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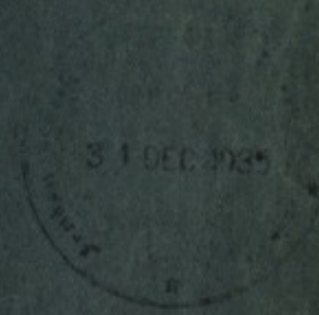


STRAITS SETTLEMENTS

Annual Report of the Medical
Department for the year 1934

By

W. M. CHAMBERS, M.D.,
Acting Director of Medical Services, S.S.



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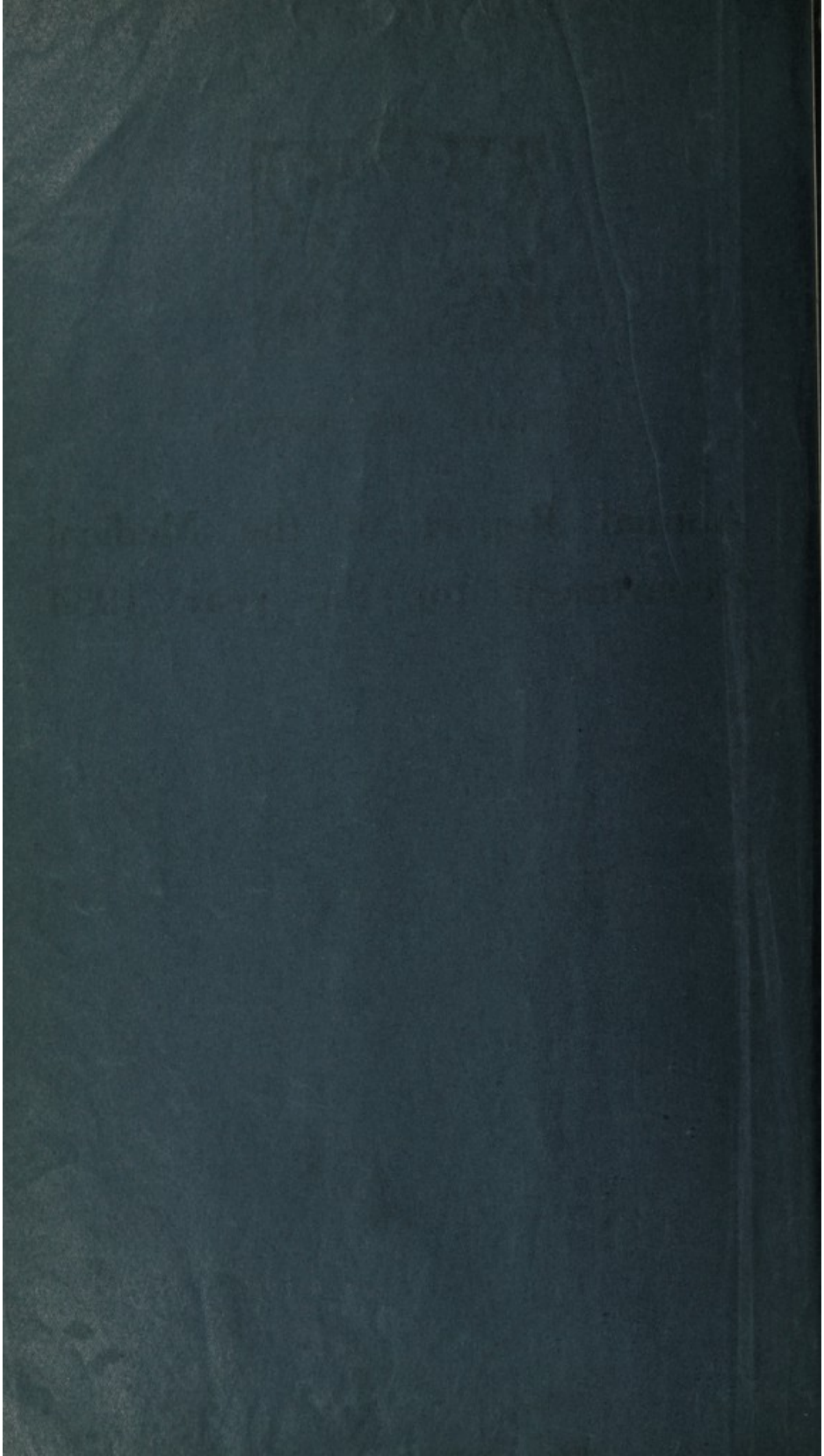
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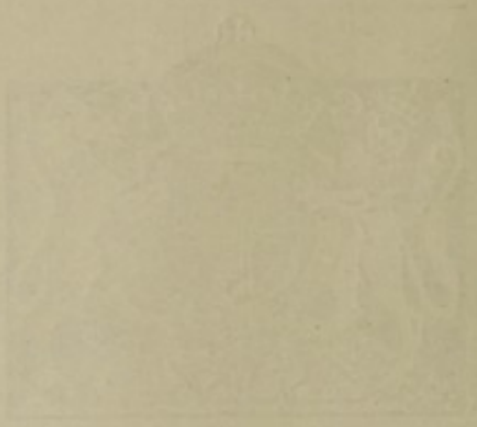
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STRAITS SETTLEMENTS
ANNUAL REPORT OF THE MEDICAL DEPARTMENT FOR 1934

INTRODUCTION

General Progress

The year 1934 was marked by steady progress within the limits set by the financial situation, rather than by any sensational developments. New expenditure was confined chiefly to commitments already contracted before the onset of the period of financial stringency. In tiding over this difficult period, the Colony has been fortunate in experiencing a remarkable wave of improving health conditions which has been coincident with the economic depression and has aided materially in giving effect to the enforced programme of economy. This gratifying improvement, while due no doubt in some degree to wise expenditure on health measures in the past, has been influenced to a large extent by migrational factors outside the control of the Medical Department. A consideration of the records presented by this report will, however, indicate a slight deviation from the standard of public health attained in the previous year. The death-rate was 26.54 compared with 24.26 in 1933. The infantile death rate was 171.87 in 1934 compared with 168.04 in 1933. The latter increase is particularly disappointing in view of the highly efficient Infant Welfare organisation now in operation in all the towns and many of the rural areas.

The number of births registered throughout the Straits Settlements during the year 1934 was 42,974 (males 22,335 and females 20,639) as against 42,538 (males 22,231 and females 20,307) in the previous year; this represents a crude birth-rate of 40.65 per thousand persons living as compared with 40.95 in 1933 and 35.83 in 1932.

The remarkable immunity of the Colony from any serious epidemic of infectious disease invites comment. No case of plague, cholera, and only six cases of small-pox occurred. There were, however, 10 cases of cerebro-spinal fever. Although a small number of cases of the last-named disease is reported each year it is worthy of note that no epidemic has up to the present time ever visited Malaya. Most of the cases are imported and are detected and detained on arrival for necessary quarantine measures. The year was characterised by a remarkably low incidence of malaria. There is some evidence, however, that the lowest point has been touched, and that the normally upward trend of the curve, following the generally accepted theory of the periodicity of malaria intensity, may shortly be expected.

New Buildings

General Hospital, Malacca.—The most noteworthy event of the year was the completion and official opening by His Excellency the Governor, Sir CECIL CLEMENTI, on the 12th February, 1934, of the new General Hospital at Malacca. This hospital which was designed by Mr. F. DORRINGTON WARD, Government Architect, has been erected on a commanding site just outside the town of Malacca. It contains 573 beds and provides accommodation for first, second and third class medical, surgical and maternity cases. There are four main blocks and an administration block all of which are five stories high, served by commodious lifts and connected by covered corridors. The administration block contains the administrative offices, consulting rooms, operating theatres, special departments, dispensary and stores. The apparatus for the X-Ray department, was generously presented by Mr. CHEE SWEE CHENG. There is accommodation for a dental clinic which it is hoped to staff and equip when financial circumstances permit. The hospital has water-borne sewage, electric light, a hot water installation, and modern oil-burning cooking equipment.

The hospital was visited during the year by Dr. RENE SAND, Hon. President of the International Hospital Association, Paris, whose valuable impressions are of more than local interest. He wrote as follows:—

"After a careful visit of the Malacca General Hospital, I can only say that I consider it as the best model to be found in the Far East. It has vindicated the "Vertical" plan in a part of the world where for a long time the scattered or pavilion system was thought the only advisable one.

"The general disposition of the buildings, the communications between them and the linking together of the various services are excellent. Nothing has been left to chance, everything has been thought out carefully, and the beauty element has not been forgotten: the hospital looks—as every such institution should—like a first rate hotel in a fashionable resort.

"Not less remarkable is the fact that the 3rd class patients enjoy the same amount of space, comfort and amenities as the 2nd and 1st class. Very few Western hospitals would equal the Malacca General Hospital in this regard.

"The Pathological Laboratory, the Kitchens, the Nurses' Home, the quarters for the medical staff are above praise.

"I consider that the Malacca General Hospital has set a new and higher standard for all institutions in the East."

The hospital has quickly gained the confidence of the public and a gratifying feature has been the increasing number of Asiatic women seeking admission for their confinements.

General Hospital, Penang.—Good progress was made with the reconstruction of the General Hospital, Penang. Two large five storey blocks designed on the same lines as those at Malacca were completed and occupied during the year. The new five storey block to house the 1st class patients, special departments, operating theatres and offices, was commenced and should be ready for occupation in 1935. The hospital like that in Malacca has water-borne sewage, electric light and lifts. An innovation which has proved successful is a series of kitchens on the top floor of one of the third class blocks where all food for the third class Asiatic patients is cooked by electric heating.

Free Maternity Hospital, Kandang Kerbau, Singapore.—The rapidly increasing popularity of this free maternity hospital rendered extension necessary and during the year a new four storey block was completed and occupied. The hospital now contains 85 beds and 2,579 deliveries were conducted during the year.

Mental Hospital, Singapore.—In order to relieve overcrowding in the Mental Hospital four new wards were completed and occupied during the year thus providing accommodation for an additional 200 patients.

King Edward VII College of Medicine

The College maintained a full curriculum of medical and dental courses during the year, and there was an entry of eighteen medical and seventeen dental students when the academic year commenced in June. The dental course which was inaugurated in 1930 is proving increasingly attractive to local students, and there are now forty-nine dental students in various stages of training. It is hoped that eventually a large number of the untrained and unqualified dentists now practising throughout Malaya will be replaced by properly qualified dental surgeons from the College of Medicine and that skilled dental surgeons will then be available for practice amongst the public in the smaller towns and areas not now so served. Nineteen medical students and three dental students left the College during the year, of these fourteen completed the course and obtained the diploma of the College. A number of the graduates spend a post-graduate year or so as house physicians or house surgeons in one of the large hospitals in Singapore before entering Government service or engaging in private practice. During the year, one hundred and seventy-three candidates sat for the various medical professional examinations of whom ninety-one passed, twenty-three obtained exemptions and fifty-nine failed. Fifty-six candidates sat for the dental professional examinations of whom twenty-four passed, three obtained exemptions and twenty-nine failed.

Progress was made during the year in the work of remounting existing material in the Keith Museum at the College. The remounting of three further sections dealing with diseases of the genital and excretory systems, and the miscellaneous section was completed. The Professor of Bacteriology during his leave visited museums in the East, Canada, America, Copenhagen and Berlin in order to study modern museum methods with a view to their adoption in the Keith Museum.

The eagerly anticipated visit of Sir RICHARD NEEDHAM to enquire into, and advise on, the teaching arrangements of the King Edward VII College of Medicine was paid in February, 1934. Extracts from Sir RICHARD NEEDHAM's report will be found in the Report of the College of Medicine. Sir RICHARD NEEDHAM's comments must be regarded as highly satisfactory and most of his recommendations have been, or are in process of being, adopted.

Further details of the work of the College of Medicine will be found in Section IX, page 48.

League of Nations Course in Malariology

The first International Course in Malariology was held at the College of Medicine under the auspices of the League of Nations. The programme of the Course was framed by the Director, Eastern Bureau, League of Nations, and invitations were issued to distinguished malariologists in other countries to visit Singapore and lecture on special aspects of the malaria problem. The course at the College of Medicine lasted for four weeks and was followed by field courses in the Dutch East Indies and Malaya. The course was attended by workers in various fields of malaria from countries as far distant as India, China, Indo-China, Japan, Siam and Australia. The course has proved successful in co-ordinating the work of many scattered Health Officers in the East and, in addition to adding materially to the present knowledge of malaria, has done much to clarify many of the problems connected with its prevention.

Legislation

Mental Disorders Ordinance.—An advance in the treatment of mentally disordered persons was registered during the year by the passage of the Mental Disorders Ordinance. Hitherto all pauper lunatics have had to be produced before a Magistrate before a reception order could be completed. The new Ordinance makes provision for the admission and detention of mentally disordered persons in mental hospitals on the order of two medical officers without the intervention of a Magistrate, thus ensuring early care and treatment without undue formality.

Destruction of Mosquitos Ordinance.—An important amendment was made to the Destruction of Mosquitos Ordinance in order to remedy a defect relating to the indiscriminate clearing of foliage from ravines. Hitherto control by the health authorities had been limited to ravines in Municipal and Rural Board areas and in Estates of over twenty-five acres. The denudation of ravines in most areas is favourable to the breeding of dangerous anopheline mosquitos and the new amendment forbids the denudation of such potential breeding places without the prior permission of the local Health Officer.

Medical Department Titles Ordinance.—An ordinance was passed to alter the title of the Director of Medical and Health Services to the more compact title of Director of Medical Services. The change in nomenclature was made to secure a greater measure of uniformity and simplicity in the titles of appointments in Medical Departments throughout the Colonies.

Clinical Research

An investigation has been carried out at the Medical Clinic in Tan Tock Seng Hospital by Professor R. B. HAWES and Dr. E. C. VARDY into the cause of nephrosis, a condition prevalent in the wards attached to the Clinic. It had been suggested in certain papers that have recently been published that often the underlying cause in nephrosis is ankylostomiasis or quartan malaria. Professor HAWES' and Dr. VARDY's observations pointed to the greater prevalence of the nephrotic and nephro-nephritic syndromes among the poorer classes of the local Asiatic population, for whom poor food, unbalanced diets, and even semi-starvation are always important factors. These cases represent an even poorer class of the community than that which produces most of the beri-beri cases. It is found that beri-beri is easily distinguished, both clinically and post-mortem from nephrosis, which appears to have no relation to starvation oedema. Briefly the results of this investigation which extended over a considerable period may be summarised as follows:—

Neither ankylostomiasis nor malaria is a common factor in the aetiology of nephrosis. Potassium salts in addition to a special diet, control completely the oedema and the hypercholesterolaemia and, partially, the albuminuria. The decrease in the albumen resulting from potassium salts is not a dilution due to diuresis, but is a total diminution of output. If experimentally or otherwise, the alkaline regime is changed for an acid one, all the signs and symptoms of nephrosis return. There is at least one other undetermined factor present. The proper use of the alkaline diet plus potassium salts restrains this factor, which, if allowed to proceed unchecked, often

appears to cause the nephrotic syndrome to degenerate into the nephro-nephritic or even into the nephritic syndrome. The results of a dermal test for a haemolytic streptococcus suggest that this organism may be a common causative factor.

Details of research performed at the College of Medicine will be found in the Report of the College.

Dental Clinic

The dental clinic at the General Hospital has developed rapidly during the year. Opened in April, 1930, the number of attendances has increased from 2,248 in 1930 to 34,651 in 1934. The clinic is in charge of the Professor of Dental Surgery and the patients are utilised for the practical instruction of students attending the dental course at the King Edward VII College of Medicine.

The accommodation which had been improvised at the inception of the clinic from existing rooms and wards in the General Hospital is now proving quite inadequate for the rapidly expanding needs of the clinic. The provision of a new building to house the dental clinic is under consideration.

Provision has been made for the appointment in 1935 of an additional Dental Officer and Lecturer in Dental Mechanics.

Future Developments in 1935

Infant Welfare.—The gratifying success achieved with the services so far provided for Infant Welfare in the rural areas has encouraged and justified further expansion of these important activities. Government has approved and provision has been made in the 1935 Estimates for the erection, staffing and equipment of two additional Infant Welfare Centres in Malacca and for the staffing and equipment of one additional centre in Province Wellesley. The Health Sister engaged to take charge of all Centres in Province Wellesley had arrived and assumed duty before the end of the year. It is hoped that the staff attached to these centres will be successful, in the areas served, in stemming the infantile mortality which has been showing a regrettable tendency to rise in the past year.

Ophthalmology.—The Professor of Surgery at the King Edward VII College of Medicine, who devoted part of his time to the Eye Department of the General Hospital, Singapore, retired in August, 1934, and the opportunity was taken to convert the post of Ophthalmologist into a whole time appointment. Provision has been made in the 1935 Estimates for the appointment of an Ophthalmic Physician and Surgeon and Lecturer in Ophthalmology to the College of Medicine. It is the intention to extend the services rendered by the Eye Department to embrace the examination and treatment of school children, whose eye defects present a wide field for service.

Provision has also been made for posting an existing Medical Officer with an ophthalmological diploma in charge of the Eye Department of the General Hospital, Penang.

Leprosy Control.—The question of providing additional accommodation for the increasing number of lepers seeking admission to the Settlements in recent years has become acute and the best means of meeting the problem has engaged and is engaging the serious consideration of Government. In order to relieve the congestion at Pulau Jerejak Settlement a sum of \$150,000 has been provided to build 75 huts at Pulau Jerejak for the accommodation of an additional 225 patients. There are no more sites at Pulau Jerejak suitable for further building and the water supply will not serve a larger population. It therefore seems indicated that any further accommodation that may be required after the camp now under construction has been completed, should be erected at Sungei Buloh in the F.M.S., where ample land is available.

Course of Training for Pharmacists.—In order to put into operation a course of training, already planned at the College of Medicine, for pharmacists, provision has been made in 1935 for the engagement of an additional dispensing chemist. After his arrival a course of lectures and practical demonstrations will be started. The course at the College of Medicine will last for one year and will follow a term of three years apprenticeship served by the candidate with a qualified chemist. On passing an examination at the completion of the course, the successful candidate will be eligible for registration under the Registration of Pharmacists Ordinance. It is hoped that in course of time a sufficient number of qualified pharmacists will, by this means, be made available to replace the unqualified assistants who are now employed in pharmacies and dispensaries in Singapore and elsewhere in Malaya.

Training of Nurses.—For some considerable time it has been realised that there was scope for improvement in the arrangements made for the training of probationer nurses at the General Hospital, Singapore. The system of training had failed to keep pace with the steadily increasing number of nurses in training, and the senior staff available for teaching in recent years has proved inadequate.

A tutor Sister is being engaged in 1935 who will devote all her time to the training of probationer nurses. It is hoped that it will then be possible to institute a preliminary training school for nurses, where candidates will undergo a course of intensive training in the essential principles of nursing before being engaged as probationer nurses and posted for duty in the wards. Such a training school, attached to the General Hospital, will serve a very useful purpose in selecting for the Nursing Service only those who have a real aptitude for the vocation of nursing.

Physical Therapy.—Provision has been made in 1935 for the staffing and equipping on a modest scale of a physical therapy department at the General Hospital, Singapore. Much of the necessary equipment is already in existence. The additional staff comprises one Sister with special training, two Nurses for training as masseuses, one Dresser for training as a masseur and one male attendant and one female attendant. This modest beginning will it is hoped, enable a number of patients to receive adequate skilled massage and other forms of physical treatment, thus hastening their recovery and discharge from hospital. In providing this new department the General Hospital is keeping pace with the progress made in modern methods of treatment.

Sanitary Control of Aerial Navigation.—The rapid expansion of aerial traffic through Singapore has necessitated action to provide means of controlling the sanitary measures prescribed by the Regulations made under the Quarantine and Prevention of Disease Ordinance. Pending the completion of the new civil aerodrome, all aeroplanes arrive and leave Singapore at the R.A.F. base, Seletar. As a temporary measure, a part-time Assistant Medical Officer has been posted for duty at Trafalgar, and he is on call for the examination of passengers and aircraft arriving at Seletar. In view of the rapid development of this form of world transport, a whole-time Assistant Health Officer attached to the staff of the Port Health Officer will be required, with adequate assistance and convenient quarters.

I.—ADMINISTRATION

(a).—Staff

The process of decentralisation so far as it affects the distribution of the Malayan Medical Service may now be said to have reached completion. The Medical Officers and Health Officers of the Malayan Medical Service are now interchangeable between the Straits Settlements and the Federated Malay States and this development of the new policy is proving advantageous not only from an administrative point of view but also from that of the officers who were previously restricted mainly to service in the Straits Settlements. All higher and superscale appointments in the Straits Settlements and the Federated Malay States are now open on equal terms to officers of the Malayan Medical Service wherever serving. It was, happily, not found necessary to retrench any officers during the past year. It is satisfactory to record that the retrenchment previously effected has not resulted in any demonstrable deterioration in the public health of the Colony. A number of officers proceeding on leave during the year have availed themselves of the liberal terms and inducements now offered to officers of the Malayan Medical Service who wish to take special diplomas in conjunction with the study leave prescribed by the regulations for officers during the first ten years of their service.

I have to record with deep regret the death of Dr. H. G. HOLDBROOK, Chief Medical Officer, Penang, which occurred in Ireland on the 14th September, 1934.

On the retirement of Dr. C. J. WILSON, M.C., Director of Medical and Health Services, Straits Settlements, on the 24th March, 1934, the title of Director of Medical and Health Services, Straits Settlements, was altered to "Director of Medical Services, Straits Settlements", and that of Deputy Director of Medical and Health Services, Straits Settlements, to "Deputy Director of Medical Services, Straits Settlements".

Dr. R. D. FITZGERALD, M.C., Deputy Director of Medical and Health Services was appointed Director of Medical Services, Straits Settlements, with effect from the 24th March, 1934. He acted as Director of Medical and Health Services from 1st January, 1934, to 23rd March, 1934.

Dr. W. M. CHAMBERS, Chief Medical Officer, Singapore, acted as Deputy Director of Medical and Health Services from 1st January, 1934, to 23rd March, 1934, and was promoted to the post of Deputy Director of Medical Services with effect from the 24th March, 1934.

Malayan Medical Service.—There were for the year 1934 twelve superscale and forty-three timescale Medical and Health Officers and seven superscale and five timescale specialist officers in the Straits Settlements and the Unfederated Malay States.

The senior staff of the King Edward VII College of Medicine, Singapore, consisted of one Principal and ten Professors.

Malayan Nursing Service.—The number of Matrons and Sisters in the service, including those seconded to the Unfederated Malay States, was 94 in 1934 as compared with 86 in 1933.

A detailed list of the European staff is given in Table I, on page 50.

Local Medical Service.—The staff of the local medical service in the Straits Settlements numbered 71—3 in Senior Deputies grade, 10 in Deputies grade and 58 in Assistant grade.

The following officers were appointed during the year:—

<i>Name</i>	<i>Appointment</i>	<i>Date</i>
Dr. (Mrs.) M. E. HOPKINS ...	Lady Medical Officer, Penang (Temporary).	... 27th June, 1934
Dr. W. HUGHES ...	Medical Officer, M.M.S. ...	... 6th July, 1934
Dr. (Mrs.) E. McMULLAN ...	Lady Medical Officer, Singapore (Temporary).	... 17th December, 1934

The following officers resigned or retired from the service during the year.

