—								
(1) with pneumonia	112	26	53	191	..	..	1	1
(2) with other respiratory complications	3,789	1,817	2,830	8,436	83	37	20	140
(3) without respiratory complications	47,308	17,171	21,166	85,645	480	182	69	731
12. Cholera	..	..	..	..	..	..	..	..
13. Dysentery—								
(1) Amœbic	565	164	157	886	7	4	2	13
(2) Bacillary	371	146	128	645	2	..	1	3
(3) Mixed	13	9	6	28	..	..	..	..
(4) Undefined or due to other causes	1,988	822	787	3,597	30	15	..	45
14. Plague—								
(1) Bubonic	..	..	..	..	..	..	..	..
(2) Pneumonic	..	..	..	..	..	..	..	..
(3) Septicæmic	..	..	..	..	..	..	..	..
(4) Undefined	..	..	..	..	..	..	..	..
15. Erysipelas	24	5	8	37	..	..	..	..
16. Acute poliomyelitis—								
(1) Acute poliomyelitis	1	1	1	3	..	..	..	..
(2) Acute polioencephalitis	..	..	..	..	..	..	..	..
17. Encephalitis lethargica	..	..	..	..	..	..	..	..
18. Cerebro-spinal fever	..	..	..	..	..	..	..	..
19. Glanders	..	..	..	..	..	..	..	..
20. Anthrax	..	..	..	..	..	..	..	..
21. Rabies	..	..	..	..	..	..	..	..
22. Tetanus—								
(1) Tetanus of the newly born	..	..	5	5	..	..	..	..
(2) Other forms of tetanus	5	1	1	7	..	..	..	..
23. Tuberculosis of the respiratory system	3,076	895	42	4,013	1	..	..	1
24. Tuberculosis of the central nervous system	3	1	..	4	..	..	..	..
25. Tuberculosis of the intestines or peritoneum	..	5	..	5	..	..	..	..
26. Tuberculosis of the vertebral column	4	6	14	24	..	..	..	..
27. Tuberculosis of other bones and joints	26	10	24	60	..	..	..	..
28. Tuberculosis of the skin or subcutaneous tissue (lupus)	1	3	2	6	..	..	..	..
29. Tuberculosis of the lymphatic system (abdominal and bronchial glands excepted)	36	20	7	63	..	..	..	..
30. Tuberculosis of the genito-urinary system	1	..	..	1	..	..	..	..
31. Tuberculosis of other organs—								
(1) Adrenal	..	..	..	..	..	..	..	..
(2) Other sites	1	1	1	3	..	..	..	..
Carried forward	57,358	21,118	26,002	104,478	603	238	103	944

The form shows in the main the arrangement of diseases in the *International Nomenclature, 1931 Edition.* To save space the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the class.

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	57,358	21,118	26,002	104,478	603	238	103	944
I.—INFECTIOUS AND PARASITIC DISEASES—(*cont.*)								
32. Tuberculosis disseminated—								
(1) Acute	..	..	..	..	..	..	..	..
(2) Chronic	..	..	..	..	..	..	..	..
(3) Not distinguished as acute or chronic ..	15	5	..	20	..	..	..	..
33. Leprosy	50	9	3	62	..	..	..	..
34. Syphilis—								
(1) Primary	850	149	3	1,002	12	..	..	12
(2) Secondary	2,660	975	2	3,637	4	1	..	5
(3) Tertiary	731	332	6	1,069	..	..	..	..
(4) Hereditary	..	..	134	134	..	..	..	..
(5) Period not indicated ..	135	62	..	197	1	..	..	1
35. Other venereal diseases—								
(1) Soft chancre	474	29	1	504	16	..	..	16
(2) Gonorrhœa and its complications ..	3,098	519	8	3,625	109	..	1	110
(3) Gonorrhœal ophthalmia	83	19	7	109	4	..	..	4
(4) Gonorrhœal arthritis ..	279	80	..	359	1	..	..	1
(5) Granuloma venereum ..	7	..	..	7	..	..	..	..
(6) Tropical bubo	197	9	..	206	1	..	..	1
36. Purulent infective septicæmia—								
(1) Septicæmia	8	1	..	9	1	..	..	1
(2) Pyæmia	..	..	..	..	..	..	..	..
(3) Gas gangrene	..	..	..	..	..	..	..	..
37. Yellow fever	..	..	..	..	..	..	..	..
38. Malaria—								
(1) Tertian (benign) ..	2,814	1,109	1,237	5,160	16	2	1	19
(2) Quartan	157	60	33	250	..	..	..	..
(3) Aestivo-autumnal (Subtertian) ..	3,268	1,072	1,288	5,628	20	5	1	26
(4) Mixed infections ..	160	88	112	360	..	14	..	14
(5) Unclassified	57,601	24,879	26,683	109,163	120	30	12	162
(6) Cachexia	6,569	3,594	3,464	13,627	7	2	..	9
(7) Blackwater fever ..	1	..	1	2	..	..	..	..
39. Other diseases due to protozoa—								
(1) Yaws (framboesia) ..	21,084	14,702	14,106	49,892	20	7	1	28
(2) Spirochætosis icterohæmorrhagica	..	..	..	..	..	..	..	..
(3) Leishmaniasis (dermal)	..	..	..	..	..	..	..	..
(4) Kala azar	..	..	..	..	..	..	..	..
(5) Other diseases	3	4	2	9	..	..	..	..
40. Ankylostomiasis	4,221	2,418	3,275	9,914	19	11	3	33
41. Hydatid cysts	14	1	35	50	..	..	..	..
42. Other diseases due to helminths—								
Cestodes.								
(1) Tænia solium	65	34	8	107	..	..	..	..
(2) Tænia saginata ..	5	5	1	11	..	..	..	..
(3) Other cestodes	20	3	..	23	..	..	..	..
Nematodes.								
(4) Filaria	67	30	12	109	..	..	1	1
(5) Ascaris	13,331	9,716	45,766	68,813	44	44	62	150
(6) Trichuris trichiura ..	37	20	45	102	2	1	..	3
(7) Oxyuris vermicularis ..	75	88	381	544	1	1	2	4
(8) Dracunculus medinensis	..	..	..	..	..	..	..	..
Trematodes.								
(9) Schistosomum japonicum	..	..	..	..	..	..	..	..
(10) Clonorchis sinensis ..	..	..	..	..	..	..	..	..
(11) Other helminths ..	..	..	..	..	..	..	..	..
(12) Undefined	432	409	1,717	2,558	4	..	2	6
43. (1) Sprue	30	61	..	91	..	..	..	..
(2) Actinomycosis	1	..	1	2	..	..	..	..
(3) Other mycotic infections excluding purely dermal mycosis	19	5	43	67	..	..	..	..
Carried forward ..	175,919	81,605	124,376	381,900	1,005	356	189	1,550

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	175,919	81,605	124,376	381,900	1,005	356	189	1,550
I.—INFECTIOUS AND PARASITIC DISEASES—(*cont.*)								
44. Other infectious or parasitic diseases—								
(1) Vaccinia including post vaccinal encephalitis..	5	..	8	13	..	..	..	..
(2) Other sequelæ of vaccination	129	18	750	897	2	2	46	50
(3) Rubella	..	..	..	..	..	..	..	..
(4) Varicella (chicken-pox)	227	73	289	589	..	..	6	6
(5) Mumps and its complications	155	61	138	354	1	..	4	5
(6) Dengue	7	3	3	13	1	1	..	2
(7) Melioidosis	..	..	..	..	..	..	..	..
(8) Myiasis	..	..	..	..	..	..	..	..
(9) Glandular fever ..	..	..	..	..	..	..	..	..
(10) Others	..	..	..	..	..	..	..	..
(11) Pyrexia of unknown origin	268	147	217	632	1	..	..	1
II.—CANCER AND OTHER TUMOURS.								
45. Cancer or other malignant diseases of the buccal cavity and pharynx	21	5	..	26	..	..	..	..
46. Cancer or other malignant tumours of the digestive organs and peritoneum—								
(1) Stomach	23	9	..	32	..	..	..	..
(2) Liver (primary) ..	13	2	..	15	..	..	..	..
(3) Other digestive organs	8	10	..	18	..	..	..	..
47. Cancer or other malignant tumours of the respiratory organs	2	6	..	8	..	..	..	..
48. Cancer or other malignant tumours of the uterus ..	..	40	..	40	..	..	..	..
49. Cancer or other malignant tumours of other female genital organs	..	51	..	51	..	..	..	..
50. Cancer or other malignant tumours of the breast ..	..	28	..	28	..	..	..	..
51. Cancer or other malignant tumours of the male genito-urinary organs	9	..	..	9	..	..	..	..
52. Cancer or other malignant tumours of the skin ..	8	7	..	15	..	..	..	..
53. Cancer or other malignant tumours of organs not specified	20	9	..	29	..	..	..	..
54. Tumours non-malignant—								
(1) Of female genital organs	..	23	..	23	..	..	..	..
(2) Of other sites	185	136	38	359	18	6	..	24
55. Tumours of undetermined nature—								
(1) Female genital organs ..	..	6	..	6	..	..	..	..
(2) Other sites	9	11	3	23	1	..	..	1
III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES.								
56. Rheumatic fever—								
(1) With cardiac involvement	..	..	..	..	..	..	..	..
(2) Without cardiac involvement	..	..	..	..	..	..	..	..
57. Chronic rheumatism and osteoarthritis	9,799	4,747	..	14,546	37	10	..	47
58. Gout	18	3	..	21	3	..	..	3
Carried forward ..	186,825	87,000	125,822	399,647	1,069	375	245	1,689

