

## **Annual report on the Medical Department / Straits Settlements.**

### **Contributors**

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STRAITS SETTLEMENTS

ANNUAL REPORT  
ON THE  
MEDICAL DEPARTMENT  
FOR THE YEAR  
1929

BY

A. L. HOOPS, MD., D.P.H., B.A.,

*Principal Civil Medical Officer, Straits Settlements.*



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PUBLISHED BY AUTHORITY

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Singapore:

Printed at the GOVERNMENT PRINTING OFFICE, SINGAPORE,  
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WINDWARD

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THE STRAITS SETTLEMENTS  
ARE STAFFED BY THE MEDICAL DEPARTMENT  
OF THE STRAITS SETTLEMENTS.  
THE UNFEDERATED MALAY STATES.  
JOHORE. KEDAH WITH PERLIS.  
KELANTAN & TRENGGANU ARE  
STAFFED BY MEDICAL OFFICERS  
& SISTERS SECONDED FROM THE  
MEDICAL DEPARTMENT OF THE  
STRAITS SETTLEMENTS







## TABLE OF CONTENTS

|                                                                             | PAGE. |
|-----------------------------------------------------------------------------|-------|
| I. ADMINISTRATION—                                                          |       |
| (a) Staff ... ..                                                            | 1     |
| (b) Review 1921 - 1929 ... ..                                               | 4     |
| (c) Ordinances ... ..                                                       | 7     |
| (d) Financial ... ..                                                        | 7     |
| II. PUBLIC HEALTH—                                                          |       |
| (a) General remarks ... ..                                                  | 8     |
| (b) General diseases ... ..                                                 | 9     |
| (c) Dangerous Infectious diseases ... ..                                    | 10    |
| (d) Tuberculosis ... ..                                                     | 11    |
| (e) Malaria ... ..                                                          | 12    |
| (f) Bowel diseases ... ..                                                   | 12    |
| (g) Diphtheria ... ..                                                       | 13    |
| (h) Scarlet Fever ... ..                                                    | 13    |
| (i) Venereal diseases ... ..                                                | 13    |
| (j) Leprosy ... ..                                                          | 13    |
| (k) Helminthic diseases ... ..                                              | 14    |
| (l) Improvement of Public Health and Charts ... ..                          | 14    |
| (m) Vital Statistics ... ..                                                 | 15    |
| (n) League of Nations Eastern Health Bureau ... ..                          | 17    |
| III. HYGIENE AND SANITATION—                                                |       |
| (a) Organisation of the Health Branch ... ..                                | 20    |
| (b) General review of work done—                                            |       |
| (I) Preventive Measures ... ..                                              | 22    |
| (II) General Sanitation and Village Conservancy ... ..                      | 24    |
| (III) School Hygiene ... ..                                                 | 26    |
| (IV) Labour Conditions ... ..                                               | 26    |
| (V) Housing and Town Planning ... ..                                        | 27    |
| (VI) Food in relation to Health and Disease ... ..                          | 27    |
| (c) Measures taken to spread the knowledge of Hygiene and Sanitation ... .. | 28    |
| (d) Training of Sanitary Personnel ... ..                                   | 28    |
| IV. PORT HEALTH WORK AND ADMINISTRATION—                                    |       |
| A.—Singapore ... ..                                                         | 29    |
| B.—Penang ... ..                                                            | 31    |
| V. KING EDWARD VII COLLEGE OF MEDICINE—                                     |       |
| Abstract of Annual Report on ... ..                                         | 34    |

|                                                                                                                                    |     |     |    |
|------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----|
| VI. MATERNITY AND CHILD WELFARE ACTIVITIES IN THE STRAITS SETTLEMENTS—                                                             |     |     |    |
| I. Maternity Hospitals                                                                                                             | ... | ... | 35 |
| II.—Training and work of Midwives                                                                                                  | ... | ... | 36 |
| III.—Infant and Child Welfare Services                                                                                             | ... | ... | 36 |
| IV.—Associated Activities                                                                                                          | ... | ... | 38 |
| A.—Return of patients at Women's and Children's dispensaries                                                                       | ... | ... | 38 |
| B.—Attendances at motor travelling dispensaries                                                                                    | ... | ... | 38 |
| C.—Children's Wards                                                                                                                | ... | ... | 38 |
| VII. HOSPITALS AND DISPENSARIES AND VENEREAL CLINICS—                                                                              |     |     |    |
| I.—Total inpatients treated and mortality in all hospitals of the Colony for the past 5 years                                      | ... | ... | 39 |
| II.—Total number of inpatients treated and the total deaths in the hospitals of the Colony for some of the more important diseases | ... | ... | 39 |
| III.—Terminal causes of deaths noted in fatal malarial cases                                                                       | ... | ... | 40 |
| IV.—Daily cost of diets per head in hospitals                                                                                      | ... | ... | 40 |
| V.—Out-door dispensaries                                                                                                           | ... | ... | 41 |
| VI.—Buildings                                                                                                                      | ... | ... | 41 |
| VIII. PRISONS AND MENTAL HOSPITALS—                                                                                                |     |     |    |
| A.—PRISONS—                                                                                                                        |     |     |    |
| (a) Singapore Prison                                                                                                               | ... | ... | 41 |
| (b) Penang Prison                                                                                                                  | ... | ... | 42 |
| (c) Malacca Prison                                                                                                                 | ... | ... | 43 |
| B.—SINGAPORE MENTAL HOSPITAL                                                                                                       | ... | ... | 43 |
| IX. SCIENTIFIC, ETC.—(APPENDICES)—                                                                                                 |     |     |    |
| A. Report on Leper Settlements, Singapore                                                                                          | ... | ... | 46 |
| B. Report on Pulau Jerejak Leper Settlement and Female Leper Settlement, Penang                                                    | ... | ... | 47 |
| C. Report on Pathological Branch, S. S.                                                                                            | ... | ... | 51 |
| D. Report on General Hospital, Singapore                                                                                           | ... | ... | 62 |
| E. Report on treatment of Opium habit                                                                                              | ... | ... | 70 |
| F. Report on Schools, S. S.                                                                                                        | ... | ... | 71 |
| G. Report on Social Hygiene Branch                                                                                                 | ... | ... | 78 |

## TABLES

|                                                   |     |     |    |
|---------------------------------------------------|-----|-----|----|
| Table I.—Staff                                    | ... | ... | 87 |
| „ II.—Financial                                   | ... | ... | 89 |
| „ III.—A.—J.—Returns of Vital Statistics          | ... | ... | 92 |
| „ IV.—Meteorological Returns                      | ... | ... | 97 |
| „ V.—Returns of Diseases and Deaths. (Inpatients) | ... | ... | 99 |



## The Straits Settlements Medical Report for the year 1929.

### I.—ADMINISTRATION

#### (a).—STAFF

1. The authorised number of the European staff of the Medical Department of the Straits Settlements in 1929, including officers to be seconded for service in the Unfederated Malay States, was 179.

2. The following officers were promoted to the posts mentioned during the year:—

| <i>Name</i>         | <i>Previous Post</i>                | <i>Appointment</i>              | <i>With effect from</i> |
|---------------------|-------------------------------------|---------------------------------|-------------------------|
| Dr. L. W. EVANS ... | Time-scale Medical Officer, S. S.   | Chief Medical Officer, Kelantan | 1-1-1929                |
| Dr. J. I. BAEZA ... | Time-scale Health Officer, S. S.    | Senior Health Officer, Kedah    | 9-6-1929                |
| Dr. W. J. MOIR ...  | Time-scale Health Officer, F. M. S. | Senior Health Officer, Johore   | 9-6-1929                |

3. Dr. H. O. HOPKINS, Malaria Research Officer of the Institute of Medical Research, Kuala Lumpur, was transferred to the Straits Settlements as Bacteriologist, Singapore, and assumed duty as acting Pathologist, Penang, on 9th August, 1929.

4. The following officers were appointed to the service during the year:—

| <i>Name</i>                 | <i>Appointment</i>                                | <i>Date of appointment</i> |
|-----------------------------|---------------------------------------------------|----------------------------|
| *Dr. W. M. LUPTON ...       | Medical Officer, Social Hygiene                   | ... 1st January, 1929      |
| Dr. G. H. SWAPP ...         | Medical Officer                                   | ... 7th March, 1929        |
| Dr. L. F. DAY ...           | .. ..                                             | ... 5th April, 1929        |
| Dr. R. A. McNAB ...         | .. ..                                             | ... 9th August, 1929       |
| Dr. A. H. LOWTHER ...       | .. ..                                             | ... 9th August, 1929       |
| Dr. G. H. LOWE ...          | Health Officer                                    | ... 9th August, 1929       |
| Dr. W. G. EVANS ...         | Medical Officer                                   | ... 9th August, 1929       |
| Dr. R. F. PINSON ...        | Health Officer                                    | ... 9th August, 1929       |
| Mr. E. K. TRATMAN ...       | Professor of Dental Surgery                       | ... 16th October, 1929     |
| *Dr. (Mrs.) E. McMULLAN ... | Lady Medical Officer                              | ... 5th November, 1929     |
| Dr. D. RUSSELL ...          | Assistant Medical Superintendent, Mental Hospital | ... 29th November, 1929    |

\*Temporary officers.



## 5. The following officers proceeded on leave during the year:—

| <i>Name</i>             | <i>Appointment</i>                             | <i>Date</i>         |
|-------------------------|------------------------------------------------|---------------------|
| Capt. K. B. WILLIAMSON  | Professor of Biology,<br>Singapore ...         | 2nd January, 1929   |
| Dr. L. S. O'MAY ...     | Lady Medical Officer,<br>Penang ...            | 28th February, 1929 |
| Dr. G. H. GARLICK ...   | Physician and Radiolo-<br>gist, Johore ...     | 8th March, 1929     |
| Mr. H. GILMOUR ...      | L a y Superintendent,<br>Pulau Jerejak ...     | 9th March, 1929     |
| Dr. W. M. CHAMBERS ...  | Chief Medical Officer,<br>Penang ...           | 6th April, 1929     |
| Dr. N. G. COOPER ...    | Health Officer, Singa-<br>pore ...             | 11th April, 1929    |
| Dr. J. W. SCHARFF ...   | Senior Health Officer,<br>Penang ...           | 26th April, 1929    |
| Dr. J. S. E. MANLEY ... | Medical Officer, Kedah                         | 18th May, 1929      |
| Dr. G. H. MACALISTER    | Principal, College of<br>Medicine, Singapore   | 30th May, 1929      |
| Dr. J. H. BOWYER ...    | Medical Officer, Labuan                        | 27th June, 1929     |
| Mr. W. JONES ...        | Senior E u r o p e a n<br>Attendant, Singapore | 27th June, 1929     |
| Dr. R. B. MACGREGOR     | Chief Medical Officer,<br>Malacca ...          | 29th June, 1929     |
| Dr. N. H. HARRISON ...  | Chief Medical Officer,<br>Trengganu ...        | 16th July, 1929     |
| Dr. J. A. COWAN ...     | Pathologist, Penang ...                        | 27th July, 1929     |
| Dr. J. S. WEBSTER ...   | Radiologist, Singapore                         | 9th August, 1929    |
| Dr. S. W. EVESON ...    | Health Officer, Malacca                        | 23rd August, 1929   |
| Dr. S. WINSTEDT ...     | Lady Medical Officer,<br>Singapore ...         | 17th November, 1929 |

## 6. The following officers returned from leave during the year:—

| <i>Name</i>            | <i>Appointment</i>                             | <i>Date</i>          |
|------------------------|------------------------------------------------|----------------------|
| Mr. E. O'SULLIVAN ...  | L a y Superintendent,<br>Pulau Jerejak ...     | 22nd February, 1929  |
| Mr. J. KERR ...        | Senior E u r o p e a n<br>Attendant, Singapore | 24th March, 1929     |
| Dr. J. C. CARSON ...   | Medical Officer, Singa-<br>pore ...            | 21st August, 1929    |
| Capt. K. B. WILLIAMSON | Professor of Biology,<br>Singapore ...         | 21st September, 1929 |
| Dr. G. H. GARLICK ...  | Physician and Radiolo-<br>gist, Johore ...     | 1st October, 1929    |
| Dr. L. S. O'MAY ...    | Lady Medical Officer,<br>Penang ...            | 10th October, 1929   |
| Mr. H. GILMOUR ...     | L a y Superintendent,<br>Pulau Jerejak ...     | 13th November, 1929  |
| Dr. W. M. CHAMBERS     | Chief Medical Officer,<br>Penang ...           | 28th November, 1929  |

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

| <i>Name</i>             | <i>Appointment</i>                        | <i>Date</i>                               |
|-------------------------|-------------------------------------------|-------------------------------------------|
| Dr. A. S. M. DOUGLAS    | Medical Officer, Kedah                    | 10th April, 1929<br>(agreement expired)   |
| Dr. A. B. JESSER-COOPE  | Temporary Medical Officer, Johore ...     | 30th April, 1929<br>(retired)             |
| Dr. J. A. P. CULLEN ... | Temporary Health Officer, Johore ...      | 1st August, 1929<br>(resigned)            |
| Dr. K. M. HYSLOP ...    | Lady Medical Officer, Kedah ...           | 1st August, 1929<br>(resigned)            |
| Dr. J. S. E. MANLEY ... | Medical Officer, Kedah                    | 18th August, 1929<br>(resigned)           |
| Dr. J. A. W. EBDEN ...  | Medical Officer, Kedah                    | 7th October, 1929<br>(agreement expired)  |
| Dr. N. M. H. CLARKE ... | Temporary Lady Medical Officer, Singapore | 14th October, 1929<br>(resigned)          |
| Dr. D. I. GRACEY ...    | Medical Officer, Penang                   | 7th December, 1929<br>(agreement expired) |

8. The following officers were seconded for service in the Unfederated Malay States during the year:—

| <i>Name</i>            | <i>Appointment</i>                          | <i>Date</i>          |
|------------------------|---------------------------------------------|----------------------|
| Dr. K. M. HYSLOP ...   | Lady Medical Officer, Kedah ...             | 22nd March, 1929     |
| Dr. R. WALKINGSHAW ... | Medical Officer, Kedah                      | 9th April, 1929      |
| Dr. J. V. LANDOR ...   | Medical Officer, Johore                     | 1st May, 1929        |
| Dr. T. C. LONIE ...    | Acting Chief Medical Officer, Trengganu ... | 1st June, 1929       |
| Dr. G. H. LOWE ...     | Health Officer, Johore                      | 7th September, 1929  |
| Dr. G. H. SWAPP ...    | Health Officer, Kelantan                    | 29th September, 1929 |
| Dr. L. F. DAY ...      | Medical Officer, Kedah                      | 2nd October, 1929    |

9. *European Matrons and Sisters*.—Miss G. D. TREVOR-SMITH was promoted Matron, Grade II, Singapore, from 1st September, 1929.

Miss K. M. HILL was promoted Matron, Grade II, from 6th October, 1929.

The number of Matrons and Sisters in the service, including those seconded to the Unfederated Malay States, was 90 in 1929.

10. The local medical service numbered 73, mostly graduates of the King Edward VII College of Medicine, Singapore.

Of these, four filled specialist posts:—

|                             |                                                                          |
|-----------------------------|--------------------------------------------------------------------------|
| Dr. J. H. L. WESTERHOUT ... | Port Health Officer, Penang.                                             |
| Dr. A. H. WHEATLEY ...      | Medical Superintendent, Leper Settlement, Pulau Jerejak.                 |
| Dr. A. C. DUTTA ...         | Surgeon and Officer in resident charge of Durian Daun Hospital, Malacca. |
| Dr. V. H. NORRIS ...        | Physician, General Hospital, Singapore.                                  |

Eight others held responsible prize appointments.



## (b) REVIEW 1921—1929

11 A short review of the increase in work done, and of additions to staff, since 1921, is informative.

*Hospitals and Dispensaries.*—*Hospital inpatients* in 1921 totalled 41,309 of whom 2,184 were first or second class patients: the corresponding numbers for 1929 were 69,310 and 7,933.

The facilities for specialism have been greatly increased and the various specialist departments are well equipped.

The lot of the leper has been much ameliorated by modern methods of administration and treatment; a number have either been cured or rendered comparatively healthy, and the leper death rate has been much decreased.

*Outpatients* treated in 1921 numbered 43,070: in 1929, the number had risen to 254,219, who made 643,450 attendances.

There are now motor travelling dispensaries in every settlement.

*Mental Hospital:*—The daily number of insane patients confined in Mental Hospitals at the end of 1921 totalled 599 (of whom 200 were by arrangement kept in the Federated Malay States establishment at Tanjong Rambutan).

Insane patients numbered 1,079 at the end of 1929, all of whom were accommodated in the new Mental Hospital at Trafalgar, Singapore. Corresponding figures for inmates of our *Leper Settlements* were 559 (end of 1921) and 1,076 (end of 1929).

*Health Branch.*—The methods of the Port Health Service have stood the test of time, and its efficiency has been increased by the foundation in Singapore in 1925 of the League of Nations Health Section Eastern Bureau, for the early collection and dissemination of epidemiological intelligence.

*A Sanitary Inspectors' training centre*, open to all administrations in Malaya, was started in Singapore in 1921, and arrangements were made with the Royal Sanitary Institute to confer their certificate upon successful candidates. One hundred and sixty-five sanitary students have attended the course since that date, of whom 117 have secured this certificate.

*Special anti-mosquito votes* for rural anti-malarial work, provided by Government since 1921, have rendered some areas healthy which were hardly habitable.

The supervision exercised over estates and factories has been increased, and joint anti-malarial and sanitary schemes have been carried out by Government and estates in several instances.

The work initiated during the 3 years joint hookworm and rural sanitation campaign undertaken conjointly with the Rockefeller Foundation in 1926 to 1928 is now carried on as one of the ordinary services of the health branch.

The provision of latrines and of scavenging gangs in the more populous rural areas is progressing steadily.

Water supplies have been improved and extended in all parts of the country.

*School medical inspection*, inaugurated on a part time basis in 1921, now occupies the whole time of a male and a female health officer in Singapore; elsewhere, it is still part time.

The foundation of a school dental service is under consideration.



A *social hygiene* branch of the Medical Department, started in 1926, to combat venereal diseases both by treatment and propaganda, now employs two whole time European and six whole time locally qualified officers.

Two hundred and thirty eight thousand six hundred and forty-eight outpatient attendances were made at social hygiene clinics in 1929.

*Government Public Health Sisters* were first employed in 1925 to undertake general maternal and child welfare work in rural areas, to supervise local midwives, and to train Asiatic girls to work under their supervision as public health nurses. Their duties are mainly educational and preventive, but they also carry out simple treatments. There were 75,907 attendances at welfare clinics, and 269,719 visits were paid to homes in the Colony in 1929: these include the Municipal figures.

*Health publicity* has been developed by means of house to house visits, public lectures, including lectures in schools, lantern slides and cinematograph demonstrations, pamphlets, leaflets, and posters, more especially in connection with maternal and child welfare, and the prevention of malaria, hookworm, and venereal diseases.

*Medical Education.*—As regards medical education, the scope and standard of work in the King Edward VII College of Medicine conform completely to the requirements of the general medical council of Great Britain, as certified by the Council's visitor in 1927. Professorial chairs of biology, bacteriology and biochemistry (the two latter endowed by the Rockefeller Foundation) were founded in 1926. The College has now a strong staff, and includes the only Dental School in the British Crown Colonies.

In addition to teaching, promising research is being undertaken in the College. A grant of £6,000 has recently been promised by the Empire Marketing Board in aid of nutritional research.

The Sanitary Inspectors' School has already been mentioned.

Two Schools for the instruction of Dressers are run in connection with the two large free hospitals in Singapore and Penang.

Probationer Nurses receive a 4 years' training, including one year's maternity work, in the General Hospitals at Singapore and Penang. After undergoing the necessary courses and examinations, a passed probationer receives a certificate from the Hospital in respect of her general training, and from the Central Midwives Board in respect of her midwifery training, and is then entitled to a Registration Certificate qualifying her to practice as a trained nurse in Malaya.

The training, registration and control of midwives, is vested in the Central Midwives Board formed in 1923, of which the Professor of Midwifery in the College of Medicine is Chairman. The training for the Diploma of the Board is similar to that for the C. M. B., certificate in Great Britain, and covers one year. The examination is partly written, partly oral and practical. Successful candidates are registered in Class A with Sisters from home who hold the C. M. B. There is also a course of training for the Certificate of the Board, planned for Asiatic women whose education is insufficient to undertake the Diploma course. The examination is entirely oral and practical, and successful candidates are registered in Class B.

*Buildings.*—Most of the medical institutions in the Colony have been either rebuilt or renovated. For instance, the College of Medicine, the General Hospital and the Mental Hospital, the Convalescent Home, the male and female leper settlements and four of the dispensaries in Singapore



are new. The Singapore Free Maternity Hospital and the male and female dispensaries adjoining it, are about to be rebuilt, and a Tuberculosis hospital is sanctioned. Modern sanitation and new disinfectors are to be installed at the Quarantine Station on St. John's Island.

In Malacca, two new district hospitals and a town dispensary have been built, and the erection of a new General Hospital is sanctioned.

In the Settlement of Penang, the General and District Hospitals are being rebuilt to form one large thousand bed hospital.

The Penang Maternity Hospital has been greatly improved; a large venereal clinic is being erected.

The four district hospitals in Province Wellesley and the Dindings are being enlarged and modernised. The accommodation at the male settlement, Pulau Jerejak, which is now capable of housing nine hundred lepers, has been doubled. The latest buildings are all small separate huts, in each of which 2 or 3 lepers can live and tend their adjoining gardens.

*Increase in personnel.*—The number of the Malayan Medical Service, borne on the establishment of the Straits Settlements, has increased from 58 to 80. Of these, the members borne on the Straits Settlements estimates have gone up from 46 in 1921 to 58 in the sanctioned estimates for 1930, an addition of 12. Of the new posts, 5 are in the College of Medicine, the whole time professorial staff of which has been enlarged from 6 to 11, by the addition of professors of biology, biochemistry, bacteriology, clinical surgery and dentistry: other new appointments, since 1921, include a whole time radiologist for Singapore, a superscale surgeon for Penang, a chief medical officer and a medical officer for social hygiene, and three additional supernumerary medical and health officers for leave relief. The health branch in the Straits Settlements has been much strengthened by a rearrangement of medical and health posts, without any addition to the number of serving time scale officers. During the same period, the number of members of the Straits Settlements Medical Department employed in the Unfederated Malay States, has risen from 12 to 22: the increase is mainly due to the formation of separate health branches, with 4 whole time health posts in Johore, 2 in Kedah and 1 each in Kelantan and Trengganu, as against none in 1921. There are now also posts for lady medical officers in both Johore and Kedah. The medical department in Trengganu was only started in 1922, and in Brunei in 1929. The numbers of officers in the local medical service of the Straits Settlements have increased during the same period from 44 to 73; four are employed in the specialist grade and eight in the prize grade in the more responsible posts, most of which would have been filled formerly by members of the Malayan Medical Service. Six members of the local service are employed in the social hygiene branch, which was only established in 1926: eight are employed in the health branch against three, and six in the College of Medicine against three in 1921.

Miscellaneous European male appointments have increased from 11 to 16. These include an accountant, medical department, a secretary, General Hospital, Singapore, a dispensing chemist, 2 chief sanitary inspectors, 6 male attendants, 3 lay superintendents, a dental mechanic and a janitor.

Turning to the Nursing Staff, matrons have increased from 6 in 1921 to 13 in the sanctioned estimates for 1930: 2 of the new appointments are in the Unfederated Malay States. Nursing Sisters have increased from 33 to 85, of whom 15 are serving in the Unfederated Malay States, and health sisters from nil to 5, of whom one is in an Unfederated Malay State.

In the local nursing service, there are 8 senior staff nurses, a new grade created in 1928 (7 in the hospitals and 1 in the health branch), 25 staff nurses

in the hospitals and 7 in the health branch, a total of 40 against a total of 16 in 1921. The number of probationer nurses has advanced during the same period from 38 to 115.

Hospital assistants and dressers have increased from 169 to 280.

In the health branch of the Straits Settlements, Asiatic sanitary inspectors have increased from 6 to 25.

Each of the Unfederated States has its own service of locally appointed candidates, whether assistant medical officers, nurses, hospital assistants, dressers or sanitary inspectors: these are not transferable, with the rare exception of a few persons who have been seconded from the Straits Settlements.

I cannot close this review without expressing my thanks to Government for the sympathetic ear given to proposals for the better care of the sick and for the improvement of public health, which have involved the provision of large sums of money.

#### (c).—ORDINANCES

No ordinances affecting Public Health were enacted during the year.

#### (d) FINANCIAL

The actual medical and sanitary expenditure and the revenue collected in the various settlements were:—

| EXPENDITURE |     |     |     |     |             |    |
|-------------|-----|-----|-----|-----|-------------|----|
|             |     |     |     |     | \$          | c. |
| Singapore   | ... | ... | ... | ... | 2,206,046   | 37 |
| Penang      | ... | ... | ... | ... | 1,093,978   | 67 |
| Malacca     | ... | ... | ... | ... | 296,592     | 53 |
| Labuan      | ... | ... | ... | ... | 24,075      | 17 |
| Total       |     |     |     |     | \$3,620,692 | 74 |

#### REVENUE

Of the expenditure \$706,154.51 was spent on the Health Branch and \$175,368.00 on the College of Medicine, Singapore.

It is to be remembered that in addition to the above the Health Services of the Municipalities spent:—

|           |     |     |     |     | \$          | c. |
|-----------|-----|-----|-----|-----|-------------|----|
| Singapore | ... | ... | ... | ... | 862,453     | 08 |
| Penang    | ... | ... | ... | ... | 165,200     | 28 |
| Malacca   | ... | ... | ... | ... | 29,578      | 12 |
| Total     |     |     |     |     | \$1,057,231 | 48 |

The total revenue of the Colony was \$36,066,168.00.

Further particulars are given in Table II page 89.



## II.—PUBLIC HEALTH

### (a).—GENERAL REMARKS

(a) A consideration of the monthly mortality figures in the Straits Settlements for the last five years is instructive—1925 a healthy year—1926 and 1927 unhealthy throughout—1928 showing a welcome return towards better conditions—and the year under review which is the healthiest on record:—

|                             | 1925    | 1926      | 1927      | 1928      | 1929      |
|-----------------------------|---------|-----------|-----------|-----------|-----------|
|                             | —       | —         | —         | —         | —         |
| January ...                 | 2,054   | 2,579     | 2,734     | 2,577     | 2,571     |
| February ...                | 1,857   | 2,141     | 2,536     | 2,219     | 2,139     |
| March ...                   | 1,991   | 2,458     | 2,792     | 2,401     | 2,410     |
| April ...                   | 2,099   | 2,762     | 2,891     | 2,615     | 2,307     |
| May ...                     | 2,457   | 3,340     | 3,164     | 3,004     | 2,734     |
| June ...                    | 2,245   | 3,227     | 3,121     | 2,921     | 2,629     |
| July ...                    | 2,208   | 3,038     | 3,301     | 2,980     | 2,571     |
| August ...                  | 2,298   | 2,740     | 3,167     | 2,495     | 2,302     |
| September ...               | 2,332   | 2,504     | 2,975     | 2,496     | 2,323     |
| October ...                 | 2,514   | 2,588     | 3,213     | 2,524     | 2,443     |
| November ...                | 2,463   | 2,534     | 2,907     | 2,607     | 2,482     |
| December ...                | 2,588   | 2,722     | 2,760     | 2,677     | 2,633     |
| Total deaths ..             | 27,106  | 32,633    | 35,561    | 31,516    | 29,544    |
| Estimated population ...    | 994,266 | 1,025,835 | 1,059,968 | 1,095,635 | 1,131,903 |
| Death-rate per thousand ... | 27.26   | 31.81     | 33.55     | 28.76     | 26.10     |

The death-rate for Singapore Settlement in 1929 was 25.84, for Malacca Settlement 24.52, for Penang Island 28.69 and for Province Wellesley 25.65.

It is to be noted that the rainfall in all settlements was somewhat below the average—in Singapore 2,009.27 m.m., in Malacca 2,231 m.m., in Penang 2,399 m.m.—and that deficient rainfall in most years connotes an increased death-rate.

The death-rate in the Municipal area of Singapore fell from 28.44 per thousand in 1928 to 26.21 in 1929 which is the lowest yet recorded. Six hundred and twenty-six of those who died were resident less than 3 months in Singapore. Deducting these, the Singapore Municipal death-rate is 24.91 per thousand.

There were 293,167 Chinese immigrants during the year; 139,967 Chinese deck passengers returned to China.

Indian immigrants totalled 114,252. Against these, 76,649 deck passengers returned to India.

The infantile death-rate 181.92 per thousand is the lowest yet recorded.

(b) The deaths registered in the Straits Settlements are divided as regards Certificates as follows:—

*Deaths registered in the Straits Settlements as regards certificates in the year 1929.*

| <i>Particulars</i>                                | <i>Singapore</i> | <i>Penang</i> | <i>P. Wellesley</i> | <i>Dindings</i> | <i>Malacca</i> | <i>Labuan</i> | <i>Total</i> |
|---------------------------------------------------|------------------|---------------|---------------------|-----------------|----------------|---------------|--------------|
| Died in Hospitals ...                             | 3,038            | 1,073         | 488                 | 126             | 298            | 14            | 5,037        |
| Certified by Outside Medical Practitioners ...    | 4,923            | 751           | 1                   | —               | 289            | 8             | 5,972        |
| Certified by Registering Officers after death ... | 4,016            | 2,403         | 8                   | —               | 458            | 21            | 6,906        |
| Uncertified ...                                   | 2,874            | 1,263         | 3,133               | 376             | 3,859          | 124           | 11,629       |
| Total ...                                         | 14,851           | 5,490         | 3,630               | 502             | 4,904          | 167           | 29,544       |

Less than 37 per cent of those dying are under the care of a registered medical practitioner before death and certified accordingly. Of the remainder, some 23 per cent are certified by qualified registering officers who inspect the body after death, or by a coroner. In some 40 per cent, the cause of death is uncertified, and is guessed by a subordinate police officer from the statements made to him by the relative or friend of the deceased who reports the death. The relative inaccuracy of the stated causes of death will be realised from these facts.

In the Municipality of Singapore a higher standard of accuracy is attained than in the rest of the Colony, for 66 per cent of deaths are certified by registered medical practitioners who have attended the deceased, 28·9 per cent by qualified registrars inspecting after death, 4·8 per cent by the coroner and only 0·3 per cent are uncertified.

I have, therefore, quoted a number of figures from the report of the Municipal Health Officer, Singapore, to whom my indebtedness is acknowledged.

(b).—GENERAL DISEASES

1. *Beri-beri*.—The deaths registered as due to Beri-beri in the last 19 years are:—

| <i>Year</i>           | <i>Number of deaths</i> | <i>Year</i>                | <i>Number of deaths</i> |
|-----------------------|-------------------------|----------------------------|-------------------------|
| —                     | —                       | —                          | —                       |
| 1911 (Census 714,069) | 2,056                   | 1920                       | 1,025                   |
| 1912                  | 1,926                   | 1921 (Census 881,930)      | 1,299                   |
| 1913                  | 1,657                   | 1922                       | 1,388                   |
| 1914                  | 1,482                   | 1923                       | 904                     |
| 1915                  | 1,079                   | 1924                       | 910                     |
| 1916                  | 1,075                   | 1925                       | 973                     |
| 1917                  | 2,075                   | 1926                       | 1,098                   |
| 1918                  | 1,958                   | 1927                       | 1,528                   |
| 1919                  | 1,430                   | 1928                       | 1,146                   |
|                       |                         | 1929 (Est. pop. 1,131,903) | 944                     |



Seven hundred and ninety-four of the deaths due to beri-beri occurred in Singapore. The majority contracted the disease elsewhere. The real death-rate from beri-beri is lower than the stated figures, for it is certain that some deaths due to affections of the central nervous system are returned as beri-beri. Since the food rationing in the years 1918 to 1921, which led to a less exclusive use of overmilled rice in the diet of the Chinese labouring class, beri-beri has not risen to the previous high figures, but there is still room for improvement.

The low figures in 1915 and 1916 were due to the repatriation of a large number of invalid Chinese, as a war measure.

2. *The Pneumonias*.—These very common diseases are increased by city conditions.

The Municipality of Singapore, which is estimated to contain some 43 per cent of the population of the Colony, returned 71 per cent of the total deaths from pneumonia. The total deaths under this head were 2,502 (1,770 in Singapore city) against 2,679 (1,806 in Singapore city) in 1928. Of the total 1,165, including a number of children, were classed as broncho-pneumonia.

3. *Convulsions*.—Nearly 16 per cent of the total deaths in the Colony were returned under this vague head, which comprises a variety of infantile disorders. "Sawan" the Malay equivalent of convulsions is one of the commonest causes of death reported. Numbers so registered were 4,692 (1,248 in Singapore city, of whom 1,073 were under one year of age) against 5,040 (1,171 in Singapore city) in 1928. In December 1929, the Municipal Health Officer, Singapore, instituted the examination of mouthswabs from all infants and children dying under 10 years of age, with the surprising result that the Diphtheria bacillus was identified in no less than 6 out of 53 examinations. Several of the six had been returned as "Convulsions". The results for 1930 will be awaited with interest. It would seem that in 1929 at any rate a considerable amount of diphtheria must have prevailed amongst the class who do not usually seek qualified medical aid for their sick children.

#### (c).—DANGEROUS INFECTIOUS DISEASES

The incidence of dangerous infectious diseases in the Colony was again low.

(1) *Plague*.—There were 3 cases of plague and 3 deaths (all in Singapore): figures for the three previous years are 7 (1926), 4 (1927) and 5 (1928).

No plague infected rats were found.

(2) *Cholera*.—No cholera occurred in the Colony during the year.

(3) *Small-pox*.—There were 19 cases and 2 deaths (of which 1 was imported).

*Vaccinations*.—Sixty-seven thousand nine hundred and forty vaccinations and revaccinations were performed as follows:—

|              |     |     |     |     |        |
|--------------|-----|-----|-----|-----|--------|
| Perfect ...  | ... | ... | ... | ... | 27,092 |
| Modified ... | ... | ... | ... | ... | 1,850  |
| Failed ...   | ... | ... | ... | ... | 2,181  |
| Not seen     | ... | ... | ... | ... | 36,817 |

(4) *Cerebro-spinal Meningitis*.—There were 3 cases and 3 deaths.

## OTHER INFECTIOUS DISEASES

(d) *Tuberculosis*:—

(1) The distribution of Tuberculosis in the Colony proves that it is prevalent mainly in the three cities.

| (2)                                                 | Year | 1928      | 1929      |
|-----------------------------------------------------|------|-----------|-----------|
| Estimated population of the Straits Settlements ... | ...  | 1,095,635 | 1,131,903 |
| Total deaths from all causes ...                    | ...  | 31,510    | 29,544    |
| Death-rate per thousand ...                         | ...  | 28.76     | 26.10     |
| Total deaths from pulmonary tuberculosis ...        | ...  | 2,727     | 2,710     |
| Pulmonary tuberculosis death-rate per thousand ...  | ...  | 2.49      | 2.30      |

| (3) | Year     | Deaths from tuberculosis in the Colony | Deaths from tuberculosis in Singapore city |
|-----|----------|----------------------------------------|--------------------------------------------|
|     | 1925 ... | 2,604                                  | 1,254                                      |
|     | 1926 ... | 2,526                                  | 1,570                                      |
|     | 1927 ... | 2,903                                  | 1,523                                      |
|     | 1928 ... | 2,727                                  | 1,411                                      |
|     | 1929 ... | 2,710                                  | 1,500                                      |

(4) Comparative prevalence of Tuberculosis in Urban and Rural areas, 1929:—

|                                       | Estimated Population | Death-rate from all diseases per thousand | Number of deaths from Tuberculosis | Tuberculosis death-rate per thousand |
|---------------------------------------|----------------------|-------------------------------------------|------------------------------------|--------------------------------------|
| Singapore Municipality ...            | 479,723              | 26.21                                     | 1,500                              | Cities<br>3.1                        |
| George Town (Penang) Municipality ... | 144,114              | 28.63                                     | 485                                |                                      |
| Malacca Municipality ...              | 42,333               | 22.06                                     | 96                                 |                                      |
| Rural areas of Colony ...             | 465,733              | 25.56                                     | 629                                | Rural areas<br>1.3                   |

(5) Though the death-rate from Tuberculosis is inclined to fall, it is still very high in urban areas.

(6) Amelioration of the conditions of the life of the poor, and especially as regards housing, is the most important preventive measure. Housing improvement schemes are in operation in the cities of Singapore and Malacca, and may be introduced in the city of Georgetown (Penang). These schemes will, it is hoped, lead to the early abolition of congested tenement houses, and, in particular, of ill-lighted and ill-ventilated cubicles.

(7) Separate hospital provision for advanced cases of tuberculosis exists in most hospitals, but the provision of one or two separate hospitals for such cases is desirable; a start will probably be made in Singapore this year. Compulsory isolation of the dangerously infective is not yet practicable.

(8) As regards the early case, facilities for treatment exist in the General Hospital, Singapore, and will shortly be provided at the General Hospitals in Penang and Malacca. His Excellency the Governor favours the erection of one Central Tuberculosis Sanatorium for the whole of Malaya; the most suitable site for this is now being sought.

(9) With the sustained diminution of overcrowding in the cities by the operation of improvement schemes, the establishment of Municipal Tuberculosis Clinics for the detection and education of the early case, should now be



seriously considered. Such institutions would also select cases suitable for sanatorium treatment.

(10) The stricter control of immigration, if possible, is very desirable.

(11) The teaching of hygiene in schools and child welfare centres is a useful adjunct against this disease.

(12) Representations have been made to the Colonial Medical Research Committee, London, as to the desirability of awarding to a scientific worker a research travelling fellowship for the study of the prevention and treatment of tuberculosis in the Straits Settlements.

#### (c).—MALARIA

In considering malaria, deaths registered as "unspecified fever" some of which are due to malaria, must be taken into account.

Figures for the past 5 years are:—

| Year     | Malaria | Fever unspecified | Total |
|----------|---------|-------------------|-------|
| 1925 ... | 4,235   | 2,043             | 6,278 |
| 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 |

Allowing for the increase of population, the present figures are probably the best recorded. As against the previous year, there is a decrease in Penang Island from 1011 to 582, and in Province Wellesley, from 1626 to 1327: figures for the Settlement of Malacca 1370 against 1367 remain unchanged: for the Settlement of Singapore, there is a decrease from 1436 to 1179, of which 1080 deaths took place in Singapore city. The Municipal Health Officer, Singapore, points out that, in his opinion, less than 14 per cent of these were infected in Singapore city. In this connection, the Singapore hospital malaria admission figures, which totalled 4,024 for 1929, are informative: 1923 of those admitted were resident in Singapore city, but it seemed likely that many of them had contracted the infection outside municipal limits: 664 were from rural Singapore, 801 from the State of Johore, and 196 from Dutch Islands near Singapore: the home address of the remaining 284 was uncertain.

#### (f).—BOWEL DISEASES

(1) *The Dysenteries* were responsible for 673 deaths against 902, 1,096, 1,015 and 857 deaths in the four previous years.

(2) *Diarrhoea and Enteritis* caused 1,380 deaths of which 766 were in children under 1 year of age, against 1,230, 1,409, 1,169 and 1,043 deaths in the four previous years.

(3) *Enteric Fever*:—

| Year     | Deaths in the Colony | Cases notified in Singapore Municipality |
|----------|----------------------|------------------------------------------|
| 1925 ... | 100                  | 136                                      |
| 1926 ... | 120                  | 197                                      |
| 1927 ... | 188                  | 235                                      |
| 1928 ... | 174                  | 230                                      |
| 1929 ... | 118                  | 133                                      |

The return of cases notified in Singapore Municipality supports the supposition that enteric fever is not a common disease: the enteric mortality has never been high in the Colony.

(g) *Diphtheria*:—

| Year | Deaths in the Colony | Cases reported in Singapore Municipality |
|------|----------------------|------------------------------------------|
| —    | —                    | —                                        |
| 1925 | 24                   | 51                                       |
| 1926 | 15                   | 46                                       |
| 1927 | 16                   | 29                                       |
| 1928 | 21                   | 59                                       |
| 1929 | 31                   | 57                                       |

Reference to my remarks under the heading “convulsions” will show that there has been a considerable amount of undiagnosed diphtheria, at any rate in Singapore.

(h) *Scarlet Fever*.—There were 6 cases, all in Singapore, five amongst the children of newly-arrived soldiers, and one off a Dutch ship.

(i).—*VENEREAL DISEASES*

The attendances at venereal clinics and dispensaries numbered 238,648 against 182,561 in 1928. The ratio of total attendances to new cases was 8.98. Six hundred and forty-one seamen made 5,066 attendances.

During the year two meetings of the Social Hygiene Advisory Board were held, at which the majority of members voiced their objections to the policy of completely closing all brothels. The Board through Government in 1928 forwarded to the Secretary of State a resolution stating the Board's opposition to this policy. The Board also objected to certain clauses in the new draft of the Women and Girls' Protection Ordinance, 1930, and has made representations to Government concerning these.

Sir DAVID GALLOWAY resigned from the Board and the Bishop of Singapore joined it.

(For details of anti-venereal work *vide* Appendix G, page 78.)

(j).—*LEPROSY*

(1) It is with deep regret that I record the death on 17th February, 1930, of Dr. A. H. WHEATLEY, a prominent member of the local Medical Service, and Medical Superintendent of the male leper settlement at Pulau Jerejak; he was an experienced physician and much beloved by the lepers. His annual report for 1929 was uncompleted but some of the usual details have been supplied by the Chief Medical Officer, Penang.

(2) The number admitted to institutions increased by 28 as against 12 in 1928.

|       |                          | Remaining<br>on<br>31/12/28 | Ad-<br>mitted | Died | Abs-<br>conded | Trans-<br>ferred | Dis-<br>charged | Remaining<br>on<br>31/12/29 |
|-------|--------------------------|-----------------------------|---------------|------|----------------|------------------|-----------------|-----------------------------|
| Men   | Pulau Jerejak,<br>Penang | 772                         | 218           | 105  | 35             | —                | 3               | 847                         |
|       | Singapore                | 50                          | 69            | 6    | —              | 80               | 5               | 28                          |
| Women | Penang                   | 51                          | 18            | 5    | 3              | —                | —               | 61                          |
|       | Singapore                | 64                          | 13            | 6    | 3              | —                | 3               | 65                          |
| Total |                          | 937                         | 318           | 122  | 41             | 80               | 11              | 1,001                       |



(3) *Treatment*.—Nearly all the lepers are voluntarily under treatment; the death-rate continues to decrease.

| Year   | 1923 | 1924 | 1925 | 1926  | 1927  | 1928  | 1929  |
|--------|------|------|------|-------|-------|-------|-------|
| Cases  | 888  | 891  | 996  | 1,070 | 1,111 | 1,147 | 1,255 |
| Deaths | 164  | 150  | 143  | 140   | 144   | 121   | 122   |

The pure expressed oil of *Hydnocarpus* and the preparation known as Alepol have given the best results.

Reports on Leper Settlements are attached. (*Vide* Appendices A and B, pages 46 to 50).

#### (k).—HELMINTHIC DISEASES

*Ankylostomiasis*.—The total number of primary ankylostomiasis cases treated as in-patients and of deaths therefrom in the hospitals of the Colony for the past five years is:—

| Year | Remained | Admitted | Total treated | Deaths |
|------|----------|----------|---------------|--------|
| 1925 | 195      | 4,304    | 4,499         | 123    |
| 1926 | 138      | 3,996    | 4,134         | 142    |
| 1927 | 138      | 3,874    | 4,012         | 102    |
| 1928 | 144      | 3,037    | 3,181         | 84     |
| 1929 | 96       | 2,731    | 2,827         | 63     |

The rural Sanitation Campaign initiated in co-operation with the Rockefeller Foundation between the years 1926 and 1928 has been continued and extended by the Health Branch, and both the incidence and the severity of hookworm disease are lessening in the Colony.

#### (l).—IMPROVEMENT OF PUBLIC HEALTH

Two graphs and three diagrams numbered *I*, *II*, *III*, *IV* and *V* are enclosed. The graphs demonstrate the improvement in public health during the last generation.

*I* is a graph depicting the mean monthly death-rate in Singapore from all causes in the decennial periods 1904-1913 and 1914-1923 and in the six years 1924 to 1929. Material is not available to make such a graph for the whole Colony.

*II* is a graph giving a monthly comparison between the last two census years 1911 and 1921 and the year 1929. The improvement in the latter year is attributable more to anti-malarial measures than to any single other cause. The infantile mortality has dropped 50 per cent since 1911.

Diagrams *III* and *IV* and *V* explain themselves. It is not correct to state that every case of pneumonia is avoidable and many cases of convulsions, though not shewn as preventable, are preventable.

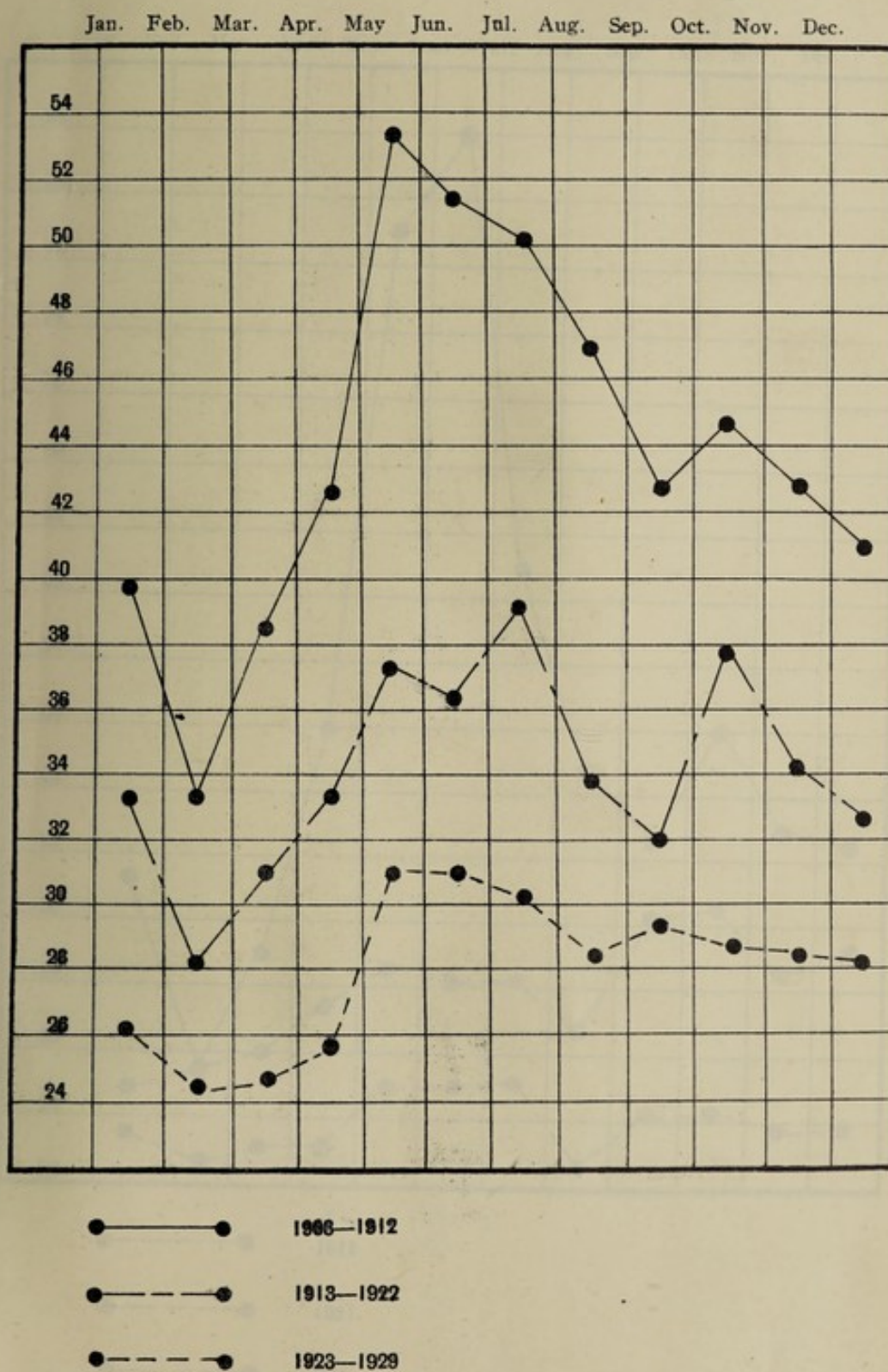
Nevertheless the diagrams do give an idea of the amount of disease and of death that is preventable.

Roughly it should be possible to lower the death-rate to 14 per thousand. In other words there is nothing inherently unhealthy in a tropical as opposed to a temperate climate.