<i>Name</i>	<i>Appointment</i>	<i>Date</i>
Dr. C. J. WILSON, M.C. ...	Director of Medical & Health Services, S.S. ...	24th March, 1934 retired.
Dr. (Mrs.) M. A. H. ZYLSTRA	Lady Medical Officer, Johore (Temporary).	... 6th September, 1934 temporary employment ceased.
Dr. M. EDWARDS ...	Medical Officer, M.M.S. ...	... 27th September, 1934 resigned
Professor K. BLACK ...	Professor of Surgery, College of Medi- cine, S. ...	2nd October, 1934 retired
Dr. (Miss) E. M. WEIR ...	Lady Medical Officer, M.M.S. ...	... 9th November, 1934 resigned
Dr. (Mrs.) N. N. FITZGERALD	Lady Medical Officer, Singapore (Temporary).	... 17th December, 1934 temporary employ- ment ceased

(b).—Financial

The actual expenditure on medical and health services and the revenue collected in the various Settlements were:—

EXPENDITURE

	\$
Singapore ...	... *1,977,916
Penang ...	... 979,371
Malacca ...	... 377,754
Labuan ...	... 22,071
Total ...	3,357,112

\$122,177 was paid by the Malayan Establishment Office in respect of salaries of officers during leave and on first appointment making a grand total of \$3,479,289 expended.

REVENUE

	\$
Singapore ...	... 912,758
Penang ...	... 375,890
Malacca ...	... 131,870
Labuan ...	... 3,826
Total ...	1,424,344

In addition to the above the Health Services of the Municipalities spent:—

	\$	c.
Singapore ...	... 697,015	89
Penang ...	... 152,413	09
Malacca ...	... 44,281	41
Total ...	\$93,710	39

Further particulars are given in Table II, on page 52.

* The value of the dollar is approximately 2s. 4d.

II.—PUBLIC HEALTH

The highly satisfactory standard of public health which has been a feature of the past few years has been well maintained at almost the same high level during the year 1934, although there has been an increase in the number of patients treated in Government hospitals from 55,197 in 1933 to 57,876 in 1934. It is interesting to record that a steadily improving standard of general health has been coincident with the severe economic depression of the past three years and the slight recession now observed corresponds with a perceptible lifting of the economic cloud. The relatively low incidence of the major causes of sickness in Malaya such as malaria, tuberculosis, pneumonia, dysentery and beri-beri is gratifying although all these diseases show some increase over the year 1933.

An important factor in the general improvement in the health of the population, noticed in the last few years, was the large exodus from Malaya of Chinese and Indian labourers which resulted from the trade depression. In the circumstances then ruling it was only natural that among the first to leave were the older and less fit members of the labouring classes whose chances of employment in an over-stocked labour market were much less than those of the younger and healthier men.

Population

In estimating the mean population of the Straits Settlements for the years 1932, 1933 and 1934 the method of calculating by geometrical progression has been discarded in favour of a calculation based on the figures obtained in the census of 1931, which takes account of the excess of births over deaths and the figures for emigration and immigration during the year.

This change, was rendered necessary owing to the large exodus of labourers, chiefly Chinese, Tamils and Javanese, during the years 1931, 1932 and 1933 and since these non-Malayan units of population under normal conditions form such a large proportion of the total, the excess of emigration over immigration during the three years following the census of 1931 became the dominant factor in determining the resident population. The wave of migration changed in 1933 and the population figures show a small increase in the numbers of Chinese and Tamils as on the 30th June, 1934. It is anticipated that with returning prosperity immigration will swell these numbers appreciably.

The distribution of the population by race amongst the various Settlements as on 30th June, 1934, is estimated as follows:—

	<i>Singapore</i>	<i>Penang</i>	<i>Malacca</i>	<i>Labuan</i>	<i>Total</i>
Europeans	... 8,298	1,625	329	23	10,275
Eurasians	... 7,148	2,413	2,095	38	11,694
Malaysians	... 68,137	121,916	101,047	5,054	296,154
Chinese	... 390,948	162,878	61,438	2,171	617,435
Indians	... 42,223	47,962	19,535	142	100,862
Others	... 8,474	2,498	647	69	11,688
	<u>525,228</u>	<u>339,292</u>	<u>185,091</u>	<u>7,497</u>	<u>1,057,108</u>

Births

The number of births registered during the year was 42,974 compared with 42,538 in the previous year. The birth rate was 40.65 per mille of the population as against 40.95 in 1933. The highest rate was found amongst the Chinese and was 44.34 per mille. The percentage of males born was 51.97. 586 still births were registered compared with 1,408 in the previous year.

The trend of the birth rate has been fairly steadily upward for the past ten years as shown in the appended table, and it is interesting to consider some of the factors concerned. It is probable that the most important single influence at work has been the steadily improving ratio of women to men amongst the immigrant population, and therefore the presence of a greater number of women of child bearing age in the country, especially amongst the Chinese. The following figures quoted from page 33 of the Census Report, 1931, emphasize this migrational sex factor. The figures show the individual percentage increases over the past thirty years:

<i>Period</i>	<i>Persons</i>	<i>Males</i>	<i>Females</i>
1901—1911	... 26.80%	26.40%	27.2%
1911—1921	... 25.7%	19.5%	31.7%
1921—1931	... 26.1%	20.1%	36.2%

The Census Report for 1931 also brings to light (page 64 of the Census Report) the interesting fact that only 5.2 per cent. of the female population in the Straits Settlements is over 55 years of age and that 25 per cent. is under 10 years of age. It may be inferred from a consideration of these points that the rising birth rate recorded in the Straits Settlements cannot be accepted as a measure of increasing fertility of the population as a whole but that it is swayed to a very large extent by female migration, and the age groups of the female population,—two potent influences which are closely inter-related.

The crude birth rates for the past ten years have been :—

<i>Year</i>	<i>Ratio per mille</i>	<i>Year</i>	<i>Ratio per mille</i>
1924	32.29	1930	38.25
1925	31.98	1931	36.98
1926	32.85	1932	35.83
1927	35.13	1933	40.95
1928	36.03	1934	40.65
1929	37.20		

Deaths

The crude death rate was 26.54 per mille compared with 24.26 in 1933.

Infantile Mortality

The corrected infantile mortality (deaths of children under one year) was 171.87 per mille compared with 168.04 in 1933.

The suggestion previously made that the increase is due to bad economic conditions has lost much of its support since the increase in 1934 coincided with a period of increasing prosperity. An explanation may possibly be sought in the increased employment offered to mothers, and the increased purchasing power of parents which leads to the substitution of artificial for breast-feeding; but this cannot be accepted as the sole or even a major reason for the increase. Whatever factors are the true cause of the increase, there is no doubt that the infantile rate would be much higher than it is if the infant welfare activities had not been maintained at a high standard of efficiency in recent years.

III.—HYGIENE AND SANITATION

1.—Special Diseases

(i).—MALARIA

A further sharp decline in the number of deaths attributed to malaria was recorded in 1934. The number of deaths was 814 and is the lowest recorded. The decline is offset, however, by an increase in the number of deaths due to "fever unspecified" which was recorded as the cause of death in 4,503 cases. Nevertheless the combined total is much less than the average for the past nine years as shewn by the following table :—

<i>Year</i>	<i>Malaria</i>	<i>Fever unspecified</i>	<i>Total</i>
1926	6,452	2,398	8,850
1927	6,283	2,161	8,444
1928	5,798	1,636	7,434
1929	4,648	1,764	6,412
1930	5,018	1,995	7,013
1931	3,506	1,513	5,019
1932	2,601	2,051	4,652
1933	1,747	2,821	4,568
1934	814	4,503	5,317
Average	4,096	2,316	6,412

Five thousand nine hundred and sixty-five cases were admitted to Government hospitals during the year compared with 5,349 in 1933. There has been a decline in the incidence of malaria in recent years as shewn by the following table:—

Admission to Government hospitals of patients diagnosed as malaria.

Year	Cases of malaria
1930	13,523
1931	6,539
1932	5,757
1933	5,349
1934	5,965

All cases of malaria admitted to Government hospitals and diagnosed as malaria have been confirmed by microscopical examination. The number of such cases may therefore be regarded as a more reliable index of the incidence of malaria in areas served by these hospitals than cases and deaths occurring outside Government hospitals and returned as due to this cause. There is therefore no doubt that the incidence of malaria has markedly declined since the year 1930. The extensive anti-malarial measures carried out in recent years must be given full credit for a large share in this remarkable decline, but it is more than probable that other influences have been at work to assist them. There is reason to believe that during the past few years, Malaya has enjoyed a period of natural recession in the incidence of malaria which accords with the theory of the periodicity of malaria outbreaks. It is not improbable that the figures recorded during the year 1933 represent the trough of the wave, and that the country is now entering a period of natural intensity of infection. The vigilance of the health authorities in Malaya has been redoubled and strict watch is now being maintained to detect and stamp out the first signs of any local epidemic.

The anti-malarial measures throughout the Colony have been maintained at a high pitch of efficiency in spite of the need for strict economy.

(ii).—PLAGUE

No case of plague occurred.

(iii).—CHOLERA

No case of cholera occurred.

(iv).—SMALL-POX

There was one fatal case of small-pox.

The following table shows the number of vaccinations performed during the year:—

Perfect	45,200
Modified	2,685
Failed	3,887
Not seen	38,458
	90,230

Vaccine lymph was obtained from the Serological Division of the Institute for Medical Research, Kuala Lumpur, where each batch of lymph was thoroughly tested clinically prior to its issue for general use.

(v).—TYPHUS

No death was recorded as due to tropical typhus. This is noteworthy in view of the increasing incidence of this disease in the Federated Malay States where seventeen deaths occurred in 1934.

(vi).—ENTERIC FEVER

One hundred and ninety-five deaths were recorded as due to enteric fever. The majority of cases were found in the large towns. 120 cases were notified to the Municipal Health Authorities in Singapore. This shows a marked decrease from the 255 cases notified in 1933. A large number of the recorded cases occurred in school children and the source of infection was almost invariably the food hawkers who sell food-stuffs in the vicinity of the schools. Persistent efforts have been made by the Municipal Health Authorities to remove this source of infection.

(vii).—DYSENTERY AND DIARRHŒA

There were 442 deaths compared with 473 in the previous year. Of the deaths occurring in hospitals 51 were ascribed to amœbic dysentery, 103 to bacillary dysentery and 11 to undefined dysentery.

The continued decrease in the mortality from these diseases during the past three years indicates a higher standard of sanitary supervision and possibly an improvement in the sanitary habits of the people inculcated by persistent health propaganda. It is possible, however, that the improvement may in part be due to the emigration and repatriation of a number of carriers and chronic sufferers.

(viii).—CEREBRO-SPINAL MENINGITIS

Ten cases of cerebro-spinal fever were recorded of which eight died. This is an increase of six cases, and five deaths, over the previous year.

It is worthy of note that although a small number of cases of this diseases is reported each year, no epidemic has so far been encountered in Malaya. Most of the cases are found in immigrants on arrival.

(ix).—DIPHTHERIA

There were 76 deaths from diphtheria during 1934, the same number as in 1933. The majority of cases were notified in the large towns and 254 cases were reported in Singapore. It is probable that the increasing number of deaths recorded in recent years has been due to more accurate certification. The following are figures for the past nine years:—

				<i>Cases notified</i>	
				<i>Deaths in the Colony</i>	<i>in Singapore city</i>
1926	...	...	...	15	46
1927	...	...	...	16	29
1928	...	...	...	21	59
1929	...	...	...	31	57
1930	...	...	...	31	63
1931	...	...	...	43	65
1932	...	...	...	56	124
1933	...	...	...	76	244
1934	...	...	...	76	254

(x).—LEPROSY

The problem of how best to meet the pressing need for increased accommodation for lepers is engaging the earnest attention of the Government. Since modern treatment was introduced, lepers have sought refuge in the existing leprosoria in increasing numbers and the large number of applicants now seeking admission and treatment is proving a source of embarrassment to the administration charged with the task of accommodating them. If all cases admitted were in an early curable stage of the disease the possibility of early cure would to some extent mitigate the difficulty. But this is far from being the case and an ever increasing residue of advanced incurable cases is gradually accumulating. Of 234 lepers admitted to Pulau Jerejak Settlement in 1934 only 36 were found to be in the early stages of the disease, 50 were moderately advanced and 148 were advanced.

The problem in Malaya differs in one important respect from that in most other countries. The vast majority of cases occur in Chinese, many of whom are immigrants who probably bring the disease into the country with them. Owing to the long incubation period, extending over many years, these immigrants may show no signs of the disease on arrival although infected in China some time previously. The disease in such cases only manifests itself some years after the sufferers have settled in Malaya. Efforts are now being made to examine all Chinese and Indian immigrants for signs of early leprosy and a certain number have been detected, rejected and returned to their country under the powers conferred by Section 56 (2) of the Quarantine and Prevention of Disease Ordinance. Even so a certain number of infected cases will gain admission and show signs later.

Extensions to the Pulau Jerejak Settlement which now has 850 beds are being made in 1935 and the question of further expansion to met the requirements of the next five years is being considered in its relation to Malaya as a whole.

It is pleasing to recall that the incidence of leprosy amongst Malays is remarkably low and the number of Malays who require segregation forms a very small proportion of the leper population. Of the 968 patients at Pulau Jerejak Settlement at the end of the year, only 29 were Malays. It is also noteworthy that leprosy occurring amongst Indians in Malaya is of a comparatively mild type and it is found that Indians respond more readily and with happier results to treatment than other races. There were 122 Indians out of the 968 inmates at the end of the year.

It will, then, be realised that the problem presented is one which concerns chiefly the Chinese who account for 799 of the total 968 inmates at Pulau Jerejak Settlement; and this proportion probably represents reasonably accurately the relative distribution amongst races in Malaya. The nucleus of the problem is the previously infected, but not yet actively leprosy, Chinese immigrant.

(xi).—TUBERCULOSIS

The control of tuberculosis presents one of the major problems with which the health authorities have attempted to deal in recent years. The prevention of tuberculosis forms part of the routine duties of the health branch and receives attention under four main headings:—

(a) *Education*.—Every endeavour is made by means of films, posters, leaflets, informal talks, etc., to educate the people in methods of cleanliness and personal hygiene with a view to avoiding infection and limiting its spread. Knowledge of this kind is being steadily imparted by Health Officers, Sanitary Inspectors, Child Welfare Sisters and Nurses and by School Medical Officers in the course of their daily duties.

(b) *Improvement of housing and general sanitation*.—Singapore possesses an Improvement Trust whose aim is to eradicate overcrowded slum areas and erect sanitary dwellings elsewhere with plenty of air and space. During the past few years the Improvement Trust has acquired several large blocks of slums and pulled them down or established open spaces in their centres. The Trust has built 118 better class cottages for occupation by the clerical classes and two large blocks of tenements comprising about 250 rooms. It has also erected 224 artisan's dwellings. This replacement of overcrowded, ill-ventilated slum dwellings by proper housing facilities is regarded as one of the most potent anti-tuberculosis measures we have.

(c) *Special measures of sanitation*.—With a view to protecting the population against the debilitating effects of malaria and ankylostomiasis, preventive and curative measures are carried out on a large scale which in their turn improve the general health and raise the natural resistance of the people and so render them less susceptible to tuberculosis.

(d) *Diagnosis*.—The importance of early diagnosis is given due prominence in the prevention of the spread of tuberculosis. Tuberculosis is a notifiable disease and practitioners are required by law to notify cases for which they receive a fee of \$2 (4s. 8d.). The number of such notifications received from private practitioners, however, is very small as they show great reluctance to notify. The Government Outdoor Dispensaries, Travelling Dispensaries, Hospital Out-patient Departments, and Child Welfare Centres detect a number of early cases and bring them under treatment. Facilities exist at all these centres for the collection and examination or forwarding of sputa for detection of tubercle bacilli. Advice and treatment are given when necessary and arrangements are made for placing the patients under hospital treatment when such is required. In the course of regular school medical inspections special attention is directed to the detection of suspected or early cases of tuberculosis and such cases are kept under observation and given appropriate advice and treatment.

Treatment of tuberculosis.—Beds for tuberculous cases are available in all the larger hospitals and facilities exist in the following hospitals for modern medical and surgical treatment:—

I. General Hospital, Singapore	...	...	90 beds for tuberculosis.
II. Tan Tock Seng Hospital, Singapore	...	86	„ „
III. General Hospital, Penang	...	58	„ „
IV. General Hospital, Malacca	...	42	„ „

In the smaller District Hospitals beds for tuberculous patients are provided as required and patients requiring special treatment can be transferred to the nearest General Hospital.

The following table presents figures for the past eight years :—

Year			Deaths from tuberculosis in the Colony	Deaths from tuberculosis in Singapore city
1927	...	...	2,903	1,523
1928	...	...	2,727	1,411
1929	...	...	2,710	1,500
1930	...	...	2,795	1,622
1931	...	...	2,587	1,377
1932	...	...	2,168	1,088
1933	...	...	2,169	1,189
1934	...	...	2,276	1,253

2.—General Measures of Sanitation

(i).—ANTI-MALARIA MEASURES

The main activities of the Health branch are directed against malaria and the Government in 1934 provided a sum of \$166,000 for anti-mosquito works which was allocated as follows :—

			\$
Singapore	...	...	60,000
Penang	...	...	70,000
Malacca	...	...	31,000
Labuan	...	...	5,000

These sums were expended in each Settlement on the following measures :—

(a) *Singapore*.—Expenditure on anti-malarial works was met from the vote of \$60,000, this figure being the same as for the last two years following the retrenchment recommendations made in 1932.

Work during the year consisted mainly in temporary control measures by weekly oil spraying in selected areas. Little permanent work has been undertaken in the last two years.

Forty-seven thousand five hundred and ninety-six gallons of oil were spread at a total cost of \$7,447. The mixture in use has the formula : Kerosene 8 gallons, Crude Oil 36 gallons and Solar Oil 20 gallons. This oil has been in use for a number of years and has proved satisfactory in practical work in the field.

The efficacy of the oiling was checked by the staff of four mosquito collectors who collected over 12,000 larvæ of which 18.3 per cent. were *Anopheles Maculatus*, the chief malaria carrier in the areas under consideration.

The upkeep of anti-malarial measures, the cost of constructional works, oiling and maintenance has reached a total figure of approximately \$1,050,870.

(b) *Penang*.—A provision of \$70,000 was made for anti-mosquito work in the Northern Settlement during the year. Since 1926 the Health Branch has undertaken gradually extending measures for the permanent control of malaria in villages throughout the rural areas of Penang, Province Wellesley and Dindings.

The seriousness of the malaria problem throughout the hilly districts of the Northern Settlement is due to the widespread distribution of breeding places for *Anopheles Maculatus*. Measures are directed against the larval stage of the mosquito; this work is associated also with general sanitary measures and, in some selected areas, with drug prophylaxis. There is also free distribution of quinine. Anti-larval operations extend to within a distance of half a mile of the outskirts of malarial villages. Considerable progress has been made with the flushing of hill and lowland streams by means of automatic and hand-operated sluices. Good results are also being obtained with other inexpensive anti-larval measures such as "fascine" drainage and stone-packing.

On Penang Island in addition to work that is done within municipal limits, the districts wherein there is protection from malaria extend over an area of 19.75 square miles and include the following localities: Pulau Jerejak, (Quarantine Station and Leper Camps), Penang Hill Station and Penang Hill Railway, the Botanic Gardens and the villages of Ayer Itam, Glugor, Bayan Lepas, Telok Bahang, Batu Ferringhi, Telok Nangka, Tanjong Bungah and Tanjong Tokong.

In Province Wellesley, in addition to rubber estates, where supervision over malaria control measures is exercised by the Health Branch, an attempt is being made towards an effective protection from malaria in many of the small towns and villages, in some of which permanent drainage works have been instituted in addition to temporary measures.

During the year 1933 attention was drawn to the occurrence of malaria in certain parts of the flat ricefield and coastal areas of the Province, notably at Butterworth, Penaga and Sungei Acheh; this prevalence of malaria mainly occurring in the second half year.

The incidence of malaria in the flat land areas reached more serious proportions during 1934, again mainly during the second half year. The increase may perhaps be influenced by improved diagnoses and methods of staining, but it is confirmed by rising spleen rates in vernacular schools and by a slight but definite increase in the deaths recorded as "demam panas", etc.

The carrier in Butterworth is considered to be *Anopheles Barbirostris*, which was found to have a natural infection rate of 1.3 per cent. (6 infected mosquitos out of 457 dissected). No other species caught in Butterworth was found to be infected. It is probable that the unusually heavy rainfall experience during the latter half of the year produced conditions favourable for this outbreak.

In the Dindings permanent anti-malaria works have been extended around Lumut, where malaria is now under complete control and the protection zones around the villages of Damar Laut, Segari and Pasir Bogak (Pangkor Island) have been maintained.

An expenditure of \$68,897.66 was incurred in the maintenance and extension of anti-malaria drainage works. Expenditure is incurred in the payment of staff on temporary wages, in labour, in the purchase of materials and on the upkeep of a motor lorry, etc. A sum of \$4,194.82 was recovered from private owners on whose land anti-malaria measures were carried out; this together with the balance on the vote has been credited to Colonial revenue.

(c) *Malacca*.—The carrying out of the work on anti-mosquito measures in Malacca is under the direct supervision of the Health Officer who has the assistance of a Mosquito Inspector, a larvæ searcher and three overseers in the Central District, and an overseer in each of the other districts.

The Assistant Health Officers and the Sanitary Inspectors in the Northern and Southern Districts exercise local control of the measures carried out.

A mosquito laboratory is maintained in the Health Department offices in the Administrative Block of the General Hospital under the control of the Mosquito Inspector.

During 1934 a certain amount of special and routine survey work was carried out in all districts. The data available suggests that there is less malaria in Malacca than one would expect in such a large area, much of which is hilly country. It is suggested that this encouraging condition is due to the fact that most of Malacca has been opened up for a very considerable period.

Nevertheless very considerable areas of malarious country exist and were controlled as effectively as was possible with the annual provision of \$31,000 which was available. The major portion of this sum was spent on temporary measures.

Little new permanent work was carried out during the year but considerable repairs and some very necessary improvements were carried out to existing works at Alor Gajah, Durian Tunggal, Gadek, and Jasin. Much of this work was found to be badly done requiring extensive alterations and modifications to render it safe and effective.

Weekly reports giving details of all new cases of malaria were received from the various hospitals and out-door dispensaries and proved of considerable use in drawing attention to the prevalence of malaria in and around the gazetted village of Bemban.

Careful surveys indicated the presence of malaria carriers and this village was added to the number of those protected by means of temporary measures. During the year \$22,446.30 was spent on temporary measures and \$8,154.06 on permanent measures giving a total expenditure of \$30,600.36 from the \$31,000 available.

(d) *Labuan*.—The expenditure for the year was \$5,633.51. Systematic oiling was continued over an area of about two square miles in the town and suburban districts. This was half a square mile more than last year and was necessitated by the clearing of certain areas where *A. Ludlowi* and *A. Umbrosus* were found breeding. 3,840 gallons of antimalaria oil were used at a cost of \$882 excluding the cost of labour which amounted to \$368.

Two hundred and fifty yards of earth drains were made during the year, in addition to keeping cleared and oiled about 9,200 yards of existing earth drains. About 25 acres of blukar were cleared to give access to oiling.

(ii).—SEWAGE DISPOSAL

Singapore and Penang possess water-borne sewage over large areas of the towns. The number of private installations of water carriage and septic tanks for private residences in rural areas is steadily extending notably in the Penang Hill area. Elsewhere the use of pail latrines is general. The removal of night soil within compulsory night-soil removal areas by controlled private contract labour functioned satisfactorily and no nuisance was experienced from either the trenching grounds or the septic tanks in which the final disposal of the excreta was accomplished. Bore-hole latrines were provided in increasing numbers in villages and in suitable spots throughout the rural areas.

(iii).—REFUSE DISPOSAL

The occupiers of all licensed premises and better class houses in gazetted villages are required to possess and use rubbish bins of an approved type. Rural Board refuse bins are placed on concrete platforms by the roadside, conveniently situated for the public. Domestic refuse together with road sweepings is deposited in these bins. The refuse is collected by hand-carts or bullock-carts and disposed of in the village incinerators or by controlled tipping.

(iv).—WATER SUPPLIES

The water supply for a large part of the rural population is derived from wells. The construction of these wells varies from the crude earth well to the more finished product provided in conjunction with the subsoil drainage of ravines in residential areas. Washing facilities are also supplied by water from the latter source. Main piped water supplies are being extended where such are available. Roadside stand pipes supply much of the water used by the general public where mains exist. A number of the villages are supplied from the municipal supplies of Singapore, Penang and Malacca.