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	168,825	87,000	125,822	399,647	1,069	375	245	1,689
III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES—(*cont.*)								
59. Diabetes (not including diabetes insipidus)	375	134	..	509	..	1	..	1
60. Scurvy (including Barlow's disease)	..	..	..	..	..	..	..	..
61. (1) Beri-beri including epidemic dropsy	2,220	1,251	164	3,635	5	2	..	7
(2) Beri-beri associated with pregnancy or labour ..	..	476	..	476	..	..	..	..
62. Pellagra	3	6	..	9	..	..	..	..
63. Rickets	..	..	70	70	..	..	..	..
64. Osteomalacia	..	4	.. 1	5	..	..	..	..
65. Diseases of the pituitary gland	..	..	..	..	..	..	..	..
66. Diseases of the thyroid and parathyroid glands—								
(1) Simple goitre	56	126	..	182	..	3	..	3
(2) Exophthalmic goitre ..	12	16	..	28	..		..	..
(3) Myxœdema, cretinism	2	3	2	7	..	..	..	..
(4) Tetany	..	2	..	2	..	..	..	..
(5) Other diseases of the thyroid glands ..	50	29	8	87	..	..	1	1
67. Diseases of the thymus ..	..	..	..	..	..	..	..	..
68. Diseases of the adrenal glands (excluding tuberculosis) ..	..	..	..	..	..	..	..	..
69. Other general diseases—								
(1) Acidosis	..	..	..	..	..	..	..	..
(2) Other diseases of metabolism	2,481	2,003	1,483	5,967	23	17	5	45
IV.—DISEASES OF THE BLOOD AND BLOOD FORMING ORGANS.								
70. Hæmorrhagic conditions—								
(1) Purpura	..	..	..	..	..	..	..	..
(2) Hæmophilia	..	1	1	2	..	..	..	..
71. Anæmia and chlorosis—								
(1) Pernicious anæmia ..	..	..	..	..	..	..	..	..
(2) Splenic anæmia ..	..	..	..	..	..	..	..	..
(3) Chlorosis	..	..	..	..	..	..	..	..
(4) Secondary anæmia ..	14,837	20,768	5,707	41,312	44	92	10	146
(5) Others	7,937	10,376	2,722	21,035	46	63	5	114
72. Leukæmia—								
(1) Leukæmia	..	1	..	1	..	..	..	..
(2) Hodgkin's disease ..	2	..	..	2	..	..	..	..
73. Diseases of the spleen—								
(1) Banti's disease	..	1	..	1	..	..	..	..
(2) Others (not including diseases of the spleen due to malaria or leukæmia)	5	1	..	6	..	..	..	..
74. Other diseases of the blood and blood forming organs ..	1	..	..	1	..	..	..	..
V.—CHRONIC POISONING.								
75. Alcoholism (acute or chronic)..	348	2	..	350	14	..	..	14
76. Chronic poisoning by other organic substances—								
(1) Opium	242	10	..	252	..	..	..	..
(2) Morphia, cocaine ..	2	..	..	2	..	..	..	..
(3) Others	17	2	4	23	1	..	..	1
77. Chronic poisoning by mineral substances—								
(1) Lead poisoning	1	..	..	1	..	..	..	..
(2) Arsenical dermatitis ..	23	1	1	25	..	..	..	..
(3) Others	117	38	31	186	3	..	..	3
Carried forward ..	215,556	122,251	136,016	473,823	1,205	553	266	2,024

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	215,556	122,251	136,016	473,823	1,205	553	266	2,024
VI.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.								
78. Encephalitis (not including encephalitis lethargica)—								
(1) Cerebral abscess ..	..	..	..	..	..	..	..	..
(2) Other forms of encephalitis	1	..	..	1	..	..	..	..
79. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis) ..	1	..	2	3	..	..	..	..
80. Tabes dorsalis (Locomotor ataxia)	7	2	..	9	..	..	..	..
81. Other diseases of the spinal cord	5	3	..	8	..	..	..	..
82. Apoplexy and paralysis—								
(1) Cerebral hæmorrhage ..	8	3	..	11	..	..	..	..
(2) Cerebral embolism ..	1	..	..	1	..	..	..	..
(3) Cerebral thrombosis ..	14	3	..	17	..	..	..	..
(4) Hemiplegia, cause not determined	175	52	..	227	..	..	..	..
(5) Other paralysis ..	72	33	8	113	..	..	..	..
83. General paralysis of the insane	..	..	..	..	..	..	..	..
84. Other forms of insanity—								
(1) Dementia præcox ..	..	1	..	1	..	..	..	..
(2) Others	9	6	..	15	..	..	..	..
85. Epilepsy	215	64	41	320	2	..	1	3
86. Infantile convulsions .. .. (age under 5 years)	..	..	106	106	..	..	..	..
87. Other diseases of the nervous system—								
(1) Chorea	..	2	..	2	..	..	..	..
(2) Neuritis and neuralgia ..	24,929	11,581	1,226	37,736	193	67	2	262
(3) Paralysis agitans ..	10	5	..	15	..	..	..	..
(4) Disseminated sclerosis ..	..	..	..	..	..	..	..	..
(5) Neurasthenia	775	402	..	1,177	53	21	..	74
(6) Hysteria	5	48	..	53	..	..	..	..
(7) Others	2,462	1,203	271	3,936	78	60	10	148
88. Diseases of the eye—								
(1) Conjunctivitis	22,634	10,095	14,106	46,835	100	27	19	146
(2) Trachoma	389	528	169	1,086	1	..	..	1
(3) Corneal ulcer	284	122	75	481	2	..	..	2
(4) Other diseases of the eye	5,294	2,380	1,238	8,912	89	43	11	143
89. Diseases of the ear and or the mastoid sinus—								
(1) Otitis externa	3,532	1,456	3,171	8,159	103	15	7	125
(2) Otitis media	2,484	1,097	2,673	6,254	53	9	7	69
(3) Mastoiditis	21	7	12	40	..	..	..	..
(4) Others	3,526	1,314	2,902	7,742	112	22	5	139
VII.—DISEASES OF THE CIRCULATORY SYSTEM.								
90. Pericarditis	7	2	..	9	..	..	..	..
91. Acute endocarditis—								
(1) Malignant	1	..	..	1	..	..	..	..
(2) Others	38	6	1	45	..	..	..	..
92. Chronic endocarditis : valvular disease—								
(1) Aortic valve disease ..	22	17	..	39	..	..	..	..
(2) Mitral valve disease ..	64	26	3	93	..	..	..	..
(3) Aortic and mitral ..	4	4	1	9	..	..	..	..
(4) Others	91	50	7	148	1	..	..	1
93. Diseases of the myocardium—								
(1) Acute myocarditis ..	62	31	..	93	..	..	..	..
(2) Chronic myocardial degeneration	157	80	1	238	..	..	..	..
Carried forward ..	282,855	152,874	162,029	597,758	1,992	817	328	3,137

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	282,855	152,874	162,029	597,758	1,992	817	328	3,137
VII.—DISEASES OF THE CIRCULATORY SYSTEM—(*cont.*)								
94. Diseases of the coronary arteries—								
(1) Angina pectoris ..	11	6	..	17	1	..	..	1
(2) Coronary thrombosis ..	1	.. 1	..	2	..	..	..	..
(3) Coronary sclerosis ..	2	..	..	2	..	..	..	..
95. Other diseases of the heart—								
(1) Auricular fibrillation ..	15	7	1	23	..	..	..	..
(2) Heart block	2	..	..	2	1	..	..	1
(3) Others	221	152	11	384	5	..	..	5
96. Aneurysm—								
(1) Aneurysm of aorta ..	6	2	..	8	..	..	..	..
(2) Aneurysm of other arteries	10	..	..	10	..	..	..	..
97. Arterio-sclerosis	91	20	..	111	..	..	..	..
98. Gangrene	15	..	..	15	..	..	..	..
99. Other diseases of the arteries..	27	3	..	30	..	..	..	..
100. Diseases of the veins—								
(1) Varicose veins	148	74	..	222	6	6	..	12
(2) Hæmorrhoids	1,530	447	20	1,997	38	13	..	51
(3) Phlebitis..	36	15	3	54	2	1	..	3
(4) Thrombosis	4	2	..	6	..	..	..	..
(5) Others	18	4	6	28	..	..	..	..
101. Diseases of the lymphatic system—								
(1) Lymphangitis	181	57	22	260	4	2	..	6
(2) Lymphadenitis	730	254	231	1,215	7	2	3	12
(3) Bubo (non-specified) ..	150	17	39	206	..	..	..	..
102. Abnormalities of blood pressure—								
(1) High blood pressure ..	297	109	..	406	5	..	..	5
(2) Low blood pressure ..	2	5	..	7	..	..	..	..
103. Other diseases of the circulatory system—								
(1) Epistaxis	120	40	66	226	..	..	..	..
(2) Others	31	29	6	66	..	..	..	..
VIII.—DISEASES OF THE RESPIRATORY SYSTEM.								
104. Diseases of the nasal fossæ and its annexa—								
(1) Diseases of the nose ..	1,586	755	1,312	3,653	23	7	4	34
(2) Diseases of the accessory nasal sinuses	802	348	290	1,440	13	2	2	17
105. Diseases of the larynx—								
(1) Laryngismus stridulus..	6	..	1	7	..	..	..	..
(2) Laryngitis	1,080	418	131	1,629	9	5	2	16
(3) Other diseases of the larynx	143	39	19	201	4	1	3	8
106. Bronchitis—								
(1) Acute	18,734	8,505	16,505	43,744	111	39	63	213
(2) Chronic	6,867	3,250	1,939	12,056	32	17	9	58
(3) Not defined as acute or chronic	38,741	20,158	35,644	94,543	157	59	66	282
107. Broncho-pneumonia	137	56	1,400	1,593	1	..	..	1
108. Lobar-pneumonia	308	78	123	509	..	..	..	..
109. Pneumonia (not otherwise defined)	141	64	157	362	1	1	..	2
110. Pleurisy—								
(1) Empyema	9	..	2	11	..	..	..	..
(2) Other pleurisy	244	58	8	310	..	..	..	..
111. Congestion and hæmorrhagic infraction of lung, etc.—								
(1) Hypostatic congestion of lung	..	..	..	..	..	..	..	..
(2) Massive collapse ..	..	..	..	..	..	..	..	..
(3) Pulmonary embolism ..	..	..	..	..	..	..	..	..
(4) Others	22	10	6	38	..	..	..	..
Carried forward ..	355,323	187,857	219,971	763,151	2,412	972	480	3,864