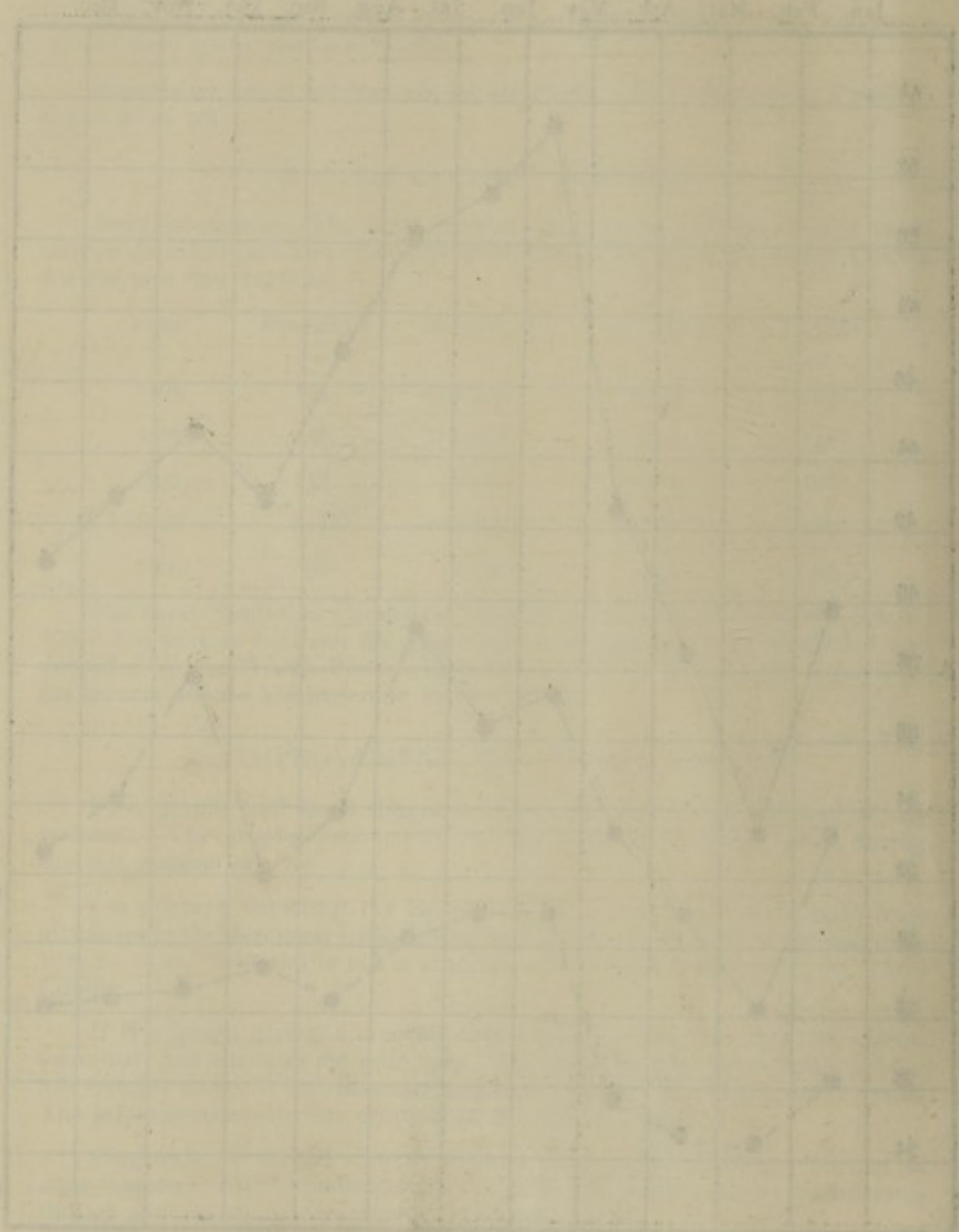
# I

## Singapore

Monthly Death-rate from all causes.





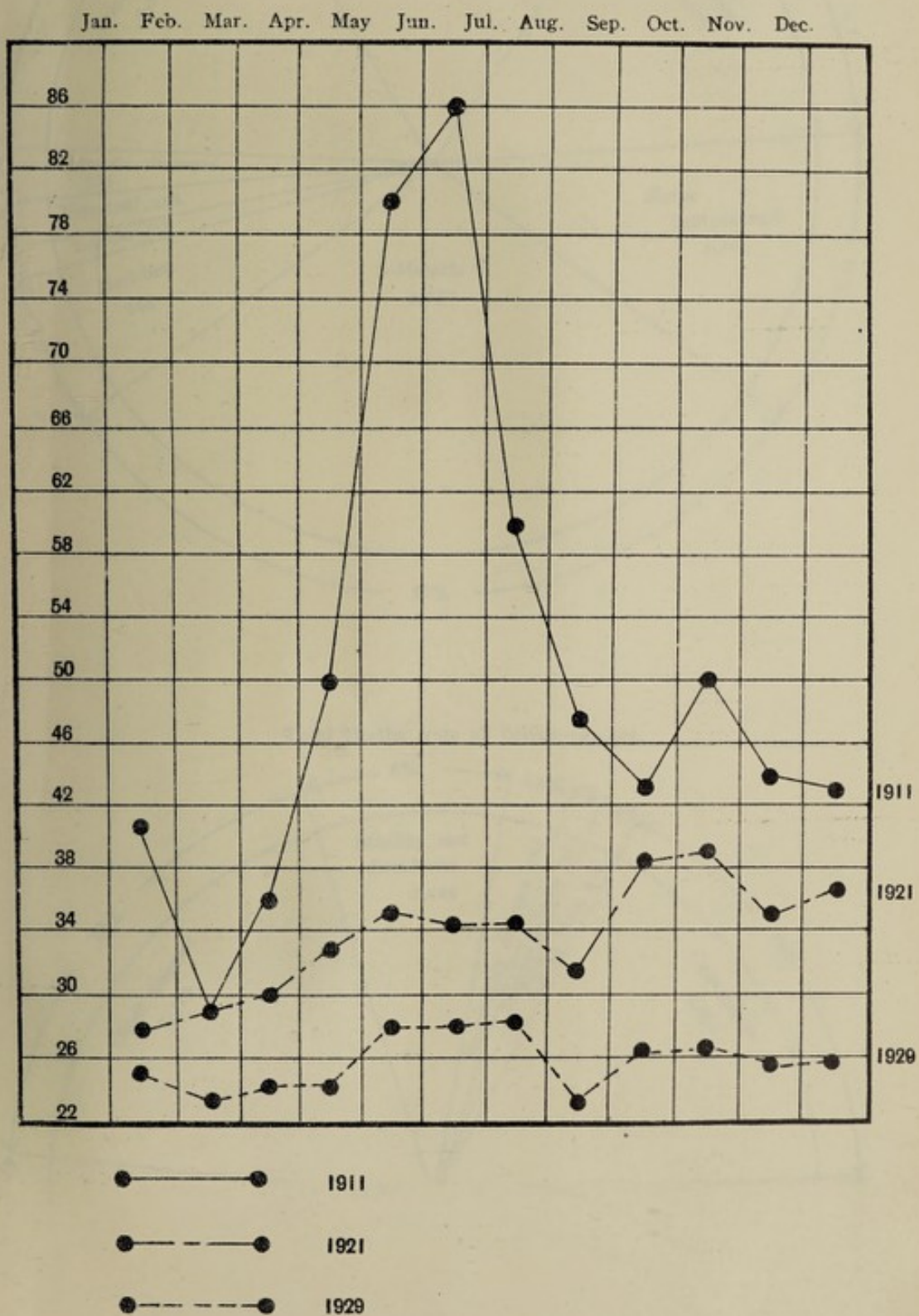


100-100  
 100-100  
 100-100

# II

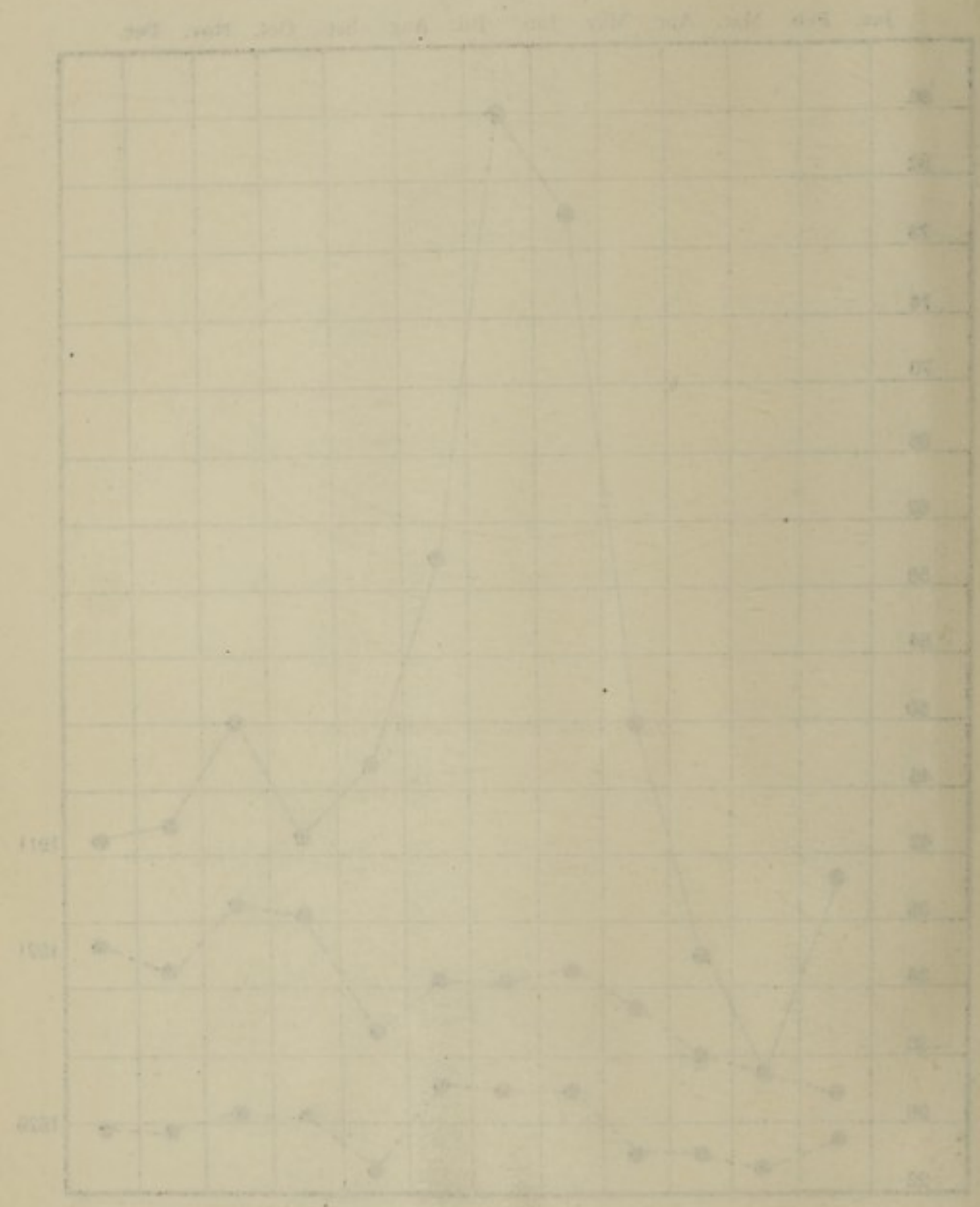
Singapore

Mean Monthly Death-rate from all causes.

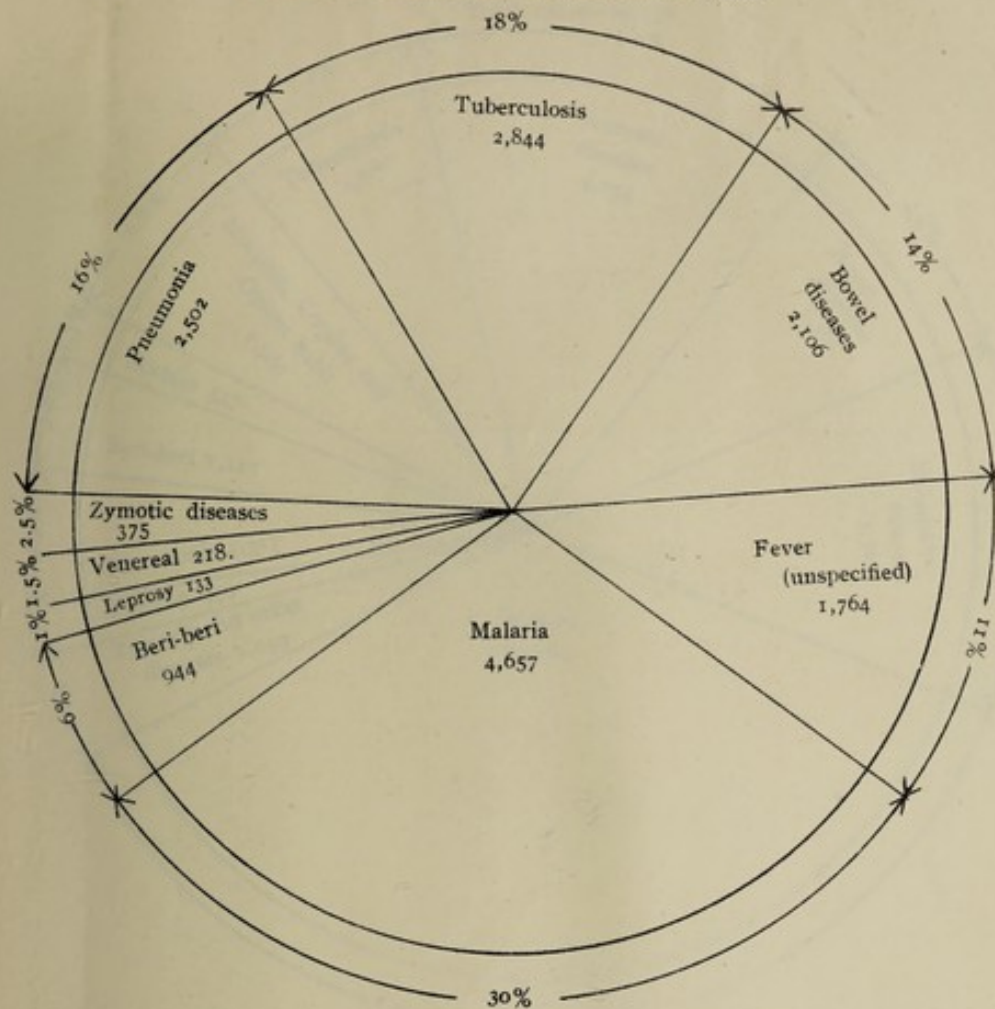




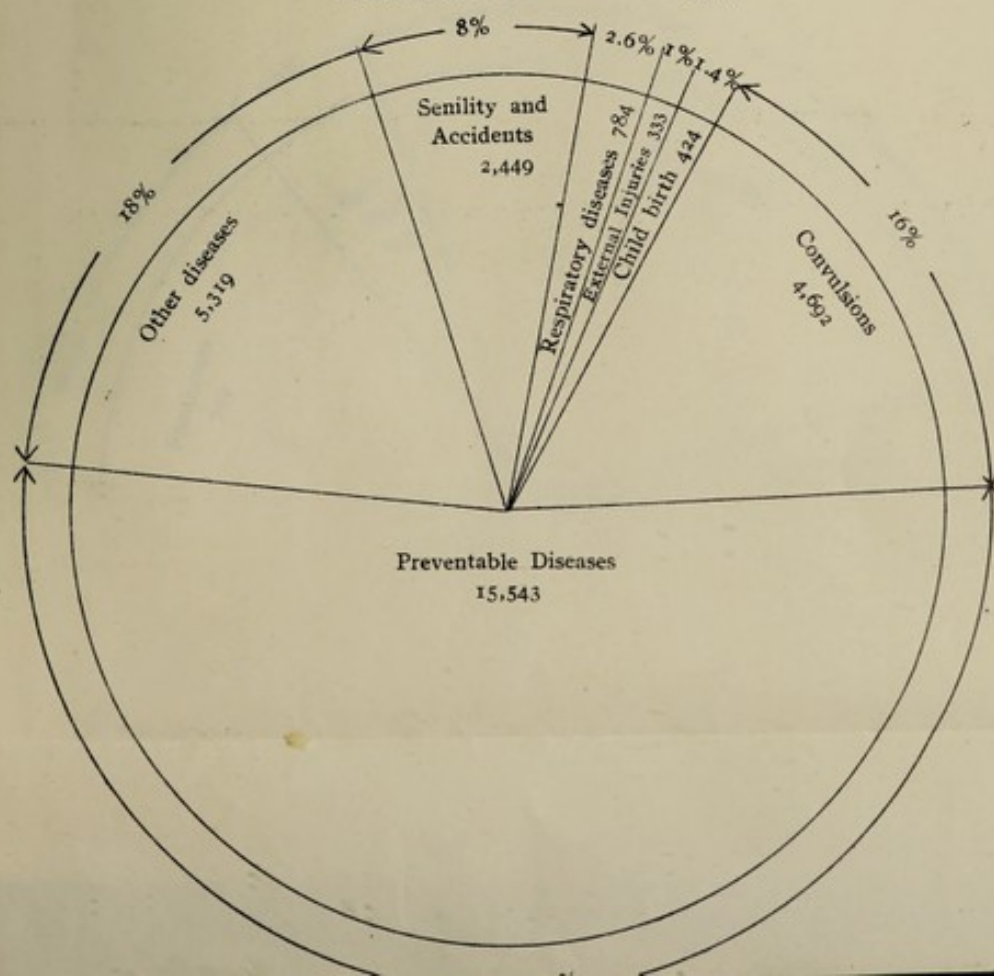
Temperature  
 of the air at the station



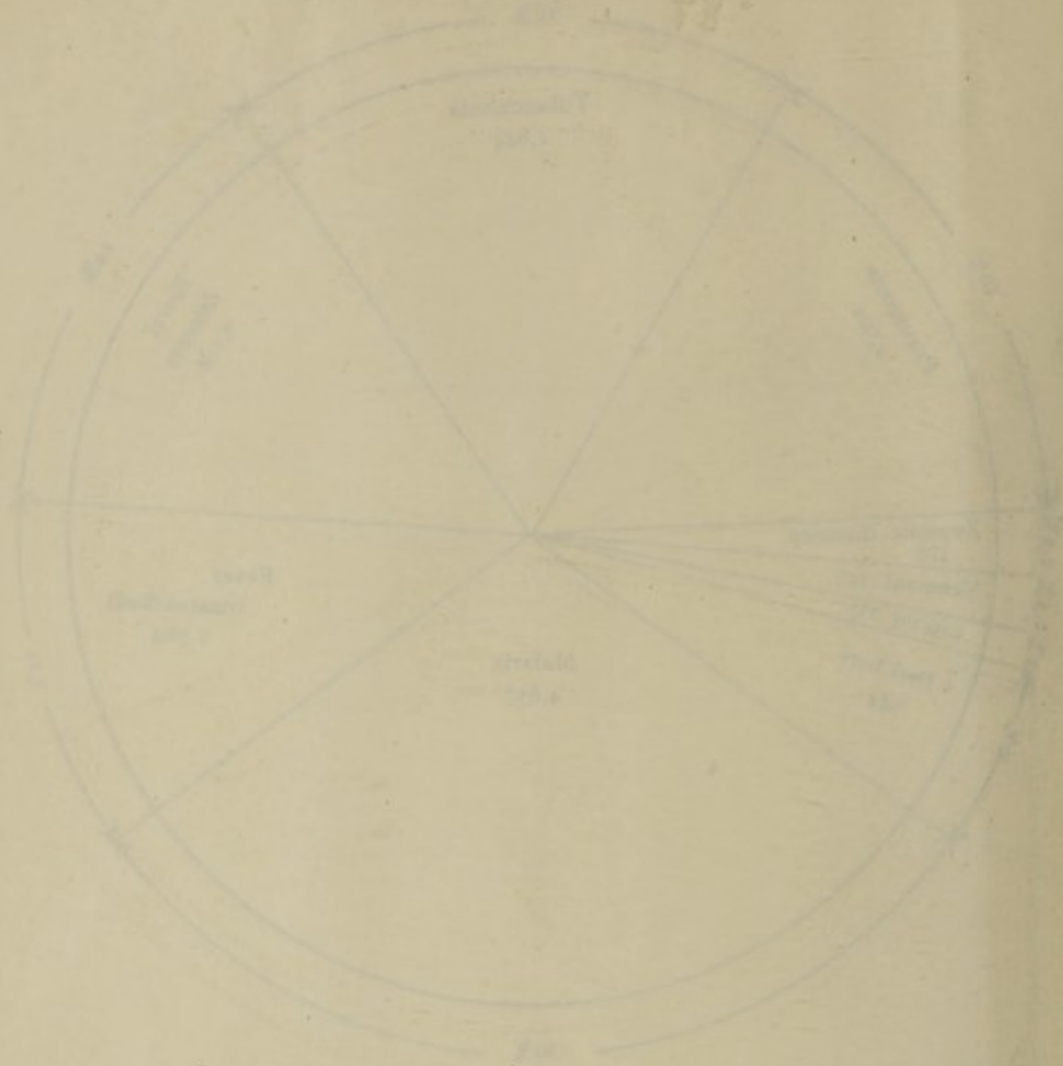
110°  
 100°  
 90°



Total Deaths from all causes—29,544.

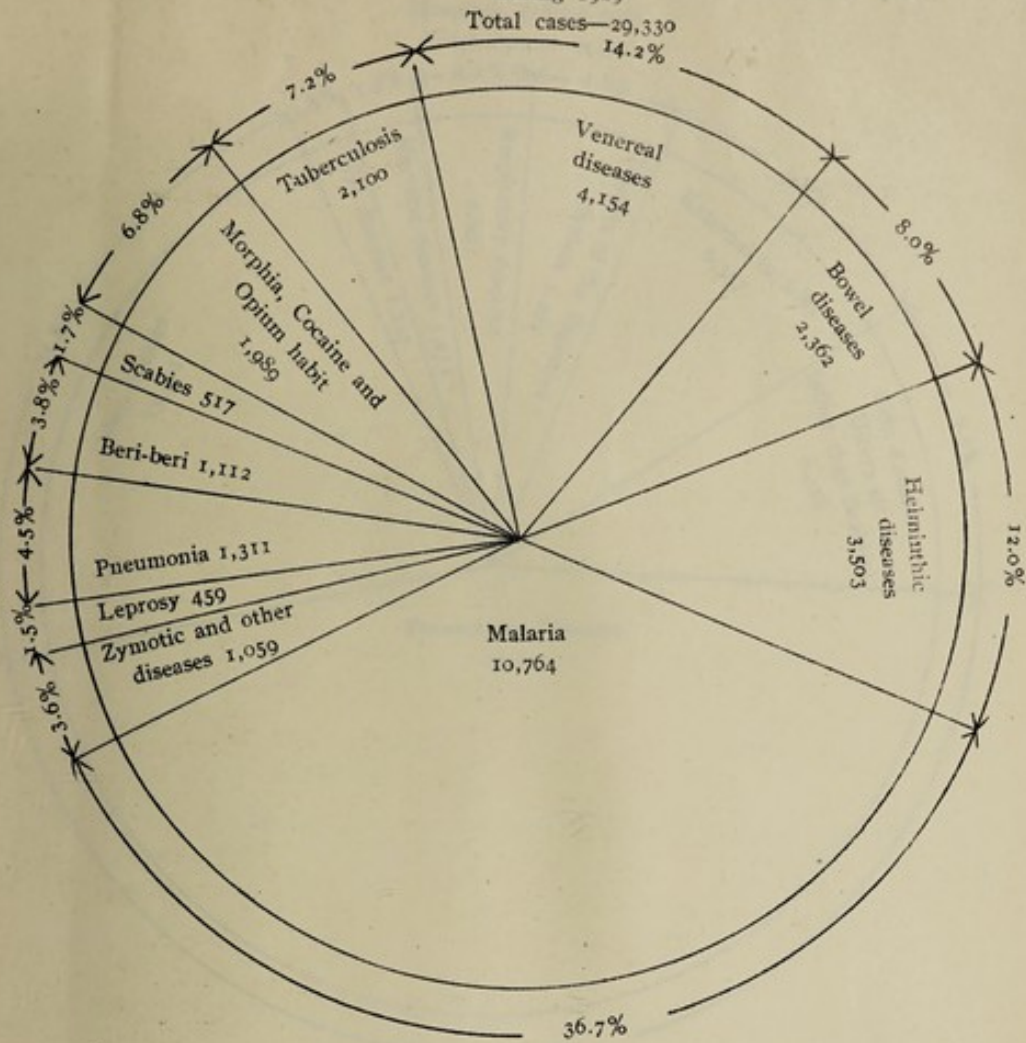




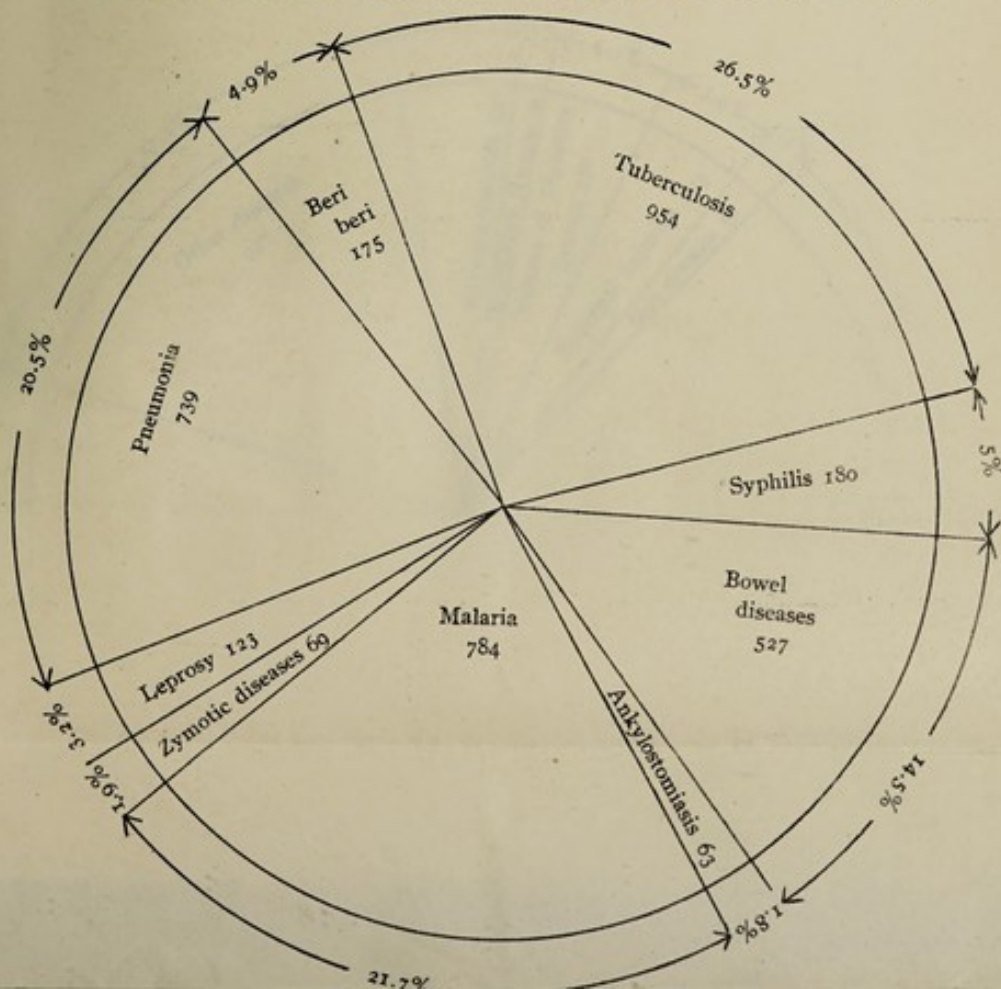


Total Length of Fishes - 1896

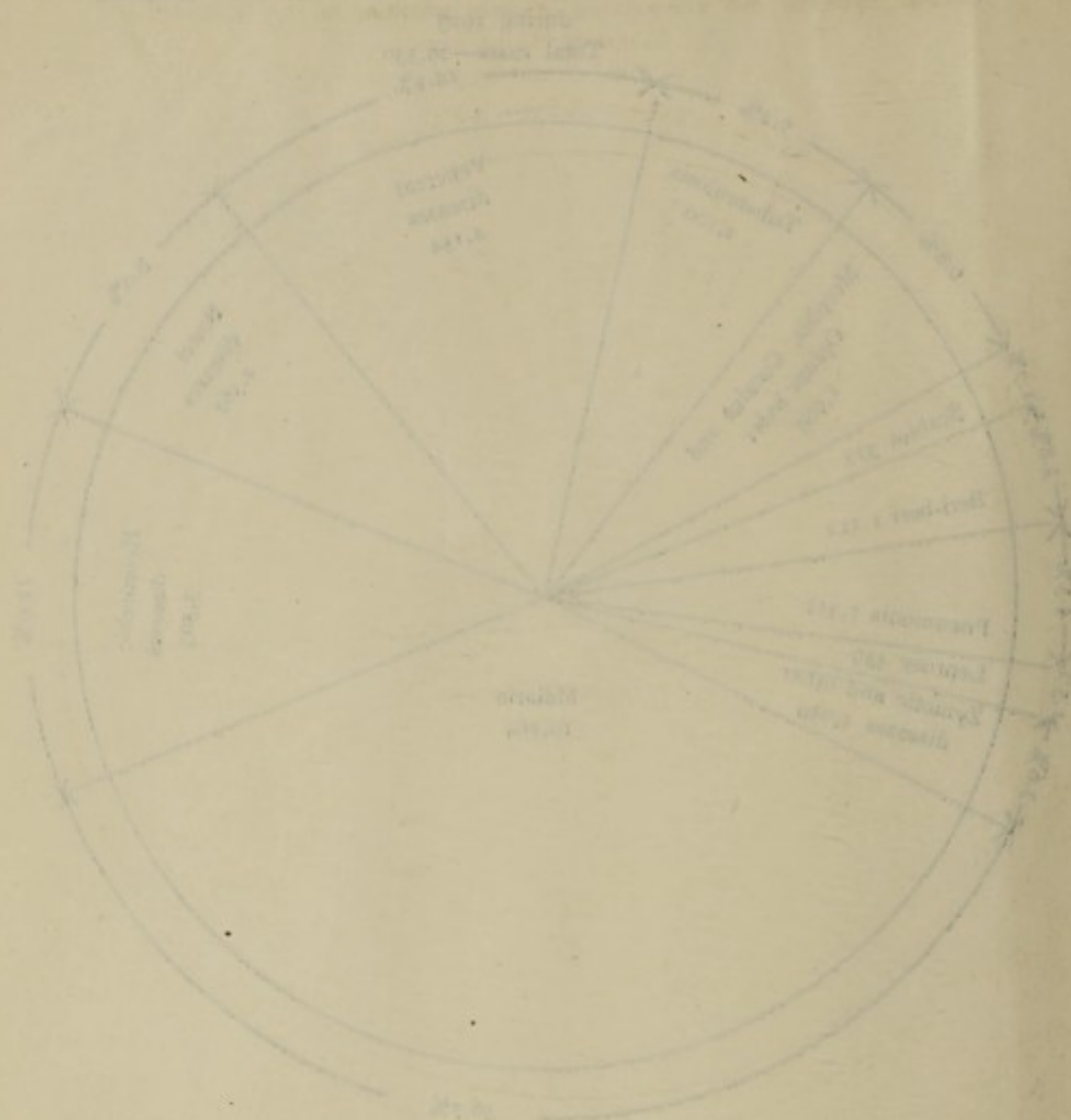




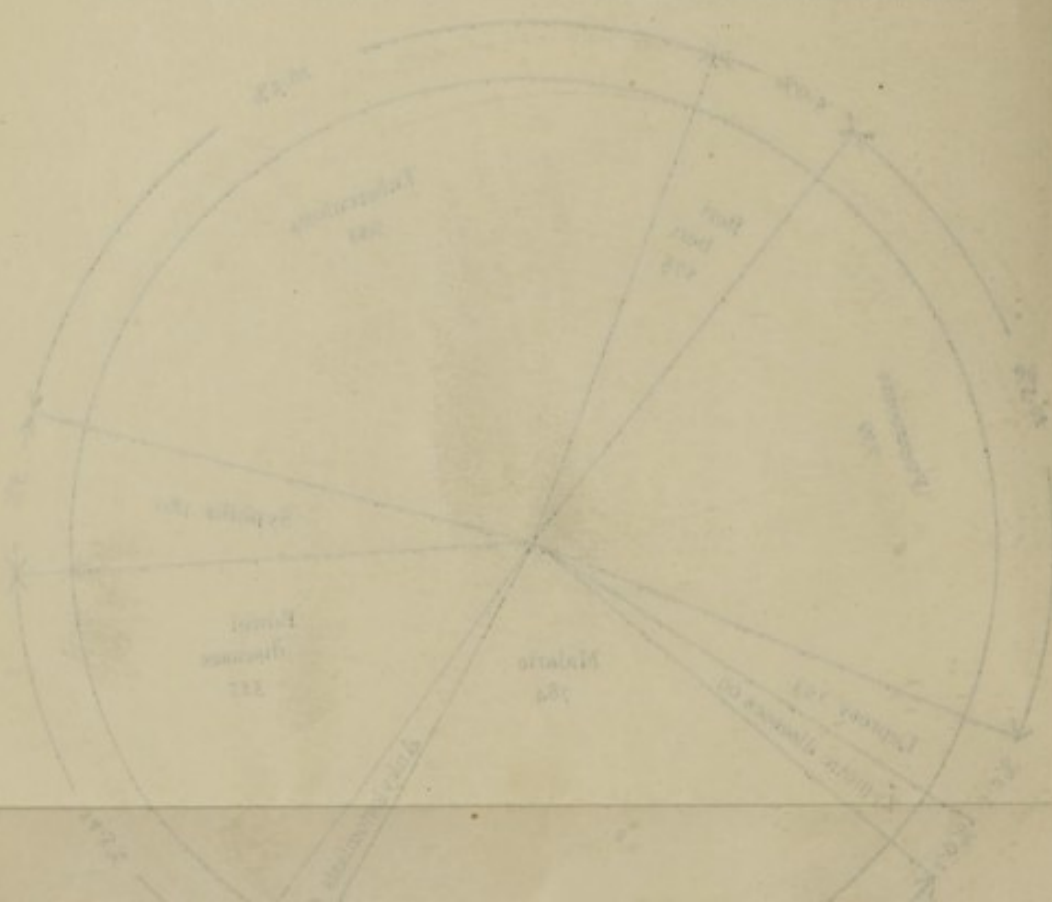
Total Deaths from Preventable diseases in the S.S. Government Hospitals—3,614





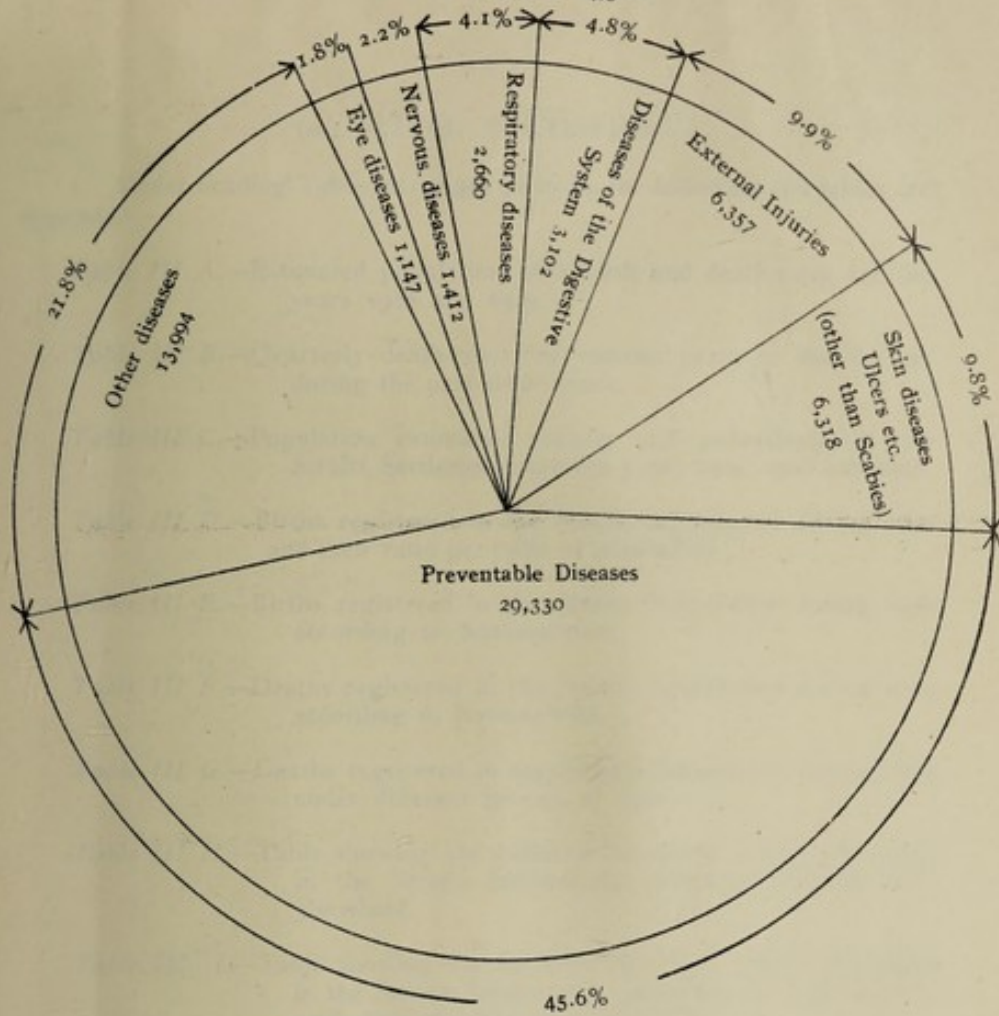


Total Basis from Infective Diseases in the U.S. Coast Hospital—1912

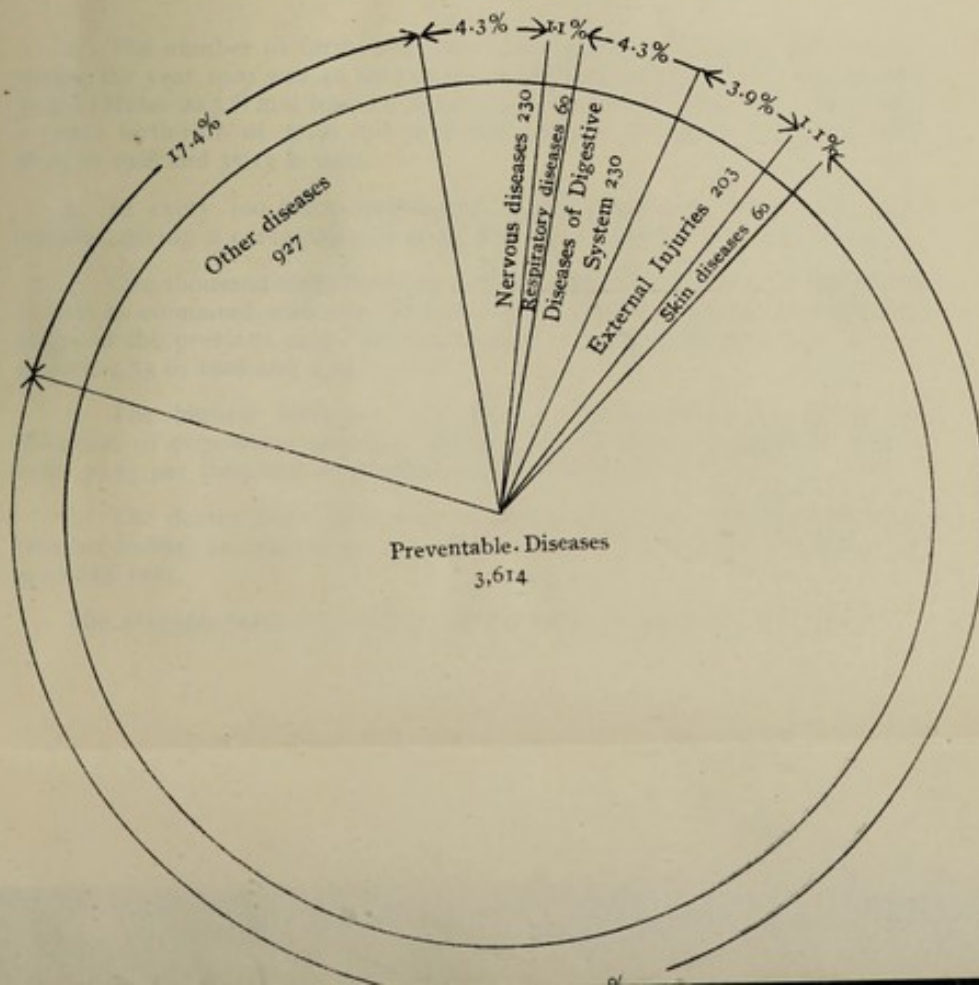


Hospitals during 1929

Total Cases—64,320.



Total deaths from all causes in the S.S. Govt. Hospitals—5,324.







## (m).—VITAL STATISTICS

1. Under heading Table III, pages 92 to 96, the following ten tables are appended—

*Table III A.*—Estimated population with birth and death-rates for the years 1928 and 1929.

*Table III B.*—Quarterly death-rates for various parts of the Colony during the past three years.

*Table III C.*—Population estimated racially and collectively of the Straits Settlements for the years 1929, 1928 and 1927.

*Table III D.*—Births registered in the Straits Settlements during 1929 and their ratio per mille of population.

*Table III E.*—Births registered in the Straits Settlements during 1929 according to Nationalities.

*Table III F.*—Deaths registered in the Straits Settlements during 1929 according to Nationalities.

*Table III G.*—Deaths registered in the Straits Settlements during 1929 under different groups of ages.

*Table III H.*—Table showing the Infantile Mortality (under one year) in the Straits Settlements including children born elsewhere.

*Table III I.*—Table showing the Infantile Mortality (under one year) in the Straits Settlements, according to Nationalities, excluding children born elsewhere.

*Table III J.*—Deaths registered in the Straits Settlements as regards certificates in the year 1929.

2. The number of births registered throughout the Straits Settlements during the year 1929 was 42,102 (males 21,982 and females 20,120) as against 39,479 (Males 20,528 and females 18,951) in the previous year: this represents a crude birth-rate of 37.20 per thousand persons living as compared with 36.03 in 1928 and 35.13 in 1927.

3. In every 100 births registered, there were 52.22 males and 47.78 females, giving a percentage of 91.75 females to every 100 males born.

4. One thousand eight hundred and thirty-one still births were registered in 1929 as compared with one thousand seven hundred and ninety-eight still births in the previous year—the percentage to those born alive was 4.35 as against 4.55 in 1928 and 4.79 in 1927.

5. The highest birth-rate according to nationalities was 40.94 per thousand of population amongst Malays, the Chinese coming next with a ratio 39.85 per thousand of population *vide* Table III E.

6. The deaths from all causes in 1929 were 29,544 (Males 18,660 and females 10,884) as against 31,519 (Males 20,300 and females 11,216) in the previous year.

The average death-rate for the last 10 years is 29.81 per thousand.



Death-rates for the last 19 years:—

| <i>Year</i>   | <i>Ratio per mille</i> | <i>Year</i>   | <i>Ratio per mille</i> |
|---------------|------------------------|---------------|------------------------|
| 1911 (census) | ... 46.46              | 1921 (census) | ... 31.54              |
| 1912          | ... 39.01              | 1922          | ... 30.68              |
| 1913          | ... 34.93              | 1923          | ... 27.80              |
| 1914          | ... 34.13              | 1924          | ... 27.42              |
| 1915          | ... 29.15              | 1925          | ... 27.26              |
| 1916          | ... 30.70 (a)          | 1926          | ... 31.81              |
| 1917          | ... 36.98              | 1927          | ... 33.55              |
| 1918          | ... 43.85 (b)          | 1928          | ... 28.76              |
| 1919          | ... 33.04              | 1929          | ... 26.10 (c)          |
| 1920          | ... 33.20              |               |                        |

The Municipal Health Officer, Singapore, reports the death-rate for that city as 26.21 per thousand against 28.44 and 33.08 in the two previous years. Six hundred and twenty-six persons died who had been less than three months resident in Singapore: deducting these the death-rate is reduced to 24.91 per thousand.

7. The highest racial death-rate in the Colony was classed under Chinese with a ratio of 27.42 per thousand of population, the Malays coming next with a ratio of 26.87 per thousand of population.

8. It is always difficult to assess the true infantile mortality. In illustration of this the figures for the Singapore Municipal area where registration is more accurate than elsewhere are quoted. Seventeen thousand five hundred and fifty-one children were born in this area, a birth-rate of 36.59 per mille. Infantile deaths numbered 3,467, a rate of 197.5 per 1,000 births. But a large number of infants arrived in the Colony during the same period, and it is certain that at least 4,000 of these remained in Singapore: an addition of this number would bring the Singapore City infantile death-rate down to about 160 per thousand.

9. Table shewing the sick, invaliding and deaths of European officials of all ranks:—

|                                                                        | 1926  | 1927  | 1928  | 1929  |
|------------------------------------------------------------------------|-------|-------|-------|-------|
| (1) Total number of European officials on the establishment            | 672   | 689   | 698   | 822   |
| (2) Average number resident in Colony                                  | 547   | 617   | 607.4 | 709.5 |
| (3) Total number on sick list                                          | 257   | 246   | 427   | 433   |
| (4) Total number of days on sick list                                  | 3,728 | 3,125 | 4,952 | 4,536 |
| (5) Total number invalided                                             | 7     | 9     | 6     | 10    |
| (6) Total deaths                                                       | 5     | 3     | 4     | 2     |
| (7) Total deaths in Colony                                             | 5     | 3     | 4     | 2     |
| (8) Average daily number on sick list                                  | 58    | 57    | 69    | 12.43 |
| (9) Average number of days on sick list                                | 10.21 | 12.7  | 11.62 | 10.47 |
| (10) Percentage of deaths to number resident                           | .91   | .48   | .65   | .28   |
| (11) Percentage of sick to the average number resident during the year | 47.35 | 39.87 | 70.29 | 61.02 |

(a) Repatriation of several thousands of decrepit Chinese as a war measure.

(b) Influenza Epidemic.

(c) Lowest recorded death-rate.

10. Table shewing the sick, invaliding and deaths of non-European officials:—

|                                                    | 1926   | 1927   | 1928    | 1929                  |
|----------------------------------------------------|--------|--------|---------|-----------------------|
| (1) Total number on the establishment (a) ... ..   | 5,815  | 5,994  | 9,445   | 11,362                |
| (2) Average number resident ... ..                 | 5,577  | 5,252  | 8,961.4 | 10,776.8              |
| (3) Total number on sick list ... ..               | 2,928  | 2,948  | 6,244   | 13,357                |
| (4) Total number of days on sick list              | 23,966 | 38,708 | 49,728  | 69,292                |
| (5) Total number invalided ... ..                  | 45     | 64     | 132     | 235                   |
| (6) Total deaths ... ..                            | 42     | 24     | 36      | 49                    |
| (7) Average daily number on sick list              | 24     | 57     | 1.25    | <del>2.5</del> 189.84 |
| (8) Average number of days on sick list ... ..     | 8.18   | 6.5    | 7.96    | <del>9.76</del> 5.18  |
| (9) Percentage of deaths to number resident ... .. | 73     | 45     | 40      | 45                    |
| (10) Percentage of sick to number resident ... ..  | 52.50  | 56.11  | 69.67   | 123.94                |

(n).—LEAGUE OF NATIONS HEALTH ORGANISATION  
EASTERN (SINGAPORE) BUREAU

In my annual report for 1926 (pages 16-20) and 1928 (pages 13-21) a brief account is to be found of the previous activities of this Bureau and of the first four annual meetings of its Advisory Council.

The annual meeting of the Advisory Council to consider the 1929 report of the Bureau and matters arising therefrom was held in February 1930 at Bandoeng in Java, on the kind invitation of the Government of the Dutch East Indies.

Present—Members of the Advisory Council.

|                                                |                                        |
|------------------------------------------------|----------------------------------------|
| Major-General J. D. GRAHAM ( <i>Chairman</i> ) | Representing British India.            |
| Dr. K. NOBECHI ( <i>Vice-Chairman</i> )        | ... Japan.                             |
| Dr. T. YOKOYAMA ... ..                         | ... Japanese Colonies.                 |
| Dr. WU LIEN TEH ... ..                         | ... China.                             |
| Dr. F. H. GUERIN ... ..                        | ... French Indo-China.                 |
| Dr. PHRA BORIRAKSH VEJKAR ...                  | ... Siam.                              |
| Dr. J. J. VAN LONKHUYZEN ...                   | ... Netherlands East Indies.           |
| Dr. A. L. HOOPS ... ..                         | ... British Colonies and Dependencies. |

Australia did not send a representative.

Two Observers attended—

|                           |                             |
|---------------------------|-----------------------------|
| Dr. C. J. WILSON ... ..   | ... Federated Malay States. |
| and Dr. R. W. HART ... .. | ... Philippine Islands.     |

In addition to Dr. R. GAUTIER, Director and Dr. T. OUCHI, Deputy Director of the Bureau, the meeting was attended by Mr. A. PELT, Member of the Information Section, Geneva, and Dr. TSEFANG, F. HUANG, a young Chinese medical man on his way to join the Health Section at Geneva.

It was evident from the Director's report that there had been an improvement in the regularity and an increase in the accuracy of information received not only from ports but from the hinterland of most of the countries which correspond with the Eastern Bureau.

Important new ports which are now sending regular information are Baghdad and Vladivostock.

(a) The increase is due to the fact that Police non-commissioned officers and constables are included in 1928 and 1929.



The Bureau supplied telegraphic information *re* 1,448 infected ports in 1929 against 1,170 in 1928 and 859 in 1927. The average annual cost of cables per infected port has fallen from Straits \$18.73 and \$10.93 in the two previous years to \$10.83 in 1929.

A new improved code for the telegraphic transmission of epidemiological intelligence is now in preparation at Geneva.