In Penang, spring water is as a rule plentiful along the foot hills, but in such areas malaria is prevalent, so wherever practicable anti-malaria drainage schemes have been designed to provide wholesome water and good bathing facilities for the villagers. There are now one hundred and thirty of these anti-malaria water supplies in daily use. Besides being beneficial to health they are very popular with the inhabitants.

Samples of water are submitted regularly to the Government Analyst for report.

Owing to pollution of the Malacca water supply especially during the rainy season, the Municipal Commissioners of Malacca have secured a loan of \$200,000 to allow of the installation of a high pressure filtration plant.

(v).—OFFENSIVE TRADES

The Inspector of Offensive Trades continues to license those premises engaged in occupations falling within Section 204 of Ordinance No. 135 (Municipal). The existing bye-laws for trades under this section have been redrafted and amended, and a scale of fees covering existing industries has been fixed and approved by the Rural Board in Singapore. The number of premises brought under control has steadily increased and the revenue from licences has been correspondingly augmented. The income from licences for piggeries in Singapore, where 810 were registered, increased from \$1,275 in 1933 to \$2,622 in 1934.

(vi).—HOUSE INSPECTION

Detailed sanitary surveys of many villages were carried out during the year. In some of the villages, the surveys revealed the existence of considerable overcrowding and some highly insanitary properties. Lighting and ventilation were in many instances deficient; drains were improperly constructed; and latrines were found in a highly insanitary condition. Steps were taken against a number of offenders.

(vii).—ESTATE VISITING

Officers of the Health Branch regularly visited estates throughout the year. During the period of economic stress under which all estates have laboured, little pressure has been exercised to undertake expensive sanitary measures. Since, however, the advent of a moderate degree of prosperity, a beginning has been made to ensure better housing and sanitary conditions for labourers where they are called for. It is now considered necessary to insist, in an increasing number of instances, on the maintenance of anti-malaria measures at a higher level of efficiency in view of the possibility of an increased incidence of malaria in the near future. Steps have also been taken to ensure that large estates employ a resident dresser, and smaller estates a visiting dresser, where such are not already employed.

In general, it is found that owners and managers of the larger estates are glad to accept advice from Health Officers, and that they fully appreciate the economic advantages of the measures recommended for the improvement of health conditions on the estates. Their readiness to co-operate has, however, been seriously curbed by financial consideration in recent years.

The health of the population of Malacca estates is under the care of the Senior Medical Officer of the Malacca Agricultural Medical Board assisted by one European and two Asiatic Medical Officers. The estates in Malacca have enjoyed, in common with most estates elsewhere, a remarkable record of good health during the past year.

(viii).—SCHOOL HYGIENE

SINGAPORE

Singapore possesses a whole-time Lady Medical Officer for girls' and junior boys' schools, and a whole-time Assistant Medical Officer for boys' schools. A female clerk assists the Lady Medical Officer and a Sanitary Inspector, Schools, is available for the boys' schools. 5,213 girls and 12,886 boys were medically examined in Singapore schools during the year. The routine procedure includes an examination of every child, and a re-examination of any who are found defective, during the year. All the Malay girls and teachers were examined for worm infestation and appropriate treatment given when necessary at the school. The hook-worm figure for 1934 shows a welcome improvement over that for previous years. The figures were: 1931—39%; 1932—10%; 1933—14.2% and 1934—5.3% infested with hook-worm.

Visits of general inspection of school premises were made periodically and particular attention was paid to the hygienic requirements of class-rooms and the seating accommodation of the pupils. The hawkers of food stuffs for school children were scrutinised in view of the number of typhoid cases in 1933 and a few cases of typhoid occurring in the past year were traced to this source. The Sanitary Inspector paid regular visits to food stalls. He followed up cases of infectious diseases occurring amongst school children, and disinfected class-rooms and homes when necessary.

Propaganda health films were shewn in certain schools during the year.

Vaccinations and re-vaccinations were performed where required.

Dental caries was the chief defect found amongst those examined and the number harbouring carious teeth was higher in all groups than in 1933. An encouraging feature, however, was the number of entrants who showed signs of having had some pre-school dental treatment. Every child's teeth are carefully examined at each school visit by the Lady Medical Officer and those requiring treatment are given a note to take to a registered dentist who, after completion of treatment, certifies, for the information of the Lady Medical Officer, the nature and extent of the treatment given. The percentage of those who received adequate treatment in 1934 varied from 22.76 per cent. in the Malay Girls' Schools to 61.81 per cent. in the English Girls' Schools. Free treatment for the children of poor parents is provided at the Dental Clinic at the General Hospital, Singapore. Other defects detected and treated included enlarged tonsils and adenoids of which fewer cases than previously were recorded in 1934. Enlarged cervical glands were found in a large proportion of children. The enlargement was generally slight and rarely caused clinical symptoms. More girls suffered from defective vision than boys but the year's figures showed an improvement over those for 1933. The greatest percentage of defective vision was found in the Chinese Girls' Schools with 4.91 per cent. of those examined.

Eye affections were found in 2.94 per cent. of those examined. They consisted mainly of a trachomatous condition, but not real trachoma which is rarely encountered; conjunctivitis; styes; blepharitis and squints. Otorrhoea was found in a small percentage (0.49%) of those examined; scabies (0.21%) and ringworm (0.09%) were

found occasionally. There was no serious epidemic in Singapore schools during 1934 but there were isolated cases of chicken-box (134 cases), diphtheria (21 cases), leprosy (2 cases), measles (34 cases), mumps (106 cases), enteric fever (12 cases) and whooping cough (5 cases).

It is noteworthy that no case of malaria or enlarged spleen was met with during examinations of the girls and only six cases of enlarged spleens amongst the boys in Singapore schools.

PENANG

During the year 1934, 101 Malay Vernacular Schools (boys and girls) with a nominal roll of 11,199 children and 21 English Schools with an enrolment of 8,604 children were under medical and sanitary surveillance. In addition there were 116 Chinese and Tamil schools, private or aided, with a roll of 10,664 which are at present subject only to sanitary supervision. The health conditions in these schools are being gradually brought into accord with the regulations of the Schools Ordinance (No. 8 of 1926).

During the year under review the inspecting officers have recorded inspections of approximately 90 per cent. of the children on the register. In the case of English and Malay schools the details of examination are entered in a special card; these cards being available for every child during the whole of its school career.

Results of medical inspection.—The following table gives the summary of medical examination in boys and girls schools in Penang for the year 1934:—

Details of Medical Inspection	Boys			Girls	
	English Schools Penang	Vernacular Schools Penang	Vernacular Schools P.W.	English Schools	Vernacular Schools
No. of children examined ...	5,157	3,135	5,044	1,964	1,100
No. of children recommended for treatment (excluding dental defects and worm infections) ...	1,257 (24.4%)	830 (26.4%)	1,546 (30.6%)	717 (36.5%)	452 (41.1%)
No. with gross dental defects ...	2,606 (50.5%)	1,682 (53.3%)	1,357 (26.9%)	965 (49.1%)	653 (59.3%)
No. with defects of Ear, Nose and Throat ...	358 (6.9%)	267 (8.5%)	212 (4.2%)	438 (21.8%)	231 (21%)
No. with skin infections ...	314 (6%)	207 (7.7%)	451 (8.9%)	308 (15.6%)	108 (9.8%)

Correction of defects. (Treatment and advice).—The above table reveals the great number of physical defects which call for medical attention or advice.

In urban areas, the parents of children who suffer from ill health are informed through the heads of schools in writing. It is the practice to point out that medical attention or advice should be obtained from private medical practitioners in the case of the well-to-do, and that the use of Government dispensaries and clinics is restricted to those who cannot afford private medical treatment.

In rural areas, treatment is generally secured through the agency of the Travelling Dispensaries which pay regular visits to schools throughout rural Penang and Province Wellesley.

In this connection, mention may be made of the excellent co-operation by heads of schools and teachers but there is still much indifference shown by many parents. In this respect, however, some improvement has been noted in comparison with previous years.

Two special afternoon sessions are held weekly at the Eye Clinic, General Hospital, Penang, for school children suspected of eye defects.

The Anglo-Chinese School maintains a "clinic" where treatment is carried out by a nurse and the Assistant Health Officer who pays regular weekly visits to this clinic. Treatment of ulcers by strapping with zinc oxide plaster was carried out in suitable cases with good results.

Two other conditions received special attention *viz.* worm infections and yaws infections.

The boys in the Malay vernacular schools and in some English schools are annually examined for worm infections and special worm treatment was given to those found infected.

Regular and systematic treatment for yaws infection in Malay schools was continued during the year and the number of cases of yaws continues to diminish. Atebrin medication was used in the treatment of severe malaria in boys under constant medical supervision, but quinine sulphate in capsules and solution (5 grs. twice daily) continues in use for malaria treatment in cases where sufficient supervision cannot be exercised.

Preventive vaccination and inoculation.—Special attention was paid to the detection and control of communicable diseases among school children. No serious outbreak of any infectious disease occurred during the year. Children found suffering from minor infectious or contagious diseases were excluded from school until free from infection. The chief of these diseases are scabies, contagious eye diseases and chicken-pox.

MALACCA

An attempt was made by the Health Officer, Malacca, at the end of 1933 to organise the medical inspection of school children in a more orderly way than formerly. The inspecting officers are the Deputy Health Officer or the Assistant Health Officer of the district and each inspects a given number of schools per month. Report forms are used for every school and submitted to the Health Officer soon after the inspection of each school is completed. A special report is called for on the sanitary condition of each school. Such reports are followed up in many cases by personal inspection by the Health Officer who submits a review of the sanitary condition to the Education Department at the same time calling attention to any insanitary conditions requiring attention. These inspections have revealed in many instances serious sanitary defects and considerable overcrowding in some schools. The inspections also brought to light a large number of unvaccinated children.

(ix).—LABOUR CONDITIONS

A.—ON ESTATES

The total labour force was 27,883 in 1934 compared with 23,001 in 1933.

There was a resumption of the immigration of Indian labourers, in increasing numbers, during the second half of 1934 and this accounts for most of the increase in the labour force on estates at the end of 1934. That this influx of new labourers, many of whom possessed little or no resistance to local communicable diseases, has not resulted in any marked deterioration of the comparatively high standard of health prevailing during the previous two years is a matter for congratulation.

One favourable effect of the slump in the price of rubber has been to stabilise, to an increasing extent, the labour forces on estates, so that there has been much less movement of labourers from place to place. It is probable that this tendency towards the settlement of labourers and their families on the estates has played a prominent part in maintaining the general standard of health of the estate population.

Efforts are now being directed by the health authorities to improve the housing and sanitary conditions of the labour forces on estates where such improvement is indicated, and pressure is being brought to bear on owners and managers to carry out urgently required sanitary measures which have previously been postponed on grounds of financial stress.

B.—IN GOVERNMENT DEPARTMENTS

In common with other classes of labour the general health of Government labourers has been satisfactory and no difficulty was experienced during the year in housing them in spite of the resumption of a certain amount of work which had previously been curtailed.

Free hospital and dispensary treatment is provided for all Government labourers and the travelling dispensaries attend to the needs of the sick in outlying areas.

(x).—HOUSING AND TOWN PLANNING

The character of the housing of the wage earning population of the Straits Settlements varies in urban and rural areas.

In municipal areas shop houses predominate. The upper stories of many of the shop houses are divided into small cubicles by the erection of temporary partitions without regard to the entry of light and air. The majority of the labouring and

artisan class find a home in such cubicles or in common lodging houses. The common lodging houses are found in the densely populated areas and frequently consist of an overcrowded dormitory over a shop or store. Steps to ameliorate these conditions in Singapore have been taken by the Improvement Trust. In Penang, amelioration has been effected by the issue of nuisance notices under the Municipal Ordinances resulting in the improvement of many buildings during the past ten years. The Health Department also freely uses its powers to enforce the demolition of insanitary dwellings. Steps have also been taken to maintain the common lodging houses in a sanitary and uncrowded condition. Action on similar lines has been taken to improve housing conditions in Malacca.

In rural areas, with which this report is chiefly concerned, houses of the wage earners are generally of the Malay and Chinese types, built of planks and palm leaves. Brick and tile shop houses are, however, found in some of the larger villages. The former type of house is usually owned by the occupier. These houses are, as a general rule, clean, well-ventilated and not over-crowded. Moreover, this type of house, being built of planks and palm leaves, is admirably suited to the climate and is cool and comfortable to live in. The brick and tile shop houses in the villages lend themselves to overcrowding like those in the towns.

A large number of labourers on rubber estates are housed in barracks consisting of single rooms with kitchens attached. These buildings in most instances conform to the standard design prescribed by the health authorities, and are therefore satisfactory and not overcrowded.

Most of the houses occupied by the Malay small-holders and peasants are detached, and built of planks or bamboo and roofed with palm leaves. They are raised about four to six feet above the ground on posts. These houses are well-ventilated, cool and commodious. Practically all are owned by the occupier.

In rural areas many gazetted village planning schemes have been evolved so as to ensure a suitable layout of buildings. The work of providing all dwellings with sanitary latrines has proceeded rapidly. It can be stated with confidence that almost all buildings, now being erected in rural areas, are of moderately good and sanitary type without being too expensive.

The question of zoning certain parts of the rural area of Singapore, especially in relation to offensive trades, is now under consideration.

(xi).—FOOD IN RELATION TO HEALTH AND DISEASE

(1).—BAKERIES

All bakeries within Rural Board areas were regularly inspected and reported upon by the health staff. Suitable action was taken where necessary and improvements in the conditions of a number of bakeries have been effected.

(2).—MILK

Persistent endeavours to improve the milk supplies in rural areas have been made. The standard of milk supplied by many native dairies is unsatisfactory and the sanitary conditions under which the cows are kept and milked are in many cases deplorable. Samples of milk are regularly submitted for analysis and frequent inspections of cow sheds and dairies are carried out. In a number of cases applications for new dairies which did not comply with requirements were refused and one dairy has been demolished in Singapore.

(3).—AERATED WATER FACTORIES

These were all kept under close supervision and strict attention was given to the requirements of the sanitary authorities.

(4).—MARKETS

The sanitary condition of the markets received the close attention of the health authorities and action was immediately taken to remedy any defects discovered.

(5).—FOOD FACTORIES

The Pineapple Industry Ordinance became operative during the year. It provides for the sanitary control of pineapple factories where pineapples are canned chiefly for export. The most important objects are to ensure that each factory provides an adequate pure water supply and that the cutting and sorting of the fruit are done under clean conditions.

All food factories subject to Municipal and Rural Boards bye-laws were inspected by the health authorities before the issue or renewal of licences.

(6).—RESTAURANTS AND EATING SHOPS

All applications for licences for restaurants and eating shops were investigated by the health department and before a licence was issued the applicants had to comply with fairly stringent sanitary requirements. In that way a reasonable standard of cleanliness has been maintained.

Special attention has been given to the way in which food is prepared and served by food hawkers. Food hawkers in the vicinity of schools have been subjected to particular scrutiny in view of the probability that enteric fever amongst school children has been conveyed by these food vendors. Several carriers have been detected amongst the hawkers and suitable action taken.

(7).—PIGGERIES

A serious endeavour has been made in Singapore to control the slaughter of pigs. No pork seller is licensed until he has obtained a certificate from the owner of a licensed slaughter house that he either obtains his pork from it or else slaughters there.

All piggeries have been carefully supervised and licences have been carefully scrutinised before renewal.

(8).—SAMPLES UNDER THE SALE OF FOOD AND DRUGS ORDINANCE

Samples of water, milk and other beverages, besides food-stuffs of several kinds, both local and imported, have been regularly analysed and action taken when indicated. Particular attention is paid to the standard of fresh milk sold by Indian milk sellers and constant vigilance is required to prevent diluted and contaminated milk from being offered for sale.

The Regulations made under the Sale of Food and Drugs Ordinance are being examined by a Committee appointed by the Governor with a view to their early amendment.

(9).—DEFICIENCY DISEASES

Beri-Beri

The numbers of deaths registered as due to beri-beri in the last ten years were:—

Year						Number of deaths
1925	...	...	...	...	...	973
1926	...	...	...	...	...	1,098
1927	...	...	...	...	...	1,528
1928	...	...	...	...	...	1,146
1929	...	...	...	...	...	944
1930	...	...	...	...	...	1,047
1931	...	...	...	...	...	911
1932	...	...	...	...	...	725
1933	...	...	...	...	...	721
1934	...	...	...	...	...	913

It will be seen that there has been an increase of 192 deaths over the year 1933 and that the total is almost the same as in the year 1931. The consistence with which the death rate for beri-beri follows the curve of economic conditions in the community is remarkable. When the community is poor the death rate diminishes and with returning prosperity the death rate rises. There was a decided improvement in trade in the second half of 1934 and it may confidently be predicted that with increasing prosperity the death rate in 1935 will be higher. The explanation probably lies in the greater ability of the poorer classes to buy the more expensive highly polished rice, and rely less on home grown food-stuffs, when their purchasing power is higher. Propaganda to check this tendency has been steadily pursued during the past few years.

(xii).—MEASURES TAKEN TO SPREAD KNOWLEDGE OF
HYGIENE AND SANITATION

Every opportunity is taken by the personnel of the health branch to inculcate proper ideas of personal and social sanitation in the minds of the people. It is impressed upon sanitary inspectors and others that persuasion and teaching are of greater importance in remedying deficiencies than coercion and prosecution. Experience has shewn that the kampong dweller is willing and in many cases eager to adopt measures which will improve his lot, provided that the knowledge is presented to him in the right manner. Lectures and film demonstrations have been arranged for the adult population in many areas. An adjacent school has usually been used as the venue. Suitable posters have been displayed and explained. These entertainments have proved popular and have been successful in arousing an encouraging amount of interest.

Full use has been made of the Infant Welfare clinics to educate mothers in both ante-natal and post-natal hygiene. Efforts have also been steadfastly directed towards teaching mothers how properly to feed, clothe, and care for their infants, and many visits were paid to the homes of mothers for this purpose. By these means it has been found possible to overcome many of the ignorant prejudices which have been so inimical to infant welfare and have no doubt, in the past, been a contributing cause of the high infant mortality. The Health Sisters have also been successful in restraining the unskilled kampong midwives from some of their more objectionable practices and have taught them the rudiments of midwifery and maternal care. Advantage has been taken by the clinic staffs, as opportunities presented themselves, to educate the villagers in the simple measures of prevention of common diseases such as malaria, hookworm, yaws, tuberculosis, etc.

Informal talks on hygiene and first aid were given by the inspecting medical officers who visited the schools. During the year the Assistant Health Officers, Schools, gave lectures which were illustrated by the exhibition of posters and pamphlets. In addition, cinema demonstrations of health films were shown to assemblies of children. In many of the junior English schools, posters and handwork illustrating health subjects formed an important part of the routine lessons in art. During the year special attention was paid to the subject of diet and nutrition and the posters and handwork prepared by some schools in this connection were quite creditable. Many of these posters were exhibited at the health centres.

There still remains to be carried out a more intensive campaign in the inculcation of simple hygienic precepts and habits among the school children. Such a type of health education is likely to produce more lasting effects than can be obtained by making hygiene an item in the school curriculum, taught merely to be learnt instead of practised. It is evident that education in personal hygiene and public health cannot be taught adequately in a school that is defective in sanitation. It is to the school child and his education in matters of hygiene that one must look for any substantial advance in the future progress of sanitation. Consequently, constant efforts have been made to secure the provision of satisfactory sanitary accommodation in all government and aided schools. Progress in this policy has been maintained and similar action is being taken with the co-operation of the Municipal Health Officers to institute improvements in the numerous private schools in towns. Suggestions for improvements in the feeding arrangements in schools continue to be made. It is gratifying to note that this important aspect of school hygiene is receiving much attention from the heads of schools.

(xiii).—TRAINING OF SANITARY PERSONNEL

Facilities are available in Singapore for candidates who desire to obtain the certificate of the Royal Sanitary Institute, London. The course extends over a period of approximately six months with a terminal written, practical and oral examination in the various subjects. Students who pass this examination are recommended for the certificate. In 1934, fifteen private and nine Government student sanitary inspectors attended the course and seven presented themselves for re-examination. Of these, twenty-seven were successful. The course comprises a well balanced proportion of lectures, laboratory work and practical field work and has attracted a full complement of twenty-five students practically each year since its inception in 1921.

IV.—PORT HEALTH WORK AND ADMINISTRATION

A.—Singapore

1. Total tonnage of ships entering the port	...	...	15,544,145
2. Number of ships entering the port	...	...	22,182
3. Ships examined including pilgrim ships and infected ships	...	...	783
4. Ships fumigated or disinfected	...	...	111
5. Crew examined	...	...	81,057
6. Passengers examined including Muslim pilgrims and Chinese immigrants	...	...	177,359
7. Outgoing pilgrims examined	...	...	613
8. Returning pilgrims examined	...	...	1,190
9. Chinese immigrants examined	...	...	100,518

ST. JOHN'S ISLAND QUARANTINE STATION

FIGURES FOR THE YEAR 1934

1. Total passengers admitted during the year	...	...	14,280
2. Greatest number admitted on any one day (16-6-34)	...	...	782
3. Maximum number in residence on any one day (16-6-34)	...	...	799
4. Minimum number in residence on any day (11-1-34)	...	...	1
5. On 169 days there were none in residence.			
6. Total sick treated in hospital, <i>i.e.</i> total admissions during the year and patients remaining in hospital on 31-12-33	...	...	34
7. Maximum number in hospital on any one day (16-6-34)	...	...	7
8. Minimum number in hospital on any one day (31-12-34)	...	...	1
(Note.—On 183 days there were none in hospital).			
9. Average daily number of sick in hospital	...	...	1.12
10. Total deaths during the year	...	...	1
11. Deaths per mille in hospital	...	...	32.35
12. Death rate per mille amongst passengers admitted	...	...	0.06
13. Total cases of Cholera admitted	...	...	Nil
14. Total cases of Plague admitted	...	...	Nil
15. Total cases of Cerebro-Spinal Fever admitted	...	...	1
16. Total cases of small-pox admitted	...	...	1
17. Number of non-infected ships whose passengers subsequently developed infectious diseases on the Island	...	...	Nil
18. Number of infected ships whose passengers subsequently developed infectious diseases on the Island	...	...	Nil
19. Number of primary vaccinations	...	...	4,203
20. Total re-vaccinations	...	...	50
21. Total vaccinations with anti-cholera vaccine	...	...	105
22. Cases treated as outdoor patients (contacts and staffs)	...	...	49
23. Total births	...	...	4
24. Number of Municipal contacts and patients admitted			
Small-pox contacts	...	...	27
Plague contacts	...	...	Nil
Cholera contacts	...	...	Nil
Cerebro-Spinal Meningitis contacts	...	...	Nil
25. Number of Government contacts and patients admitted			
Small-pox contacts	...	...	Nil
Plague contacts	...	...	Nil
Cholera contacts	...	...	Nil
Cerebro-spinal Meningitis contacts	...	...	Nil
26. Number of Municipal contacts who developed infectious diseases on the Island	...	...	Nil
27. Number of Government contacts who developed infectious diseases on the Island	...	...	Nil
28. Corpses sent to station for P.M. examination and burial	...	...	1
29. Number of gallons of Singapore water pumped up	...	...	2,681,952
30. Average daily number of passengers in quarantine	...	...	66.57

B.—Penang

Four infected ships arrived in Penang during the year 1934. *s.s.* Rohna arrived from Madras on 14-6-34, 12-7-34 and on 4-10-34, and on each voyage there was a case of small-pox on board. *s.s.* Kedah arrived on 17-12-34 from Singapore infected with cerebro-spinal meningitis, but the patient was landed at Singapore.