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	355,323	187,857	219,971	763,151	2,412	972	480	3,864
VIII.—DISEASES OF THE RESPIRATORY SYSTEM—(*cont.*)								
112. Asthma	8,748	4,514	3,965	17,227	8	4	2	14
113. Pulmonary emphysema ..	39	13	..	52	..	..	..	..
114. Other diseases of the respiratory system—								
(1) Chronic interstitial pneumonia (including occupational diseases of the lung)	2	..	..	2	..	..	..	..
(2) Gangrene of the lung ..	..	..	..	..	..	..	..	..
(3) Abscess of the lung ..	11	1	..	12	..	..	..	..
(4) Bronchiectasis	43	7	1	51	..	..	..	..
(5) Others	1,319	510	862	2,691	12	3	1	16
IX.—DISEASES OF THE DIGESTIVE SYSTEM.								
115. Diseases of the buccal cavity, pharynx, etc.—								
(1) Pyorrhœa	1,058	491	91	1,640	1	1	2	4
(2) Dental caries	6,377	2,393	3,779	12,549	33	4	7	44
(3) Stomatitis	1,595	1,256	3,177	6,028	13	4	5	22
(4) Ludwig's angina ..	1	2	267	270	..	..	4	4
(5) Diseases of the tonsils ..	3,818	1,959	2,609	8,386	117	40	30	187
(6) Others	3,344	1,450	1,323	6,117	64	22	6	92
116. Diseases of the œsophagus ..	9	3	..	12	..	..	..	..
117. Ulcer of the stomach or duodenum—								
(1) Ulcer of the stomach ..	573	133	..	706	1	..	..	1
(2) Ulcer of the duodenum	90	15	..	105	1	..	..	1
118. Other diseases of the stomach—								
(1) Gastritis	11,998	5,701	1,712	19,411	156	50	11	217
(2) Others	12,649	9,568	4,516	26,733	116	72	24	212
119. Diarrhœa and enteritis— (under 2 years)	..	..	7,452	7,452	..	..	28	28
120. Diarrhœa and enteritis— (2 years and over)								
(1) Colitis	2,239	1,103	1,487	4,829	59	23	16	98
(2) Otherwise defined ..	7,214	3,358	4,060	14,632	2	53	16	71
121. Appendicitis	177	68	24	269	138	9	1	148
122. Hernia, Intestinal obstruction—								
(1) Hernia	301	..	..	301	4	..	..	4
(2) Strangulated hernia ..	8	..	..	8	..	..	..	..
(3) Intestinal obstruction (including intussusception) ..	13	..	..	13	..	..	..	..
123. Other diseases of the intestines—								
(1) Constipation, intestinal stasis	28,310	12,687	8,510	49,507	126	56	16	198
(2) Diverticulitis	8	4	8	20	..	..	..	..
(3) Others	2,419	1,819	890	5,128	11	3	1	15
124. Cirrhosis of liver— (non-syphilitic)								
(1) Alcoholic	12	1	..	13	..	..	..	..
(2) Not returned as alcoholic	94	17	5	116	3	..	..	3
125. Other diseases of the liver—								
(1) Acute yellow atrophy ..	15	3	1	19	..	..	..	..
(2) Toxic hepatitis	83	15	9	107	..	..	..	..
(3) Amœbic abscess and hepatitis	231	90	11	332	2	..	..	2
(4) Others	365	132	56	553	3	2	..	5
126. Biliary calculi—								
(1) With cholecystitis ..	3	4	..	7	..	..	..	..
(2) Without mention of cholecystitis	16	7	..	23	..	..	..	..
Carried forward ..	448,505	235,181	264,786	948,472	3,282	1,318	650	5,250

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	448,505	235,181	264,786	948,472	3,282	1,318	650	5,250
IX.—DISEASES OF THE DIGESTIVE SYSTEM—(*cont.*)								
127. Other diseases of the gall bladder and ducts—								
(1) Cholecystitis without record of calculi ..	22	10	..	32	..	..	..	..
(2) Others	106	33	26	165	..	..	..	..
128. Diseases of the pancreas ..	1	1	..	2	..	..	..	..
(excluding diabetes mellitus)..	..	..	..	..	..	..	..	..
129. Peritonitis, without stated cause	3	..	..	3	..	..	..	..
X.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).								
130. Acute nephritis	269	142	67	478	..	1	..	1
131. Chronic nephritis	283	144	34	461	1	..	..	1
132. Nephritis (undefined as acute or chronic)	840	408	210	1,458	3	1	1	5
133. Other diseases of the kidney and annexa—								
(1) Pyelitis	374	334	18	726	8	19	..	27
(2) Others	311	181	28	520	5	9	..	14
134. Calculi of the urinary passages—								
(1) Calculi of the kidney and ureter	68	12	..	80	2	2	..	4
(2) Calculi of the bladder ..	36	9	..	45	..	..	..	..
(3) Calculi of unstated site	16	2	..	18	..	..	..	..
135. Diseases of the Bladder—								
(1) Cystitis	825	527	..	1,352	13	15	..	28
(2) Others	229	127	121	477	4	1	2	7
136. Diseases of the urethra—								
(1) Stricture..	275	8	..	283	2	..	..	2
(2) Others	1,054	324	43	1,421	67	..	.. 2	69
137. Diseases of the prostate ..	17	..	..	17	1	..	..	1
138. Diseases of the male genital organs—								
(1) Epididymitis	193	..	..	193	1	..	..	1
(2) Orchitis	379	..	..	379	4	..	..	4
(3) Hydrocele	183	..	..	183	..	..	..	..
(4) Others	302	..	68	370	7	..	1	8
139. Diseases of the female genital organs—								
(1) Diseases of the ovary ..	..	706	..	706	..	1	..	1
(2) Diseases of the fallopian tube	..	153	..	153	..	..	..	..
(3) Diseases of the parametrium	..	18	..	18	..	..	..	..
(4) Diseases of the uterus ..	..	2,797	..	2,797	..	43	..	43
(5) Diseases of the breast ..	..	299	3	302	..	4	..	4
(6) Other diseases of the female genital organs	..	2,596	17	2,613	..	43	..	43
XI.—CONDITIONS ARISING IN PREGNANCY, CHILDBIRTH AND THE PUERPERAL STATE.								
140. Post abortive sepsis—								
(1) Septic abortion ..	..	11	..	11	..	..	..	..
141. Abortion not returned as septic—								
(1) Hæmorrhage following abortion	..	120	..	120	..	1	..	1
(2) Abortion without record of hæmorrhage ..	..	606	..	606	..	1	..	1
Carried forward ..	454,291	244,749	265,421	964,461	3,400	1,459	656	5,515

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	454,291	244,749	265,421	964,461	3,400	1,459	656	5,515
XI.—CONDITIONS ARISING IN PREGNANCY, CHILDBIRTH AND THE PUERPERAL STATE—(*cont.*)								
142. Ectopic gestation	..	7	..	7	..	..	..	..
143. Other accidents of pregnancy ..	..	191	..	191	..	2	..	2
144. Puerperal hæmorrhage—								
(1) Placenta prævia ..	..	3	..	3	..	..	..	..
(2) Other puerperal hæmorrhage	..	14	..	14	..	..	..	..
145. Puerperal sepsis—								
(1) Puerperal septicæmia ..	..	8	..	8	..	..	..	..
(2) Puerperal sepsis, not including septicæmia ..	..	11	..	11	..	..	..	..
146. Puerperal albuminuria and convulsions—								
(1) Ante-partum eclampsia	..	5	..	5	..	..	..	..
(2) Intra-partum eclampsia	..	..	..	..	..	..	..	..
(3) Post-partum eclampsia	..	..	..	..	..	..	..	..
(4) Albuminuria of pregnancy	..	250	..	250	..	3	..	3
(5) Pyelitis of pregnancy ..	..	51	..	51	..	..	..	..
(6) Otherwise defined ..	..	92	..	92	..	9	..	9
147. Other Toxæmias of pregnancy—								
(1) Hyperemesis gravidarum	..	111	..	111	..	5	..	5
(2) Others	..	187	..	187	..	1	..	1
148. Puerperal Phlegmasia, embolism—								
(1) Puerperal phlegmasia ..	..	..	..	..	..	..	..	..
(2) Puerperal embolism ..	..	..	..	..	..	..	..	..
149. Conditions associated with labour—								
(1) Normal labour	..	6,170	..	6,170	..	345	..	345
(2) Abnormal labour ..	..	41	..	41	..	1	..	1
(3) Labour complicated with intercurrent disease	..	21	..	21	..	2	..	2
(4) Accidents of childbirth	..	41	..	41	..	..	..	..
150. Other or unspecified conditions of the puerperal state—								
(1) Puerperal insanity ..	..	5	..	5	..	..	..	..
(2) Puerperal disease of the breast	..	5	..	5	..	..	..	..
(3) Others	..	543	..	543	..	1	..	1
XII.—DISEASES OF THE SKIN AND CELLULAR TISSUES.								
151. Carbuncle, boil	5,749	1,386	2,455	9,590	74	21	12	107
152. Cellulitis, acute abscess—								
(1) Cellulitis	2,842	950	669	4,461	35	4	2	41
(2) Acute abscess	7,479	2,346	2,921	12,746	52	13	8	73
(3) Otherwise defined ..	1,706	497	650	2,853	18	2	2	22
153. Other diseases of the skin and its annexa—								
(1) Ulcers	56,377	16,539	23,699	96,615	166	30	10	206
(2) Dermal mycoses ..	7,320	2,662	2,060	12,042	96	27	6	129
(3) Herpes	557	117	134	808	9	3	1	13
(4) Scabies	32,200	11,652	24,271	68,123	63	9	10	82
(5) Others	26,783	10,677	11,556	49,016	741	141	97	979
XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.								
154. Acute infective osteomyelitis and periostitis	29	8	5	42	..	..	..	..
155. Other diseases of the bones ..	340	175	58	573	.. 3	..	..	3
Carried forward ..	595,673	299,514	333,899	1,229,086	4,657	2,078	804	7,539

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	595,673	299,514	333,899	1,229,086	4,657	2,078	804	7,539
XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION—(*cont.*)								
156. Diseases of the joints and other organs of locomotion—								
(1) Diseases of the joints ..	3,497	1,695	140	5,332	33	6	..	39
(2) Diseases of the other organs of locomotion..	5,407	2,522	280	8,209	48	10	..	58
XIV.—CONGENITAL MALFORMATIONS.								
157. Congenital malformations—								
(1) Congenital hydrocephalus	..	..	5	5	..	..	..	..
(2) Spina bifida and meningocele	..	..	..	..	..	..	..	..
(3) Congenital malformation of the heart	..	1	1	2	..	..	..	..
(4) Monstrosities	..	..	..	..	..	..	..	..
(5) Congenital hypertrophic pyloric stenosis ..	..	..	2	2	..	..	..	..
(6) Cleft palate, harelip ..	5	3	45	53	..	..	..	..
(7) Imperforate anus ..	..	..	23	23	..	..	..	..
(8) Other congenital malformations	..	2	19	21	..	..	..	..
XV.—DISEASES OF EARLY INFANCY.								
158. Congenital debility	..	..	90	90	..	..	..	..
159. Premature birth	..	..	3	3	..	..	..	..
160. Injury at birth	..	..	1	1	..	..	..	..
161. Other diseases peculiar to early infancy—								
(1) Atelectasis	..	..	1	1	..	..	..	..
(2) Icterus neonatorum ..	..	..	10	10	..	..	..	..
(3) Affections of the umbilicus	..	..	58	58	..	..	..	..
(4) Pemphigus neonatorum	..	..	..	..	..	..	..	..
(5) Others	..	..	168	168	..	..	1	1
XVI.—CONDITIONS ASSOCIATED WITH OLD AGE.								
162. (1) Senile dementia	295	198	..	493	..	..	..	..
(2) Other forms of senile decay	1,972	1,322	..	3,294	16	13	..	29
XVII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.								
163. Suicide, or attempted suicide, by poisoning (including corrosive poisoning) ..	..	..	..	..	..	..	..	..
164. Suicide, or attempted suicide, by gas poisoning	..	..	..	..	..	..	..	..
165. Suicide, or attempted suicide, by hanging or strangulation	..	..	..	..	..	..	..	..
166. Suicide, or attempted suicide, by drowning	..	..	..	..	..	..	..	..
167. Suicide, or attempted suicide, by firearms	..	..	..	..	..	..	..	..
168. Suicide, or attempted suicide, by cutting or piercing instruments	3	2	..	5	..	..	..	..
169. Suicide, or attempted suicide, by jumping from a height ..	1	..	..	1	..	..	..	..
170. Suicide, or attempted suicide, by crushing	..	..	..	..	..	..	..	..
Carried forward ..	606,853	305,259	334,745	1,246,857	4,754	2,107	805	7,666