One hundred and seventy-three ships reported having infectious disease on board in 1929 against 164 in 1928; the chief diseases reported were—Plague 6; Cholera 27; Small-pox 63; Cerebro-spinal Meningitis 6 and Scarlet fever 5.

In 37 instances the Bureau was able to send telegraphic notification before the arrival of an infected steamer to the port concerned.

The Government of Persia, which took over in 1928 the quarantine administration of the Persian Gulf ports from the Government of India officers who formerly controlled it, has not yet succeeded in introducing an epidemiological service.

With the recent organisation of a Chinese national quarantine service the epidemiological news from Chinese ports is likely to improve.

During the meeting the Council visited the great wireless station of Malabar near Bandoeng through which a daily summary of epidemiological intelligence in clear is now broadcast for the information of shipping.

Mr. WAASDORP, Director of the wireless station in Java, gave his advice to a sub-committee of the Council which met to consider matters connected with wireless wavelength and times of broadcast.

The necessity for the institution of Air quarantine, especially in connection with cholera and yellow fever, was stressed, as was the danger of yellow fever spreading to the Far East by accidental laboratory infections.

Turning to the co-ordination of Research which is a subsidiary function of the Bureau, a large amount of information on the subject of dry small-pox vaccine had been assembled by the Director. It appears that such vaccine retains its potency for long periods, and is most useful in countries where distances are great and communications slow. Further enquiries on the subjects of oral vaccination and of bacteriophage tend to show that experiments during the past year have been disappointing.

Plague research is being continued steadily in several countries: considerable results are to be expected when the expert international plague committee, appointed in Calcutta at the VII (1927) Congress of the Far Eastern Association of Tropical Medicine, meets during the VIII Congress of the same Association at Bangkok in December 1930.

The Council decided that the Bureau should undertake the collection of facts on pneumonia with a view to considering in 1931 the desirability of forming an expert committee to frame a scheme of co-ordinated research on this disease which is one of the leading causes of death in the tropics.

In addition to the annual meeting, Dr. VAN LONKHUYZEN, Director of the Medical and Health Services of the Netherlands East Indies and his officers demonstrated to the delegates the leading features of the Netherlands East Indies Medical and Health Service during a tour extending over one week, the expenses of which were met by the Netherlands East Indies Government.

The tour included inspections of the Batavia Quarantine Station on the Island of Onrust, of the College of Medicine in the University of Batavia, and of the Research Institute at Bandoeng, a demonstration of the anti-malarial measures taken for the prevention of malaria originating from coastal fish ponds, a demonstration of the methods of public health propaganda employed in Java, and a visit to the plague infected districts in the hills of mid Java where over one and a quarter million rat proof houses have been constructed in the last ten years, a measure that has proved most successful in combatting plague.



The Resolutions passed by the Advisory Council at the Bandoeng meeting were as follows—

#### RESOLUTIONS

1. The Advisory Council approves the Report of the Director of the Eastern Bureau for 1929 and congratulates the Director on the efficient manner in which he has administered the Bureau during the year.

2. The Advisory Council having recorded with pleasure an increased efficiency in the broadcast arrangements of the Bureau's intelligence, service, a position which has been largely brought about by the co-operation and generosity of the wireless departments of the Governments of French Indo-China, Netherlands East Indies, British India, British North Borneo, Hong-kong, Madagascar, Japan and Shanghai—

(a) authorises the Director to convey its thanks to the heads of the various departments aforementioned;

(b) notes with great satisfaction the generous offer of the Director of the Netherlands East Indies Post, Telegraph, and Telephone Services to arrange for a daily broadcast of the Bureau's bulletin for ships at sea.

3. The Advisory Council resolves that its warmest appreciation be tendered to the Government of the Netherlands East Indies for their kind invitation to hold the annual meeting of the Council in Java, for the great facilities afforded it during its meeting in Bandoeng, for the ample opportunities given to the members to study the excellent organisation of medical research and of preventive and curative medicine in the Netherlands East Indies, and for the generous hospitality accorded to the delegates.

4. The Advisory Council passes the Accounts for the year 1929, which have been duly certified by the Auditors of the Bureau; and having considered carefully the proposed Estimate of \$101,981 for the year 1931, approves of it.

5. The Advisory Council records with thanks the donation of \$500 (gold) by Mr. J. J. FORSTALL of Chicago as a contribution towards the expenses of a special object of research in which the Bureau is interested.

6. The Advisory Council having noted the remarks of the Health Committee in regard to the collection of epidemiological information regarding the interior of the countries associated with the Eastern Bureau, points out that such information is already being supplied by 35 countries, a list of which appears in the Director's Report.

7. The Advisory Council having considered certain improvements which, as a result of recent experience, should, in its opinion, be made in the broadcasts of the Bureau's epidemiological intelligence service, and believing that a satisfactory solution will be furthered if the problem is dealt with by international agreement between the competent authorities, requests the Health Committee to submit the question to the Technical and Advisory Committee for Communications and Transit of the League of Nations with a view to the two committees studying this item of international collaboration in order that adequate suggestions may be framed for the use of all concerned and eventually for presentation at the forthcoming Conference for the Revision of the International Radio Telegraph Convention of Washington, 1927.

8. The Advisory Council having considered the reply of the Director of the Office International d'Hygiene publique dated July 12th, 1929, to a letter from the Acting Medical Director of the Health Section of the League of Nations dated June 25th, 1929, concerning the enforcement of certain measures in regard to vaccination against small-pox by the Port Health Authorities of Marseilles in May 1929, desires to express its unanimous opinion that, in the interest of international co-operation for the prevention of disease, any information regarding measures taken by the health authorities of a country situated outside the Eastern Area against the arrivals



from a country situated in this area should be communicated telegraphically by the Office International d'Hygiene publique to the Eastern Bureau as a regional information centre.

9. The Advisory Council resolves that special attention be given during the coming year to the collection of documentation on pneumonia with a view to the consideration at a future annual meeting of the desirability of appointing an expert committee on this disease.

10. The Advisory Council is of the opinion:—

- (a) that in view of the momentous consequences which the introduction of yellow fever into one of the tropical Asiatic countries would entail and of the results of investigation in the Netherlands and England regarding the susceptibility of culicids and monkeys from British India and the Netherlands East Indies, nothing should be left undone to prevent the introduction of yellow fever into such countries of Asia as are known to be liable to infection;
- (b) that stringent measures should be taken against the entry of the disease, the most urgent being:—
  - (i) the interdiction of all air traffic from infected or even suspected areas to any of the countries in the regional area of the Eastern Bureau until such time as the measures concerted by the Office International d'Hygiene publique are being effectually applied;
  - (ii) the prohibition by law under severe penalty of the importation or possession of yellow fever virus for any purpose in all countries in the East liable to infection with this virus;
- (c) that to attain this object the closest co-operation between all interested countries is necessary, and that the Health Committee be therefore requested to bring this resolution to the notice of all administrations concerned.

### III.—HYGIENE AND SANITATION

#### (a) ORGANISATION OF THE HEALTH BRANCH

The Principal Civil Medical Officer is Chief Health Officer of the Straits Settlements.

There is a Chief Health Officer, Singapore, who is responsible for the port and the rural areas of Singapore, and for the school inspection of the whole Settlement.

He also lectures in the College of Medicine and in the Sanitary Inspectors' School.

Under him are a Rural Health Officer, a Deputy Rural Health Officer, a Health Officer Schools, a Lady Health Officer Schools, a Health Officer, Quarantine Station, a Port Health Officer, a Deputy Port Health Officer, and an Assistant Health Officer.

In Penang, there is a Senior Health Officer who is responsible for the Port of Penang, the rural areas of the Settlement which include rural Penang, Province Wellesley, and the Dindings, and the Schools of the Settlement. Under him there are a Health Officer, Province Wellesley, and a Deputy Rural Health Officer, Penang; and the Deputy Medical and Health Officer, Lumut, and the three Assistant Medical Officers in the Province Wellesley District Hospitals, as far as the health work of their districts is concerned. Under him also is the Port Health Officer of the Quarantine Station.

(The Municipalities of Singapore and Penang have their own Health organisation, comprising in Singapore a Municipal Health Officer with 3 other Health Officers, a Bacteriologist, and several Assistant Health Officers, and in Penang a Municipal Health Officer, a second Health Officer, and an Assistant Health Officer).

In Malacca, there is a Government Health Officer, and an Assistant Health Officer who function for the whole Settlement, including the Municipality of Malacca.

The Assistant Medical Officers in charge of the two district hospitals in Malacca are under the health officer as regards their health work.

In the Island of Labuan the Medical Officer is also Health Officer.

The Unfederated Malay States Health Branches are staffed by officers seconded from the Straits Settlements.

Johore now has a cadre of a Senior Health Officer and three Health Officers, Kedah a Senior Health Officer and one Health Officer, Kelantan one Health Officer, Trengganu one Health Officer; in the State of Brunei in Borneo the Medical Officer is also Health Officer and Assistant Superintendent of Indian Immigrants.

There are European Chief Sanitary Inspectors in both Singapore and Penang, and there is a staff of locally trained Sanitary Inspectors in all districts.

The rural area of Singapore is divided into five sanitary districts, similarly the rural area of Penang Island is divided into five sanitary districts, Province Wellesley into four sanitary districts, Malacca into three sanitary districts. The Dindings and Labuan each constitute a sanitary district.

As a rule one or two sanitary inspectors are stationed in each sanitary district.

The Health Office of the district is the centre from which the district health propaganda and welfare work are developed.

Where there is a district hospital the health office is usually situated in or beside the hospital.

There are Rural Health Sisters in Singapore, Penang and Malacca under whom locally trained district health nurses hold maternal and child welfare clinics, do house and school visiting in the villages and kampongs, and in some cases maternity work.

The travelling motor dispensaries in the three Settlements co-operate in these duties, in addition to treating the sick.

Details of rural areas in the Colony, 1929:—

|                                                                                     |     |     | <i>Area in<br/>square miles</i> | <i>Estimated<br/>population</i> |           |
|-------------------------------------------------------------------------------------|-----|-----|---------------------------------|---------------------------------|-----------|
| Singapore                                                                           | ... | ... | 185                             | 84,942                          | } 465,733 |
| Penang Island                                                                       | ... | ... | 98½                             | 47,216                          |           |
| Province Wellesley                                                                  | ... | ... | 280                             | 141,541                         |           |
| Dindings                                                                            | ... | ... | 183                             | 18,334                          |           |
| Malacca                                                                             | ... | ... | 720                             | 167,671                         |           |
| Labuan                                                                              | ... | ... | 28½                             | 6,029                           |           |
| Add municipal area, Malacca which<br>is staffed by part-time Government<br>Officers |     |     |                                 | 42,333                          |           |
|                                                                                     |     |     | 1,495                           | 508,066                         |           |



## (b) GENERAL REVIEW OF WORK DONE AND PROGRESS MADE

## (I) PREVENTIVE MEASURES.

1. *Mosquito and Insect borne diseases.*—

Government provided the following votes for anti-mosquito work in 1929:—

| <i>Settlement</i> |     |     |     | <i>Vote</i> |
|-------------------|-----|-----|-----|-------------|
| —                 |     |     |     | —           |
|                   |     |     |     | \$          |
| Singapore         | ... | ... | ... | 120,000     |
| Penang            | ... | ... | ... | 95,000      |
| Malacca           | ... | ... | ... | 33,000      |
| Labuan            | ... | ... | ... | 7,000       |

Continued progress is being made in anti-malaria measures throughout the Island of Singapore. In the rural areas the policy adopted is to destroy the breeding places of dangerous mosquitoes within a half mile radius of the outskirts of the principal villages and kampongs. Anti-mosquito oiling is used as a temporary measure followed, when possible, by the permanent draining of dangerous ravines and swamps. Periodic mosquito surveys are used as a control, supplemented by spleen surveys, malaria case records, and the vital statistics of each district. More than 16,000 anopheline larvæ were collected of which 16% were *A. Maculatus*, the chief malaria carrier in the rural area. Fourteen miles of subsoil pipes were laid at an average depth of 6 feet and 4.5 miles of main arterial open cement drains were constructed, permanently draining a area of 5 square miles. Forty-nine thousand nine hundred and twenty gallons of anti-malarial mixture, costing \$10,927, were sprayed on potential breeding places to protect an area of 16 square miles. The total expenditure was \$121,616.36 inclusive of \$5,590.12 recovered for work done on private premises.

From 1921 up to the end of 1929, approximately \$686,902 have been spent on rural anti-malaria work in Singapore Island. The number of persons protected from malaria by this work, is approximately 48,000. The cost per head per annum is \$2.54 cents.

A complete record of mosquito breeding places discovered since 1921 has been kept. Plans of mosquito surveys are prepared and collections of mosquitoes are made.

(2) Provision was first made for anti-mosquito work in the Settlement of Penang in 1924. Special expenditure votes from that year have been \$50,000 in 1924 and 1925 and \$75,000 in 1926 and 1927, rising to \$95,000 in 1928 and 1929. Such liberality has made it possible for the Health Branch to undertake measures for the permanent control of malaria in village areas that were notoriously malarial. The seriousness of the malaria problem in Penang Island is due to the widespread distribution of ideal breeding places for *A. Maculatus*. Anti-malaria measures are mainly directed against the larvæ stage of the mosquito. An area is placed under control by dealing with all breeding places for a distance of half a mile. At the commencement the application of larvicide (anti-malaria oil or Paris Green) is resorted to; permanent works, drainage, filling etc. are gradually instituted when feasible. The protection of all the zones that were under control in 1928 has been effectively maintained; during 1929, additional zones have been placed under control, and some of the old ones have been extended. On Penang Island newly controlled areas are:—Balik Pulau, Telok Bahang, Telok Kumbar and Bayan Lepas. The Glugor and Sungei Nibong areas have been extended as has also the zone of protection on Penang Hill.



In Province Wellesley the following centres have been made protected zones:—Bukit Mertajam, Sungei Bakap, Butterworth, Bukit Tambun, Batu Kawan, Kubang Semang, Tassek, Bukit Tengah, Nibong Tebal, Prai, the first five being places where permanent works have been instituted in addition to temporary measures.

In the Dindings the main extension of protected zones has taken place on the Segari Road. Permanent works at Lumut include the completion of draining ravine X, subsoil draining the surroundings of the Reservoir at ravine V, the commencement of subsoil draining ravine XI and several other small areas. Deep ditching is being carried out on the Segari Road.

The control of breeding places is the principal method employed, but a useful adjuvant in the suppression of malaria is the distribution of quinine by the travelling dispensary.

The following table gives a resume of work done:—

|                          | Notices<br>served | Feet of<br>subsoil<br>drains<br>laid | Feet of<br>open ma-<br>sonry<br>drains | Feet of<br>earth<br>drains | Wells<br>construc-<br>ted | Cubic<br>yards of<br>filling | Gallons<br>of oil<br>used | Feet<br>Concrete<br>walls | Mosquito<br>larvae<br>examined |
|--------------------------|-------------------|--------------------------------------|----------------------------------------|----------------------------|---------------------------|------------------------------|---------------------------|---------------------------|--------------------------------|
| Penang ...               | 1,786             | 27,189                               | 6,015                                  | 1,050                      | 36                        | 1,222                        | 71,981                    | 680                       | 10,143                         |
| Province<br>Wellesley .. | 165               | 3,091                                | 1,419                                  | 2,500                      | 11                        | 400                          | 13,687                    | —                         | 7,659                          |
| Dindings ...             | 36                | 3,750                                | 167                                    | 3,500                      | 5                         | 600                          | 8,115                     | —                         | 2,534                          |
| Total ...                | 1,987             | 34,030                               | 7,601                                  | 7,050                      | 52                        | 2,222                        | 93,783                    | 680                       | 20,336                         |

The expenditure incurred in maintaining previously completed work, the construction of new work, the salaries of the staff, the purchase of materials and tools, upkeep of lorry, purchase of larvicides and implements used in their application has, during 1929, amounted to \$107,905.84, this figure consisting of the amount of \$95,000 allowed by Estimates plus the sum of \$12 905.84 recovered from private owners.

(3) Provision was first made for anti-mosquito work in the Settlement of Malacca in 1926, when a vote of \$30,000 was provided. The vote was increased to \$33,000 in 1928 and a similar sum was provided in 1929.

Eighty-one mosquito surveys were made in suspected places and the following anopheline larvæ were collected and identified—a maculatus, a umbrosus, a ludlowi, a kawarri, a kochi, a fuliginosus, a leucosphyrus, a vagus, a sinensis and a barbirostris.

Co-operation between a few of the large rubber estates *e.g.* Asahan, Rim, Rembia, Kemuning, Batang Malaka, Lee Keng Hye and Pulau Sebang, with regard to oiling of Crown land bordering these estates has been very useful in reducing the incidence of malaria in the vicinity.

Anti-malarial works undertaken in rural Malacca may be summarized as follows:—

*Ujong Pasir.*—An area of about three-fourths of a square mile of nipah jungle is being drained; clearing and filling is being carried out where necessary.

*Tanjong Kling.*—An area of about three-fourths of a square mile of nipah jungle has been drained, the water eventually finding its way into the sea; clearing and filling, where necessary, has also been done, and oiling is carried out once a week.

*Umbei.*—At the Police Station in this mukim a mosquito survey revealed the presence of a ludlowi and a umbrosus. This area was then cleared of all undergrowth and drained.

*Jasin Village.*—On the west side of this village a ravine has been efficiently drained with subsoil and open drains. Filling and oiling of areas in the vicinity was also carried out.



*Kemuning Village.*—A ravine and an area of a quarter of a mile have been drained with subsoil and open drains.

*Alor Gajah.*—In the neighbourhood of the hospital and the village about 167 yards of earth drains were cut, filling and levelling done, where necessary, and oiling of the drains was carried out.

*Pulau Sebang.*—A large ravine in Malacca territory bordering on the Malacca—Negri Sembilan boundary was efficiently drained with subsoil pipes and open concrete drains: this work was undertaken by the Health Officer, Tampin, and his staff.

## (II).—GENERAL SANITATION AND VILLAGE CONSERVANCY

Under this heading are included house to house inspection, village scavenging, control of night-soil, (removal and disposal), control of piggeries, cattlesheds and dairies, inspection of markets, surveys of sites and building plans, sanitary supervision of police stations, rubber estates and factories, control of water supplies and sanitary control of schools.

### SINGAPORE

The estimated number of houses in the rural districts is 13,006. Three thousand seven hundred and eighty routine house to house inspections were made by district sanitary inspectors. A number of similar inspections in cases of difficulty and complaint were carried out by the rural health officer. The sanitation of government buildings and crown land within the Municipal limits was supervised by the health officer and the routine monthly inspections of all government offices and quarters were carried out by the sanitary inspector (town) and mosquito-collector.

Village scavenging and refuse collection is organised by the Health branch; all the villages in the rural areas are served with one or more incinerators according to their need. There are 16 such incinerators and during the year 33,685 cubic yards of rubbish were consumed.

Considerable advance has been made during the year in the control of soil pollution. Three hundred and forty-nine insanitary latrines were demolished and 362 new sanitary latrines were erected by owners of houses. One hundred and sixty-five tube latrines were sunk by the Health branch in Bukit Timah district. All new buildings in village areas and all coffee shops and eating-houses and rubber estates in rural areas have sanitary latrines. The trenching ground at the 8th mile West Coast Road and the septic tanks at Paya Lebar and Bukit Timah have worked very satisfactorily.

Two hundred and eighty-six buildings plans were submitted to the rural health officer for approval; in the majority of the plans submitted, alterations of the sanitary arrangements were made. The big decrease in building plans was due to the taking over by the Municipality of the better part of Geylang and Siglap district which was developing rapidly into a suburban area.

Reports of births and deaths registered at each police station are collected and scrutinised. The police co-operate in gathering children for vaccination and in finding new-born infants for the health sister.

*Schools.*—Three hundred and thirteen visits by sanitary inspectors were made to schools. The sanitation of all government and aided schools is satisfactory.

### PENANG SETTLEMENT

The greater part of this work is carried out in accordance with Rural Board regulations.

For conservancy, the system followed is the appointment of a reliable man who is authorised to collect the night-soil and dispose of it in the manner



prescribed. He is allowed to charge the public a fee not to exceed \$1 per month per bucket. This method is in use in all gazetted villages, except at Lumut, where the collected night-soil is removed in specially constructed buckets and thrown into the sea.

The following figures show the work done in general sanitation:—

| NUMBER OF INSPECTIONS OF |               |                 |                        |                |                    |                     |                                     |                 |
|--------------------------|---------------|-----------------|------------------------|----------------|--------------------|---------------------|-------------------------------------|-----------------|
|                          | <i>Houses</i> | <i>Latrines</i> | <i>Police Stations</i> | <i>Schools</i> | <i>Copra Sheds</i> | <i>Cattle Sheds</i> | <i>Goat pens &amp; poultry farm</i> | <i>Pigstyes</i> |
| Rural Penang ...         | 20,110        | 12,616          | 124                    | 118            | 15                 | 1,043               | 342                                 | 1,076           |
| Province Wellesley ...   | 3,038         | 6,090           | 325                    | 242            | —                  | 625                 | 205                                 | 1,851           |
| Dindings ...             | 375           | 236             | 12                     | 72             | —                  | 15                  | —                                   | 60              |
| Total ...                | 23,523        | 18,942          | 461                    | 432            | 15                 | 1,683               | 547                                 | 2,987           |

In Penang Island, 2,820 Rural Board notices were issued. There were 266 prosecutions and the total amount of fines realized was \$746.50.

In Province Wellesley notices issued were 197; prosecutions were 109; and fines amounted to \$783.50.

In the Dindings, 36 notices were issued; 2 prosecutions were effected; fines were \$10.

Sanitation on Penang Hill is being enforced on different lines. A water borne sewage system is the method insisted on for permanent buildings, a small septic tank being constructed for each house. Temporary residents, such as workmen engaged in building, are allowed to use pit latrines which are rigorously watched by the sanitary staff.

Everywhere latrine construction has been pursued with increasing energy. Pail latrines are generally used within village limits. Tube latrines are allowed and even recommended wherever suitable; likewise in certain instances, oversea erections. Latrines constructed numbered 2,010 in rural Penang Island, 354 in Province Wellesley, and 12 in Dindings.

For refuse disposal, the method generally employed is incineration. In several places, new incinerators of an improved pattern have been constructed.

At Tanjong Tokong, the method of refuse disposal by dumping has been adopted. Low lying land is chosen where pits are dug and these are filled with refuse. Fly breeding is guarded against by treatment with lime and liquid disinfectant. The pit is filled to within one foot from the top.

## MALACCA

Certain gazetted village areas are scavenged by coolies under the direct supervision of overseers belonging to the Rural Board, and controlled by the health branch.

There are now 26 gazetted village areas in rural Malacca including one newly gazetted: the Municipal Ordinance and Municipal by-laws are applicable in these areas.

In addition to the rural board coolies, the health officer provides travelling gangs of mandores and coolies, and refuse, empty tins, etc. are collected and either burned or buried. This amounts to 4,751 cubic feet daily. All villages are being provided with incinerators.

A night-soil removal system is in operation in 12 gazetted villages and is being gradually extended.



## WATER

The water supplies of the cities of Singapore, George Town (Penang) and Malacca, which have lately been greatly extended, are pure and abundant. A number of the surrounding villages are served by the Municipal supplies.

The enhanced Singapore supply is derived from catchment areas in Johore, some thirty miles distant: to reach Singapore Island, the pipes are laid on the Johore Causeway.

There are excellent piped supplies at Balik Pulau, a large village on Penang Island, and at Butterworth and Bukit Mertajam in Province Wellesley, where the amount is to be augmented by impounding additional water at Siraya next year.

The Bukit Panchor reservoir, supplying the villages of Nibong Tebal and Sungei Bakap in South Province Wellesley, is affected with a growth of algae which, at times, fouls the water. Treatment with lime produced only a transient good effect; a scheme for permanently purifying this water is in hand.

In Lumut, the headquarters of the Dindings, there is a piped supply from hill streams impounded in two catchment reservoirs.

In Labuan, there is a similar supply.

A number of rubber estates have their own piped water systems.

In rural areas, spring water is as a rule plentiful along the foothills. In many such places, the health officers have utilised the anti-malarial subsoil drainage systems to provide the neighbouring villages and kampongs with a water supply, by carrying subsoil water into cemented basins, through which a constant flow is maintained to prevent mosquito breeding.

In kampongs on flat land, the water supply is mostly from shallow earth wells.

### (III) SCHOOL HYGIENE

There are in the Colony about 70,000 children of school age.

In Singapore, there are whole time male and female school health officers.

In other Settlements, the work is done as a part time duty by members of the health and medical staffs.

The travelling dispensaries co-operate in this work in rural areas.

The health sister sends sick children and non-vaccinated children for treatment to the travelling dispensary.

The health officer arranges for the dispensary to visit the schools he has inspected, and to treat children.

Quinine is distributed and blood films taken by the assistant medical officer or the dresser in charge.

In the cities where dental defects are serious, more children are now being sent to the dentists.

The formation of a Government dental department is under consideration.

(Details of school work are given in Appendix *F*, pages 71 to 78.)

### (IV) LABOUR CONDITIONS

#### *Estates.*

Estates are inspected by Government health officers and their subordinates.

There are 96 rubber or coconut estates in Singapore Island, with labour forces of over 25 coolies.

There are also 29 large rubber factories, whose coolies usually are not housed on the premises, but live in villages or in the city, whence they are brought to their work in lorries.



The large rubber estates in Singapore Island have visiting medical officers. The same system obtains on Penang Island where there are 32 rubber, coconut or spice estates, employing over 25 coolies each. There are 209 similar estates in Province Wellesley, including 31 large European owned estates. One group of estates there, known as "Caledonia", has its own resident medical officer. A number of other estates have visiting medical officers. There are six estate hospitals in Province Wellesley, the largest of which serves the "Caledonia" group.

In the Dindings, where there are 38 estates, conditions are similar. There are two estate hospitals.

In Malacca, there is a planters' board, known as the Malacca Agricultural Medical Board, which has grouped the whole of the Malacca estates, and engaged six medical officers, four Europeans and two Chinese, stationed at convenient centres. Some of these officers are doing good preventive work. Twenty-eight Malacca estates have small hospitals or sick lines. The Malacca estate medical service, which is paid for by a cess on the planted areas has undoubtedly reduced the death-rate in Malacca estates. The estates under this board total 722, of which 180 exceed 100 acres in area: the annual revenue of the board is about \$110,000, and the average number of coolies employed about 24,000.

In all parts of the Straits Settlements, estates which have no hospitals use the Government hospitals. Even estates with hospitals send most of their serious cases into Government hospitals.

#### *Other Labour*

The health of the Public Works and other labour forces in rural areas is cared for directly by the medical department.

Offensive trades operate almost entirely in the Municipalities, where they are controlled effectively.

Factories and shops in cities are controlled by the Municipal authorities.

### (V) HOUSING AND TOWN PLANNING

The working out of further improvement Schemes is proceeding in the Municipalities of Singapore and Malacca: land is being acquired and laid out.

The sum of ten million dollars, appropriated by Government for the scheme in Singapore, is being spent.

Two hundred houses have been erected in the Serangoon district, and an extensive reclamation scheme is being carried out in the Tiong Bahru area of Singapore.

### (VI) FOOD IN RELATION TO HEALTH AND DISEASE

The inspection and control of food is carried out by the municipal and government health officers in their respective areas. There are markets at all centres.

Milk vendors, eating houses, coffee shops, meat shops and aerated water factories are licensed and inspected. Water, milk and other beverages and food stuffs both local and imported are regularly analysed, and action is taken if indicated.

The practice of referring to the Health branch applications for licences for coffee shops, eating shops, slaughter houses, markets, milk vendors, etc. has been continued with satisfactory sanitary results.



Inspections as tabulated were carried out in the Northern Settlement—

|                 | <i>Coffee<br/>Shops</i> | <i>Toddy<br/>Shops</i> | <i>Eatings<br/>Shops</i> | <i>Markets</i> | <i>Milk<br/>Vendors</i> | <i>Slaughter<br/>Houses</i> |
|-----------------|-------------------------|------------------------|--------------------------|----------------|-------------------------|-----------------------------|
| Penang ...      | 1,913                   | 72                     | —                        | 65             | 8                       | 141                         |
| P r o v i n c e |                         |                        |                          |                |                         |                             |
| Wellesley ...   | 1,422                   | 319                    | 1,023                    | 144            | 336                     | 314                         |
| Dindings ...    | 51                      | 30                     | —                        | 119            | —                       | 52                          |
| Totals ...      | 3,386                   | 421                    | 1,023                    | 328            | 344                     | 507                         |

In addition, bakeries, fishmongers' shops, grocers' shops and chandu shops were inspected.

In Malacca, similar work was done. Seven villages have good markets. There are eight dairies in the rural area, supplying milk to Malacca town; samples taken were satisfactory.

#### (c) MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION

Some of these are detailed in the Maternity and Child Welfare and Social Hygiene reports.

Baby shows have been held in both large and small centres. Health officers and their assistants and health sisters give advice on the preservation of individual health both at clinics and in set lectures. Lantern slides and films are shown, especially in connection with venereal disease, hook-worm and malaria. Pamphlets and posters are issued. Lectures on health are given in all Government schools both English and Vernacular.

The diffusion of knowledge of the principles of hygiene is gradually spreading amongst school children through lectures and by demonstrations and physical examinations carried out in the schools, amongst mothers through the visits of the health sisters and amongst the population generally through the gradually awakening intelligence of those who share in the advance of sanitary progress. The householder who is unaware of the existence of a sanitary inspector is now a rarity and few owners of land are left in ignorance if their holding proves to be a breeding place for mosquitoes.

Sanitary inspectors are taught to advise and encourage rather than to adopt the roll of the policeman. The knowledge of their duties, in which they receive a comprehensive grounding during their course of instruction in Singapore, is supplemented by fortnightly lectures at the office headquarters.

Public health museums have been set up in some of the health offices, both for the instruction of staff and the education of the general public: there are also exhibits and posters at the health centres.

Propaganda work received a great impetus from Dr. PAUL RUSSELL when director of the Rockefeller Hook-worm and Sanitation Campaign. Since his departure, the work has been undertaken on a permanent basis by the Health Branch.

#### (d) TRAINING OF SANITARY PERSONNEL, 1929

The sanitary inspector is to a Health Service what a sergeant is to the army, its backbone.

With the development of rural sanitary work, it became obvious in 1921 that the Government should have a proper staff of sanitary inspectors. A lecture-room, small museum and various offices and a store were fitted out. The collaboration of the Royal Sanitary Institute of London was fortunately obtained; and, in accordance with its practice in suitable tropical centres,



the Institute agreed that students locally trained on an approved schedule should be able to obtain the Sanitary Inspector's Certificate of the London Institute after an examination by an approved board of examiners in co-operation with the Government of the Straits Settlements. This facility was much appreciated, for it meant that not only the students destined for Government service would be catered for, but, at the same time, without much expenditure, members of the public might be admitted to the course on payment of the necessary fees. The first session began in May, 1921, and was attended by five selected candidates for Government Service.

The numbers of students rapidly increased until since 1924 it has been necessary to limit the class so as to ensure that all should have adequate training.

In 1926, twenty-six students attended the course, of whom twenty passed. In 1927, thirty-three attended the course, of whom twenty-one passed. In 1928, twenty students attended the course and six others presented themselves for the examination for the Certificate which they had failed to obtain at previous examinations; nineteen passed. In 1929, twenty-seven students attended the course and seven others presented themselves for the examination for the Certificate which they had failed to obtain at previous examinations; twenty-five passed.

Students have been sent by the Governments of the Straits Settlements, Federated Malay States, Unfederated Malay States, Sarawak and British North Borneo, and by the Municipalities of Singapore and Malacca.

A few private students have also been admitted.

So far, the Municipality of Penang has not taken advantage of the opportunity to train its probationers at our school.

#### IV.—PORT HEALTH WORK AND ADMINISTRATION, 1929

##### A.—SINGAPORE

|                                                                                                                                                                                                                                                                                                    |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1. Number of ports from which vessels arrived ...                                                                                                                                                                                                                                                  | 361         |
| 2. Names of ports against which quarantine measures were declared during the year:—                                                                                                                                                                                                                |             |
| Aden, Amoy, Bombay, Basra, Bassein, Bangkok, Calcutta, Canton, Cochin, Dairen, Djibouti, East coast of Siam, Hongkong, Haiphong, Jeddah, Karachi, Karikal, Madras, Macassar, Macao, Moultmein, Negapatam, Pnompenh, Pondicherry, Osaka, Rangoon, Saigon, Shanghai, Swatow, Tuticorin, Vizagapatam. |             |
| 3. Total tonnage of ships entering the port ...                                                                                                                                                                                                                                                    | 15,583,485  |
| 4. Number of ships entering the port ...                                                                                                                                                                                                                                                           | 9,768       |
| 5. Ships examined including pilgrim ships and infected ships                                                                                                                                                                                                                                       | 1,578       |
| 6. Outgoing pilgrim ships examined ...                                                                                                                                                                                                                                                             | 14          |
| 7. Returning pilgrim ships examined ...                                                                                                                                                                                                                                                            | 8           |
| 8. Infected ships examined ...                                                                                                                                                                                                                                                                     | 16          |
| 9. Ships fumigated or disinfected ...                                                                                                                                                                                                                                                              | 151         |
| 10. Crew examined ...                                                                                                                                                                                                                                                                              | 133,637     |
| 11. Passengers examined including Muslim pilgrims and Chinese immigrants ...                                                                                                                                                                                                                       | 392,411     |
| 12. Outgoing pilgrims examined ...                                                                                                                                                                                                                                                                 | 5,782       |
| 13. Revenue from charges for fumigation or disinfection of ships and from certificates issued to such ships ...                                                                                                                                                                                    | \$17,662.90 |
| 14. Returning pilgrims examined ...                                                                                                                                                                                                                                                                | 3,901       |
| 15. Chinese immigrants examined ...                                                                                                                                                                                                                                                                | 293,167     |
| 16. Corpses inspected in harbour ...                                                                                                                                                                                                                                                               | 39          |



|     |                                                                                              |                  |               |                        |              |
|-----|----------------------------------------------------------------------------------------------|------------------|---------------|------------------------|--------------|
| 17. | Water-boats examined in harbour ...                                                          | ...              | ...           | 59                     |              |
| 18. | Passengers undertakings issued for surveillance ashore ...                                   | ...              | ...           | 119                    |              |
| 19. | Optional certificates issued to ships fumigated or dis-<br>infected ...                      | ...              | ...           | 139                    |              |
| 20. | Bills of health issued ...                                                                   | ...              | ...           | 3,255                  |              |
| 21. | Permits to import and export corpses issued ...                                              | ...              | ...           | 33                     |              |
| 22. | Revenue from bill of health fees (53 free to warships) ...                                   | ...              | ...           | \$16,010               |              |
| 23. | Revenue from permits to import and export corpses ...                                        | ...              | ...           | \$320                  |              |
| 24. | Charge for water supplied to passengers at quarantine<br>station (recovered from agents) ... | ...              | ...           | \$3,638.55             |              |
| 25. | Total revenue ...                                                                            | ...              | ...           | \$37,631.45            |              |
| 26. | Exemption certificates issued to ships ...                                                   | ...              | ...           | 296                    |              |
| 27. | Outgoing pilgrims vaccinated both for cholera and small-<br>pox ...                          | ...              | ...           | 1,850                  |              |
| 28. | Deratisation certificates issued ...                                                         | ...              | ...           | 1                      |              |
| 29. | Rats trapped and bacteriologically examined:—                                                |                  |               |                        |              |
|     | <i>R. Decumanus</i>                                                                          | <i>R. Rattus</i> | <i>Others</i> | <i>Plague Infected</i> | <i>Total</i> |
|     | —                                                                                            | —                | —             | —                      | —            |
|     | 61                                                                                           | 366              | 2             | Nil.                   | 429          |

## ST. JOHN'S QUARANTINE STATION, SINGAPORE

|     |                                                                                                                                      |     |        |
|-----|--------------------------------------------------------------------------------------------------------------------------------------|-----|--------|
| 1.  | Total passengers admitted during the year ...                                                                                        | ... | 84,282 |
| 2.  | Greatest number admitted in any one day (22/3/29) ...                                                                                | ... | 2,297  |
| 3.  | Maximum number in residence on any one day (29/3/29) ...                                                                             | ... | 4,385  |
| 4.  | Minimum number in residence on any one day (24/3/29) ...                                                                             | ... | 20     |
| 5.  | On 315 days there were none in residence                                                                                             |     |        |
| 6.  | Total sick treated in hospital <i>i.e.</i> total admissions<br>during the year and patients remaining in hospital<br>on 31/12/28 ... | ... | 120    |
| 7.  | Maximum number in hospital on any one day (30/3/29) ...                                                                              | ... | 31     |
| 8.  | Minimum number in hospital on any one day (11/1/29) ...                                                                              | ... | 1      |
|     | (Note.—On 136 days there were none in hospital).                                                                                     |     |        |
| 9.  | Average daily number of sick in hospital ...                                                                                         | ... | 1.627  |
| 10. | Total deaths during the year ...                                                                                                     | ... | 14     |
| 11. | Death-rate per mille in hospital ...                                                                                                 | ... | 25     |
| 12. | Death-rate per mille amongst passengers admitted ...                                                                                 | ... | 0.16   |
| 13. | Total cases of Cholera admitted ...                                                                                                  | ... | Nil.   |
| 14. | Total cases of Cholera admitted ...                                                                                                  | ... | Nil.   |
| 15. | Total cases of Plague admitted ...                                                                                                   | ... | Nil.   |
| 16. | Total cases of Small-pox admitted ...                                                                                                | ... | 10     |
| 17. | Number of non-infected ships whose passengers subse-<br>quently developed infectious diseases on the Island                          | ... | Nil.   |
| 18. | Number of infected ships whose passengers subsequently<br>developed infectious diseases on the Island                                | ... | Nil.   |
| 19. | Number of primary vaccinations ...                                                                                                   | ... | 1,097  |
| 20. | Total revaccinations ...                                                                                                             | ... | 20,497 |
| 21. | Total inoculations with anti-cholera vaccine ...                                                                                     | ... | 49     |
| 22. | Total inoculations with anti-meningococcus vaccine ...                                                                               | ... | 397    |
| 23. | Total number of N. A. B. injections ...                                                                                              | ... | 9      |
| 24. | Cases treated as out-door patients (contacts and staff) ...                                                                          | ... | 201    |
| 25. | Total births (2 staff) ...                                                                                                           | ... | 2      |
| 26. | Number of municipal contacts and patients admitted:—                                                                                 |     |        |
|     | Small-pox contacts ...                                                                                                               | ... | 12     |
|     | Plague contacts ...                                                                                                                  | ... | Nil.   |
|     | Cholera contacts ...                                                                                                                 | ... | Nil.   |

|     |                                                                               |     |     |           |
|-----|-------------------------------------------------------------------------------|-----|-----|-----------|
| 27. | Number of government contacts and patients admitted:—                         |     |     |           |
|     | small-pox contacts                                                            | ... | ... | 48        |
| 28. | Number of municipal contacts who developed infectious diseases on the island  | ... | ... | Nil.      |
| 29. | Number of government contacts who developed infectious diseases on the island | ... | ... | Nil.      |
| 30. | Corpses sent to station for P. M. examination and burial                      |     |     | 6         |
| 31. | Number of gallons of water distilled during the year                          | ... |     | Nil.      |
| 32. | Number of gallons of Singapore water pumped up                                | ... |     | 2,910,208 |

### CONDENSED RESUME OF PORT HEALTH WORK SINGAPORE FOR 27 YEARS

| <i>Year</i> | <i>Crew and Passengers<br/>examined</i> | <i>Passengers sent to<br/>St. John's Island</i> | <i>Visits to Vessels</i> | <i>Bills of Health<br/>issued</i> |
|-------------|-----------------------------------------|-------------------------------------------------|--------------------------|-----------------------------------|
| 1903        | 321,365                                 | 21,253                                          | 809                      | 1,000                             |
| 1904        | 279,297                                 | 17,852                                          | 712                      | 1,036                             |
| 1905        | 323,431                                 | 12,109                                          | 1,279                    | 1,220                             |
| 1906        | 493,021                                 | 30,076                                          | 1,625                    | 1,674                             |
| 1907        | 377,325                                 | 25,408                                          | 1,226                    | 1,318                             |
| 1908        | 303,484                                 | 29,356                                          | 1,506                    | 1,344                             |
| 1909        | 291,625                                 | 15,072                                          | 1,251                    | 1,299                             |
| 1910        | 467,868                                 | 35,062                                          | 1,920                    | 1,200                             |
| 1911        | 538,291                                 | 53,961                                          | 2,100                    | 1,800                             |
| 1912        | 539,677                                 | 56,726                                          | 1,927                    | 2,145                             |
| 1913        | 506,925                                 | 56,838                                          | 1,818                    | 1,582                             |
| 1914        | 402,583                                 | 18,193                                          | 1,803                    | 1,802                             |
| 1915        | 200,978                                 | 3,335                                           | 821                      | 1,563                             |
| 1916        | 426,584                                 | 9,738                                           | 1,617                    | 1,726                             |
| 1917        | 277,442                                 | 78,881                                          | 694                      | 1,915                             |
| 1918        | 284,198                                 | 24,182                                          | 1,709                    | 2,086                             |
| 1919        | 411,921                                 | 28,318                                          | 2,130                    | 2,160                             |
| 1920        | 507,176                                 | 31,991                                          | 2,023                    | 2,878                             |
| 1921        | 511,747                                 | 8,950                                           | 1,851                    | 2,951                             |
| 1922        | 369,072                                 | 15,343                                          | 1,552                    | 2,720                             |
| 1923        | 395,583                                 | 7,374                                           | 1,360                    | 2,718                             |
| 1924        | 408,419                                 | 39,053                                          | 1,433                    | 2,912                             |
| 1925        | 366,671                                 | 46,063                                          | 1,018                    | 3,204                             |
| 1926        | 550,443                                 | 78,963                                          | 1,650                    | 3,273                             |
| 1927        | 643,066                                 | 20,169                                          | 1,568                    | 3,071                             |
| 1928        | 501,009                                 | 13,993                                          | 1,342                    | 3,345                             |
| 1929        | 526,048                                 | 84,282                                          | 1,578                    | 3,255                             |
| Total       | 11,189,248                              | 972,541                                         | 40,319                   | 57,197                            |

### B.—PENANG

1. Ports of Clearance on which quarantine restrictions were imposed were:—

*Small-pox.*—Madras, Calcutta, Negapatam, Rangoon, Hongkong.

*Cholera.*—Calcutta, Rangoon, Bangkok and other Siamese ports.



## 2. The following infected ships arrived in Penang during the year:—

| Date of arrival | Ship            | Port                     | Infection    | —                                           |
|-----------------|-----------------|--------------------------|--------------|---------------------------------------------|
| 5-1-29          | Katori Mary ... | Hongkong ...             | Smallpox ... | 1 S loon passenger removed at Singapore ... |
| 10-3-29         | Ekma ...        | Calcutta and Rangoon ... | Cholera ...  | 1 Deck passenger died before arrival ...    |
| 15-3-29         | Rajula ...      | Nagapatam ...            | C.S.M. ...   | 1 Deck passenger ...                        |
| 19-3-29         | Tilawa ...      | Calcutta and Rangoon ... | Cholera ...  | 1 Deck passenger died before arrival ...    |
| 24-3-29         | Elephanta ...   | Calcutta and Rangoon ... | Cholera ...  | 1 Deck passenger died before arrival ...    |
| 18-6-29         | Tosari ...      | Jeddah ...               | C.S.M. ...   | 1 Pilgrim ...                               |
| 5-7-29          | Rajula ...      | Nagapatam ...            | Smallpox ... | 1 Coolie ...                                |
| 12-7-29         | Ethiopia ...    | Madras ...               | Smallpox ... | 1 Coolie removed at Port Swettenham ...     |
| 14-7-29         | Ekma ...        | Calcutta and Rangoon ... | Smallpox ... | 1 Deck passenger removed at Rangoon ...     |

## 3. Other details are summarised as follows:—

|                                                                                         |            |
|-----------------------------------------------------------------------------------------|------------|
| 1. Passengers admitted to Quarantine Station ...                                        | 58,013     |
| 2. Greatest number admitted on any one day (16/6/29 ex. s.s. "Tilawa") ...              | 3,350      |
| 3. Passengers medically examined ...                                                    | 195,985*   |
| 4. Crew medically examined ...                                                          | 66,491     |
| 5. Maximum number in residence on any one day (22/6/29)                                 | 4,334      |
| 6. Minimum number in residence on any one day (Quarantine Station was empty on 14/2/29) | Nil.       |
| 7. Sick treated in Hospital (patients remaining on 31/12/28 included) ...               | 1,152      |
| 8. Total deaths during the year (of these 20 died within 48 hours) ...                  | 56         |
| 10. Number of births ...                                                                | Nil.       |
| 11. Cases of Cholera admitted ...                                                       | Nil.       |
| 12. Cases of Plague admitted ...                                                        | Nil.       |
| 9. Death-rate among those treated per mille ...                                         | 48.6       |
| 13. Cases of Smallpox admitted ...                                                      | 2          |
| 13A. Cases of C. S. M. admitted ...                                                     | 2          |
| 14. Number of vaccinations ...                                                          | 54,554     |
| 15. Number of anti-cholera inoculations ...                                             | 1,109      |
| 16. Number of out-patients treated ...                                                  | 1,480      |
| 17. Number of anthelmintic treatments ...                                               | 29,382     |
| 18. Corpses examined in harbour ...                                                     | 9          |
| 19. Permits to import or export corpses ...                                             | 25         |
| 20. Certificates to accompany hides ...                                                 | 16         |
| 21. Water boats examined ...                                                            | 20         |
| 22. Revenue in stamp fees† ...                                                          | \$5,547.00 |
| 23. Number of vessels entering the port (including native craft) ...                    | 10,457     |
| 24. Total tonnage of these vessels ...                                                  | 6,870,472  |
| 25. Number of ships examined (infected ships 9)                                         | 532        |
| 26. Number of pilgrim ships proceeding to Jeddah ...                                    | 8          |
| 27. Outgoing pilgrims examined ...                                                      | 3,630      |
| 28. Number of pilgrims returning to Jeddah ...                                          | Nil.       |
| 29. Returning pilgrims examined ...                                                     | 3,924      |
| 30. Infected ships proceeding to Quarantine ...                                         | 9          |
| 31. Lumigations and disinfections by disinfecting launch ...                            | 22         |
| 32. Number of disinfection certificates issued ...                                      | 3          |
| 33. Passengers undertakings issued ...                                                  | 345        |
| 34. Bills of health issued ...                                                          | 1,058      |
| 35. Exemption permits issued ...                                                        | 230        |

\* (This does not include 3,630 pilgrims proceeding to Mecca)

† Total revenue was \$18,051.04 made up of:—

|                |                    |
|----------------|--------------------|
| Stamp fees ... | \$ 5,547.00        |
| Cash ...       | 12,504.04          |
|                | <u>\$18,051.04</u> |

## CONDENSED RESUME OF PORT HEALTH WORK, PENANG, FOR 26 YEARS

| Year | No. of vessels inspected | Bills of Health issued | Passengers and crew units examined | Passengers sent to Quarantine | Number of Small-pox admissions | Number of Cholera admissions | Number of Plague admissions | Vaccinations carried out |
|------|--------------------------|------------------------|------------------------------------|-------------------------------|--------------------------------|------------------------------|-----------------------------|--------------------------|
| 1904 | 748                      | ...                    | 184,691                            | 2,217                         | 16                             | 5                            | 2                           | ...                      |
| 1905 | 869                      | 266                    | 214,136                            | 10,406                        | 10                             | 1                            | ...                         | ...                      |
| 1906 | 675                      | 460                    | 204,988                            | 23,288                        | 16                             | 8                            | 2                           | 6,490                    |
| 1907 | 633                      | ...                    | 219,839                            | 17,650                        | 4                              | 24                           | 1                           | 5,625                    |
| 1908 | 1,205                    | ...                    | 176,119                            | 21,175                        | 51                             | 9                            | 2                           | 5,691                    |
| 1909 | 503                      | ...                    | 161,971                            | 23,058                        | 25                             | 2                            | 1                           | 5,614                    |
| 1910 | 526                      | ...                    | 217,967                            | 71,876                        | 62                             | 33                           | 2                           | 12,205                   |
| 1911 | 1,144                    | ...                    | 277,151                            | 134,957                       | 109                            | 387                          | 1                           | 63,988                   |
| 1912 | 634                      | ...                    | 287,373                            | 55,493                        | 75                             | 4                            | 4                           | 38,297                   |
| 1913 | 818                      | ...                    | 272,473                            | 53,937                        | 11                             | 12                           | 1                           | 37,276                   |
| 1914 | 1,040                    | ...                    | 215,067                            | 48,399                        | 171                            | 9                            | ...                         | 32,609                   |
| 1915 | 405                      | 396                    | 148,662                            | 23,176                        | 3                              | ...                          | ...                         | 21,562                   |
| 1916 | 662                      | ...                    | 213,726                            | 42,736                        | 11                             | 1                            | ...                         | 36,806                   |
| 1917 | 367                      | 437                    | 263,737                            | 37,595                        | 11                             | 12                           | ...                         | 36,808                   |
| 1918 | 551                      | 612                    | 173,813                            | 33,481                        | 7                              | 80                           | ...                         | 29,536                   |
| 1919 | 493                      | 633                    | 210,839                            | 50,733                        | 6                              | 264                          | ...                         | 39,941                   |
| 1920 | 432                      | 602                    | 207,424                            | 43,733                        | 4                              | 8                            | ...                         | 41,230                   |
| 1921 | 461                      | 393                    | 197,446                            | 19,653                        | 42                             | 3                            | ...                         | 10,377                   |
| 1922 | 480                      | 530                    | 197,570                            | 31,247                        | 6                              | ...                          | ...                         | 26,675                   |
| 1923 | 442                      | 646                    | 182,349                            | 24,129                        | 2                              | 9                            | ...                         | 23,359                   |
| 1924 | 461                      | 703                    | 214,936                            | 28,701                        | Nil.                           | 151                          | ...                         | 25,779                   |
| 1925 | 417                      | 754                    | 203,204                            | 44,984                        | 8                              | 47                           | ...                         | 42,514                   |
| 1926 | 885                      | 753                    | 282,530                            | 85,607                        | 5                              | 91                           | ...                         | 77,879                   |
| 1927 | 3,201                    | 733                    | 367,183                            | 88,849                        | 11                             | 41                           | ...                         | 83,675                   |
| 1928 | 1,821                    | 898                    | 257,507                            | 43,273                        | 11                             | ...                          | ...                         | 40,354                   |
| 1929 | 532                      | 1,058                  | 262,476                            | 58,013                        | 1                              | ...                          | ...                         | 54,554                   |



## V.—KING EDWARD VII COLLEGE OF MEDICINE, SINGAPORE

*Staff.*—(1) The Principal, Dr. G. H. MACALISTER, was invalided to Europe on 30th May, 1929, and was retired on 14th March, 1930. His services were valuable during a most important decade of reorganisation of curriculum and staff, and construction of new buildings.