Other details are summarised as follows :—

1. Passengers admitted to Quarantine Station	...	...	28,786
2. Greatest number admitted on any one day (3-12-34)	...	...	2,382
3. Passengers medically examined	...	...	123,763
4. Crew medically examined	...	...	40,215
5. Maximum number in residence on any one day (3-12-34)	...	...	2,382
6. Minimum number in residence on any one day 27 days without any man or woman	...	...	—
7. Sick treated in hospital (patients remaining on 31-12-34 included)	...	...	494
8. Total deaths during the year	...	...	21
9. Death-rate among those treated	...	...	4.25
10. Number of births	...	...	Nil
11. Cases of plague admitted	...	...	Nil
12. Cases of cholera admitted	...	...	Nil
13. Number of vaccinations	...	...	37,619
14. Number of outpatients treated	...	...	1,348
15. Number of vessels entering the port (including native craft)	...	...	16,797
16. Tonnage of these vessels	...	...	13,051,729
17. Number of ships examined (ships infected 4)	...	...	299
18. Outgoing pilgrims examined	...	...	1,028
19. Returning pilgrims examined	...	...	1,008

V.—MATERNITY AND CHILD WELFARE

Maternity Hospitals

There are Government maternity hospitals in Singapore and Penang. There are also maternity blocks attached to the General Hospitals at Singapore and Malacca. Maternity wards or beds are available at most of the Government district hospitals, in the St. Andrew's Mission Hospital, Singapore, and the Kwong Wai Shiu Hospital, Singapore, the latter being a charitable institution supported by the Chinese community. The Government maternity hospitals cater for all classes of the community and the maternity services rendered by the Kandang Kerbau Maternity Hospital, where all beds are free, have proved increasingly popular in recent years and have necessitated the erection of a large modern block of wards containing 85 beds. It is believed that this hospital which recorded 2,579 deliveries in 1934 is now one of the the largest maternity hospitals in the Empire.

Asiatic midwives are attached to many of the smaller district hospitals and every effort is made to induce Malay women in the rural areas to make use of the facilities provided. Progress in this direction is very slow but the response is not altogether devoid of encouragement. The midwifery service in these hospitals is rendered in close collaboration with the Infant Welfare Centres and the propaganda opportunities offered by the latter are fully utilised for persuading expectant mothers of the benefit of utilising the facilities provided at the hospitals.

The following statement shows the number of deliveries in Maternity Hospitals in the Straits Settlements in 1933 and 1934 :—

		Deliveries	
Singapore		1933	1934
1. General Hospital	...	1,135	1,302
2. Free Maternity Hospital, Kandang Kerbau	...	2,303	2,579
3. St. Andrew's Mission Hospital	...	300	309
4. Kwong Wai Shiu Hospital	...	196	221
Penang			
5. King Edward VII Maternity Hospital	...	1,364	1,480
6. District Hospitals, Province Wellesley and Lumut	...	156	171
Malacca			
7. General Hospital	...	185	202
8. District Hospitals	...		103
		5,639	6,367

TABLE SHOWING MATERNAL MORTALITY RATE IN THE STRAITS SETTLEMENTS, 1934

(a).—SINGAPORE					Percentage of deaths to total treated
	Total admissions	Total delivered	Total maternal deaths		
Maternity Ward, General Hospital ...	1,460	1,302	24		1·61
Causes of death were :—					
Placenta prævia ...	...	...	1		
Eclampsia antepartum ...	...	...	3		
Abnormal labour, retained placenta, etc.	...	...	3		
Accidental hæmorrhage ...	...	...	5		
Dysentery, bacillary ...	...	...	1		
Malaria, sub-tertian ...	...	...	1		
Ankylostomiasis ...	...	...	1		
Secondary anæmia ...	...	...	2		
Meningitis pneumococcal ...	...	...	1		
Pyelitis of pregnancy ...	...	...	1		
Chronic myocardial disease ...	...	...	1		
Beri-beri ...	...	...	4		
			24		
			—		
	Total admissions	Total delivered	Total maternal deaths		Percentage of deaths to total treated
Maternity Hospital, Kandang Kerbau ...	2,826	2,579	37		1·25
Causes of death were :—					
Retained placenta, shock and hæmorrhage (all delivered at home before admission)	...	...	5		
Beri-beri ...	...	...	3		
Chronic cardiac disease ...	...	...	1		
Placenta prævia ...	...	...	4		
Eclampsia ...	...	...	2		
Toxic accidental hæmorrhage ...	...	...	5		
Coronary thrombosis ...	...	...	1		
Lobar pneumonia ...	...	...	2		
Toxic myocarditis ...	...	...	1		
Cerebral hæmorrhage ...	...	...	1		
Vesicular mole ...	...	...	2		
Perforated gastric ulcer with general peritonitis	...	...	1		
Toxic hyperemesis gravidarum ...	...	...	1		
Post-partum hæmorrhage ...	...	...	2		
Puerperal septicaemia ...	...	...	4		
Rupture of uterus ...	...	...	1		
Acute inversion of uterus ...	...	...	1		
			37		
			—		
(b).—PENANG					
	Total admissions	Total delivered	Total maternal deaths		Percentage of deaths to total treated
King Edward VII Maternity Hospital ...	1,643	1,480	(i) 25		1·49
Butterworth Hospital ...	43	37	(ii) 4		9·30
Bukit Mertajam Hospital ...	30	30	(iii) 1		3·33
Sungei Bakap Hospital ...	67	48	(iv) 7		10·44

Lumut Hospital ... 77 56 (v) 1 129

Causes of death were :—

(i) *Maternity Hospital*—

Cardiac failure	...	...	...	1
Anæmia of pregnancy	...	...	...	3
Revealed accidental hæmorrhage	...	...	...	2
Concealed accidental hæmorrhage	...	...	...	2
Albuminuria of pregnancy and toxæmia	...	...	...	7
Eclampsia	...	...	...	3
Placenta prævia	...	...	...	1
Puerperal sepsis	...	...	...	2
Lobar pneumonia	...	...	...	1
Malaria, benign tertian	...	...	...	1
Malaria, subtertian	...	...	...	1
Mitral valvular disease of heart	...	...	...	1

25

(ii) *Butterworth Hospital*—

Post-partum hæmorrhage	...	...	...	1
Sapræmia	...	...	...	1
Eclampsia	...	...	...	1
Accidental hæmorrhage (concealed)	...	...	...	1

4

(iii) *Bukit Mertajam Hospital*—

Puerperal sepsis	...	...	...	1
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(iv) *Sungei Bakap Hospital*—

Abnormal labour	...	...	...	2
Eclampsia	...	...	...	4
Hyperemesis gravidarum	...	...	...	1

7

(v) *Lumut Hospital*—

Cardiac failure from eclampsia	...	...	...	1
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(c).—MALACCA

	Total admissions	Total delivered	Total maternal deaths	Percentage of deaths to total treated
General Hospital	215	202	(a) 8	3.72
Alor Gajah Hospital	66	41	(b) 2	2.98
Jasin Hospital	68	62	(c) 1	1.38

Causes of death were :—

(a) *General Hospital*—

Placenta prævia	...	...	...	1
Puerperal septicæmia	...	...	...	2
Antepartum eclampsia	...	...	...	2
Abnormal labour	...	...	...	2
Accidents of childbirth	...	...	...	1

8

(b) *Alor Gajah Hospital*—

Premature birth	...	...	...	1
Miscarriage with toxæmia	...	...	...	1

2

(c) *Jasin Hospital*—

Puerperal septicæmia	...	...	...	1
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Training and Work of Midwives

Regular courses of training for nurses and Asiatic midwives are provided at the Government Maternity Hospitals in Singapore, Penang and Malacca. In addition, a number of nurses and midwives are trained at the St. Andrew's Mission Hospital, Singapore.

Under the Midwives Ordinance, midwives are divided into three classes, viz :

Class A midwives who comprise women with sufficient education in English to undergo 12 months theoretical and practical training followed by an examination, of a standard similar to that required by the C.M.B., which entitles successful candidates to a diploma.

Class B midwives who comprise Asiatics of a lower standard of education enabling them to undergo practical training, given in the Malay language and by demonstration, for six or nine months, followed by an oral and practical examination.

Class C midwives comprising those who were in regular practice as midwives for a period of one year before the date of introduction of the Midwives Ordinance.

The number of midwives in this class is steadily diminishing and their places are being taken by *Class B* midwives.

Every endeavour is made to induce Malay women from the villages to enter for the course of training framed for *Class B* midwives with a view to practising orthodox midwifery on their return to the villages. It is hoped in this way gradually to displace the large number of unqualified Malay and other Asiatic midwives now practising highly objectionable and injurious methods of primitive midwifery in rural areas.

The number of registered midwives in the Colony in 1934 was :—

			<i>Singapore</i>	<i>Penang</i>	<i>Malacca</i>
<i>Class A</i>	...	...	180	74	19
<i>Class B</i>	...	...	386	298	27
<i>Class C</i>	...	...	32	167	182
			598	539	228

Infant and Child Welfare Services

These services are conducted by the Municipalities in the towns of Singapore, Penang and Malacca, by the Singapore Child Welfare Society in Singapore and by the Government Medical Department in the rural areas of each Settlement.

A.—IN MUNICIPALITIES

Infants up to the age of 12 months are attended at the three Singapore Municipal Clinics. During the year 14,258 new infants were placed on the registers of the infant welfare clinics, this figure represents, 82.28 per cent. of the total births in the city.

The total number of attendances was 42,247 as compared with 49,237 in the previous year.

The District Sister and Staff Nurses paid a total of 19,946 visits to homes, of these 15,491 were first visits to newly born babies.

The Penang Municipality employs two European Health Sisters.

In Malacca two Assistant Health Visitors are employed, under the supervision of a Health Sister who is the Government Health Sister but is also employed part time by the Municipality.

B.—THE SINGAPORE CHILD WELFARE SOCIETY

This Society is supported by subscriptions and donations and by Government and Municipal grants.

The Society supports two clinics and two creches. Children between one and five years of age are treated free at these clinics.

The Municipal clinic which treats babies up to the age of 12 months, passes to the Society's care children over one year of age who require attention.

The Society employs two qualified European Matrons and four locally trained Chinese nurses all whom, after a morning's work at the clinics and creche, carry out a routine of house to house visiting in slum districts.

The total number of attendances was 49,230 as against 55,854 in 1933.

All children needing treatment which cannot be given at the clinics are sent to hospital, the majority being sent to St. Andrew's Mission Hospital.

Minto Road Creche.—The total number of attendance was 8,440 a decrease of 619 over 1933, due undoubtedly to the curtailing of work at certain factories. The total number of new admissions was 76 as compared with 134 in the previous year.

C.—GOVERNMENT INFANT WELFARE CENTRES

The number of centres has steadily expanded in recent years and the following centres are now actively engaged in providing Infant Welfare services in rural areas :—

Singapore	...	...	Five centres.
Penang	...	...	Four centres and one sub-centre.
Province Wellesley	...	...	Three centres and one sub-centre.
Malacca	...	...	Four centres.

Two new centres in Malacca and one centre in Province Wellesley are being opened in 1935.

The centres are in charge of Rural Public Health Sisters recruited from England of whom there are—one Matron and one Sister in Singapore, one Sister in Penang, one Sister in Province Wellesley and one Sister in Malacca. In addition, there are at most of the centres a resident Health Nurse, a midwife and a female attendant. The routine duties of the Health Sisters and Nurses are primarily educational and preventive. They advise mothers on the care and feeding of infants and young children. They give ante-natal attention and detect abnormalities requiring medical treatment. They visit houses from which births have been reported and advise. The Health Sister keeps a register of local midwives (bidans). She inspects the record of the births they have attended and instructs them in the elements of midwifery. She provides them with dressings and disinfectants and teaches them the proper use of simple midwifery equipment. By personal observation the sister aims at securing a reasonable standard of technique, which was formerly lacking. In many cases dirty scissors, pocket knives and pieces of bamboo, used for cutting the umbilical cord, have been replaced by properly cleaned surgical scissors. The Health Sisters gives simple remedies for minor ailments with a view, principally, to gaining the confidence of the public and relieving immediate distress. Cases of illness are referred to the nearest Government dispensary whenever possible. It has been found that the majority of Asiatic children are victims of ill-feeding and are more in need of advice than of treatment. A small museum is kept at each centre containing confiscated articles such as the midwives tools just mentioned, long-tube feeders, comforters, unsuitable clothing and dressing material, and these are used as a warning lesson to mothers.

D.—COMBINED RETURN SHEWING VISITS PAID TO HOMES AND ATTENDANCES AT WELFARE CLINICS

			Visits to Homes	Attendances at Clinics
<i>Municipalities—</i>				
Singapore	...	...	130,928	42,247
Penang	...	...	54,941	—
Malacca	...	...	33,091	7,419
			218,960	49,666
Singapore Child Welfare Society	...		45,889	49,230
<i>Government—</i>				
Singapore	...	...	44,609	56,844
Penang	...	...	52,920	32,308
Province Wellesley	...	...	55,112	36,013
Malacca	...	...	19,862	14,255
			172,503	139,420
Grand Total			437,352	238,316

Associated Activities

In addition to the Infant Welfare Centres described above, there are a number of women's and children's dispensaries conducted by Government in the large towns. Each of these dispensaries is in charge of a Lady Medical Officer. They are utilised chiefly by sick mothers and children and are available for the treatment of infants attending the Infant Welfare Centres who require treatment.

The returns from these dispensaries for 1934 were as follows:—

	New Patients	Repetitions	Total	Total No. of children amongst the new patients
Women's and Children's Dispensaries, Singapore—				
(a) Kandang Kerbau ...	14,616	24,602	39,218	8,388
(b) General Hospital Outdoor Dispensary ...	5,862	8,969	14,831	2,405
Women's and Children's Dispensary, Penang ...	8,209	10,919	19,128	4,449
Women's and Children's Dispensary, Malacca ...	9,726	8,240	17,966	4,733
St. Andrew's Mission Dispensary, Singapore ...	6,310	17,401	23,711	448
	44,723	70,131	114,854	20,423

Motor Travelling Dispensaries.—There were 106,747 attendances in 1934. Of these 18,764 were women and 39,642 children.

VI.—HOSPITALS, DISPENSARIES AND SPECIAL CLINICS

(1).—Hospital In-Patients

The following table shows the hospitals maintained by the Medical Department, the average daily number of patients in each, the total number of patients admitted during the year, the total number of deaths and the death-rate per hundred treated:—

Hospitals	Average daily number of patients	Total No. of patients treated	Deaths	Percentage of deaths to total treated
I.—SINGAPORE—				
General Hospital ...	648.20	16,158	1,699	10.51
Tan Tock Seng Hospital ...	770.78	7,728	1,024	13.25
Maternity Hospital, Kandang Kerbau ...	43.62	2,867	37	1.29
St. John's Island Hospital ...	1.12	34	1	2.94
Police Hospital ...	20.50	1,346	—	—
Mental Hospital ...	1,386.24	1,782	153	8.58
II.—PENANG—				
General Hospital ...	449.26	9,025	986	10.92
Maternity Hospital ...	39.57	1,677	25	1.52
Balik Pulau ...	15.50	215	4	1.86
Lumut Hospital, Dindings ...	67.16	2,324	152	6.54
Butterworth Hospital, P.W. ...	73.30	1,810	120	6.89
Bukit Mertajam Hospital, P.W. ...	84.04	1,598	94	6.20
Sungei Bakap Hospital, P.W. ...	109.66	2,718	178	6.76
III.—MALACCA—				
General Hospital ...	285.91	4,807	453	9.42
Jasin Hospital ...	75.52	1,221	86	7.04
Alor Gajah Hospital ...	27.62	1,159	64	5.52
IV.—LABUAN—				
District Hospital ...	9.08	198	13	6.56

The District Hospital, Penang, was demolished and the inmates were transferred on the 17th April, 1934, to the new General Hospital "C" Block.

TABLE SHOWING MALE AND FEMALE PATIENTS TREATED
AT THE VARIOUS HOSPITALS IN THE COLONY, 1934.

(a) SINGAPORE					
			Male	Female	Total treated
General Hospital	...	...	10,237	5,921	16,158
Tan Tock Seng Hospital	...	...	7,625	103	7,728
Kandang Kerbau Maternity Hospital	...	...	—	2,867	2,867
Mental Hospital	...	...	1,283	499	1,782
Police Hospital	...	...	1,346	—	1,346
Leper Settlement	...	...	230	153	383
(b) PENANG					
General Hospital	...	...	7,489	1,536	9,025
Maternity Hospital	...	...	—	1,677	1,677
Prison Hospital	...	...	286	—	286
Balik Pulau Hospital	...	...	214	1	215
Female Leper Settlement	...	...	—	74	74
Pulau Jerejak Leper Settlement	...	...	1,128	—	1,128
Quarantine Station	...	...	399	95	494
Butterworth Hospital	...	...	1,466	344	1,810
Bukit Mertajam Hospital	...	...	1,305	293	1,598
Sungei Bakap Hospital	...	...	2,003	715	2,718
Lumut Hospital	...	...	1,571	753	2,324
(c) MALACCA					
General Hospital	...	...	3,663	1,144	4,807
Alor Gajah Hospital	...	...	817	342	1,159
Jasin Hospital	...	...	926	295	1,221

PREVAILING DISEASES AMONG HOSPITAL PATIENTS.

Diseases	Admission	Deaths	Mortality
Malaria, acute	5,444	227	4.11
Malaria, chronic	517	44	8.51
Venereal diseases	3,147	174	5.52
Influenza	1,063	7	0.65
<i>Chest Affections—</i>			
Bronchitis	1,261	22	1.74
Pneumonia and broncho pneumonia	1,460	826	56.57
Pulmonary tuberculosis	2,544	977	38.40
<i>Intestinal Affections—</i>			
Dysentery	690	168	24.34
Diarrhoea and enteritis	1,340	225	16.79
<i>Other Affections—</i>			
Helminthic diseases	1,808	39	2.21
Beri-Beri	1,196	321	26.83
Anæmia	283	37	13.07
<i>Surgical Conditions—</i>			
Chronic ulcers	1,378	8	0.58
Wounds, fractures, etc.	3,296	118	3.58
Abscesses, etc.	1,627	37	2.27

The total number of in-patients treated during 1934 was 55,768 with 5,250 deaths as against 50,206 with 4,530 deaths in 1933.

The distribution in the three Settlements was as follows:—

	Admissions	Deaths
Singapore	29,090	2,950
Penang	19,583	1,684
Malacca	6,897	603
Labuan	198	13
Total	55,768	5,250

The total number of beds and the average daily number of patients in the three Settlements in 1934 were :—

			Beds	Average daily No. of patients
Singapore	...	...	3,789	3,124.82
Penang	...	...	2,231	1,833.37
Malacca	...	...	742	390.01
Labuan	...	...	31	9.08

NOTES ON PREVAILING DISEASES AMONG HOSPITAL PATIENTS

(i) *Malaria*.—There was an increase in the number of classified cases of acute malaria admitted to Government hospitals. The total number was 4,327 compared with 3,861 in 1933.

It will be seen from the following table that the number of admission to Government hospitals of verified cases of acute malaria shows a marked decline from the high figure of 1930.

Year					Total admissions of acute cases of classified malaria
1930	...	...	...	...	9,921
1931	...	...	...	...	3,844
1932	...	...	...	...	3,684
1933	...	...	...	...	3,861
1934	...	...	...	...	4,327

The predominating type was subtertian infection as shewn in the following table the diagnosis in all cases being confirmed by microscopical identification :—

			Cases	Percentage
Subtertian infection	...	...	2,690	62.17
Tertian	..	...	1,471	33.99
Quartan	..	...	98	2.44
Mixed	..	...	68	1.40

Four cases of blackwater fever were recorded one of which proved fatal.

It is interesting to record that a local outbreak of malaria in Province Wellesley was traced to an unusual vector of malarial parasites—*Anopheles barbirostris*. This anopheline has not hitherto been regarded as a dangerous carrier in Malaya, and added interest to its sudden entrance into this category is lent by the occurrence of a somewhat severe and at first unexplainable outbreak of malaria at Batu Gajah in Kinta, Perak, a town which had hitherto been comparatively free from malaria. After a full investigation into the origin of the outbreak, *Anopheles barbirostris* was incriminated and proved to be the cause.

The following terminal causes of death were noted in 255 fatal malarial cases :—

	General Hospital, Singapore	Tan Tock Seng Hospital, Singapore	Penang Hospital	Malacca Hospital	Total
Ankylostomiasis	4	..	..	4	8
Cardiac failure	20	13	55	11	99
Cachexia	..	3	10	25	38
Coma or convulsions	5	..	25	2	32
Coma: cerebral malaria	..	5	..	16	21
Dysentery and enteritis	4	1	1	2	8
Failure of liver function	3	..	..	..	3
Hyper-pyrexia	2	..	6	1	9
Malaria—complicated with beri-beri	4	10	..	..	14
Malaria complicated with hypostatic pneumonia	5	1	1	..	7
Malaria—complicated with inter- current lobar and broncho- pneumonia	..	3	..	2	5
Malaria—complicated by nephritis	3	1	..	..	4
Other pulmonary complications	2	3	..	2	7
Total ..	52	40	98	65	255

(ii) *Venereal Disease*.—There were 1,559 admissions for syphilis and 788 for gonorrhoea. Only 248 of the cases of syphilis were in the primary stage. The great majority of cases of venereal disease are treated in the Social Hygiene clinics. Many of the cases treated in hospital are referred by the clinics or are admitted for diseases which are super-imposed on the venereal disease.

Special provision is made in the General Hospitals of the Colony for the treatment of seamen of all nationalities, who are suffering from venereal diseases, in accordance with the Agreement respecting facilities to be given to Merchant Seamen for the Treatment of Venereal Diseases (Treaty Series No. 20—1926).

(iii) *Pneumonia*.—One thousand four hundred and twenty-nine cases of lobar-pneumonia and broncho-pneumonia were admitted to Government hospitals. Of these 813 were fatal, giving the high case mortality of 56.19 per cent. This is a slight improvement on the mortality for the previous year which was 59.75.

(iv) *Pulmonary Tuberculosis*.—The number of admissions to Government hospitals for pulmonary tuberculosis was 2,303 compared with 2,121 in the previous year. The number of deaths was 881 giving a cases mortality of 38.25 per cent. Facilities for modern medical and surgical treatment of pulmonary tuberculosis exist in the General Hospitals of the Colony and special tuberculosis wards are available. One of the chief obstacles to the satisfactory treatment of tuberculosis is found to be the difficulty of bringing the poorer class of patients under treatment at a sufficiently early stage of the disease for treatment to be effective. Many labourers show great reluctance to enter an institution until they are too feeble to continue in employment. This reluctance is forced upon them by the necessity in most cases of providing for the daily needs of their families. For this reason, it is our unfortunate experience that nearly all the patients admitted to hospital are found to be in an advanced and hopeless stage of the disease and the mortality is consequently regrettably high.

(v) *Dysentery*.—The number of admissions recorded as due to dysentery was 690 compared with 626 admissions in 1933. 286 of the total cases were classified as amœbic and 336 as bacillary. Bacillary dysentery, besides being more prevalent than the amœbic variety, shows a much higher case mortality. The mortality for bacillary dysentery was 30.65 per cent. and for amœbic dysentery 17.83 per cent.

(vi) *Beri-beri*.—There were 1,196 admissions for beri-beri during the year compared with 888 in 1933. The increase in the number of admissions is coincident with a definite advance towards returning prosperity and consequent increase in the purchasing power of the people. The rise and fall in the number of beri-beri cases admitted to hospitals during the past few years, as shewn in the accompanying table, has borne a close relation to the level of general prosperity. It is probable that the enforced consumption of home grown produce during times of economic stress ousts the more expensive highly polished rice with resulting benefit to health.

Year	Admissions for beri-beri				
1929	...	...	...	...	1,322
1930	...	...	...	...	1,449
1931	...	...	...	...	1,237
1932	...	...	...	...	991
1933	...	...	...	...	888
1934	...	...	...	...	1,196

(vii) *Anæmia*.—Two hundred and eighty-three admissions were recorded as due to anæmia compared with 236 in 1933. Of these, 196 were returned as secondary anæmia and many such cases were associated with malaria, syphilis, ankylostomiasis and other debilitating conditions. It is interesting to note that in common with other parts of the world the Colony is free from the anæmia classified as chlorosis. No case of chlorosis was admitted to any of the Government hospitals during the year.