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years	Total
Brought forward ..	606,853	305,259	334,745	1,246,857	4,754	2,107	805	7,666
XVII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—(*cont.*)								
171. Suicide, or attempted suicide, by other means	3	..	..	3	..	..	..	..
172. Infanticide	..	..	..	..	..	..	..	..
173. Assault or homicide, by firearms	47	11	2	60	7	..	..	7
174. Assault or homicide, by cutting or piercing instruments ..	323	101	14	438	..	..	..	..
175. Assault or homicide, by other means	1,609	596	64	2,269	4	..	..	4
176. Attacks by venomous animals—								
(1) Snake bite	115	25	10	150	1	..	..	1
(2) Insect bite	818	186	299	1,303	26	6	8	40
(3) Others	603	186	307	1,096	23	3	4	30
177. Food poisoning	57	16	21	94	..	..	..	..
178. Accidental absorption of irrespirable or poisonous gas ..	..	..	..	..	..	..	..	..
179. Other acute accidental poisoning	2	1	2	5	..	1	..	1
180. Injuries due to conflagration ..	1	..	..	1	..	..	..	..
181. Accidental burns— (Conflagration excepted)								
(1) Burns by fire	964	279	553	1,796	21	3	5	29
(2) Scalds	848	445	805	2,098	7	1	..	8
(3) Burns by corrosive substances	46	15	18	79	2	..	..	2
(4) Dermatitis due to exposure to sun ..	334	121	179	634	20	3	..	23
(5) Dermatitis due to exposure to other forms of radiation	278	61	62	401	9	..	..	9
182. Accidental mechanical suffocation	2	..	..	2	..	..	..	..
183. Accidental immersion or drowning	2	..	4	6	..	..	..	..
184. Accidental injury by firearms..	50	3	6	59	1	..	..	1
185. Accidental injury by cutting or piercing instruments ..	9,575	2,092	2,904	14,571	54	8	4	66
186. Accidental injury by fall, crushing, etc.—								
(1) By fall	18,694	4,165	7,066	29,925	241	52	50	343
(2) By machinery	299	31	12	342	3	..	..	3
(3) By motor vehicles ..	1,148	184	188	1,520	42	2	1	45
(4) By railway vehicles ..	19	..	..	19	6	..	..	6
(5) By other means.. ..	15,472	4,184	4,461	24,117	170	19	22	211
187. Cataclysm (tidal waves, cyclones, etc.)	..	..	..	..	..	..	..	..
188. Injury by animals (except poisoning by venomous animals)	1,424	571	793	2,788	33	15	15	63
189. Hunger or thirst	..	2	..	2	..	..	..	..
190. Excessive cold	..	..	..	..	..	..	..	..
191. Excessive heat	..	1	1	2	..	1	..	1
192. Lightning	..	..	..	..	..	..	..	..
193. Electricity	6	..	..	6	..	..	..	..
194. Other unstated forms of violence—								
(1) Inattention at birth ..	..	..	1	1	..	..	..	..
(2) Others	63	47	55	165	1	..	..	1
195. Violence of an unstated nature (i.e., suicidal, homicidal, or accidental)	48	10	14	72	1	..	..	1
196. Wounds of war	..	..	..	..	..	..	..	..
197. Execution of civilians by belligerent armies	..	..	..	..	..	..	..	..
198. Execution	..	..	..	..	..	..	..	..
Carried forward ..	659,703	318,592	352,586	1,330,881	5,426	2,221	914	8,561

TABLE 6—(*cont.*)

OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases. All Nationalities (including Europeans).				New Cases. Europeans only.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	659,703	318,592	352,586	1,330,881	5,426	2,221	914	8,561
XVIII.—ILL-DEFINED CONDITIONS.								
199. Sudden death (cause unknown)	..	..	..	..	..	..	..	..
200. Cause of death unstated or ill-defined	..	..	..	..	..	..	..	..
201. Diseases not included in this classification which have caused no deaths	9,307	4,465	3,987	17,759	146	83	33	262
202. Malingering	7	1	..	8	..	..	..	..
203. Cases admitted to hospital for observation as to mental condition	131	29	..	160	..	2	..	2
204. Cases admitted for observation (not mental)	..	..	..	..	..	..	..	..
205. Persons accompanying patients	..	..	..	..	..	..	..	..
Total ..	669,148	323,087	356,573	1,348,808	5,572	2,306	947	8,825

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1949.

Nationalities.	New Cases. All Nationalities (including Europeans).			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Europeans	5,572	2,306	947	8,825
Eurasians	4,965	2,848	2,331	10,144
Chinese	229,132	128,345	148,238	505,715
Indians	145,705	65,735	67,626	279,066
Malays	271,137	118,765	132,784	522,686
Javanese	7,876	2,613	2,823	13,312
Japanese	25	6	..	31
Others	4,736	2,469	1,824	9,029
TOTAL ..	669,148	323,087	356,573	1,348,808

Table 7.

TRAVELLING DISPENSARIES OUT-PATIENTS.

Return of Diseases for the Year 1949.

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
I.—Infectious and Parasitic Diseases.				
1. Typhoid fever	..	..	..	..
2. Paratyphoid fever	..	..	..	..
3. Typhus—				
(1) Typhus exanthematicus	..	..	..	..
(2) Tropical typhus	..	..	..	..
(3) Japanese river fever	..	..	..	..
(4) Other rickettsia infections	..	..	..	..
4. Relapsing fever	..	..	..	..
5. Undulant fever	..	..	..	..
6. Small-pox	..	..	..	..
7. Measles	2	1	37	40
8. Scarlet fever	..	..	..	..
9. Whooping cough	8	3	80	91
10. Diphtheria	..	..	1	1
11. Influenza—				
(1) with pneumonia	..	..	..	..
(2) with other respiratory complications	699	419	1,115	2,233
(3) without respiratory complications	7,015	3,845	6,573	17,433
12. Cholera	..	..	..	..
13. Dysentery—				
(1) Amœbic	2	..	..	2
(2) Bacillary	35	15	18	68
(3) Mixed	8	5	38	51
(4) Undefined or due to other causes	889	568	590	2,047
4. Plague—				
(1) Bubonic	..	..	..	..
(2) Pneumonic	..	..	..	..
(3) Septicæmic	..	..	..	..
(4) Undefined	..	..	..	..
15. Erysipelas	..	..	..	..
16. Acute poliomyelitis—				
(1) Acute poliomyelitis	..	..	..	..
(2) Acute polioencephalitis	..	..	..	..
17. Encephalitis lethargica	..	..	..	..
18. Cerebro-spinal fever	..	..	..	..
19. Glanders	..	..	..	..
20. Anthrax	..	..	..	..
21. Rabies	..	..	..	..
22. Tetanus—				
(1) Tetanus of the newly born	..	..	..	..
(2) Other forms of tetanus	..	..	..	..
23. Tuberculosis of the respiratory system	190	75	1	266
24. Tuberculosis of the central nervous system	..	..	..	..
25. Tuberculosis of the intestines or peritoneum	..	..	..	..
26. Tuberculosis of the vertebral column	..	..	..	..
27. Tuberculosis of other bones and joints	..	..	..	..
28. Tuberculosis of the skin or subcutaneous tissue (lupus)	..	..	..	..
29. Tuberculosis of the lymphatic system (abdominal and bronchial glands excepted)	1	1	1	3
30. Tuberculosis of the genito-urinary system	..	..	..	..
31. Tuberculosis of other organs—				
(1) Adrenal	..	..	..	..
(2) Other sites	..	..	..	..
32. Tuberculosis disseminated—				
(1) Acute	..	..	..	..
(2) Chronic	..	..	..	..
(3) Not distinguished as acute or chronic	..	..	..	..
33. Leprosy	1	1	..	2
34. Syphilis—				
(1) Primary	41	8	..	49
(2) Secondary	89	47	..	136
(3) Tertiary	53	28	..	81
(4) Hereditary	..	..	6	6
(5) Period not indicated	36	10	..	46
Carried forward ..	9,069	5,026	8,460	22,555

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	9,069	5,026	8,460	22,555
I.—INFECTIOUS AND PARASITIC DISEASES—(*cont.*)				
35. Other venereal diseases—				
(1) Soft chancre	23	..	..	23
(2) Gonorrhœa and its complications	298	92	1	391
(3) Gonorrhœal ophthalmia	..	..	..	..
(4) Gonorrhœal arthritis	110	20	..	130
(5) Granuloma venereum	..	..	..	..
(6) Tropical bubo	3	..	..	3
36. Purulent infective septicæmia—				
(1) Septicæmia	1	..	..	1
(2) Pyæmia	..	..	..	..
(3) Gas gangrene	2	..	..	2
37. Yellow fever	..	..	..	..
38. Malaria—				
(1) Tertian (benign)	97	37	80	214
(2) Quartan	10	2	3	15
(3) Aestivo-autumnal (Subtertian)	310	117	257	684
(4) Mixed infections	2	..	1	3
(5) Unclassified	38,236	19,590	20,838	78,664
(6) Cachexia	5,189	2,803	3,898	11,890
(7) Blackwater fever	..	..	..	..
39. Other diseases due to protozoa—				
(1) Yaws (framboesia)	11,692	7,636	16,251	35,579
(2) Spirochætosis icterohæmorrhagica	..	..	..	..
(3) Leishmaniasis (dermal)	..	..	..	..
(4) Kala azar	..	..	..	..
(5) Other diseases	..	..	..	..
40. Ankylostomiasis	1,306	993	1,437	3,736
41. Hydatid cysts	..	..	..	..
42. Other diseases due to helminths—				
Cestodes.				
(1) Tænia solium	..	..	..	..
(2) Tænia saginata	..	..	..	..
(3) Other cestodes	18	14	57	89
Nematodes.				
(4) Filaria	112	62	240	414
(5) Ascaris	5,861	3,873	32,936	42,670
(6) Trichuris trichiura	..	..	..	..
(7) Oxyuris vermicularis	207	141	756	1,104
(8) Dracunculus medinensis	..	..	..	..
Trematodes.				
(9) Schistosomum japonicum ..	..	..	..	..
(10) Clonorchis sinensis	..	..	..	..
(11) Other helminths	..	..	..	..
(12) Undefined	841	563	2,253	3,657
43. (1) Sprue	12	9	..	21
(2) Actinomycosis	..	..	..	..
(3) Other mycotic infections excluding purely dermal mycosis ..	..	..	6	6
44. Other infectious or parasitic diseases—				
(1) Vaccinia including post vaccinal encephalitis	1	..	24	25
(2) Other sequelæ of vaccination ..	7	..	122	129
(3) Rubella	..	..	..	..
(4) Varicella (chicken-pox)	32	15	155	202
(5) Mumps and its complications ..	19	12	48	79
(6) Dengue	..	..	..	..
(7) Melioidosis	..	..	..	..
(8) Myiasis	..	..	..	..
(9) Glandular fever	..	..	..	..
(10) Others	..	..	..	..
(11) Pyrexia of unknown origin ..	..	..	2	2
Carried forward ..	73,458	41,005	87,825	202,288