Dr. G. V. ALLEN, Bacteriologist, Institute of Medical Research, Kuala Lumpur, has acted as Principal since 22nd June, 1929.

(2) Mr. B. M. JOHNS, F.R.C.S. was appointed Professor of Clinical Surgery, *vice* Mr. A. D. WRIGHT resigned, with effect from 18th August, 1928.

The professorial staff was brought up to full strength by the arrival of Mr. E. K. TRATMAN, L.D.S. to fill the post of Professor of Dentistry on 17th November, 1929.

(3) Qualified assistants have now been provided for every intern professor, and all these posts are filled at the time of writing. Five additional laboratory assistants have also been appointed.

(4) Mr. G. H. STEPHENS, assumed duty as Dental Mechanic on 2nd November, 1929.

*Students.*—There was an entry of twenty-one medical students and two dental students during the year 1929. Twenty-five students left the College during the same period; of these, thirteen completed the course and received the Diploma of L.M.S., Singapore; four left in order to continue their studies at Edinburgh or Hongkong; seven ceased to study medicine, and one died.

There were one hundred and three students at the College at the end of the year, including four dental students. Nationalities of students are—Chinese 46, Indians 35, Eurasians 11, Malays 10, Japanese 1.

*Clinical Teaching.*—Every senior student must spend at least one year actually carrying out resident intern duties in hospital. These students have definite cases allotted to them, and are responsible for carrying out the investigations, both clinical and laboratory, keeping case records, methods of examination and treatment, assisting at operations, and after treatment, and giving anæsthetics under supervision.

*Medicine.*—A ward at the large free hospital, Tan Tock Seng, has been converted into laboratories, lecture hall, X-ray room. In the two adjoining wards, are kept 80 picked clinical cases, chosen from the 1,000 beds of the hospital, to be studied and examined by the students, who also assist in carrying out treatment there. To these wards, a small kitchen has been added where special diets can be cooked and practical instruction given on local foods. From the observations made in these wards, it has been possible to take steps to reduce beri-beri, lead-poisoning from the use of lead face powders, and certain occupational skin diseases.

*Surgery.*—Similar arrangements are in force for the teaching of Clinical Surgery. The institution of the students clinical laboratory, and consultations with physicians and the following of cases to the postmortem room, has taught students that medicine surgery, bacteriology, pathology and biochemistry, are all correlated parts of the healing art.

*Midwifery and Gynæcology.*—The teaching of practical midwifery is simple. Over 1,500 normal cases are available for delivery by students yearly, and they can also witness the treatment of many abnormal cases, and are taught to apply forceps and deliver breech cases themselves. The students also attend the puerperal cases with the officers in charge, and see the treatment of the various abnormalities of the puerperium.

The teaching of gynæcology is more difficult, as in most cases vaginal examination by students is only possible when cases are under an anæsthetic.

*Pathology.*—The opportunities for studying clinical pathology in the mortuaries are unrivalled, and much practical forensic medicine is studied at the same time.



*Public Health.*—Appropriate demonstrations are given in connection with the prevention of the entry and spread of infectious disease, by sea and land, vaccination, anti-mosquito measures, rural, estate and school sanitation, health education and propaganda, factories, town-planning, food, water supply, meteorology, and infant welfare work. Some of the demonstrations are made possible by the collaboration of municipal officers and estate managers.

*Research.*—In addition to the usual routine teaching by intern professors, a considerable amount of research has been undertaken by certain members of the staff. The Professor of Biochemistry continued his researches on beri-beri, and on the protein of native diets. An investigation of different par-boiled rices were carried out and extracts of rice polishings were tested upon animals. Various local foods, particularly dhals, were studied by means of feeding experiments. A study of the types of food available for lake fish in Pahang was made.

The Professor of Biochemistry and the Director of the Geneeskundig Laboratorium at Batavia, where Eijkman first related beri-beri with faulty nutrition, paid reciprocal visits to each others laboratories to compare and co-ordinate their work.

Simple pamphlets, suitable for translation into the vernacular, were issued. Professor ROSEDALE, in collaboration with his assistant, Dr. C. J. OLIVEIRO, has also produced a manual "Biochemical methods in Clinical Diagnosis" of which 500 copies have been printed by Government.

The Professor of Bacteriology paid a visit to Manila to study the Philippine methods for the control and treatment of Leprosy: he continued his investigations in the cultivation of the Leprosy bacillus and other acid fast organism.

(The annual report of the Principal of the College of Medicine is being published separately).

## VI.—MATERNITY AND CHILD WELFARE ACTIVITIES IN THE STRAITS SETTLEMENTS

### I.—MATERNITY HOSPITALS.

There are Government Maternity Hospitals in both Singapore and Penang, and maternity wards in several of the Government District Hospitals, in the Church of England Mission Hospitals at Singapore and Malacca, and in the Kwong Wai Shiu Hospital, Singapore, a charity supported by the Cantonese community.

Return of women admitted to and delivered in maternity institutions in the Straits Settlements, 1929—

|                                                                       | <i>Admitted</i> | <i>Delivered</i> |
|-----------------------------------------------------------------------|-----------------|------------------|
| 1. Maternity Wards, General Hospital, Singapore ... ..                | 950             | 885              |
| 2. Free Maternity Hospital, Kandang Kerbau, Singapore ... ..          | 1,772           | 1,606            |
| 3. Maternity Ward, St. Andrew's Mission Hospital, Singapore ... ..    | 276             | 261              |
| 4. Maternity Ward, Kwong Wai Shiu Hospital, Singapore ... ..          | 478             | 458              |
| 5. (i) King Edward VII Maternity Hospital, Penang ... ..              | 1,343           | 1,102            |
| (ii) Maternity Wards in Province Wellesley and Lumut Hospitals ... .. | 107             | 107              |
| 6. Maternity Ward, St. David's Mission Hospital, Malacca ... ..       | 134             | 134              |
| 7. Maternity Wards in Malacca and other District Hospitals ... ..     | 91              | 90               |
| Total ... ..                                                          | 5,151           | 4,643            |



## II.—TRAINING AND WORK OF MIDWIVES

Numbers of midwives are trained at the Government Hospitals; a few are trained at the mission hospitals.

Class A midwives comprise women with sufficient English education to undergo a 12 months' training and examination similar to the C.M.B. at Home: they receive a Diploma. Nurses with British diplomas are registered in this class also.

Class B midwives comprise Asiatics of lower education, who undergo a practical training given in Malay, for from six to nine months, and pass a practical examination.

Class C consists of women who have been registered, though unable to pass an examination, because they were in regular practice before the passing of the Midwives Ordinance.

The number of registered midwives in the Colony is:—

| <i>Settlement</i> |     | <i>Singapore</i> | <i>Penang</i> | <i>Malacca</i> |
|-------------------|-----|------------------|---------------|----------------|
| Class A           | ... | 122              | 49            | 5              |
| Class B           | ... | 301              | 126           | 19             |
| Class C           | ... | 26               | 14            | 12             |
| Total             | ... | 449              | 189           | 36             |

The number of births in the Colony in 1929 was 42,102.

Of some 35,000 births in Singapore and Penang Islands, nearly three quarters were attended by trained midwives.

Ordinance No. 150 (Midwives) was brought into force in such portion of the Singapore Rural Board area as lies within the Island of Singapore, in the Penang Rural Board area and in the Province Wellesley Rural Board area as from 1st January, 1930. The result is that in these rural areas, as in the three Municipalities, unlicensed handy women are no longer permitted to practise.

## III.—INFANT AND CHILD WELFARE SERVICES

These are conducted by the Municipalities of Singapore, Penang and Malacca, within their boundaries, by the Singapore Child Welfare Society, and, in rural areas, by Government.

### A.—MUNICIPALITIES

The Singapore Municipality has a Lady Medical Officer and 7 qualified sisters. Four of these, supervise the work of local registered midwives. The other 3 are in charge of infant welfare clinics. There are 14 educated Asiatic Health visitors, with the local C.M.B., working under these sisters. Four of these visitors attend poor maternity cases; there is also a panel of medical men who attend such cases and receive fees from the Municipality.

Penang Municipality employs two European sisters and eight locally qualified midwives.

Malacca Municipality employs two health visitors under the supervision of a Government European health sister.

### B.—THE SINGAPORE CHILD WELFARE SOCIETY

This Society was incorporated in 1923 under the presidency of Lady GUILLEMARD. Lady CLEMENTI was pleased to accept the presidency on her arrival in the Colony. The object of the Society is to assist the welfare of mothers, expectant and actual, and of infants and children up to school age (6 years). To avoid overlapping, it leaves the care of infants up to one year as far as possible to the Singapore municipal service.

The committee comprises a nominee of His Excellency the Governor nominees of various local associations, and members elected by the Society. It is not connected with any religious body: it is supported by voluntary contributions and an annual grant from Government of \$2,000.

Over \$50,000 was raised for it by the Chinese community in 1925.

The Society maintains two centres, each staffed by a trained matron and two Chinese health visitors. Much home visiting is done and milk is distributed to poor families. A baby show, open to all nationalities, is held annually. Over \$700 was given in prizes last year. The Society manages a children's playground and expects to establish creches and play rooms shortly.

#### C.—GOVERNMENT HEALTH BRANCH

Three Government health sisters, with the assistance of seven health nurses, conduct clinics, and do home visiting in the rural areas of the three Settlements of the Colony.

They are supervised by health officers.

The clinics are held at various centres on stated days and hours.

The educational and preventive aspect of infant welfare work is kept in view; mothers are instructed in the colloquial.

There is a regular weekly itinerary of home visits in connection with the routes of the motor travelling dispensaries.

Treatment of the newly born is carried on in their homes, but other patients are referred to the travelling dispensary, to which many infants are also sent for vaccination.

Roadside advice is also given to mothers and children who collect at points on the scheduled routes.

Baby shows are held in rural districts and lectures are given to women school teachers and to inhabitants of villages and kámpongs.

C Class midwives are supervised and instructed.

#### D.—COMBINED RETURN SHEWING VISITS PAID TO HOMES AND ATTENDANCES AT WELFARE CLINICS IN 1929.

|                                 |     | <i>Visits to homes</i> | <i>Attendances at Clinics</i> |
|---------------------------------|-----|------------------------|-------------------------------|
| <hr/>                           |     |                        |                               |
| MUNICIPALITIES :—               |     |                        |                               |
| Singapore                       | ... | 83,393                 | 17,401                        |
| Penang                          | ... | 48,144                 | —                             |
| Malacca                         | ... | 18,484                 | 3,612                         |
|                                 |     | <hr/> 150,021          | <hr/> 21,013                  |
| Singapore Child Welfare Society | ... | 31,064                 | 17,523                        |
| GOVERNMENT :—                   |     |                        |                               |
| Singapore                       | ... | 34,079                 | 5,707                         |
| Penang                          | ... | 35,187                 | 26,678                        |
| Malacca                         | ... | 19,368                 | 4,986                         |
|                                 |     | <hr/> 88,634           | <hr/> 37,371                  |
| Grand Total                     | ... | <hr/> 269,719          | <hr/> 75,907                  |



## IV.—ASSOCIATED ACTIVITIES

*Women's and children's dispensaries* are conducted by Government in Singapore and Penang and by missions in Singapore and Malacca. The dispensaries are staffed by lady medical officers.

The returns for 1929 are:—

|                                                                                                                  | <i>New patients</i> | <i>Repetitions</i> | <i>Total</i> |
|------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|--------------|
|                                                                                                                  | —                   | —                  | —            |
| Women's and children's Dispensary,<br>Kandang Kerbau, Singapore<br>(8,303 of the 13,800 were<br>children) ... .. | 13,800              | 17,431             | 31,231       |
| Women's and children's Dispensary,<br>Penang ... ..                                                              | 7,302               | 15,848             | 23,150       |
| St. Andrew's Mission Dispensary,<br>Singapore ... ..                                                             | 3,621               | 7,934              | 11,555       |
| St. David's Mission Dispensary,<br>Malacca ... ..                                                                | 3,373               | 6,783              | 10,056       |
|                                                                                                                  | —                   | —                  | —            |
| Total ... ..                                                                                                     | 28,096              | 47,996             | 75,992       |
|                                                                                                                  | —                   | —                  | —            |

*Motor travelling dispensaries.*—There were 95,981 attendances in 1929, of whom a considerable proportion were women and children.

*Children's Wards.*—There are wards specially for children at three hospitals in Singapore, under the charge of lady medical officers: many of the children are admitted in a dying condition.

The returns for 1929 are:—

|                                                 | <i>Admitted</i> | <i>Discharged</i> | <i>Died</i> |
|-------------------------------------------------|-----------------|-------------------|-------------|
|                                                 | —               | —                 | —           |
| General Hospital, Singapore ... ..              | 731             | 414               | 282         |
| Kandang Kerbau Hospital, Singapore ... ..       | 469             | 307               | 161         |
| St. Andrew's Mission Hospital, Singapore ... .. | 572             | 406               | 146         |
|                                                 | —               | —                 | —           |
| Total ... ..                                    | 1,772           | 1,127             | 589         |
|                                                 | —               | —                 | —           |

*The St. David's Mission Hospital, Malacca*, admitted 800 women and children to a women's and children's ward in 1929. Of these 709 were discharged and 91 died.

There are wards for women at every hospital in the Straits Settlements.

# VII.—HOSPITALS, DISPENSARIES AND VENEREAL CLINICS

I.—Total inpatients treated and mortality in all Hospitals of the Colony for the past five years:—

| YEAR | Number treated 1st and 2nd Class wards | Number of deaths 1st and 2nd Class wards | Number treated 3rd Class wards | Number of deaths 3rd Class wards | TOTAL 1ST, 2ND AND 3RD CLASS WARDS |        | Percent- age of deaths 1st and 2nd Class wards | Percent- age of deaths 3rd Class wards | Percent- age of deaths on total treated |
|------|----------------------------------------|------------------------------------------|--------------------------------|----------------------------------|------------------------------------|--------|------------------------------------------------|----------------------------------------|-----------------------------------------|
|      |                                        |                                          |                                |                                  | Cases                              | Deaths |                                                |                                        |                                         |
| 1925 | ...                                    | ...                                      | 3,965                          | 198                              | 54,336                             | 4,272  | 4.94                                           | 8.80                                   | 7.80                                    |
| 1926 | ...                                    | ...                                      | 7,614                          | 387                              | 68,014                             | 5,733  | 5.09                                           | 8.85                                   | 8.42                                    |
| 1927 | ...                                    | ...                                      | 7,192                          | 407                              | 71,675                             | 6,515  | 5.66                                           | 9.45                                   | 9.06                                    |
| 1928 | ...                                    | ...                                      | 6,256                          | 410                              | 66,203                             | 5,998  | 6.71                                           | 9.33                                   | 9.06                                    |
| 1929 | ...                                    | ...                                      | 7,933                          | 507                              | 69,310                             | 5,324  | 6.39                                           | 7.84                                   | 7.68                                    |

II.—The total number of inpatients treated and the total deaths in the hospitals of the Colony for some of the important diseases are shown in the sub-joined table with the corresponding figures for the preceding three years.

| Diseases                | 1926   |        |  | 1927   |        |  | 1928   |        |  | 1929   |        |  |
|-------------------------|--------|--------|--|--------|--------|--|--------|--------|--|--------|--------|--|
|                         | Cases  | Deaths |  | Cases  | Deaths |  | Cases  | Deaths |  | Cases  | Deaths |  |
| Malarial Fevers         | 14,203 | 984    |  | 15,426 | 949    |  | 13,181 | 932    |  | 11,036 | 784    |  |
| Dysenteries             | 1,987  | 575    |  | 1,561  | 511    |  | 1,418  | 501    |  | 1,167  | 306(a) |  |
| Diarrhoea and Enteritis | 928    | 89     |  | 1,412  | 158    |  | 856    | 123    |  | 963    | 143(b) |  |
| Beri-beri               | 1,228  | 221    |  | 1,786  | 361    |  | 1,499  | 236    |  | 1,322  | 175    |  |
| Pulmonary Tuberculosis  | 1,964  | 853    |  | 1,941  | 952    |  | 1,866  | 920    |  | 2,080  | 910    |  |
| Enteric Fever           | 258    | 85     |  | 302    | 132    |  | 347    | 145    |  | 214    | 78     |  |
| Ulcers                  | 4,795  | 4      |  | 3,266  | 5      |  | 5,392  | 5      |  | 3,994  | 12     |  |
| Venerereal Diseases     | 5,371  | 115    |  | 4,983  | 95     |  | 4,402  | 151    |  | 4,445  | 110    |  |
| Ankylostomiasis         | 4,322  | 174    |  | 4,012  | 102    |  | 3,037  | 84     |  | 2,827  | 63     |  |

(a)—Dysentery Amoebic 531 cases      148 deaths  
 " Bacillary 390 cases      102 deaths  
 " Unclassified 346 cases      56 deaths

(b)—Of the total cases 325 were infants. Of the total deaths 77 were infants



III.—The following terminal causes of death were noted in 588 fatal malarial cases:—

|                                | <i>Penang<br/>Hospitals</i> | <i>Malacca<br/>Hospitals</i> | <i>Tan Tock<br/>Seng<br/>Hospital</i> | <i>General<br/>Hospital</i> | <i>Total</i> |
|--------------------------------|-----------------------------|------------------------------|---------------------------------------|-----------------------------|--------------|
| Asthma ...                     | —                           | —                            | —                                     | 1                           | 1            |
| Coma ...                       | 27                          | 30                           | 30                                    | 2                           | 89           |
| Cardiac failure ...            | 104                         | 60                           | 91                                    | 75                          | 330          |
| Broncho-pneumonia ...          | 2                           | —                            | 9                                     | 9                           | 20           |
| Enteritis ...                  | —                           | 8                            | —                                     | —                           | 8            |
| Ankylostomiasis ...            | —                           | —                            | —                                     | 12                          | 12           |
| Diarrhoea ...                  | —                           | —                            | —                                     | 7                           | 7            |
| Nephritis ...                  | 6                           | —                            | —                                     | 3                           | 9            |
| Amoebic abscess<br>liver ...   | —                           | —                            | —                                     | 1                           | 1            |
| Tubercular menin-<br>gitis ... | —                           | —                            | —                                     | 1                           | 1            |
| Cerebral malaria ...           | —                           | —                            | —                                     | 16                          | 16           |
| Tuberculosis ...               | —                           | —                            | —                                     | 6                           | 6            |
| Aortic regurgitation ...       | —                           | —                            | —                                     | 1                           | 1            |
| Cirrhosis of the liver ...     | —                           | —                            | 1                                     | 2                           | 3            |
| Hypostatic pneumonia ...       | —                           | —                            | —                                     | 2                           | 2            |
| Lobar pneumonia ...            | —                           | —                            | —                                     | 6                           | 6            |
| Anæmia and ascaris ...         | —                           | —                            | —                                     | 6                           | 6            |
| Blackwater fever ...           | —                           | —                            | —                                     | 2                           | 2            |
| Enteric ...                    | —                           | —                            | —                                     | 2                           | 2            |
| Dysentery ...                  | —                           | —                            | 1                                     | 4                           | 5            |
| Pleurisy with effusion ...     | —                           | —                            | —                                     | 1                           | 1            |
| Hyperpyrexia ...               | 11                          | 2                            | —                                     | —                           | 13           |
| Cachexia ...                   | 14                          | 23                           | 7                                     | —                           | 44           |
| Pericarditis ...               | —                           | —                            | —                                     | 1                           | 1            |
| Beri-beri ...                  | —                           | —                            | 3                                     | 9                           | 12           |
| Total ...                      |                             |                              |                                       |                             | 588          |

IV.—The approximate daily cost of diets per head in the Hospitals of the Colony in 1929 was:—

|                                        |     |               |     | \$  | c.  |
|----------------------------------------|-----|---------------|-----|-----|-----|
| First Class ...                        | ... | Full diet ... | ... | 1   | 83½ |
| First Class ...                        | ... | Half „ ...    | ... | 1   | 11½ |
| First Class ...                        | ... | Milk „ ...    | ... | ... | 28  |
| Second Class ...                       | ... | Full diet ... | ... | 1   | 49  |
| Second Class ...                       | ... | Half „ ...    | ... | 1   | 11½ |
| Second Class ...                       | ... | Milk „ ...    | ... | ... | 28  |
| Third Class (Chinese) ...              | ... | Full diet ... | ... | ... | 22½ |
| Third Class (Chinese) ...              | ... | Half „ ...    | ... | ... | 27½ |
| Third Class (Chinese) ...              | ... | Milk „ ...    | ... | ... | 11½ |
| Third Class (Malays and<br>Tamils) ... | ... | Full diet ... | ... | ... | 30½ |
| Third Class (Malays and<br>Tamils) ... | ... | Half „ ...    | ... | ... | 27½ |
| Third Class (Malays and<br>Tamils) ... | ... | Milk „ ...    | ... | ... | 11½ |
| Third Class (Sikhs) ...                | ... | Full diet ... | ... | ... | 36  |
| Third Class (Sikhs) ...                | ... | Milk „ ...    | ... | ... | 16½ |
| Third Class (Bengali Hindus) ...       | ... | Full diet ... | ... | ... | 28½ |
| Third Class (Bengali Hindus) ...       | ... | Milk „ ...    | ... | ... | 16½ |

## V.—OUT-DOOR DISPENSARIES

| <i>Year</i> |     |     | <i>Total patients</i> | <i>Total attendances</i> |
|-------------|-----|-----|-----------------------|--------------------------|
| 1929        | ... | ... | 254,219               | 643,450                  |
| 1928        | ... | ... | 190,749               | 333,106                  |
| 1927        | ... | ... | 166,428               | 313,264                  |
| 1926        | ... | ... | 159,903               | 312,090                  |
| 1925        | ... | ... | 154,420               | 273,841                  |
| 1924        | ... | ... | 96,284                | 167,934                  |
| 1923        | ... | ... | 73,343                | 139,656                  |

The number of out-patients treated for Yaws was 9,990 against 7,870 in the previous year.

The attendances at the Women's and Children's Dispensary, Kandang Kerbau, Singapore, were 31,231 compared with 35,222. In the Women's and Children's Dispensary, Penang, the attendances were 15,948 as against 17,342 in the previous year.

The attendances at the motor travelling dispensary in Province Wellesley were 30,484 and in Penang 31,217, against 17,712 and 31,688 in 1928.

In Singapore, the attendances at the travelling dispensary were 14,504 as against 18,415, and in Malacca 19,776 as against 15,037 in 1928.

## VI.—BUILDINGS

General Hospital, Penang.—Reconstruction of and extensive additions to this hospital have been started.

Fifty-four separate huts for lepers at the Pulau Jerejak Leper Settlement have been completed and occupied.

Additions have been made to the district hospitals at Butterworth and Lumut.

## VIII.—PRISONS AND MENTAL HOSPITAL

## A.—PRISONS

## (a) SINGAPORE PRISON

1. The sanitary condition of the prison was good.

2. With the exception of an outbreak of bacillary dysentery among the prisoners during September and the last quarter of the year, the health of the prisoners was satisfactory. During this outbreak, thirty-eight cases were admitted into the hospital. One case was complicated with an amœbic infection. There were two deaths.

In addition to sanitary measures to check the breeding of flies, the whole prison, including kitchen staff and bakers, were thoroughly searched for "carriers". Their stools were sent to the bacteriologist for examination on three different occasions. Five carriers were discovered and isolated.

Mass treatment with oral vaccine was given on two successive evenings to all prisoners on fasting stomachs. Altogether, nine hundred and fifty prisoners were given the oral vaccine. Out of these only two prisoners suffered with bacillary dysentery, about one month afterwards.

3. *Admissions to Prison Hospital.*—There were one thousand one hundred and six admissions (1,106) including three Europeans and one Eurasian. This with thirty-six (36) remaining from the previous year, gives a total of one thousand one hundred and forty-two (1,142) treated. The average daily number of sick was 40.56 against 33.9 in 1928.



4. *Principal Diseases treated were.*—

|                            |     |                               |    |
|----------------------------|-----|-------------------------------|----|
| Debility ... ..            | 105 | Colic Intestinal ... ..       | 39 |
| Scabies ... ..             | 86  | Ulcers ... ..                 | 37 |
| Venereal Disease ... ..    | 72  | Bronchitis ... ..             | 31 |
| Diarrhœa ... ..            | 57  | Pulmonary Tuberculosis ... .. | 18 |
| Bacillary Dysentery ... .. | 45  | Tinea Tricho Phytina ... ..   | 17 |

5. *Deaths.*—There were twenty deaths in the Prison Hospital giving a death-rate of 1·69 against 2·3 in 1928.

*Causes of Death.*—

|                                |   |                                |   |
|--------------------------------|---|--------------------------------|---|
| (a) Pulmonary Tuberculosis ... | 9 | (g) Cerebral Hæmorrhage ...    | 1 |
| (b) Bacillary Dysentery ...    | 3 | (h) Senility and Heart Failure |   |
| (c) Enteric Fever ...          | 1 | (one complicated with          |   |
| (d) Acute Nephritis ...        | 1 | Para Dysentery) ...            | 2 |
| (e) Hepatic Cirrhosis ...      | 1 | (i) Heart Failure and Fatty    |   |
| (f) Erysipelas ...             | 1 | degeneration ...               | 1 |

6. Twenty-four cases were transferred to the General Hospital, mostly for operations. Of these, one died.

7. Eighty-five vagrants suffering from serious complaints were transferred to Tan Tock Seng Hospital.

8. Transfers to Leper Asylum—3 (2 Criminals, 1 Vagrant).

9. Transfers to Mental Hospital—8 (5 Criminals, 3 Vagrants).

10. Suicide by Hanging—Three—all criminals.

11. Executions—There were five (3 Chinese, 1 Pathan, 1 Sikh).

12. The figures of the different classes of prisoners were:—

|                                      | <i>Criminal</i> | <i>Civil</i> | <i>Vagrant</i> |
|--------------------------------------|-----------------|--------------|----------------|
| (a) Total Population in Prison ...   | 7,348           | 5,921        | 827            |
| (b) Average daily number in Prison   | 1,141           | 228·3        | 105            |
| (c) Total treated in Prison Hospital | 912             | 92           | 138            |
| (d) Percentage of (c) to (a) ...     | 12·41           | 1·55         | 16·68          |
| (e) Total deaths in hospital ...     | 12              | 7            | 1              |

13. Eight hundred and thirty-seven blood films for Wassermann reaction were taken during the year. Two hundred and eighteen were positive, giving a percentage of 25·98. Eight hundred and twenty-nine N.A.B. injections and eight hundred and ninety-nine Bismostab injections were given.

(b) *PENANG PRISON*

1. The sanitary condition of the Prison was good.

2. *Admissions.*—

(a) There were ten cases remaining in Hospital at the beginning of the year. Three hundred and twenty-eight cases were admitted during the year, making a total of 338 cases treated in all as compared with 287 cases in 1928.

(b) The daily average number of sick for the year was 14·67 as compared with 12·29 for the previous year.

3. *Diseases.*—The principal diseases amongst prisoners treated as in-patients were:—

|                                           |    |                        |    |
|-------------------------------------------|----|------------------------|----|
| Malaria ... ..                            | 11 | Bowel disorders ... .. | 31 |
| Tuberculosis ... ..                       | 8  | Skin diseases ... ..   | 67 |
| Venereal diseases ... ..                  | 25 | Injuries ... ..        | 13 |
| Diseases of the Respiratory System ... .. | 14 |                        |    |

Two hundred and seventy-three sufferers from venereal diseases were treated as out-patients.

4. *Deaths*.—There were 8 deaths amongst prisoners removed to the General Hospital, 6 from pulmonary tuberculosis, one from pneumonia and one from valvular disease of the heart. Seven of these were amongst vagrants.

5. *Wassermann*.—

(a) Eight hundred and forty-one specimens of blood were taken for the Wassermann Test as compared with 1,186 in 1928.

(b) Two hundred and sixteen gave positive results as against 322 in 1928.

(c) Eight hundred and ten Intravenous Injections of N.A.B. were given as against 291 in 1928.

(d) Eight hundred and thirty-one Bismuth injections were given as against 1,055 in 1928.

6. *Prison Strength*.—There were 136 Prisoners and 81 Vagrants remaining at the beginning of the year. Nine hundred and forty-three prisoners and 267 vagrants were admitted during the year. The numbers remaining on 31st December, 1928, were 287 prisoners and 28 vagrants respectively.

*Judicial*.—There were three cases of judicial hanging.

(c) MALACCA PRISON

There were 45 admissions to the Prison Hospital with no deaths, including 9 cases of Malaria. The daily number of sick was 0.12.

The daily average number of inmates was as follows:—

|           |     |     |     |     |       |
|-----------|-----|-----|-----|-----|-------|
| Prisoners | ... | ... | ... | ... | 65.12 |
| Remands   | ... | ... | ... | ... | 5.59  |
| Vagrants  | ... | ... | ... | ... | 13.14 |

There were no executions during the year.

B.—SINGAPORE MENTAL HOSPITAL

There remained on 31st December, 1929, seven hundred and thirty males and two hundred and seventy females. Three hundred and thirteen males and eighty-nine females were admitted during 1929. The total treated was one thousand four hundred and two persons.

2. Of the admissions twenty-six males and fourteen females had been previously inmates of Singapore Mental Hospital.

3. Of the total treated one hundred and seven males and twenty-seven females were discharged as recovered, twenty-one males and fifteen females as improved, eight males as not improved, eight males as not insane on admission. Four males and three females absconded. One hundred and one males and twenty-nine females died.

4. There remained on 31st December, 1929, seven hundred and ninety-four males and two hundred and eighty-five females.

5. The average daily number was 768.64 males and 279.13 females.

6. The maximum and minimum daily numbers respectively were nine hundred and ninety-nine and one thousand and eighty.

7. The nationalities of the admissions were:—

|                         | Males | Females |
|-------------------------|-------|---------|
| British                 | 4     | —       |
| Other Europeans         | 2     | 1       |
| Eurasians               | 2     | 5       |
| Chinese                 | 218   | 63      |
| Tamils                  | 57    | 8       |
| Malays and allied races | 20    | 9       |
| Others                  | 10    | 3       |



8. The physical condition of those admitted was:—

|                  |     |     |     |     | Males | Females |
|------------------|-----|-----|-----|-----|-------|---------|
|                  |     |     |     |     | —     | —       |
| Good             | ... | ... | ... | ... | 141   | 30      |
| Fair             | ... | ... | ... | ... | 124   | 39      |
| Impaired         | ... | ... | ... | ... | 31    | 16      |
| Greatly impaired | ... | ... | ... | ... | 17    | 4       |

9. Twenty-two patients died within a month of admission.

10. Apart from various physical diseases, mental stresses, malaria, alcohol, syphilis, previous attacks, and insane heredity, known to be predisposing or exciting causes of insanity, it is noticeable that in many instances the patients themselves attributed their attacks to "alcohol" and "fever".

11. The recovery rate for the year was 33·33%.

12. Criminal population—there remained on 31st December, 1928:—

|                       |     |     |     |     | Males | Females |
|-----------------------|-----|-----|-----|-----|-------|---------|
|                       |     |     |     |     | —     | —       |
| (a) Criminal lunatics | ... | ... | ... | ... | 29    | 2       |
| (b) Lunatic criminals | ... | ... | ... | ... | 8     | 0       |

During 1929—Criminal lunatics:—

|                                                                                   |     |     |     |     |    |   |
|-----------------------------------------------------------------------------------|-----|-----|-----|-----|----|---|
| (a) Number admitted                                                               | ... | ... | ... | ... | 11 | 0 |
| (b) Number who recovered and were discharged from the hospital                    | ... | ... | ... | ... | 2  | 0 |
| (c) Number who were not insane on admission and were discharged from the hospital | ... | ... | ... | ... | 4  | 0 |
| (d) Number against whom the charge was withdrawn                                  | ... | ... | ... | ... | 1  | 0 |
| (e) Number who died                                                               | ... | ... | ... | ... | 1  | 0 |

Lunatic criminals:—

|                                                                                   |     |     |     |     |   |   |
|-----------------------------------------------------------------------------------|-----|-----|-----|-----|---|---|
| (a) Number admitted                                                               | ... | ... | ... | ... | 6 | 0 |
| (b) Number whose sentence expired                                                 | ... | ... | ... | ... | 2 | 0 |
| (c) Number who recovered and were discharged from the hospital                    | ... | ... | ... | ... | 2 | 0 |
| (d) Number who were not insane on admission and were discharged from the hospital | ... | ... | ... | ... | 1 | 0 |

There remained on 31st December, 1929:—

|                       |     |     |     |     |    |   |
|-----------------------|-----|-----|-----|-----|----|---|
| (a) Criminal lunatics | ... | ... | ... | ... | 32 | 2 |
| (b) Lunatic criminals | ... | ... | ... | ... | 9  | 0 |

13. *Mortality*.—Records of the death-rate are available since 1888: this year's death-rate based on the average daily number is the lowest recorded, 12·4 per cent. Chief causes of death were as usual dysentery, general paralysis of the insane and pulmonary tuberculosis, to which must be added pneumonia: these four diseases accounted for two-thirds of the total deaths. One patient died from an assault with a changkul (hoe) by another patient, whilst both were at work. No suicides occurred.

14. *Industries*.—Eight thousand two hundred and fifty-six yards of cotton cloth were woven by the male patients for use in the institution. Thirteen thousand two hundred and forty-three pounds of vegetables were grown for the use of the patients: three hundred fruit tree seedlings and a large number of ornamental trees and shrubs were planted in the grounds. Gardening and other work outside the wards gave employment to a large number of patients. Five thousand four hundred and fifty-three coconuts were harvested, of which part were sold.

15. The number of admissions shows an increase over those of 1928 and the admission rate is larger by 6.6% than the average rate for the past four years.

16. Revenue was \$17,600.25.

17. Dr. D. RUSSELL assumed duty as Assistant Medical Superintendent on 29th December, 1929. Dr. LEE KEK SOON assumed duty as Assistant Medical Officer on 1st February, 1929, succeeding Dr. ABDUL SAMAT. Dr. G. B. LEICESTER remained as Assistant Medical Officer throughout the year.

### IX.—SCIENTIFIC (Appendices)

A.—Report on Leper Settlements, Singapore, (p. 46).

B.—Report on Pulau Jerejak Leper Settlement, and the Female Leper Settlement, Penang, (p. 47).

C.—Report on Pathological Branch, Straits Settlements, (p. 51).

D.—Report on General Hospital, Singapore, (p. 62).

E.—Report on the treatment of Opium Habit, (p. 70).

F.—Report on Schools, Straits Settlements, (p. 71).

G.—Report on Social Hygiene Branch, Straits Settlements, (p. 78).

A. L. HOOPS,  
*Principal Civil Medical Officer,  
Straits Settlements.*

#### NOTE:—

1. *Meteorology*.—The Meteorological work for the whole of Malaya has been taken over by the Meteorological Branch of the Survey Department, which will issue the Meteorological Report. The returns for the Straits Settlements are however shewn in Table IV, pages 97 and 98.
2. *Analysts' Branch*.—This branch was created a separate department at the beginning of 1929, and its report is to be published separately.



## APPENDIX "A"

## LEPER SETTLEMENT, SINGAPORE

ANNUAL REPORT FOR THE YEAR 1929

1. *Male Leper Settlement—*

|                                  |     |     |           |
|----------------------------------|-----|-----|-----------|
| Remained on 31st December, 1928  | ... | ... | 50        |
| Admitted during 1929             | ... | ... | 69        |
|                                  |     |     | <hr/> 119 |
| Discharged during 1929           | ... | ... | 5         |
| Died during 1929                 | ... | ... | 6         |
| Absconded during 1929            | ... | ... | —         |
| Transferred to Pulau Jerejak     | ... | ... | 80        |
| Remaining on 31st December, 1929 | ... | ... | 28        |
|                                  |     |     | <hr/> 119 |

*Immediate causes of deaths—*

|                                             |     |     |         |
|---------------------------------------------|-----|-----|---------|
| Sapraemia from septic ulcerations           | ... | ... | 3       |
| Tuberculosis of lungs                       | ... | ... | 2       |
| Tuberculosis of lungs and amoebic dysentery | ... | ... | 1       |
|                                             |     |     | <hr/> 6 |

2. *Female Leper Settlement—*

|                                  |     |     |          |
|----------------------------------|-----|-----|----------|
| Remained on 31st December, 1928  | ... | ... | 64       |
| Admitted during 1929             | ... | ... | 13       |
|                                  |     |     | <hr/> 77 |
| Discharged during 1929           | ... | ... | 3        |
| Died during 1929                 | ... | ... | 6        |
| Absconded during 1929            | ... | ... | 3        |
| Remaining on 31st December, 1929 | ... | ... | 65       |
|                                  |     |     | <hr/> 77 |

*Immediate causes of deaths—*

|                                   |     |     |         |
|-----------------------------------|-----|-----|---------|
| Sapraemia from septic ulcerations | ... | ... | 2       |
| Sapraemia from advanced leprosy   | ... | ... | 1       |
| Amoebic dysentery                 | ... | ... | 2       |
| Lobar pneumonia                   | ... | ... | 1       |
|                                   |     |     | <hr/> 6 |

*Male**Female**Return of injections administered—*

|                                   |     |     |       |
|-----------------------------------|-----|-----|-------|
| Oleum Hydnocarpus with .5% Iodine | ... | 328 | 1,373 |
| Alepol                            | ... | 703 | 1,002 |

*Results of treatment—*

|                      |     |    |    |
|----------------------|-----|----|----|
| Cured                | ... | 5  | 3  |
| Definite improvement | ... | 4  | 6  |
| Slight improvement   | ... | 7  | 18 |
| Stationary           | ... | 10 | 34 |
| Retrogressing        | ... | 2  | 4  |

*Treatment—*

Intercurrent diseases such as ankylostomiasis, beri-beri, pulmonary tuberculosis and malaria were treated before anti-leprotic treatment was actually begun.

The main drugs used in treatment were alepol and oleum hydnocarpus with 0.5% iodine.

Alepol is used in a 1% solution with 0.5% acid carbollic. This is given intravenously or subcutaneously twice weekly.

The commencing dose for adults is 1 cc. increasing gradually by 0.5 cc. till a maximum dose of 5 cc. is reached.

The drugs are well tolerated and the results are encouraging.

Assistant Surgeon N. W. AHIN was in charge of both Settlements throughout the year.

## APPENDIX "B"

### PULAU JEREJAK SETTLEMENT

#### ANNUAL REPORT FOR THE YEAR 1929

*Administration—*

The Chief Medical Officer and the Senior Health Officer, Penang, visited throughout the year.

The resident staff consisted of:—

One Medical Superintendent (Dr. A. H. WHEATLEY).

One Lay Superintendent.

Nine Dressers.

The lay superintendent was away on home leave from March to November, 1929.

Extensive anti-malarial work was carried out at the various camps, with the result that there have been no cases of malarial fever throughout the year.

The total rainfall was 2054 millimetres as compared with 2396 millimetres in 1928.

Water boats had to bring water from Penang, owing to the severe droughts experienced: 8,360 tons of water were brought on 111 occasions. A small reservoir was built at the Eurasian Camp. All the reservoirs are water tight now.

*Camp E.*—Thirty-four more huts were completed, making a total of 54 huts at this camp. Each hut accommodates three inmates.

The grounds at this camp have been further filled in, and levelled. Shady trees have been planted, and the whole camp is a model settlement.

Ninety-five cases, many of whom are losing all signs of their leprosy condition, have been transferred there.

*Old Settlement Camp.*—Ward 9 has been demolished to the improvement of the light and ventilation of the wards behind it.

*Eurasian Camp.*—Four more rooms were erected, making a total of 16 rooms.

*Inmates.*—There were 218 admissions as compared with 166 of 1928. Forty-six admissions were voluntary.

The daily average number was 839.25 as compared with 743.97 of 1928.

The greatest number on one day was 864 on 1st September, 1929.

*Treatment.*—The number of cases treated for the year was 990, and the deaths 105, a percentage of 10.59%, the lowest on record.



The following figures show the steady decrease in the death-rate:—

|      |     |     |                  |            |        |
|------|-----|-----|------------------|------------|--------|
| 1921 | ... | ... | 655 treated with | 201 deaths | 30.68% |
| 1922 | ... | ... | 699 " "          | 186 "      | 26.06% |
| 1923 | ... | ... | 688 " "          | 140 "      | 20.34% |
| 1924 | ... | ... | 726 " "          | 130 "      | 17.90% |
| 1925 | ... | ... | 831 " "          | 117 "      | 14%    |
| 1926 | ... | ... | 850 " "          | 117 "      | 13.76% |
| 1927 | ... | ... | 871 " "          | 122 "      | 14%    |
| 1928 | ... | ... | 897 " "          | 102 "      | 11.37% |
| 1929 | ... | ... | 990 " "          | 105 "      | 10.60% |

Treatment has been given to all for their leprous condition. The advanced cases take Hydnocarpus Wightiana Oil in capsules in a dosage of 5 to 30 minims, twice daily, or the Hydnocarpus Kernels powdered in 20 grain doses one daily. Four hundred and seventy-six cases have been under special injection treatment with Alepol with good results; 28 cases became negative; 231 greatly improved; 190 improved and 27 not improved.

Considering that early cases are seldom admitted, and that the duration of the disease prior to admission ranges from 3 to 10 years, the results are encouraging.

Three cured cases left the Settlement to work in Penang; several others, who have become negative, have been employed at the Settlement in various capacities.

*School and Recreation.*—Tuition in English and Chinese has been given regularly to 21 lads.

The Boy Scouts Patrol of 21 lads has wonderfully improved under the able direction of Mr. OOI PENG GUAN, a cured leper, who is now employed as a dresser at the Settlement. The patrol has now its own fife and drum band. Thirty scouts from Penang visited the boy scouts here, and expressed admiration at the smart turn out.

The Eurasian Brass band under the direction of a Filipino inmate has improved. The bandmaster has been cured and is shortly to be discharged to Penang. Another inmate is being trained to act as bandmaster.

*Agriculture.*—The piggery continues to be successfully worked by the inmates, and has supplied pork to the inmates in festival days.

Every effort has been made to keep the inmates occupied. Extensive vegetable and fruit gardens have been opened out at all the camps. The maintenance of the grounds and buildings is entirely carried out by the inmates.

Two hundred and twenty-four Hydnocarpus Wightiana and Anthelmintica trees which were planted in 1927 are in flourishing condition.

*Visiting Committee.*—For the first time, the various camps have been visited monthly by a Committee of 2 European and 10 Chinese gentlemen, two members visiting on each occasion. The Chinese visiting members kindly presented various Chinese musical instruments to the different camps.

The Hindus of Penang erected a temple for the Indian inmates here.

At Chinese New Year, each inmate received twenty-five cents as a gift from the anti-mendicity fund.

There have been numerous visitors during the year, and all have expressed their admiration of the contentment and comfortable housing of the inmates.

The following Returns are attached:—

- (a) Showing the number of admissions: the total number of deaths; total number of inmates, and the daily average for 1929.
- (b) The nationalities of the inmates.
- (c) The occupation of the inmates.

TABLE A

SHOWING THE NUMBER OF ADMISSIONS, TOTAL NUMBER OF DEATHS, TOTAL NUMBER OF INMATES, AND THE DAILY AVERAGE FOR 1929.

| Year     | Remained from Previous year | Admissions |       |          |       |          | Total | Deaths | Percentage of deaths to total treated | Daily average inmates |
|----------|-----------------------------|------------|-------|----------|-------|----------|-------|--------|---------------------------------------|-----------------------|
|          |                             | Colonial   | Perak | Selangor | Kedah | Kelantan |       |        |                                       |                       |
| 1929 ... | 772                         | 116        | 2     | ...      | 33    | 15       | 990   | 105    | 10.59%                                | 839.25                |

TABLE B

SHOWING THE NATIONALITIES OF INMATES FOR 1929.

| Nationalities         | Colonial | Perak | Selangor | Kedah | Kelantan | Total |
|-----------------------|----------|-------|----------|-------|----------|-------|
| Bengali Islam ...     | 3        | ...   | ...      | ...   | ...      | 3     |
| Bugis ...             | 1        | ...   | ...      | ...   | ...      | 1     |
| Cantonese ...         | 192      | 60    | 4        | 12    | 11       | 279   |
| Eurasian ...          | 13       | 1     | ...      | ...   | ...      | 14    |
| Filipino ...          | 1        | ...   | ...      | ...   | ...      | 1     |
| Fuichew ...           | 2        | ...   | ...      | 1     | ...      | 3     |
| Hockchew ...          | 5        | ...   | ...      | ...   | ...      | 5     |
| Hockien ...           | 135      | 15    | 3        | 9     | 1        | 163   |
| Hooichew ...          | 4        | ...   | ...      | 2     | ...      | 6     |
| Howchew ...           | 3        | ...   | ...      | ...   | ...      | 3     |
| Hylam ...             | 50       | 2     | 1        | 7     | ...      | 60    |
| Hylock Hong ...       | 1        | ...   | ...      | ...   | ...      | 1     |
| Southern Indian Islam | 7        | ...   | ...      | 2     | ...      | 9     |
| Javanese ...          | ...      | 1     | ...      | ...   | ...      | 1     |
| Kheh ...              | 83       | 29    | 22       | 17    | 2        | 153   |
| Looichew ...          | 3        | ...   | ...      | ...   | ...      | 3     |
| Macow ...             | 2        | 1     | 23       | 12    | ...      | 38    |
| Malay ...             | 4        | ...   | ...      | ...   | 1        | 5     |
| Shanghainese ...      | 1        | ...   | ...      | ...   | ...      | 1     |
| Siamese ...           | ...      | ...   | ...      | 1     | ...      | 1     |
| Tamil ...             | 70       | 17    | 3        | 33    | ...      | ...   |
| Teochew ...           | 93       | 3     | 1        | 20    | ...      | 117   |
| Total ...             | 673      | 129   | 57       | 116   | 15       | 990   |



TABLE C  
SHOWS THE OCCUPATION OF INMATES PREVIOUS TO ADMISSION

| Occupation             | Colonial | Perak | Selangor | Kedah | Kelantan | Total |
|------------------------|----------|-------|----------|-------|----------|-------|
| Barber ...             | 4        | ...   | 1        | ...   | ...      | 5     |
| Blacksmith ...         | 11       | 1     | ...      | ...   | ...      | 12    |
| Boatman ...            | 4        | ...   | ...      | ...   | ...      | 4     |
| Cart-driver ...        | 6        | ...   | ...      | 2     | ...      | 8     |
| Carpenter ...          | 25       | 6     | 5        | 4     | 1        | 41    |
| Cake Seller ...        | 2        | ...   | ...      | ...   | ...      | 2     |
| Chick Maker ...        | 1        | ...   | ...      | ...   | ...      | 1     |
| Chinese Clerk          | 6        | ...   | ...      | ...   | ...      | 6     |
| Chinese Teacher        | ...      | ...   | 1        | ...   | ...      | 1     |
| Cigar Seller ...       | ...      | 1     | ...      | ...   | ...      | 1     |
| Conductor ...          | 1        | ...   | ...      | ...   | ...      | 1     |
| Cook ...               | 6        | 1     | ...      | ...   | ...      | 7     |
| Contractor ...         | 2        | ...   | ...      | ...   | ...      | 2     |
| Basket-maker ...       | 1        | ...   | ...      | ...   | ...      | 1     |
| Cooly ...              | 242      | 26    | 26       | 57    | 11       | 362   |
| Dhoby ...              | 9        | 1     | ...      | ...   | ...      | 10    |
| Dentist ...            | 1        | ...   | ...      | ...   | ...      | 1     |
| Engine Cleaner         | ...      | ...   | 1        | ...   | ...      | 1     |
| Fowl-Seller ...        | 1        | ...   | ...      | 1     | ...      | 2     |
| Fitter ...             | 6        | 1     | 1        | ...   | ...      | 8     |
| Fisherman ...          | 5        | ...   | ...      | ...   | ...      | 5     |
| Gardener ...           | 21       | 4     | ...      | 12    | ...      | 37    |
| Glass Cutter ...       | 3        | ...   | ...      | 1     | ...      | 4     |
| Gate-Keeper ...        | 1        | ...   | ...      | ...   | ...      | 1     |
| Gold Smith ...         | 3        | ...   | 1        | 1     | ...      | 5     |
| Hawker ...             | 30       | 11    | 2        | 2     | ...      | 45    |
| Handcart puller        | 6        | ...   | ...      | ...   | ...      | 6     |
| Hospital Attendant ... | 1        | ...   | ...      | ...   | ...      | 1     |
| Mason ...              | 13       | 1     | 4        | 1     | ...      | 19    |
| Mining Cooly           | 2        | 31    | ...      | ...   | ...      | 33    |
| Motor car driver       | 3        | ...   | ...      | ...   | ...      | 3     |
| Musician ...           | 2        | ...   | ...      | ...   | ...      | 2     |
| Nil ...                | 103      | 7     | ...      | 12    | 1        | 123   |
| Paddy planter ...      | 2        | ...   | ...      | 1     | ...      | 3     |
| Pork-seller ...        | 1        | ...   | ...      | ...   | ...      | 1     |
| Painter ...            | 1        | ...   | ...      | ...   | ...      | 1     |
| Peon ...               | 2        | ...   | ...      | ...   | ...      | 2     |
| Rickshaw puller        | 4        | ...   | ...      | ...   | ...      | 4     |
| Rubber tapper          | 75       | 16    | 7        | 8     | 1        | 107   |
| Scavenger ...          | 1        | 1     | ...      | ...   | ...      | 2     |
| School boy ...         | 14       | 7     | ...      | ...   | ...      | 21    |
| Shoe maker ...         | 3        | ...   | ...      | ...   | ...      | 3     |
| Sailor ...             | 3        | ...   | ...      | ...   | ...      | 3     |
| Shop-keeper ...        | 0        | ...   | ...      | 3     | ...      | 12    |
| Stone-breaker          | 2        | ...   | ...      | ...   | ...      | 2     |
| Salesman ...           | 1        | ...   | ...      | ...   | ...      | 1     |
| Tinker ...             | 1        | ...   | ...      | 1     | ...      | 2     |
| Tailor ...             | 6        | ...   | ...      | ...   | ...      | 6     |
| Time-keeper ...        | 1        | ...   | ...      | ...   | ...      | 1     |
| Undertaker ...         | 1        | ...   | ...      | ...   | ...      | 1     |
| Vegetable seller       | 1        | ...   | ...      | 1     | ...      | 2     |
| Vegetable planter      | 7        | 2     | 4        | 4     | 1        | 18    |
| Watchman ...           | ...      | 1     | ...      | ...   | ...      | 1     |
| Weaver ...             | ...      | ...   | ...      | 1     | ...      | 1     |
| White washer ...       | 4        | ...   | ...      | ...   | ...      | 4     |
| Wood cutter ...        | 12       | 10    | 4        | 4     | ...      | 30    |
| Total ...              | 673      | 129   | 57       | 116   | 15       | 990   |

REPORT OF FEMALE SETTLEMENT, JELUTONG, PENANG.  
FOR THE YEAR 1929

|                               |     |     |     |     |      |
|-------------------------------|-----|-----|-----|-----|------|
| Remained 31-12-28             | ... | ... | ... | ... | 51   |
| Admitted                      | ... | ... | ... | ... | 18   |
| Died                          | ... | ... | ... | ... | 5    |
| Absconded                     | ... | ... | ... | ... | 3    |
| Transferred                   | ... | ... | ... | ... | Nil  |
| Discharged                    | ... | ... | ... | ... | Nil  |
| Remained 31-12-29             | ... | ... | ... | ... | 61   |
| Average daily No. of patients | ... | ... | ... | ... | 55.2 |

Treatment is as in the male settlement: the majority of cases show improvement.