(viii) *Chronic Ulcer*.—The number of cases of chronic ulcer admitted was 1,378 compared with 1,706 in 1933. A large number of chronic ulcers have been treated by the application of adhesive strapping with successful results.

(ix) *Wounds, Fractures, etc.*—It is a matter of current interest to place on record that of 3,296 admissions for affections produced by external causes, 683 were for injuries caused by motor vehicles, and of these 64 were fatal.

NOTES ON OTHER DISEASES

(i) *Leprosy*.—Four hundred and twenty-two cases of leprosy were admitted to Government institutions during the year, most of them to leper settlements at Pulau Jerejak, Singapore and Penang. The number so admitted in 1933 was 489. The number of patients admitted to Pulau Jerejak Settlement has been steadily

increasing in recent years from 180 in 1931 to 234 in 1934, due mainly to the increasing popularity of the institution and the reputation it has gained since the introduction of modern and expert treatment. An encouraging feature of the admissions last year was the higher ratio of early and moderately advanced cases received for treatment. A comparison with the cases admitted in the previous three years emphasises the improvement in the past year:—

				Early	Moderately advanced	Advanced
1931	...	...	...	—	2	147
1932	...	...	...	—	3	191
1933	...	...	...	12	21	165
1934	...	...	...	36	50	148

It will be seen that notwithstanding the improvement in the type of case admitted there is still a marked preponderance of advanced cases for whom treatment can be of little avail and who will in future years swell the residue of helpless and crippled inmates.

Intensive treatment on modern lines was continued throughout the year and full details will be found in Section VII (B), on page 42. All cases found in the medical institutions in Penang with suspicious skin lesions were seen by the Acting Senior Deputy Medical Officer, Pulau Jerejak Settlement and by this means several early bacteriologically negative cases of leprosy were discovered which would probably have, otherwise, been overlooked.

(ii) *Tropical Typhus*.—There were eleven admissions for tropical typhus. None of the patients died. This disease is of comparatively recent discovery in Malaya and is less prevalent in the Colony than in the Federated Malay States.

(iii) *Japanese River Fever*.—Three patients suffering from Japanese River were admitted, none of whom died.

(iv) *Cancer*.—The number of patients admitted to Government hospitals and recorded as suffering from malignant tumours was 467 of whom 151 died.

The low incidence of cases recorded as cancer, in its many manifestations, in hospitals in the Straits Settlements has always been a matter for comment. Interest in this fortunate and remarkable freedom from one of the major lethal diseases has been stimulated by the investigations of F. L. HOFFMAN, L.L.D., consulting Statistician, Newark, N. J., to whose researches reference was made last year. Dr. HOFFMAN notes that the proportion of persons 55 years of age and over in the Straits Settlements was only 4.3 per cent. for males at the time of the 1931 Census. This he attributed to the vast turn-over of persons coming and going, giving an average duration of residence in Malaya of only about three years. The immigrant element naturally tends to disturb the sex ratio on the one hand and the age distribution on the other. He concludes that the age distribution of male Chinese and Indians who together constitute 59.7 per cent. of the male population is mainly determined not by natural causes but by the age distribution of immigrants. This age distribution has an important bearing on the incidence of cancer which is a disease of later life and it probably accounts largely for the low incidence of cancer in the Straits Settlements.

A comparison of the death-rate for cancer in the Straits Settlements with that in certain centres, the figures of which are cited by Dr. HOFFMAN, emphasises the striking difference in the death rates from cancer ruling in European and certain Asiatic cities.

					Death-rate from cancer
Straits Settlements	...	...	...	...	14.2 per 100,000
Singapore (City)	...	...	...	...	40.6 "
Colombo	...	...	...	...	43.6 "
Bangkok	...	...	...	...	13.0 "
Havana	...	...	...	...	13.0 "
Bombay	...	...	...	...	13.2 "
London	...	...	...	...	148.5 "
Paris	...	...	...	...	149.7 "
Berlin	...	...	...	...	165.1 "
Vienna	...	...	...	...	208.4 "

COST OF DIETS

The approximate daily cost of diets per head in the Colony for the year 1934 was:—

Scale		First Class	Second Class	Third Class									
				\$1 Grade					50 Cents Grade				
				Chinese	Moslem	Tamil	Bengalee Hindu	Sikh	Chinese	Moslem	Tamil	Bengalee Hindu	Sikh
		\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
A	..	1 29	91	26	29	29	..	..	17	22	22	21	28
A1	..	..	98	..	..	..	..	..	..	..	..	..	..
A2	..	..	98	..	..	..	..	..	..	..	..	..	..
B	..	1 08	96	40	40	40	..	..	15	15	..	..	..
C	..	92	90	..	..	..	..	..	08	08	08	12	12
Special													
A. T.B.	..	..	..	35	35	35	21	28	..	..	..	..	..
B. T.B.	..	..	..	50	50	50	..	..	..	..	..	..	..

(2).—Out-Patients

The total number of out-patients treated during the year was 296,098. This number comprises all those treated at Government hospitals and dispensaries, as well as patients visited in their own homes. It does not include those treated at Infant Welfare Centres, or at school inspections; nor does it include attendances at special clinics, such as social hygiene and dental clinics, all of which are recorded separately.

These out-patients can be classified under three headings:—

	Out-patients	Attendances
(I) At Hospitals—		
(a) Singapore ...	27,175	54,661
(b) Penang* ...	44,335	83,320
(c) Malacca ...	11,228	27,218
(d) Labuan ...	1,556	3,061
(II) At Dispensaries—		
(a) Singapore ...	29,295	55,931
(b) Penang* ...	80,612	183,039
(c) Malacca ...	16,246	27,528
(III) At Travelling Dispensaries—		
(a) Singapore ...	15,487	17,544
(b) Penang* ...	39,607	49,996
(c) Malacca ...	27,303	39,459
(d) Labuan ...	3,254	3,571
	296,098	545,328

The number of out-patients treated for yaws was 6,477 as compared with 8,060 in 1933. More Malays suffering from this disease have come forward voluntarily to accept treatment.

The attendances at the Women's and Children's Dispensary, Kandang Kerbau, Singapore, numbered 39,218 as compared with 38,507 in 1933. Of the new cases 8,388 were children.

In the Women's and Children's Dispensary, Penang, the attendances were 19,128 as against 19,756 in the previous year.

The total number of attendances at the Women's and Children's Dispensary, Malacca, was 17,966. Of 9,726 new patients who received treatment 4,733 were children. This clinic has now been separated into two distinct units—a women's and children's dispensary and an infant welfare centre.

* Penang includes Province Wellesley and the Dindings.

(3).—Report on the Pathological Branch, Straits Settlements, 1934

I.—SINGAPORE

BY

J. C. TULL, M.D., F.R.C.P., Government Pathologist.

A.—PATHOLOGICAL DIVISION

The total number of specimens examined during the year was 9,025, an increase of 652 over 1933. These specimens included 812 pieces of tissue submitted for histological examination and report, and 8,205 sera submitted for complement fixation and Kahn tests for syphilis. These sera were received from the following institutions mainly:—

Tan Tock Seng Hospital	...	...	...	2,982
The General Hospital	...	...	...	2,376
The Police Dépôt	...	...	...	869
The Anti-Opium Clinic	...	...	...	711
The Mental Hospital	...	...	...	466
Labuan	...	...	...	40
The Maternity Hospital	...	...	...	169
The Leper Settlement	...	...	...	50

Both the Wassermann Reaction and the Kahn Test were carried out on each serum. An agreement between the tests was present in 5,946 sera, or 79 per cent.

Three colloidal gold reactions and five tests for gonococcus complement fixation were carried out.

The mounting and describing of pathological specimens has been continued throughout the year.

The teaching of general, special and clinical pathology and medical jurisprudence to students of the King Edward VII College of Medicine has been carried on throughout the year in Tan Tock Seng Hospital and in the main laboratory of this Branch.

The total number of autopsies performed during the year was 1,573; 1,200 at Tan Tock Seng Hospital and 373 at the Central Mortuary. Of these 1,573 autopsies, 575 were done for His Majesty's Coroner.

(a) Tan Tock Seng Hospital.

Total number of autopsies 1,200. Number done on patients dying:—

(i) within 24 hours of admission	...	...	84
(ii) within 48 hours of admission	...	...	39

(b) Central Mortuary.

As most of the autopsies performed at this mortuary were Coroner's cases, with a very meagre or no history, the duration of illness was not ascertainable.

Main causes of death, exclusive of Coroner's cases by months, as ascertained at autopsy at Tan Tock Seng Hospital:—

Month	Number of autopsies	Malaria	Tuberculosis	Lobar pneumonia	Dysentery	Beri-Beri	Typhoid	Syphilis	Others	Coroner's cases
January ..	97	2	22	8	3	7	..	6	27	22
February ..	86	3	21	4	12	12	..	8	24	22
March ..	88	2	19	3	23	3	..	5	25	28
April ..	108	3	23	3	5	11	1	9	21	32
May ..	96	6	23	3	12	4	..	5	25	28
June ..	94	3	21	6	1	5	1	4	33	20
July ..	110	1	21	8	3	5	..	6	38	28
August ..	104	3	27	2	5	6	..	9	28	24
September ..	96	5	26	2	1	6	1	2	29	24
October ..	111	5	28	2	3	7	1	9	25	31
November ..	119	11	28	2	6	13	..	6	26	27
December ..	91	6	28	3	3	7	2	3	20	19
Total ..	1,200	50	287	46	37	76	6	72	321	305

Main causes of death in 1934 as compared with 1933, as ascertained at autopsy at Tan Tock Seng Hospital:—

—	Number of autopsies	Malaria	Pulmonary tuberculosis	Lobar pneumonia	Dysentery	Beri-Beri	Typhoid fever	Syphilis	Coroner's cases
1933	1,049	36 or 3·4%	255 or 24·3%	43 or 3·5%	49 or 4·6%	48 or 4·5%	20 or 2%	61 or 5·8%	211 or 20·1%
1934	1,200	59 or 4·2%	287 or 23·9%	46 or 3·8%	37 or 3·1%	76 or 6·3%	6 or 0·5%	72 or 6%	305 or 25·4%

Publication.—A case of cysticercus cellulosa of the brain, by J. C. TULL, M.D., F.R.C.P., and C. SUBRAHMANYAM, L.M.S., Transactions Royal Society of Tropical Medicine.

B.—BACTERIOLOGICAL DIVISION

Blood (Widal reactions)	...	...	...	...	609
Positive to <i>B. typhosus</i>	...	...	...	251	
Positive to <i>B. paratyphosus A</i>	...	...	...	17	
Positive to <i>B. paratyphosus B</i>	...	...	...	5	
Positive to <i>B. paratyphosus C</i>	...	...	...	10	
Positive to <i>B. paratyphosus B & C</i>	...	...	...	7	
Blood cultures (Widal clots)	...	...	...	...	609
<i>B. typhosus</i> isolated	...	...	...	67	
<i>B. paratyphosus A</i> isolated	...	...	...	2	
<i>B. paratyphosus C</i> isolated	...	...	...	2	
Blood cultures for enteric infection	...	...	...	...	106
<i>B. typhosus</i> isolated	...	...	...	24	
<i>B. paratyphosus A</i> isolated	...	...	...	1	
<i>B. paratyphosus B</i> isolated	...	...	...	1	
Blood cultures for organisms, other than those of enteric group	...	...	...	...	102
Blood, Weil Felix reactions	...	...	...	...	83
Positive to <i>B. proteus</i> ONK "O" antigen	...	...	...	30	
Positive to <i>B. proteus</i> OX 19 "O" antigen	...	...	...	3	
Positive to <i>B. proteus</i> ONK and OX 19	...	...	...	3	
Cultures from faeces for enteric infections	...	...	...	...	224
<i>B. typhosus</i> isolated	...	...	...	42	
<i>B. paratyphosus A</i> isolated	...	...	...	3	
<i>B. paratyphosus C</i> isolated	...	...	...	1	
Cultures from faeces for Bact. dysenteriae	...	...	...	...	474
Bact. dysenteriae (Flexner) isolated	...	...	...	126	
Bact. dysenteriae (Flexner, inagglutinable) isolated	...	...	...	6	
Bact. dysenteriae (Schmitz) isolated	...	...	...	15	
Bact. dysenteriae (Shiga) isolated	...	...	...	5	
Bact. dysenteriae (Sonne) isolated	...	...	...	7	
Bact. enteritidis (Gaertner) isolated from faeces	...	...	...	...	1
Cultures from urine for enteric infections	...	...	...	...	178
<i>B. typhosus</i> isolated	...	...	...	19	
<i>B. paratyphosus A</i> isolated	...	...	...	1	
<i>B. paratyphosus C</i> isolated	...	...	...	1	
Cultures from urine for organisms, other than those of the enteric group	...	...	...	...	369
Bact. coli group isolated	...	...	...	121	
Bact. alkaligenes isolated	...	...	...	8	
<i>B. proteus</i> isolated	...	...	...	5	
<i>Staphylococcus aureus</i> isolated	...	...	...	12	
<i>Staphylococcus albus</i>	...	...	...	48	
<i>Streptococcus non-haemolytic</i> isolated	...	...	...	8	
<i>Streptococcus viridans</i> isolated	...	...	...	6	
Urine positive to <i>leptospira</i> (dark ground examination)	...	...	...	...	1
Blood, Widal reactions (from cases of bacillary dysentery)	...	...	...	...	116
Throat swabs for <i>C. diphtheriae</i>	...	...	...	...	388
<i>C. diphtheriae</i> isolated	...	...	...	27	
Nasal swabs for <i>C. diphtheriae</i>	...	...	...	...	12
<i>C. diphtheriae</i> isolated	...	...	...	1	

Throat swabs for organisms, other than those for <i>C. diphtheriæ</i>	54
Nasal swabs for organisms, other than those for <i>C. diphtheriæ</i>	13
Cerebro-spinal fluid for cultures	73
<i>Meningococcus</i> isolated	6
<i>Pneumococcus</i> isolated	4
<i>Staphylococcus albus</i> isolated	10
<i>Staphylococcus aureus</i> isolated	5
<i>Streptococcus hæmolyticus</i> isolated	1
<i>B. typhosus</i> isolated	1
<i>B. influenza</i> isolated	4
<i>Myco. tuberculosis</i> isolated	1
<i>Myco. tuberculosis</i> (direct smear)	4
Dental swabs for cultures	18
Dental smears for Vincent's organisms	21
Positive to Vincent's organisms	16
Eye swabs for cultures	60
Eye smears for organisms	245
Pus from various sources for cultures	85
Pleural fluid for cultures	26
Synovial fluid for cultures	10
Bacteriological examination of water	13
Smears from other sources	37
Swabs from other sources for cultures	72
Animal inoculation for diagnosis of tuberculosis	7
Positive to <i>myco. tuberculosis</i>	2
Animal inoculation for diagnosis of leptospirosis	6
Positive to <i>leptospira</i>	2
Préparation of autogenous vaccines	61
Medico-legal exhibits	7
Miscellaneous	96

II.—PENANG

BY

H. O. HOPKINS, M.A. (Oxon.), M.R.C.S., L.R.C.P., Acting Government
Pathologist, Penang.

Details of the more important examinations are given below:—

Blood, cultural examinations	55
Positive for <i>Bact. typhosus</i>	1
Positive for <i>Bact. alkaligenes</i>	2
Positive for <i>Bact. coli</i>	1
Positive for <i>Bact. ceylonense</i>	1
Positive for <i>Staphylococci</i>	5
Blood, cultural examinations of "Widal clot"	110
Positive for <i>Bact. typhosus</i>	13
Positive for <i>Bact. coli</i>	1
Blood, agglutination tests for typhoid group (Widal)	167
Positive for <i>Bact. typhosus</i>	56
Positive for <i>Bact. paratyphosus A</i>	2
Positive for <i>Bact. paratyphosus C</i>	1
Blood, agglutination test for tropical typhus (Weil Felix)	8
Positive to "K" strain	1
Blood, complement fixation tests for syphilis (Wassermann)	7,492
Blood, precipitation tests for syphilis (Kahn)	7,772

Blood, chemical examinations	...	...	262
Sugar estimations (including 20 sugar tolerance tests)	...	164	
Urea estimations	...	54	
Bilirubin qualitative (Van den Bergh)	...	38	
Bilirubin quantitative estimations	...	5	
Chloride estimation	...	1	
Urine, quantitative chemical examinations	...	...	103
Sugar estimations	...	28	
Albumen estimations	...	18	
Urea estimations	...	57	
Urine, pH estimations	...	...	7
Urine, bacteriological examinations	...	...	113
Positive for <i>Eact. coli</i>	...	28	
Positive for <i>Neisseria gonorrhoeae</i>	...	1	
Positive for <i>Myco. tuberculosis</i>	...	1	
Positive for <i>Streptococci</i>	...	2	
Urine, guinea pig inoculations	...	...	17
Cerebro-spinal fluid, chemical examinations	...	...	38
Qualitative protein estimations	...	11	
Quantitative protein estimations	...	15	
Quantitative sugar estimations	...	1	
Quantitative chloride estimations	...	11	
Cerebro-spinal fluid, colloidal tests	...	...	1
Cerebro-spinal fluid, complement fixation tests for Syphilis	...	...	18
Cerebro-spinal fluid, bacteriological examinations	...	...	75
Positive for <i>pneumococci</i>	...	2	
Positive for <i>N. meningitidis</i>	...	7	
Positive for <i>Myco. tuberculosis</i>	...	4	
Positive for <i>Streptococci</i>	...	1	
Cerebro-spinal fluid, guinea pig inoculations	...	...	5
Positive for <i>Myco. tuberculosis</i>	...	2	
Throat swabs, smear examinations	...	...	143
Positive for <i>C. diphtheriae</i>	...	5	
Positive for Vincent's organisms	...	13	
Throat swabs, cultural examinations	...	...	185
Positive for <i>C. diphtheriae</i>	...	31	
Positive for <i>Strep. haemolyticus</i>	...	9	
Gingival smear examinations	...	...	58
Positive for Vincent's organisms	...	53	
Conjunctival smear examinations	...	...	246
Positive for <i>gonococci</i>	...	36	
Positive for <i>Koch-Weeks bacilli</i>	...	47	
Positive for <i>Morax-Axenfeld bacilli</i>	...	37	
Smear examinations from other sources	...	...	30
Pus, from liver and other sources, bacteriological examinations	...	...	10
Positive for <i>Streptococcus haemolyticus</i>	...	1	
Positive for <i>Staphylococci</i>	...	4	
Pleural fluid, bacteriological examinations	...	...	17
Positive for <i>pneumococci</i>	...	2	
Positive for <i>Myco. tuberculosis</i>	...	1	
Positive for <i>Strep. haemolyticus</i>	...	2	
Positive for <i>Staphylococci</i>	...	3	
Positive for <i>B. pyocyaneus</i>	...	1	
Synovial fluid, bacteriological examinations	...	...	4
Smears, scrapings for <i>Myco. leprae</i>	...	...	211
Positive	...	41	

Vaccine preparations	...	...	...	8
Histological examinations	...	...	...	54
Fractional test meal examinations (complete)	...	...	...	46
Animal inoculations for diagnosis	...	...	...	31
Water, bacteriological examinations	...	...	...	44
Milk, bacteriological examinations	...	...	...	1
Autopsies, Hospital cases	...	...	...	78
Autopsies, H. M. Coroner's cases	...	...	...	133
Medico-legal examinations	...	...	...	76
Hormone Tests for pregnancy	...	...	...	3
Other examinations, miscellaneous	...	...	...	34

III.—MALACCA

The total number of examinations conducted during the year was 21,931, as against 19,521 in 1933, an increase of 2,410 specimens, due to the better facilities afforded in the new Laboratory.

Details of the more important examinations are set out below :—

Animal inoculations	...	...	...	6
Autopsies	...	...	...	62
Biochemical tests on blood, urine, etc.	...	...	...	209
Blood counts	...	...	...	134
Cerebro-spinal fluids	...	...	...	18
Cultures from blood	...	...	...	15
for <i>C. diphtheriae</i>	...	...	...	19
for <i>meningococci</i>	...	...	...	2
from stools	...	...	...	72
positive to typhoid-dysentery group	...	...	...	4
from urine	...	...	...	82
<i>B. coli</i> present	...	...	...	13
<i>B. typhosum</i>	...	...	...	2
<i>B. para. B</i>	...	...	...	1
Dark ground examination for <i>leptospira</i>	...	...	...	7
Gastric analysis	...	...	...	42
Kahn tests	...	...	...	3,337
Positive	...	...	1,443	
Medico-legal exhibits	...	...	...	26
Sections—histological	...	...	...	43
Skin clippings for <i>M. leprae</i>	...	...	...	118
Positive	...	...	...	51
Stools for protozoa	...	...	...	196
<i>E. histolytica</i> found	...	...	...	16
Urine—chemical and microscopical	...	...	...	4,192
Estimation of sugar	...	...	137	
Estimation of albumin	...	...	3	
Vaccine preparations	...	...	...	9
Widal reactions	...	...	...	215
Positive to <i>typhoid</i>	...	...	...	40
Positive to <i>para A</i>	...	...	...	1
Positive to <i>para B</i>	...	...	...	1
Weil Felix reaction	...	...	...	16
Positive	...	...	...	1
Water examinations	...	...	...	76
Miscellaneous examinations	...	...	...	61

(4).—Surgery

The total number of operations performed in the hospitals of the Colony was 10,682 with 173 deaths.

The number of operations performed in the large hospitals was as follows:—

	<i>Total No. of operations</i>	<i>Deaths</i>
General Hospital, Singapore ...	3,758	80
Tan Tock Seng Hospital, Singapore ...	2,106	45
General Hospital, Penang ...	828	27
General Hospital, Malacca ...	1,350	9

There are special departments at the General Hospital, Singapore, for the treatment of diseases of the eye and for diseases of the ear, nose and throat.

The number of operations performed in these departments was:—

<i>General Hospital, Singapore</i>		<i>No. of operations</i>
Eye Department ...	...	344
Ear, nose and throat ...	...	641

Three hundred gynaecological operations were performed at the General Hospital, Singapore, with three deaths.

Spinal anaesthesia has displaced general anaesthesia to an increasing extent during the year and a large number of patients are now operated upon by this method.

Forty-eight patients suffering from surgical conditions were treated with X-Rays and Radium. The malignant conditions coming under treatment were all in an advanced stage and so were unsuitable for surgical interference.

(5).—Radiology

Modern radiological equipment is available at the following hospitals:—

- General Hospital, Singapore
- Tan Tock Seng Hospital, Singapore
- General Hospital, Penang
- General Hospital, Malacca.

That in the General Hospital, Malacca, was in process of being installed at the end of the year but was not then in operation.

X-Ray Diagnosis.—The number of radiograms taken at each of the hospitals during the year was as follows:—

		<i>Radiograms</i>	
		<i>1933</i>	<i>1934</i>
General Hospital, Singapore ...	...	10,808	11,275
Tan Tock Seng Hospital, Singapore ...	...	4,057	4,122
General Hospital, Penang ...	...	717	1,018

At Tan Tock Seng Hospital 1,190 cases were subjected to fluoroscopic examination. As in previous years, students of the King Edward VII College of Medicine undergoing training at Tan Tock Seng Hospital brought their clinical cases to the X-Ray Department for examination and were given demonstrations in X-Ray technique. There has been a marked increase in the number of cases of pulmonary tuberculosis subjected to X-Ray examination and much screening has been applied to cases treated by artificial pneumothorax. A new technique was adopted to demonstrate the sphenoidal sinus with satisfactory results.

X-Ray Therapy.—The deep therapy apparatus which was installed at the General Hospital, Singapore, during the previous year was made use of in the treatment of suitable cases.