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	73,458	41,005	87,825	202,288
II.—CANCER AND OTHER TUMOURS.				
45. Cancer or other malignant diseases of the buccal cavity, and pharynx	..	..	..	..
46. Cancer or other malignant tumours of the digestive organs and peritoneum—				
(1) Stomach	..	..	..	..
(2) Liver (primary)	..	1	..	1
(3) Other digestive organs	..	..	..	..
47. Cancer or other malignant tumours of the respiratory organs	..	..	..	..
48. Cancer or other malignant tumours of the uterus	..	..	..	..
49. Cancer or other malignant tumours of other female genital organs	..	..	..	..
50. Cancer or other malignant tumours of the breast	..	..	..	..
51. Cancer or other malignant tumours of the male genito-urinary organs ..	..	..	..	..
52. Cancer or other malignant tumours of the skin..	..	..	..	..
53. Cancer or other malignant tumours of organs not specified	..	..	..	..
54. Tumours non-malignant—				
(1) Of female genital organs ..	..	1	..	1
(2) Of other sites	..	..	..	..
55. Tumours of undetermined nature—				
(1) Female genital organs	..	..	..	..
(2) Other sites	..	..	..	..
III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES.				
56. Rheumatic fever—				
(1) With cardiac involvement ..	..	..	..	..
(2) Without cardiac involvement ..	..	..	..	..
57. Chronic rheumatism and osteoarthritis..	4,303	2,742	..	7,045
58. Gout	..	..	..	..
59. Diabetes (not including diabetes insipidus)	23	9	..	32
60. Scurvy (including Barlow's disease) ..	..	..	..	..
61. (1) Beri-beri including epidemic dropsy	819	602	76	1,497
(2) Beri-beri associated with pregnancy or labour	..	110	..	110
62. Pellagra	..	..	..	..
63. Rickets	..	..	31	31
64. Osteomalacia	..	..	..	..
65. Diseases of the pituitary gland	..	..	..	..
66. Diseases of the thyroid and parathyroid glands—				
(1) Simple goitre	7	52	4	63
(2) Exophthalmic goitre	..	..	..	..
(3) Myxœdema, cretinism	..	..	..	..
(4) Tetany	..	..	..	..
(5) Other diseases of the thyroid glands	1	1	..	2
67. Diseases of the thymus	..	..	..	..
68. Diseases of the adrenal glands (excluding tuberculosis)	..	..	1	1
69. Other general diseases—				
(1) Acidosis	..	..	..	..
(2) Other diseases of metabolism ..	288	399	1,031	1,718
Carried forward ..	78,899	44,922	88,968	212,789

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	78,899	44,922	88,968	212,789
IV.—DISEASES OF THE BLOOD AND BLOOD FORMING ORGANS.				
70. Hæmorrhagic conditions—				
(1) Purpura	..	..	..	..
(2) Hæmophilia	..	..	..	..
71. Anæmia and chlorosis—				
(1) Pernicious anæmia	..	..	..	..
(2) Splenic anæmia	..	..	..	..
(3) Chlorosis	..	..	..	..
(4) Secondary anæmia	5,896	6,623	3,783	16,302
(5) Others	3,749	4,290	2,126	10,165
72. Leukæmia—				
(1) Leukæmia	..	..	..	..
(2) Hodgkin's disease	..	..	..	..
73. Diseases of the spleen—				
(1) Banti's disease	..	..	..	..
(2) Others (not including diseases of the spleen due to malaria or leukæmia)	..	..	2	2
74. Other diseases of the blood and blood forming organs	..	..	..	..
V.—CHRONIC POISONING.				
75. Alcoholism (acute or chronic)	..	..	..	..
76. Chronic poisoning by other organic substances—				
(1) Opium	..	..	..	..
(2) Morphia, cocaine	..	..	..	..
(3) Others	..	..	..	..
77. Chronic poisoning by mineral substances—				
(1) Lead poisoning	..	..	..	..
(2) Arsenical dermatitis	4	8	..	12
(3) Others	..	..	..	..
VI.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.				
78. Encephalitis (not including encephalitis lethargica)—				
(1) Cerebral abscess	..	..	..	..
(2) Other forms of encephalitis ..	..	..	..	..
79. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)	..	..	..	..
80. Tabes dorsalis (Locomotor ataxia) ..	..	..	..	..
81. Other diseases of the spinal cord ..	..	..	..	..
82. Apoplexy and paralysis—				
(1) Cerebral hæmorrhage	..	..	..	..
(2) Cerebral embolism	..	..	..	..
(3) Cerebral thrombosis	..	..	..	..
(4) Hemiplegia, cause not determined	21	9	..	30
(5) Other paralysis	10	4	..	14
83. General paralysis of the insane	..	..	..	..
84. Other forms of insanity—				
(1) Dementia præcox	..	..	..	..
(2) Others	..	..	..	..
85. Epilepsy	5	5	1	11
86. Infantile convulsions (age under 5 years)	..	..	2	2
87. Other diseases of the nervous system—				
(1) Chorea	15	11	..	26
(2) Neuritis and neuralgia	16,086	10,731	1,687	28,504
(3) Paralysis agitans	..	..	..	..
(4) Disseminated sclerosis	..	..	..	..
(5) Neurasthenia	44	63	..	107
(6) Hysteria	..	1	..	1
(7) Others	1,792	1,137	1,351	4,280
Carried forward ..	106,521	67,804	97,920	272,245

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	106,521	67,804	97,920	272,245
VI.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS—(*cont.*)				
88. Diseases of the eye—				
(1) Conjunctivitis	6,934	5,134	9,718	21,786
(2) Trachoma	6	2	7	15
(3) Corneal ulcer	7	3	8	18
(4) Other diseases of the eye ..	496	513	311	1,320
89. Diseases of the ear and or the mastoid sinus—				
(1) Otitis externa	556	300	1,346	2,202
(2) Otitis media	358	232	950	1,540
(3) Mastoiditis	46	26	276	348
(4) Others	397	269	1,501	2,167
VII.—DISEASES OF THE CIRCULATORY SYSTEM.				
90. Pericarditis	1	1	..	2
91. Acute endocarditis—				
(1) Malignant	..	..	..	..
(2) Others	..	..	..	..
92. Chronic endocarditis: valvular disease—				
(1) Aortic valve disease	..	..	..	..
(2) Mitral valve disease	..	..	..	..
(3) Aortic and mitral	..	..	..	..
(4) Others	..	..	..	..
93. Diseases of the myocardium—				
(1) Acute myocarditis	..	..	..	..
(2) Chronic myocardial degeneration	..	..	..	..
94. Diseases of the coronary arteries—				
(1) Angina pectoris	..	..	..	..
(2) Coronary thrombosis	..	..	..	..
(3) Coronary sclerosis..	..	..	..	..
95. Other diseases of the heart—				
(1) Auricular fibrillation	..	..	..	..
(2) Heart block	..	..	..	..
(3) Others	7	..	..	7
96. Aneurysm—				
(1) Aneurysm of aorta	..	..	..	..
(2) Aneurysm of other arteries ..	..	..	..	..
97. Arterio-sclerosis	..	..	..	..
98. Gangrene	1	..	..	1
99. Other diseases of the arteries	..	..	..	..
100. Diseases of the veins—				
(1) Varicose veins	15	5	..	20
(2) Hæmorrhoids	43	26	..	69
(3) Phlebitis	..	..	..	..
(4) Thrombosis	..	..	..	..
(5) Others	1	1	16	18
101. Diseases of the lymphatic system—				
(1) Lymphangitis	6	4	2	12
(2) Lymphadenitis	7	3	19	29
(3) Bubo (non-specified)	19	3	3	25
102. Abnormalities of blood pressure—				
(1) High blood pressure	..	2	..	2
(2) Low blood pressure	..	..	..	..
103. Other diseases of the circulatory system—				
(1) Epistaxis	2	2	2	6
(2) Others	3	3	1	7
VIII.—DISEASES OF THE RESPIRATORY SYSTEM.				
104. Diseases of the nasal fossæ and its annexa—				
(1) Diseases of the nose	31	33	8	72
(2) Diseases of the accessory nasal sinuses	125	104	109	338
Carried forward ..	115,582	74,470	112,197	302,249