*Result.*—Of all the cases 12 show marked improvement. One has already been certified as fit for discharge and arrangements are being made for her removal from the settlement. Four others, it is hoped, will be fit for discharge in another two or three months.

Two cases appear to be stationary and three show no improvement.

The rest show varying degrees of improvement.

*General.*—Another bathroom has been built because of the increasing number of patients.

The garden is looked after by the toti assisted by the inmates.

The inmates are being encouraged to start a flower garden so that they may have their own flowers for the wards.

There is a fowl run and the inmates have quite a good number of fowls and ducks. Sugar cane and vegetables are grown in the garden in front of the wards.

### APPENDIX "C"

#### REPORT ON THE PATHOLOGICAL BRANCH, STRAITS SETTLEMENTS

by Dr. J. C. TULL, *Government Pathologist, Singapore.*

##### I.—SINGAPORE

The total number of specimens examined during 1929 was 5,896, including 4,583 sera for complement fixation test for syphilis, 512 pieces of tissue for histological diagnosis, and 101 police exhibits for the presence of human blood.

As in previous years, the routine clerical laboratory work from the prison has been done in this laboratory.

##### 2. Autopsies at Tan Tock Seng Hospital Mortuary:—

|                                                                      |     |     |     |     |       |
|----------------------------------------------------------------------|-----|-----|-----|-----|-------|
| Total number                                                         | ... | ... | ... | ... | 1,557 |
| Number at which protocols were taken                                 | ... | ... | ... | ... | 1,134 |
| Coroner's Cases                                                      | ... | ... | ... | ... | 278   |
| Autopsies on patients dying within 24 hours of admission to hospital | ... | ... | ... | ... | 221   |
| Autopsies on patients dying within 48 hours of admission to hospital | ... | ... | ... | ... | 109   |



3. Return showing immediate cause of death in cases in which protocols were taken:—

|                                                           |     |     |     |
|-----------------------------------------------------------|-----|-----|-----|
| Injuries from motor car accidents                         | ... | ... | 39  |
| „ „ gun-shot wounds                                       | ... | ... | 8   |
| „ „ stab-wounds                                           | ... | ... | 12  |
| „ „ other assault wounds                                  | ... | ... | 5   |
| Asphyxia from drowning                                    | ... | ... | 5   |
| „ „ hanging                                               | ... | ... | 19  |
| „ „ strangulation                                         | ... | ... | 2   |
| Cut throat                                                | ... | ... | 1   |
| Poisoning                                                 | ... | ... | 5   |
| Burns                                                     | ... | ... | 2   |
| Other accidents                                           | ... | ... | 28  |
| Bodies too decomposed for autopsy                         | ... | ... | 16  |
| Beri-beri                                                 | ... | ... | 80  |
| Dysentery—amœbic                                          | ... | ... | 59  |
| Dysentery—bacillary                                       | ... | ... | 42  |
| Typhoid fever                                             | ... | ... | 26  |
| Pneumonia—lobar                                           | ... | ... | 155 |
| Pneumonia—broncho                                         | ... | ... | 41  |
| Malaria—acute subtertian                                  | ... | ... | 112 |
| Malaria—benign tertian                                    | ... | ... | 3   |
| Malaria—quartan                                           | ... | ... | 1   |
| Malaria—malarial cachexia                                 | ... | ... | 7   |
| Endocarditis—aortic                                       | ... | ... | 23  |
| Endocarditis—mitral                                       | ... | ... | 1   |
| Aneurysm—aortic                                           | ... | ... | 3   |
| Myocarditis                                               | ... | ... | 35  |
| Pericarditis                                              | ... | ... | 1   |
| Meningitis—tuberculous                                    | ... | ... | 3   |
| Meningitis—pneumococcal                                   | ... | ... | 3   |
| Malignant neoplasms                                       | ... | ... | 44  |
| Arterio-sclerosis                                         | ... | ... | 5   |
| Acute generalised peritonitis                             | ... | ... | 4   |
| Tuberculosis—pulmonary                                    | ... | ... | 149 |
| Tuberculosis—intestinal                                   | ... | ... | 2   |
| Tuberculosis—generalised                                  | ... | ... | 2   |
| Cirrhosis liver                                           | ... | ... | 29  |
| Nephritis—acute                                           | ... | ... | 1   |
| Nephritis—chronic                                         | ... | ... | 35  |
| Septic pyelo-nephritis                                    | ... | ... | 7   |
| Cystic kidneys                                            | ... | ... | 3   |
| Cerebral hæmorrhage                                       | ... | ... | 5   |
| Schistosomiasis Japonicum                                 | ... | ... | 2   |
| Purulent cholecystitis and cholangitis                    | ... | ... | 4   |
| Gastric ulcer, chronic, with hæmorrhage                   | ... | ... | 5   |
| Gastric ulcer, chronic, with perforation and peritonitis  | ... | ... | 3   |
| Duodenal ulcer, chronic, with perforation and peritonitis | ... | ... | 4   |
| Cholæmia                                                  | ... | ... | 1   |
| Septicæmia                                                | ... | ... | 35  |
| Bubonic plague                                            | ... | ... | 1   |
| Acute lymphoid leukæmia                                   | ... | ... | 1   |
| Splenic abscess                                           | ... | ... | 1   |
| Anæmia of undetermined origin                             | ... | ... | 1   |

## 4. TAN TOCK SENG HOSPITAL MORTUARY

MAIN CAUSES OF DEATH, EXCLUDING CORONER'S CASES, BY MONTHS

|           | —   | No. of Autopsies | Malaria | Tuberculosis | Pneumonia | Dysentery | Beri-beri | Typhoid | Syphilis | Coroner's cases | Others |
|-----------|-----|------------------|---------|--------------|-----------|-----------|-----------|---------|----------|-----------------|--------|
| January   | ... | ...              | 12      | 30           | 15        | 13        | 7         | 2       | 7        | 13              | 25     |
| February  | ... | ...              | 5       | 20           | 19        | 9         | 4         | 2       | 11       | 14              | 15     |
| March     | ... | ...              | 5       | 26           | 12        | 5         | 5         | 2       | 3        | 17              | 31     |
| April     | ... | ...              | 13      | 27           | 14        | 3         | 3         | 1       | 2        | 16              | 22     |
| May       | ... | ...              | 22      | 39           | 16        | 10        | 5         | 1       | —        | 30              | 24     |
| June      | ... | ...              | 17      | 26           | 15        | 7         | 10        | 1       | 4        | 36              | 25     |
| July      | ... | ...              | 23      | 32           | 15        | 12        | 7         | 2       | 1        | 26              | 26     |
| August    | ... | ...              | 16      | 23           | 14        | 3         | 3         | 4       | 1        | 24              | 29     |
| September | ... | ...              | 21      | 33           | 9         | 9         | 3         | 4       | 3        | 23              | 21     |
| October   | ... | ...              | 35      | 40           | 13        | 7         | 7         | 3       | 1        | 22              | 27     |
| November  | ... | ...              | 44      | 22           | 13        | 11        | 8         | 1       | 5        | 28              | 22     |
| December  | ... | ...              | 30      | 23           | 12        | 5         | 10        | 1       | 3        | 29              | 30     |
| Total     | ... | 1,557            | 243     | 341          | 167       | 94        | 72        | 24      | 41       | 278             | 297    |



## 5. AUTOPSIES AT THE CENTRAL MORTUARY, GENERAL HOSPITAL

|                                                                                 |     |     |     |     |
|---------------------------------------------------------------------------------|-----|-----|-----|-----|
| Total number of autopsies                                                       | ... | ... | ... | 457 |
| Total number at which protocols were taken                                      | ... | ... | ... | 457 |
| Number done on patients dying within twenty-four hours of admission to hospital | ... | ... | ... | 9   |

## Return showing immediate cause of death:—

|                                      |     |     |     |    |
|--------------------------------------|-----|-----|-----|----|
| Injuries from motor-car accidents    | ... | ... | ... | 22 |
| „ „ gun-shot wounds                  | ... | ... | ... | 6  |
| „ „ stab-wounds                      | ... | ... | ... | 10 |
| „ „ other assault wounds             | ... | ... | ... | 6  |
| Asphyxia—drowning                    | ... | ... | ... | 23 |
| Asphyxia—hanging                     | ... | ... | ... | 16 |
| Asphyxia—suffocation                 | ... | ... | ... | 1  |
| Cut throat                           | ... | ... | ... | 2  |
| Poisoning                            | ... | ... | ... | 7  |
| Other accidents                      | ... | ... | ... | 28 |
| Beri-beri                            | ... | ... | ... | 1  |
| Cerebro-spinal meningitis            | ... | ... | ... | 1  |
| Dysentery—amœbic                     | ... | ... | ... | 7  |
| Dysentery—bacillary                  | ... | ... | ... | 6  |
| Amœbic abscess of liver              | ... | ... | ... | 2  |
| Typhoid fever                        | ... | ... | ... | 14 |
| Pneumonia—lobar                      | ... | ... | ... | 38 |
| Pneumonia—broncho                    | ... | ... | ... | 31 |
| Malaria—acute subtertian             | ... | ... | ... | 42 |
| Endocarditis—aortic                  | ... | ... | ... | 10 |
| Aneurysms—aortic                     | ... | ... | ... | 5  |
| Myocarditis                          | ... | ... | ... | 9  |
| Pericarditis                         | ... | ... | ... | 1  |
| Meningitis—tuberculous               | ... | ... | ... | 4  |
| Malignant neoplasms                  | ... | ... | ... | 16 |
| Visceral syphilis                    | ... | ... | ... | 12 |
| Acute general peritonitis            | ... | ... | ... | 5  |
| Subphrenic abscess                   | ... | ... | ... | 1  |
| Acute intestinal obstruction         | ... | ... | ... | 1  |
| Cholæmia                             | ... | ... | ... | 2  |
| Acute appendicitis, with peritonitis | ... | ... | ... | 2  |
| Gastric ulcer, with hæmorrhage       | ... | ... | ... | 2  |
| Septic cholangitis                   | ... | ... | ... | 7  |
| Hepatic cirrhosis                    | ... | ... | ... | 2  |
| Pulmonary tuberculosis               | ... | ... | ... | 50 |
| Nephritis—acute                      | ... | ... | ... | 4  |
| Nephritis—chronic                    | ... | ... | ... | 17 |
| Diabetes                             | ... | ... | ... | 1  |
| Septicæmia                           | ... | ... | ... | 4  |
| Empyema of pleura                    | ... | ... | ... | 3  |
| Gangrene lung                        | ... | ... | ... | 2  |
| Bubonic plague                       | ... | ... | ... | 2  |
| Meningitis pneumococcal              | ... | ... | ... | 6  |
| Hydrocephalus                        | ... | ... | ... | 1  |
| Cerebral hæmorrhage                  | ... | ... | ... | 3  |

6. MAIN CAUSES OF DEATH, BY MONTHS, EXCLUDING CORONER'S CASES,  
CENTRAL MORTUARY, GENERAL HOSPITAL

| —         | No. of Autopsies | Malaria | Tuberculosis | Pneumonia | Dysentery | Beriberi | Typhoid | Syphilis | Coroner's cases | Others |
|-----------|------------------|---------|--------------|-----------|-----------|----------|---------|----------|-----------------|--------|
| January   | ...              | —       | 2            | 2         | 1         | 2        | 3       | —        | 13              | 6      |
| February  | ...              | 1       | 1            | 3         | 1         | —        | —       | 1        | 23              | 6      |
| March     | ...              | —       | —            | 5         | 2         | 1        | —       | —        | 25              | 4      |
| April     | ...              | 2       | —            | 5         | —         | —        | —       | 1        | 28              | 5      |
| May       | ...              | 3       | —            | 3         | —         | 1        | 2       | —        | 27              | 7      |
| June      | ...              | 5       | 5            | 5         | —         | 2        | —       | —        | 25              | 5      |
| July      | ...              | 4       | 4            | 6         | 2         | 2        | 1       | —        | 24              | 4      |
| August    | ...              | —       | 3            | 4         | 1         | —        | 3       | —        | 22              | 2      |
| September | ...              | 1       | 1            | 2         | —         | 1        | 2       | 1        | 17              | 3      |
| October   | ...              | 6       | 2            | 1         | 1         | 1        | 4       | —        | 17              | 7      |
| November  | ...              | 1       | —            | 6         | 1         | 3        | 1       | —        | 28              | 5      |
| December  | ...              | 1       | 1            | 2         | 1         | —        | —       | 2        | 22              | 1      |
| Total     | 457              | 24      | 19           | 44        | 10        | 13       | 16      | 5        | 271             | 55     |



## 7. MAIN CAUSES OF DEATH DURING 1929, AS COMPARED WITH 1928

## (a) TAN TOCK SENG HOSPITAL MORTUARY

| Year     | Autopsies | Malaria            | Tuberculosis       | Pneumonia          | Dysentery         | Beri-beri         | Typhoid<br>Fever | Coroner's<br>cases |
|----------|-----------|--------------------|--------------------|--------------------|-------------------|-------------------|------------------|--------------------|
| 1928 ... | 1,846     | 232<br>or<br>12.5% | 365<br>or<br>19.7% | 254<br>or<br>13.7% | 156<br>or<br>8.4% | 128<br>or<br>6.3% | 83<br>or<br>4.4% | 279<br>or<br>15.1% |
| 1929 ... | 1,557     | 243<br>or<br>15.6% | 341<br>or<br>23.4% | 167<br>or<br>16.3% | 94<br>or<br>10%   | 72<br>or<br>8.2%  | 24<br>or<br>5.3% | 278<br>or<br>17.8% |

## (b) CENTRAL MORTUARY, SEPOY LINES

| Year     | Autopsies | Malaria          | Tuberculosis     | Pneumonia        | Dysentery        | Beri-beri        | Typhoid<br>Fever | Coroner's<br>cases         |
|----------|-----------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------------|
| 1928 ... | 518       | 20<br>or<br>3.8% | 22<br>or<br>4.2% | 46<br>or<br>8.8% | 9<br>or<br>1.7%  | 11<br>or<br>2.1% | 18<br>or<br>3.4% | 311<br>or<br>60%           |
| 1929 ... | 457       | 24<br>or<br>5.2% | 19<br>or<br>4.1% | 44<br>or<br>9.6% | 10<br>or<br>1.9% | 13<br>or<br>2.4% | 16<br>or<br>3.9% | 271<br>or<br>60% (Approx.) |

8. The main causes of death as ascertained at autopsy were much the same as in 1928. Pneumonia showed a moderate increase. The apparent discrepancy between statistics from the two mortuaries is due to the fact that autopsies are performed upon a much larger percentage of patients at Tan Tock Seng Free Hospital than at the General Hospital.

There has been no serious outbreak of acute infectious or contagious disease.

Medico-legal cases continue to form a high percentage of the totals

*Staff.*—

LEE AH MOY, a familiar figure in this Branch, and mortuary keeper for more than twenty years, retired towards the end of the year because of ill-health. He had a record of long and faithful service.

Dr. J. R. JACOB served as first Assistant Pathologist from May to the end of the year.

## II. PENANG

|                                                               | 1928   | 1929   |
|---------------------------------------------------------------|--------|--------|
| I. LABORATORY EXAMINATIONS.                                   |        |        |
| <i>Blood films.</i> —Total number examined ...                | 17,670 | 15,503 |
| Positive to subtertian malaria ...                            | 2,553  | 1,679  |
| Positive to quartan malaria ...                               | 26     | 23     |
| Positive to benign tertian malaria ...                        | 853    | 579    |
| <i>Stools.</i> —Total number examined microscopically ...     | 17,096 | 14,152 |
| Positive to ankylostome ova ...                               | 5,714  | 4,958  |
| Positive to entamoeba histolytica ...                         | 171    | 144    |
| Total number examined culturally ...                          | 995    | 709    |
| Positive to B. typhosus ...                                   | 5      | 6      |
| Positive to B. dysenteriae (Shiga) ...                        | 11     | 13     |
| Positive to B. dysenteriae (Flexner) ...                      | 23     | 9      |
| Positive to Salmonella ...                                    | 20     | 8      |
| <i>Urine.</i> —General examinations ...                       | 14,508 | 15,930 |
| Estimations of albumen ...                                    | 15     | 38     |
| Estimations of sugar ...                                      | 204    | 72     |
| Cultural examinations ...                                     | 24     | 23     |
| <i>Sputum.</i> —Total number examined ...                     | 2,992  | 3,130  |
| Positive to B. tuberculosis ...                               | 358    | 470    |
| <i>Films for Gonococci.</i> —Total ...                        | 680    | 846    |
| Positive ...                                                  | 319    | 402    |
| <i>Films for B. Lepræ.</i> —Total ...                         | 241    | 404    |
| Positive ...                                                  | 50     | 69     |
| <i>Films for B. Diphtheriæ.</i> —Total ...                    | 66     | 130    |
| Positive ...                                                  | 8      | 18     |
| <i>Cultures for B. Diphtheriæ.</i> —Total ...                 | 87     | 142    |
| Positive ...                                                  | 16     | 24     |
| <i>Films for other organisms.</i> — ...                       | 1,038  | 274    |
| <i>Dark ground examinations for spirochæta pallida.</i> — ... | 230    | 141    |
| Positive ...                                                  | 99     | 70     |
| <i>Blood cultures.</i> — ...                                  | 34     | 120    |
| <i>Other cultures.</i> — ...                                  | 84     | 56     |
| <i>Blood counts.</i> — ...                                    | 136    | 240    |
| <i>Blood chemical examinations.</i> — ...                     | 33     | 54     |



|                                                             | 1928   | 1929   |
|-------------------------------------------------------------|--------|--------|
| <i>Widals.</i> — ... ..                                     | 166    | 180    |
| Positive to <i>B. typhosus</i> ... ..                       | 29     | 30     |
| Positive to <i>B. para. A.</i> ... ..                       | —      | 11     |
| Positive to <i>B. para. B.</i> ... ..                       | 2      | 2      |
| Positive to <i>B. para. C.</i> ... ..                       | —      | —      |
| <i>Wassermann reactions.</i> — ... ..                       | 5,921  | 5,743  |
| Positive ... ..                                             | —      | —      |
| <i>Wassermann reactions.</i> — ... ..                       | 5,921  | 5,743  |
| Positive ... ..                                             | 1,973  | 1,541  |
| <i>Kahn reactions.</i> — ... ..                             | —      | 1,345  |
| Positive ... ..                                             | —      | 745    |
| <i>Agglutination tests for organisms.</i> — ... ..          | 36     | 65     |
| <i>Animal inoculations.</i> — ... ..                        | 42     | 79     |
| <i>Pathological sections.</i> — ... ..                      | 32     | 54     |
| <i>Bacteriological examinations of water.</i> — ... ..      | 93     | 80     |
| <i>Vaccines prepared.</i> — ... ..                          | 8      | 11     |
| <i>Cerebro-spinal fluid, general examinations.</i> — ... .. | 9      | 5      |
| <i>Cerebro-spinal fluid, Lange tests.</i> — ... ..          | 8      | 3      |
| <i>Postmortem examinations.</i> — ... ..                    | 619    | 306    |
| <i>Other examinations.</i> — ... ..                         | 56     | 87     |
| <i>Total number of examinations.</i> — ... ..               | 63,147 | 59,950 |

2. POSTMORTEM EXAMINATIONS PERFORMED ON HOSPITAL PATIENTS AT THE DISTRICT AND GENERAL HOSPITALS, PENANG, DURING THE YEAR 1929

| <i>Diseases</i>                         | <i>Deaths</i> | <i>Diseases</i>                   | <i>Deaths</i> |
|-----------------------------------------|---------------|-----------------------------------|---------------|
| Amœbic Dysentery ... ..                 | 28            | General peritonitis ... ..        | 1             |
| Chronic Malaria ... ..                  | 27            | Miliary tuberculosis ... ..       | 1             |
| Lobar Pneumonia ... ..                  | 15            | Carcinoma of Liver ... ..         | 1             |
| Pulmonary Tuberculosis ... ..           | 13            | Cerebral Hæmorrhage ... ..        | 1             |
| Acute Malaria ... ..                    | 11            | Abscess of Lung ... ..            | 1             |
| Bacillary dysentery ... ..              | 8             | Septicæmia ... ..                 | 1             |
| Sapremia ... ..                         | 7             | Tuberculosis of Intestines ... .. | 1             |
| Cirrhosis of Liver ... ..               | 6             | Sarcoma of Jaw ... ..             | 1             |
| Beri-beri ... ..                        | 5             | Carcinoma of Oesophagus ... ..    | 1             |
| Ankylostomiasis ... ..                  | 4             | Enteric fever ... ..              | 1             |
| Tuberculous Meningitis ... ..           | 4             | Carcinoma of Palate ... ..        | 1             |
| Chronic Interstitial Nephritis ... ..   | 4             | Pyelonephritis ... ..             | 1             |
| Liver abscess ... ..                    | 3             | Suppurative cholecystitis ... ..  | 1             |
| Pleurisy ... ..                         | 3             | Suppurative pylephlebitis ... ..  | 1             |
| Carcinoma of stomach ... ..             | 3             | Vascular syphilis ... ..          | 1             |
| Brancho-Pneumonia ... ..                | 3             | Cardiac syphilis ... ..           | 1             |
| Chronic Parenchymatous Nephritis ... .. | 3             | Visceral syphilis ... ..          | 1             |
| Valvular disease of Heart ... ..        | 3             | Lympho-sarcoma of Cæcum ... ..    | 1             |
| Aortic aneurysm ... ..                  | 2             | Acute ascending Paralysis ... ..  | 1             |
| Empyema ... ..                          | 2             |                                   |               |
| Acute pericarditis ... ..               | 2             | Total ... ..                      | 176           |
| Pyonephrosis ... ..                     | 1             |                                   |               |

3. POSTMORTEM EXAMINATIONS PERFORMED ON CORONER'S CASES  
IN PENANG, DURING THE YEAR 1929

| <i>Diseases</i>                  | <i>Deaths</i> | <i>Diseases</i>                 | <i>Deaths</i> |
|----------------------------------|---------------|---------------------------------|---------------|
| —                                | —             | —                               | —             |
| Acute Malaria ...                | 4             | Ruptured Liver ...              | 3             |
| Lobar Pneumonia ...              | 13            | Fractured Skull ...             | 12            |
| Broncho Pneumonia ...            | 2             | Fractured sternum ...           | 1             |
| Pleurisy ...                     | 1             | Fractured Femur ...             | 1             |
| Abscess of Lung ...              | 3             | Fractured Vertebrae ...         | 1             |
| Pulmonary Tuberculosis ...       | 6             | Stab wounds of Liver ...        | 3             |
| Amoebic Dysentery ...            | 1             | Stab wounds of Heart ...        | 1             |
| Septicæmia ...                   | 3             | Stab wounds of Neck ...         | 1             |
| Abscess of Liver ...             | 1             | Stab wounds of Intestines ...   | 1             |
| Perforated Gastric Ulcer ...     | 1             | Stab wounds of Stomach ...      | 1             |
| General Peritonitis ...          | 1             | Cut throat ...                  | 2             |
| Valvular Disease of Heart ...    | 2             | Electrocution ...               | 2             |
| Cardiac syphilis ...             | 1             | Still birth ...                 | 2             |
| Visceral syphilis ...            | 2             | Asphyxia from Hanging ...       | 9             |
| Vascular syphilis ...            | 3             | Asphyxia from Drowning ...      | 13            |
| Ruptured aortic aneurysm ...     | 2             | Poisoning by Acetic Acid ...    | 1             |
| Chronic Intestinal Nephritis ... | 1             | Poisoning by Opium ...          | 2             |
| Carcinoma of Larynx ...          | 1             | Poisoning by Sulphuric Acid ... | 1             |
| Beri-beri ...                    | 1             | Poisoning by Caustic soda ...   | 1             |
| Multiple injuries ...            | 4             | Poisoning by Snake bite ...     | 1             |
| Ruptured Bladder ...             | 2             | Decomposed ...                  | 11            |
| Ruptured Pancreas ...            | 1             |                                 |               |
| Ruptured intestines ...          | 2             | Total ...                       | 130           |
| Ruptured Spleen ...              | 2             |                                 |               |

4. Dr. J. A. COWAN was in charge of the laboratory from 1st January, 1929 to 26th July, 1929, when he proceeded on leave. Dr. H. O. HOPKINS was in charge for the remainder of the year.

Dr. J. R. JACOB, Assistant Pathologist, attached to the laboratory, was transferred to Singapore on 3rd May, 1929, and Dr. L. S. DA SILVA took his place from that date.



## III. MALACCA

1. *Staff.*—

Assistant Pathologist C. SUBRAHMANYAM was in charge throughout the year.

In addition to the Laboratory Assistant, L. C. MITTRA, another dresser was assisting in the laboratory in the mornings only.

2. *Estate dressers' class.*—

The practical laboratory instruction for this class was given by the Assistant Pathologist. The class met in two sections, each section for two hours once a fortnight for five months. The teaching was made as practical as possible. It consisted in the preparation of blood films for malaria, examination of faeces for helminth ova and amœbæ, examination of urine, and the commoner methods of staining for bacteriological examination of pus, sputum, etc.

3. *Work done.*—

|                                                                |        |
|----------------------------------------------------------------|--------|
| Total number of specimens examined, including autopsies ... .. | 14,049 |
| Autopsies on Coroner's cases ... ..                            | 56     |
| Autopsies on Hospital cases ... ..                             | 46     |

4. *Malaria.*—

|                                           |       |
|-------------------------------------------|-------|
| Blood films for malarial parasites ... .. | 2,210 |
| Positive ... ..                           | 640   |

*Types of infections.*—

|                                               |     |
|-----------------------------------------------|-----|
| Subtertian ... ..                             | 349 |
| Benign tertian ... ..                         | 151 |
| Quartan ... ..                                | 105 |
| Subtertian and Benign tertian ... ..          | 25  |
| Subtertian and Quartan ... ..                 | 4   |
| Benign tertian and Quartan ... ..             | 3   |
| Subtertian, Benign tertian and Quartan ... .. | 3   |

*Incidence of.*—

|                       |     |
|-----------------------|-----|
| Subtertian ... ..     | 381 |
| Benign tertian ... .. | 183 |
| Quartan ... ..        | 112 |

5. *Miscellaneous examinations.*—

|                                                               |     |
|---------------------------------------------------------------|-----|
| Animal inoculations ... ..                                    | 3   |
| Blood counts—total leucocyte ... ..                           | 62  |
| total R. B. C. ... ..                                         | 4   |
| differential count ... ..                                     | 45  |
| Blood films for Babesia bovis (positive—1) ... ..             | 3   |
| Blood films of dog (positive to filaria) ... ..               | 1   |
| Films from human hydrocele fluid (positive to filaria) ... .. | 1   |
| Blood sugar estimation and sugar tolerance test ... ..        | 5   |
| Cerebro-spinal fluid examination ... ..                       | 3   |
| Cultures from blood ... ..                                    | 9   |
| Cultures for B. Diphtheria (positive—10) ... ..               | 135 |
| Culture for Gonococcus ... ..                                 | 1   |
| Cultures for Meningococcus ... ..                             | 9   |
| Cultures for Stools ... ..                                    | 33  |
| Cultures for urine ... ..                                     | 3   |
| Films for B. Anthracis ... ..                                 | 4   |

|                                                                         |     |     |     |       |
|-------------------------------------------------------------------------|-----|-----|-----|-------|
| Films for Ducrey's bacillus                                             | ... | ... | ... | 2     |
| Films for B. Lepræ                                                      | ... | ... | ... | 72    |
| Positive                                                                | ... | ... | ... | 25    |
| Films for Gonococcus                                                    | ... | ... | ... | 365   |
| Positive                                                                | ... | ... | ... | 134   |
| Films for Lepto-spira ictero hæmorrhagica                               | ... | ... | ... | 4     |
| Films for Meningococcus                                                 | ... | ... | ... | 16    |
| Positive                                                                | ... | ... | ... | 3     |
| Films for T. pallidum (dark ground illumination)                        | ... | ... | ... | 7     |
| Positive                                                                | ... | ... | ... | 1     |
| Medico-legal exhibits for examination                                   | ... | ... | ... | 39    |
| Sections—Histological                                                   | ... | ... | ... | 42    |
| Vaccine—autogenous                                                      | ... | ... | ... | 2     |
| Sputum                                                                  | ... | ... | ... | 833   |
| Positive to B. Tuberculosis                                             | ... | ... | ... | 148   |
| Positive to Pneumococcus                                                | ... | ... | ... | 48    |
| Sputum for estimation of albumin                                        | ... | ... | ... | 5     |
| 6. <i>Helminth infections.</i> —                                        |     |     |     |       |
| Stool examined                                                          | ... | ... | ... | 4,422 |
| Positive to ova                                                         | ... | ... | ... | 3,553 |
| <i>Types of infection.</i> —                                            |     |     |     |       |
| Ankylostome                                                             | ... | ... | ... | 841   |
| Ascaris lumbricoides                                                    | ... | ... | ... | 271   |
| Trichuris trichiura                                                     | ... | ... | ... | 436   |
| Oxyuris vermicularis                                                    | ... | ... | ... | 21    |
| Ankylostome and A. lumbricoides                                         | ... | ... | ... | 202   |
| Ankylostome and T. trichiura                                            | ... | ... | ... | 685   |
| Ascaris lumbricoides and T. trichiura                                   | ... | ... | ... | 428   |
| Ankylostome, A. lumbricoides and T. trichiura                           | ... | ... | ... | 669   |
| <i>Incidence of.</i> —                                                  |     |     |     |       |
| Ankylostome                                                             | ... | ... | ... | 2,397 |
| Ascaris lumbricoides                                                    | ... | ... | ... | 1,368 |
| Trichuris trichiura                                                     | ... | ... | ... | 2,218 |
| Oxyuris vermicularis                                                    | ... | ... | ... | 21    |
| 7. <i>Other examination of stools.</i> —                                |     |     |     |       |
| Stool for protozoa, etc.                                                | ... | ... | ... | 297   |
| Positive to Entamœba histolytica                                        | ... | ... | ... | 67    |
| Positive to Entamœba coli                                               | ... | ... | ... | 2     |
| Positive to Strongyloides stercoralis                                   | ... | ... | ... | 6     |
| Positive to Tœnia saginata                                              | ... | ... | ... | 2     |
| Positive to Trichomonas hominis                                         | ... | ... | ... | 14    |
| Stool for occult blood                                                  | ... | ... | ... | 36    |
| Positive                                                                | ... | ... | ... | 24    |
| 8. <i>Urine for general examination.</i> —chemical and<br>microscopical | ... | ... | ... | 3,849 |
| Urine for estimation of sugar                                           | ... | ... | ... | 71    |
| Urine for estimation of albumin                                         | ... | ... | ... | 2     |
| 9. Wassermann reaction                                                  | ... | ... | ... | 1,161 |
| Positive                                                                | ... | ... | ... | 531   |



|                                                              |     |     |     |     |    |
|--------------------------------------------------------------|-----|-----|-----|-----|----|
| 10. Widal reaction                                           | ... | ... | ... | ... | 64 |
| Positive                                                     | ... | ... | ... | ... | 24 |
| <i>Types of reaction.—</i>                                   |     |     |     |     |    |
| Positive to B. typhosus                                      | ... | ... | ... | ... | 17 |
| Positive to B. typhosus and B. paratyphosus A.               | ... | ... | ... | ... | 1  |
| Positive to B. paratyphosus A. and B.                        | ... | ... | ... | ... | 1  |
| Positive to B. paratyphosus                                  | ... | ... | ... | ... | 2  |
| Positive to B. typhosus and B. paratyphosus A. and A.        | ... | ... | ... | ... | 3  |
| Other agglutination tests                                    | ... | ... | ... | ... | 19 |
| 11. <i>Water examinations.</i> —Chemical and bacteriological | ... | ... | ... | ... | 28 |
| 12. Other examinations                                       | ... | ... | ... | ... | 80 |

### APPENDIX "D"

#### GENERAL HOSPITAL, SINGAPORE

Dr. J. GRAY, Chief Medical Officer, was in administrative charge throughout the year.

1. *Work done.*—A comparative Table for the years from 1925 to 1929 is as follows:—

| Year | Number of patients treated in 1st & 2nd Class Wards | Died | Percentage | Number of patients treated in 3rd Class Wards | Died  | Percentage |
|------|-----------------------------------------------------|------|------------|-----------------------------------------------|-------|------------|
| 1925 | 2,381                                               | 126  | 5.29       | 7,962                                         | 675   | 8.49       |
| 1926 | 3,100                                               | 216  | 6.96       | 9,901                                         | 839   | 8.45       |
| 1927 | 3,775                                               | 280  | 7.42       | 10,842                                        | 1,037 | 9.57       |
| 1928 | 4,137                                               | 308  | 7.44       | 11,246                                        | 881   | 7.83       |
| 1929 | 4,727                                               | 389  | 8.23       | 11,974                                        | 944   | 7.88       |

2. *Chief Diseases.*—The chief diseases treated in the General Hospital are stated below and compared with previous years:—

| Diseases               | 1929  | 1928  | 1927  | 1926  | 1925 |
|------------------------|-------|-------|-------|-------|------|
| Malaria                | 1,821 | 2,094 | 1,967 | 1,691 | 841  |
| Enteric Fever          | 132   | 244   | 228   | 147   | 89   |
| Tuberculosis           | 621   | 545   | 481   | 388   | 284  |
| Dysentery Amœbic       | 107   | 161   | 165   | 104   | —    |
| Dysentery Bacillary    | 62    | 50    | 53    | 149   | 133  |
| Dysentery Unclassified | 25    | 23    | 27    | 23    | —    |
| Syphilis and Gonorrhœa | 783   | 889   | 783   | 862   | 650  |
| Beri-beri              | 308   | 346   | 237   | 190   | 149  |
| Pneumonia Lobar        | 264   | 286   | 319   | 237   | 181  |
| Broncho                | 147   | 100   | 104   | 80    | 56   |
| Unclassified           | 17    | 7     | 28    | —     | —    |
| Ankylostomiasis        | 700   | 239   | 317   | 569   | 393  |

3. *Malaria.*—One thousand eight hundred and twenty-one cases treated. A decrease of 273 cases treated as compared with 1928. Five hundred and nine are returned as unclassified. Some of these had commenced treatment before admission. Others probably had scanty parasites which were not found in the films.

*Pneumonia.*—Lobar Pneumonia 264 cases, a decrease of 22 cases.  
Mortality rate 45.40%.  
Total Pneumonia 428 cases, an increase of 35 cases.  
Mortality rate 58.17%.

*Syphilis*.—Four hundred and twenty-seven cases were treated showing a decrease of 64.

*Diarrhœa in Infants under 2 years*.—Thirty-three deaths in 72 cases show that very little can yet be done unless these cases are admitted earlier.

*Pulmonary Tuberculosis*.—505 cases were treated showing an increase of 71.

*Beri-beri*.—Three hundred and eight cases were treated with 63 deaths,

4. The physician staff at present comprises:—

|                       |     |                                                             |
|-----------------------|-----|-------------------------------------------------------------|
| Professor R. B. HAWES | ... | Senior Physician.                                           |
| Dr. V. H. NORRIS      | ... | Physician.                                                  |
| Dr. C. E. SMITH       | ... | House Physician to the 1st and 2nd Class Wards.             |
| Dr. E. S. MONTEIRO    | ... | House Physicians to the 3rd Class Male Wards.               |
| Dr. B. SHEARES        | ... |                                                             |
| Dr. G. GUNATILAKA     | ... | Lady House Physician to the 2nd and 3rd Class Female Wards. |

*Laboratory and Library*.—These two departments are very popular. The Library contains a number of valuable books of reference and the staff enjoys the full benefits therefrom.

Equipment in the laboratory is sufficient—breakages have been very few. Thanks are due to the departments of bacteriology and pathology for their help with chemicals and stains. Six thousand four hundred and thirty specimens were examined in the clinical laboratory by the medical staff. There are now two dressers in the routine laboratory where the examinations for the year amount to 33,825.

Specimens from all the wards now reach the laboratories satisfactorily, due to the increased supervision exercised over the ward toties.

*After treatment*.—The system of issuing printed instructions to 3rd class patients on their discharge from hospital is a great success: few of them are re-admitted for the same disease.

Special cases are furnished with a letter to their private doctor in which is stated the diagnosis, examinations done, treatment carried out and progress. These cases include, gastric and duodenal ulcers, diabetes mellitus, syphilis, malaria and the dysenteries. Visits from these patients are, as they should be, on the increase.

*Electrocardograph*.—A portable instrument manufactured by the Victor Co. has been installed. This instrument is very easy to work, but unfortunately interference from electric fans is serious problem. There is a fair amount of material for this branch of medicine.

*Scarlet Fever*.—One case, a Dutchman, from the motor ship "Insulinde" was admitted. A rather serious outbreak of the disease had occurred on the ship.

*Enteric Fever*.—Total cases treated number 132 with a mortality rate of 31·8% compared with 244 cases and mortality rate of 31·5% in the previous year. It must be noted that of the 42 deaths about 20 occurred in the case of patients who were in hospital for less than 48 hours or who were operated upon for general peritonitis following perforation.

*Lead Poisoning*.—Cases continue to be admitted from the Government Printing Office and from the Printing Department of the General Post Office. Applicants for billets in these two departments are examined for the presence of lead. Many of these applicants have been working in printing departments in India before coming to this country and several showed lead in the urine.



*Anti-Rabic Treatment.*—Dr. V. H. NORRIS proceeded to the Institute of Medical Research, Kuala Lumpur, in October for instruction in this. The treatment is now available here. From October to the end of the year, 6 persons, who were bitten by dogs, sought treatment. Two of them received treatment, the dogs in both instances were not found: the remaining 4 did not receive treatment as the dogs were pronounced to be free from rabies by the Veterinary Department of the Municipality.

5. The Surgeons on the Staff comprised:—

|                      |     |     |                                                |
|----------------------|-----|-----|------------------------------------------------|
| Mr. C. J. SMITH      | ... | ... | Senior Surgeon.                                |
| Mr. KENNETH BLACK    | ... | ... | Professor of Surgery.                          |
| Mr. B. M. JOHNS      | ... | ... | Professor of Clinical Surgery.                 |
| Dr. E. L. ROBERT     | ... | ... | House Surgeon (January to June).               |
| Dr. W. G. EVANS      | ... | ... | House Surgeon.                                 |
| Mr. W. A. BELHATCHET | ... | ... | Assistant Surgeon and Senior Tutor in Surgery. |

6. RETURN OF OPERATIONS

From 1st January, 1929 to 31st December, 1929.

|                  |     |     |     |   |       |
|------------------|-----|-----|-----|---|-------|
| Total Operations | ... | ... | ... | = | 1,852 |
| Deaths           | ... | ... | ... | = | 47    |

| Pathological condition and nature of operation        | Total No. of cases | Cured or Relieved | Died |
|-------------------------------------------------------|--------------------|-------------------|------|
| <i>Amputations.—</i>                                  |                    |                   |      |
| Forearm or hand                                       | 2                  | 2                 | ...  |
| Foot or leg                                           | 9                  | 7                 | 2    |
| Fingers                                               | 3                  | 3                 | ...  |
| Toes                                                  | 2                  | 2                 | ...  |
| Re-amputations                                        | 4                  | 4                 | ...  |
| <i>Operations on Muscles, Tendons and Ligaments.—</i> |                    |                   |      |
| Tenotomy                                              | 2                  | 2                 | ...  |
| Suturing divided tendon                               | 3                  | 3                 | ...  |
| Removal of ganglion                                   | 1                  | 1                 | ...  |
| Bakers cyst                                           | 1                  | 1                 | ...  |
| <i>Operations of Heart and Blood Vessels.—</i>        |                    |                   |      |
| Peri Arterial sympathectomy                           | 7                  | 7                 | ...  |
| Ligature of arteries                                  | 1                  | 1                 | ...  |
| Excision of varicose veins of legs                    | 2                  | 2                 | ...  |
| Injection of varicose veins                           | 26                 | 26                | ...  |
| Angioma                                               | 1                  | 1                 | ...  |
| Drainage pericardium                                  | 1                  | ...               | 1    |
| Carried forward                                       | 65                 | 62                | 3    |

| Pathological condition and nature<br>of operation | Total No.<br>of cases | Cured or<br>Relieved | Died |
|---------------------------------------------------|-----------------------|----------------------|------|
| <i>Brought forward</i> ...                        | 65                    | 62                   | 3    |
| <i>Operations of Lymphatic Glands.—</i>           |                       |                      |      |
| Excision of lymphatic glands ...                  | 19                    | 19                   | ...  |
| Dissection glands neck ...                        | 6                     | 6                    | 1    |
| Incision of glands ...                            | 9                     | 9                    | ...  |
| <i>Removal of Foreign Body.—</i>                  |                       |                      |      |
| Hand ...                                          | 6                     | 6                    | ...  |
| Arm ...                                           | 2                     | 2                    | ...  |
| Leg ...                                           | 1                     | 1                    | ...  |
| Jaw ...                                           | 1                     | ...                  | 1    |
| <i>Operation on Bones.—</i>                       |                       |                      |      |
| Sequestrectomy ...                                | 12                    | 12                   | ...  |
| Plasting fractures ...                            | 11                    | 11                   | ...  |
| Bone grafting ...                                 | 5                     | 5                    | ...  |
| Plaster of paris ...                              | 26                    | 26                   | ...  |
| Osteomyelitis ...                                 | 8                     | 8                    | ...  |
| Setting fractures ...                             | 23                    | 23                   | ...  |
| Wiring or pegging fractures ...                   | 10                    | 10                   | ...  |
| Osteotomy ...                                     | 4                     | 4                    | ...  |
| Excision of coccyx ...                            | 1                     | 1                    | ...  |
| Removal of wire from fracture ...                 | 2                     | 2                    | ...  |
| Removal of plate ...                              | 4                     | 4                    | ...  |
| Cyst of bone ...                                  | 2                     | 2                    | ..   |
| Excision of scaphoid and other<br>bones ...       | 2                     | 2                    | ...  |
| Hallux valgus ...                                 | 1                     | 1                    | ...  |
| Toilet of compound fractures ...                  | 2                     | 2                    | ...  |
| <i>Operation of Joints.—</i>                      |                       |                      |      |
| Arthrotomy ...                                    | 6                     | 6                    | ...  |
| Aspiration ...                                    | 14                    | 14                   | ...  |
| Reduction of dislocation ...                      | 6                     | 6                    | ...  |
| Excision of semilunar cartilage ...               | 4                     | 4                    | ...  |
| Mobilisation of joint ...                         | 1                     | 1                    | ...  |
| Excision joint ...                                | 1                     | 1                    | ...  |
| Plaster case to hip joint ...                     | 1                     | 1                    | ...  |
| Irrigation ...                                    | 5                     | 5                    | ...  |
| Manipulation ...                                  | 36                    | 36                   | ...  |
| Plaster of Paris ...                              | 8                     | 8                    | ...  |
| Compound dislocation ...                          | 2                     | 1                    | 1    |
| <i>Operations on skull.—</i>                      |                       |                      |      |
| Trephining ...                                    | 10                    | 9                    | 1    |
| Abscess, intracranial ...                         | 1                     | 1                    | ...  |
| <i>Operations on Ear.—</i>                        |                       |                      |      |
| Radical mastoid operations ...                    | 15                    | 13                   | ...  |
| Plastic ...                                       | 2                     | 2                    | 2    |
| Incision of typanic membrane ...                  | 1                     | 1                    | ...  |
| Removal of papilloma ...                          | 1                     | 1                    | ...  |
| <i>Carried forward</i> ...                        | 336                   | 328                  | 8    |



| Pathological condition and nature<br>of operation          | Total No.<br>of cases | Cured or<br>Relieved | Died |
|------------------------------------------------------------|-----------------------|----------------------|------|
| <i>Brought forward</i> ...                                 | 336                   | 328                  | 8    |
| <i>Operation on Lips, Mouths and Salivary<br/>Glands.—</i> |                       |                      |      |
| Repair of hare lips ...                                    | 11                    | 11                   | ...  |
| Repair of cleft plate ...                                  | 5                     | 5                    | ...  |
| Excision of law ...                                        | 3                     | 2                    | 1    |
| Eneucleation of tonsils and removal<br>adenoids ...        | 259                   | 259                  | ...  |
| Diathermy, cancer of tongue,<br>tonsil and cancer of nose  | 1                     | 1                    | ...  |
| Extraction of teeth ...                                    | 59                    | 59                   | ...  |
| Peritonsillar abscess ...                                  | 6                     | 6                    | ...  |
| Radium introduced ...                                      | 3                     | 3                    | ...  |
| Alveolar abscess ...                                       | 5                     | 5                    | ...  |
| Excision ulcer of tongue ...                               | 3                     | 3                    | ...  |
| Hæmorrhage from tonsils ...                                | 1                     | 0                    | 1    |
| Excision submaxillary gland ...                            | 1                     | 1                    | ...  |
| <i>Operations on Oesophagus.—</i>                          |                       |                      |      |
| Oesophagoscopy ...                                         | 2                     | 2                    | ...  |
| <i>Operations of Trachea.—</i>                             |                       |                      |      |
| Tracheotomy ...                                            | 4                     | 4                    | ...  |
| Brochoscopy for foreign body ...                           | 2                     | 2                    | ...  |
| <i>Operations of Noses and Sinuses.—</i>                   |                       |                      |      |
| Turbinectomy ...                                           | 22                    | 22                   | ...  |
| Submucous resection ...                                    | 10                    | 10                   | ...  |
| Opening maxillary antrum ...                               | 6                     | 6                    | ...  |
| Nasal polypus ...                                          | 8                     | 8                    | ...  |
| Plastic of nose ...                                        | 1                     | 1                    | ...  |
| Nasal (not specified) ...                                  | 4                     | 4                    | ...  |
| Frontal sinusitis ...                                      | 3                     | 3                    | ...  |
| Cauterisation of nose ...                                  | 1                     | 1                    | ...  |
| Ballinger-Luck operations ...                              | 1                     | 1                    | ...  |
| <i>Operations on Eyes.—</i>                                |                       |                      |      |
| Removal foreign body ...                                   | 2                     | 2                    | ...  |
| For pterygium ...                                          | 5                     | 5                    | ...  |
| Plastic for entropion ...                                  | 2                     | 2                    | ...  |
| Excision lachrymal sac ...                                 | 1                     | 1                    | ...  |
| Iridectomy ...                                             | 10                    | 10                   | ...  |
| Extraction of cataract ...                                 | 19                    | 19                   | ...  |
| Needling of cataract ...                                   | 1                     | 1                    | ...  |
| Evisceration of eye ...                                    | 4                     | 4                    | ...  |
| Eneucleation of eye ...                                    | 6                     | 6                    | ...  |
| Symblepharon ...                                           | 2                     | 2                    | ...  |
| Expression of lids for trachoma ...                        | 5                     | 5                    | ...  |
| Excision growth of eye ...                                 | 2                     | 2                    | ...  |
| Incision abscess of eyelid ...                             | 1                     | 1                    | ...  |
| Plastic eyelids ...                                        | 2                     | 2                    | ...  |
| Cauterization staphyloma ...                               | 1                     | 1                    | ...  |
| Conjunctival tumour ...                                    | 1                     | 1                    | ...  |
| Penquecula ...                                             | 1                     | 1                    | ...  |
| Toilet of eye ...                                          | 1                     | 1                    | ...  |
| Hooddeleon ...                                             | 1                     | 1                    | ...  |
| Injection lachrymal duct ...                               | 1                     | 1                    | ...  |
| <i>Carried forward</i> ...                                 | 825                   | 815                  | 10   |