Seventy-seven cases comprising the following conditions were treated by X-Rays and Radium:—

Menorrhagia (uterine fibroids) ...	...	...	11 cases
Hodgkin's disease ...	...	...	3 "
Myeloid leukaemia ...	...	...	1 "
Sarcomata ...	...	...	6 "
Multiple myelomata ...	...	...	1 "
Cancer of mouth ...	...	...	1 "
" " naso-pharynx ...	...	...	4 "
" " cervix uteri ...	...	...	3 "
" " cervical glands ...	...	...	1 "

Tuberculous glands of neck	...	...	...	2 cases
Diseases of the skin	...	...	...	22 „
Inflammatory conditions (acute)	...	...	...	12 „
Exophthalmic goitre	...	...	...	7 „
Experimental exposures	...	...	...	3 „

Dr. J. S. WEBSTER, Radiologist, reports that the value of X-Rays in leukaemia, Hodgkin's disease and exophthalmic goitre was again demonstrated. The malignant conditions treated were all in an advanced stage; one case of carcinoma cervix was observed to make a dramatic recovery. In addition to the cases enumerated above, several cases of cancer were treated with radium in consultation with the surgeons.

Electric Therapy and Diathermy.—Facilities for this form of treatment exist at all the hospitals named above.

Diathermy was utilised for the treatment of the following conditions at Tan Tock Seng Hospital by artificial-fever therapy :—

Peripheral neuritis	...	...	...	7 cases
Syphilitic myelitis	...	...	...	4 „
Spondylitis osteo-arthritis	...	...	...	2 „
General muscular weakness almost amounting to paralysis	...	...	...	1 „

Three of the peripheral neuritis cases, who previous to treatment were unable to walk, recovered the use of their legs to an appreciable extent after two or three sittings. Of the four cases of syphilitic myelitis, one only showed well marked improvement. The two cases of spondylitis were relieved. Diathermy was tried in three cases of lobar pneumonia but was discontinued as the results were unfavourable.

(6).—Ophthalmology

There is a well equipped Department at the General Hospital, Singapore, for the treatment of diseases of the eye. The department was, until the departure on retirement of the Professor of Surgery on the 8th July, 1934, under the part-time charge of that Professor. The department now has the attention of a whole time Ophthalmologist who is also lecturer in ophthalmology at the College of Medicine. The work is steadily expanding and is being extended to provide facilities for the examination and treatment of school children, a field which offers scope for further expansion.

There were 1,334 attendances at the eye department of the General Hospital, Singapore, during 1934.

The number of operations performed was 344.

There is also an eye department attached to the General Hospital, Penang, which is attended to by a Medical Officer with special experience in ophthalmology. The number of attendances at the Eye Department of the General Hospital, Penang, in 1934 was 3,013 and 106 operations were performed.

(7).—Social Hygiene

There are three ad hoc venereal diseases clinics for males in Singapore and two in Penang. In addition, facilities exist for the treatment of venereal diseases at all hospitals and outdoor dispensaries and special sessions for women are held at the Women's and Children's dispensaries in Singapore and Penang.

The number of new cases presenting themselves for treatment shows a well marked decrease during the past 5 years :—

Year	New cases	Year	New cases
1930	36,393	1933	23,256
1931	28,805	1934	21,432
1932	27,746		

It is significant that the decrease in the number of new cases of venereal disease has been progressive since the policy of closing known brothels has been pursued. Other factors, however, have probably shared in the gratifying decline. To mention a few which have also proved efficacious in other countries :—

- The provision, in recent years, on a large scale of facilities for free treatment which has quickly rendered many cases no longer contagious.
- The economic crisis which has no doubt curtailed the number of visits to brothels.
- The increase in the sex ratio of females to males amongst Chinese in Malaya.
- The favourable effects of propaganda.
- The exodus of a large number of labourers many of whom, especially the Chinese, are unmarried and particularly subject to venereal infection.

Nationalities of those attending the clinics:—

					New cases
Europeans	...	...	...	...	482
Chinese	...	...	...	...	11,273
Indians	...	...	...	...	6,240
Malays	...	...	...	...	2,942
Others	...	...	...	...	495
Total					21,432

Treatment of Seamen.—A modern well-equipped clinic at Nelson Road, conveniently situated close to Tanjong Pagar docks, caters for men of the Mercantile Marine, and conforms to the International Agreement by treating seamen of all nationalities free, and providing them with the necessary therapeutic agents to enable them to continue treatment until their arrival at the next port of call.

The number of seamen of each nationality treated during 1934 was:—

British	...	...	...	...	229
Other Europeans	...	...	...	...	108
Chinese	...	...	...	...	468
Malays	...	...	...	...	10
Indians	...	...	...	...	79
Others	...	...	...	...	22
Total					916

Serological Examinations.—19,425 blood tests were carried out.

Treatment Administered.—The following is an analysis of treatment given:—

(a) Intravenous—

Arsenobenzol	...	...	...	...	26,828
Mercury	...	...	...	...	452
Collosal Iodine	...	...	...	...	1,756
Neosilbersalvarsan	...	...	...	...	1,502
Trypaflavine	...	...	...	...	1,554
Sulfarsenol	...	...	...	...	298
Thiostab	...	...	...	...	195
Dmelcos	...	...	...	...	703
Acriflavine	...	...	...	...	751
Arthigon	...	...	...	...	135
Novarson	...	...	...	...	99
Sodium Thiosulphate	...	...	...	...	93
Solusalvarsan	...	...	...	...	1
Calciostab	...	...	...	...	9
Calcium Chloride	...	...	...	...	31
Mercurochrome	...	...	...	...	9

(b) Intramuscular—

Bismuth	...	...	...	...	18,995
Contramine	...	...	...	...	1,136
Bivetol	...	...	...	...	32
Manganese Butyrate	...	...	...	...	796
Collosal Manganese	...	...	...	...	650
Trimine	...	...	...	...	420
Aolan	...	...	...	...	17
Sulfarsenol	...	...	...	...	265
Stabismol	...	...	...	...	202
Metarsenobillon	...	...	...	...	307
Sulphostab	...	...	...	...	128
Sulfarsphenamin	...	...	...	...	9
Antimony Tartarate	...	...	...	...	5
Tryparsamide	...	...	...	...	1
Acriflavine	...	...	...	...	538

(c) *Hypodermic*—

Vaccine Gonococcus	...	...	...	24,207
Sulphostab	...	...	...	2,013
Gonoyatren	...	...	...	144
Arthigon	...	...	...	462
Compligon	...	...	...	13
Metarsenobillon	...	...	...	105
Thiostab	...	...	...	10
Aolan	...	...	...	28
Sulfarsphenamin	...	...	...	10
Adrenaline	...	...	...	82

Miscellaneous—

Dressings	...	...	...	83,880
Irrigations	...	...	...	93,540
Prostatic Massage	...	...	...	4,992
Minor operations	...	...	...	1,274
Dilatations	...	...	...	1,233
Urethroscope examinations	...	...	...	7

Microscopic Examinations—

Gonococci	...	...	...	+ 5,551
				- 4,296

Dark Ground Illumination Films—

+ 678

- 3,365

Cerebro-Spinal Fluid W. R.	...	...	...	+ Nil
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- 2

Propaganda.—Pamphlets and leaflets are freely distributed, and applications from outstations are promptly attended to. Large posters in Chinese, Malay and Tamil are posted in the thickly populated areas. These posters emphasize the dangers of venereal diseases, direct sufferers to the clinics, and make known the facilities for free treatment available there.

(8).—Hospitals for Women

The following are hospitals maintained for women:—

Free Maternity Hospital, Kandang Kerbau	...	...	85 beds
King Edward VII Memorial Maternity Hospital, Penang	...	...	50 "
Mandalay Hospital (attached to Tan Tock Seng Hospital)	...	...	...
Singapore	...	...	60 "

The two former hospitals are utilised for the training of nurses and midwives. The last named is maintained for the treatment of pauper women.

VII.—INSTITUTIONS FOR MENTAL DISEASES AND FOR LEPROSY

A.—Mental Hospital

MENTAL HOSPITAL, SINGAPORE

The following is an extract from the report of Dr. B. F. HOME, acting Medical Superintendent.

There remained on 31st December, 1933, 987 males and 372 females. 296 males and 127 females were admitted during 1934. The total treated was 1,782 persons.

Of the admissions 29 males and 14 females had been previously inmates of the Singapore Mental Hospital.

Of the total treated 112 males and 34 females were discharged as recovered, 31 males and 18 females as improved, 8 males and 10 females as not improved and 8 males and 2 females as not insane on admission. 9 males absconded. 119 males and 34 females died.

There remained on 31st December, 1934, 996 males and 401 females.

The daily average was 1002.04 males and 384.20 females.

The maximum and minimum daily numbers respectively were 1,431 and 1,353.

The nationalities of the admissions were:—

	<i>Males</i>	<i>Females</i>
British	6	4
Eurasians	—	7
Chinese	187	77
Tamils	55	21
Malays and allied races	27	15
Other nationalities	21	3
	296	127

The physical condition of those admitted was:—

	<i>Males</i>	<i>Females</i>
Good	92	22
Fair	102	42
Impaired	93	58
Greatly impaired	9	5

There were 37 more admissions than in 1933. Some cases of mental disorder were caused primarily by privation and starvation, but on the whole prevailing economical conditions do not appear to have affected the admission rate adversely to any marked extent. Heredity, alcohol, syphilis, fevers and critical periods of life as usual figure in some instances as factors contributing to the causation of insanity.

The recovery rate for the year was 34.51, compared with 32.64 for the previous year.

Criminal patients:—

	<i>Males</i>	<i>Females</i>
There remained on 31-12-33	45	3
Admitted during 1934	14	3
Number discharged from the Mental Hospital:		
(a) to prison as not insane on admission	2	1
(b) as fit to make their defence	3	—
On expiration of sentence	5	1
Died	6	—

There remained on 31st December, 1934, 43 male and 4 female criminal patients.

Mortality.—The death-rate was 8.25 for 1934. In 1934, as in 1933, dysentery, pulmonary tuberculosis, general paralysis of the insane and pneumonia in order of frequency were the chief causes of death and caused 55 per cent. of the mortality.

An investigation into the incidence of dysentery was instituted, and carriers were searched for. This was still in progress at the end of the year.

Four new wards, two for males and two for females were constructed during the year, and relieved the overcrowding in the older wards.

Industries.—8,448 yards of cotton cloth were woven for use in the institution. 86,700 pounds of vegetables were grown for the use of the patients and a small quantity of fruit was also available. 1,760 cocoanuts were harvested.

As many male patients as possible were employed in the grounds of the hospital. More could be employed if sufficient staff were available for supervision.

The revenue was \$28,338.19.

Staff.—Dr. E. R. STONE, Medical Superintendent, proceeded on eight months leave on 21st December, 1934, prior to retirement and Dr. B. F. HOME, Assistant Medical Superintendent, assumed duty as acting Medical Superintendent, Mental Hospital. Dr. F. D. GILLESPIE succeeded Dr. HOME as Assistant Medical Superintendent.

B.—Leper Settlements

PULAU JEREJAK SETTLEMENT

The following is an extract from the report of Dr. K. V. VEERASINGHAM, who was in charge of the Settlement throughout the year:—

Inmates.—

Total number remaining on 31-12-33	894
Admitted during the year	234

The total number treated was 1,128 compared with 1,064 for the previous year.

				1933	1934
Died	...	...	...	84	91
Absconded	...	...	...	18	31
Discharged—Relieved	22	}	...	67	5
Cured	45		...		30
Transferred	...	...	...	1	3

The total number remaining on 31-12-34 was 968, classified as follows:—

Residential—

Colony	...	...	...	...	736
Federated Malay States	...	...	...	...	103
Kedah	...	...	...	...	114
Kelantan	...	...	...	...	14
Perlis	...	...	...	...	1
Total	...	...	...	...	968

Nationality—

Chinese	...	...	...	...	799
Indians	...	...	...	...	122
Malays	...	...	...	...	29
Eurasians	...	...	...	...	10
Others	...	...	...	...	8
Total	...	...	...	...	968

The daily average number of inmates was 921.48 as compared with 808.16 for the previous year.

The percentage of deaths to total treated as compared with those for the previous eight years shows a steady decline:—

Year	Inmates	Deaths	Rate percentages
1926	850	117	16.16
1927	871	122	14.00
1928	879	102	11.37
1929	990	105	10.60
1930	1,058	125	11.81
1931	1,040	88	8.46
1932	873	80	9.16
1933	1,064	84	7.89
1934	1,128	91	8.07

The chief causes of deaths during the year were:—

Septicaemia	...	...	...	13
Pulmonary tuberculosis	...	...	...	25
Chronic nephritis	...	...	...	8
Senility	...	...	...	8
Pneumonia, lobar	...	...	...	10
Dysentery	...	...	...	8

Administration.—

The Chief Medical Officer and the Senior Health Officer were visiting Medical Officers throughout the year.

The resident staff consisted of:—

- 1 Acting Senior Deputy Medical Officer.
- 1 Assistant Medical Officer.
- 1 Lay Superintendent.
- 8 Dressers.

Buildings.—

There was no new building erected during the year. Most of the existing buildings were kept in a fair state of repair. A scheme to improve the old wards in the Old Settlement, and to provide them with central kitchens has been put forward and the work on these is expected to commence early in 1935. The housing of all the boys under 18 years of age, totalling 38, in the main block of the building in the Old Settlement proved to be very satisfactory. Here they are provided with facilities for in-door and out-door games, scouting, instruction in the Chinese school, etc. The assembly hall which was converted into a club for the boys is provided with facilities for reading and music in addition to a variety of in-door games and handicraft. An all electric wireless receiving set with gramophone attachment has been installed here and is very popular.

The Settlement is scattered and comprises four main camps, which are apart from one another and require a separate residential subordinate staff in each.

Old Settlement authorised accommodation	...	...	380
New Settlement	"	"	300
Camp E	"	"	162
Eurasian Camp	"	"	18
Total	...	...	860

Water Supply.—

Old Settlement Reservoir capacity	...	350,000 gallons.
New Settlement Reservoir (Green Bank) capacity	750,000	"
Camp E. Reservoir capacity	...	750,000 "

Anti-Malarial Work.—

Permanent anti-mosquito works were extended in all the camps and practically the whole Island is under control. Consequently oiling has been reduced to a minimum.

For the fourth year in succession there has been no case of malaria contracted within the Settlement.

Treatment.—

There were 234 cases admitted during the year as against 198 cases admitted during the previous year and they were classified, according to the stage of the disease, as follows:—

	Early	Moderately	Advanced	Total
Neural	9	11	16	36
Cutaneous	12	21	31	64
Mixed	15	18	101	134
	36	50	148	234

It will be observed that out of the 234 cases admitted during the year 36 were early and 50 were moderately advanced cases. Comparison with the previous years is interesting.

Year	Early	Moderately	Advanced	Advanced
1931	...	...	2	147
1932	...	...	3	191
1933	...	12	21	165
1934	...	36	50	148

It is encouraging to find that moderately advanced and even early cases are now being admitted to the Settlement.

In the medical institutions in Penang all cases with suspicious skin lesions are seen by the Acting Senior Deputy Medical Officer, Pulau Jerejak Settlement, and in this way several early bacteriologically negative cases of leprosy, which would otherwise have been overlooked, were discovered.

Out of the total number of 1,128 inmates treated during the year 872 were selected as suitable for intensive anti-leprotic treatment: of these 821 were placed under treatment with Hydnocarpus Oil or Ethyl Esters while the remaining 51 were given various experimental remedies. Cases that were unsuitable for anti-leprotic treatment had general and symptomatic treatment. Ninety-two of the cases that were under

treatment with Hydnocarpus Oil or Ethyl Esters were also given intra-dermal injections. The results of treatment with intramuscular injections of Hydnocarpus Oil or Ethyl Esters were as follows:—

Type	Total No. treated	Arrested and recovered	Marked improvement	Slight improvement	No improvement or worse
Neural	52	19	5	18	10
Cutaneous	176	16	37	82	41
Mixed	501	7	49	236	209
Total	729	42	91	336	260

The results of combined treatment with intramuscular injections of Hydnocarpus Oil or Ethyl Esters and intradermal injections of Iodised Ethyl Esters were as follows:—

Type	Total No. treated	Arrested and recovered	Marked improvement	Slight improvement	No improvement or worse
Neural	16	4	5	6	1
Cutaneous	42	6	21	8	7
Mixed	34	2	6	14	12
Total	92	12	32	28	20

The experience in this Settlement is that neural cases are more responsive to treatment than cutaneous cases. Children in the acute stage do not respond to treatment so readily as adults. Cutaneous cases if they relapse do not appear to respond to treatment satisfactorily and usually grow steadily worse.

Various Activities of the Inmates.—

As in preceding years, as much freedom as possible within the confines of the Island was granted to the inmates and every encouragement was given to them to lead normal lives and employ themselves at any useful occupation for which they were suited. During the year several of them were engaged in useful and lucrative work. Employment was given to a number of able bodied men as menials, attendants, barbers, dhobies, woodcutters, etc; for such work, allowances varying from \$4 to \$10 per month were paid by the Government. A few educated lepers were employed as teachers, dressers, tindals and bandmaster.

There was a marked increase in the number who took a lively interest as independent artisans in various ventures, such as carpentering, vegetable and fruit gardening, poultry farming, and fishing. There are several shops in the Settlement which are financed and managed by the inmates themselves.

In addition to the two tracts of land which have been under cultivation during the previous year, another tract in Camp E has been set apart for the cultivation of fruits and vegetables and for poultry farming. The garden plots surrounding the huts in Camp E were kept fully planted with vegetables and flowers.

The band now consisting of 11 educated inmates continued to be popular. In addition to the moonlight entertainments they were able to play at the theatrical performance. Lessons in music were also given to a number of educated inmates who had an aptitude and were willing to learn.

Several performances were given by the five theatrical troupes—three Chinese, one Malay, and one Tamil—during the year. Several of the actors were found to possess distinct talent in this art and the inmates thoroughly enjoyed these performances.

Out-door games, such as football, volley-ball, water polo, badminton, swimming and fishing were indulged in by the inmates to an increasing extent.

The "Wheatley Club", to which all the educated inmates belong, has been prominent in promoting out-door games, sports and picnics, since its inception in 1932. The usual contributions of books, periodicals, illustrated journals, newspapers—in English, Chinese, Tamil and Malay—gramophone records, etc., were gratefully received from members of the public, clubs and associations.

The two schools—English and Chinese—continued to maintain the good standard of education.

During the year 4 students having completed their education in Chinese were transferred to the English School. In addition, the school children are taught a variety of handicraft such as fretwork, artificial flower making, painting and pottery. Thirteen boys were enrolled in the English School and 15 boys in the Chinese School.

The strength of the "Pulau Jerejak Scout Troop" increased from 39 in 1933 to 44 in 1934. They carried out regular exercises and also provided the necessary guard of honour during the visit of high Government officials and other eminent visitors.

The Scout Commissioner for Malaya visited the Troop and held an inspection during the year.

Lord BADEN-POWELL during his visit to the Penang Boy Scouts presented the Pulau Jerejak Scout Troop with his autographed portrait and forwarded his greeting in appreciative terms.

General.—

The health of the inmates and staff has been good. The discipline among the inmates continued to be excellent and there has been no serious breach of the peace. There has been steady progress in the normal activities in the Settlement.

Several of the fruit trees planted on the Island during the previous year are doing well.

TREATMENT OF LEPROSY AS CARRIED OUT AT THE PULAU JEREJAK SETTLEMENT

The principles adopted in the treatment are on the lines which have proved, by the widest use in the hands of experienced workers, to be the most effective at present available.

Stress has always been laid on the raising and maintenance of the general resistance of the patient. When causes tending to lower the resistance of the patient have been removed, marked improvement in the leprosy condition was often noticed.

The best results in the treatment of leprosy can therefore be only obtained from the special treatment for the disease by first raising the patient's natural resistance.

Muir believes in the estimation of the resistance before administering any form of special treatment. The general appearance and build of the patient are often indicative. Patients who generally feel fit stand treatment well and seldom develop an acute lepra reaction.

At the commencement of the treatment, specially with patients in poor condition, Muir considers the erythrocyte sedimentation test to be invaluable. "As a general principle, everything which accelerates sedimentation lowers the resistance to leprosy. When sedimentation is slow it is possible to press the special treatment. When it is fast it is necessary to proceed with caution and to build up the general health."

In the treatment of leprosy Hydnocarpus Oil and its preparations undoubtedly hold the first place.

Method of administration.—

- (a) Oral administration is not adopted owing to the gastro-intestinal disturbances which follow doses sufficient to produce therapeutic results.
- (b) Various forms of injection, intramuscular, subcutaneous and intradermal, are now used in preference to the older methods of inunction and oral administration, though these are sometimes used as supplementary methods.

Preparations used.—

- (a) Hydnocarpus oil. The oil with four per cent. double distilled creosote is used for the subcutaneous and intramuscular injection. The routine method adopted in this Settlement is to administer the oil intramuscularly as it is found that subcutaneous infiltration is too painful.
- (b) Ethyl Esters ethyl esters of hydnocarpus oil with four per cent. double distilled creosote is given in the same way as hydnocarpus oil.

The initial dose for the above two preparations is 1 c.c. increased by 1 c.c. to a maximum of 10 c.c.

(c) Iodised Ethyl Esters, prepared by boiling ethyl esters with 0.5 per cent. metallic iodine at a temperature of 150°C for thirty minutes, are used for the intradermal injections.

For this method of treatment the early cases with a limited number of lesions are selected. Intradermal injections undoubtedly hasten the resolution of leprotic lesions, either macular or nodular, but improvement was found to be rapid in the former type. In a macule, complete resolution is effected with one or two injections, whereas in a nodule it may be necessary to inject as many as four or five times before resolution can be caused. The effect is believed to be mainly due to the counter irritation produced in the part of the skin injected.

Certain workers prefer ethyl esters combined with creosote for intradermal injection, but experience in this Settlement indicates that the iodine compound is less painful and produces more rapid results.

Iodised ethyl esters prepared by the Philippine Health Laboratories is used in this Settlement.

Local Treatment.—

In the treatment of leprosy, rubbing hydnocarpus, gingely, and other oils while sitting in the sun has been found to be beneficial, not because any appreciable quantity of the oil is absorbed through the skin, but because of the counter irritation produced by the oil, the friction, and the sun's rays.

Accelerated absorption of the leprosy lesions may be produced by painting with a solution of trichloroacetic acid 1 in 2 for nodules and 1 in 4 for diffuse lesions and macules.

Treatment of Lepa Reaction.—

The patient is put to complete rest and is given light nourishing diet.

(a) Alkalies are used both orally and intravenously.

Sodium bicarbonate in saturated solution is given intravenously in doses of 20 to 30 c.c. daily for several days.

Another method is to give 200 c.c. of sodium bicarbonate in a 0.5 per cent. solution in normal saline intravenously once a week. In mild reaction, potassium antimony tartarate 0.02 to 0.04 gm. in 2 c.c. saline given intravenously was found to be useful.

Sodium salicylate and calcium lactate may also be administered orally. Various dyes were tried in lepra reaction. Mercurochrome has given more consistent and satisfactory results than either fluorescein, brilliant green or trypan blue.

Mercurochrome in one per cent. solution is administered intravenously in doses of 5 to 10 c.c. once in five days.

In nerve reaction 3 minims of adrenalin or 0.02 gm. of ephedrine sulphate in 10 c.c. saline give immediate relief when injected along the course of the nerve.

Supplementary Treatment.—

Every effort is made to keep the patients cheerful and free from worries and to take their minds off their illness, by keeping them busily occupied in cooking, outdoor work, exercises, gardening etc. Treatment is not compulsory, but patients are encouraged to attend regularly.

Early cases and those who improve under treatment are separated from the more advanced cases. The cripples are accommodated in a separate camp. All the children are also accommodated in a separate camp with special facilities that are suited to their age.

There are two hospitals for those suffering from lepra reaction and complicating or intercurrent diseases.