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	115,582	74,470	112,197	302,249
VIII.—DISEASES OF THE RESPIRATORY SYSTEM—(*cont.*)				
105. Diseases of the larynx—				
(1) Laryngismus stridulus	..	..	..	..
(2) Laryngitis	122	53	65	240
(3) Other diseases of the larynx ..	3	2	..	5
106. Bronchitis—				
(1) Acute	3,589	2,196	5,623	11,408
(2) Chronic	2,610	1,624	1,080	5,314
(3) Not defined as acute or chronic..	15,181	8,337	14,471	37,989
107. Broncho-pneumonia	45	18	108	171
108. Lobar-pneumonia..	18	22	13	53
109. Pneumonia (not otherwise defined) ..	8	4	11	23
110. Pleurisy—				
(1) Empyema	1	..	..	1
(2) Other pleurisy	1	1	..	2
111. Congestion and hæmorrhagic infarction of lung, etc.—				
(1) Hypostatic congestion of lung ..	..	..	..	..
(2) Massive collapse	..	..	..	..
(3) Pulmonary embolism	..	..	..	..
(4) Others	10	..	1	11
112. Asthma	2,201	1,111	974	4,286
113. Pulmonary emphysema	..	..	..	..
114. Other diseases of the respiratory system—				
(1) Chronic interstitial pneumonia (including occupational diseases of the lung)	..	..	..	..
(2) Gangrene of the lung	..	..	..	..
(3) Abscess of the lung	..	..	..	..
(4) Bronchiectasis	..	..	..	..
(5) Others	9	8	14	31
IX.—DISEASES OF THE DIGESTIVE SYSTEM.				
115. Diseases of the buccal cavity, pharynx, etc.—				
(1) Pyorrhœa	163	106	20	289
(2) Dental caries	1,615	940	2,359	4,914
(3) Stomatitis	249	225	968	1,442
(4) Ludwig's angina	..	..	..	..
(5) Diseases of the tonsils	131	116	228	475
(6) Others	172	94	195	461
116. Diseases of the œsophagus	..	..	..	..
117. Ulcer of the stomach or duodenum—				
(1) Ulcer of the stomach	5	1	..	6
(2) Ulcer of the duodenum	..	..	..	..
118. Other diseases of the stomach—				
(1) Gastritis	3,486	2,674	887	7,047
(2) Others	3,134	2,291	2,859	8,284
119. Diarrhœa and enteritis— (under 2 years)	..	..	1,651	1,651
120. Diarrhœa and enteritis— (2 years and over)				
(1) Colitis	392	208	237	837
(2) Otherwise defined	1,542	928	1,435	3,905
121. Appendicitis	..	..	..	..
122. Hernia, Intestinal obstruction—				
(1) Hernia	2	..	..	2
(2) Strangulated hernia	..	..	..	..
(3) Intestinal obstruction (including intussusception)	..	..	..	..
123. Other diseases of the intestines—				
(1) Constipation, intestinal stasis ..	14,972	7,857	6,020	28,849
(2) Diverticulitis	..	..	..	..
(3) Others	410	442	740	1,592
124. Cirrhosis of liver— (non-syphilitic)				
(1) Alcoholic	..	..	..	..
(2) Not returned as alcoholic ..	2	2	..	4
Carried forward ..	165,655	103,730	152,156	421,541

Table 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

Return of Diseases for the Year 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	165,655	103,730	152,156	421,541
IX.—Diseases of the Digestive System—(*cont.*)				
125. Other diseases of the liver—				
(1) Acute yellow atrophy	3	2	..	5
(2) Toxic hepatitis	2	2	1	5
(3) Amœbic abscess and hepatitis ..	..	..	..	..
(4) Others	13	3	8	24
126. Biliary calculi—				
(1) With cholecystitis	..	..	..	..
(2) Without mention of cholecystitis	..	..	..	..
127. Other diseases of the gall bladder and ducts—				
(1) Cholecystitis without record of calculi	..	..	..	..
(2) Others	4	..	2	6
128. Diseases of the pancreas (excluding diabetes mellitus)	..	..	..	..
129. Peritonitis, without stated cause ..	..	..	..	..
X.—Diseases of the Genito-Urinary System (Non-Venereal).				
130. Acute nephritis	54	47	26	127
131. Chronic nephritis	68	16	2	86
132. Nephritis (undefined as acute or chronic)	166	119	64	349
133. Other diseases of the kidney and annexa—				
(1) Pyelitis	34	22	..	56
(2) Others	43	50	2	95
134. Calculi of the urinary passages—				
(1) Calculi of the kidney and ureter	..	..	..	..
(2) Calculi of the bladder	1	..	..	1
(3) Calculi of unstated site	..	..	..	..
135. Diseases of the bladder—				
(1) Cystitis	13	7	..	20
(2) Others	28	10	9	47
136. Diseases of the urethra—				
(1) Stricture	2	2	..	4
(2) Others	110	46	7	163
137. Diseases of the prostate	..	..	..	..
138. Diseases of the male genital organs—				
(1) Epididymitis	3	..	5	8
(2) Orchitis	9	..	..	9
(3) Hydrocele	..	..	..	..
(4) Others	34	..	52	86
139. Diseases of the female genital organs—				
(1) Diseases of the ovary	..	81	..	81
(2) Diseases of the fallopian tube ..	..	..	..	..
(3) Diseases of the parametrium ..	..	..	..	..
(4) Diseases of the uterus	..	16	..	16
(5) Diseases of the breast	..	15	..	15
(6) Other diseases of the female genital organs	..	77	..	77
XI.—Conditions arising in Pregnancy, Childbirth and the Puerperal State.				
140. Post abortive sepsis—				
(1) Septic abortion	..	..	..	..
141. Abortion not returned as septic—				
(1) Hæmorrhage following abortion	..	1	..	1
(2) Abortion without record of hæmorrhage	..	3	..	3
142. Ectopic gestation	..	..	..	..
143. Other accidents of pregnancy	..	..	..	..
144. Puerperal hæmorrhage—				
(1) Placenta prævia	..	..	..	..
(2) Other puerperal hæmorrhage ..	..	..	..	..
Carried forward ..	166,242	104,249	152,334	422,825

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	166,242	104,249	152,334	422,825
XI.—CONDITIONS ARISING IN PREGNANCY CHILDBIRTH AND THE PUERPERAL STATE—(*cont.*)				
145. Puerperal sepsis—				
(1) Puerperal septicæmia	..	1	..	1
(2) Puerperal sepsis, not including septicæmia	..	1	..	1
146. Puerperal albuminuria and convulsions—				
(1) Ante-partum eclampsia	..	..	..	..
(2) Intra-partum eclampsia	..	..	..	..
(3) Post-partum eclampsia	..	..	..	..
(4) Albuminuria of pregnancy ..	..	..	..	..
(5) Pyelitis of pregnancy	..	..	..	..
(6) Otherwise defined	..	..	..	..
147. Other Toxæmias of pregnancy—				
(1) Hyperemesis gravidarum ..	..	..	..	..
(2) Others	..	..	..	..
148. Puerperal phlegmasia, embolism—				
(1) Puerperal phlegmasia	..	..	..	..
(2) Puerperal embolism	..	..	..	..
149. Conditions associated with labour—				
(1) Normal labour	..	293	..	293
(2) Abnormal labour	..	..	..	..
(3) Labour complicated with intercurrent disease	..	..	..	..
(4) Accidents of childbirth	..	..	..	..
150. Other or unspecified conditions o the puerperal State—				
(1) Puerperal insanity	..	..	..	..
(2) Puerperal disease of the breast ..	..	..	..	..
(3) Others	..	2	..	2
XII.—DISEASES OF THE SKIN AND CELLULAR TISSUES.				
151. Carbuncle, boil	859	425	1,019	2,303
152. Cellulitis, acute abscess—				
(1) Cellulitis	159	74	69	302
(2) Acute abscess	658	327	451	1,436
(3) Otherwise defined	192	88	143	423
153. Other diseases of the skin and its annexa—				
(1) Ulcers	27,706	12,724	25,249	65,679
(2) Dermal mycoses	3,297	1,825	2,898	8,020
(3) Herpes	106	49	30	185
(4) Scabies	26,071	11,523	35,360	72,954
(5) Others	11,040	6,334	12,133	29,507
XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.				
154. Acute infective osteomyelitis and periostitis	..	..	..	..
155. Other diseases of the bones	57	36	79	172
156. Diseases of the joints and other organs of locomotion—				
(1) Diseases of the joints	2,212	1,640	128	3,980
(2) Diseases of the other organs of locomotion	889	565	137	1,591
Carried forward ..	239,488	140,156	230,030	609,674

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	239,488	140,156	230,030	609,674
XIV.—CONGENITAL MALFORMATIONS.				
157. Congenital malformations—				
(1) Congenital hydrocephalus ..	..	..	..	..
(2) Spina bifida and meningocele ..	..	..	..	..
(3) Congenital malformation of the heart	..	..	..	..
(4) Monstrosities	..	..	..	..
(5) Congenital hypertrophic pyloric stenosis	..	..	..	..
(6) Cleft palate, harelip	..	..	5	5
(7) Imperforate anus	..	..	..	..
(8) Other congenital malformations				
XV.—DISEASES OF EARLY INFANCY.				
158. Congenital debility	..	..	19	19
159. Premature birth	..	..	..	..
160. Injury at birth	..	..	..	..
161. Other diseases peculiar to early infancy—				
(1) Atelectasis	..	..	..	..
(2) Icterus neonatorum	..	..	..	..
(3) Affections of the umbilicus ..	..	..	3	3
(4) Pemphigus neonatorum	..	..	8	8
(5) Others	..	..	22	22
XVI.—CONDITIONS ASSOCIATED WITH OLD AGE.				
162. (1) Senile dementia	..	..	..	..
(2) Other forms of senile decay ..	1,454	977	..	2,431
XVII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.				
163. Suicide, or attempted suicide, by poisoning (including corrosive poisoning) ..	..	..	..	..
164. Suicide, or attempted suicide, by gas poisoning	..	..	..	..
165. Suicide, or attempted suicide, by hanging or strangulation	..	..	..	..
166. Suicide, or attempted suicide, by drowning	..	..	..	..
167. Suicide, or attempted suicide, by firearms				
168. Suicide, or attempted suicide, by cutting or piercing instruments	..	..	..	..
169. Suicide, or attempted suicide, by jumping from a height	..	..	..	..
170. Suicide, or attempted suicide, by crushing..	..	..	..	..
171. Suicide, or attempted suicide, by other means	..	..	..	..
172. Infanticide	..	..	..	..
173. Assault or homicide, by firearms ..	..	..	..	..
174. Assault or homicide, by cutting or piercing instruments	6	..	..	6
175. Assault or homicide, by other means ..	30	11	21	62
176. Attacks by venomous animals—				
(1) Snake bite	5	3	6	14
(2) Insect bite	82	34	48	164
(3) Others	22	12	19	53
177. Food poisoning	..	..	..	..
178. Accidental absorption of irrespirable or poisonous gas	..	..	..	..
179. Other acute accidental poisoning ..	..	..	..	..
180. Injuries due to conflagration	..	..	..	..
Carried forward ..	241,087	141,193	230,181	612,461