| Pathological condition and nature of operation  | Total No. of cases | Cured or Relieved | Died |
|-------------------------------------------------|--------------------|-------------------|------|
| <i>Brought forward</i> ...                      | 825                | 815               | 10   |
| <i>Operation on Breasts.—</i>                   |                    |                   |      |
| Complete amputation ...                         | 4                  | 4                 | ...  |
| Excision of breast ...                          | 1                  | 1                 | ...  |
| <i>Operations on Thorax.—</i>                   |                    |                   |      |
| Resection rib for empyema ...                   | 8                  | 6                 | 2    |
| Extraction of bullet from lung ...              | 1                  | 1                 | ...  |
| <i>Operations of Hernia.—</i>                   |                    |                   |      |
| Radical cure of hernia ...                      | 36                 | 36                | ...  |
| For strangulated hernia ...                     | 14                 | 13                | 1    |
| <i>Abdominal Operations.—</i>                   |                    |                   |      |
| Peritoneal abscess drained ...                  | 12                 | 11                | 1    |
| General peritonitis ...                         | 2                  | ...               | 2    |
| Exploratory laparotomy ...                      | 25                 | 21                | 4    |
| Castrectomy, partial ...                        | 3                  | 1                 | 2    |
| Perforated duodenal or gastric ulcer ...        | 5                  | 5                 | ...  |
| Gastro-Jejunostomy ...                          | 12                 | 10                | ...  |
| Splenectomy ...                                 | 2                  | 2                 | 2    |
| Liver abscess, laparotomy and drainage ...      | 3                  | 2                 | 1    |
| Cholecystostomy ...                             | 4                  | 3                 | 1    |
| Cholecystectomy ...                             | 4                  | 4                 | ...  |
| Acute intestinal obstruction ...                | 4                  | 3                 | 1    |
| Intussusception ...                             | 2                  | 2                 | ...  |
| Acute and chronic appendectomy ...              | 116                | 112               | 4    |
| Colostomy ...                                   | 4                  | 4                 | ...  |
| Stab wound abdomen, gun-shot wound abdomen ...  | 6                  | 5                 | 1    |
| Perforation intestine typhoid ...               | 7                  | 6                 | 1    |
| Resection of intestine ...                      | 1                  | 1                 | ...  |
| Laparotomy, adhesions ...                       | 1                  | 1                 | ...  |
| Gastrostomy ...                                 | 1                  | 1                 | ...  |
| Repair abdominal wall ...                       | 4                  | 4                 | ...  |
| Enterostomy ...                                 | 3                  | 3                 | ...  |
| Amœbic abscess—aspiration ...                   | 6                  | 6                 | ...  |
| Pancreatitis ...                                | 3                  | 1                 | 2    |
| Retroperitoneal sarcoma ...                     | 1                  | 1                 | ...  |
| <i>Operations on Rectum and Anus.—</i>          |                    |                   |      |
| Excision of hæmorrhoids ...                     | 41                 | 40                | 1    |
| Partial excision of rectum ...                  | 4                  | 2                 | 2    |
| Ischio-rectal abscess ...                       | 6                  | 6                 | ...  |
| Sigmoidoscopy ...                               | 13                 | 13                | ...  |
| Imperforate anus ...                            | 2                  | 1                 | 1    |
| Dilatation of anal canal ...                    | 6                  | 6                 | ...  |
| Anal fissure ...                                | 2                  | 2                 | ...  |
| Fistula in ano ...                              | 15                 | 15                | ...  |
| Examination under anæsthetic ...                | 1                  | 1                 | ...  |
| Extra-peritoneal abscess opened and drained ... | 2                  | 2                 | ...  |
| Anal abscess ...                                | 3                  | 3                 | ...  |
| Dilation of rectal stricture ...                | 3                  | 3                 | ...  |
| <i>Carried forward</i> ...                      | 1,218              | 1,179             | 39   |



| Pathological condition and nature<br>of operation        | Total No.<br>of cases | Cured or<br>Relieved | Died |
|----------------------------------------------------------|-----------------------|----------------------|------|
| <i>Brought forward</i> ...                               | 1,218                 | 1,179                | 39   |
| <i>Operations on Kidneys, Ureters and<br/>Bladders.—</i> |                       |                      |      |
| Litholapaxy ...                                          | 1                     | 1                    | ...  |
| Suprapubic cystotomy for stone ...                       | 7                     | 7                    | ...  |
| Cystoscopy ...                                           | 118                   | 118                  | ...  |
| Nephrectomy ...                                          | 2                     | 1                    | 1    |
| Nephro-lithotomy ...                                     | 3                     | 3                    | ...  |
| Peri-nephric abscess ...                                 | 2                     | 2                    | ...  |
| Suprapubic cystotomy ...                                 | 2                     | 2                    | ...  |
| Transplantation of ureters into<br>loin ...              | 2                     | 2                    | ...  |
| <i>Operations on the Male Generative<br/>Organs.—</i>    |                       |                      |      |
| Plastic of penis ...                                     | 2                     | 2                    | ...  |
| Hydrocele, radical cure ...                              | 20                    | 20                   | ...  |
| Varicocele ...                                           | 4                     | 4                    | ...  |
| Orchidectomy ...                                         | 4                     | 4                    | ...  |
| Ruptured urethra ...                                     | 1                     | 1                    | ...  |
| Suturing scrotum ...                                     | 1                     | 1                    | ...  |
| Circumcision ...                                         | 18                    | 18                   | ...  |
| Urethroscopy ...                                         | 3                     | 3                    | ...  |
| Peri-urethral abscess ...                                | 1                     | 1                    | ...  |
| Hæmatocele ...                                           | 4                     | 4                    | ...  |
| Replacement of testicles ...                             | 1                     | 1                    | ...  |
| Urethrotomy ...                                          | 3                     | 3                    | ...  |
| <i>Operations on the Female Generative<br/>Organs.—</i>  |                       |                      |      |
| Ovariectomy ...                                          | 12                    | 12                   | ...  |
| Salpingectomy ...                                        | 18                    | 17                   | 1    |
| Laparotomy and hysteropexy ...                           | 1                     | 1                    | ...  |
| Hysterectomy ...                                         | 19                    | 18                   | 1    |
| Perineorrhaphy ...                                       | 8                     | 8                    | ...  |
| Amputation uterine cervix ...                            | 7                     | 7                    | ...  |
| Hymenectomy ...                                          | 3                     | 3                    | ...  |
| Examination under anæsthetic ...                         | 5                     | 5                    | ...  |
| Vesico-vaginal fistula ...                               | 3                     | 3                    | ...  |
| Curettage ...                                            | 50                    | 50                   | ...  |
| Ovarian cyst ...                                         | 6                     | 6                    | ...  |
| Myomectomy ...                                           | 2                     | 2                    | ...  |
| Trachelorrhaphy ...                                      | 3                     | 3                    | ...  |
| Salpingostomy ...                                        | 1                     | 1                    | ...  |
| Cæsarian section ...                                     | 7                     | 6                    | 1    |
| Ventral Suspension ...                                   | 11                    | 11                   | ...  |
| Ruptured ectopic gestation ...                           | 6                     | 5                    | 1    |
| Recto-vaginal fistula ...                                | 1                     | 1                    | ...  |
| Insertion radium, cervix ...                             | 3                     | 3                    | ...  |
| Excision papillomata, perineum ...                       | 4                     | 4                    | ...  |
| Induction of labour ...                                  | 1                     | 1                    | ...  |
| Urethral caruncle ...                                    | 1                     | 1                    | ...  |
| Dilatation ...                                           | 3                     | 3                    | ...  |
| Packing cervix ...                                       | 1                     | 1                    | ...  |
| Ovum removed ...                                         | 1                     | 1                    | ...  |
| Injection of ether ...                                   | 4                     | 4                    | ...  |
| <i>Carried forward</i> ...                               | 1,598                 | 1,554                | 44   |

| Pathological condition and nature of operation           |     |     | Total No. of cases | Cured or Relieved | Died |
|----------------------------------------------------------|-----|-----|--------------------|-------------------|------|
| —                                                        |     |     | —                  | —                 | —    |
| <i>Brought forward</i>                                   |     |     | ... 1,598          | 1,554             | 44   |
| <i>Operation on Cysts.—</i>                              |     |     |                    |                   |      |
| Sebaceous                                                | ... | ... | 2                  | 2                 | ...  |
| Dental cyst                                              | ... | ... | 1                  | 1                 | ...  |
| Dermoid                                                  | ... | ... | 1                  | 1                 | ...  |
| Not specified                                            | ... | ... | 4                  | 4                 | ...  |
| <i>Operation for Abscess.—</i>                           |     |     |                    |                   |      |
| Incision                                                 | ... | ... | 106                | 105               | 1    |
| Abscess hip-joint                                        | ... | ... | 1                  | 1                 | ...  |
| <i>Operations on Nerves.—</i>                            |     |     |                    |                   |      |
| Alcoholic injection for nerves                           | ... | ... | 2                  | 2                 | ...  |
| Resecting nerve                                          | ... | ... | 2                  | 2                 | ...  |
| <i>Operations of the Spine, Cord and Meninges.—</i>      |     |     |                    |                   |      |
| Lumbar, puncture                                         | ... | ... | 2                  | 2                 | ...  |
| Plaster case to spine                                    | ... | ... | 3                  | 3                 | ...  |
| <i>Operations of the Skin and Subcutaneous Tissues.—</i> |     |     |                    |                   |      |
| Skin grafting                                            | ... | ... | 30                 | 30                | ...  |
| Removal of nail                                          | ... | ... | 6                  | 6                 | ...  |
| Suturing wounds                                          | ... | ... | 19                 | 19                | ...  |
| Curettage                                                | ... | ... | 3                  | 3                 | ...  |
| Hæmatoma drained                                         | ... | ... | 1                  | 1                 | ...  |
| Cellulitis incised                                       | ... | ... | 17                 | 17                | ...  |
| Carbuncle                                                | ... | ... | 2                  | 1                 | ...  |
| Keloid                                                   | ... | ... | 1                  | 1                 | 1    |
| Sinuses scraped                                          | ... | ... | 13                 | 13                | ...  |
| Resuture of wounds                                       | ... | ... | 3                  | 3                 | ...  |
| Excision of ulcer                                        | ... | ... | 3                  | 3                 | ...  |
| Excision of scar                                         | ... | ... | 2                  | 2                 | ...  |
| Plastic operations of face                               | ... | ... | 5                  | 5                 | ...  |
| Incisions                                                | ... | ... | 2                  | 2                 | ...  |
| <i>Tumours.—</i>                                         |     |     |                    |                   |      |
| Unspecified                                              | ... | ... | 4                  | 4                 | ...  |
| Lipoma                                                   | ... | ... | 1                  | 1                 | ...  |
| Naevus                                                   | ... | ... | 1                  | 1                 | ...  |
| Tumour of vulva                                          | ... | ... | 3                  | 3                 | ...  |
| Bartholin cyst                                           | ... | ... | 1                  | 1                 | ...  |
| Cyst (unspecified)                                       | ... | ... | 9                  | 9                 | ...  |
| Sarcoma                                                  | ... | ... | 3                  | 3                 | ...  |
| Carcinoma removed                                        | ... | ... | 1                  | ...               | 1    |
| Total                                                    |     |     | ... 1,852          | 1,805             | 47   |



### 7. X-ray Department.—

(1) Dr. GRAY acted in charge of this department from the 9th August, 1929, when Dr. WEBSTER went on leave.

(2) *Work done.*—A comparative table of the radiography undertaken during the last 5 years shows a steady increase, broken only by the departure on leave of the whole time radiologist:—

|      |     |     |     |     |       |
|------|-----|-----|-----|-----|-------|
| 1925 | ... | ... | ... | ... | 3,552 |
| 1926 | ... | ... | ... | ... | 4,747 |
| 1927 | ... | ... | ... | ... | 6,118 |
| 1928 | ... | ... | ... | ... | 9,463 |
| 1929 | ... | ... | ... | ... | 8,866 |

(3) A large number of screen examinations were done during the year and many foreign bodies were removed in the X-ray room with the aid of the fluorescent screen.

(4) The following table shows the examinations undertaken:—

|                     |     |     |                           |     |     |
|---------------------|-----|-----|---------------------------|-----|-----|
| Barium meals        | ... | 255 | Abdomen                   | ... | 37  |
| Barium enemata      | ... | 21  | Hip                       | ... | 132 |
| Barium swallow      | ... | 9   | Face and jaw              | ... | 86  |
| Cholecystography    | ... | 43  | Thigh                     | ... | 86  |
| Pyelography         | ... | 16  | Knee                      | ... | 162 |
| Lipoidol Injections | ... | 7   | Leg                       | ... | 189 |
| Skull               | ... | 89  | Foot                      | ... | 120 |
| Sinosis             | ... | 171 | Shoulder                  | ... | 121 |
| Spine               | ... | 83  | Upper arm                 | ... | 45  |
| Kidney and ureters  | ... | 150 | Forearm                   | ... | 161 |
| Pelvis and bladder  | ... | 47  | Hand                      | ... | 97  |
| Thorax              | ... | 482 | Joints small, elbow, etc. | ... | 351 |
| Clavicle            | ... | 12  |                           |     |     |

(5) Radiotherapy, electrical treatment and ultraviolet therapy have been used during the year in the treatment of suitable cases.

## APPENDIX "E"

### REPORT ON TREATMENT OF OPIUM HABIT DURING 1929

#### I.—SINGAPORE

##### Opium Habit—

|                                  |     |     |             |
|----------------------------------|-----|-----|-------------|
| Remained on 31st December, 1928  | ... | ... | —           |
| Admitted during 1929             | ... | ... | 1,037       |
|                                  |     |     | <hr/> 1,037 |
| Discharged for breaking rules    | ... | ... | 8           |
| Unfit for treatment              | ... | ... | —           |
| Absconded                        | ... | ... | 437         |
| Discharged apparently cured      | ... | ... | 579         |
| Remaining on 31st December, 1929 | ... | ... | 13          |
|                                  |     |     | <hr/> 1,037 |

The numbers seeking admission increased from 579 in 1928 to 1,037 in 1929.

Less than 10 per cent are really genuine cases, and it is rare to see a patient showing any of the characteristic signs and symptoms of distress.

## II.—PENANG

|                                  |     |     |           |
|----------------------------------|-----|-----|-----------|
| Remained on 31st December, 1928  | ... | ... | 14        |
| Admitted during 1929             | ... | ... | 651       |
|                                  |     |     | <hr/> 665 |
| Unfit for treatment              | ... | ... | —         |
| Absconded or not cured           | ... | ... | 307       |
| Discharged apparently cured      | ... | ... | 341       |
| Remaining on 31st December, 1929 | ... | ... | 17        |
|                                  |     |     | <hr/> 665 |

## III.—MALACCA

Two hundred and eighty-five patients were admitted for Opium habit treatment during the year. It is difficult to decide whether the persons really benefitted by the treatment, and have given up the opium habit after their discharge from the hospital.

## APPENDIX "F"

## I.—MEDICAL INSPECTION OF ENGLISH GIRLS' SCHOOLS, SINGAPORE

At the beginning of 1929, the part time post of Lady Health Officer *i/c* Schools was made a full time post, and during this year, in addition to the examination of the Government and Aided Girls Schools, six Malay Girls' Schools and eleven Boys' Schools, up to and including Standard II, were examined by her.

A routine examination was made of these school children during the first half of the year. In the 2nd half, those found defective at the first examination were re-examined. The girls requiring vaccination were vaccinated by the lady health officer, at school, whilst the boys were vaccinated by the public vaccinator.

Six thousand nine hundred and seventy-two were examined at the first examination, 5,301 were re-examined later in the year. One thousand one hundred and thirty-nine girls were vaccinated and 1,220 boys.

Thus 14,632 examinations, etc., were made during 1929.

Routine examination of locally trained female teachers was also carried out. One hundred and ninety-three teachers were examined.

The work for the year consisted of—

1. Routine examinations of the six Government and Aided Girls' Schools. Number of pupils=3,344.
2. Routine examinations of the six Malay Girls' Schools. Number of pupils=425.
3. Routine examinations of eleven Boys' Schools up to and including Standard II. Number of pupils=3,203.
4. Vaccination of girls at schools.
5. Visits of inspection to these schools from time to time for the purpose of general school hygiene or for following up special cases.



6. Visits of inspection to private schools for the purpose of general school hygiene. Eleven Chinese and six English private schools were visited in 1929.
7. Hookworm examinations were carried out in one Malay School. Of forty-six girls, forty-one had hookworm, forty-five had roundworm and forty-one had whipworm ova.
8. Accommodation certificates for classrooms and dormitories were issued during the year.
9. Lectures on Hygiene were given.

Some statistics of the medical examinations are given below:—

| <i>Nits</i> |     | <i>1929</i> |     | <i>1928</i> |                |
|-------------|-----|-------------|-----|-------------|----------------|
| —           |     | —           |     | —           |                |
| Govt. Girls | ... | ...         | 1%  | ...         | 3.7%           |
| Malay Girls | ... | ...         | 86% | ...         | no examination |

| <i>Vaccination</i> |     | <i>1929</i>                        |                                      | <i>1928</i>                        |                                      |
|--------------------|-----|------------------------------------|--------------------------------------|------------------------------------|--------------------------------------|
| —                  |     | —                                  |                                      | —                                  |                                      |
|                    |     | <i>Requiring<br/>revaccination</i> | <i>Successfully<br/>revaccinated</i> | <i>Requiring<br/>revaccination</i> | <i>Successfully<br/>revaccinated</i> |
| Govt. Girls        | ... | 32.2%                              | 62.5%                                | 28.8%                              | 32%                                  |
| Malay Girls        | ... | 88.4%                              | 81%                                  | —                                  | —                                    |
| Junior Boys        | ... | 40.4%                              | 74.9%                                | —                                  | —                                    |

| <i>Anæmia</i> |     | <i>1929</i>      |                 | <i>1928</i>      |                 |
|---------------|-----|------------------|-----------------|------------------|-----------------|
| —             |     | —                |                 | —                |                 |
|               |     | <i>Incidence</i> | <i>Improved</i> | <i>Incidence</i> | <i>Improved</i> |
| Govt. Girls   | ... | 1.9%             | 53.1%           | 17.6% *          | —               |
| Malay Girls   | ... | 3.3%             | 21.4%           | —                | —               |
| Junior Boys   | ... | 10%              | 82.2%           | —                | —               |

The pupils in the Government Girls' Schools are mainly well to do children and the anæmia is found chiefly amongst the older girls. In the Malay Girls' Schools and the Boys' Schools the anæmia is due to worms. Nearly all the boys had treatment for these but as this is the first year the Malay Girls have been examined, the response to advice for treatment has not been very good.

| <i>Throat Affections</i> |     | <i>1929</i>      |                 | <i>1928</i>      |                 |
|--------------------------|-----|------------------|-----------------|------------------|-----------------|
| —                        |     | —                |                 | —                |                 |
|                          |     | <i>Incidence</i> | <i>Improved</i> | <i>Incidence</i> | <i>Improved</i> |
| Govt. Girls              | ... | 10.5%            | 53.3%           | 11.8%            | 27.6%           |
| Malay Girls              | ... | 18.3%            | 23.1%           | —                | —               |
| Junior Boys              | ... | 15.4%            | 34%             | —                | —               |

Enlarged tonsils constitute the chief throat affection. Many of these clear up without treatment or after the extraction of carious teeth. Therefore operative treatment is not advised except in those cases where the hypertrophy is marked and persistent over a period of 2 years. In nine cases tonsillectomy was performed during 1929.

| <i>Dental Caries</i> |     | 1929             |                 | 1928             |                 |
|----------------------|-----|------------------|-----------------|------------------|-----------------|
|                      |     | <i>Incidence</i> | <i>Improved</i> | <i>Incidence</i> | <i>Improved</i> |
| —                    |     | —                | —               | —                | —               |
| Govt. Girls          | ... | 39.6%            | 55.4%           | 36.5%            | 21.3%           |
| Malay Girls          | ... | 56.2%            | 60.6%           | —                | —               |
| Junior Boys          | ... | 54.8%            | 72.8%           | —                | —               |

This condition still looms largest amongst the defects and the biggest incidence is amongst the younger children. The improvements noted are marked and are due to the energy of principals and teachers in pressing the children to receive treatment. Two schools call for special mention namely, Gan Eng Seng and Serangoon English School where it was a pleasure to re-examine the mouths.

| <i>Defective Vision</i> |     | 1929             |                 | 1928             |                 |
|-------------------------|-----|------------------|-----------------|------------------|-----------------|
|                         |     | <i>Incidence</i> | <i>Improved</i> | <i>Incidence</i> | <i>Improved</i> |
| —                       |     | —                | —               | —                | —               |
| Govt. Girls             | ... | 2.2%             | 28.7%           | 3.3%             | 29%             |
| Malay Girls             | ... | —                | —               | —                | —               |
| Junior Boys             | ... | 1.5%             | 12.2%           | —                | —               |

The girls and their parents are still adverse to wearing glasses.

| <i>Skin Affections</i> |     | 1929             |                 | 1928             |                 |
|------------------------|-----|------------------|-----------------|------------------|-----------------|
|                        |     | <i>Incidence</i> | <i>Improved</i> | <i>Incidence</i> | <i>Improved</i> |
| —                      |     | —                | —               | —                | —               |
| Govt. Girls            | ... | 4.4%             | 53%             | 3.8%             | —               |
| Malay Girls            | ... | 5.8%             | 40%             | —                | —               |
| Junior Boys            | ... | 13.4%            | 75.9%           | —                | —               |

The skin conditions are very slight, the commonest being sores due to mosquito bites. Most of these are treated in the school dispensaries.

*Sanitation.*—There is modern sanitation in Raffles Girls' School, the French Convent, St. Anthony's Convent, which has recently been rebuilt, in the Singapore Chinese Girls' School and in Fairfield Girls' School. These are all satisfactory. The Malay Schools have the old latrine system. The latrines were satisfactory in most of the schools.

*Food.*—Drinking facilities were satisfactory in most schools. In the majority of schools food is still supplied by hawkers under school supervision. Raffles girls bring their own lunch and no hawkers are allowed on the premises. Food at the French Convent is prepared on the premises, and there are no hawkers there. The food supplied by the hawkers is on the whole clean, but is too much handled by the children. The more indigestible foods are gradually being eliminated.

*Medical Attention.*—During the visits to the schools, principals are advised as to the best methods of obtaining treatment for their pupils. Type-written lists of all children requiring treatment are given to the principals and dental forms and dispensary forms are given to the children to be taken to their parents. Treatment can be obtained free at the Government Dispensaries, which have now special hours for school children, or from private



doctors. Dental work is carried out by two local dentists, one a Japanese, and one a Chinese, at special prices, or by private dentists.

Although the fight against home conditions and age long customs is uphill, more progress can be seen this year. The school medical work is no longer an incident, but is part of the curriculum, and is recognised as such by parents and teachers alike. The parents are becoming more interested and it is largely to the effects and co-operation of the principals and teachers that the general standard of health has been raised during 1929.

## II.—MEDICAL EXAMINATION OF BOYS' SCHOOLS IN SINGAPORE

(1) *Work done.*—The following table gives the numbers of boys systematically examined in Government English, Aided, and Vernacular schools:—

|      |     |     | <i>In Government<br/>and Aided<br/>Schools</i> | <i>In<br/>Vernacular<br/>Schools</i> | <i>Total</i> |
|------|-----|-----|------------------------------------------------|--------------------------------------|--------------|
| 1927 | ... | ... | 5,410                                          | 1,668                                | 7,078        |
| 1928 | ... | ... | 4,072                                          | 1,638                                | 5,710        |
| 1929 | ... | ... | 5,859                                          | 1,920                                | 7,779        |

(2) All the Government, Aided and Private Schools, numbering 39, were inspected as to their sanitary arrangements and accommodation capacity. One hundred and forty eight Chinese schools, eighteen Malay Vernacular Schools including the new Malay School at Tanjong Kling, and two Arab Schools were inspected with the same purpose.

(3) Data elicited for systematic examination of boys:—

(a) *General Condition.*—

|      | 1927   | 1928   | 1929   |
|------|--------|--------|--------|
| Fat  | 3.45%  | 7.76%  | 4.42%  |
| Good | 79.81% | 72.87% | 81.90% |
| Fair | 13.93% | 15.01% | 11.58% |
| Poor | 2.80%  | 4.24%  | 2.10%  |

(b) *Cleanliness.*—The percentage of dirty children was 0.84% compared with 0.98% in 1928 and 3.19 in 1927.

(c) *Vaccination.*—This was done by the vaccinator attached to the Health Branch. The total vaccinated was 3,726, mostly revaccinations.

| <i>English Schools</i> | <i>Malay Boys' Schools</i> | <i>Reformatory School</i> |
|------------------------|----------------------------|---------------------------|
| 2,629                  | 1,016                      | 81                        |

(d) *Eye-sight.*—(1) Defective Vision, and (2) Diseases of the eye proper. Total number of defective vision was 463 cases, diseases of the eye 775 cases. Pupils with the defects greater than 6/9 were enabled to see the Eastern Optical Co. and to get glasses from this firm. Under the second category were (a) Trachoma 175, (b) Conjunctivitis 529, (c) Acute Conjunctivitis 19, (d) Follicular Conjunctivitis 10, (e) Blepharitis 4, (f) Squint 19.

(g) Styte 9, (h) Leucoma 10, (i) Ectropion 2, (j) Nebula 1, (k) Tumour 1, (l) Scotoma 1, (m) Corneal Opacity 1, (n) Ptosis 1. These cases were sent for treatment either to the General Hospital or to an out-door dispensary.

(e) *Dental Caries*.—The percentage of caries amongst school boys was 49.8% compared with 64.17% in 1928.

Mr. K. HOMMA and Mr. W. FONES, dentists, charged reduced fees to pupils who went to them for treatment.

(f) *Sanitation*.—The number of visits to schools was 513. Reports and recommendations were submitted to the Inspector of Schools through the Chief Health Officer.

(g) *Infectious Diseases*.—Chicken-pox 26 cases, Measles 7 cases, Diphtheria 1 case, Mumps 9 cases, Yaws 6 cases.

(4) *Medical Certificates of Room Accommodation*.—These were given when necessary for all the classes of schools and were sent to the principals of the Schools stating the number to be accommodated according to regulation 12 of the School Ordinance, 1920.

(5) Lecturers on "Health Habits" were given in 1928 to every Malay school. An examination on these in the form of a Catechism was held this year in every Malay school.

(6) *Travelling Dispensary*.—During its usual itinerary the vernacular schools en route were visited and treatment was given to the pupils free of charge.

(7) *Examination of pupils before Admission to Schools*.—One hundred and fourteen new entrants of the Anglo-Chinese School were examined by request of the principal. The new entrants of the Victoria Bridge School will be examined in January, 1930 at the request of the head master.

(8) *Systematic Examination of School-Teachers of Government, Aided and Vernacular Schools*.—The total number examined was 264.

(9) *Treatment of Diseases of School Children*.—Treatment was carried out at all the Out-door Dispensaries, and the General Hospital.

(10) *General*.—Health work amongst the Boys' Schools has progressed considerably, and we are indebted to the Inspector of Schools for close co-operation and encouragement and also to the heads of schools. A comparison of the health charts of all schools shows considerable improvement in the year now reviewed. This is the first year in which all the pupils have been examined.



TREATMENT AS CARRIED OUT SINCE LAST MEDICAL EXAMINATION

| School                     | Vaccination | Teeth | Tonsils | Hernia and<br>Bubonocoele | Vision | Medical<br>Cases | Surgical<br>Cases |
|----------------------------|-------------|-------|---------|---------------------------|--------|------------------|-------------------|
| Anglo-Chinese School       | 926         | 166   | 13      | —                         | —      | —                | —                 |
| *Gan Eng Seng School       | 61          | 49    | 4       | 1                         | 8      | 5                | 2                 |
| Geylang English School     | 91          | 16    | 13      | 1                         | 1      | 8                | 3                 |
| Holy Innocents             | 104         | 94    | 13      | 2                         | 2      | 16               | 7                 |
| Rangoon Road School        | 156         | 135   | 44      | 1                         | 14     | 84               | 44                |
| *St. Andrew's School       | 205         | —     | —       | 1                         | —      | 11               | —                 |
| *St. Joseph's Institution  | 458         | 166   | 24      | 3                         | 39     | 48               | 3                 |
| St. Anthony's School       | 324         | 136   | 8       | 1                         | —      | 109              | —                 |
| Serangoon English School   | 27          | 19    | 3       | —                         | 2      | 10               | 1                 |
| Telok Kurau English School | 66          | 8     | 14      | —                         | —      | 9                | 16                |
| Victoria Bridge School     | 211         | 141   | 44      | 3                         | 15     | 21               | 1                 |

\*These schools have not had sufficient time to carry out treatment adequately.

## III.—SCHOOLS PENANG

School inspection and the examination of school children were carried out as a part time duty by:—

The Lady Medical Officer—Girls' Schools in Penang, Province Wellesley and Dindings.

The Health Officer, Province Wellesley—Boys' Schools in Province Wellesley (The assistant medical officers of the three districts carry out school inspection in many of the schools of their respective district).

In addition a Deputy rural health officer inspects all boys schools in Rural Penang and all Vernacular boys schools in Penang Town.

A Medical Officer or an assistant medical officer inspects boys schools in town other than Vernacular schools.

The deputy medical officer, Dindings, inspects all boys schools in the Dindings.

The following figures give the main points of the work done and the findings:—

|                                           | Number of Visits | Sanitary defects | Number of Pupils examined | Enlarged Spleens      | Carious teeth    | Tonsils or Adenoids | Anæmia         | Yaws | Require Vaccination |
|-------------------------------------------|------------------|------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------|---------------------|
| Girls' Schools in Northern Settlement ... | 26               | 12               | 3,320                     | 162<br>(4.9%)         | 2,789<br>(84%)   | 158<br>(4.7%)       | 459<br>(13.8%) | 1    | 25                  |
| Boys Schools { Penang ...                 | 141              | 21               | 15,525                    | 1,031<br>(6.6%)       | 3,274<br>(21.9%) | 782<br>(5%)         | 697<br>(4.5%)  | 28   | 141                 |
| Province Wellesley                        | 49               | 15               | 5,316                     | 497<br>(9.3%)         | 1,843<br>(34.5%) | 710<br>(13.3%)      | 304<br>(5.7%)  | 35   | 248                 |
| Dindings ...                              | 72               | ...              | 471                       | Figures not available | ...              | ...                 | ...            | ...  | 89                  |

Wherever possible, sanitary defects have been remedied by the Public Works Department; the remainder are noted for action at the first opportunity.

## IV.—SCHOOLS, MALACCA

*Staff.*—School inspections are carried out by the assistant health officers in the three districts.

*Work done.*—Eight Government and Government Aided Schools and 33 Vernacular Schools were inspected and pupils to the number of 2,675 boys were examined.

*General Conditions.*—The general condition of most pupils was good and has shown a steady improvement.

|      |     |     |     |     |    |
|------|-----|-----|-----|-----|----|
| Fair | ... | ... | ... | ... | 2% |
| Poor | ... | ... | ... | ... | 6% |

Definite anæmia 3%, the cause of which was under nourishment in 1% of cases, the other causes being malaria and hookworm.

*Skin Conditions.*—Uncleanliness was more noticeable than in previous years, and 16% of pupils showed evidence of parental neglect. 3.7% showed evidence of scabies and 7.3% had ulcers.

*Defective Vision.*—Forty-eight pupils showed evidence of defective vision and glasses were prescribed for where necessary. 1.7% showed signs of conjunctivitis.



*Dental Caries.*—This percentage 37% still remains very high and is most noticeable in the younger boys. Boys above the age of 10 usually show stronger and better teeth, possibly due to better diet and the use of "tankai kelapa" as a tooth brush. Lack of qualified dental surgeons militates against any marked improvement in this condition.

*Vaccination.*—Four% required re-vaccination, which was done.

*Hookworm.*—Fifty-nine lectures and treatment were given in schools, and 2,173 pupils were treated. There has been a marked improvement in this condition both as regards numbers infected and more especially the severity of infection.

*Travelling Dispensary.*—Visited 47 schools and treated 1,317 pupils of whom 747 had Yaws.

*Lectures.*—Were given regularly to explain the subject matter of the posters in the schools.

*Enlarged spleen.*—8.2% of pupils had enlarged spleens and in two instances this resulted in discovery of a malarious area.

*Tonsils and Adenoids.*—38% of pupils had enlarged tonsils, but only 4 could be persuaded to come for removal.

*Sanitation.*—All schools have pit or mounted pit latrines.

*General.*—The general health of schools has improved, but the dental condition still remains a problem. The intensive hookworm treatment is having a marked beneficial effect upon pupils as regards their general physical condition and more especially on their intelligence.

## APPENDIX "G"

### SOCIAL HYGIENE BRANCH, MEDICAL DEPARTMENT

ANNUAL REPORT FOR THE YEAR 1929

By DR. R. W. C. KELLY, ACTING CHIEF MEDICAL OFFICER, SOCIAL HYGIENE

#### A.—SINGAPORE

##### 1. *Facilities for treatment.*—

The following Government Clinics are open daily (except Sundays and holidays) for the free treatment of all nationalities in Singapore.

##### A. *Male Clinics:*—

- (1) Bencoolen Street V. D. Clinic.
- (2) North Canal Road V. D. Clinic.
- (3) Tanjong Pagar V. D. Clinic.
- (4) General Hospital V. D. Clinic
- (5) Kandang Kerbau Outdoor Dispensary.
- (6) Joo Chiat Road Outdoor Dispensary.
- (7) Bukit Timah Road Outdoor Dispensary.
- (8) Paya Lebar Outdoor Dispensary.

##### B. *Female Clinics:*—

- (1) Kandang Kerbau Women's Outdoor Dispensary.
- (2) North Canal Road V. D. Clinic.

##### C. *Hospitals:*—(In patients).

- (1) General Hospital (Males and Females).
- (2) Tan Tock Seng Hospital (Males and Females).

*Bencoolen Street Clinic:*—This clinic is under the charge of an Assistant Medical Officer with a staff of four dressers. It is situated at the southern end of the town in close proximity to a densely populated Chinese district,

and is very popular with all classes of the community. The evening session which was primarily devised for the educated classes is much appreciated.

|                                       | 1928     | 1929    |
|---------------------------------------|----------|---------|
| Average monthly rate, new cases ...   | 401'3    | 581'4   |
| Average monthly rate, attendances ... | 3,009'11 | 4,182'3 |
| Total average rate ...                | 3,410'14 | 4,763'7 |

*North Canal Road V. D. Clinic.—*

This is one of the two original clinics started by Government to treat sufferers from V. D. and is situated in the centre of the town, close to a densely populated area and within easy reach of the business centre. An Assistant Medical Officer with a staff of two dressers is in charge.

|                                       | 1928    | 1929     |
|---------------------------------------|---------|----------|
| Average monthly rate, new cases ...   | 332'3   | 478'10   |
| Average monthly rate, attendances ... | 2,713'6 | 3,685'5  |
| Total average rate ...                | 3,045'9 | 4,163'16 |

*Tanjong Pagar V. D. Clinic.—*

Tanjong Pagar V. D. Clinic is situated within the dock area in a building of the Singapore Harbour Board and is intended primarily for the treatment of seamen of all nationalities. It is under the charge of an Assistant Medical Officer with two dressers.

|                                       | 1928     | 1929    |
|---------------------------------------|----------|---------|
| Average monthly rate, new cases ...   | 270'1    | 247'0   |
| Average monthly rate, attendances ... | 2,670'9  | 2,245'7 |
| Total average rate ...                | 2,940'10 | 2,492'7 |

The General Hospital Clinic, situated in the third class admission block, caters for both out-patients and hospital in-patients. This clinic is in charge of the Medical Officer, Social Hygiene, who is assisted by a European attendant and one dresser.

|                                       | 1928    | 1929     |
|---------------------------------------|---------|----------|
| Average monthly rate, new cases ...   | 141'4   | 163'10   |
| Average monthly rate, attendances ... | 2,013'1 | 2,893'7  |
| Total average rate ...                | 2,154'5 | 3,056'17 |

*Out-door Dispensaries.—*

All Government out-door dispensaries also treat cases of V. D. Three of these dispensaries being situated in outlying areas are of great use to sufferers who would otherwise have to journey long distances into the city.

|                                         | 1928  | 1929   |
|-----------------------------------------|-------|--------|
| <i>Paya Lebar Out-door Dispensary.—</i> |       |        |
| Average monthly new cases ...           | 20'7  | 18'5   |
| Average monthly attendances ...         | 69'11 | 90'11  |
| Total average ...                       | 89'18 | 108'16 |



|                                          | 1928  | 1929   |
|------------------------------------------|-------|--------|
| <i>Bukit Timah Out-door Dispensary.—</i> |       |        |
| Average monthly new cases ...            | 36.3  | 38.7   |
| Average monthly attendances ...          | 64.2  | 75.7   |
| Total average ...                        | 100.5 | 114.14 |

|                                             |        |       |
|---------------------------------------------|--------|-------|
| <i>Joo Chiat Road Out-door Dispensary.—</i> |        |       |
| Average monthly new cases ...               | 66.5   | 68.6  |
| Average monthly attendances ...             | 184.9  | 242.4 |
| Total average ...                           | 250.14 | 310.8 |

|                                             |        |       |
|---------------------------------------------|--------|-------|
| <i>Kandang Kerbau Out-door Dispensary.—</i> |        |       |
| Average monthly new cases ...               | 36.4   | 60.4  |
| Average monthly attendances ...             | 70.10  | 136.0 |
| Total average ...                           | 106.14 | 196.4 |

#### B. Female Clinics.—

These are under the charge of a Lady Assistant Medical Officer.

|                                 | 1928   | 1929     |
|---------------------------------|--------|----------|
| Average monthly new cases ...   | 144.1  | 215.6    |
| Average monthly attendances ... | 706.10 | 1,098.7  |
| Total average ...               | 850.11 | 1,313.13 |

#### Hospitals.—

The returns for inpatients are not shown separately but included in returns for the Hospitals.

#### Treatment of seamen.—

The clinic situated at the docks at Tanjong Pagar caters for men of the mercantile marine and conforms to the international agreement by treating seamen of all nationalities free and providing them with therapeutic agents to carry them through to the next port of call.

#### Number of seamen treated.—

|                       | 1928  | 1929  |
|-----------------------|-------|-------|
| New cases ...         | 995   | 788   |
| Re-attendances ...    | 6,092 | 4,278 |
| Total attendances ... | 7,087 | 5,066 |

#### Nationalities of seamen treated.—

|                     |     |     |
|---------------------|-----|-----|
| British ...         | 250 | 194 |
| Other Europeans ... | 28  | 25  |
| Chinese ...         | 622 | 341 |
| Malays ...          | 17  | 13  |
| Indians ...         | 61  | 63  |
| Others ...          | 17  | 5   |
| Total ...           | 995 | 641 |

## Number of new cases at all the Clinics.

|                         | 1927    | 1928    | 1929    |
|-------------------------|---------|---------|---------|
|                         | —       | —       | —       |
| <i>New cases.—</i>      |         |         |         |
| Males ... ..            | 12,840  | 15,624  | 19,882  |
| Females ... ..          | 1,266   | 1,729   | 2,586   |
|                         | 14,106  | 17,353  | 22,468  |
| <i>Re-attendances.—</i> |         |         |         |
| Males ... ..            | 87,857  | 129,563 | 162,510 |
| Females ... ..          | 6,124   | 8,482   | 13,183  |
| Total ... ..            | 108,087 | 155,398 | 198,161 |

*Ratio of total attendances to new cases.—*

The ratio of attendances to new cases shows a steady increase. This is an encouraging sign as it proves that the standard of work at the clinics is good, and that the patients are coming to realise the benefit of continuing treatment beyond the stage of disappearance of symptoms.

|                                                | 1927 | 1928 | 1929 |
|------------------------------------------------|------|------|------|
|                                                | —    | —    | —    |
| Ratio of new cases to total attendances ... .. | 7.66 | 8.90 | 8.98 |

*Treatment by private practitioners.—*

There are at present 11 private practitioners on our list who are supplied by Government with drugs and who have agreed to treat poor patients at a reduced fee.

Number of patients treated by general practitioners during the year are:—

|                       | <i>Syphilis</i> | <i>Gonorrhœa</i> | <i>Total</i> |
|-----------------------|-----------------|------------------|--------------|
|                       | —               | —                | —            |
| New cases ... ..      | 1,760           | 775              | 2,535        |
| Re-attendances ... .. | 1,782           | 733              | 2,515        |
| Total ... ..          | 3,542           | 1,508            | 5,050        |

*Ablution Centre, Bencoolen Street Clinic.—*

The following are the attendances at the ablution centre:—

|                  | 1928 | 1929  |
|------------------|------|-------|
|                  | —    | —     |
| Europeans ... .. | 49   | 119   |
| Chinese ... ..   | 138  | 338   |
| Malays ... ..    | 21   | 57    |
| Tamils ... ..    | 106  | 357   |
| Others ... ..    | 140  | 478   |
| Total ... ..     | 454  | 1,349 |



*Blood Examinations.—*

The Professor of Bacteriology has examined, by the Kahn test, specimens of blood sent from all the clinics, with the following results:—

| <i>No. of blood tests</i> | <i>Positive</i> | <i>Negative</i> |
|---------------------------|-----------------|-----------------|
| —                         | —               | —               |
| 7,011                     | 3,279           | 3,732           |

*Analysis of work done in V. D. Clinics.—**(a) Intravenous.—*

|                       |     |     |        |
|-----------------------|-----|-----|--------|
| 1. Arsenobenzol       | ... | ... | 19,094 |
| 2. Mercurosol         | ... | ... | 98     |
| 3. Collosol Iodine    | ... | ... | 1,597  |
| 4. Thiostab           | ... | ... | 93     |
| 5. Silbersalvarsan    | ... | ... | 48     |
| 6. Sulfoxylsalvarsan  | ... | ... | 173    |
| 7. Neosilbersalvarsan | ... | ... | 104    |

*(b) Intramuscular.—*

|                       |     |     |        |
|-----------------------|-----|-----|--------|
| 1. Bismuth            | ... | ... | 18,427 |
| 2. Bicroel            | ... | ... | 36     |
| 3. Contramine         | ... | ... | 402    |
| 4. Trimine            | ... | ... | 566    |
| 5. Gonoyatren         | ... | ... | 586    |
| 6. Arthigon           | ... | ... | 208    |
| 7. Collosol Manganese | ... | ... | 334    |
| 8. Manganese Butyrate | ... | ... | 596    |
| 9. Bistoval           | ... | ... | 22     |

*(c) Hypodermic.—*

|                         |     |     |       |
|-------------------------|-----|-----|-------|
| 1. Vaccine gonorrhœal   | ... | ... | 6,795 |
| 2. Sulphostab           | ... | ... | 5,557 |
| 3. Sulfarsenol          | ... | ... | 240   |
| 4. Gonococcus Immunogen | ... | ... | 158   |

*Instrumentations.—*

|                      |     |     |         |
|----------------------|-----|-----|---------|
| 1. Irrigations       | ... | ... | 61,429  |
| 2. Dressings         | ... | ... | 104,323 |
| 3. Prostatic massage | ... | ... | 3,131   |
| 4. Minor Operations  | ... | ... | 1,071   |
| 5. Dilatation        | ... | ... | 694     |

*Microscopical Examinations.—*

|           |     |     |         |
|-----------|-----|-----|---------|
| Gonococci | ... | ... | 3,327   |
| Others    | ... | ... | 1,391   |
|           |     |     | — 4,718 |

*Propaganda.—*

The Office continues to distribute pamphlets and leaflets free to the public. Applications from outstations for these were promptly attended to.

The bill poster posts large posters in the Chinese, Malay and Tamil languages daily throughout the streets. These posters explain the dangers of V.D., and the location of the clinics, and call the attention of the public to the facilities offered by Government of free and confidential treatment.

*Cinema films.—*

A cinema film entitled "Fit to Win" was rented from Shanghai and shown with great success to the following Associations:—

|                                                                       |     |                                                    |
|-----------------------------------------------------------------------|-----|----------------------------------------------------|
| 1. Chinese Industrial and Continuation School, shown on two occasions | ... | 800 persons attended                               |
| 2. Nanyang Students' Association                                      | ... | 550 persons attended                               |
| 3. Chinese Association                                                |     |                                                    |
| 4. Straits Chinese British Association                                | ... | 1,500 persons attended and shown on two occasions. |
| 5. Straits Chinese Recreation Club                                    | ... |                                                    |
| 6. Chinese Christian Association                                      | ... |                                                    |
| 7. Eurasian Community                                                 | ... | 150 persons attended                               |
| 8. Indian Association                                                 | ... |                                                    |
| 9. India-Ceylon Club                                                  | ... |                                                    |
| 10. Ceylon Tamil Association                                          | ... | 40 persons attended                                |
| 11. Young Men Hindu Literary Union                                    | ... |                                                    |
| 12. Malayalee Association                                             | ... |                                                    |
| 13. Moslem Association                                                | ... |                                                    |
| 14. Police Force, shown on two occasions                              | ... | 360 members of the Force attended.                 |

It was lent to the Military Authorities to be demonstrated to the troops in garrison on two occasions.

I undertook and completed a local cinema film entitled "Success or Failure". It was demonstrated to the members of the Social Hygiene Advisory Board and they considered it fit to be shown to the public. The characters are now being translated into the Chinese, Tamil and Malay languages and it is hoped that the film will be released to the public at an early date.

*Lantern lectures.—*

Lantern lectures were delivered during the year to the following:—

|                                       |     |                      |
|---------------------------------------|-----|----------------------|
| Ceylon Association                    | ... | 150 persons attended |
| Cantonese fitters Guild               | ... | 150 " "              |
| Chinese Engineers' Guild              | ... | 450 " "              |
| Harbour Board Employees (clerks etc.) | ... | 40 " "               |
| St. Joseph's Old Boys' Association    | ... | 120 " "              |

*Schools.—*

The Chief Medical Officer, Social Hygiene, lectured to the boys of the following Schools:—

|                             |     |                  |
|-----------------------------|-----|------------------|
| Raffles Institution         | ... | 60 boys attended |
| St. Joseph's Institution    | ... | 20 " "           |
| Anglo Chinese School        | ... | 100 " "          |
| St. Andrews' Mission School | ... | 120 " "          |
| Malay Seminary              | ... | 160 " "          |

*Police Force.—*

A lecture to the Police Force at the Central Police Station was delivered by Dr. TAN ENG HAN in Malay—About 150 members of the Force attended the lecture.

*Tamil employees.—*

A lecture in Tamil was delivered to the Singapore Harbour Board employees by Dr. V. K. THAMBYPILLAI and about 200 Tamil employees attended.

*Prostitute Community.—*

Owing to the closing of all brothels in Singapore it is difficult to gather prostitutes together for lantern lectures and the scheme of lecturing to these girls was abandoned early in the year.



*Chinese lady visitor to brothels.—*

On the resignation of the first lady visitor to brothels, a new lady visitor was appointed in her place on the 11th April, 1929. The new lady visitor was told to extend her activities among the "sly" prostitutes as well. She tries to distribute pamphlets and leaflets to these girls.

*General.—*

Two meetings of the Social Hygiene Advisory Board were held during the year.