Control of Discharged Patients.—

Supervision and after-treatment of discharged cases are desirable. Owing to the floating nature of the Indian and Chinese population permanent addresses generally are not available. In only a small percentage of the cases therefore has it been possible to arrange for periodical examination and further treatment after discharge.

In addition to Pulau Jerejak Settlement the following Settlements for lepers are maintained in the Colony:—

Male Settlement, Trafalgar, Singapore	...	...	80 beds
Female Settlement, Trafalgar, Singapore	...	...	100 "
Female Settlement, Penang	...	...	86 "

Treatment is carried out at all these Settlements on the same lines as at Pulau Jerejak.

The Male Settlement, Singapore, is used chiefly as a collecting station for lepers from Singapore pending their transfer to Pulau Jerejak Settlement.

VIII.—PRISON HOSPITALS INCLUDING CRIMINAL VAGRANT WARDS

	1933			1934		
	Admissions	Deaths	Case Mortality per cent	Admissions	Deaths	Case Mortality per cent
<i>Singapore</i>						
Prison Hospital ...	953	23	2.4	1,254	18	1.5
<i>Penang</i>						
Prison Hospital ...	277	5	1.8	255	2	.74
<i>Malacca</i>						
Prison Hospital ...	71	...	...	76	...	...
Total ...	1,301	28	2.15	1,585	20	1.26

IX.—THE KING EDWARD VII COLLEGE OF MEDICINE, SINGAPORE

The following is an extract from the report of Professor *J. C. TULL*, acting Principal.

Seven meetings of the Council were held during the year, the average number of members present being eleven.

The Honourable Dr. R. D. FITZGERALD, M.C., was President of the Council during the entire year.

Mr. GAW KHEH KHAM was elected a member of the Council in March, 1934.

Eight meetings of the Senate were held during the year, the average attendance was twelve.

There was an entry of eighteen medical and seventeen dental students in June, 1934, when the academic year 1934—35 commenced. There were 155 students including 49 dental students at the College in December, 1934, as against 151 in December, 1933. One medical student transferred from the medical course to the dental course in March, 1934.

Sir RICHARD NEEDHAM'S visit.—In January, 1934, Lt. Col. Sir RICHARD NEEDHAM, I.M.S. (retired), F.R.C.P. (Edinburgh) visited the College as Inspector of the General Medical Council on the invitation of the Council to the General Medical Council. Sir RICHARD NEEDHAM in the course of his report states that the regulations for the courses of studies are satisfactory and that the policy since the foundation of the College has been to provide for medical training of a high standard conforming to the requirements of the General Medical Council. He states that he visited first of all in December, 1926, and on this second visit he is able to confirm the opinion then that the College has already earned a high reputation. He remarks that in 1926 both Chemistry and Physics were taught by the same lecturer. Now each subject is in charge of a Professor at Raffles College in well equipped laboratories. He states that a well balanced and well planned course in Biology is provided now in which practical work and instruction have been adapted to the needs of local students who are taught to develop independent thought and good technique. The Chair of Biochemistry which was vacant at the time of his visit in 1926 was filled shortly afterward and there is now a fully equipped Department able to provide not only courses of study but for research investigations, especially on nutrition problems. This Department is of the utmost value to the students and to Government.

The Department of Physiology and Anatomy provide full courses of instruction and in Anatomy the Professor's duties include also tuition of dental students and a special course in Dental Anatomy. The Professor of Physiology was absent on leave during Sir RICHARD NEEDHAM'S visit but he states that full courses of instruction are provided on a plan specially drawn up to meet the needs of junior and senior students not only in Physiology but also in Histology. He considers this Department to be very thorough and excellently organised. The course in Pharmacology is given by the Professor of Physiology. In Pharmacy special stress is laid on local requirements.

Pathology is taught by the Government Pathologist who is also Lecturer in Pathology and in charge of the Pathological Department of the College of Medicine. He considers that a full and excellent course of instruction is provided in this subject. An important feature is that each student performs many autopsies under supervision. Fresh morbid material is demonstrated thoroughly to small groups of students.

The Department of Bacteriology is well equipped and a satisfactory course of instruction is provided by the Professor and his Assistant. Students are afforded facilities for investigating material from patients in the wards of the hospital.

Medical Jurisprudence is well taught by the Government Pathologist and practical classes are given on coroner's cases.

Sir RICHARD NEEDHAM considers that the foundation of a Chair in Public Health should not be overlooked and would like to see a permanent arrangement for the closest association of the College, Municipal and Government Health Departments.

In Medicine and Surgery there are units at Tan Tock Seng Hospital where highly satisfactory teaching is given by the Professors of Medicine and Clinical Surgery. Instruction in diseases of children is given in the Children's wards at the General Hospital.

There is a particularly well equipped X-ray Department at the General Hospital in which each student is given a course in Medical Electricity, Radiology and Röntgentherapy.

Courses in Mental Diseases and Infectious Diseases are given at the Mental Hospital and the Municipal Infectious Diseases Hospital by specialist officers.

There is no specialist in ophthalmology which is taught by the Professor of Surgery.

Since his last visit a course of Otology, Rhinology and Laryngology has been established by the Professor of Clinical Surgery. The course in Venereal Diseases is given by a specialist attached to the General Hospital and a course in elementary dental surgery by the recently appointed Professor of Dental Surgery.

In Midwifery and Gynaecology an excellent course is given by the Professor and his Assistant. Each student spends a term at the Kandang Kerbau Maternity Hospital where there are over 2,000 deliveries annually. Each student delivers more than twenty cases.

Sir RICHARD NEEDHAM states that the welfare of the students, the arrangements of studies and the general organisation of the College are well looked after and he regards this College and the associated hospitals as teaching units in which the Government may justly take pride.

The general organisation and conduct of the Professional Examinations is planned on lines in accordance with the requirements of the General Medical Council.

INTERNATIONAL COURSE IN MALARIOLOGY

The first International Malaria Course for the Far East was held under the auspices of the League of Nations in Malay and June, 1934. The first part of the Course consisted of a theoretical and laboratory study of malaria, combined with demonstrations in the field of certain methods of control, and was held in the King Edward VII College of Medicine, Singapore, and the urban and rural areas of Singapore Island and Johore, commencing on the 30th April, 1934 and extending over a period of five weeks. This was followed by field courses in the Netherlands East Indies and Malaya. These field courses were held simultaneously, the delegates being divided into two groups. The field course in Java commenced on 6th June and extended over a period of three weeks. The Malayan field course also occupied a period of three weeks commencing on the 4th June.

The Course was attended by 27 delegates from the following countries:—

- Australia and New Guinea
- China
- India
- French Cochin-China
- Japan and Formosa
- Malaya
- Siam.

The programme of the Course was divided into 11 main sections. The first fortnight of the Course was devoted to the study of hæmatology, protozoology and therapeutics of malaria. With the exception of entomology these studies were completed in this period. The course in entomology extended over the first four weeks and occupied three hours each day. The third and fourth weeks were devoted

also to the study of the control and epidemiology of malaria and field demonstrations were given each afternoon. During the last week of the Course lectures were given on the malaria problems and methods of control in the Netherlands East Indies and Indo-China, the work of the Malaria Commission of the League of Nations and the history of malaria, and more extended field excursions were organised each day.

W. M. CHAMBERS,
*Acting Director of Medical Services,
Straits Settlements.*

TABLE I.

STAFF

The authorised number of the European staff of the Medical Department of the Straits Settlements in 1934, including officers seconded for service in the Unfederated Malay States was 183.

STRAITS SETTLEMENTS**GENERAL BRANCH**

Director of Medical Services, Straits Settlements.
Deputy Director of Medical Services, Straits Settlements.
Secretary to Director.
Chief Medical Officer, Singapore.
Chief Medical Officer, Penang.
Chief Medical Officer, Malacca.
Nine Leave Supernumerary Medical and Health Officers.
Nine Leave Supernumerary Nursing Sisters.

HOSPITALS AND DISPENSARIES

Senior Surgeon, Singapore.
Radiologist, Singapore.
Surgeon, Penang.
Seven Medical Officers, Singapore.
Four Medical Officers, Penang.
Medical Officer, Malacca.
Anaesthetist, Singapore.
Dental Officer, Singapore.
Dispensing Chemist, Singapore.
Medical Officer, Labuan.
Secretary, General Hospital, Singapore.
Matron, Super-scale, General Hospital, Singapore.
Matron, Grade I, Singapore.
Matron, Grade I, Penang.
Three Matrons, Grade II, Singapore.
Two Matrons, Grade II, Penang.
Matron, Grade II, Malacca.
Thirty-six Sisters, Singapore.
Fourteen Sisters, Penang.
Six Sisters, Malacca.
Two European Attendants, Singapore.
Lay Superintendent, Leper Settlement, Pulau Jerejak.

HEALTH BRANCH

Chief Health Officer, Singapore.
 Senior Health Officer, Penang.
 Four Health Officers, Singapore.
 Health Officer, Penang.
 Health Officer, Malacca.
 Chief Sanitary Inspector, Singapore.
 Chief Sanitary Inspector, Penang.
 Lay Superintendent, Quarantine Station, Singapore.
 Matron, Rural Public Health, Singapore.
 Public Health Sister, Singapore.
 Public Health Sister, Penang.
 Public Health Sister, Malacca.

PATHOLOGICAL BRANCH

Pathologist, Singapore.
 Pathologist, Penang.
 Bacteriologist, Singapore.

COLLEGE OF MEDICINE, SINGAPORE

Principal.
 Professor of Physiology.
 Professor of Anatomy.
 Professor of Medicine.
 Professor of Surgery.
 Professor of Midwifery.
 Professor of Bacteriology.
 Professor of Biology.
 Professor of Bio-chemistry.
 Professor of Dental Surgery.
 Dental Mechanic.
 Janitor.

MENTAL HOSPITAL, SINGAPORE

Medical Superintendent
 Assistant Medical Superintendent
 Matron, Grade I.
 Sister.
 Three European Attendants.

SOCIAL HYGIENE BRANCH

Chief Medical Officer, Social Hygiene.

UNFEDERATED MALAY STATES

JOHORE

Principal Medical Officer
 Physician and Radiologist
 Senior Health Officer
 Three Medical Officers
 Lady Medical Officer.
 Two Health Officers
 Matron, Grade II.
 Seven Sisters.

KEDAH

State Surgeon
 Senior Health Officer
 Three Medical Officers (one appointment not to be filled)
 Lady Medical Officer.
 Health Officer.
 Two Sisters.

KELANTAN

Chief Medical Officer
 Health Officer (appointment in suspense).
 Matron, Grade II.

TRENGGANU

Medical Officer.
 Health Officer (appointment in suspense).

BRUNEI

Medical Officer.

TABLE II.

FINANCIAL STATEMENT

(a) Revenue

Settlement	Hospital Fees, etc.	Government contribution to Hospitals Board	Total Revenue of Hospitals Board	Medical, General and Health	Total
	\$	\$	\$	\$	\$
Singapore ..	258,977	*617,904	*876,881	35,877	912,758
Penang ..	120,576	242,004	362,580	13,310	375,890
Malacca ..	12,460	117,600	130,060	1,810	131,870
Labuan ..	524	2,770	3,294	532	3,826
Total ..	392,537	980,278	1,372,815	51,529	1,424,344

EXPENDITURE

Of the Singapore Expenditure under Hospitals and Dispensaries, \$3,265 is met by provision other than Contribution to the Hospitals Board and \$1,455 similarly, in the case of Malacca.

(b) Expenditure

Settlement	Items of Expenditure	Medical General	Hospitals & Dispensaries	Health Branch	Social Hygiene Branch	General Clerical Service	Total
		\$	\$	\$	\$	\$	\$
Singapore	Personal Emoluments ..	254,147	783,447	119,933	50,126	57,899	1,265,552
	Other Charges ..	50,783	546,359	37,618	18,995	..	653,755
	Special Expenditure ..	7,947	7,231	43,431	..	..	58,609
	Sub-total ..	312,877	1,337,037	200,982	69,121	57,899	1,977,916
Penang	Personal Emoluments ..	24,769	347,247	106,244	6,776	24,175	509,211
	Other Charges ..	3,120	339,851	40,425	6,990	..	390,396
	Special Expenditure ..	50	15,222	64,492	..	..	79,764
	Sub-total ..	27,939	702,330	211,161	13,776	24,175	979,371
Malacca	Personal Emoluments ..	20,517	118,234	41,325	6,706	9,303	196,085
	Other Charges ..	1,762	106,399	15,112	3,346	..	126,619
	Special Expenditure ..	..	24,381	30,669	..	..	55,050
	Sub-total ..	22,279	249,014	87,106	10,052	9,303	377,754
Labuan	Personal Emoluments ..	4,736	5,874	2,520	..	..	13,130
	Other Charges ..	..	2,704	603	..	..	3,307
	Special Expenditure ..	..	..	5,634	..	..	5,634
	Sub-total ..	4,736	8,578	8,757	..	..	22,077
Total	Personal Emoluments	304,169	1,254,802	270,022	63,608	91,377	1,983,978
	Other Charges	†46,046	†51,279	†23,585	†1,267	..	†122,177
	Total Personal Emoluments	350,215	1,306,081	293,607	64,875	91,377	2,106,155
	Other Charges	55,665	995,323	93,758	29,331	..	1,174,077
	Special Expenditure	7,997	46,834	144,226	..	..	199,057
	GRAND TOTAL	413,877	2,348,238	531,591	94,206	91,377	3,479,289

* The above statement includes under revenue the Government contribution of \$128,854 to the Tan Tock Seng's Hospital, the funds of which are administered by a Special Committee.

† Salaries during leave and on first appointment paid by the Malayan Establishment office.

The following is a brief summary of the Revenue and Expenditure for Tan Tock Seng Hospital:—

			\$
Balance brought forward from 1933	...	...	6,146
Government contribution, 1934	...	...	128,854
Rent, interests, etc.	...	...	15,045
<i>Less.</i>			
		\$	\$
Salaries and wages	...	26,703	
Drugs, equipment, special upkeep, &c	...	111,949	138,652
Balance carried forward to 1935	...	...	11,393

The Hospital is staffed and administered by officers paid from Hospitals and Dispensaries, Personal Emoluments, Colonial Estimates.

Seven thousand four hundred and twelve dollars expended on vitamin research by Professor of Biochemistry was met from the Colonial Development Fund.

Sums expended by the Public Works Department on upkeep of buildings, minor repairs, etc., are not included in the financial statement.

TABLE III
HOSPITALS OR INSTITUTIONS OF STRAITS SETTLEMENTS
RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934

DISEASES	*Remaining at end of 1933	YEARLY TOTAL		† Total Cases Treated	‡ Remaining at end of 1934	REMARKS
		Admissions	Deaths			
I.—Infectious and Parasitic Diseases						
1. Typhoid fever	35	199	66	234	17	
2. Paratyphoid fever	2	9	2	11	0	
3. Typhus :—						
(1) Typhus exanthematicus	...	...	...	...	...	
(2) Tropical typhus	0	11	0	11	1	
(3) Japanese river fever	0	3	0	3	0	
(4) Other rickettsia infec- tions	...	...	...	...	...	
4. Relapsing fever	...	...	...	...	...	
5. Undulant fever	0	2	0	2	0	
6. Small-pox	0	6	0	6	0	
7. Measles	2	47	0	49	3	
8. Scarlet fever	...	...	...	...	...	
9. Whooping cough	0	11	0	11	0	
10. Diphtheria	0	44	20	44	0	
11. Influenza :—						
(1) with pneumonia	1	8	3	9	0	
(2) with other respiratory complications	3	138	0	141	2	
(3) without respiratory com- plications	16	917	4	933	10	
12. Cholera	...	...	...	...	...	
13. Dysentery :—						
(1) Amœbic	16	286	51	302	12	
(2) Bacillary	16	336	103	352	23	
(3) Mixed	1	9	3	10	0	
(4) Undefined or due to other causes	1	59	11	60	2	
14. Plague :—						
(1) Bubonic	...	...	...	...	...	
(2) Pneumonic	...	...	...	...	...	
(3) Septicæmic	...	...	...	...	...	
(4) Undefined	...	...	...	...	...	
15. Erysipelas	0	15	1	15	1	
16. Acute poliomyelitis :—						
(1) Acute poliomyelitis	0	2	0	2	0	
(2) Acute polioencephalitis	0	6	3	6	0	
17. Encephalitis lethargica	0	4	1	4	0	
18. Cerebro-spinal fever	0	13	4	13	1	
19. Glanders	...	...	...	...	...	
20. Anthrax	0	1	0	1	0	
21. Rabies	...	...	...	...	...	
22. Tetanus :—						
(1) Tetanus of the newly born	1	77	72	78	2	
(2) Other forms of tetanus	1	41	31	42	3	
23. Tuberculosis of the respiratory system	316	2,303	881	2,619	304	
Carried forward	411	4,547	1,256	4,958	381	

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.

* *i.e.* the year previous to that for which the return is made.

† "Total cases treated" will, of course, include those remaining in Hospital at the end of the previous year.

‡ The figures in this column to be carried on to the next year's Return.