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Diseases.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Brought forward ..	241,087	141,193	230,181	612,461
XVII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—(*cont.*)				
181. Accidental burns— (Conflagration excepted)				
(1) Burns by fire	153	77	202	432
(2) Scalds	149	123	206	478
(3) Burns by corrosive substances ..	2	..	..	2
(4) Dermatitis due to exposure to sun	69	19	96	184
(5) Dermatitis due to exposure to other forms of radiation ..	33	7	14	54
182. Accidental mechanical suffocation ..	..	..	..	..
183. Accidental immersion or drowning ..	..	..	..	..
184. Accidental injury by firearms	..	..	..	..
185. Accidental injury by cutting or piercing instruments	3,098	1,999	2,272	7,369
186. Accidental injury by fall, crushing, etc.—				
(1) By fall	3,476	1,813	3,059	8,348
(2) By machinery	12	2	12	26
(3) By motor vehicles	38	8	7	53
(4) By railway vehicles	1,495	432	789	2,716
(5) By other means	2,087	543	1,093	3,723
187. Cataclysm— (tidal waves, cyclones, etc.)				
188. Injury by animals .. .. .. (except poisoning by venomous animals)	18	3	10	31
189. Hunger or thirst	..	..	..	..
190. Excessive cold	..	..	..	..
191. Excessive heat	..	..	..	..
192. Lightning	..	..	..	..
193. Electricity	..	..	..	..
194. Other unstated forms of violence—				
(1) Inattention at birth	..	..	..	..
(2) Others	..	..	..	..
195. Violence of an unstated nature .. (i.e., suicidal, homicidal, or accidental)	3	14	13	30
196. Wounds of war	..	..	..	..
197. Execution of civilians by belligerent armies	..	..	..	..
198. Execution	..	..	..	..
XVIII.—ILL-DEFINED CONDITIONS.				
199. Sudden death (cause unknown) ..	..	..	..	..
200. Cause of death unstated or ill-defined ..	..	..	..	..
201. Diseases not included in this classification which have caused no deaths ..	2,336	1,710	2,815	6,861
202. Malingering	..	..	..	..
203. Cases admitted to hospital for observation as to mental condition	..	..	..	..
204. Cases admitted for observation (not mental) ..	..	..	..	..
205. Persons accompanying patients.. ..	..	..	..	..
Total ..	254,056	147,943	240,769	642,768

TABLE 7—(*cont.*)

TRAVELLING DISPENSARIES OUT-PATIENTS—(*cont.*)

RETURN OF DISEASES FOR THE YEAR 1949—(*cont.*)

Nationalities.	New Cases.			
	Adult Males.	Adult Females.	Children under 10 years.	Total.
Europeans	4	..	..	4
Eurasians	96	79	114	289
Chinese	58,113	36,900	54,787	149,800
Indians	21,968	11,597	13,027	46,592
Malays	160,673	92,300	160,728	413,701
Javanese	9,410	4,792	9,113	23,315
Japanese	..	..	..	..
Others	3,792	2,275	3,000	9,067
TOTAL ..	254,056	147,943	240,769	642,768

TABLE 8.

DENTAL—SUMMARY OF WORK DONE FOR THE YEAR 1949.

State or Settlement.	Attendance.	Extractions.		Fillings.				Scalings.
		Temporary teeth.	Permanent teeth.	Amalgam.	Silicate.	Inlay.	Right filling.	
Kedah	9,286	1,404	2,801	2,018	178	14	19	232
Perlis	—	—	—	—	—	—	—	—
Penang and Province Wellesley	15,652	3,769	8,406	2,792	1,787	16	2	1,099
Perak	17,673	3,993	7,783	5,304	1,026	25	22	1,144
Selangor	16,443	9,307	12,050	4,929	733	16	9	507
Negri Sembilan	13,690	5,059	6,672	4,251	786	60	27	716
Malacca	6,517	2,473	3,561	1,331	384	3	15	28
Johore	17,548	3,428	7,082	8,614	1,082	48	39	700
Kelantan	3,699	811	2,495	1,538	469	2	4	200
Trengganu	3,890	636	2,499	1,505	322	12	2	276
Pahang	13,665	4,656	4,117	5,473	966	4	6	1,157
Total ..	118,063	35,536	57,466	37,755	7,733	200	145	6,059

Table 9.

MICROSCOPICAL EXAMINATION OF BLOOD FILMS FOR THE YEAR 1949.

State or Settlement.	Number of patients examined.	Number Positive for Malarial Parasites.				Total number of examinations of blood films.
		S.T.	B.T.	Quartan.	Mixed infection.	
Kedah	11,610	1,035	1,011	13	18	13,202
Perlis	5,200	721	600	13	18	5,569
Penang & Province Wellesley ..	16,777	936	555	7	7	22,194
Perak	60,643	1,737	925	44	56	77,589
Selangor	20,483	613	468	30	39	36,063
Negri Sembilan ..	20,225	957	319	30	11	27,727
Malacca	12,074	1,136	118	8	—	13,248
Johore	26,075	831	673	6	22	29,207
Kelantan	10,299	700	429	23	21	10,299
Trengganu	2,931	95	68	9	17	3,120
Pahang	25,215	500	386	8	10	38,969
Total ..	211,532	9,261	5,552	191	219	277,187

Table 10.

MICROSCOPICAL EXAMINATION OF FAECES FOR WORM INFESTATIONS FOR THE YEAR 1949.

State or Settlement.	Number of patients examined.	Number positive for entamoeba histolytica.	Number Positive for Ova.			Total number of examinations.
			Ascaris lumbricoides.	Ankylostoma duodenale.	Mixed infection.	
Kedah	11,834	155	5,061	2,130	955	13,943
Perlis	1,950	28	1,178	43	52	2,009
Penang & Province Wellesley ..	15,808	288	2,038	2,191	218	20,657
Perak	31,949	343	7,734	3,048	757	38,768
Selangor	17,446	99	6,257	1,792	649	27,914
Negri Sembilan ..	17,353	72	3,445	1,076	322	18,937
Malacca	9,987	38	992	2,330	2,473	11,044
Johore	20,883	152	6,588	3,274	2,259	23,547
Kelantan	8,247	134	1,470	488	2,442	8,247
Trengganu	1,405	140	242	46	418	2,251
Pahang	25,215	60	3,150	633	601	15,268
Total ..	162,077	1,509	38,155	17,051	11,146	182,585

TABLE 11.

POST MORTEM EXAMINATIONS, 1949.

State or Settlement.	Medico-legal.	Clinical.
Kedah	190	2
Perlis	31	7
Penang and Province Wellesley ...	177	45
Perak	570	72
Selangor	455	9
Negri Sembilan	190	6
Malacca	101	44
Johore	499	90
Kelantan	50	2
Trengganu	8	4
Pahang	236	24
Total ...	2,507	305

TABLE 12.

RETURN OF VENEREAL DISEASES FOR THE YEAR 1949.

A.—NEW CASES.

Nationalities.		Syphilis.				Gonorrhoea.	Chancroid.	Lymphogran.	Comb. infec.	Non-venrl.	Total.	
		Prim.	Sec.	Tert.	Congen.						M.	F.
Chinese	M.	417	1,630	379	101	1,572	476	102	69	671	5,417	—
	F.	128	820	238	180	378	16	3	55	1,485	—	3,303
Indians	M.	461	1,545	319	43	1,215	538	99	110	718	5,048	—
	F.	60	639	153	86	121	4	—	17	954	—	2,034
Malays	M.	487	1,543	546	35	1,854	170	88	54	489	5,266	—
	F.	154	601	185	67	327	15	10	16	647	—	2,022
Europeans	M.	22	11	—	—	132	13	1	1	20	200	—
	F.	—	—	1	—	3	—	—	—	9	—	13
Others	M.	10	30	13	2	36	2	—	5	9	107	—
	F.	5	42	6	1	13	—	—	2	44	—	113
Total	M.	1,397	4,759	1,257	181	4,809	1,199	290	239	1,907	16,038	—
	F.	347	2,102	583	334	842	35	13	90	3,139	—	7,485
											TOTAL ..	23,523

TABLE 12—(*cont.*)

RETURN OF VENEREAL DISEASES FOR THE YEAR 1949—(*cont.*)

B.—RE-ATTENDANCES.

Nationalities.		Syphilis.				Gonorrhoea.	Chancroid.	Lympho-gran.	Comb. infec.	Non-venrl.	Total.	
		Prim.	Sec.	Tert.	Congen.						M.	F.
Chinese	M.	3,691	15,016	2,836	428	4,388	3,080	310	997	880	31,626	—
	F.	517	9,509	2,000	1,796	1,973	59	20	987	5,330	—	22,191
Indians	M.	4,204	16,996	1,584	155	4,229	3,496	459	1,443	942	33,508	—
	F.	269	6,137	875	918	779	52	30	517	2,321	—	11,898
Malays	M.	2,322	19,872	5,175	154	3,235	906	296	662	1,007	33,629	—
	F.	437	5,657	983	634	1,031	15	25	709	2,033	—	11,524
Europeans	M.	125	195	3	—	267	21	—	15	22	648	—
	F.	—	—	3	—	—	—	—	—	—	—	3
Others	M.	89	532	100	9	112	18	12	23	6	901	—
	F.	16	365	30	6	29	—	—	31	111	—	588
Total	M.	10,431	52,611	9,698	746	12,231	7,521	1,077	3,140	2,857	100,312	—
	F.	1,239	21,668	3,891	3,354	3,812	126	75	2,244	9,795	—	46,204

TOTAL .. 146,516

TABLE 12—(*cont.*)

RETURN OF VENEREAL DISEASES FOR THE YEAR 1949—(*cont.*)

C.—ANALYSIS OF COMBINED INFECTIONS—NEW CASES ONLY.

	CHINESE.		INDIANS.		MALAYS.		EUROPEANS.		OTHERS.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
With Syphilis	53	47	84	15	46	14	—	—	5	2	188	78
With Gonorrhoea. ..	62	55	95	15	37	14	1	—	4	2	199	86
With Chancroid	21	6	33	3	19	2	1	—	1	—	75	11
With Lymphogranuloma	2	2	8	1	6	2	—	—	—	—	16	5

TABLE 13.

SUMMARY OF CHILD WELFARE CENTRES.

States/Settlements.	Permanent Centres.	Subsidiary Centres.	Medical Officers.		Health Sisters.	Health Nurses.	Dispensers or Hospital Assistants.	Midwives.
			Women.	Men.				
Kedah	3	25	—	—	1	4	—	2
Perlis	1	—	—	1 (P.T.)	—	1	—	—
Penang and P. Wellesley ..	11	9	2 (P.T.)	—	2	12	—	17
Perak	8	5	1	—	6	18	—	—
Selangor	7	4	1	—	4	16	3	4
Negri Sembilan	6	1	1 (P.T.)	—	6	5	1 (P.T.)	4
Malacca	7	4	1	—	1	7	—	6
Johore	5	21	2	—	4	11	4	87
Kelantan	1	6	—	—	1	1	—	3
Trengganu	2	5	—	—	1	2	—	—
Pahang	7	—	—	—	3	6	—	3
Total ..	58	80	8	1	29	83	8	126

(P.T.) = Part Time.