## B.—PENANG

The following Government Clinics are open daily (except Sundays and holidays) for the free treatment of all nationalities in Penang:—

1. *Kampong Kolam Clinic—*

|                                  |     |     |          |
|----------------------------------|-----|-----|----------|
| Monthly average rate new cases   | ... | ... | 368.9    |
| Monthly average rate attendances | ... | ... | 1,655.3  |
| Total average                    | ... | ... | 2,023.12 |

2. *General Hospital Clinic—*

|                             |     |     |        |
|-----------------------------|-----|-----|--------|
| Monthly average new cases   | ... | ... | 33.11  |
| Monthly average attendances | ... | ... | 106.11 |
| Total average               | ... | ... | 139.22 |

3. *Chowrasta Outdoor Dispensary—*

|                             |     |     |        |
|-----------------------------|-----|-----|--------|
| Monthly average new cases   | ... | ... | 135.11 |
| Monthly average attendances | ... | ... | 95.10  |
| Total average               | ... | ... | 230.21 |

4. *Balik Pulau Outdoor Dispensary—*

|                             |     |     |      |
|-----------------------------|-----|-----|------|
| Monthly average new cases   | ... | ... | 4.11 |
| Monthly average attendances | ... | ... | 4.0  |
| Total average               | ... | ... | 8.11 |

5. *Travelling Dispensary—*

|                             |     |     |       |
|-----------------------------|-----|-----|-------|
| Monthly average new cases   | ... | ... | 37.6  |
| Monthly average attendances | ... | ... | 30.7  |
| Total average               | ... | ... | 67.13 |

6. *Butterworth and Penaga Outdoor Dispensary—*

|                             |     |     |       |
|-----------------------------|-----|-----|-------|
| Monthly average new cases   | ... | ... | 37.7  |
| Monthly average attendances | ... | ... | 37.3  |
| Total average               | ... | ... | 74.10 |

7. *Sungei Bakap Outdoor Dispensary—*

|                             |     |     |        |
|-----------------------------|-----|-----|--------|
| Monthly average new cases   | ... | ... | 52.6   |
| Monthly average attendances | ... | ... | 78.9   |
| Total average               | ... | ... | 130.15 |

8. *Seamen's Ward*—

|                             |     |       |
|-----------------------------|-----|-------|
| Monthly average new cases   | ... | 11.8  |
| Monthly average attendances | ... | 3.11  |
| Total average               | ... | 14.19 |

9. *Bukit Mertajam Outdoor Dispensary*—

|                             |     |       |
|-----------------------------|-----|-------|
| Monthly average new cases   | ... | 46.11 |
| Monthly average attendances | ... | 46.11 |
| Total average               | ... | 92.22 |

10. *Women and Children Outdoor Dispensary*:—

|                             |     |       |
|-----------------------------|-----|-------|
| Monthly average new cases   | ... | 19.11 |
| Monthly average attendances | ... | 15.01 |
| Total average               | ... | 70.12 |

## Total number of new cases and attendances of all the clinics:—

|                   |        |        |
|-------------------|--------|--------|
|                   | 1928   | 1929   |
| New cases         | 4,288  | 9,005  |
| Re-attendances    | 26,994 | 25,326 |
| Total attendances | 31,282 | 34,331 |

*Analysis of work done*:—

|                                |     |        |
|--------------------------------|-----|--------|
| 1. Arsenobenzol                | ... | 8,023  |
| 2. Bismuth                     | ... | 1,963  |
| 3. Sulfarsenol                 | ... | 946    |
| 4. Vaccine                     | ... | 246    |
| 5. Collosol Iodine             | ... | 117    |
| 6. Acriflavine                 | ... | 263    |
| 7. Irrigations                 | ... | 3,286  |
| 8. Prostatic massage           | ... | 313    |
| 9. Dressings                   | ... | 17,527 |
| 10. Wassermann Tests           | ... | 1,354  |
| 11. Microscopical Examinations | ... | 1,190  |

*Propaganda*.—

The Chief Medical Officer, Social Hygiene, paid an inspection tour in August, 1929, and arranged with the Chief Medical Officer, Penang, for a series of lantern lectures and cinema films to be shown to the public of Penang from time to time, and, generally, to introduce this work on similar lines to that of Singapore.



## C.—MALACCA

The following Government Clinics are open daily (except Sundays and holidays) for the free treatment of all nationalities:—

1. *Durian Daun Hospital*—

|                             |     |     |       |
|-----------------------------|-----|-----|-------|
| Average monthly new cases   | ... | ... | 35.15 |
| Average monthly attendances | ... | ... | 14.10 |
| Total average               | ... | ... | 49.25 |

2. *Travelling Dispensary*—

|                             |     |     |      |
|-----------------------------|-----|-----|------|
| Average monthly new cases   | ... | ... | 10.8 |
| Average monthly attendances | ... | ... | 4.1  |
| Total average               | ... | ... | 14.9 |

3. *V. D. Clinic*—

|                             |     |     |       |
|-----------------------------|-----|-----|-------|
| Average monthly new cases   | ... | ... | 93.1  |
| Average monthly attendances | ... | ... | 229.3 |
| Total average               | ... | ... | 322.4 |

4. *Government Outdoor Dispensary (Central Division)*—

|                             |     |     |      |
|-----------------------------|-----|-----|------|
| Average monthly new cases   | ... | ... | 17.3 |
| Average monthly attendances | ... | ... | 8.1  |
| Total average               | ... | ... | 25.4 |

5. *Government Outdoor Dispensary, Jasin*—

|                             |     |     |      |
|-----------------------------|-----|-----|------|
| Average monthly new cases   | ... | ... | 43.4 |
| Average monthly attendances | ... | ... | 16.0 |
| Total average               | ... | ... | 59.4 |

6. *Government Outdoor Dispensary, Alor Gajah*—

|                             |     |     |       |
|-----------------------------|-----|-----|-------|
| Average monthly new cases   | ... | ... | 24.4  |
| Average monthly attendances | ... | ... | 15.10 |
| Total average               | ... | ... | 39.14 |

Total of number of new cases and attendances at all the Clinics:—

|                   | 1928  | 1929  |
|-------------------|-------|-------|
| New cases         | 1,430 | 2,699 |
| Re-attendances    | 1,826 | 3,457 |
| Total attendances | 3,256 | 6,156 |

*Analysis of work done*:—

|                                |     |     |       |
|--------------------------------|-----|-----|-------|
| 1. Arsenobenzol                | ... | ... | 3,135 |
| 2. Bismuth                     | ... | ... | 1,680 |
| 3. Mercurochrome               | ... | ... | 220   |
| 4. Sulphostab                  | ... | ... | 9     |
| 5. Vaccine                     | ... | ... | 238   |
| 6. Acriflavine                 | ... | ... | 162   |
| 7. Sulfarsenol                 | ... | ... | 72    |
| 8. Irrigations                 | ... | ... | 1,024 |
| 9. Prostatic message           | ... | ... | 25    |
| 10. Dressings                  | ... | ... | 1,078 |
| 11. Wassermann Tests           | ... | ... | 24    |
| 12. Microscopical Examinations | ... | ... | 3     |

## TABLE I.

## STAFF

1. The authorised number of the European staff of the Medical Department of Straits Settlements in 1929, including officers to be seconded for service in the Unfederated Malay States, was 179.

## GENERAL

Principal Civil Medical Officer, Straits Settlements.  
 Accountant, Medical Department, Straits Settlements.

## HOSPITALS AND DISPENSARIES

Chief Medical Officer, Singapore.  
 Secretary, General Hospital, Singapore.  
 Chief Medical Officer, Penang.  
 Chief Medical Officer, Malacca.  
 Senior Surgeon, Singapore.  
 One Radiologist, Singapore.  
 Surgeon, Penang.  
 Thirteen Medical Officers, Singapore.  
 Six Medical Officers, Penang.  
 One Dispensing Chemist, Singapore.  
 One Medical Officer, Labuan.  
 One Matron, Super-scale, General Hospital, Singapore.  
 One Matron, Grade I, Penang.  
 Five Matrons, Grade II, Singapore.  
 Two Matrons, Grade II, Penang.  
 One Matron, Grade II, Malacca.  
 Forty-three Sisters, Singapore.  
 Fourteen Sisters, Penang.  
 One Sister, Malacca.  
 Two European Attendants, Singapore.  
 One European Steward, Singapore.  
 One Lay Superintendent, Leper Settlement, Pulau Jerejak

## HEALTH BRANCH

Chief Health Officer, Singapore.  
 Senior Health Officer, Penang.  
 Six Health Officers, Singapore.  
 One Health Officer, Malacca.  
 Two Chief Sanitary Inspectors.  
 One Lay Superintendent, Quarantine Station, Singapore.  
 Three Public Health Sisters.  
 One Sister, Quarantine Station, Singapore.  
 One Lay Superintendent, Quarantine Station, Penang.



## PATHOLOGICAL BRANCH

One Pathologist, Singapore.

One Pathologist, Penang.

One Bacteriologist, Singapore.

## COLLEGE OF MEDICINE, SINGAPORE

Principal.

Professor of Physiology.

Professor of Anatomy.

Professor of Medicine.

Professor of Surgery.

Professor of Clinical Surgery.

Professor of Midwifery and Gynæcology.

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.

One Matron, Grade 1.

One Sister.

Four European Attendants.

## SOCIAL HYGIENE BRANCH

Chief Medical Officer, Singapore.

One Medical Officer, Singapore.

2. In addition, 16 supernumerary Medical and Health Officers and 18 Nursing Sisters are borne on the establishment for service in the Unfederated Malay States, making a total of 179.

3. The local qualified medical staff (Specialists, Deputy Medical Officers, Deputy Health Officers, Assistant Medical Officers, Assistant Health Officers etc.) number 73.

TABLE II

## FINANCIAL

1929

## Revenue

## Singapore—

|                 |     |     | \$      | c. | \$      | c. |
|-----------------|-----|-----|---------|----|---------|----|
| Hospitals Board | ... | ... | 336,786 | 27 |         |    |
| Medical General | ... | ... | 6,053   | 00 |         |    |
| Health          | ... | ... | 33,032  | 90 |         |    |
|                 |     |     |         |    | 375,872 | 17 |

## Penang—

|                    |     |     |         |    |         |    |
|--------------------|-----|-----|---------|----|---------|----|
| Hospitals Board    | ... | ... | 100,239 | 79 |         |    |
| Payment for Lepers | ... | ... | 86,401  | 65 |         |    |
| Medical General    | ... | ... |         |    |         |    |
| Health             | ... | ... | 28,278  | 90 |         |    |
|                    |     |     |         |    | 214,920 | 34 |

## Ma'acca—

|                 |     |     |        |    |        |    |
|-----------------|-----|-----|--------|----|--------|----|
| Hospitals Board | ... | ... | 21,086 | 64 |        |    |
| Medical General | ... | ... |        |    |        |    |
| Health          | ... | ... | 2,411  | 50 |        |    |
|                 |     |     |        |    | 23,498 | 14 |

## Labuan—

|       |     |     |     |    |           |    |
|-------|-----|-----|-----|----|-----------|----|
|       | ... | ... | 925 | 42 |           |    |
|       |     |     |     |    | 925       | 42 |
| Total | ... |     |     |    | \$615,216 | 07 |

1. The revenue collected in the Medical Department is classified under three headings, *viz*:—

- (a) Hospitals Board (Hospitals and Dispensaries).
- (b) Medical General which includes Medical, Pathological Branch, College of Medicine, Singapore, and Mental Hospital. It will be seen that the Analyst Department has been omitted as it is now a separate department.
- (c) Health Branch.

2. The income from "Hospitals and Dispensaries" and Mental Hospital, Singapore, is paid into the account of the Hospitals Board, which is administered by a Special Committee. In addition to the amounts paid into the Hospitals Board Account as shown above the Board received contributions from Government for the various settlements as follows:—

|           |     |     |     | \$          |
|-----------|-----|-----|-----|-------------|
| Singapore | ... | ... | ... | 606,200     |
| Penang    | ... | ... | ... | 356,800     |
| Malacca   | ... | ... | ... | 107,050     |
| Labuan    | ... | ... | ... | 3,460       |
| Total     | ... |     |     | \$1,073,510 |

3. No income is derived from the Pathological Branch.

4. Fees collected under Medical General and Health Branch are paid into the Treasury as General Government Revenue.

5. Fees collected under College of Medicine, Singapore, are paid into the College Fund.



1929

## EXPENDITURE

| <i>Singapore—</i>                                                                                                                                    |         |    | \$          | c. |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----|-------------|----|
| Hospitals Board ... ..                                                                                                                               |         |    | 816,090     | 17 |
| Medical General (including Pathological Branch)—                                                                                                     |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 39,624  | 07 |             |    |
| Other Charges ... ..                                                                                                                                 | 18,146  | 91 |             |    |
| College of Medicine—                                                                                                                                 |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 174,364 | 01 |             |    |
| Other Charges ... ..                                                                                                                                 | 42,567  | 14 |             |    |
| Health Branch—                                                                                                                                       |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 167,439 | 16 |             |    |
| Other Charges ... ..                                                                                                                                 | 145,549 | 91 |             |    |
| Hospitals and Dispensaries (including General Hospital, Tan Tock Seng Hospital, Mental Hospital, Maternity Hospitals and all Out-door Dispensaries)— |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 692,978 | 09 |             |    |
| Other Charges ... ..                                                                                                                                 | 5,128   | 44 |             |    |
| Social Hygiene Branch—                                                                                                                               |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 38,908  | 55 |             |    |
| Other Charges ... ..                                                                                                                                 | 22,613  | 81 |             |    |
| Medical Proper, General Clerical Service—                                                                                                            |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 33,307  | 07 |             |    |
| Health Branch, Personal Emoluments ... ..                                                                                                            | 6,729   | 04 |             |    |
| Social Hygiene Personal Emoluments ... ..                                                                                                            | 2,600   | 00 |             |    |
|                                                                                                                                                      |         |    | 1,389,956   | 20 |
| Total ...                                                                                                                                            |         |    | \$2,206,046 | 37 |
| <i>Penang—</i>                                                                                                                                       |         |    | \$          | c. |
| Hospitals Board ... ..                                                                                                                               |         |    | 499,384     | 86 |
| Medical General (including Pathological Branch)—                                                                                                     |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 24,222  | 72 |             |    |
| Other Charges ... ..                                                                                                                                 | 4,555   | 99 |             |    |
| Health Branch—                                                                                                                                       |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 84,179  | 68 |             |    |
| Other Charges ... ..                                                                                                                                 | 137,860 | 61 |             |    |
| Social Hygiene Branch—                                                                                                                               |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 6,755   | 00 |             |    |
| Other Charges ... ..                                                                                                                                 | 8,053   | 49 |             |    |
| Hospitals and Dispensaries—                                                                                                                          |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 309,932 | 35 |             |    |
| Federated Malay States Agency ... ..                                                                                                                 | 1,836   | 94 |             |    |
| General Clerical Service—                                                                                                                            |         |    |             |    |
| Personal Emoluments ... ..                                                                                                                           | 17,147  | 03 |             |    |
|                                                                                                                                                      |         |    | 594,593     | 81 |
| Total ...                                                                                                                                            |         |    | \$1,093,978 | 67 |

*Malacca—*

|                                                  |  |  | \$        | c. | \$        | c. |
|--------------------------------------------------|--|--|-----------|----|-----------|----|
| Hospitals Board ... ..                           |  |  |           |    | 105,381   | 79 |
| Medical General (including Pathological Branch)— |  |  |           |    |           |    |
| Personal Emoluments ... ..                       |  |  | 14,285    | 70 |           |    |
| Other Charges ... ..                             |  |  | 3,792     | 22 |           |    |
| Health Branch—                                   |  |  |           |    |           |    |
| Personal Emoluments ... ..                       |  |  | 19,410    | 87 |           |    |
| Other Charges ... ..                             |  |  | 46,830    | 65 |           |    |
| Social Hygiene Branch—                           |  |  |           |    |           |    |
| Personal Emoluments ... ..                       |  |  | 1,864     | 60 |           |    |
| Other Charges ... ..                             |  |  | 3,519     | 57 |           |    |
| Hospitals and Dispensaries—                      |  |  |           |    |           |    |
| Personal Emoluments ... ..                       |  |  | 90,841    | 63 |           |    |
| Medical Proper, General Clerical Service—        |  |  |           |    |           |    |
| Personal Emoluments ... ..                       |  |  | 8,553     | 50 |           |    |
| Health Branch—                                   |  |  |           |    |           |    |
| Personal Emoluments ... ..                       |  |  | 2,112     | 00 |           |    |
|                                                  |  |  |           |    | 191,210   | 74 |
|                                                  |  |  |           |    |           |    |
|                                                  |  |  | Total ... |    | \$296,592 | 53 |

*Labuan—*

|               |  |  |        |    |          |    |
|---------------|--|--|--------|----|----------|----|
| Labuan ... .. |  |  | 24,075 | 17 |          |    |
|               |  |  |        |    | \$24,075 | 17 |

## SUMMARY

|                  |  |  |                 | \$          | c. |
|------------------|--|--|-----------------|-------------|----|
| Singapore ... .. |  |  | ...             | 2,206,046   | 37 |
| Penang ... ..    |  |  | ...             | 1,093,978   | 67 |
| Malacca ... ..   |  |  | ...             | 296,592     | 53 |
| Labuan ... ..    |  |  | ...             | 24,075      | 17 |
|                  |  |  |                 |             |    |
|                  |  |  | Grand Total ... | \$3,620,692 | 74 |

The Other Charges of the Hospitals and Dispensaries are shown under the Hospitals Board Expenditure.

1. The total expenditure of the Medical Department for the Straits Settlements for the year 1929 amounted to \$3,671,402.49.

2. Half of the amounts shewn under the head College of Medicine were refunded by the Federated Malay States Government.



TABLE III A  
ESTIMATED POPULATION, WITH BIRTH AND DEATH-RATES FOR THE YEARS 1928 AND 1929

|                    | POPULATION        |                   | BIRTHS |        | DEATHS |        | BIRTH-RATIO<br>PER MILLE |       | DEATH-RATIO<br>PER MILLE |       |
|--------------------|-------------------|-------------------|--------|--------|--------|--------|--------------------------|-------|--------------------------|-------|
|                    | Estimated<br>1928 | Estimated<br>1929 | 1928   | 1929   | 1928   | 1929   | 1928                     | 1929  | 1928                     | 1929  |
|                    |                   |                   |        |        |        |        |                          |       |                          |       |
| Singapore          | 553,366           | 574,665           | 19,332 | 20,902 | 15,404 | 14,851 | 34.94                    | 36.37 | 27.84                    | 25.84 |
| Penang             | 186,171           | 191,330           | 6,874  | 7,346  | 6,225  | 5,490  | 36.92                    | 38.39 | 33.44                    | 28.69 |
| Province Wellesley | 138,230           | 141,541           | 4,747  | 5,515  | 4,247  | 3,630  | 34.34                    | 38.96 | 30.72                    | 25.65 |
| Dindings           | 17,622            | 18,334            | 573    | 597    | 429    | 502    | 32.51                    | 32.56 | 24.34                    | 27.38 |
| Malacca            | 194,342           | 200,004           | 7,673  | 7,464  | 5,005  | 4,904  | 39.48                    | 37.32 | 25.75                    | 24.52 |
| Labuan             | 5,904             | 6,029             | 280    | 278    | 205    | 167    | 47.49                    | 46.11 | 34.38                    | 27.69 |
| Total              | 1,095,635         | 1,131,903         | 39,479 | 42,102 | 31,516 | 29,544 | 36.03                    | 37.20 | 28.76                    | 26.10 |

TABLE III B  
QUARTERLY DEATH-RATES FOR VARIOUS PARTS OF THE COLONY DURING THE PAST 3 YEARS WERE:—

| Year               | 1927  |       |       |       | 1928  |       |       |       | 1929  |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quarter            | 1st   | 2nd   | 3rd   | 4th   | 1st   | 2nd   | 3rd   | 4th   | 1st   | 2nd   | 3rd   | 4th   |
| Singapore          | 28.42 | 34.07 | 35.67 | 32.39 | 25.05 | 20.49 | 29.10 | 27.09 | 24.38 | 26.83 | 26.13 | 26.09 |
| Penang Island      | 33.72 | 37.78 | 36.19 | 36.34 | 32.58 | 38.67 | 31.80 | 30.69 | 29.38 | 31.07 | 26.08 | 28.28 |
| Province Wellesley | 29.91 | 31.99 | 32.79 | 32.72 | 27.87 | 31.16 | 30.02 | 27.89 | 25.04 | 27.89 | 24.25 | 25.42 |
| Dindings           | 27.53 | 28.20 | 38.43 | 39.27 | 21.23 | 25.11 | 27.31 | 23.70 | 26.99 | 22.31 | 24.89 | 35.27 |
| Malacca            | 35.06 | 36.16 | 35.40 | 32.81 | 23.81 | 25.97 | 25.28 | 27.95 | 24.94 | 24.36 | 22.68 | 26.10 |

TABLE III C  
POPULATION, ESTIMATED RACIALLY AND COLLECTIVELY OF THE STRAITS SETTLEMENTS FOR THE YEARS 1929, 1928 AND 1927

| Settlement or Province | Europeans<br>1929 | Eurasians<br>1929 | Chinese<br>1929 | Malays<br>1929 | Indians<br>1929 | Other<br>Nationalities<br>1929 | T O T A L |           |           |
|------------------------|-------------------|-------------------|-----------------|----------------|-----------------|--------------------------------|-----------|-----------|-----------|
|                        |                   |                   |                 |                |                 |                                | 1929      | 1928      | 1927      |
| Singapore              | 10,679            | 7,010             | 437,240         | 67,117         | 43,644          | 8,975                          | 574,665   | 553,366   | 532,296   |
| Penang                 | 1,640             | 1,808             | 120,466         | 38,952         | 26,444          | 2,020                          | 191,330   | 186,171   | 181,104   |
| Province Wellesley     | 549               | 414               | 36,089          | 70,234         | 33,776          | 479                            | 141,541   | 138,230   | 135,028   |
| Dindings               | 34                | 34                | 4,325           | 5,746          | 8,173           | 22                             | 18,334    | 17,622    | 16,931    |
| Malacca                | 749               | 2,169             | 57,414          | 95,235         | 44,165          | 272                            | 200,004   | 194,342   | 188,828   |
| Labuan                 | 29                | 16                | 1,629           | 4,198          | 107             | 50                             | 6,029     | 5,904     | 5,781     |
| Total                  | 13,680            | 11,451            | 657,163         | 281,482        | 156,309         | 11,818                         | 1,131,903 | 1,095,635 | 1,059,968 |

TABLE III D  
BIRTHS REGISTERED IN THE STRAITS SETTLEMENTS DURING 1929 AND THEIR RATIO PER MILLE OF POPULATION

| Settlement or Province | Male   | Female | Total<br>1929 | Total<br>1928 | Total<br>1927 | R A T I O P E R M I L L E |       |       |
|------------------------|--------|--------|---------------|---------------|---------------|---------------------------|-------|-------|
|                        |        |        |               |               |               | 1929                      | 1928  | 1927  |
| Singapore              | 11,053 | 9,849  | 20,902        | 19,332        | 17,464        | 36.37                     | 34.94 | 32.81 |
| Penang                 | 3,745  | 3,601  | 7,346         | 6,874         | 6,860         | 38.39                     | 36.92 | 37.88 |
| Province Wellesley     | 2,818  | 2,697  | 5,515         | 4,747         | 4,734         | 38.96                     | 34.34 | 35.06 |
| Dindings               | 304    | 293    | 597           | 573           | 508           | 32.56                     | 32.51 | 30.00 |
| Malacca                | 3,918  | 3,546  | 7,464         | 7,673         | 7,403         | 37.32                     | 39.48 | 39.20 |
| Labuan                 | 144    | 134    | 278           | 280           | 264           | 46.11                     | 47.49 | 44.02 |
| Total                  | 21,982 | 20,120 | 42,102        | 39,479        | 37,233        | 37.20                     | 36.03 | 35.13 |



TABLE III E

BIRTHS REGISTERED IN THE STRAITS SETTLEMENTS DURING 1929 ACCORDING TO NATIONALITIES

| Settlement or Province | Europeans |       | Eurasians |       | Chinese |       | Malays |       | Indians |       | Japanese |       | Other Nationalities |       | Total  |       |
|------------------------|-----------|-------|-----------|-------|---------|-------|--------|-------|---------|-------|----------|-------|---------------------|-------|--------|-------|
|                        | No.       | Ratio | No.       | Ratio | No.     | Ratio | No.    | Ratio | No.     | Ratio | No.      | Ratio | No.                 | Ratio | No.    | Ratio |
| Singapore              | 142       | 13.30 | 211       | 30.10 | 16,542  | 37.83 | 2,856  | 42.55 | 1,000   | 22.91 | 99       | 26.75 | 52                  | 5.91  | 20,902 | 36.37 |
| Penang                 | 53        | 32.32 | 44        | 24.34 | 4,851   | 40.27 | 1,544  | 39.64 | 816     | 30.86 | ...      | ...   | 38                  | 18.81 | 7,346  | 38.39 |
| Province Wellesley     | 1         | 1.82  | 8         | 19.32 | 1,883   | 52.18 | 2,643  | 37.63 | 965     | 28.57 | ...      | ...   | 15                  | 31.27 | 5,515  | 38.96 |
| Dindings               | ...       | ...   | 1         | 29.71 | 200     | 46.24 | 234    | 40.72 | 162     | 19.82 | ...      | ...   | ...                 | ...   | 597    | 32.56 |
| Malacca                | 10        | 13.35 | 72        | 33.20 | 2,599   | 45.27 | 4,087  | 42.91 | 689     | 15.60 | 2        | 21.05 | 5                   | 27.56 | 7,464  | 37.32 |
| Labuan                 | ...       | ...   | ...       | ...   | 112     | 68.00 | 159    | 38.03 | 3       | 25.09 | ...      | ...   | 4                   | 86.96 | 278    | 46.11 |
| Total                  | 206       | 15.06 | 336       | 29.34 | 26,187  | 39.85 | 11,523 | 40.94 | 3,635   | 23.26 | 101      | 25.12 | 114                 | 9.65  | 42,102 | 37.20 |

TABLE III F

DEATHS REGISTERED IN THE STRAITS SETTLEMENTS DURING 1929 ACCORDING TO NATIONALITIES

| Settlement or Province | Europeans |                 | Eurasians |                 | Chinese |                 | Malays |                 | Indians |                 | Other Nationalities and Unknown |                 | Total  |                 |
|------------------------|-----------|-----------------|-----------|-----------------|---------|-----------------|--------|-----------------|---------|-----------------|---------------------------------|-----------------|--------|-----------------|
|                        | No.       | Ratio per mille | No.       | Ratio per mille | No.     | Ratio per mille | No.    | Ratio per mille | No.     | Ratio per mille | No.                             | Ratio per mille | No.    | Ratio per mille |
| Singapore              | 55        | 5.15            | 106       | 15.12           | 11,745  | 26.86           | 1,853  | 27.61           | 937     | 21.47           | 155                             | 17.27           | 14,851 | 25.84           |
| Penang                 | 13        | 7.93            | 29        | 16.04           | 3,319   | 27.55           | 1,140  | 29.27           | 946     | 35.77           | 43                              | 21.28           | 5,490  | 28.69           |
| Province Wellesley     | 1         | 1.82            | 1         | 2.41            | 1,121   | 31.06           | 1,664  | 23.69           | 803     | 23.77           | 40                              | 83.51           | 3,630  | 25.65           |
| Dindings               | ...       | ...             | 1         | 29.41           | 164     | 37.92           | 161    | 28.02           | 173     | 21.17           | 3                               | 136.36          | 502    | 27.38           |
| Malacca                | 1         | 1.34            | 39        | 17.98           | 1,626   | 28.32           | 2,626  | 27.56           | 607     | 13.74           | 5                               | 18.38           | 4,904  | 24.52           |
| Labuan                 | ...       | ...             | 1         | 66.66           | 42      | 25.50           | 120    | 28.71           | 2       | 17.24           | 2                               | 43.48           | 167    | 27.69           |
| Total                  | 70        | 5.12            | 177       | 15.46           | 18,017  | 27.42           | 7,564  | 26.87           | 3,468   | 22.19           | 248                             | 20.98           | 29,544 | 26.10           |

TABLE III G  
DEATHS REGISTERED IN THE STRAITS SETTLEMENTS IN 1929 UNDER DIFFERENT GROUPS OF AGES

| Ages                      | Singapore | Penang | Province<br>Wellesley | Dindings | Malacca | Labuan | Total  |
|---------------------------|-----------|--------|-----------------------|----------|---------|--------|--------|
| Under 3 months            | 2,174     | 649    | 441                   | 74       | 1,161   | 40     | 4,539  |
| 3 months and under 1 year | 1,890     | 531    | 193                   | 35       | 684     | 22     | 3,355  |
| 1 year to 5 years         | 1,430     | 588    | 547                   | 81       | 407     | 15     | 3,068  |
| 5 years to 10             | 381       | 184    | 164                   | 21       | 145     | 4      | 899    |
| 10 " 20                   | 508       | 244    | 220                   | 38       | 202     | 9      | 1,221  |
| 20 " 25                   | 792       | 297    | 197                   | 28       | 207     | 2      | 1,523  |
| 25 " 35                   | 2,060     | 658    | 429                   | 57       | 530     | 15     | 3,749  |
| 35 " 45                   | 2,010     | 712    | 372                   | 74       | 547     | 9      | 3,724  |
| 45 " 55                   | 1,594     | 625    | 293                   | 41       | 370     | 12     | 2,935  |
| 55 " 75                   | 1,642     | 775    | 543                   | 35       | 491     | 29     | 3,515  |
| 75 years and above        | 334       | 186    | 220                   | 18       | 155     | 10     | 923    |
| Unknown                   | 36        | 41     | 11                    | ...      | 5       | ...    | 93     |
| Total                     | 14,851    | 5,490  | 3,630                 | 502      | 4,904   | 167    | 29,544 |

TABLE III H  
TABLE SHOWING THE INFANTILE MORTALITY (UNDER ONE YEAR) IN THE STRAITS SETTLEMENTS INCLUDING CHILDREN BORN ELSEWHERE

| Settlement         | Births | Deaths | RATIO PER MILLE OF BIRTHS |        |        |
|--------------------|--------|--------|---------------------------|--------|--------|
|                    |        |        | 1929                      | 1928   | 1927   |
| Singapore          | 20,902 | 4,112  | 196.73                    | 204.32 | 232.99 |
| Penang             | 7,346  | 1,180  | 160.63                    | 173.41 | 179.88 |
| Province Wellesley | 5,515  | 634    | 114.96                    | 133.35 | 154.63 |
| Dindings           | 597    | 108    | 180.90                    | 160.56 | 181.10 |
| Malacca            | 7,464  | 1,845  | 247.19                    | 222.34 | 291.64 |
| Labuan             | 278    | 62     | 223.02                    | 260.71 | 212.12 |
| Total              | 42,102 | 7,941  | 188.61                    | 193.69 | 224.04 |



TABLE III I

TABLES SHOWING THE INFANTILE MORTALITY (CHILDREN UNDER ONE YEAR) IN THE STRAITS SETTLEMENTS AND NATIONALITIES,  
EXCLUDING CHILDREN BORN ELSEWHERE

| NATIONALITIES                   | SINGAPORE |                       |        | PENANG |                       |        | PROVINCE<br>WELLESLEY |                       |        | DINDINGS |                       |        | MALACCA |                       |        | LABUAN |                       |        | TOTAL  |                       |        |
|---------------------------------|-----------|-----------------------|--------|--------|-----------------------|--------|-----------------------|-----------------------|--------|----------|-----------------------|--------|---------|-----------------------|--------|--------|-----------------------|--------|--------|-----------------------|--------|
|                                 | Deaths    | No. born<br>elsewhere | Ratio  | Deaths | No. born<br>elsewhere | Ratio  | Deaths                | No. born<br>elsewhere | Ratio  | Deaths   | No. born<br>elsewhere | Ratio  | Deaths  | No. born<br>elsewhere | Ratio  | Deaths | No. born<br>elsewhere | Ratio  | Deaths | No. born<br>elsewhere | Ratio  |
| Europeans                       | 6         | ...                   | 42.25  | ...    | ...                   | ...    | ...                   | ...                   | ...    | ...      | ...                   | ...    | ...     | ...                   | ...    | 6      | ...                   | ...    | ...    | ...                   | 29.12  |
| Eurasians                       | 31        | ...                   | 146.92 | 3      | ...                   | 68.18  | ...                   | ...                   | ...    | ...      | ...                   | ...    | ...     | ...                   | ...    | 45     | ...                   | ...    | ...    | ...                   | 133.93 |
| Chinese                         | 2,932     | 137                   | 177.25 | 707    | 53                    | 145.75 | 192                   | 4                     | 101.96 | ...      | ...                   | 125.00 | 485     | 7                     | 186.84 | ...    | ...                   | ...    | 201    | ...                   | 166.30 |
| Malays                          | 756       | 36                    | 264.70 | 257    | 15                    | 166.45 | 289                   | 4                     | 109.34 | 34       | 2                     | 145.30 | 1,244   | 8                     | 304.38 | 47     | ...                   | ...    | 65     | ...                   | 227.98 |
| Northern Indians                | 25        | 1                     | 160.00 | 121    | 9                     | 155.64 | 126                   | 7                     | 139.57 | 43       | 1                     | 265.43 | 3       | 1                     | 81.03  | 1      | ...                   | ...    | 23     | ...                   | 154.33 |
| Southern Indians                | 135       | 4                     | 109.09 | 6      | ...                   | ...    | ...                   | ...                   | ...    | ...      | ...                   | ...    | 101     | ...                   | 154.91 | ...    | ...                   | ...    | ...    | ...                   | ...    |
| Japanese                        | 10        | ...                   | 75.00  | ...    | ...                   | ...    | ...                   | ...                   | ...    | ...      | ...                   | ...    | ...     | ...                   | 14.28  | 10     | ...                   | ...    | ...    | ...                   | 99.00  |
| Other Nationalities and Unknown | 39        | ...                   | ...    | 9      | ...                   | 236.84 | 4                     | 3                     | 266.66 | 2        | 1                     | ...    | 1       | ...                   | ...    | 55     | ...                   | ...    | 4      | ...                   | 482.45 |
| Total                           | 3,934     | 178                   | 188.21 | 1,103  | 77                    | 150.15 | 611                   | 18                    | 111.70 | 104      | 4                     | 174.21 | 1,845   | 17                    | 247.19 | 62     | ...                   | 223.02 | 294    | ...                   | 181.92 |

TABLE III J

DEATHS REGISTERED IN THE STRAITS SETTLEMENTS AS REGARDS CERTIFICATES IN THE YEAR 1929.

| Particulars                                   | Singapore |                       |       | Penang |                       |       | Province<br>Wellesley |                       |       | Dindings |                       |       | Malacca |                       |       | Labuan |                       |       | Total  |                       |        |
|-----------------------------------------------|-----------|-----------------------|-------|--------|-----------------------|-------|-----------------------|-----------------------|-------|----------|-----------------------|-------|---------|-----------------------|-------|--------|-----------------------|-------|--------|-----------------------|--------|
|                                               | Deaths    | No. born<br>elsewhere | Ratio | Deaths | No. born<br>elsewhere | Ratio | Deaths                | No. born<br>elsewhere | Ratio | Deaths   | No. born<br>elsewhere | Ratio | Deaths  | No. born<br>elsewhere | Ratio | Deaths | No. born<br>elsewhere | Ratio | Deaths | No. born<br>elsewhere | Ratio  |
| Died in Hospitals                             | ...       | ...                   | ...   | ...    | ...                   | ...   | ...                   | ...                   | ...   | ...      | ...                   | ...   | ...     | ...                   | ...   | 14     | ...                   | ...   | ...    | ...                   | 5,037  |
| Certified by Outside Medical Practitioners    | ...       | ...                   | ...   | ...    | ...                   | ...   | ...                   | ...                   | ...   | ...      | ...                   | ...   | ...     | ...                   | ...   | 8      | ...                   | ...   | ...    | ...                   | 5,972  |
| Certified by Registering Officers after death | ...       | ...                   | ...   | ...    | ...                   | ...   | ...                   | ...                   | ...   | ...      | ...                   | ...   | ...     | ...                   | ...   | 21     | ...                   | ...   | ...    | ...                   | 6,906  |
| Uncertified                                   | ...       | ...                   | ...   | ...    | ...                   | ...   | ...                   | ...                   | ...   | ...      | ...                   | ...   | ...     | ...                   | ...   | 124    | ...                   | ...   | ...    | ...                   | 11,629 |
| Total                                         | ...       | ...                   | ...   | ...    | ...                   | ...   | ...                   | ...                   | ...   | ...      | ...                   | ...   | ...     | ...                   | ...   | 167    | ...                   | ...   | ...    | ...                   | 29,544 |

TABLE IV

Meteorological Returns for the Straits Settlements for the year 1929 and also two graphs showing the wettest and driest years since 1869, and the annual rainfall in inches and millimetres since 1862.

## METEOROLOGICAL RETURN FOR THE YEAR 1929

## Singapore

|           |     | TEMPERATURE   |                  |               |               |       |      | RAINFALL        |                    | WINDS             |               | REMARKS |
|-----------|-----|---------------|------------------|---------------|---------------|-------|------|-----------------|--------------------|-------------------|---------------|---------|
|           |     | Solar Maximum | Minimum on Grass | Shade Maximum | Shade Minimum | Range | Mean | Amount in m. m. | Degree of Humidity | General Direction | Average Force |         |
| January   | ... | 143           | 70.5             | 86.7          | 72.5          | 14.2  | 78.2 | 62.57           | 78                 | N.E.              | 2.5           |         |
| February  | ... | 139           | 69.0             | 86.6          | 73.0          | 13.6  | 78.4 | 148.58          | 82                 | N.E.              | 2.2           |         |
| March     | ... | 140           | 70.2             | 87.1          | 73.5          | 13.6  | 79.0 | 275.40          | 81                 | N.E.              | 2.1           |         |
| April     | ... | 152           | 71.4             | 88.7          | 74.6          | 14.1  | 80.4 | 129.75          | 80                 | N.W.              | 1.5           |         |
| May       | ... | 148.7         | 71.8             | 87.7          | 75.4          | 12.3  | 80.4 | 159.51          | 82                 | S.W.              | 1.3           |         |
| June      | ... | 135           | 70.8             | 87.2          | 74.7          | 12.5  | 79.8 | 182.22          | 82                 | S.E.              | 1.2           |         |
| July      | ... | 147           | 71.3             | 88.7          | 75.5          | 13.2  | 81.4 | 26.61           | 77                 | S.E.              | 2.0           |         |
| August    | ... | 144.2         | 71.7             | 88.7          | 75.1          | 13.6  | 80.7 | 234.84          | 79                 | S.E.              | 1.9           |         |
| September | ... | 138.7         | 71.6             | 87.6          | 75.0          | 12.6  | 80.7 | 171.62          | 81                 | S.E.              | 1.4           |         |
| October   | ... | 144.4         | 70.6             | 87.2          | 74.4          | 12.8  | 79.6 | 186.44          | 82                 | S.W.              | 1.3           |         |
| November  | ... | 133.2         | 70.3             | 86.0          | 73.8          | 12.2  | 78.8 | 265.29          | 84                 | N.E.              | 1.1           |         |
| December  | ... | 137           | 70.6             | 86.2          | 73.1          | 13.1  | 78.5 | 166.44          | 84                 | N.E.              | 1.6           |         |
| Mean      | ... | 141.8         | 70.9             | 87.4          | 74.3          | 13.1  | 79.7 | 1,009.87        | 81                 | ...               | 1.6           |         |

## METEOROLOGICAL RETURN FOR THE YEAR 1929

## Penang

|           |     | TEMPERATURE   |                  |               |               |       |        | RAINFALL        |                    | WINDS             |               | REMARKS |
|-----------|-----|---------------|------------------|---------------|---------------|-------|--------|-----------------|--------------------|-------------------|---------------|---------|
|           |     | Solar Maximum | Minimum on Grass | Shade Maximum | Shade Minimum | Range | Mean   | Amount in m. m. | Degree of Humidity | General Direction | Average Force |         |
| January   | ... | 165           | 69               | 94            | 70            | 24    | 82     | 17              | 78.3               | N.W.              | ...           |         |
| February  | ... | 163           | 68               | 95            | 69            | 26    | 81.5   | 181             | 78.5               | N.W.              | ...           |         |
| March     | ... | 165           | 68               | 94            | 68            | 26    | 81.7   | 191             | 75.2               | N.W.              | ...           |         |
| April     | ... | 165           | 67               | 95            | 70            | 15    | 82.2   | 222             | 78.3               | S.                | ...           |         |
| May       | ... | 161           | 69               | 95            | 67            | 28    | 82.0   | 204             | 77.05              | S.                | ...           |         |
| June      | ... | 162           | 68               | 94            | 70            | 16    | 82.32  | 117             | 60.76              | S.                | ...           |         |
| July      | ... | 161           | 68               | 93            | 78            | 15    | 82.87  | 33              | 75.99              | S.                | ...           |         |
| August    | ... | 160           | 68               | 102           | 70            | 32    | 107.62 | 182             | 78.56              | S.                | ...           |         |
| September | ... | 160           | 68               | 98            | 76            | 18    | 85.05  | 466             | 81.09              | E.                | ...           |         |
| October   | ... | 160           | 68               | 93            | 70            | 23    | 80.52  | 174             | 83.17              | E.                | ...           |         |
| November  | ... | 162           | 68               | 92            | 71            | 21    | 63.88  | 261             | 83.74              | E.                | ...           |         |
| December  | ... | 162           | 68               | 95            | 70            | 25    | 82.41  | 51              | 84.43              | N.                | ...           |         |
| Mean      | ... | 161.4         | 68               | 96.5          | 70            | 27.6  | 81.4   | 2,399           | 80.8               | ...               | ...           |         |



## METEOROLOGICAL RETURN FOR THE YEAR 1928

*Malacca*

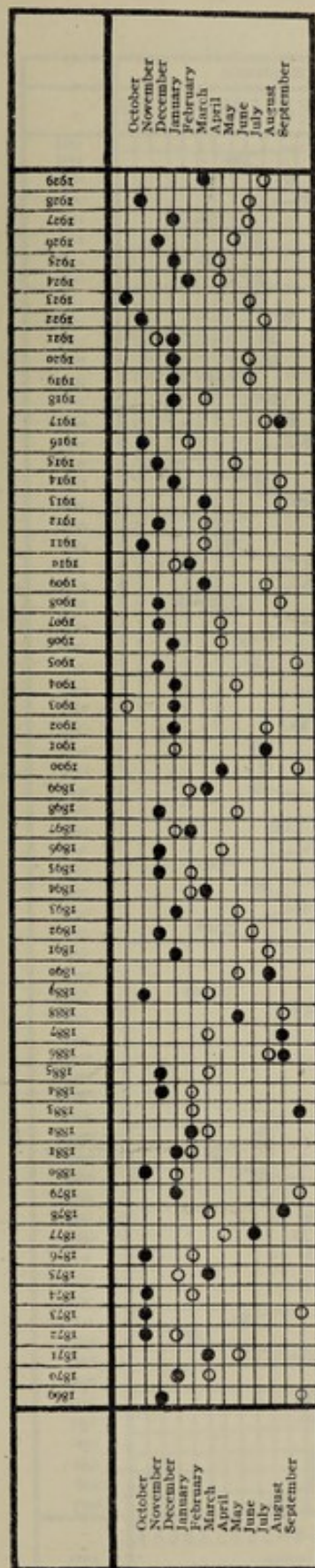
|               | TEMPERATURE   |                  |               |               |       |      | RAINFALL       |                    | WINDS             |               | REMARKS |
|---------------|---------------|------------------|---------------|---------------|-------|------|----------------|--------------------|-------------------|---------------|---------|
|               | Solar Maximum | Minimum on Grass | Shade Maximum | Shade Minimum | Range | Mean | Amount in m.m. | Degree of Humidity | General Direction | Average Force |         |
| January ...   | 121           | ...              | 90            | 73            | 17    | 79   | 118.6          | 85                 | N.E.              | ...           |         |
| February ...  | 124           | ...              | 90            | 74            | 16    | 78   | 59.8           | 87                 | N.E.              | ...           |         |
| March ...     | 124           | ...              | 90            | 74            | 16    | 80   | 170.4          | 86                 | N.E.              | ...           |         |
| April ...     | 118           | ...              | 90            | 74            | 16    | 80   | 210.8          | 87                 | N.E.              | ...           |         |
| May ...       | 122           | ...              | 90            | 74            | 16    | 80   | 276.0          | 86                 | N.E.              | ...           |         |
| June ...      | 116           | ...              | 80            | 74            | 15    | 79   | 224.6          | 87                 | N.E.              | ...           |         |
| July ...      | 125           | ...              | 91            | 74            | 17    | 79   | 161.8          | 85                 | N.E.              | ...           |         |
| August ...    | 126           | ...              | 90            | 74            | 16    | 79   | 111.2          | 85                 | N.E.              | ...           |         |
| September ... | 113           | ...              | 80            | 73            | 16    | 79   | 289.2          | 86                 | N.E.              | ...           |         |
| October ...   | 108           | ...              | 80            | 73            | 16    | 79   | 170.0          | 86                 | N.E.              | ...           |         |
| November ...  | 108           | ...              | 88            | 73            | 15    | 79   | 209.4          | 86                 | N.E.              | ...           |         |
| December ...  | 121           | ...              | 90            | 74            | 16    | 79   | 121.2          | 85                 | N.E.              | ...           |         |
| Mean ...      | 118           | ...              | 89            | 73            | 16    | 79   | 2,231          | 85                 | ...               | ...           |         |

## METEOROLOGICAL RETURN FOR THE YEAR 1928

*Labuan*

|               | TEMPERATURE   |                  |               |               |       |      | RAINFALL       |                    | WINDS                  |               | REMARKS |
|---------------|---------------|------------------|---------------|---------------|-------|------|----------------|--------------------|------------------------|---------------|---------|
|               | Solar Maximum | Minimum on Grass | Shade Maximum | Shade Minimum | Range | Mean | Amount in m.m. | Degree of Humidity | General Direction      | Average Force |         |
| January ...   | 155           | ...              | 92            | 74            | ...   | ...  | 368.3          | ...                | N. E.<br>N. E. & S. W. | 2             |         |
| February ...  | 148           | ...              | 90            | 74            | ...   | ...  | 127.0          | ...                | N. W.                  | 2             |         |
| March ...     | 155           | ...              | 90            | 74            | ...   | ...  | ...            | ...                | N. W. & N. E.          | 2             |         |
| April ...     | 155           | ...              | 93            | 73            | ...   | ...  | 251.46         | ...                | N. W. N. E. S. W.      | 2             |         |
| May ...       | 154           | ...              | 92            | 74            | ...   | ...  | 325.12         | ...                | N. W. S. W.            | 2             |         |
| June ...      | 155           | ...              | 92            | 74            | ...   | ...  | 477.52         | ...                | N. E. S. W. N. E.      | 2             |         |
| July ...      | 162           | ...              | 92            | 73            | ...   | ...  | 139.7          | ...                | S. W.                  | 2             |         |
| August ...    | 160           | ...              | 92            | 72            | ...   | ...  | 121.9          | ...                | S. W. N. E.            | 2             |         |
| September ... | 158           | ...              | 92            | 74            | ...   | ...  | 457.2          | ...                | S. W. N. E.            | 2             |         |
| October ...   | 162           | ...              | 91            | 74            | ...   | ...  | 381.0          | ...                | N. E. S. W.            | 2             |         |
| November ...  | 161           | ...              | 91            | 73            | ...   | ...  | 444.5          | ...                | N. E. S. W.            | 2             |         |
| December ...  | 164           | ...              | 93            | 76            | ...   | ...  | 139.14         | ...                | N. E. S. W.            | 2             |         |
| Mean ...      | 157.4         | ...              | 91            | 74            | ...   | ...  | 3,226.4        | ...                | ...                    | 2             |         |

SHOWING THE WETTEST AND DRIEST MONTHS DURING THE SAME YEARS



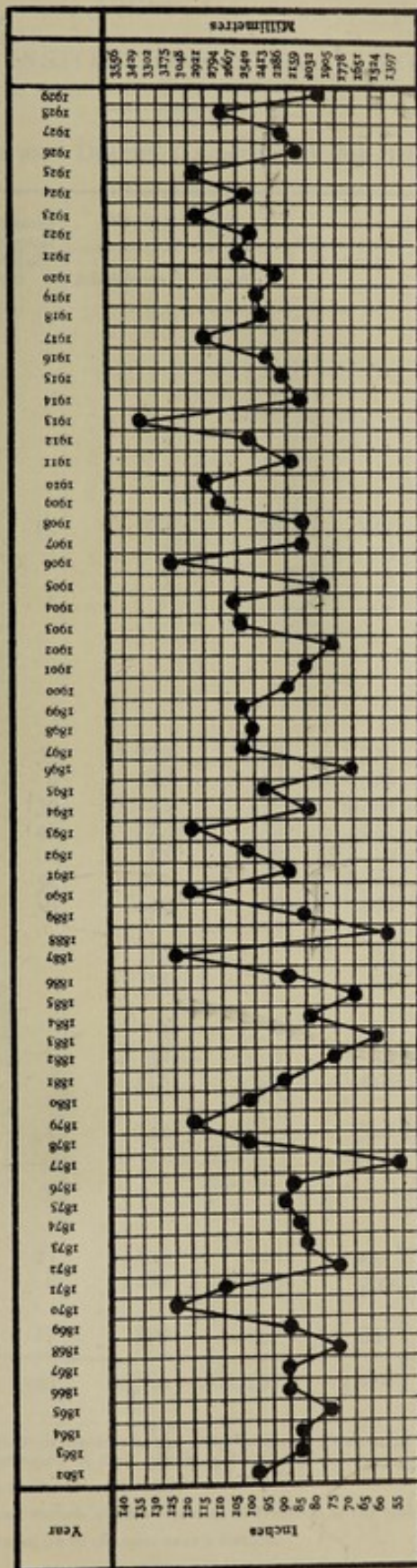
● Wettest months during the years  
○ Driest months during the years



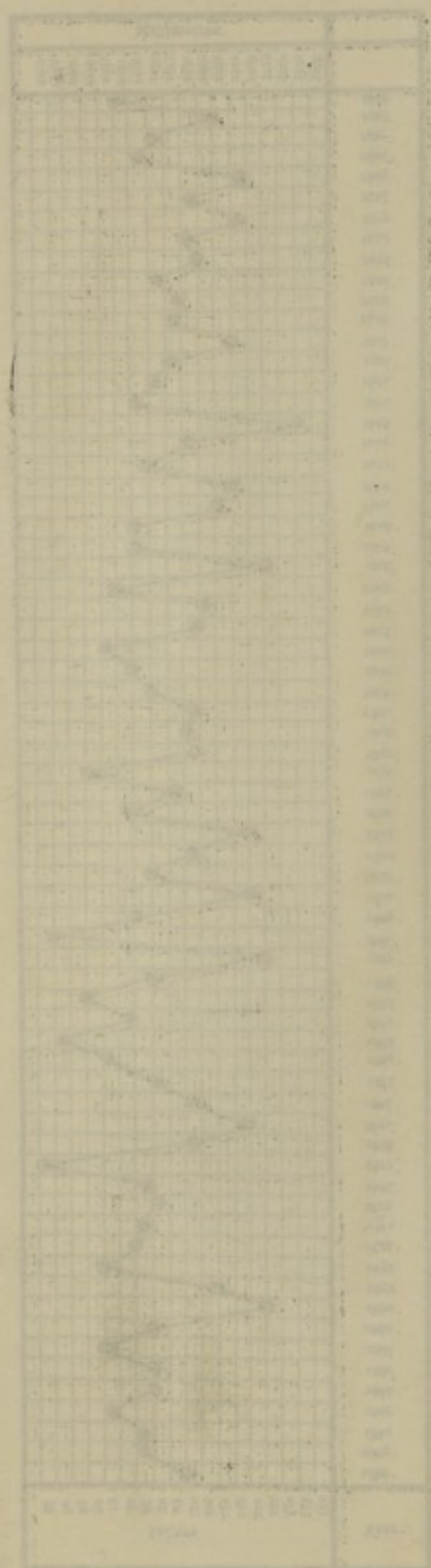


# ANNUAL RAINFALL

SHOWING THE ANNUAL RAINFALL IN INCHES AND MILLIMETRES SINCE 1862







PERCENTAGE OF MONTHS IN WHICH THE TENDENCY WAS UP

TABLE V

## HOSPITALS OR INSTITUTIONS STRAITS SETTLEMENTS

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929.

| DISEASES                                         | *Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | * Total Cases<br>Treated | † Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|--------------------------------------------------|------------------------------------------------|--------------|--------|--------------------------|-------------------------------------------------|---------|
|                                                  |                                                | Admissions   | Deaths |                          |                                                 |         |
| 1.—EPIDEMIC, ENDEMIC, AND<br>INFECTIOUS DISEASES |                                                |              |        |                          |                                                 |         |
| 1. Enteric Group—                                |                                                |              |        |                          |                                                 |         |
| (a) Typhoid Fever ..                             | 15                                             | 199          | 78     | 214                      | 12                                              |         |
| (b) Paratyphoid A. ...                           | ...                                            | 3            | ...    | 3                        | 1                                               |         |
| (c) Paratyphoid B. ...                           | ...                                            | 3            | ...    | 3                        | ...                                             |         |
| (d) Type not defined                             | 1                                              | 1            | ...    | 2                        | ...                                             |         |
| 2. Typhus ...                                    | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 3. Relapsing Fever ...                           | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 4. Undulant Fever ...                            | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 5. Malaria—                                      |                                                |              |        |                          |                                                 |         |
| (a) Tertian ...                                  | 35                                             | 1,675        | 26     | 1,710                    | 58                                              |         |
| (b) Quartan ...                                  | 6                                              | 369          | 13     | 375                      | 16                                              |         |
| (c) Aestivo-autumnal                             | 130                                            | 5,223        | 516    | 5,353                    | 175                                             |         |
| (d) Cachexia ...                                 | 40                                             | 777          | 34     | 817                      | 15                                              |         |
| (e) Blackwater Fever                             | 1                                              | 18           | 5      | 19                       | ...                                             |         |
| (f) Unclassified ...                             | 54                                             | 2,260        | 168    | 2,314                    | 73                                              |         |
| (g) Mixed Infection                              | 6                                              | 442          | 22     | 448                      | 8                                               |         |
| 6. Small-pox ...                                 | 1                                              | 19           | ...    | 20                       | ...                                             |         |
| 7. Measles ...                                   | ...                                            | 54           | ...    | 54                       | 1                                               |         |
| 8. Scarlet Fever ...                             | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 9. Whooping Cough ...                            | ...                                            | 9            | ...    | 9                        | ...                                             |         |
| 10. Diphtheria ...                               | ...                                            | 32           | 8      | 32                       | ...                                             |         |
| 11. Influenza ...                                | ...                                            | 518          | 23     | 518                      | 8                                               |         |
| 12. Miliary Fever ...                            | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 13. Mumps ...                                    | 1                                              | 41           | ...    | 42                       | 1                                               |         |
| 14. Cholera ...                                  | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 15. Epidemic Diarrhoea ...                       | ...                                            | ...          | ...    | ...                      | ...                                             |         |
| 16. Dysentery—                                   |                                                |              |        |                          |                                                 |         |
| (a) Amœbic ...                                   | 25                                             | 506          | 148    | 531                      | 26                                              |         |
| (b) Bacillary ...                                | 8                                              | 282          | 102    | 290                      | 5                                               |         |
| (c) Undefined or due<br>to other causes          | 17                                             | 329          | 56     | 346                      | 2                                               |         |
| Carried forward ...                              | 340                                            | 12,760       | 1,199  | 13,100                   | 401                                             |         |

The form shows in the main the arrangement of diseases in the *International Nomenclature, 1921 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.