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	411	4,547	1,256	4,958	381	
I.—Infectious and Parasitic Diseases— continued						
24. Tuberculosis of the central nervous system ...	0	69	62	69	1	
25. Tuberculosis of the intestines or peritoneum ...	3	39	8	42	4	
26. Tuberculosis of the vertebral column ...	15	36	10	51	16	
27. Tuberculosis of other bones and joints ...	21	48	4	69	17	
28. Tuberculosis of the skin or subcutaneous tissue (lupus) ...	...	...	...	...	...	
29. Tuberculosis of the lymphatic system ... (abdominal & bronchial glands excepted)	2	30	0	32	4	
30. Tuberculosis of the genito-urinary system ...	1	5	3	6	0	
31. Tuberculosis of other organs:— (1) Adrenal ...	...	...	...	...	...	
(2) Other sites ...	0	5	1	5	1	
32. Tuberculosis disseminated:— (1) Acute ...	0	7	6	7	0	
(2) Chronic ...	2	0	0	2	0	
(3) Not distinguished as acute or chronic ...	0	2	2	2	0	
33. Leprosy ...	1,156	592	108	1,748	1,252	
34. Syphilis:— (1) Primary ...	8	248	0	256	25	
(2) Secondary ...	79	1,108	20	1,187	92	
(3) Tertiary ...	39	203	70	242	36	
(4) Hereditary ...	6	56	26	62	1	
(5) Period not indicated ...	21	126	57	147	4	
35. Other venereal diseases:— (1) Soft chancre ...	18	278	0	296	16	
(2) Gonorrhoea and its complications ...	49	788	0	837	39	
(3) Gonorrhoeal ophthalmia ...	3	24	0	27	1	
(4) Gonorrhoeal arthritis ...	16	195	0	211	5	
(5) Granuloma venereum ...	0	1	1	1	0	
(6) Tropical bubo ...	9	120	0	129	8	
36. Purulent infective septicaemia— (1) Septicaemia ...	2	64	52	66	1	
(2) Pyaemia ...	0	26	8	26	4	
(3) Gas gangrene ...	0	1	1	1	0	
37. Fever unclassified ...	3	495	6	498	10	
38. Malaria:— (1) Tertian (benign) ...	18	1,471	19	1,489	36	
(2) Quartan ...	6	98	4	104	2	
(3) Aestivo-autumnal (subtertian) ...	42	2,690	180	2,732	84	
(4) Mixed infections ...	1	68	2	69	5	
(5) Unclassified ...	19	1,117	22	1,136	28	
(6) Cachexia ...	18	517	44	535	17	
(7) Blackwater fever ...	0	4	1	4	0	
<i>Carried forward</i> ...	1,968	15,078	1,973	17,046	2,090	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward ...</i>	1,968	15,078	1,973	17,046	2,090	
I.—Infectious and Parasitic Diseases—continued						
39. Other diseases due to Protozoa :—						
(1) Yaws (frambœsia) ...	1	18	0	19	2	
(2) Spirochaetosis ictero-hæmorrhagica ...	0	3	2	3	0	
(3) Leishmaniasis (dermal) ...	0	1	0	1	0	
(4) Kala azar ...	0	1	0	1	0	
(5) Other diseases ...	0	1	0	1	0	
40. Ankylostomiasis ...	43	1,343	35	1,386	38	
41. Hydatid cysts ...	1	1	0	2	1	
42. Other diseases due to Helminths :—						
<i>Cestodes</i>						
(1) <i>Taenia solium</i> ...	...	...	...	...	...	
(2) <i>Taenia saginata</i> ...	0	2	0	2	0	
(3) Other cestodes ...	0	6	0	6	0	
<i>Nematodes</i>						
(4) <i>Filaria</i> ...	4	8	0	12	0	
(5) <i>Ascaris</i> ...	11	442	4	453	13	
(6) <i>Trichuris trichiura</i> ...	0	4	0	4	0	
(7) <i>Oxyuris vermicularis</i> ...	...	...	...	...	...	
(8) <i>Dracunculus medinensis</i> ...	0	2	0	2	0	
<i>Trematodes</i>						
(9) <i>Schistosomum japonicum</i> ...	...	...	...	...	...	
(10) <i>Clonorchis sinensis</i> ...	...	...	...	...	...	
(11) Other helminths ...	...	...	...	...	...	
43.—(1) Sprue ...	0	12	1	12	1	
(2) Actinomycosis ...	...	...	...	...	...	
(3) Other mycotic infections excluding purely dermal mycosis ...	0	1	0	1	0	
44. Other infectious or parasitic diseases :—						
(1) Vaccinia including post vaccinal encephalitis ...	0	2	0	2	0	
(2) Other sequelæ of vaccination ...	0	3	0	3	0	
(3) Rubella ...	0	11	0	11	0	
(4) Varicella (chicken-pox) ...	1	78	0	79	6	
(5) Mumps and its complications ...	1	33	0	34	0	
(6) Dengue ...	0	69	0	69	0	
(7) Melioidosis ...	...	...	...	...	...	
(8) Myiasis ...	...	...	...	...	...	
(9) Glandular fever ...	...	...	...	...	...	
(10) Others ...	3	3	0	6	0	
II.—Cancer and other Tumours						
45. Cancer or other malignant diseases of the buccal cavity, and pharynx ...	1	18	3	19	0	
<i>Carried forward ...</i>	2,034	17,140	2,018	19,174	2,151	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward ...</i>	2,034	17,140	2,018	19,174	2,151	
II.—Cancer and other Tumours— continued						
46. Cancer or other malignant tumours of the digestive organs, and peritoneum :—						
(1) Stomach ...	1	42	23	43	5	
(2) Liver (primary) ...	2	53	28	55	4	
(3) Other digestive organs ...	5	59	27	64	3	
47. Cancer or other malignant tumours of the respiratory organs ...	3	42	12	45	4	
48. Cancer or other malignant tumours of the uterus ...	3	38	4	41	1	
49. Cancer or other malignant tumours of other female genital organs ...	1	16	3	17	1	
50. Cancer or other malignant tumours of the breast ...	3	14	3	17	3	
51. Cancer or other malignant tumours of the male genito- urinary organs ...	1	17	3	18	1	
52. Cancer or other malignant tumours of the skin ...	7	72	14	79	6	
53. Cancer or other malignant tumour of organs not specified	6	96	31	102	3	
54. Tumours non-malignant :—						
(1) Of female genital organs	4	54	1	58	3	
(2) Of other sites ...	7	101	0	108	8	
55. Tumours of u n d e r terminated nature :—						
(1) Female genital organs ...	0	4	0	4	0	
(2) Other sites ...	2	41	2	43	0	
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases						
56. Rheumatic Fever :—						
(1) with cardiac involvement	0	3	0	3	0	
(2) Without cardiac involv- ment ...	0	19	0	19	2	
57. Chronic rheumatism and osteo- arthritis ...	12	197	0	209	7	
58. Gout ...	0	2	0	2	0	
59. Diabetes (not including diabetes insipidus) ...	17	158	16	175	9	
60. Scurvy (including Barlow's dis- ease) ...	...	...	...	...	...	
61.—(1) Beri-beri including epidemic dropsy ...	101	1,104	304	1,205	172	
(2) Beri-beri associated with pregnancy or labour ...	0	92	17	92	7	
62. Pellagra ...	1	3	0	4	1	
63. Rickets ...	1	4	0	5	0	
64. Osteomalacia ...	...	...	...	...	...	
<i>Carried forward ...</i>	2,211	19,371	2,506	21,582	2,391	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	2,211	19,371	2,506	21,582	2,391	
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases—continued						
65. Diseases of the pituitary gland	0	1	0	1	0	
66. Diseases of the thyroid and para-thyroid glands :—						
(1) Simple goitre	0	2	0	2	0	
(2) Exophthalmic goitre	1	21	4	22	2	
(3) Myxœdema, cretinism	2	2	0	4	1	
(4) Tetany	0	1	0	1	0	
(5) Other diseases of the thyroid glands	0	4	0	4	0	
67. Diseases of the thymus	...	...	...	...	...	
68. Diseases of the adrenal glands (excluding tuberculosis)	0	3	0	3	0	
69. Other general diseases—						
(1) Acidosis	0	2	0	2	0	
(2) Other diseases of metabolism	1	9	1	10	0	
IV.—Diseases of the Blood and Blood Forming Organs						
70. Hæmorrhagic conditions :—						
(1) Purpura	0	4	1	4	0	
(2) Hæmophilia	...	...	...	...	...	
71. Anæmia and chlorosis :—						
(1) Pernicious anæmia	1	21	1	22	1	
(2) Splenic anæmia	0	3	0	3	0	
(3) Chlorosis	...	...	...	...	...	
(4) Secondary anæmia	13	196	26	209	16	
(5) Others	2	63	10	65	3	
72. Leukæmia :—						
(1) Leukæmia	0	5	4	5	0	
(2) Hodgkin's disease	1	8	1	9	0	
73. Diseases of the spleen :—						
(1) Banti's diseases	0	2	1	2	0	
(2) Others (not including diseases of the spleen due to malaria or leukæmia)	0	9	0	9	2	
74. Other diseases of the blood and blood forming organs	0	2	2	2	0	
V.—Chronic Poisoning						
75. Alcoholism (acute or chronic)	1	88	0	89	0	
76. Chronic poisoning by other organic substances :—						
(1) Opium	1	129	1	130	1	
(2) Morphia, cocaine	...	...	...	...	...	
(3) Others	0	5	1	5	0	
77. Chronic poisoning by mineral substances :—						
(1) Lead poisoning	1	14	1	15	0	
(2) Arsenical dermatitis	1	20	1	21	0	
(3) Others	0	4	0	4	0	
<i>Carried forward</i> ...	2,236	19,989	2,561	22,225	2,417	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	2,236	19,989	2,561	22,225	2,417	
VI.—Diseases of the Nervous System and Sense Organs						
78. Encephalitis (not including encephalitis lethargica):—						
(1) Cerebral abscess ...	0	2	2	2	0	
(2) Other forms of encephalitis ...	3	12	3	15	3	
79. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis) ...	2	37	23	39	1	
80. Tabes dorsalis (locomotor ataxia) ...	19	16	4	35	11	
81. Other diseases of the spinal cord	7	30	4	37	15	
82. Apoplexy and paralysis:—						
(1) Cerebral hæmorrhage ...	0	65	50	65	3	
(2) Cerebral embolism ...	0	2	0	2	1	
(3) Cerebral thrombosis ...	2	43	11	45	3	
(4) Hæmiplegia, cause not determined ...	62	104	14	166	39	
(5) Other paralysis ...	22	64	1	86	24	
83. General paralysis of the insane	31	32	23	63	30	
84. Other forms of insanity:—						
(1) Dementia præcox ...	1	1	0	2	0	
(2) Others ...	7	360	14	367	3	
85. Epilepsy ...	9	107	2	116	13	
86. Infantile convulsions (age under 5 years) ...	0	52	35	52	0	
87. Other diseases of the nervous system:—						
(1) Chorea ...	0	2	0	2	0	
(2) Neuritis and neuralgia ...	53	390	1	443	43	
(3) Paralysis agitans ...	4	4	1	8	4	
(4) Disseminated sclerosis ...	1	4	0	5	1	
(5) Neurasthenia ...	0	51	0	51	2	
(6) Hysteria ...	0	18	0	18	0	
(7) Others ...	5	65	12	70	3	
88. Diseases of the eye:—						
(1) Conjunctivitis ...	14	324	0	338	8	
(2) Trachoma ...	8	94	0	102	7	
(3) Corneal ulcer ...	24	176	0	200	19	
(4) Other diseases of the eye	202	445	1	647	163	
89. Diseases of the ear and or the mastoid sinus:—						
(1) Otitis externa ...	2	85	0	87	0	
(2) Otitis media ...	0	87	1	87	2	
(3) Mastoiditis ...	2	28	3	30	1	
(4) Others ...	0	19	0	19	4	
VII.—Diseases of the Circulatory System						
90. Pericarditis ...	2	14	4	16	1	
91. Acute endocarditis:—						
(1) Malignant ...	1	11	6	12	0	
(2) Others ...	1	24	17	25	1	
<i>Carried forward</i> ...	2,720	22,757	2,793	25,477	2,822	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward ...</i>	2,720	22,757	2,793	25,477	2,822	
VII.—Diseases of the Circulatory System—continued						
92. Chronic endocarditis-valvular disease :—						
(1) Aortic valve disease ...	9	100	30	109	7	
(2) Mitral valve disease ...	15	71	21	86	6	
(3) Aortic and mitral ...	2	33	12	35	3	
(4) Others ...	0	8	3	8	0	
93. Diseases of the myocardium :—						
(1) Acute myocarditis ...	14	280	85	294	28	
(2) Chronic myocardial degeneration ...	14	91	34	105	4	
94. Diseases of the coronary arteries :—						
(1) Angina pectoris ...	0	2	0	2	0	
(2) Coronary thrombosis ...	0	3	3	3	0	
(3) Coronary sclerosis ...	0	4	1	4	0	
95. Other diseases of the heart :—						
(1) Auricular fibrillation ...	4	20	1	24	4	
(2) Heart block ...	1	5	1	6	0	
(3) Others ...	2	17	8	19	0	
96. Aneurysm :—						
(1) Aneurysm of aorta ...	3	39	21	42	4	
(2) Aneurysm of other arteries ...	1	7	1	8	3	
97. Arterio-sclerosis ...	11	116	49	127	14	
98. Gangrene ...	1	22	10	23	1	
99. Other diseases of the arteries ...	1	2	1	3	2	
100. Diseases of the veins :—						
(1) Varicose veins ...	0	16	0	16	0	
(2) Hæmorrhoids ...	8	316	0	324	8	
(3) Phlebitis ...	1	6	0	7	0	
(4) Thrombosis ...	1	12	1	13	1	
(5) Others ...	4	2	0	6	0	
101. Diseases of the lymphatic system :—						
(1) Lymphangitis ...	0	17	0	17	0	
(2) Lymphadenitis ...	4	88	0	92	6	
(3) Bubo (non-specified) ...	7	58	0	65	3	
102. Abnormalities of blood pressure :—						
(1) High blood pressure ...	2	37	2	39	3	
(2) Low blood pressure ...	...	...	...	...	...	
103. Other diseases of the Circulatory system :—						
(1) Epistaxis ...	0	9	0	9	0	
(2) Others ...	0	12	0	12	0	
VIII.—Diseases of the Respiratory System						
104. Diseases of the nasal fossæ and its annexa :—						
(1) Diseases of the nose ...	1	131	0	132	3	
(2) Diseases of the accessory nasal sinuses ...	2	55	0	57	1	
<i>Carried forward ...</i>	2,828	24,336	3,077	27,164	2,923	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	2,828	24,336	3,077	27,164	2,923	
VIII.—Diseases of the Respiratory System—continued						
105. Diseases of the larynx :—						
(1) Laryngismus stridulus ...	...	...	...	...	...	
(2) Laryngitis ...	1	38	2	39	1	
(3) Other diseases of the Larynx ...	1	0	0	1	0	
106. Bronchitis :—						
(1) Acute ...	8	549	2	557	22	
(2) Chronic ...	21	327	19	348	25	
(3) Not defined as acute or chronic ...	16	385	1	401	14	
107. Broncho-pneumonia ...	14	697	486	711	17	
108. Lobar-pneumonia ...	19	732	327	751	29	
109. Pneumonia (not otherwise defined) ...	1	31	13	32	0	
110. Pleurisy ...	...	...	...	...	...	
(1) Empyema ...	1	49	12	50	6	
(2) Other pleurisy ...	10	139	6	149	8	
111. Congestion and hæmorrhagic infarction of lung, etc. :—						
(1) Hypostatic congestion of lung ...	0	2	2	2	0	
(2) Massive collapse ...	...	...	...	...	...	
(3) Pulmonary embolism ...	0	5	5	5	0	
(4) Others ...	3	137	13	140	5	
112. Asthma ...	36	454	6	490	28	
113. Pulmonary emphysema ...	3	29	11	32	7	
114. Other diseases of the respiratory system :—						
(1) Chronic interstitial pneu- monia (including occupa- tional diseases of the lung) ...	0	3	0	3	0	
(2) Gangrene of the lung ...	0	7	4	7	0	
(3) Abscess of the lung ...	0	25	14	25	2	
(4) Bronchiectasis ...	2	10	2	12	1	
(5) Others ...	2	29	2	31	2	
IX.—Diseases of the Digestive System						
115. Diseases of the buccal cavity, Pharynx, etc. :—						
(1) Pyorrhœa ...	5	116	0	121	8	
(2) Dental caries ...	4	89	0	93	0	
(3) Stomatitis ...	3	48	3	51	1	
(4) Ludwig's angina ...	0	17	0	17	0	
(5) Diseases of the tonsils ...	14	502	1	516	13	
(6) Others ...	4	272	3	276	4	
116. Diseases of the œsophagus ...	5	29	6	34	5	
117. Ulcer of the stomach or duode- num ...	...	...	...	...	...	
(1) Ulcer of the stomach ...	26	229	39	255	28	
(2) Ulcer of the duodenum ...	21	109	10	130	23	
<i>Carried forward</i> ...	3,048	29,395	4,066	32,443	3,172	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward ...</i>	3,048	29,395	4,066	32,443	3,172	
IX.—Diseases of the Digestive System—continued						
118. Other diseases of the stomach :—						
(1) Gastritis ...	24	590	5	614	10	
(2) Others ...	7	140	1	147	8	
119. Diarrhoea and enteritis ...	3	375	179	378	14	
(under 2 years)						
120. Diarrhoea and enteritis :—						
(2 years and over)						
(1) Colitis ...	7	381	8	388	16	
(2) Otherwise defined ...	14	584	38	598	13	
121. Appendicitis ...	7	295	17	302	10	
122. Hernia, Intestinal obstruction :—						
(1) Hernia ...	13	218	1	231	15	
(2) Strangulated hernia ...	1	48	9	49	2	
(3) Intestinal obstruction ...	1	45	18	46	1	
(including intussusception)						
123. Other diseases of the intestines—						
(1) Constipation, intestinal stasis ...	2	123	0	125	6	
(2) Diverticulitis ...	0	9	0	9	0	
(3) Others ...	15	278	5	293	22	
124. Cirrhosis of liver ...						
(non-syphilitic)						
(1) Alcoholic ...	0	23	10	23	2	
(2) Not returned as alcoholic	12	164	58	176	13	
125. Other diseases of the liver :—						
(1) Acute yellow atrophy ...	0	1	1	1	0	
(2) Toxic hepatitis ...	0	3	1	3	0	
(3) Amoebic abscess and hepatitis ...	4	58	4	62	2	
(4) Others ...	4	70	16	74	6	
126. Biliary calculi :—						
(1) With cholecystitis ...	0	10	2	10	0	
(2) Without mention of cholecystitis ...	0	12	0	12	0	
127. Other diseases of the gall bladder and ducts :—						
(1) Cholecystitis without record of calculi ...	0	77	11	77	2	
(2) Others ...	8	77	11	85	3	
128. Diseases of the pancreas ...	0	4	1	4	0	
(excluding diabetes mellitus)						
129. Peritonitis, without stated cause	0	38	20	38	2	
X.—Diseases of the Genito-Urinary System (non-venereal)						
130. Acute nephritis ...	20	179	59	199	16	
131. Chronic nephritis ...	25	381	111	406	32	
132. Nephritis (undefined as acute or chronic) ...	6	35	14	41	1	
133. Other diseases of the kidney and annexa :—						
(1) Pyelitis ...	5	202	24	207	13	
(2) Others ...	7	72	17	79	2	
<i>Carried forward ...</i>	3,233	33,887	4,707	37,120	3,392	

TABLE III
RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	3,233	33,887	4,707	37,120	3,392	
X.—Diseases of the Genito-Urinary System (non-venereal)—continued						
134. Calculi of the urinary passages:—						
(1) Calculi of the kidney and ureter ...	0	35	0	35	2	
(2) Calculi of the bladder ...	2	17	0	19	0	
(3) Calculi of unstated site ...	0	7	0	7	0	
135. Diseases of the bladder:—						
(1) Cystitis ...	6	80	10	86	7	
(2) Others ...	2	17	3	19	3	
136. Diseases of the urethra ...						
(1) Stricture ...	5	113	3	118	4	
(2) Others ...	4	83	1	87	7	
137. Diseases of the prostate ...	3	7	1	10	1	
138. Diseases of the male genital Organs:—						
(1) Epididymitis ...	0	26	0	26	0	
(2) Orchitis ...	2	55	0	57	2	
(3) Hydrocele ...	8	144	1	152	2	
(4) Others ...	3	77	1	80	1	
139. Diseases of the female genital organs:—						
(1) Diseases of the ovary ...	0	23	1	23	2	
(2) Diseases of the fallopian tube ...	3	59	2	62	3	
(3) Diseases of the parametrium ...	0	14	0	14	0	
(4) Diseases of the uterus ...	5	160	2	165	7	
(5) Diseases of the breast ...	1	23	0	24	0	
(6) Other diseases of the female genital organs ...	1	95	0	96	1	
XI.—Conditions arising in Pregnancy, Childbirth and the Puerperal State						
140. Post abortive sepsis ...						
(1) Septic abortion ...	0	2	1	2	0	
141. Abortion not returned as septic:—						
(1) Hæmorrhage following abortion ...	3	60	2	63	2	
(2) Abortion without record of hæmorrhage ...	2	99	0	101	3	
142. Ectopic gestation ...	0	15	3	15	0	
143. Other accidents of pregnancy ...	6	249	10	255	4	
144. Puerperal hæmorrhage:—						
(1) Placenta prævia ...	0	35	7	35	0	
(2) Other puerperal hæmorrhage ...	0	67	14	67	0	
145. Puerperal sepsis:—						
(1) Puerperal septicæmia ...	0	19	9	19	0	
(2) Puerperal sepsis, not including septicæmia ...	1	24	11	25	0	
<i>Carried forward</i> ...	3,290	35,492	4,789	38,782	3,443	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	3,290	35,492	4,789	38,782	3,443	
XI.—Conditions arising in Pregnancy, Childbirth and the Puerperal State—continued						
146. Puerperal albuminuria and con- vulsions :—						
(1) Ante-partum eclampsia	1	31	9	32	0	
(2) Intra-partum eclampsia	0	16	2	16	0	
(3) Post-partum eclampsia ...	0	14	5	14	0	
(4) Albuminuria of pregn- ancy ...	2	92	9	94	2	
(5) Pyelitis of pregnancy ..	0	3	0	3	0	
(6) Otherwise defined ...	...	...	...	...	...	
147. Other toxæmias of pregnancy—						
(1) Hyperemesis gravidarum	2	58	4	60	3	
(2) Others ...	0	11	0	11	0	
148. Puerperal phlegmasia, embo- lism :—						
(1) Puerperal phlegmasia ..	1	0	0	1	0	
(2) Puerperal embolism ..	...	...	...	...	...	
149. Conditions associated with labour :—						
(1) Normal labour ...	90	5,214	0	5,304	102	
(2) Abnormal labour ...	8	655	11	663	3	
(3) Labour complicated with intercurrent disease ...	0	6	0	6	0	
(4) Accidents of childbirth	0	14	3	14	0	
150. Other or unspecified conditions of the puerperal state :—						
(1) Puerperal insanity ..	0	4	0	4	0	
(2) Puerperal diseases of the breast ...	...	...	...	...	...	
(3) Others ...	0	1	0	1	0	
XII.—Diseases of the Skin and Cellular Tissues						
151. Carbuncle, boil ...	3	175	13	178	9	
152. Cellulitis, acute abscess :—						
(1) Cellulitis ...	37	471	19	508	32	
(2) Acute abscess ...	33	1,049	14	1,082	46	
(3) Otherwise defined ..	8	107	4	115	8	
153. Other diseases of the skin and its annexa :—						
(1) Ulcers ...	128	1,378	8	1,506	99	
(2) Dermal mycoses ...	0	27	0	27	2	
(3) Herpes ...	2	31	0	33	2	
(4) Scabies ...	7	366	0	373	57	
(5) Others ...	33	829	6	862	52	
<i>Carried forward</i> ...	3,645	46,044	4,896	49,689	3,860	

TABLE III

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	3,645	46,044	4,896	49,689	3,860	
XIII.—Diseases of the Bones and Organs of Locomotion						
154. Acute infective osteomyelitis and periostitis:—	14	82	5	96	21	
155. Other diseases of the bones ...	3	46	1	49	2	
156. Diseases of the joints and other organs of locomotion:—						
(1) Diseases of the joints ...	20	219	0	239	16	
(2) Diseases of the other organs of locomotion ...	4	104	0	108	4	
XIV.—Congenital Malformations						
157. Congenital malformations:—						
(1) Congenital hydroce- phalus ...	1	5	2	6	0	
(2) Spina bifida and menin- gocele ...	0	1	1	1	0	
(3) Congenital malformation of the heart ...	1	10	3	11	1	
(4) Monstrosities ...	...	...	...	...	...	
(5) Congenital hypertrophic, pyloric stenosis ...	...	...	...	...	...	
(6) Cleft palate, harelip ...	3	27	0	30	2	
(7) Imperforate anus ...	0	17	6	17	0	
(8) Other congenital malfor- mations ...	1	56	6	57	1	
XV.—Diseases of early Infancy						
158. Congenital debility ...	1	6	3	7	0	
159. Premature birth ...	1	26	20	27	0	
160. Injury at birth ...	0	5	1	5	0	
161. Other diseases peculiar to early infancy:—						
(1) Atelectasis ...	0	4	4	4	0	
(2) Icterus neonatorum ...	0	13	7	13	0	
(3) Affections of the umbi- licus ...	0	19	9	19	0	
(4) Pemphigus neonatorum ...	1	0	0	1	0	
(5) Others ...	0	34	21	34	0	
XVI.—Conditions Associated with Old Age						
162.—(1) Senile dementia ...	8	11	2	19	3	
(2) Other forms of senile decay	38	173	60	211	39	
XVII.—Affections Produced by External Causes						
163. Suicide, or attempted suicide, by poisoning ...	0	44	14	44	3	
(including corrosive poisoning)						
164. Suicide, or attempted suicide, by gas poisoning ...	...	...	...	...	...	
<i>Carried forward</i> ...	3,741	46,946	5,061	50,687	3,952	

TABLE III

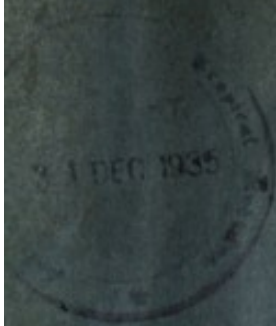
RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward ...</i>	3,741	46,946	5,061	50,687	3,952	
XVII.—Affections Produced by External Causes—continued						
165. Suicide, or attempted suicide, by hanging or strangulation ...	0	4	2	4	0	
166. Suicide, or attempted suicide, by drowning ...	1	12	0	13	0	
167. Suicide, or attempted suicide, by firearms ...	0	5	1	5	0	
168. Suicide, or attempted suicide, by cutting or piercing instruments ...	1	18	3	19	0	
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 ...	0	5	1	5	0	
172. Infanticide ...	...	...	...	...	...	
173. Assault or homicide, by firearms ...	0	12	2	12	0	
174. Assault or homicide, by cutting or piercing instruments ...	6	239	9	245	9	
175. Assault or homicide, by other means ...	37	929	8	966	17	
176. Attacks by venomous animals :—						
(1) Snake bite ...	0	19	1	19	0	
(2) Insect bite ...	0	35	1	35	1	
(3) Others ...	0	22	0	22	0	
177. Food poisoning ...	0	14	0	14	0	
178. Accidental absorption of irres- pirable or poisonous gas ...	0	5	0	5	0	
179. Other acute accidental poisoning ...	0	51	6	51	1	
180. Injuries due to conflagration ...	...	...	...	...	...	
181. Accidental burns :—						
(conflagration excepted)						
(1) Burns by fire ...	4	83	11	87	4	
(2) Scalds ...	12	180	6	192	10	
(3) Burns by corrosive sub- stances ...	0	26	0	26	2	
(4) Dermatitis due to expo- sure to sun ...	0	2	0	2	0	
(5) Dermatitis due to expo- sure to other forms of radiation ...	0	17	0	17	0	
182. Accidental mechanical suffoca- tion ...	0	1	0	1	0	
183. Accidental immersion or drown- ing ...	0	4	0	4	0	
184. Accidental injury by firearms ...	0	8	1	8	0	
185. Accidental injury by cutting or piercing instruments ...	7	512	5	519	19	
186. Accidental injury by fall, cru- shing, etc. :—						
(1) By fall ...	43	1,662	41	1,705	79	
(2) By machinery ...	7	137	0	144	5	
(3) By motor vehicles ...	34	683	64	717	33	
<i>Carried forward ...</i>	3,893	51,631	5,223	55,524	4,132	

TABLE III
RETURN OF DISEASES AND DEATHS FOR THE YEAR 1934—continued

DISEASES	Remaining at end of 1933	YEARLY TOTAL		Total Cases Treated	Remaining at end of 1934	REMARKS
		Admissions	Deaths			
<i>Brought forward</i> ...	3,893	51,631	5,223	55,524	4,132	
XVII.— <i>Affections Produced by External Causes</i> —continued						
(4) By railway vehicles ...	0	4	1	4	0	
(5) By other means ...	35	810	12	845	28	
187. Cataclysm :— (tidal waves, cyclones, etc.)						
188. Injury by animals ... (except poisoning by venomous animals)	4	45	1	49	1	
189. Hunger or thirst ...	0	6	0	6	0	
190. Excessive cold ...	...	...	...	...	...	
191. Excessive heat ...	0	3	0	3	0	
192. Lightning ...	0	1	0	1	0	
193. Electricity ...	0	5	0	5	0	
194. Other unstated forms of violence (1) Inattention at birth ...	...	...	...	...	...	
(2) Others ...	2	53	1	55	2	
195. Violence of an unstated nature (i.e. suicidal, homicidal, or accidental)	...	...	...	...	...	
196. Wounds of war ...	...	...	...	...	...	
197. Execution of civilians by belli- gerent armies ...	...	...	...	...	...	
198. Execution ...	...	...	...	...	...	
XVIII.— <i>Ill-defined Conditions</i>						
199. Sudden death (cause unknown)	1	8	0	9	0	Admitted for syncope
200. Cause of death unstated or ill- defined ...	4	499	11	503	42	
201. Diseases not included in this classification which have caused no deaths ...	51	881	0	932	43	
202. Malingering ...	0	45	0	45	0	
203. Cases admitted to hospital for observation as to mental condi- tion ...	8	200	0	208	9	
204. Cases admitted for observation (not mental)	8	213	0	221	5	
205. Persons accompanying patients	34	1,305	0	1,339	34	
206. General Debility ...	5	59	1	64	2	
Total ...	4,045	55,768	5,250	59,813	4,298	





31 DEC 1935