TABLE 14.

SUMMARY OF DISPENSARIES.

(Excluding Hospital Out-Patient Dispensaries).

State/Settlement.	Total number.	Fixed.	Travelling.		Medical Officers.	Health Sisters.	Health Nurses.	Dispensers or Hospital Assistants.	Midwives.	Others.
			Road.	River.						
Kedah	16	13	3	—	—	—	—	17	—	—
Perlis	6	5	1	—	1 (P.T.)	—	—	6	—	—
Penang and P. Wellesley..	9	6	3	—	2	—	2	8	—	1 Clerk
Perak	35	22	10	3	—	—	—	30	—	—
Selangor	17	12	5	—	—	—	—	17	—	—
Negri Sembilan	12	6	6	—	3 (P.T.)	—	—	11	—	—
Malacca	6	4	2	—	—	—	—	8	—	—
Johore	24	10	11	3	8 (P.T. or O.D.D.)	—	—	21	—	—
Kelantan	12	5	5	2	1 (P.T.)	—	—	9	—	—
Trengganu	10	5	4	1	—	—	—	9	—	1
Pahang	22	9	7	6	1	—	—	15	—	—
Total ..	169	97	57	15	16	—	2	151	—	2

(P.T.) = Part Time.

TABLE 15.

ESTABLISHMENT—MEDICAL DEPARTMENT, 1ST JANUARY, 1950.

(F) = Federal. (S) = State or Settlement.

MEDICAL.

SUPERSCALE POSTS (56)—

The superscale posts include three higher administrative posts. The remaining superscale posts number 53, and not more than 33 of them will normally be filled by officers recruited by the Secretary of State.

Director, Medical Services	(F)	1
Deputy Director, Medical Services	(F)	1
Director, Institute for Medical Research ...	(F)	1

ADMINISTRATIVE OFFICERS, GRADE "A" (10)—

Assistant Director, Medical Services	(F)	
Chief Medical Officer, Penang	(S)	
State Medical and Health Officer, Perak	(S)	
,, ,, Selangor ...	(S)	
,, ,, Negri Sembilan	(S)	
,, ,, Pahang ...	(S)	
Principal Medical Officer, Johore	(S)	
State Surgeon, Kedah	(S)	
Chief Medical Officer, Malacca	(S)	*
,, ,, *Kelantan*	(S)	*

ADMINISTRATIVE OFFICERS, GRADE "B" (7)—

Deputy State Medical and Health Officer, Perak	(S)	
Deputy State Medical and Health Officer, Selangor	(S)	
Deputy State Surgeon, Kedah	(S)	
Deputy Principal Medical Officer, Johore	(S)	
Deputy Chief Medical Officer, Penang	(F)	
Senior Health Officer, Malacca	(S)	†
Chief Medical Officer, Trengganu ... ... and conditional on seniority of holder	(S)	†

SPECIALIST OFFICERS, GRADE "B" (36)—

Senior Research Officers (4)—

Senior Bacteriologist	(F)	
,, Pathologist	(F)	
,, Nutritional Research Officer	(F)	
,, Malaria Research Officer	(F)	

* Upgraded from Grade "B". † New post.

TABLE 15—(*cont.*)

Physicians (5)—	
Physician, Johore	(S)
,, Penang	(F)
Physician, Selangor	(S) †
,, *Perak*	(S) †
,, *and Radiologist, Kedah*	(S) †
Surgeons (10)—	
Surgeon, Johore	(S)
,, Negri Sembilan	(S)
,, Penang	(F)
,, Perak	(S)
Surgeons, Selangor (2)	(S) ‡
Surgeon, Pahang	(S) †
,, *Kelantan*	(S) †
,, *Kedah*	(S) †
,, *Malacca*	(S) †
Ophthalmologists (4)—	
Ophthalmologist, Selangor and Federal Consultant	(S)
Ophthalmologist, Penang	(F) †
,, *Kedah*	(S) †
,, *Johore*	(S) †
Obstetricians (3)—	
Obstetrician, Penang	(F) †
,, *Perak*	(S) †
,, *Johore*	(S) †
Senior Pathologist (2)—	
Senior Pathologist, Penang	(F)
Senior Pathologist, Johore	(S) †
Tuberculosis Specialists (2)—	
Tuberculosis Specialist, Federal	(F)
Tuberculosis Specialist, Perak	(S) †
Radiologist, Selangor and Federal Consultant (1)	(S)
Medical Superintendent, Leper Settlement (1) ...	(F)
,, ,, Mental Hospital (1) ...	(F)
Medical Superintendent, General Hospital, Johore (1)	(S) †
Venereal Diseases Specialist (1)	(F)
Child Health Specialist (1)	(F)

† New post. ‡ One new post.

TABLE 15—(*cont.*)

TIMESCALE POSTS (MEDICAL) (239)—

(Of the 239 timescale Medical Officers, the number of expatriate officers recruited by the Secretary of State will not exceed 83. The remaining posts will be filled by officers recruited in Malaya).

The duty posts for Medical Officers on the timescale include Health and Research Officers and Medical Officers for the Malay Regiment. The allocation of posts is approximately—

	Men.	Women.	
Medical Officers	166	22	
Health Officers	32	8	
Research Officers	8	—	
Medical Officers, Malay Regiment	2	1	
Total ...	208	31	= 239

Research Students	2
House Surgeons	8

DENTAL.

Chief Dental Officer (F) Superscale Grade "B"	1
Timescale Posts (Dental)	34
(of these, Dental Officers recruited by the Secretary of State will not exceed 4)	
House Surgeons (Dental)	4

RESEARCH OFFICERS (Not Medical).

(All these officers are now recruited by the Secretary of State)—

Research Officers (non-medical) 5—

Chief Biochemist (F) Superscale Grade "B"	1
Biochemists	2
Entomologists	2

PHARMACEUTICAL.

(Three recruited by the Secretary of State).

Chief Pharmaceutical Chemist (F) Superscale Grade "B" ...	1
Superintending Pharmaceutical Chemists and Pharmacists ...	3

NURSING.

(In the group of Matrons, Nursing Sisters and Health Sisters, Expatriate Officers recruited by the Secretary of State will not exceed 115).

Principal Matron	1
Matron, Grade I	7
Matrons, Grade II	13
Sister Tutors	7
Nursing Sisters	105
Health Sisters	32
Total ...	165

TABLE 15—(*cont.*)

Other appointments which may be filled by recruitment by the Secretary of State.

Women Almoners	2
Women Dietitians	1
Women Radiographers	3
Women Physiotherapists	4
Total ...	10

Men: Superintendent, Orthopaedic Centre ...	1
Senior Male Nurses, Mental Hospital	2
Male Nurse, Mental Hospital	1
Total ...	4

The foregoing statement covers duty posts only, and makes no provision for leave reserves.

Trained Hospital and Public Health Staff.

(The following groups are all recruited in Malaya).

Chief Sanitary Inspectors	3
Field Nutrition Officer	1
Pharmacists	8
Lay Superintendents (Leper and Tuberculosis Settlements)	2
Health and Sanitary Inspectors	146
Laboratory Assistants	63
Dental Mechanics	12
Hospital Assistants	1,110
Stewards	8
Nurses: Public Health	98
Hospital	949
Midwives	331

Hospital Servants, Ambulance Drivers and other employees in the Medical Department, Federal, State and Settlement 2,916

(This does not include servants paid from "Open Votes" and labourers on daily rates of pay).

TABLE 15—(*cont.*)

DETAILS OF STAFFING AS AT 1ST JANUARY, 1950.

Establishment.		Substantive holder in post.	Substantive holder on leave.	Timescale officer acting.		Post vacant.
SUPERSCALE MEDICAL	56					
Asians—						
Men		4	—	1	—	—
Women		—	—	—	—	—
Europeans—						
Men		22	9	9	—	—
Women		1	—	—	—	—
		27	9	10	—	19
		Substantive holder in post.	Substantive holder on leave.	House Surgeon acting.	Temporary.	Post vacant.
TIMESCALE MEDICAL OFFICERS	239					
Asians—						
Men		81	12	1	23	—
Women		3	1	—	2	—
Europeans—						
Men		27	5	5	2	—
Women		4	2	—	8	—
Leave Reserve	29	115	20	6	35	83
Research Students	2	—	—	—	—	2
House Surgeons	8	—	—	—	—	2
Asians—						
Men		6	—	—	—	—
Women		—	—	—	—	—
DENTAL: SUPERSCALE	1					
European—						
Man		1	—	—	—	—
Timescale	34					
Asians—						
Men		19	2	—	1	—
Women		—	—	—	2	—
Europeans—						
Men		1	—	—	—	—
Women		—	—	—	2	—
Leave Reserve	2	—	—	—	—	9
House Surgeons	4	—	—	—	—	4
		Substantive holder in post.	Substantive holder on leave.	Acting.	Temporary.	Post vacant.
RESEARCH OFFICERS NON-MEDICAL:						
Superscale	1					
European (man)		1	—	—	—	—
Timescale—	4					
European (men)		2	1	—	—	—
(women)		1	—	—	—	—
PHARMACEUTICAL:						
Superscale	1					
European (man)		1	—	—	—	—
Timescale	3	—	—	—	—	1
Asian (man)		1	—	—	—	—
European (man)		1	—	—	—	—
NURSING:						
Principal Matron, Matrons, Grade I and II	21	—	—	—	—	1
European Women		12	4	8	—	—
Sister Tutors	7	—	—	—	—	3
European Women		2	—	1	1	—
Nursing Sisters	105	—	—	—	—	35
Asian Women		18	5	—	2	—
European Women		32	15	—	18	—
Health Sisters	32	—	—	—	—	8
Asian Women		—	—	8	—	—
European Women		10	3	2	4	—
Leave Reserve	27	—	—	—	—	—

TABLE 15—(*cont.*)

DETAILS OF STAFFING AS AT 1ST JANUARY, 1950—(*cont.*)

Establishment.		Substantive holder in post.	Substantive holder on leave.	Acting.	Temporary.	Post vacant.
OTHER APPOINTMENTS:						
Almoners	2	1	—	—	—	1
Dietitians	1	1	—	—	—	—
Radiographers ..	3	1	—	—	—	2
Physiotherapists ..	4	—	1	—	4	—
(All European Women)						
Superintendent Orthopaedic Centre ..	1					
European (man) ..		1	—	—	—	—
Mental Hospital:						
Senior Male Nurses ..	2	—	—	—	—	—
Europeans ..	..	2	—	—	—	—
Male Nurse	1					
Asian	..	1	—	—	—	—

Figures for leave reserve shown above are arbitrary, being equal to the number of officers on furlough or study leave overseas.

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