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                              | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|-----------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                       |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                            | 340                                           | 12,760       | 1,199  | 13,100                 | 401                                           |         |
| I.—EPIDEMIC, ENDEMIC<br>AND INFECTIOUS DISEASES.—<br><i>Continued</i> |                                               |              |        |                        |                                               |         |
| 17. Plague—                                                           |                                               |              |        |                        |                                               |         |
| (a) Bubonic ...                                                       | ...                                           | 1            | 1      | 1                      | ...                                           |         |
| (b) Pneumonic ...                                                     | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (c) Septicæmic ...                                                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (d) Undefined ...                                                     | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 18. Yellow Fever ...                                                  | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 19. Spirochaetosis Ictero-<br>hæmorrhagica ...                        | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| 20. Leprosy ...                                                       | 939                                           | 459          | 123    | 1,398                  | 1,012                                         |         |
| 21. Erysipelas ...                                                    | 1                                             | 18           | 2      | 19                     | 1                                             |         |
| 22. Acute Poliomyelitis ...                                           | 1                                             | 2            | 1      | 3                      | ...                                           |         |
| 23. Encephalitis Lethargica ...                                       | ...                                           | 2            | ...    | 2                      | ...                                           |         |
| 24. Epidemic Cerebro-<br>spinal Fever ...                             | ...                                           | 5            | 2      | 5                      | ...                                           |         |
| 25. Other Epidemic<br>Diseases—                                       |                                               |              |        |                        |                                               |         |
| (a) Rubeola (German<br>Measles) ...                                   | ...                                           | 4            | ...    | 4                      | 1                                             |         |
| (b) Varicella (Chicken-<br>pox) ...                                   | 2                                             | 153          | ...    | 155                    | 2                                             |         |
| (c) Kala-azar ...                                                     | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (d) Phlebotomus<br>Fever ...                                          | ...                                           | ...          | ...    | 120                    | 3                                             |         |
| (e) Dengue ...                                                        | 3                                             | 117          | ...    | 3                      | ...                                           |         |
| (f) Epidemic Dropsy ...                                               | ...                                           | 3            | ...    | 28                     | 1                                             |         |
| (g) Yaws ...                                                          | 1                                             | 27           | ...    | ...                    | ...                                           |         |
| (h) Trypanosomiasis ...                                               | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 26. Glanders ...                                                      | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 27. Anthrax ...                                                       | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 28. Rabies ...                                                        | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 29. Tetanus ...                                                       | 2                                             | 53           | 32     | 55                     | 2                                             |         |
| 30. Mycosis ...                                                       | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 31. Tuberculosis, Pulmon-<br>ary and Laryngeal ...                    | 167                                           | 1,913        | 910    | 2,080                  | 222                                           |         |
| 32. Tuberculosis of the<br>Meninges or Central<br>Nervous System ...  | 1                                             | 26           | 16     | 27                     | 3                                             |         |
| 33. Tuberculosis of the In-<br>testines or Peritoneum ...             | 1                                             | 27           | 19     | 28                     | ...                                           |         |
| 34. Tuberculosis of the<br>Vertebral Column ...                       | 8                                             | 22           | 1      | 30                     | 7                                             |         |
| <i>Carried forward</i> ...                                            | 1,466                                         | 15,593       | 2,306  | 17,059                 | 1,655                                         |         |

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                                  | Remaining<br>in Ho-pital<br>at end of<br>1928 | EARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|---------------------------------------------------------------------------|-----------------------------------------------|-------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                           |                                               | Admissions  | Deaths |                        |                                               |         |
| <i>Brought forward ...</i>                                                | 1,466                                         | 15,593      | 2,306  | 17,059                 | 1,655                                         |         |
| I.—EPIDEMIC, ENDEMIC,<br>AND INFECTIOUS DISEASES.—<br><i>Concluded</i>    |                                               |             |        |                        |                                               |         |
| 35. Tuberculosis of Bones<br>and Joints ...                               | 19                                            | 67          | 4      | 86                     | 7                                             |         |
| 36. Tuberculosis of other<br>organs—                                      |                                               |             |        |                        |                                               |         |
| (a) Skin or Subcuta-<br>neous Tissue (Lu-<br>pus) ...                     | ...                                           | ...         | ...    | ...                    | ...                                           |         |
| (b) Bones ...                                                             | ...                                           | 1           | ...    | 1                      | ...                                           |         |
| (c) Lymphatic System ...                                                  | 1                                             | 30          | 2      | 31                     | 2                                             |         |
| (d) Genito-urinary ...                                                    | ...                                           | 5           | 2      | 5                      | 1                                             |         |
| (e) Other organs ...                                                      | 5                                             | 9           | ...    | 14                     | ...                                           |         |
| 37. Tuberculosis<br>disseminated—                                         |                                               |             |        |                        |                                               |         |
| (a) Acute ...                                                             | ...                                           | ...         | ...    | ...                    | ...                                           |         |
| (b) Chronic ...                                                           | ...                                           | ...         | ...    | ...                    | ...                                           |         |
| 38. Syphilis—                                                             |                                               |             |        |                        |                                               |         |
| (a) Primary ...                                                           | 39                                            | 732         | ...    | 771                    | 57                                            |         |
| (b) Secondary ...                                                         | 149                                           | 1,467       | 8      | 1,616                  | 138                                           |         |
| (c) Tertiary ...                                                          | 45                                            | 265         | 45     | 310                    | 64                                            |         |
| (d) Hereditary ...                                                        | 3                                             | 22          | 8      | 25                     | 1                                             |         |
| (e) Period not<br>indicated ...                                           | 2                                             | 42          | 43     | 44                     | 2                                             |         |
| 39. Soft Chancre ...                                                      | 62                                            | 584         | ...    | 646                    | 21                                            |         |
| 40. A.—Gonorrhœa and its<br>complications ...                             | 58                                            | 682         | 2      | 740                    | 39                                            |         |
| B.—Gonorrhœal Oph-<br>thalmia ...                                         | 12                                            | 20          | 2      | 32                     | 4                                             |         |
| C.—Gonorrhœal Arthri-<br>tis ...                                          | 17                                            | 244         | 2      | 261                    | 16                                            |         |
| D.—Granuloma Vene-<br>reum ...                                            | ...                                           | ...         | ...    | ...                    | ...                                           |         |
| 41. Septicæmia ...                                                        | 1                                             | 82          | 66     | 83                     | 1                                             |         |
| 42. Other Infectious<br>Diseases—                                         |                                               |             |        |                        |                                               |         |
| Trypanosomiasis ...                                                       | 1                                             | 14          | 4      | 15                     | 1                                             |         |
| II.—GENERAL DISEASES NOT<br>MENTIONED ABOVE                               |                                               |             |        |                        |                                               |         |
| 43. Cancer or other malig-<br>nant Tumours of the<br>Buccal Cavity ...    | 1                                             | 45          | 15     | 46                     | 4                                             |         |
| 44. Cancer or other malig-<br>nant Tumours of the<br>Stomach or Liver ... | 7                                             | 92          | 58     | 99                     | 4                                             |         |
| <i>Carried forward ...</i>                                                | 1,888                                         | 19,996      | 2,567  | 21,884                 | 2,017                                         |         |



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                                        | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|---------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                                 |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward ...</i>                                                      | 1,888                                         | 19,996       | 2,567  | 21,884                 | 2,017                                         |         |
| <b>II.—GENERAL DISEASES NOT MENTIONED ABOVE.—</b>                               |                                               |              |        |                        |                                               |         |
| <i>Continued</i>                                                                |                                               |              |        |                        |                                               |         |
| 45. Cancer or other malignant Tumours of the Peritoneum, Intestines, Rectum ... | 2                                             | 16           | 10     | 18                     | 1                                             |         |
| 46. Cancer or other malignant Tumours of the Female Genital Organs ...          | 6                                             | 48           | 12     | 54                     | 2                                             |         |
| 47. Cancer or other malignant Tumours of the Breast ...                         | 1                                             | 18           | 4      | 19                     | 2                                             |         |
| 48. Cancer or other malignant Tumours of the Skin ...                           | 2                                             | 46           | 9      | 48                     | 6                                             |         |
| 49. Cancer or other malignant Tumours of Organs not Specified                   | 1                                             | 109          | 17     | 110                    | 6                                             |         |
| 50. Tumours non-malignant                                                       | 1                                             | 83           | 2      | 84                     | 10                                            |         |
| 51. Acute Rheumatism ...                                                        | 4                                             | 82           | ...    | 86                     | 8                                             |         |
| 52. Chronic Rheumatism ...                                                      | ...                                           | 67           | ...    | 67                     | 2                                             |         |
| 53. Scurvy (including Barlow's Disease) ...                                     | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| 54. Pellagra ...                                                                | ...                                           | 2            | ...    | 2                      | 1                                             |         |
| 55. Beri-beri ...                                                               | 210                                           | 1,112        | 175    | 1,322                  | 146                                           |         |
| 56. Rickets ...                                                                 | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 57. Diabetes (not including Insipidus) ...                                      | 10                                            | 55           | 10     | 65                     | 3                                             |         |
| 58. Anæmia—                                                                     | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (a) Pernicious ...                                                              | ...                                           | 48           | 9      | 48                     | 1                                             |         |
| (b) Other Anæmias and Chlorosis ...                                             | 3                                             | 68           | 15     | 71                     | 5                                             |         |
| 59. Diseases of the Pituitary Body ...                                          | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 60. Diseases of the Thyroid Gland—                                              | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (a) Exophthalmic Goitre ...                                                     | 2                                             | 10           | 1      | 12                     | 1                                             |         |
| (b) Other diseases of the Thyroid Gland, Myxœdema ...                           | ...                                           | 2            | ...    | 2                      | 1                                             |         |
| 61. Diseases of the Parathyroid Glands ...                                      | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 62. Diseases of the Thymus ...                                                  | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 63. Diseases of the Suprarenal Glands ...                                       | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 64. Diseases of the Spleen ...                                                  | ...                                           | 10           | 1      | 10                     | ...                                           |         |
| <i>Carried forward ...</i>                                                      | 2,130                                         | 21,773       | 2,832  | 23,903                 | 2,212                                         |         |

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—Contd.

| DISEASES                                                                                      | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                                               |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                                                    | 2,130                                         | 21,773       | 2,832  | 23,903                 | 2,212                                         |         |
| II.—GENERAL DISEASES NOT MENTIONED ABOVE.—<br><i>Concluded</i>                                |                                               |              |        |                        |                                               |         |
| 65. Leukæmia—                                                                                 |                                               |              |        |                        |                                               |         |
| (a) Leukæmia ...                                                                              | ...                                           | 5            | 4      | 5                      | ...                                           |         |
| (b) Hodgkin's Disease ...                                                                     | 1                                             | 7            | 1      | 8                      | 1                                             |         |
| 66. Alcoholism ...                                                                            | ...                                           | 138          | ...    | 138                    | 2                                             |         |
| 67. Chronic poisoning by<br>mineral substances<br>(lead, mercury, etc.) ...                   | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 68. Chronic poisoning by<br>organic substances<br>(Morphia, Cocaine,<br>etc.) ...             | 14                                            | 116          | 1      | 130                    | 1                                             |         |
|                                                                                               | 3                                             | 1,873        | ...    | 1,876                  | 33                                            |         |
| 69. Other General<br>Diseases—                                                                |                                               |              |        |                        |                                               |         |
| Auto-intoxication ...                                                                         | ...                                           | 5            | 4      | 5                      | ...                                           |         |
| Purpura Hæmorrhagica ...                                                                      | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Hæmophilia ...                                                                                | ...                                           | 1            | 1      | 1                      | ...                                           |         |
| Diabetes Insipidus ...                                                                        | ...                                           | 2            | ...    | 2                      | ...                                           |         |
| III.—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES                                |                                               |              |        |                        |                                               |         |
| 70. Encephalitis (not including<br>Encephalitis Lethargica) ...                               | ...                                           | 2            | 1      | 2                      | ...                                           |         |
| 71. Meningitis (not including<br>Tuberculous Meningitis or Cerebro-<br>spinal Meningitis) ... | ...                                           | 21           | 17     | 21                     | ...                                           |         |
| 72. Locomotor Ataxia ...                                                                      | 7                                             | 6            | ...    | 13                     | 1                                             |         |
| 73. Other Affections of the<br>Spinal Cord ...                                                | 2                                             | 81           | 5      | 83                     | 5                                             |         |
| 74. Apoplexy—                                                                                 |                                               |              |        |                        |                                               |         |
| (a) Hæmorrhage ...                                                                            | 1                                             | 21           | 15     | 22                     | 1                                             |         |
| (b) Embolism ...                                                                              | 1                                             | 2            | 3      | 3                      | ...                                           |         |
| (c) Thrombosis ...                                                                            | ...                                           | 9            | 3      | 9                      | 1                                             |         |
| 75. Paralysis—                                                                                |                                               |              |        |                        |                                               |         |
| (a) Hemiplegia ...                                                                            | 52                                            | 121          | 9      | 173                    | 44                                            |         |
| (b) Other Paralysis ...                                                                       | 15                                            | 74           | 9      | 89                     | 25                                            |         |
| 76. General Paralysis of the<br>Insane ...                                                    | 11                                            | 30           | 21     | 41                     | 18                                            |         |
| 77. Other forms of Mental<br>Alienation ...                                                   | 1,003                                         | 737          | 110    | 1,740                  | 1,068                                         |         |
| <i>Carried forward</i> ...                                                                    | 3,240                                         | 25,024       | 3,036  | 28,264                 | 3,412                                         |         |



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                                                   | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|--------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                                            |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ..                                                                  | 3,240                                         | 25,024       | 3,036  | 28,264                 | 3,412                                         |         |
| III.—AFFECTIONS OF THE<br>NERVOUS SYSTEM AND<br>ORGANS OF THE SENSES.—<br><i>Continued</i> |                                               |              |        |                        |                                               |         |
| 78. Epilepsy ... ..                                                                        | ...                                           | 61           | 4      | 61                     | 1                                             |         |
| 79. Eclampsia, Convulsions<br>(non-puerperal) 5<br>years or over ... ..                    | ...                                           | 5            | 1      | 5                      | ...                                           |         |
| 80. Infantile Convulsions                                                                  | ...                                           | 50           | 30     | 50                     | ...                                           |         |
| 81. Chorea ... ..                                                                          | 2                                             | 2            | ...    | 4                      | 2                                             |         |
| 82. A.—Hysteria ... ..                                                                     | 1                                             | 10           | ...    | 11                     | ...                                           |         |
| B.—Neuritis ... ..                                                                         | 6                                             | 113          | 2      | 119                    | 18                                            |         |
| C.—Neurasthenia ... ..                                                                     | 1                                             | 28           | ...    | 29                     | 3                                             |         |
| 83. Cerebral Softening ... ..                                                              | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 84. Other affections of the<br>Nervous System ... ..                                       | 1                                             | 39           | ...    | 40                     | 2                                             |         |
| 85. Affections of the Or-<br>gans of Vision—                                               |                                               |              |        |                        |                                               |         |
| (a) Diseases of the<br>Eye ... ..                                                          | 18                                            | 68           | ...    | 86                     | 3                                             |         |
| (b) Conjunctivitis ... ..                                                                  | 23                                            | 388          | ...    | 411                    | 15                                            |         |
| (c) Trachoma ... ..                                                                        | 2                                             | 46           | ...    | 48                     | 5                                             |         |
| (d) Tumours of the<br>Eye ... ..                                                           | ...                                           | 23           | ...    | 23                     | 1                                             |         |
| (e) Other affections of<br>the Eye ... ..                                                  | 145                                           | 622          | 1      | 767                    | 189                                           |         |
| 86. Affections of the Ear<br>or Mastoid Sinus ... ..                                       | 4                                             | 219          | 6      | 223                    | 8                                             |         |
| IV.—AFFECTIONS OF THE<br>CIRCULATORY SYSTEM                                                |                                               |              |        |                        |                                               |         |
| 87. Pericarditis ... ..                                                                    | ...                                           | 21           | 13     | 21                     | ...                                           |         |
| 88. Endocarditis ... ..                                                                    | ...                                           | 83           | 44     | 83                     | 2                                             |         |
| 89. Angina Pectoris ... ..                                                                 | ...                                           | 3            | 1      | 3                      | 1                                             |         |
| 90. Other Diseases of the<br>Heart—                                                        |                                               |              |        |                        |                                               |         |
| (a) Valvular—                                                                              | ...                                           | 98           | 23     | 98                     | 8                                             |         |
| Mitral ... ..                                                                              | 4                                             | 63           | 22     | 67                     | 13                                            |         |
| Aortic ... ..                                                                              | 4                                             | 68           | 20     | 72                     | 4                                             |         |
| Tricuspid ... ..                                                                           | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Pulmonary ... ..                                                                           | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (b) Myocarditis ... ..                                                                     | 7                                             | 67           | 49     | 74                     | 1                                             |         |
| <i>Carried forward</i> ..                                                                  | 3,458                                         | 27,101       | 3,252  | 30,559                 | 3,688                                         |         |

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                       | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|----------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                     | 3,458                                         | 27,101       | 3,252  | 30,559                 | 3,688                                         |         |
| IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM.—<br><i>Continued</i> |                                               |              |        |                        |                                               |         |
| 91. Diseases of the Arteries—                                  |                                               |              |        |                        |                                               |         |
| (a) Aneurism ...                                               | 3                                             | 23           | 5      | 26                     | 5                                             |         |
| (b) Arterio-Sclerosis ...                                      | 3                                             | 30           | 22     | 33                     | 2                                             |         |
| (c) Other diseases ...                                         | 2                                             | 3            | ...    | 5                      | ...                                           |         |
| 92. Embolism or Thrombosis (non-cerebral) ...                  | ...                                           | 2            | 1      | 2                      | ...                                           |         |
| 93. Diseases of the Veins—                                     |                                               |              |        |                        |                                               |         |
| Hæmorrhoids ...                                                | 7                                             | 194          | ...    | 201                    | 8                                             |         |
| Varicose Veins ...                                             | ...                                           | 16           | ...    | 16                     | ...                                           |         |
| Phlebitis ...                                                  | ...                                           | 10           | 1      | 10                     | ...                                           |         |
| 94. Diseases of the Lymphatic System—                          |                                               |              |        |                        |                                               |         |
| Lymphangitis ...                                               | ...                                           | 6            | ...    | 6                      | ...                                           |         |
| Lymphadenitis, Bubo (non-specific) ...                         | 17                                            | 329          | 1      | 346                    | 29                                            |         |
| 95. Hæmorrhage of undetermined cause ...                       | ...                                           | 3            | ...    | 3                      | ...                                           |         |
| 96. Other affections of the Circulatory System ...             | ...                                           | 8            | 7      | 8                      | ...                                           |         |
| V.—AFFECTIONS OF THE RESPIRATORY SYSTEM                        |                                               |              |        |                        |                                               |         |
| 97. Diseases of the Nasal Passages—                            |                                               |              |        |                        |                                               |         |
| Adenoids ...                                                   | 1                                             | 5            | ...    | 6                      | 1                                             |         |
| Polypus ...                                                    | 1                                             | 13           | ...    | 14                     | 2                                             |         |
| Rhinitis ...                                                   | ...                                           | 18           | ...    | 18                     | 1                                             |         |
| Coryza ...                                                     | ...                                           | 86           | ...    | 86                     | ...                                           |         |
| 98. Affections of the Larynx—                                  |                                               |              |        |                        |                                               |         |
| Laryngitis ...                                                 | 1                                             | 17           | ...    | 18                     | 1                                             |         |
| 99. Bronchitis—                                                |                                               |              |        |                        |                                               |         |
| (a) Acute ...                                                  | 41                                            | 1,264        | 3      | 1,305                  | 41                                            |         |
| (b) Chronic ...                                                | 50                                            | 625          | 7      | 675                    | 41                                            |         |
| 100. Broncho-Pneumonia ...                                     | 7                                             | 461          | 310    | 468                    | 6                                             |         |
| 101. Pneumonia—                                                |                                               |              |        |                        |                                               |         |
| (a) Lobar ...                                                  | 33                                            | 806          | 400    | 839                    | 23                                            |         |
| (b) Unclassified ...                                           | 1                                             | 44           | 29     | 45                     | 5                                             |         |
| 102. Pleurisy, Empyema ...                                     | 11                                            | 138          | 23     | 149                    | 4                                             |         |
| <i>Carried forward</i> ...                                     | 3,636                                         | 31,202       | 4,061  | 34,838                 | 3,857                                         |         |



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                                   | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|----------------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                            |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                                 | 3,636                                         | 31,202       | 4,061  | 34,838                 | 3,857                                         |         |
| V.—AFFECTIONS OF THE<br>RESPIRATORY SYSTEM—<br><i>Continued</i>            |                                               |              |        |                        |                                               |         |
| 103. Congestion of the<br>Lungs ...                                        | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 104. Gangrene of the Lungs ...                                             | ...                                           | 5            | 5      | 5                      | ...                                           |         |
| 105. Asthma ...                                                            | 31                                            | 436          | 7      | 467                    | 35                                            |         |
| 106. Pulmonary Emphysema ...                                               | ...                                           | 8            | 1      | 8                      | 1                                             |         |
| 107. Other affections of the<br>Lungs—<br>Pulmonary Spirochæ-<br>tosis ... | 2                                             | 45           | 14     | 47                     | 5                                             |         |
| VI.—DISEASES OF THE DI-<br>GESTIVE SYSTEM                                  |                                               |              |        |                        |                                               |         |
| 108. A.—Diseases of Teeth<br>or Gums—<br>Caries, Pyorr-<br>hœa, etc. ...   | 3                                             | 273          | 1      | 276                    | 2                                             |         |
| B.—Other affections of<br>the Mouth—<br>Stomatitis ...                     | 1                                             | 28           | ...    | 29                     | ...                                           |         |
| Glossitis, etc. ...                                                        | ...                                           | 15           | 2      | 15                     | ...                                           |         |
| 109. Affections of the Pha-<br>rynix or Tonsils—<br>Tonsillitis ...        | 6                                             | 426          | 2      | 432                    | 6                                             |         |
| Pharyngitis ...                                                            | 3                                             | 87           | ...    | 90                     | 1                                             |         |
| 110. Affections of the Œso-<br>phagus ...                                  | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 111. A.—Ulcer of the<br>Stomach ...                                        | 2                                             | 58           | 13     | 60                     | 6                                             |         |
| B.—Ulcer of the Duo-<br>denum ...                                          | 3                                             | 79           | 7      | 82                     | 10                                            |         |
| 112. Other affections of the<br>Stomach—<br>Gastritis ...                  | 16                                            | 269          | 1      | 285                    | 9                                             |         |
| Dyspepsia, etc. ...                                                        | 9                                             | 295          | 6      | 304                    | 6                                             |         |
| 113. Diarrhœa and Enteri-<br>tis—<br>Under two years ...                   | 12                                            | 313          | 77     | 325                    | 5                                             |         |
| 114. Diarrhœa and Enteri-<br>tis—<br>Two years and over ...                | 20                                            | 618          | 66     | 638                    | 29                                            |         |
| Colitis ...                                                                | 7                                             | 102          | ...    | 109                    | 4                                             |         |
| Ulceration ...                                                             | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 114A. Sprue ...                                                            | 2                                             | 6            | ...    | 8                      | ...                                           |         |
| <i>Carried forward</i> ...                                                 | 3,753                                         | 34,265       | 4,263  | 38,018                 | 3,976                                         |         |

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—Contd.

| DISEASES                                                   | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                            |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward ...</i>                                 | 3,753                                         | 34,265       | 4,263  | 38,018                 | 3,976                                         |         |
| VI.—DISEASES OF THE DIGESTIVE SYSTEM.—<br><i>Continued</i> |                                               |              |        |                        |                                               |         |
| 115. Ankylostomiasis ...                                   | 96                                            | 2,731        | 63     | 2,827                  | 130                                           |         |
| 116. Diseases due to<br>Intestinal Parasites—              |                                               |              |        |                        |                                               |         |
| (a) Cestoda (Tænia) ...                                    | ...                                           | 11           | ...    | 11                     | ...                                           |         |
| (b) Trematoda<br>(Flukes) ...                              | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (c) Nematoda (other<br>than Ankylostoma)—                  |                                               |              |        |                        |                                               |         |
| Ascaris ...                                                | 23                                            | 750          | ...    | 773                    | 30                                            |         |
| Trichocephalus<br>dispar ...                               | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Trichina ...                                               | ...                                           | 4            | ...    | 4                      | ...                                           |         |
| Dracunculus ...                                            | ...                                           | 7            | ...    | 7                      | ...                                           |         |
| Strongylus ...                                             | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Oxyuris ...                                                | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (d) Coccidia ...                                           | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (e) Other parasites ...                                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| (f) Unclassified ...                                       | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 117. Appendicitis ...                                      | 13                                            | 186          | 8      | 199                    | 11                                            |         |
| 118. Hernia ...                                            | 11                                            | 214          | 7      | 225                    | 12                                            |         |
| 119. A.—Affections of the<br>Anus, Fistula, etc.           | 21                                            | 264          | 2      | 285                    | 15                                            |         |
| B.—Other affections of<br>the Intestines—                  | 2                                             | 87           | 22     | 89                     | 2                                             |         |
| Enteroptosis ...                                           | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| Constipation ...                                           | 6                                             | 156          | ...    | 162                    | 1                                             |         |
| 120. Acute Yellow Atrophy<br>of the Liver ...              | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 121. Hydatid of the Liver ...                              | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 122. Cirrhosis of the Liver—                               |                                               |              |        |                        |                                               |         |
| (a) Alcoholic ...                                          | ...                                           | 3            | ...    | 3                      | ...                                           |         |
| (b) Other forms ...                                        | 18                                            | 218          | 76     | 236                    | 28                                            |         |
| 123. Biliary Calculus ...                                  | ...                                           | 2            | ...    | 2                      | ...                                           |         |
| 124. Other affections of the<br>Liver—                     |                                               |              |        |                        |                                               |         |
| Abscess ...                                                | 4                                             | 55           | 7      | 59                     | 1                                             |         |
| Hepatitis ...                                              | ...                                           | 53           | 7      | 53                     | 2                                             |         |
| Cholecystitis, Cholan-<br>gitis, etc. ...                  | 2                                             | 46           | 4      | 48                     | 2                                             |         |
| Jaundice ...                                               | 3                                             | 79           | 3      | 82                     | 3                                             |         |
| <i>Carried forward ..</i>                                  | 3,952                                         | 39,132       | 4,462  | 43,084                 | 4,213                                         |         |



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                                             | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|--------------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                                      |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                                           | 3,952                                         | 39,132       | 4,462  | 43,084                 | 4,213                                         |         |
| VI.—DISEASES OF THE DIGESTIVE SYSTEM.—<br><i>Concluded</i>                           |                                               |              |        |                        |                                               |         |
| 125. Diseases of the Pan-<br>creas ...                                               | ...                                           | 2            | 2      | 2                      | ...                                           |         |
| 126. Peritonitis (of unknown<br>cause) ...                                           | 1                                             | 63           | 48     | 64                     | ...                                           |         |
| 127. Other affections of the<br>Digestive System ...                                 | 7                                             | 143          | 12     | 150                    | 9                                             |         |
| VII.—DISEASES OF THE GE-<br>NITO-URINARY SYSTEM<br>(NON-VENEREAL)                    |                                               |              |        |                        |                                               |         |
| 128. Acute Nephritis ...                                                             | 17                                            | 232          | 52     | 299                    | 36                                            |         |
| 129. Chronic ...                                                                     | 58                                            | 399          | 172    | 457                    | 25                                            |         |
| 130. A.—Chyluria ...                                                                 | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| B.—Schistosomiasis ...                                                               | ...                                           | 1            | 1      | 1                      | ...                                           |         |
| 131. Other affections of the<br>Kidneys—<br>Pyelitis, etc. ...                       | 3                                             | 159          | 25     | 162                    | 13                                            |         |
| 132. Urinary Calculus ...                                                            | 2                                             | 37           | ...    | 39                     | 2                                             |         |
| 133. Diseases of the Blad-<br>der—<br>Cystitis ...                                   | 4                                             | 81           | 5      | 85                     | 5                                             |         |
| 134. Diseases of the Ure-<br>thra—<br>(a) Stricture ...                              | 15                                            | 112          | ...    | 127                    | 6                                             |         |
| (b) Other ...                                                                        | 7                                             | 275          | 2      | 282                    | 19                                            |         |
| 135. Diseases of the Pros-<br>tate—<br>Hypertrophy ...                               | ...                                           | 2            | ...    | 2                      | ...                                           |         |
| Prostatitis ...                                                                      | ...                                           | 9            | ...    | 9                      | ...                                           |         |
| 136. Diseases (non-venereal)<br>of the Genital Organs<br>of Man—<br>Epididymitis ... | ...                                           | 78           | ...    | 78                     | 2                                             |         |
| Orchitis ...                                                                         | 4                                             | 96           | ...    | 100                    | 3                                             |         |
| Hydrocele ...                                                                        | 5                                             | 106          | ...    | 111                    | 8                                             |         |
| Ulcer of Penis, etc. ...                                                             | 9                                             | 54           | ...    | 63                     | 3                                             |         |
| 137. Cysts or other non-<br>malignant Tumours of<br>the Ovaries ...                  | ...                                           | 20           | 2      | 20                     | 1                                             |         |
| 138. Salpingitis—<br>Abscess of the Pelvis ...                                       | 1                                             | 27           | ...    | 28                     | ...                                           |         |
|                                                                                      | 3                                             | 8            | ...    | 11                     | ...                                           |         |
| <i>Carried forward</i> ...                                                           | 4,088                                         | 41,106       | 4,784  | 45,194                 | 4,345                                         |         |

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—Contd.

| DISEASES                                                             | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|----------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                      |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                           | 4,088                                         | 41,106       | 4,784  | 45,194                 | 4,345                                         |         |
| VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-<br>VENEREAL.—Contd. |                                               |              |        |                        |                                               |         |
| 139. Uterine Tumours (non-malignant) ...                             | ...                                           | 3            | ...    | 3                      | 1                                             |         |
| 140. Uterine Hæmorrhage (non-puerperal) ...                          | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| 141. A.—Metritis ...                                                 | ...                                           | 4            | ...    | 4                      | ...                                           |         |
| B.—Other affections of the Female Genital Organs—                    | ...                                           | 137          | 2      | 137                    | 6                                             |         |
| Displacements of Uterus ...                                          | ...                                           | 42           | ...    | 42                     | 1                                             |         |
| Amenorrhœa ...                                                       | ...                                           | 4            | ...    | 4                      | 1                                             |         |
| Dysmenorrhœa ...                                                     | ...                                           | 11           | ...    | 11                     | ...                                           |         |
| Leucorrhœa ...                                                       | 1                                             | 32           | ...    | 33                     | 1                                             |         |
| 142. Diseases of the Breast (non-puerperal)—                         | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Mastitis ...                                                         | ...                                           | 7            | ...    | 7                      | ...                                           |         |
| Abscess of Breast ..                                                 | 1                                             | 5            | 1      | 6                      | ...                                           |         |
| VIII.—PUERPERAL STATE                                                |                                               |              |        |                        |                                               |         |
| 143. A.—Normal Labour ...                                            | 93                                            | 3,480        | ...    | 3,573                  | 84                                            |         |
| B. Accidents of Pregnancy—                                           | ...                                           | ...          | ...    | ...                    | 2                                             |         |
| (a) Abortion ...                                                     | 2                                             | 95           | 1      | 97                     | ...                                           |         |
| (b) Ectopic Gestation ...                                            | ...                                           | 22           | 2      | 22                     | ...                                           |         |
| (c) Other accidents of Pregnancy                                     | 1                                             | 352          | 3      | 353                    | ...                                           |         |
| 144. Puerperal Hæmorrhage ...                                        | ...                                           | 54           | 8      | 54                     | ...                                           |         |
| 145. Other accidents of Parturition ...                              | ...                                           | 173          | 9      | 173                    | 1                                             |         |
| 146. Puerperal Septicæmia ...                                        | ...                                           | 52           | 27     | 52                     | ...                                           |         |
| 147. Phlegmasia Dolens ...                                           | ...                                           | 2            | 1      | 2                      | ...                                           |         |
| 148. Puerperal Eclampsia ...                                         | ...                                           | 39           | 9      | 39                     | ...                                           |         |
| 149. Sequelæ of Labour ...                                           | ...                                           | 12           | 2      | 12                     | ...                                           |         |
| 150. Puerperal affections of the Breast ...                          | ...                                           | 52           | ...    | 52                     | ...                                           |         |
| IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES                      |                                               |              |        |                        |                                               |         |
| 151. Gangrene ...                                                    | 2                                             | 25           | 5      | 27                     | 2                                             |         |
| <i>Carried forward</i> ...                                           | 4,188                                         | 45,710       | 4,854  | 49,898                 | 4,444                                         |         |



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                                            | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|-------------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                                     |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward ...</i>                                                          | 4,188                                         | 45,710       | 4,854  | 49,898                 | 4,444                                         |         |
| IX.—AFFECTIONS OF THE<br>SKIN AND CELLULAR TISSUES<br>— <i>Continued</i>            |                                               |              |        |                        |                                               |         |
| 152. Boil—                                                                          | 2                                             | 97           | 4      | 99                     | 2                                             |         |
| Carbuncle ...                                                                       | 1                                             | 47           | ...    | 48                     | 1                                             |         |
| 153. Abscess—                                                                       | 46                                            | 1,202        | 4      | 1,248                  | 45                                            |         |
| Whitlow ...                                                                         | ...                                           | 67           | ...    | 67                     | ...                                           |         |
| Cellulitis ...                                                                      | 20                                            | 384          | 33     | 404                    | 26                                            |         |
| 154. A.—Tinea ...                                                                   | 2                                             | 50           | ...    | 52                     | 2                                             |         |
| B.—Scabies ...                                                                      | 26                                            | 517          | ...    | 543                    | 17                                            |         |
| 155. Other Diseases of the<br>Skin—                                                 | 21                                            | 319          | 2      | 340                    | 19                                            |         |
| Erythema ...                                                                        | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Urticaria ...                                                                       | ...                                           | 24           | ...    | 24                     | 2                                             |         |
| Eczema ...                                                                          | 24                                            | 322          | ...    | 346                    | 13                                            |         |
| Herpes ...                                                                          | ...                                           | 22           | ...    | 22                     | 1                                             |         |
| Psoriasis ...                                                                       | 1                                             | 14           | ...    | 15                     | 1                                             |         |
| Elephantiasis ...                                                                   | 2                                             | 30           | ...    | 32                     | 7                                             |         |
| Myiasis ...                                                                         | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Chigoes ...                                                                         | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Cutaneous Leishma-<br>niasis ...                                                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Ulcers ...                                                                          | 279                                           | 3,715        | 12     | 3,994                  | 254                                           |         |
| X.—DISEASES OF BONES AND<br>ORGANS OF LOCOMO-<br>TION (OTHER THAN TU-<br>BERCULOUS) |                                               |              |        |                        |                                               |         |
| 156. Diseases of Bones—                                                             |                                               |              |        |                        |                                               |         |
| Osteitis ...                                                                        | ...                                           | 30           | ...    | 30                     | 2                                             |         |
| 157. Diseases of Joints ...                                                         | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Arthritis ...                                                                       | 39                                            | 260          | 1      | 290                    | 18                                            |         |
| Synovitis ...                                                                       | 7                                             | 50           | ...    | 57                     | 2                                             |         |
| 158. Other Diseases of Bones<br>or Organs of Loco-<br>motion ...                    | 12                                            | 240          | 5      | 252                    | 14                                            |         |
| XI.—MALFORMATIONS                                                                   |                                               |              |        |                        |                                               |         |
| 159. Malformations—                                                                 |                                               |              |        |                        |                                               |         |
| Hydrocephalus ...                                                                   | 2                                             | 5            | 5      | 7                      | ...                                           |         |
| Hypospadias ...                                                                     | ...                                           | 3            | ...    | 3                      | ...                                           |         |
| Spina Bifida, etc. ...                                                              | 2                                             | 13           | 1      | 15                     | 1                                             |         |
| <i>Carried forward ...</i>                                                          | 4,674                                         | 53,121       | 4,921  | 57,795                 | 4,871                                         |         |

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—Contd.

| DISEASES                                                        | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|-----------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                 |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward</i> ...                                      | 4,674                                         | 53,121       | 4,921  | 57,795                 | 4,871                                         |         |
| XII.—DISEASES OF INFANCY                                        |                                               |              |        |                        |                                               |         |
| 160. Congenital Debility ...                                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 161. Premature Birth ...                                        | ...                                           | 12           | 7      | 12                     | ...                                           |         |
| 162. Other affections of In-<br>fancy ...                       | ...                                           | 23           | 10     | 23                     | ...                                           |         |
| 163. Infant neglect (infants<br>of three months or<br>over) ... | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| XIII.—AFFECTIONS OF OLD<br>AGE                                  |                                               |              |        |                        |                                               |         |
| 164. Senility ...                                               | 38                                            | 282          | 59     | 320                    | 60                                            |         |
| Senile Dementia ...                                             | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| XIV.—AFFECTIONS PRODUCED<br>BY EXTERNAL CAUSES                  |                                               |              |        |                        |                                               |         |
| 165. Suicide by Poisoning ...                                   | ...                                           | 1            | 1      | 1                      | ...                                           |         |
| 166. Corrosive Poisoning<br>(intentional) ...                   | ...                                           | 11           | 7      | 11                     | ...                                           |         |
| 167. Suicide by Gas Poison-<br>ing ...                          | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 168. Suicide by Hanging or<br>Strangulation ...                 | ...                                           | 8            | 8      | 8                      | ...                                           |         |
| 169. Suicide by Drowning ...                                    | ...                                           | 1            | 1      | 1                      | ...                                           |         |
| 170. Suicide by Firearms ...                                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 171. Suicide by cutting or<br>stabbing Instruments ...          | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 172. Suicide by jumping<br>from a height ...                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 173. Suicide by crushing ...                                    | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 174. Other Suicides ...                                         | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 175. Food Poisoning ...                                         | ...                                           | 12           | ...    | 12                     | ...                                           |         |
| Botulism ...                                                    | 1                                             | 1            | ...    | 2                      | ...                                           |         |
| 176. Attacks of poisonous<br>animals- -                         | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Snake bite ...                                                  | ...                                           | 22           | 1      | 22                     | ...                                           |         |
| Insect bite ...                                                 | ...                                           | 20           | ...    | 20                     | ...                                           |         |
| 177. Other accidental poi-<br>sonings ...                       | ...                                           | 37           | 7      | 37                     | ...                                           |         |
| 178. Burns (by Fire) ...                                        | 5                                             | 144          | 7      | 149                    | 7                                             |         |
| 179. Burns (other than by<br>Fire) ...                          | 5                                             | 152          | 8      | 157                    | 5                                             |         |
| 180. Suffocation (accidental)                                   | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 181. Poisoning by Gas (acci-<br>dental) ...                     | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| 182. Drowning (accidental)                                      | ...                                           | 7            | ...    | 7                      | 1                                             |         |
| <i>Carried forward</i> ...                                      | 4,723                                         | 53,856       | 5,037  | 58,579                 | 4,944                                         |         |



RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

| DISEASES                                                           | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|--------------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                    |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward ...</i>                                         | 4,723                                         | 53,856       | 5,037  | 58,579                 | 4,944                                         |         |
| XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.<br>— <i>Continued</i> |                                               |              |        |                        |                                               |         |
| 183. Wounds (by Firearms, war excepted) ...                        | 3                                             | 31           | 5      | 34                     | ...                                           |         |
| 184. Wounds (by cutting or stabbing Instruments) ...               | 17                                            | 1,001        | 12     | 1,018                  | 36                                            |         |
| 185. Wounds (by Fall) ...                                          | 38                                            | 1,252        | 5      | 1,290                  | 43                                            |         |
| 186. Wounds (in Mines or Quarries) ...                             | 1                                             | 15           | ...    | 16                     | ...                                           |         |
| 187. Wounds (by Machinery) ...                                     | 2                                             | 219          | 10     | 221                    | 6                                             |         |
| 188. Wounds (crushing, e.g. railway accidents, &c.) ...            | 30                                            | 1,079        | 49     | 1,109                  | 17                                            |         |
| 189. Injuries inflicted by Animals, Bites, Kicks, &c. ...          | 8                                             | 77           | ...    | 85                     | 1                                             |         |
| 190. Wounds inflicted on Active Service ...                        | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 191. Executions of civilians by belligerents ...                   | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 192. A.—Over fatigue ...                                           | 1                                             | 103          | ...    | 104                    | 2                                             |         |
| B.—Hunger or Thirst ...                                            | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| 193. Exposure to Cold, Frost bite, &c ...                          | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 194. Exposure to Heat—                                             |                                               |              |        |                        |                                               |         |
| Heatstroke ...                                                     | 1                                             | 1            | 1      | 2                      | ...                                           |         |
| Sunstroke ...                                                      | ...                                           | 1            | ...    | 1                      | ...                                           |         |
| 195. Lightning Stroke ...                                          | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 196. Electric Shock ...                                            | ...                                           | 4            | ...    | 4                      | ...                                           |         |
| 197. Murder by Firearms ...                                        | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 198. Murder by cutting or stabbing Instruments ...                 | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 199. Murder by other means ...                                     | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 200. Infanticide (Murder of an infant under one year) ...          | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| 201. A.—Dislocation ...                                            | 3                                             | 51           | ...    | 54                     | 4                                             |         |
| B.—Sprain ...                                                      | 2                                             | 135          | ...    | 138                    | 4                                             |         |
| C.—Fracture ...                                                    | 92                                            | 938          | 35     | 1,030                  | 95                                            |         |
| 202. Other external injuries ...                                   | 23                                            | 1,032        | 46     | 1,055                  | 53                                            |         |
| 203. Deaths by Violence of unknown cause ...                       | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| <i>Carried forward ..</i>                                          | 4,945                                         | 59,796       | 5,200  | 64,741                 | 5,205                                         |         |

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Concluded.*

| DISEASES                                                        | Remaining<br>in Hospital<br>at end of<br>1928 | YEARLY TOTAL |        | Total Cases<br>Treated | Remaining<br>in Hospital<br>at end of<br>1929 | REMARKS |
|-----------------------------------------------------------------|-----------------------------------------------|--------------|--------|------------------------|-----------------------------------------------|---------|
|                                                                 |                                               | Admissions   | Deaths |                        |                                               |         |
| <i>Brought forward ...</i>                                      | 4,945                                         | 59,796       | 5,200  | 64,741                 | 5,205                                         |         |
| XV.—ILL-DEFINED DISEASES                                        |                                               |              |        |                        |                                               |         |
| 204. Sudden Death (cause unknown) ...                           | ...                                           | ...          | ...    | ...                    |                                               |         |
| 205. A.—Diseases not already specified or ill-defined—          | 27                                            | 2,160        | 75     | 2,187                  | 44                                            |         |
| Ascites ...                                                     | 1                                             | 2            | ...    | 3                      | ...                                           |         |
| Edema ...                                                       | ..                                            | ...          | ...    | ...                    | ..                                            |         |
| Asthenia, Marasmus, etc.                                        | 2                                             | 42           | 32     | 44                     | 2                                             |         |
| Shock ...                                                       | ..                                            | 17           | ...    | 17                     | ...                                           |         |
| Pyrexia of uncertain Origin                                     | 12                                            | 2,112        | 17     | 2,124                  | 58                                            |         |
| B.—Malingering ...                                              | 3                                             | 191          | ...    | 194                    | 9                                             |         |
| XVI.—DISEASES, THE TOTAL OF WHICH HAVE NOT CAUSED 10 DEATHS ... |                                               |              |        |                        |                                               |         |
|                                                                 | ...                                           | ...          | ...    | ...                    | ...                                           |         |
| Total ...                                                       | 4,990                                         | 64,320       | 5,324  | 69,310                 | 5,318                                         |         |



Summary of Deaths and Burials (Continued) for the year 1910

Deaths by Cause and Sex and Age Group

Deaths by Cause and Sex and Age Group

Deaths by Cause and Sex and Age Group

Deaths by Cause and Sex and Age Group

Deaths by Cause and Sex and Age Group

Deaths by Cause and Sex and Age Group

Deaths by Cause and Sex and Age Group

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Deaths by Cause and Sex and Age Group

